

URBAN DESIGN AND LANDSCAPE PLAN

Moorebank Precinct East

20 FEBRUARY 2018

SYDNEY INTERMODAL TERMINAL ALLIANCE

Moorebank Precinct East

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REVISIONS

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004	25/05/17	Minor updates		
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006	04/01/2018	Details of the seed mix		
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008	20/02/2018	Reference to AS 4282 corrected in section 6.6		

ACRONYMS AND DEFINITIONS

Term	Explanation
AS	Australian Standard
Council	Liverpool City Council
CAQMP	Construction Air Quality Management Plan
CAR	Corrective Action Request
CCTV	Closed Circuit Television
CEMP	Construction Environmental Management Plan
CFFMP	Construction Flora and Fauna Management Plan
CHMP	Construction Heritage Management Plan
CNVMP	Construction Noise and Vibration Management Plan
CoA	Conditions of Approval
CSWMP	Construction Soil and Water Management Plan
CTAMP	Construction Traffic and Access Management Plan
Cwth	Commonwealth
DPE	Department of Planning and Environment
DNSDC	Defence National Storage and Distribution Centre
EPA	Environment Protection Authority
EPL	Environmental Protection Licence
EP & A Act	<i>Environment Planning and Assessment Act 1979</i>
HV	High Voltage
IMEX	Import-Export Terminal Facility
ISO	International Organisation for Standardisation
MSN	Main Switchboard North
DSN	Distribution Switchboard North
LED	Light Emitting Diode

Term	Explanation
MPE	Moorebank Precinct East
MPW	Moorebank Precinct West
NOW	NSW Office of Water
NSWFR	NSW Fire and Rescue
OEH	Office of Environment and Heritage
OOHW	Out-of-Hour Works
PER	Project Environmental Representative
PMP	Project Management Plan
POEO Act	<i>Protection of Environment Operations Act 1997</i>
Project	MPE Project Stage 1, Package 2
RMS	Road and Maritime Services
SSD	State Significant Development
SIMTA	Sydney Intermodal Terminal Alliance
SSFL	Southern Sydney Freight Line
SWC	Sydney Water
UDLP	Urban Design and Landscape Plan

Key Terms	
Boot land	The area of native vegetation located to the east of Moorebank Avenue, north of the East Hills rail line and south and east of the MPE Site. Owned by the Commonwealth of Australia. Lot 4 DP 1197707.
Moorebank Intermodal Terminal Precinct	The site which is the subject of both the MPE Concept Approval (MP_10_0913) and the MPW Concept Approval (SSD 5066)
MPE Project	The Intermodal terminal facility on the MPE site as approved by the MPE Concept Approval (MP 10_0913) and the EPBC Approval (2011/6229) and including the MPE Stage 1 Proposal (14-6766). N.B. Previously the SIMTA Concept Approval
MPE Site	The site which is the subject of the MPE Concept Approval, and includes the site which is the subject of the MPE Stage 1

	<p>Approval.</p> <p>N.B. Previously the SIMTA site</p>
MPE Stage 1	The whole of the land to which the MPE Stage 1 Project approval SSD 14-6766 relates including both MPE Stage 1 Package 1, and MPE Stage 1 Package 2.
MPE Stage 1, Package 1	The construction of the Rail Link connecting the Southern Sydney Freight Line to the IMEX, traversing across the Boot land, RailCorp Land, Moorebank Avenue, the MPW Golf Course, Georges River, and Glenfield Waste Facility.
MPE Stage 1, Package 2	<p>Construction of the IMEX including the following key components:</p> <p>Truck processing, holding and loading areas - entrance and exit from Moorebank Avenue</p> <p>Rail loading and container storage areas – installation of four rail sidings with adjacent container storage area serviced by manual handling equipment initially and overhead gantry cranes progressively.</p> <p>Administration facility and associated car parking- light vehicle access from Moorebank Avenue.</p>
Native vegetation	Areas of plant community types mapped by Arcadis and WSP Parsons Brinckerhoff in the Moorebank Precinct (including Moorebank Precinct East and Moorebank Precinct West) being a consolidation of all assessments for the Moorebank Precinct conducted since 2011.
RailCorp Land	Lot 1 DP 825352 (part of the Rail Corridor) and owned by RailCorp
Rail Link	The rail link including the area on either side to be impacted by the construction of MPE Stage 1 Package 1
Wattle Grove Offset Area	Occurs within the Boot land. Contains all of the species credits that will deliver the direct offset for EPBC Act threatened flora. An application for a biobanking agreement has been lodged with OEH to establish a biobank site which includes this offset area.

CONTENTS

COMPLIANCE MATRICES	X
1 INTRODUCTION.....	11
1.1 Background and Scope	11
1.2 Project Description	11
1.2.1 Environmental Planning Approval	13
1.3 Purpose and Application	13
2 EXISTING SITE CHARACTER.....	14
2.1 Context and Scale	14
2.2 Topography and Landform.....	14
2.3 Land Use.....	15
2.4 Existing Vegetation.....	15
2.4.1 IMEX	15
2.4.2 Rail Corridor	16
2.5 Proposed Plantings	17
2.6 Access	17
2.7 View Corridors.....	18
3 DEVELOPMENT CONCEPT	19
3.1 Concept Overview	19
3.2 Staging.....	20
4 URBAN DESIGN PRINCIPLES.....	21
4.1 Vision	21
4.2 Landscape	22
4.2.1 Vision	22
4.2.2 Structure.....	22
4.2.3 Materiality	23
5 BUILDING DESIGN	24
5.1 Objectives	24
5.2 Design Principles	24
5.3 Building Materials and Colours	25
5.3.1 Objectives	25
5.3.2 Design Principles	25
6 IMPORT-EXPORT TERMINAL FACILITY	26
6.1 Structures	26
6.1.1 Administration Building.....	26
6.1.2 HV Substation	26
6.1.3 Fire Water Tanks.....	27
6.1.4 Pumphouse	28
6.2 Fencing, Barriers and Gates	29

6.3 Erosion and Sediment Control.....	30
6.3.1 Key Soil and Water Management Tools.....	30
6.3.2 Management Principles.....	30
6.4 Noise	31
6.5 Non-paved surface treatment.....	32
6.5.1 Strategy and Design.....	32
6.6 Lighting.....	32
6.6.1 Lighting Design – Manual Phase.....	32
6.6.2 Lighting Design – Automated Phase	33
7 RAIL LINK PROJECT	34
7.1 STRUCTURES.....	34
7.1.1 Georges River Bridge.....	34
7.1.2 Viaduct	35
7.1.3 Moorebank Ave Overbridge	37
7.1.4 Anzac Creek Culvert	38
7.1.5 Signal Bungalow and Location Cases	39
7.2 Fencing, Gates and Signage	39
7.3 Erosion and Sediment Control.....	40
7.3.1 General Principles.....	40
7.3.2 Erosion and Sediment Control Plan	40
7.4 Noise	41
7.5 Lighting.....	41
THERE ARE NO LIGHTING PROVISIONS FOR THE RAIL CORRIDOR.	41
8 OPEN SPACE AND PUBLIC DOMAIN	42
8.1 Objectives	42
8.2 Design Principles	42

APPENDICES

APPENDIX A

Landscape Plans

APPENDIX B

Site Layout

Administration Building

HV Substation

APPENDIX C

Fencing, Barriers and Gates

APPENDIX D

Erosion and Sediment Control Plan – IMEX

APPENDIX E

Lighting Plan and Lighting Layouts

APPENDIX F

Car Park – Pavement Materials

APPENDIX G

Depot Licence Application Guidelines

COMPLIANCE MATRICES

Table 1 Ministers Conditions of Approval (CoA)

CoA	Requirement	Document Reference
C3	The Application shall prepare and implement an Urban Design and Landscape Plan for the project. The Plan shall present an integrated urban design for the project. The Plan shall include, but not necessarily limited to:	This Plan
a)	Final design details of the proposed external materials and finishes;	Section 5.3, Sections 6.1.1, 6.1.4, 7.1 and 8.0 Appendix B, Appendix F
b)	Location of existing vegetation and proposed landscaping (including use of indigenous and endemic species where possible) and design features;	Section 2.4, Appendix A Sections 4.1 and 4.2.1
c)	Strategies for progressive landscaping of other environmental controls such as erosion and sedimentation controls, drainage and noise mitigation; and	Section 6.3 and 6.4, Section 7.1.2, 7.1.3, 7.1.4, 7.3 and 7.4, Appendix D
d)	Location and design treatments for any associated footpaths and cyclist elements and other features such as seating, lighting (in accordance with AS 4282-1997 Control of the Obtrusive Effective of Outdoor lighting), fencing, and signs;	Section 6.2, 6.6, Section 7.2 Section 8 Appendix C, Appendix E, Appendix F

1 INTRODUCTION

The Sydney Intermodal Terminal Alliance (SIMTA) received approval for the construction and operation of Stage 1 of the Moorebank Precinct East (MPE) Project, comprising an Intermodal (IMT) Facility including a rail link (Package 1) and Import Export (IMEX No.1) Terminal (Package 2) on 12 December 2016 (SSD 6766). This Urban Design and Landscape Plan (UDLP) has been developed to satisfy condition C3 of the Conditions of Approval (CoA) and covers both Package 1 and Package 2 of the MPE Stage 1 Project (hereafter the Project).

This plan has been established to demonstrate SIMTA's approach to urban design for the Project. This UDLP addresses the relevant requirements of the Project Approvals, including the EIS, Submissions Report and Minister's Conditions of Approval (CoA), and all applicable guidelines and standards.

1.1 Background and Scope

The Project site is located approximately 27 kilometres (km) south-west of the Sydney Central Business District (CBD) and approximately 26 km west of Port Botany and includes the former Defence National Storage and Distribution Centre (DNSDC) site.

The MPE Project involves the development of an IMT, including warehouse and distribution facilities, rail link, freight village (ancillary site and operational services), stormwater, landscaping, servicing and associated works on the eastern side of Moorebank Avenue, Moorebank. It is to be developed in three key stages:

- Stage 1 - Construction of the IMEX and rail link
- Stage 2 - Construction of warehouse and Distribution Facilities
- Stage 3 - Extension of the IMEX and completion of Warehouse and Distribution Facilities.

Stage 1 of the MPE Project comprises, and will be constructed across, two packages (Figure 1):

- Package 1: The Rail Link includes a connection to the IMEX, and traverses across Moorebank Avenue, Anzac Creek and Georges River prior to connecting to the Southern Sydney Freight Line (SSFL).
- Package 2: The IMEX includes the following key components:
 - Truck processing, holding and loading areas - entrance and exit from Moorebank Avenue
 - Rail loading and container storage areas – installation of four rail sidings with adjacent container storage area serviced by manual handling equipment initially and overhead gantry cranes progressively
 - Administration facility and associated car parking- light vehicle access from Moorebank Avenue.

1.2 Project Description

The layout of the IMEX generally comprises operational areas, an administration area, rail sidings, utilities and drainage infrastructure, landscaping and signage. The operational areas of the IMEX consist of the primary and secondary container loading / unloading areas and container storage areas, and the truck holding area. Within these areas containers will be stacked up to five high.

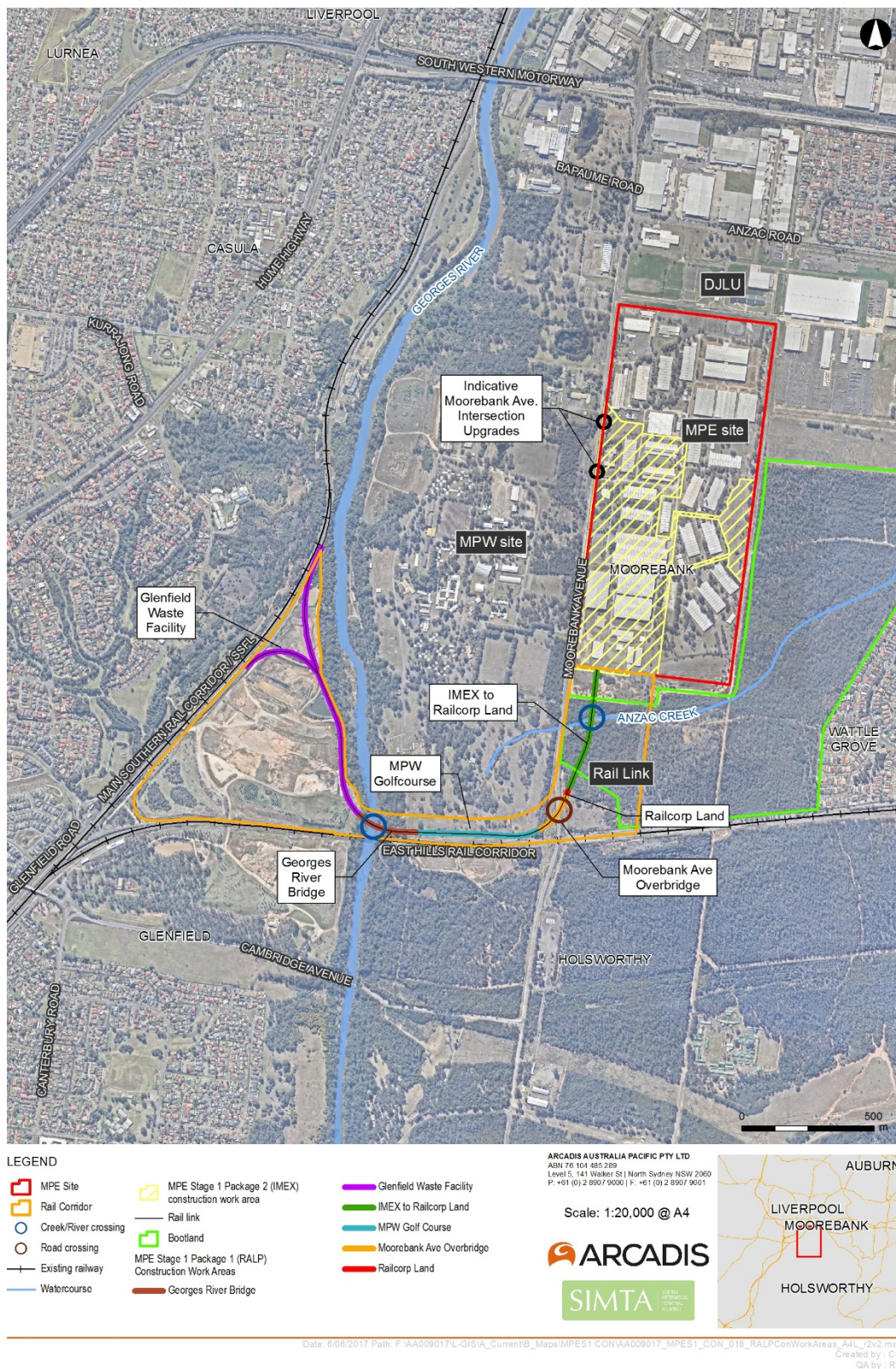


Figure 1 MPE Stage 1 Site

1.2.1 Environmental Planning Approval

The Project has been assessed by the Department of Planning and Environment (DP&E) under Part 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as State Significant Development (SSD). The Planning Assessment Commission (PAC) granted Approval for the MPE Stage 1 Project on 12 December 2016 and is subject to the Minister's Conditions of Approval (CoA, 18 December 2016 (ref SSD-6766)). The MPE Stage 1 Project, its impacts, consultation and mitigation were documented in the following suite of documents:

- State Significant Development Application SSD 6766
- SIMTA Intermodal Terminal Facility – Stage 1 – Environmental Impact Statement (EIS) (Hyder Consulting Pty Ltd, May 2014)
- SIMTA Intermodal Terminal Facility – Stage 1 – Response to Submissions (Hyder Consulting Pty Ltd, September 2015)
- *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) Approval (No. 2011/6229) granted on March 2014.

1.3 Purpose and Application

This plan has been prepared to satisfy Condition No. C3 of the MPE Stage 1 Project to facilitate for the commencement of permanent built works of both the Rail Link and the IMEX Terminal. Condition C3 of the MPE Stage 1 Approval (SSD 14-6766) states the following:

The Applicant shall prepare and implement an Urban Design and Landscape Plan for the project. The Plan shall present an integrated urban design for the project. The Plan shall include, but not necessarily be limited to:

- a. final design details of the proposed external materials and finishes;*
- b. location of existing vegetation and proposed landscaping (including use of indigenous and endemic species where possible) and design features;*
- c. strategies for progressive landscaping of other environmental controls such as erosion and sedimentation controls, drainage and noise mitigation; and*
- d. location and design treatments for any associated footpaths and cyclist elements, and other features such as seating, lighting (in accordance with AS 4282-1997 Control of the Obtrusive Effect of Outdoor Lighting), fencing, and signs;*

The Plan shall be submitted for the approval of the Secretary prior to the commencement of permanent built works and/ or landscaping, unless otherwise agreed by the Secretary.

The core principles guiding the development of the Project are to create:

- a high standard, efficient and sustainable logistics and distribution environment;
- a flexible planning approach to built form and development with efficient traffic and pedestrian movements; and
- a long term focus on expandable scale of built form and operations whilst retaining a strong urban form.

2 EXISTING SITE CHARACTER

2.1 Context and Scale

The Project is located approximately 2.5 kilometres to the south of Liverpool City Centre. The site is also located near a number of significant industrial areas, including Moorebank (Yulong and Amiens) and Warwick Farm to the north, Chipping Norton to the north-east, Prestons to the west and Glenfield and Ingleburn to the south-west. The Holsworthy Military Reserve is located to the south on the opposite side of East Hills Passenger Line.

Nearby residential areas include Wattle Grove, Moorebank, Holsworthy and Casula, which are located to the east and north-east.

The site is within close proximity of the M5 Motorway, which intersects with Moorebank Avenue approximately 600 metres to the north. Moorebank Avenue runs in a north-south direction and provides a direct connection between the Liverpool City Centre, M5 Motorway on/off ramps to the north, and the Glenfield/Macquarie Fields residential areas to the south.

The Moorebank Industrial Area is north of the subject site, with the majority situated to the north of the M5 Motorway between Newbridge Road, the Georges River and Anzac Creek. This industrial area comprises approximately 200ha, and supports a range of industrial uses including freight and logistics, heavy and light manufacturing office and business park developments.

The closest passenger railway stations are Casula and Liverpool. Casula railway station is separated from the Project by the Georges River. Casula railway station is situated on the South and Cumberland railway lines.

Land to the South of the IMEX Terminal site is known as the 'Boot land' through which the Rail Link will traverse. This land is predominantly vegetated as outlined below (section 2.4). The Rail Link also traverses the southern portion of Moorebank Precinct West (MPW) which is currently being developed under development consent SSD 5066 and the Glenfield Waste Disposal facility to the west of Georges River. The Glenfield Waste Disposal facility currently falls within the area of land noted as the Rail Corridor to provide a Rail Link between the Intermodal Terminal and the Southern Sydney Freight Line.

Liverpool railway station is separated from the Project by the M5 Motorway to the north and the Georges River to the west. This interchange station services the South, Cumberland, Bankstown and Inner West railway lines.

The East Hills railway line is to the south of the Project and also forms the boundary to the Rail Link. It crosses the Georges River to the south-west and runs through the Glenfield Waste Disposal site before connecting into the South and Cumberland railway line corridor.

The Georges River runs along the western boundary of MPW. Anzac Creek runs across the northern section of the Rail Link linking to Chipping Norton Lake and the Georges River to the north.

2.2 Topography and Landform

The Project topography can be described as being generally flat with relative levels (RLs) ranging between 14 and 16 m AHD. Along the eastern Project boundary, the land rises from approximately RL 14 m AHD at each end to a localised peak of RL 22 m AHD about midway along the length.

The site has been subjected to substantial development over the years, and considerable changes have been made to the natural landscape. Consequently, the Project is underlain with a mixture of residual soils and filled materials, with undisturbed areas retaining some residual topsoil.

The most prominent natural features in close proximity to the site include Anzac Creek external to the Southern Boundary of the IMEX Terminal and Georges River to the west of the site; the Rail Link traverses both the creek and the river. There is an existing stormwater discharge point on Moorebank Avenue, and another two discharge points on the Eastern site boundary. The riparian setback for Anzac Creek, as specified by the NSW Office of Water (NOW) is 30 metres.

2.3 Land Use

The site was previously occupied by the Department of Defence and is commonly known as the Defence National Storage and Distribution Centre site (DNSDC).

Previous operational activities on the site can be generally described to include warehousing and logistics operations, vehicle and equipment hardstand, as well as some container storage serviced by an internal road network.

Existing improvements comprise approximately 66 low-rise buildings with a total floor area of approximately 238,000sqm, including warehouses and an administrative office.

The residential suburb of Wattle Grove is located to the north-east and east. The Casula residential area is approximately 1km west of the MPE site divided by the SME, the Georges River and the Southern Sydney Freight Line (SSFL).

Approximately 1-1.5km west from the site, the SSFL and passenger rail line run in a north-south direction and are bounded by the Casula residential area. To the south of the site, the existing East Hills railway line runs in an east-west direction. The proposed rail link corridor will be connected and confined within these areas.

The outer area to the east and north of the site comprises the Wattle Grove residential area (primarily low density), extensive commercial and industrial developments and major motorways.

Surrounding natural elements include:

- Georges River which runs along the western boundary of the School of Military Engineering;
- Anzac Creek, which runs along the eastern boundary of the Commonwealth owned land, linking to Chipping
- Norton Lake and Georges River to the north; and
- Existing landscape and vegetation known as the 'Cumberland Plain Woodland' running along approximately one half of the eastern boundary and full length of southern boundary of the site, forming a physical barrier to surrounding areas. This bushland is primarily regenerated vegetation and includes Anzac Creek. The density of the bushland provides significant screening to much of the south and east of the site from surrounding areas.

2.4 Existing Vegetation

2.4.1 IMEX

In its undeveloped state circa 1930, the IMEX No.1 section of the Project site appeared to be vegetated with a mosaic of low vegetation types, possibly including woodland and dense healthy shrubland, with some clearing in the east and numerous tracks intersecting the site and lands to the east and south.

Due to its industrial history, almost all the natural vegetation has been largely cleared from the Project site with the exception of what appears to be an increase in growth of trees and shrubs in the south of the site, particularly along the constructed drainage channels and adjoining areas to the south and west.

The flora and fauna assessment carried out as part of the Concept Plan has identified that the MPE Project site is considered to be of limited conservation significance and ecological impacts within the site are likely to be low.

Based on the results of the field assessment reported in the Biodiversity Assessment Report (Hyder 2015), the vegetation within the IMEX No.1 site consists almost entirely of planted trees with a mown or managed understorey, and does not meet the criteria for any threatened ecological communities.

The planted tree species are typical of cultivated eucalypts that are commonly found as mature street trees in suburban Sydney, with *Eucalyptus microcorys* (Tallowwood), *E. saligna* (Sydney Blue Gum), *Corymbia maculata* (Spotted Gum) and *C. citriodora* (Lemon-scented Gum) frequently recorded.



Photograph 1: Mature trees of *Eucalyptus saligna* and *Corymbia maculata* on the Project site (Hyder 2015)



Photograph 2: Mature trees of *Eucalyptus microcorys* on the Project site (Hyder 2015)

The ground layer in the non-paved areas of the Project site consisted of mown grass lawns, dominated by *Cynodon dactylon* (Couch), *Pennisetum clandestinum* (Kikuyu) and other exotic grass species; there was a native grass component persisting in some locations, with native grasses observed including *Paspalidium distans*, *Austrodanthonia* sp. (Wallaby Grass) and *Eragrostis leptostachya* (Paddock Lovegrass) as well as some small native herbs.

To the south and southeast of the IMEX No.1 site, and north of the Bootland, is a network of drainage channels with some tree plantings and some apparent tree and shrub regeneration. The channels supported a mixture of native, nonlocal native and exotic trees and shrubs including *Eucalyptus saligna*, *E. tereticornis* (Forest Red Gum), *Corymbia maculata*, *Melaleuca quinquenervia* (Broad-leaved Paperbark), *Casuarina glauca* (Swamp Oak) and *Eucalyptus parramattensis* (Parramatta Red Gum).

2.4.2 Rail Corridor

The Rail Corridor contains the proposed Rail link which extends through portions of the former DNSDC south and Southern Boot Land, RailCorp Land, East Hills Rail Corridor, the Moorebank Precinct West (MPW) site, the Glenfield Waste Facility and Main Southern Rail Line.

To the south of the IMEX No. 1 site is a fenced area of bushland bordered by the existing rail spur to the east, and Moorebank Avenue to the west. Anzac Creek runs from west to east in the northern portion of this bushland. The section of Anzac Creek within the study area supports dense stands of *Typha orientalis* (Broad-leaf Cumbungi) and *Bolboschoenus fluviatilis* (Club-rush). This section of the Boot land contains the Wattle Grove Offset Area under the EPBC Act threatened flora.

Fringing Anzac Creek is a narrow band of swamp woodland dominated by *Melaleuca linariifolia* (Flax-leaved Paperbark); the understorey of this forest varied from sedges, especially *Leptocarpus tenax* which dominated in patches, to ferns, grasses and dense shrubs. To the south of the eastern part of Anzac Creek there are occasional emergent trees of *Angophora subvelutina* (Broad-leaved Apple) and *Eucalyptus sclerophylla*. Adjoining the southern bank of the western section of Anzac Creek the vegetation is disturbed and dominated by exotic vegetation, with a large stand of *Phyllostachys aurea* (Golden Bamboo), thickets of *Acacia decurrens* (Black Wattle) and *Pennisetum clandestinum*.

To the south of Anzac Creek is a large tract of relatively intact woodland dominated by *Eucalyptus sclerophylla* and *E. parramattensis* with a subcanopy of *Angophora bakeri* (Narrow-leaved Apple) and *Melaleuca decora* (White Cloud Tree). The understorey varies in structure from relatively open in the mid-layer with dense grass and low shrubs to dense shrubs and a sparse shrub and grass understorey.

The area adjoining the disused rail line in the south-east of the Project site area supports mature trees of *Eucalyptus sclerophylla* (Hard-leaved Scribbly Gum) and numerous shrubs of *Acacia* spp., *Allocasuarina littoralis* (Black She-oak), *Hakea salicifolia* (Willow Hakea) and *Melaleuca nodosa* (Ball Honey-myrtle). The ground layer was characterised by native grasses including *Aristida ramosa* (Wiregrass), *Entolasia stricta* (Wiry Panic), *Paspalidium distans* and *Themeda australis* (Kangaroo Grass) and there were a number of small groundlayer herb and shrub species including *Astroloma humifusum* (Cranberry Heath), *Laxmannia gracilis* (Slender Wire Lily), *Pimelea linifolia* (Slender Rice

Flower) and *Lomandra* spp. Exotic cover was low, with *Eragrostis curvula* (African Lovegrass) dominating in patches.

The land within approximately 100 metres of the eastern bank of the Georges River supports forest vegetation. On the steep slope adjacent to the riverbank was riparian vegetation is severely degraded, currently reduced to mature trees of *Eucalyptus saligna* x *botryoides* (Blue Gum/Bangalay hybrid) and *E. longifolia* (Woollybutt) with an understorey dominated by *Ligustrum sinense* (Small-leaved Privet) and smothered by exotic weeds, mainly *Cardiospermum grandiflorum* (Balloon Vine), *Lantana camara* (Lantana) and *Delairea odorata* (Cape Ivy).

The vegetation is less disturbed upslope and includes a mixed native and exotic understorey with mature trees of *E. saligna* x *botryoides*. On the western bank of the Georges River, adjacent to the Glenfield Waste Facility, the vegetation is similar in structure and condition to that on the eastern bank. The southern part of the riparian forest on the study area supported a canopy dominated by *Eucalyptus saligna* x *botryoides* to 20 metres in height.

The understorey on the river flats near the existing rail bridge consists of a mixture of local native shrub, herb and grass species and some dense stands of *Olea europaea* subsp. *cuspidata* and *Lantana camara*, with *Tradescantia fluminensis* dominating the ground layer in some areas.

In the northern parts of the riparian corridor, the steep slopes support trees of *Eucalyptus saligna* x *botryoides* and *E. baueriana* over a dense shrub layer of *Olea europaea* subsp. *cuspidata*, *Ligustrum lucidum* and *Lantana camara* (Plate 24). The native small tree species *Backhousia myrtifolia* (Grey Myrtle) and *Melaleuca decora* occurred sporadically.

Most of the area of Glenfield Waste Facility is currently an active quarry and landfill site. The natural landform has been excavated and the vegetation consists of weedy exotic herbs and grasses and some native shrubs and small trees, some of which may have been planted as part of revegetation of constructed slopes. The native trees and shrubs *Angophora floribunda*, *Acacia decurrens* and *Acacia binervia* were abundant on the slope adjoining the eastern haul road.

2.5 Proposed Plantings

Large native trees and various understorey planting endemic to the local area have been selected within this area to create a buffer and serve in minimising visual impacts from the surrounding urban landscape. Given that the site is bounded to the south with existing vegetation communities, the landscape design serves to integrate the development with the surrounding environment by using tree, shrub and groundcover species that are local to the area to create habitat opportunities and links to the surrounding context. The proposed tree planting has been designed with the intent of creating a uniform canopy cover throughout the area.

Proposed plant species have been selected for their site-suitability with many species selected from Liverpool City Council's recommended plant list.

2.6 Access

Access to the Project would be to and from Moorebank Avenue. However, no heavy vehicles will be permitted to turn right from Moorebank Avenue into site, or left out of site except if they are travelling to and from Glenfield Waste Facility.

Formal pedestrian facilities are currently provided on the western side of Moorebank Avenue only. The pedestrian pathway extends from the northern boundary of the IMEX No.1 site to Chatham Avenue. Traffic light controlled crossings to the eastern side of Moorebank Avenue are provided at: the intersection of the access road to the Defence Joint Logistics Unit (East); the IMEX No.1 main entrance (opposite the Defence Support Rd); IMEX No.1 secondary entrance; and the intersection at Chatham Avenue.

The development will have a pedestrian crossing and signals at the IMEX No.1 Administration area (car park), the new Moorebank Avenue and Anzac Road intersection (this leads into the new Moorebank Precinct western area development).

Further to these external signals and pedestrian crossing, there will be new pedestrian access pathways on the Eastern and Western boundaries of Moorebank Avenue adjacent to the IMEX No.1 entrance and around the new intersection at Moorebank Avenue and Anzac Road.

2.7 View Corridors

There are a number of existing view corridors looking toward the Project site. The prominence of these views are strongest passing along the direct frontage at Moorebank Avenue, and to some extent from further distances where there is currently minimal visual impairment across cleared or unobstructed land.

Views from further surrounding residential areas generally have minimal or no views due to the significant viewing distance, undulated topography and landform, or shielding by other existing structures and vegetation.

A detailed analysis of the potential visual impacts of the Project proposal is included in the application and provides a further and more extensive analysis of views from around the site.

Measures to reduce the visual impact of the Stage 1 development primarily comprise screen planting in key areas and visual buffers, to produce a high-quality landscape that reinforces and extends the surrounding natural context and ecological qualities. The landscape treatment will visually and physically connect with the existing landscape and vegetation adjacent to the site.

Along the Moorebank Avenue frontage, an 18m wide corridor of screening vegetation and a bio-retention swale will be comprised of native tree species with a dense tree canopy and lower screen planting.

Along the site boundaries, a “Boundary Treatment” and “Buffer Zone” will incorporate a landscape treatment consistent with existing local species in the area and provide an essential scale of planting to complement the developments built-form.

Where landscaping is clear of railway lines, planting will comprise mixed tree planting to create natural feeling through landscape zones and mixed under-storey planting consisting of native shrubs and ground covers to form a virtually impenetrable barrier when mature. This treatment will mitigate views from surrounding areas, and the existing tree planting (where retained) along Moorebank Avenue in conjunction with proposed screening and feature walls, would screen a large proportion of potential views from the north-west.

Overall, the proposed landscape treatments will result in an improvement in the visual amenity of the entire site and would increase the current level of screening of the site.

3 DEVELOPMENT CONCEPT

3.1 Concept Overview

The Project involves the redevelopment of the DNSDC site, with most of the existing structures being demolished or relocated.

The Project development will include an extensive internal road network comprising an Estate road, Internal Road 1 for heavy vehicles, and Internal Road 2 for light vehicles. The proposal assumes the inclusion of the following typical built form and operating elements:

Intermodal Terminal: The intermodal terminal will be located on the western part of the site, adjacent to Moorebank Avenue. The total terminal area is approximately 244,000m² including the following key elements:

Four rail sidings of up to approximately 600 metres in length within the MPE Project site;

Container hardstand to be used for container sorting and storage (up to 5 containers high or 12.5m);

Administration offices and ancillary operational facilities.

The intermodal terminal is anticipated to operate 24 hours a day, 7 days a week. The terminal will seek to use best practice intermodal facility equipment, wherever possible, which could include:

- Automated and remote operated gantry systems to move containers from rail cars;
- Modern container and secondary freight handling equipment;
- An operations and control centre, ancillary facilities and amenities;
- Container washdown facilities (likely to be of steel construction); and
- Diesel and LPG fuel storage tanks (steel construction).

Warehouse and Distribution Facilities: Approximately 300,000sqm of warehouse and distribution facilities with ancillary offices are to be located within MPE Stage 2 as detailed in Section 1.1.

Open Space and Public Domain: High quality public open spaces and public domain areas will be provided in and around prominent internal developments on the site. The only public domain within the MPE site is the Administration Building car park (refer to Section 8).

Rail Link: Fundamental to the operation of the SIMTA Moorebank Intermodal Terminal Facility is a 2.8 kilometre rail line along with its required infrastructure, to connect the Import-Export Terminal and Interstate Terminals to the Southern Sydney Freight Line (SSFL), and capable of accommodating trains up to 1,800m in length.

These primary built form and operating zones will be integrated together in a cohesive manner by addressing the following supporting urban issues:

Accessibility: Well defined roadways and pathways for vehicles, pedestrians and cyclists will be designed for safe and comfortable movement, whilst providing clear and legible internal connectivity.

Streetscape: Defined streetscape and urban elements will provide visual character, theming and a sense of place throughout the development.

Landscaping: The landscape design will create a strong uniform identity throughout the development through the reinforcement and extension of the surrounding natural context and ecological qualities. It will create clear entry markers, enhance vistas, and reinforce the hierarchy of roads within the site.

Signage and Lighting: Signage and lighting will be utilised throughout the development to enhance the quality and experience of the occupants and users, particularly with regard to open space, public domain and general amenity. Signage will complement the design style and streetscape to create a unique identity and sense of place.

Safety and Security: Measures will be implemented to ensure a high level of safety and security at all times, to the development, its occupants, and the community populating surrounding lands.

3.2 Staging

An indicative staging program for the Project is described in detail in the Construction Environmental Management Plan (section 2.1 Construction Works Periods). However, the MPE Stage 1 works can be summarised as follows:

Stage 1: works will comprise the construction of a rail link between the Project site and the Southern Sydney Freight Line. In addition, hardstand will be established for container storage, as well as construction of a freight loading and circulation area.

In addition to the rail infrastructure, the Stage 1 may include construction of some warehousing, however the volume of the warehousing facilities delivered at Stage 1 will be dependent upon market demand. It is possible that some warehousing identified as Stage 2 warehousing may be brought forward to meet demand.

Stage 1 works will also include construction of ancillary support services including:

- On-site utility services including an on-site substation, and telecommunications;
- Landscaping along Moorebank Avenue for the full length of the SIMTA frontage;
- Stormwater management systems.

4 URBAN DESIGN PRINCIPLES

4.1 Vision

The proposed SIMTA Intermodal Terminal Facility development will not only provide vital infrastructure and employment growth, it will be a premier business logistics centre, providing the Moorebank business area with a unique identity through urban renewal.

The revitalisation process will see the proposal become an integrated component within the existing landscape and becoming a significant feature in terms of local and community identity and connectivity to the greater Sydney and Liverpool areas.

The design for the site will aim to improve the existing landscape and be sensitive to existing environmental qualities. The urban design principles conveyed in this section are proposed to ensure that the unique aspects of the site and surrounding areas are reflected in the development design solution.

The character of the built form elements has evolved as a response to the site realities. Opportunities to include the sites history and engage with its impressive scale will create an urban language well suited to the ethos of efficiency and scale of the logistics and warehousing environment.

The urban design principles have been formed around a set of core values which can be summarised as:

Responsive: The design will be both responsive and sympathetic to the form, colours and textures of the natural and cultural character of the existing landscape. The MPE Project development will integrate with and improve the existing site character to form a high performance and quality development.

Community: The development will include a provision for suitable and sufficient amenity which may be accessible by both the occupants and the public. This improved local amenity will incorporate landscaping, open and public spaces, water sensitive urban design and environmental features, creating a 'sense of place' and conveying a feeling of community.

Considerate: Landscape and urban treatments will be considerate of the need to provide visual and acoustic shielding in the form of vegetation, landform and structures. A positive visual, environmental and management relationship with adjoining lands will be reinforced.

Connectivity: A suite of design instruments will connect the various MPE site precincts, including well defined landscaping, entry statements, newly constructed landforms and streetscape elements, signage, street furniture and other built elements.

Identity: The urban design and landscape form will express the character of the development and communicate a strong and unique identity that complements the surrounding land uses.

Adaptability: A high quality urban design standard will be adopted which is both adaptable and flexible in each key component, including the Intermodal Terminal, Warehouse and Distribution Facilities and the Freight Village to ensure longevity, maintained value and ability to suit the needs of future generations, for its stakeholders, occupants and the community.

Sustainability: Ecologically sustainable development principles will be incorporated into all facets of the proposal where practical and possible. Water sensitive urban design will be integrated into the built and landscaped elements of the development, and on-site collection and re-use of stormwater and recycled water will be considered.

Movement: The urban design will support an internal vehicular and pedestrian traffic network that will be both safe and efficient, and may incorporate an integrated public or on-site transport system as well as pedestrian and cycle connections throughout the development and to surrounding areas.

4.2 Landscape

The Landscape focus of Stage 1 centres along the Moorebank Avenue frontage which forms a major connection to the Moorebank Precinct Proposal. This frontage incorporates a vegetated bio-retention channel which follows the length of the Moorebank Avenue frontage (Appendix A). Large native trees and various understorey planting endemic to the local area have been selected within this area to create a buffer and serve in minimising visual impacts from the surrounding urban landscape.

Given that the site is bounded to the south with existing vegetation communities, the landscape design serves to integrate the development with the surrounding environment by using tree, shrub and groundcover species that are local to the area to create habitat opportunities and links to the surrounding context. The proposed tree planting has been designed with the intent of creating a uniform canopy cover throughout the area.

Proposed plant species have been selected for their site-suitability with many species selected from Liverpool City Council's recommended plant list.

The Landscape Plans for IMEX have been provided by Ground Ink (Appendix A). Hydroseeding is nominated for all betterers within the Rail Link to maintain a low fuel load in accordance with final compilation of mitigation measures condition 8H. The hydroseeding mix is nominated in Appendix A.

4.2.1 Vision

The development seeks to recognise the natural attributes of the locality and looks to integrate and imitate these qualities into a strong design theme that is reinforced in every aspect of the developments open space areas, by way of:

- Strong use of endemic species;
- Consistent site wide tree canopy;
- Native understorey plantings;
- Low maintenance approach to the public domain;
- Local material context to landscape surface treatment and finishes; and
- Underlying natural landscape character throughout the development.

Reinforcement and extension of the surrounding natural context and ecological qualities will ensure the creation of a high quality landscape that will add environmental and aesthetic value and provide an inherent identity to the development.

The development endeavours to visually and physically connect with the existing landscape and natural vegetation adjacent to the site, through complimentary use of key tree species and understorey screen plantings.

The development will draw upon the sites local assets and will:

- Aim to create a distinctive and attractive natural environment;
- Introduce a strong native planting theme appropriate to the local setting and existing vegetation;
- Provide road verges for street tree plantings;
- Provide an informal streetscape character by randomly planted groups of selected native tree species;
- Consist of high quality robust landscape materials that complement the setting;
- Utilise selected native plant material to accentuate and articulate selected spaces, entries and focal points;
- Provide a strong and consistent texture and colour of materials and planting;
- Preserve the natural and 'random' character of the existing landscape setting;
- Encourage opportunity for engagement by the site users with the natural environment; and
- Provide an aesthetically pleasing and safe environment for workers and visitors alike.

4.2.2 Structure

Each component of the landscape design has been carefully considered to help achieve the overall vision for the development. The landscape planting will subtly vary to respond to each spatial zone

across the site, while maintaining an overall consistent theme complementing the endemic natural bushland adjacent to the site.

Planting will strengthen and distinguish spaces and provide links between the proposed key vegetation zones, being:

- Entry points and community amenity space;
- Boundary treatment and buffer zones;
- Vehicular carpark; and
- Bioretention channels.

Furthermore, the landscape design proposes to build on key principles identified within the Liverpool DCP Part 1.1 and Part 2.4, by:

- Retaining and enhancing the variety of natural characteristics where possible;
- Protection and enhancement of the environmental integrity of the area;
- Ensuring high standard of landscaped areas;
- Ensuring clear sight lines and passive surveillance is maximised;
- Ensuring that the development encourages people to use and interact in streets, car park areas and open spaces without fear or risk;
- Protection of existing natural regeneration on adjoining sites;
- Planting species that are consistent with the landscape themes proposed herein;
- Planting species that are consistent with Liverpool DCP Part 1.2, Appendix 2, for preferred plant species;
- Plant selection that is consistent with the woodland community present on the site; and
- Ensuring appropriate application of site wide Water Sensitive Urban Design Principles.

4.2.3 Materiality

All proposed landscape materials used to pathways, boardwalks, channels, planting zones and pedestrian amenity spaces will be selected to enhance the endemic plant community and create a strong language that will permeate the entire development. Materials will compliment the built form and will provide a robust, rustic feel in the form of warm tones and natural textures.

Materials traditionally associated with a bushland landscape such as that proposed for this development may include aged metals, gravels, natural stone and timber. They will age gracefully and require a minimum of maintenance. These materials will be used to create a variety of elements including shade structures, signage componentry, paving and edging.

5 BUILDING DESIGN

The built form, open space and landscape elements aim to promote visually pleasing and diverse private and public domain environments.

Both the urban and building design principles proposed in this document generally in accordance with the requirements and objectives stated in sections 1.2 and 1.4 of the Liverpool Development Control Plan (DCP) 2008.

It is intended that the built form shall be varied and interesting to provide an attractive and articulated streetscape. The overarching building design objectives and principles can be summarised as:

5.1 Objectives

To create attractive and innovative building designs that reflect and integrate both the world class standard of the overall development, and the natural and aesthetic opportunities of the existing site character and surrounds.

Provide quality and consistency in the treatment of facades, external finishes and the like;

- Ensure sufficient visual relief is achieved in facade design and elemental articulation where there is significant visual exposure from adjoining sites and the public domain;
- Ensure that the design of the built form establishes a strong relationship between the land use, open space and amenity;
- Promote energy efficiency through building siting, orientation and envelope; and
- Promote a high quality built environment through design that encourages activity on street front elevations, and is supported by landscaping, building and street lighting.

5.2 Design Principles

- The Intermodal development will promote best practice with regard to intermodal design, operations and stewardship, including integrated logistics services, green terminal technology and innovative information technology systems;
- The Intermodal development is to provide a high quality landscape corridor fronting Moorebank Avenue. The quality and finish of any building within the terminal is to be of a high quality also;
- Future proposed warehouse and distribution facility developments are to be accompanied by a site analysis adequately demonstrating site opportunities and constraints with respect to conformity with proposed objectives and any design controls implemented, as well as integration with the site character and surrounds;
- Building form and scale should ideally be addressed at the primary street frontage of any allotment and should provide clear and well lit pedestrian and vehicular access and egress;
- Building facade design should integrate with the streetscape to provide an attractive and fluent connection throughout the development;
- Car parking areas and loading areas should be, where possible located separately and promote functionality, efficiency and safety of any development;
- Buildings should provide effective sun shading to windows, wall surfaces and building entries through the use of design elements such as overhang eaves and awnings; and
- Building forms are to be articulated using roofs and eaves, articulation to long walls and promoting an attractive public interface.

5.3 Building Materials and Colours

The selection of building materials and colours for any development on the site will be appropriate for intended use according to the land use structure. The objectives and design principles for building materials and colours for Stage 1 development can be summarised as follows:

5.3.1 Objectives

- To establish a system for building quality and uniformity along major internal roads and public interfaces;
- To promote a whole of development consideration to visual attractiveness, quality, environment and safety;
- To encourage the use of various building materials that create visual appeal and interest through well considered facade articulation; and
- To establish a colour palette that is suitable for purpose and integrates with the existing site character and natural environment, whilst satisfying the goals of safety and security through way-finding and building hierarchy according to land use.

5.3.2 Design Principles

- Prominent building facades fronting public interface areas and main internal roads consist of a variety of building materials and colours.
- Colour selections follow a development colour palette, unless tenant corporate colours can be used to highlight entries or building focal points without detracting from the stated objectives;
- Building materials generally reflect the robustness of industrial and business park developments;
- High quality materials should be used at building entry or focal points; and
- Materials that are recycled or considered of high environmental sustainability standard are encouraged to be used where practical and possible.

6 IMPORT-EXPORT TERMINAL FACILITY

6.1 Structures

6.1.1 Administration Building

The administration building has been designed to the following:

- a) in accordance with the Building Code and relevant Australian Standards;
- b) to be suitable to support a peak demand of 30 office staff and 10 field staff per shift; and
- c) with a building management system, capable of controlling and regulating air-conditioning and electrical utilities. Fit out of the administration building must be to the Principal's satisfaction and approval.

All IMEX No.1 Terminal operations will be controlled from the administration building control room and all utilities will be monitored via the administration building.

A model of the administration building is presented in Figure 2.

The materials and external finishes are listed in Appendix B.



Figure 2 Administration Building

6.1.2 HV Substation

A new 11kV high voltage power supply will be provided to the site to service IMEX No.1 and the future site expansion (MPE Stage 2). From the Endeavour Energy Substation outside the IMEX No.1 site boundary, one 11kV feed will connect to a northern HV switchroom constructed and energised initially for manual stage operations. During this manual phase the HV switchroom will contain two HV switchboards, Main Switchboard North (MSN) and Distribution Switchboard North (DSN).

For the future automated stage, a second southern HV switchroom will be constructed and energised via the second 11kV feed from the Endeavour Energy second switching station. The southern HV switchroom will contain three HV switchboards, Main Switchboard South Distribution Switchboard South and Crane Supply Switchboard South. The configuration of these switchboards will be similar to the North switchroom switchboards.

Conduit reticulation will be installed around the site, both for HV and LV power. The conduits will be capped initially at the manual phase boundary, then extended during a future contract scope for automated works to power infrastructure within the automated phase boundary. HV Conduits will also be installed and capped at the boundary to cater for supply to the future Eastern Precinct warehouses.

The proposed service will be provided as follows:

- New 11kV power feeds connect to the Anzac Zone substation in Anzac Road, where three existing panels will be made available.
- From there, three cables will follow the southern verge of Anzac Road and cross Moorebank Ave. A feed will be provided to the future Moorebank Precinct West expansion (MPW).
- The cables will continue to run within the western verge of the proposed widened Moorebank Ave to the existing stormwater culvert.
- Then, the cables will cross the road and connect to two (2) new Endeavour Energy substation. From there power will be reticulated to the northern HV substation..

The HV Switchroom design is presented in Appendix B.

6.1.3 Fire Water Tanks

The fire water supplies for the site include provision for Fire Water Storage tanks to service the IMEX site. The fire hydrant system has been designed to provide coverage for the IMEX No.1 site in compliance with the Fire Engineering Report and NSWFR operational specifications.

The fire hydrant system design has adopted the following design criteria:

- a. Fire hydrant system has been designed to provide coverage for the IMEX No.1 site in compliance with Fire Engineering Report and NSWFR operational specifications.
- b. Fire hydrant pumps have been designed to provide required pressures and flows for the IMEX No1. site in compliance with the AS 2419.1 and AS 2941 requirements and in accordance with Fire Engineering Report and NSWFR operational specifications. They will also provide nominated flows and pressure at the MPE Stage 2 site boundary.
- c. Above ground water storage tanks to provide water supply compliant with AS2419.1 requirements and in accordance with Fire Engineering Report and NSWFR operational specifications (2 x 415kl tanks for both Stage 1 and Stage 2 fire hydrants).
- d. Two (2) fire hydrant diesel pumps and one (1) jockey pump
- e. Pumps comply with AS 2941 requirements for automated starting
- f. IMEX No.1 site fire hydrant system flow – 40L/s for stage 1 and 50L/s for stage 2 fire hydrants
- g. IMEX No.1 site minimum residual pressure at the most disadvantaged fire hydrant – 700kPa
- h. Trenching methods shall follow AS3500; embedment of pipe shall be Controlled Low Strength Material (CLSM) or concrete encased when subject to utility crossings or reduced cover.
- i. In ground fire hydrant main ring is PE100 PN16 SDR11 DN280 pipe and fittings with electrofusion joints and poly-wrap sleeve.
- j. In ground fire hydrant branches to hydrant shall be PE100 PN16 SDR11 DN180 pipe and fittings with electrofusion joints and poly-wrap sleeve
- k. Above ground fire hydrant main ring service shall be DN100 roll grooved hot dipped galvanised steel medium pipes, fittings and couplings.
- l. In ground sprinkler service, main pipe shall be PE100 PN16 SDR11 DN315 pipe and fittings with electrofusion joints and poly-wrap sleeve.

A model of the Fire Water Tanks is presented in Figure 3.

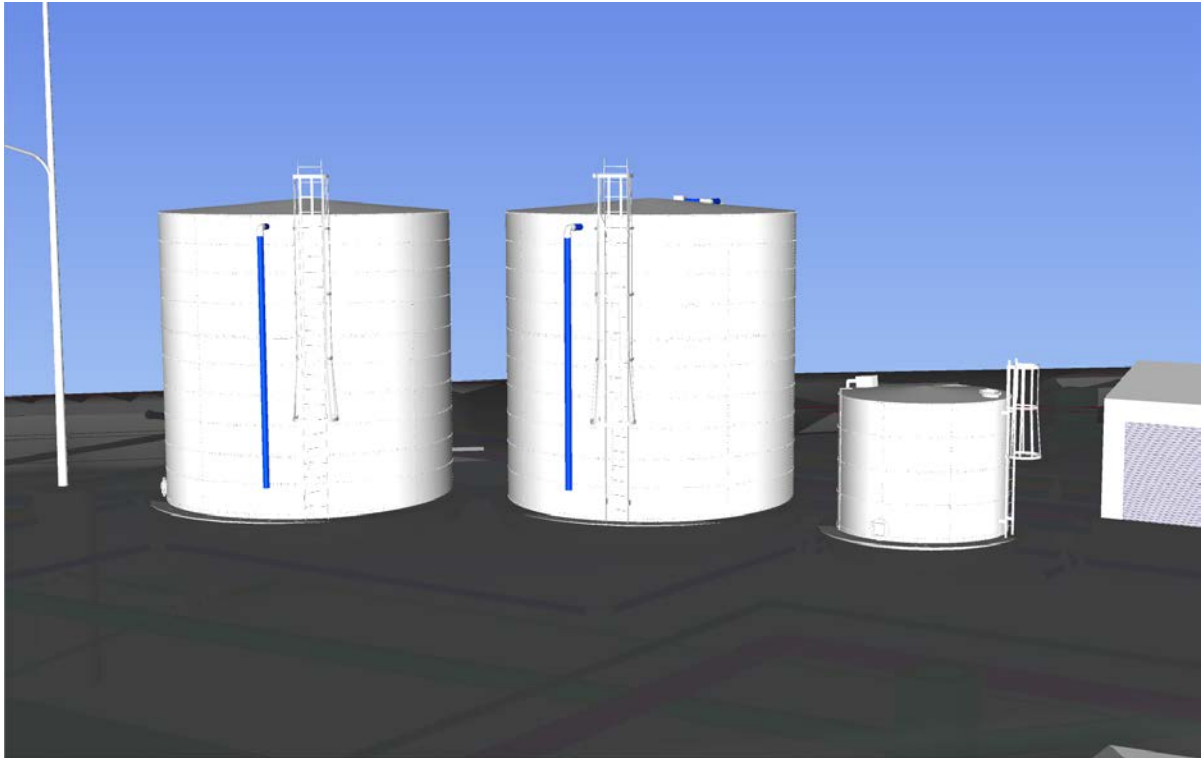


Figure 3 Fire Water Tank Model

6.1.4 Pumphouse

Potable water for the site will be sourced from the DN200 CICL Sydney Water Corporation (SWC) water main in Moorebank Ave, via a proposed new DN200 connection that will supply potable, hydrant and sprinkler water to both the IMEX No.1 site and the future SIMTA precinct expansion (MPE Stage 2).

The potable water service on the IMEX No.1 site will extend from the connection point on Moorebank Ave through an Authority water meter assembly and via an underground poly welded pipe to an IMEX pressure pump set located in the pump house. From there the line is routed to the Administration Building fixtures, plus a further extension to the south of the Administration Building for future maintenance use. It is assumed that no other IMEX No1. terminal facilities require supply of potable water.

The allocations for the future precinct (MPE Stage 2) will include space allowances for both a 50kL tank and pressure pump set in the Pumphouse.

The potable water service will enter the site and feed into the Pumphouse and the IMEX pressure pump set. From the Pumphouse, the potable water service will reticulate around the northern end of the carpark to the Administration Building.

Note: The pumphouse will be constructed using the same cladding as the Administration Building. The external finish materials are provided in Appendix B.

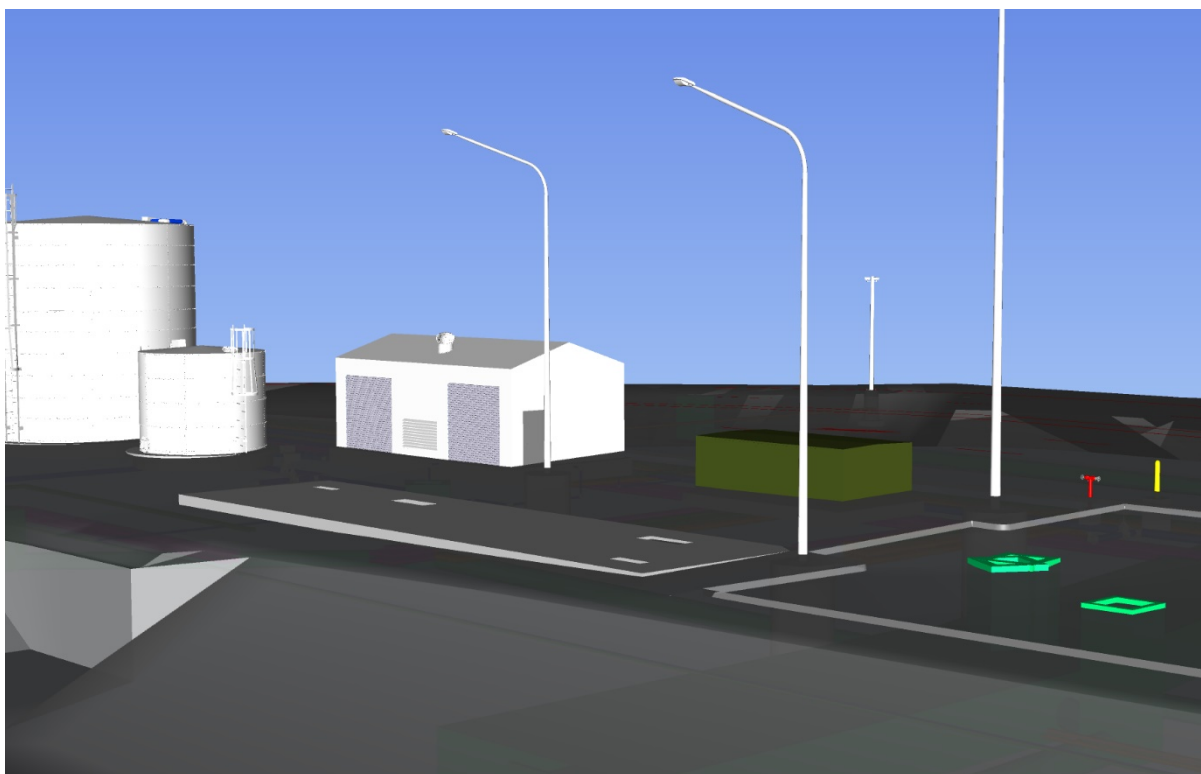


Figure 4 Pumphouse Model

6.2 Fencing, Barriers and Gates

Fencing shall generally be in accordance with AS1725.1 (2010). Four types of fencing will be designed which meet these objectives (Appendix C):

- 3m high security fence inclusive of 5 strands of barbed wire, with own footings. This security fence will be located around the bonded areas;
- 2.1m high fence with own footings or base plate adaptors for selected paved areas. For Concrete block pavements, the fence posts will be carried on separate footings. This fence will be located around culverts, service installations and other internal or interim site boundaries to separate specific use areas;

All fencing types shall comprise:

- Chain wire mesh, which is hot dip galvanised;
- Wire pitch shall be 50mm;
- Wire thickness shall be 3.15mm; and
- Support posts, top and bottom rails, and bracing cable/poles will be installed as per relevant standards.

The fence lines shall contain gates, whose details are summarised in schedules contained on the Developed Design drawings. Where gates are non-standard or specialist, a general performance requirement has been stipulated on plans. This will assist the contractor in obtaining quotations and installing compliant gates. This requirement is particular to the site entry gate, rail gate as well as other automated gates. All standard gates will comply with AS1725.1 (2010).

Perimeter fencing will be constructed according to the Depot Licence Application Guidelines (refer to Appendix G):

- Base to be secured where practicable and topped with fixed security wire
- No overhanging trees which could facilitate a breach of the perimeter

- Fences to be maintained in good condition

Fencing layouts and details are provided on the Developed Design drawings.

Barriers are used on-site for multifunctional purposes including providing a fence/security outcome, separating use areas and mitigating potential incidents.

The following barriers are used on-site:

- RMS standard F-Type barrier (including embankment);
- RMS standard W-Beam barrier (including median);
- RMS standard Thriebeam Barrier; and
- RMS standard Temporary F-Type barrier (modified with drainage slots).

6.3 Erosion and Sediment Control

The erosion and sediment management measures prescribed for the Project construction are based on the mitigation measures presented in the EIS, Commonwealth conditions of approval of the EIS and the Minister's Conditions of Approval (CoA), as well as applicable industry guidelines. Further erosion and sediment control details are outlined in the Construction Soil and Water Management Plan (CSWMP).

Progressive stabilisation and rehabilitation of the site will be implemented at various stages of construction to promote erosion and sediment control.

For demolition works, at the completion of each priority area, the ground surface will be stabilised immediately following completion of works. The stabilisation and sediment control measures include:

- Levelling of the site with a grader to control and limit water ponding
- Install earth bunds and sediment fences
- Seal the trimmed ground surface with a smooth drum roller
- Apply polymer to ground surface.

Temporary erosion and sediment controls installed for the construction phase will be removed as works progress. Permanent erosion and sediment controls will be installed and landscaped as construction is completed by area.

6.3.1 Key Soil and Water Management Tools

The hierarchy of management documentation used for the implementation of the mitigation measures on each site are as follows:

1. Construction Soil and Water Management Plan – key guidance document from which the practical site-based management tools are developed
2. Environmental Controls Map (ECM) – plan/map based tool specific to site/work area and includes the location of existing waterways, environmental protection measures, monitoring requirements, environmentally/community sensitive areas, etc.
3. Erosion and Sedimentation Control Plans (ESCPs) – A site-specific ESCP developed to ensure conformance with the Blue Book and POEO Act requirements. Consisting of the initial Primary ESCP prior to construction followed by Progressive ESCPs (PESCPs) to reflect changing nature of the site as works progress. The ESCPs would include the location of existing drainage infrastructure in proximity to the works and associated controls to be installed.

6.3.2 Management Principles

The following points have been identified as the key techniques to control water quality on the project. These points collectively fulfil the principles of sound soil conservation practice. In selecting

appropriate control structures care must be taken so that their use does not exceed design limitations. Where exceedance of design limitations cannot be avoided detailed design of the structure will be required.

The guiding principles for erosion and sediment control within the Blue Book were adopted for the UDLF and when planning construction works as follows:

- Priority should be given to management practices that minimise erosion, rather than to those that capture sediment downslope or at the catchment outlet
- Minimise the area of soil disturbed and exposed to erosion at any one time
- Divert clean water around the construction site or control the flow of clean water at non-erodible velocities through the construction site
- Provision of boundary treatments around the perimeter of construction areas to minimise the migration of sediment offsite
- Permanent or temporary drainage works will be installed as early as practical in the construction program to minimise uncontrolled drainage and associated erosion, including the onsite detention (OSD) and flood conveyance works
- Stockpiles will be located away from flow paths on appropriate impermeable surfaces, to minimise potential sediment transportation. Where practicable, stockpiles will be stabilised if in place for more than ten days and will be formed with sediment filters in place immediately downslope.
- Existing catchments and sub-catchment boundaries will be maintained as far as practicable
- Site imperviousness and grades should be limited to the extent of existing imperviousness and grades under existing development conditions
- Rehabilitate disturbed lands as soon as practicable
- The wheels of all vehicles will be cleaned prior to exiting the construction site where excavation occurs to prevent the tracking of mud. Where this is not practical, or excessive soil transfer occurs onto paved areas, street cleaning will be undertaken when necessary
- Inspection of all permanent and temporary erosion and sedimentation control works prior to and post rainfall events and prior to closure of the construction site
- Erosion and sediment control structures to be cleaned repaired and augmented as required.

The key measures associated with sediment and erosion control will include:

- Any additional construction areas, such as site offices and stockpile locations will be located, where possible, within existing cleared or disturbed areas.

Check the operation of all project-related sediment and erosion controls at least once per day during operational hours, to help identify potential water pollution risks. The preliminary Erosion and Sediment Control Plan has been developed and presented in Appendix D.

All temporary erosion and sediment controls will be removed and the areas rehabilitated as per the revegetation and landscaping details.

6.4 Noise

As per the SIMTA Intermodal Terminal Facility- Stage 1 Environmental Impact Statement no noise mitigation measures that require landscaping will be constructed on the IMEX No.1 site.

6.5 Non-paved surface treatment

6.5.1 Strategy and Design

Non-paved surface treatment will be provided at the following locations for the manual operation phase:

- Along the western boundary, within either side of the OSD channel and setback areas from the channel to internal pavements, facilities areas and the administration building;
- Within either side of the temporary eastern drainage channel; and
- Within the batter and tie-in areas along the southern boundary.

The majority of these areas are stormwater conveyance channels, therefore will be treated with various geomatting to provide initial and longer term erosion control. A hydro-seed grass mix will be applied to these areas to promote medium-long term establishment of vegetation for erosion protection. Areas not designated for stormwater conveyance will be treated with a hydro-seed grass mix as minimum to assist in stabilisation of the area.

The automated phase will require the western OSD channel to be filled including the removal of surface treatment within the area.

6.6 Lighting

The lighting design for the Moorebank IMEX No.1 terminal takes into account the eventual transition from Manual Phase to Automatic Phase that forms part of the operational strategy of the site. As such, the lighting design covers both of the following phases:

- Manual Operation Phase;
- Automatic Operation Phase.

The Basis of Design – Lighting Plan and drawings for the IMEX No.1 site are provided in Appendix E. AS 4282- 1997 *Control of the obtrusive effects of outdoor lighting* was referenced in the lighting design in order to minimise the impacts of lighting spill onto local residents. The Basis of design report, section 16 and Section 19 (especially section 19.1.4) defines how the standard was addressed and included in the current design for the IMEX No. 1 site. The obtrusive lighting compliance reports against AS 4282 are also provided in Appendix E (Basis of Design report Appendix F), which confirm compliance with the standard in all instances.

6.6.1 Lighting Design – Manual Phase

6.6.1.1 Overall Terminal Site

The lighting design features 18m high mast poles, mounted with high powered LED floodlights, as the main source to illuminate most of the site area.

Within the rail cargo area, 18m high mast poles have been positioned at less than 50m spacings along the rail corridor, between the second and third track. Each pole is mounted with four high power LED floodlights, angled 90° apart, with a tilt of 8° to allow wider illumination.

18m poles have been chosen, taking into consideration the transition phase from Manual to Automatic Operation. Keeping all the high mast poles at no more than 18m height, the light poles situated within the rail corridor can continue to operate even during the installation of the new crane for automatic phase.

For the remainder of the site, 18m high mast poles with one or two high power LED floodlights are used to cover the majority of the drive-in area.

A combination of 12m and 9m poles is used to provide the additional required lighting in the more restricted areas.

The perimeter fencing is illuminated mainly by the 12m height pole. These fences are illuminated at a level which allow the perimeter CCTVs to operate effectively.

6.6.1.2 Local Driveway / Carpark

The local driveways and the carpark are illuminated by a combination of the 18m high mast poles and the 12m light poles. The 12m light poles have been used to illuminate the areas which are difficult to reach from the 18m high mast poles.

6.6.1.3 Pedestrian Crossing

A number of 9m poles have been allocated near the pedestrian crossing given its higher point vertical illuminance light level requirement as required by AS1158.

6.6.2 Lighting Design – Automated Phase

6.6.2.1 Automated Rail Cargo Area

Given the site will be transitioned into full automation with no manual labours, SIMTA advised there is little requirement for lighting in the container handling area. Some illumination is anticipated from the automated crane that is to be installed for the automatic phase.

The 18m high mast poles along the rail corridor shall be decommissioned as part of the transition from manual to automated phase.

The 12m light poles provided for the perimeter/security fencing lighting will remain and serve the same purpose as the manual operation phase. Both the eastern and western fence lines will be shifted outward as part of the transition from manual to automatic phase, generating more space within the rail cargo area. As such, the perimeter poles will correspondingly shift with the new fence lines to keep the illuminance the same as manual operation phase.

Additional lighting will be provided around the container transition area, where containers are moved by autonomous carriers onto road transport. This area will have additional lighting for this transition and driver safety.

6.6.2.2 Local Driveway / Carpark

The local driveway and the carpark will be kept the same as for manual phase.

6.6.2.3 Pedestrian Crossing

The pedestrian crossing will be removed for the automated phase, but the lighting provided in manual phase will remain applicable for the automated phase. As such the 9m poles provided for the pedestrian crossing shall be maintained.

7 RAIL LINK

7.1 Structures

7.1.1 Georges River Bridge

Georges River Bridge facilitates the new rail alignment to connect the Southern Sydney Freight Line (SSFL) to the SIMTA Site by spanning across Georges River and Tarakan Road. This new structure comprises a six span structure with an overall length of approximately 178 m, along the deck control line. Span 1 is 23.4 m in length, and the five remaining spans are 31 m long along the deck control line.

The bridge has a varying horizontal alignment with the skew angle increasing for each span, reaching a maximum angle of 29 degrees skew to the bridge control line at the Western abutment. The piers and abutments are all parallel, but due to the varying horizontal alignment, the girders in each span have a different end skew. The total width of the rail bridge, perpendicular to the rail, is 10.575 m minimum, and 10.595 m maximum, and accommodates two rail tracks.

There is an existing bridge located immediately upstream of the proposed bridge. The existing bridge soffit level is approximately 13.07 m AHD. The proposed bridge will have a soffit level of 14.1 m AHD to assist with the afflux requirements.

A preliminary artist's impression of the bridge also showing the existing bridge, is shown in Figure 5.



Figure 5 Artists Impression of Georges River Bridge

7.1.1.1 Material Properties

Concrete

Table 3 Concrete Properties

Design Parameter	Value
Cast in-situ Piles	40 MPa
Super-T girders	50 MPa
Substructure elements	40 MPa
Approach Slabs	40 MPa
Deck Slabs	40 MPa
Mass Concrete	20 MPa

Reinforcement

The specific yield strength of the reinforcement shall be as follows:

Table 4 Reinforcement Properties

Design Parameter	Value
Cast in-situ Piles	40 MPa
Super-T girders	50 MPa
Substructure elements	40 MPa
Approach Slabs	40 MPa
Deck Slabs	40 MPa
Mass Concrete	20 MPa

7.1.2 Viaduct

The Viaduct is a multi-span structure which supports the new railway alignment connecting the SSFL to the SIMTA Site between the GWS tip and Georges River.

The Viaduct comprises ten simply supported span structure with an overall length of approximately 135 m. Spans 1 to 5 and 7 to 9 are 15 m in length, span 10 is 14.8 m in length and span 6 with variable span lengths across the width of the viaduct. The viaduct elevation is shown in Figure 6.

A brief description of the viaduct structure is given below in Table 5.

Table 5 Key Bridge Design Features

Element	Information
Superstructure	The superstructure comprises fourteen 950 mm deep by 710 mm wide prestressed rectangular voided planks, placed side by side and tied together using transverse stainless steel bars in each span.
Substructure	<p>The viaduct is supported on two abutments and nine piers.</p> <p>The northern abutment will be surrounded by a reinforced soil retaining wall on the eastern side and a reinforced fill embankment slope on the western side. The southern abutment will be a spill-through with an embankment slope profile of 1.75H:1V. The reinforced concrete abutment sill beams will be on three 1200 mm and 1050 mm bored cast in place concrete piles at the southern and northern abutment respectively.</p> <p>Each pier comprises a reinforced concrete headstock supported on three circular reinforced concrete bored piles in either 1050 mm or 1200 mm diameter to bring the piles to headstock level. Column extensions are required.</p>
Foundations	<p>Abutment: Reinforced concrete piles are socketed in medium to high strength rock.</p> <p>Pier: Reinforced concrete piles are socketed in medium to high strength rock.</p>

Element	Information
Articulation	The bridge deck is designed as a simply supported deck supported on continuous elastomeric bearing strips at the abutments and piers. The deck is longitudinally restrained by the shear stiffness on the bearings and steel dowels at one end of each span. The elastomeric bearing allows for thermal and seismic response in the longitudinal direction, and is laterally restrained at the piers and abutments with end nibs. The elastomeric strips are designed to accommodate expected rotations and movements due to railway loading, thermal effects, braking, earthquake forces and long-term permanent effects.
Inspection and Maintenance	Elastomeric bearing strips are provided under the planks at each abutment and pier and have a design life of 50 years in accordance with Principal's Project Requirements Appendix 8, hence do not need to be replaced.
Deck Drainage	There is a longitudinal fall of 0.07% along the bridge deck and a one-way transverse fall of 2% across the bridge deck and headstock. Scuppers will be provided with drainage pipe at each pier locations. The water will drain through the scupper locations which are connected to a drainage downpipe attached down the western pier at each pile/pier/headstock set. The water will be discharged onto a rock splash pad at ground level.
Abutment Transition Approach	At the ends of the viaduct, layers of selected compacted fill reinforced with geogrid in the form of an engineered backfill will be constructed behind the abutment. This engineered fill is adopted as the configuration to provide a transitional stiffness between the viaduct approaches and the structure itself. The engineered backfill will be constructed in accordance with NSW technical note TN 027:2015. On the northern approach, the transition zone will need to be integrated in with the reinforced soil structure.
Walkway/ Refuge/ Handrail	<p>A maintenance access walkway with handrail has been provided on the Georges River Side of the Viaduct.</p> <p>A handrail is provided along the top of the ballast kerb at the western side of the structure, in accordance with AS1657.</p> <p>No access across the bridge structures will be permitted under live track operations unless there is an emergency, and signage will be provided at the approach to the northern abutment.</p> <p>In the event of a train breakdown or emergency, personnel will be able to exit the train and use the walkway on the Georges River side of the viaduct to exit and walk along the viaduct.</p>

7.1.2.1 Drainage

There is a longitudinal fall of 0.07% along the viaduct girders and a transverse fall of 2% across the viaduct girders and headstock. The sleepers have a varying transverse superelevation with an upper limit of 7% from pier 6 to 9. Scuppers will be provided at each pier location, and the water will drain through the scuppers and drainage pipes down the western pier at each pile/pier/headstock set. The pipes will be held in place by Unistrut pipe clamps fixed to the piles.

Beneath the ballast, a continuous waterproofing membrane and ballast mat will be provided as per the requirement specified in Clause 7.2 of TfNSW Asset Standards Authority Technical Note TN027:2015. The waterproofing elements include 10 mm of impact mat, a double layer of Bituthene 3000 waterproofing membranes, as well as CFC compressed cement laying on top of a 20 mm impact mat, all above the top of the girders.

7.1.3 Moorebank Ave Overbridge

Moorebank Avenue Overbridge facilitates the new rail alignment to connect the SSFL to the SIMTA Site by spanning over the rail alignment to be constructed under the existing Moorebank Avenue.

This new bridge consists of a single span of 9.8 m between pile centrelines. It carries road traffic on Moorebank Avenue from Anzac Road to Cambridge Avenue, and allows the new rail alignment to pass beneath the bridge deck and through the existing embankment. The span arrangement was set to ensure that the width of the bridge follows the alignment of the railway beneath the deck slab. The bridge deck covering the rail line has an overall length of approximately 38.5 m along the deck control line. The total width of the bridge between traffic barriers to accommodate the road geometry is 11.8 m.

A brief description of the bridge structure is given below in Table 6.

Table 6 Key Bridge Design Features

Element	Information
Rail	<p>A single rail track is provided. The total width of the bridge deck perpendicular to the rail, is 8.9 m in accordance with ARTC T&C CoP Section 7 Clearance. Track is classified as 80MLF23, Standard Gauge AS60kg Rail with Medium Duty sleepers and Resilient Fasteners.</p> <p>The track alignment is flat, along the length of the bridge longitudinally, and has a transverse fall of 2%. The top of rail levels have been based on the following depths:</p> <p>Ballast Depth - min. 250 mm</p> <p>Rail, Pad & Sleeper depth – (min 355 mm)</p> <p>The minimum ballast depth is measured from the bottom of the (medium duty) concrete sleeper directly under the low rail.</p>
Road	<p>Moorebank Avenue facilitates road traffic between from Anzac Road and Cambridge Avenue. The road is on a horizontal radius of 500 m to the bridge deck control line. Across the bridge medium performance concrete traffic barriers are provided. The existing Moorebank Avenue road will require lifting at the bridge location to accommodate the rail line below and will necessitate tie-in with the existing road.</p>
Superstructure	<p>The superstructure consists of a cast in-situ reinforced concrete deck slab which is integral with the substructure. The reinforced concrete slab is 650 mm thick, and will have a minimum 85 mm thick asphaltic surfacing layer.</p> <p>Due to the high skew of the bridge, squaring up the deck is necessary to provide propping to the abutment walls where the fill height on one abutment is different to the other which produces a global twisting action of the entire structure. Squaring off the bridge ends results in a dead-zone behind the traffic barriers with safety screen on top. A handrail is provided along this squared off edge of the bridge deck. The steel protection angle is required along the leading edges under the deck over the railway corridor.</p>
Substructure	<p>The substructure arrangement comprises reinforced integral abutments supported on 900 mm diameter contiguous bored cast in place concrete piles. The piled substructure will be constructed using a top-down construction method. When the deck is complete, the area in front of the piles will be excavated and shotcrete placed between the piles to retain the existing fill behind.</p>

Element	Information
Foundations	Abutment: Reinforced concrete piles are founded onto medium strength siltstone or better.
Articulation	Longitudinal and transverse forces from the deck are transferred to the substructure through the integral connection. The portal frame structure restrains the deck in both directions and these induced deck forces are transferred to the fill behind the abutments. In this instance the soil pressure behind the walls is utilised to resist longitudinal forces induced from both braking and earthquake effects.

7.1.3.1 Drainage

The location of the new bridge has impacted on the existing drainage regime of the road. Storm water runoff is allowed to sheet flow over the fill embankment shoulder with no positive drainage provided.

The provision of the bridge will cause run off from the bridge deck to be concentrated and will need to be collected at the downstream end.

7.1.4 Anzac Creek Culvert

The culvert structure at Anzac Creek is approximately 20.105m long and consists of an eight-cell 2.1m x 1.8m (internal dimensions) PCBC supported on a cast in-situ reinforced concrete base slab. Concrete apron slabs are provided both upstream and downstream of the culvert and form monolithic extensions to the base slab. These apron slabs provide stability to the wing walls. The roof slab of the culvert supports the rail tracks and ballast.

The cast in-situ base slab is approximately 4.81m wide and 20.105m long and cast on a 0.5% grade (falling upstream to downstream). The 450mm thick base slab is cast on a 50mm thick blinding layer. The final width and length of the base slab is dependent on the supplier's details of the crown units to be incorporated into the works.

The base slab is proposed to be constructed as a continuous slab without expansion or contraction joints. Early thermal and shrinkage cracks is controlled by reinforcement provided in accordance with AS5100 and CIRIA C660 assuming full restraint conditions. The apron slabs and the base slab are made continuous through the provision of continuity reinforcement across the construction joint.

Precast wing walls are placed on levelling shim pads and made structurally continuous with the apron slabs using a stitch pour. An isolation joint is provided at the interface between the wing walls and the end precast crown units to allow for differential movement. The joint gap is filled with a compressible filler board and sealed at the back to prevent fines from getting through the joint. Based on the results from the flood modelling, rip rap scour protection is required. This shall take the form of a downturn provided at the front of the apron slab. To satisfy environmental requirements, the rip rap has been extended to create a shallow "pool" both upstream and downstream of the apron slab.

7.1.4.1 Material Properties

Concrete

The following material properties have been used in the design:

Table 7 Concrete Properties

Design Parameter	Value
Wing Walls	40 MPa
Base slab and Apron slab	40 MPa
Mass Concrete	20 MPa

Reinforcement

The following material properties have been used in the design:

Table 8 Reinforcement Properties

Design Parameter	Grade	Value
Deformed Bars	D500N	500 MPa

7.1.4.2 Drainage

The deck has a 0.5% cross fall in the transverse direction and a selected fill material laid on top of the waterproofing membrane over the crown unit will facilitate a 0.5% long fall. The runoff will be collected at the downstream end of the culvert where there is a drainage trench beneath the ballast. At the lower end of the drainage trench there is a 200mm thick concrete upstand which holds a 250mm diameter pipe. This allows the runoff collection to be piped along and behind the wing wall to discharge onto the drainage system at the bottom of the embankment.

7.1.5 Signal Bungalow and Location Cases

Two pieces of essential rail utility infrastructure, specifically a signal bungalow and location cases, will be installed adjacent to the rail corridor. The signal bungalow is located near the Import-Export (IMEX NO.1) Terminal, while the location cases are in the School of Military Engineering (SME) land.

7.1.5.1 Material Properties

The signal bungalow comprises a hut measuring 4,000 x 3,100 mm that sits on a concrete slab footing of 5,160 x 6,000 mm. The bungalow is designed to comply with the flood levels. The location case is composed of 2 mm aluminium grade 5052 cabinet that measures 1,995 x 591 x 2,065 mm.

No additional impacts to the local drainage regime are expected from these structure, beyond those previously assessed.

7.2 Fencing, Gates and Signage

Fencing details are provide in CPB's Fencing, Gates and Signage package. A boundary fence will provide security to the 3.8km SIMTA rail corridor to ensure access is restricted to authorised personnel only. The fence will be tied into the existing fencing of the SSFL Corridor and runs along both sides of the northern and southern connections from the SIMTA rail corridor to the SSFL. This fencing continues to the proposed Georges River Bridge where it has been tied into the bridge abutments. East of the Georges River Bridge, the fencing will provide a boundary fence between the eastern abutments of the Georges River Bridge and the Moorebank Avenue Overbridge.

The boundary fence will be an 'Urban Fence' as detailed in ESC 510 and SPC 511. The fence will be rail less with chain link fabric 1,800mm in height with a maximum ground clearance of 80mm. All pipe posts, bracing rails and stays shall be medium quality to AS1163 Grade C250L0.

Gates are provided where required to allow access to/ from existing maintenance access roads, to drainage infrastructure, access to the Viaduct, Georges River Bridge, Moorebank Avenue Overbridge, at Service Crossings, at the GWS detention basin, the GWS triangle of land and Anzac Creek Culvert. Gates will be 4m wide to allow for maintenance and emergency vehicle access. All gate hinges will be constructed to prevent tampering, removal or damage in order to ensure that gates are of equal strength in construction to the remainder of the fencing. Where required, drop bolts, locking chains and padlocks shall be in accordance with the standard drawings showing the details, as specified in SPC511.

Signage will meet the specifications of ARTC or Sydney Trains, as required. Signage face details can be found in the Plan drawings for the Fencing, Gates and Signage design

package. Signage includes:

- Rail Corridor Entry Signs (Pedestrian and Vehicles)
- Network Control Boundary Signs
- Trackside Signage
- Limited Clearance warning signs
- Danger Sign – No Safe Place

Plans relevant for the rail corridor, showing fencing, gates and signage are presented in Appendix C.

7.3 Erosion and Sediment Control

7.3.1 General Principles

Environmental protection during construction will involve the installation, use and maintenance of a number of temporary erosion and sediment control measures as required and where feasible focusing on:

- Minimisation of soil erosion and mobilisation of sediment during rain events
- Diversion of 'clean' run-off from offsite around or through the worksite without it contacting exposed soils or mixing with 'dirty' onsite water
- Use of suitable sediment retention structures and control measures to filter or retain mobilised sediment generated during rain events over surface disturbances
- Maximum sediment capture through effective positioning of temporary erosion and sediment control structures such as sediment basins
- Progressive rehabilitation and/or stabilisation of completed areas to minimise erosion hazard
- Inspection and maintenance of all erosion and sediment controls in sound working order.
- Where practicable, exposed areas close to waterways will be temporarily stabilised prior to final stabilisation.
- Prevention of bank erosion through stabilisation as required

7.3.2 Erosion and Sediment Control Plan

The Primary Erosion and Sediment Control Plan (ESCP) provides recommendations and commitments for erosion and sediment control in accordance with the NSW Blue Book, including:

- Background data for erosion and sediment control design (e.g. sediment basin design criteria)
- Instructions for staged implementation of erosion and sediment controls
- Instructions for the preparation of Progressive ESCPs
- Dust control
- Access control (minimising disturbance)
- Sediment traps (e.g. sediment fences, straw bales, coir logs)
- Stockpile and soil management
- Dewatering and discharging water from site
- Stabilising and rehabilitating the site at various stages of construction
- Site inspection, monitoring and maintenance of erosion and sediment controls
- Watercourse bank stabilisation

- Water control devices and scour protection The Primary ESCP for RALP is included in Appendix D.

The detailed version of the Erosion and Sediment Control Plan is provided in CBP's CSWMP.

Progressive stabilisation and rehabilitation of the site will be implemented at various stages of construction to promote erosion and sediment control. Temporary erosion and sediment controls installed for the construction phase will be removed as works progress. Permanent erosion and sediment controls will be installed and landscaped as construction is completed by area. Exposed batters along the rail link will be topsoiled with a nominal 100mm topsoil and hydroseeded. Hydroseeding mix will be temporary sterile cover crop and the hydroseed mix nominated in Appendix A.

7.4 Noise

As per the SIMTA Intermodal Terminal Facility- Stage 1 Environmental Impact Statement no noise mitigation measures that require landscaping will be constructed on the RALP site.

7.5 Lighting

There are no lighting provisions for the rail corridor.

8 OPEN SPACE AND PUBLIC DOMAIN

There are no pedestrian footpaths or cycleways within the RALP project boundary.

There is one carpark within the IMEX No.1 project boundary that connects to the administration building which will be accessible by the public. There is no seating provided in the car park area. The pavement materials are provided in Appendix F.

8.1 Objectives

- To provide high quality public open space and public domain areas in and around prominent internal
- developments;
- To emphasise clear road networks and the interface between land uses;
- To integrate public open spaces and landscape with natural vegetation and water sensitive urban design;
- To create a 'business park' or 'campus' experience throughout the site;
- Develop a framework that is flexible whilst controlling consistency of quality and scale of public spaces as the development evolves in the future;
- Provide safe and efficient circulation for pedestrian, cyclists and vehicles
- Create an integrated water sensitive urban design solution within the 'Freight Village' zone as both an
- aesthetically pleasing element and an environmentally sustainable water solution; and
- Promote a high quality landscape corridor along Moorebank Avenue.

8.2 Design Principles

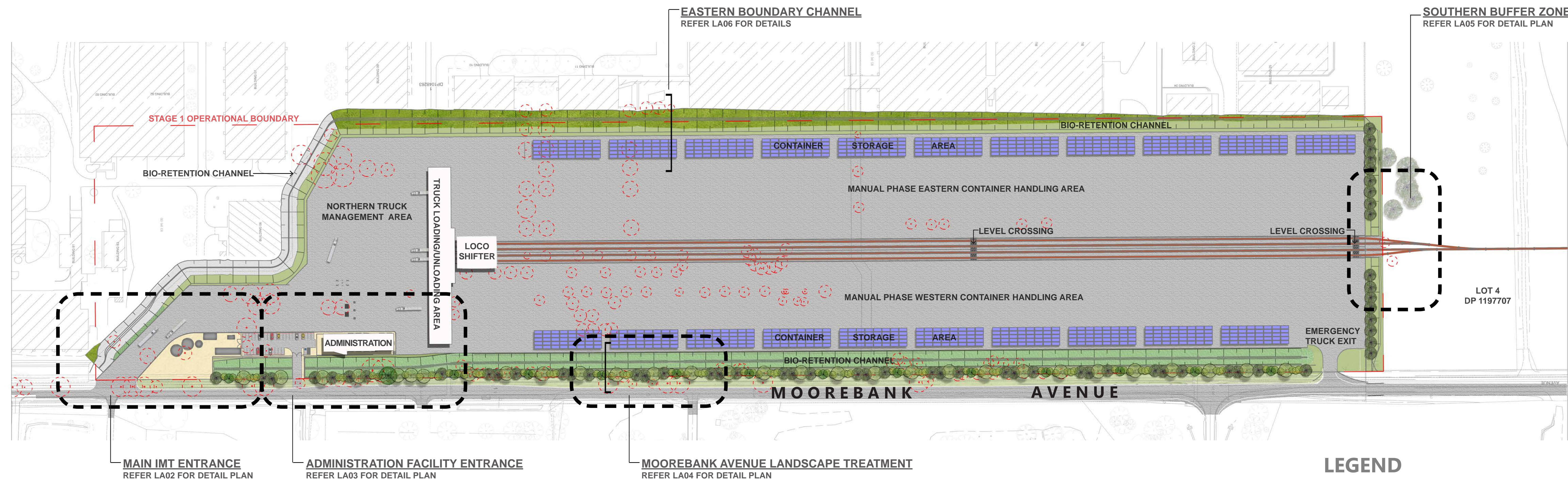
- High quality landscape treatments should be applied to Moorebank Avenue and all internal roads;
- Water sensitive urban design principles should be integrated within landscape zones where possible;
- Consider where appropriate the use of acoustic buffers between built form and public/open spaces;
- Separate all heavy traffic from main employee parking zones for developments on the site; and
- Provide safe and secure public access zones in and around each development.

APPENDIX A

Landscape Plans

MOOREBANK PRECINCT EAST - STAGE 1

LANDSCAPE PLAN



DRAWING LIST

LA01	MPE Stage 1 Landscape Masterplan
LA02	Main Entrance Landscape Plan
LA03	Administration Facility Landscape Plan
LA04	Moorebank Avenue Landscape Plan
LA05	Southern Buffer Landscape Plan
LA06	Eastern Boundary Channel

LANDSCAPE DESIGN STATEMENT

The Moorebank Precinct East Stage 1 Proposal involves the development of an intermodal terminal facility including warehouses and distribution facilities, stormwater, landscaping, servicing and associated works east of Moorebank Avenue. The Proposal also includes a Rail link connection within an identified rail corridor connecting the southern area of the Moorebank Precinct development to the Southern Sydney Freight Line.

The Landscape focus of this stage is centres along the Moorebank Avenue frontage which forms a major connection to the Moorebank Precinct Proposal. This frontage incorporates a vegetated bio-retention channel which follows the length of the Moorebank Avenue frontage. Large native trees and various understorey planting endemic to the local area have been selected within this area to create a buffer and serve in minimising visual impacts from the surrounding urban landscape.

Given that the site is bounded to the south with existing vegetation communities, the landscape design serves to integrate the development with the surrounding environment by using tree, shrub and groundcover species that are local to the area to create habitat opportunities and links to the surrounding context. The proposed tree planting has been designed with the intent of creating a uniform canopy cover throughout the area.

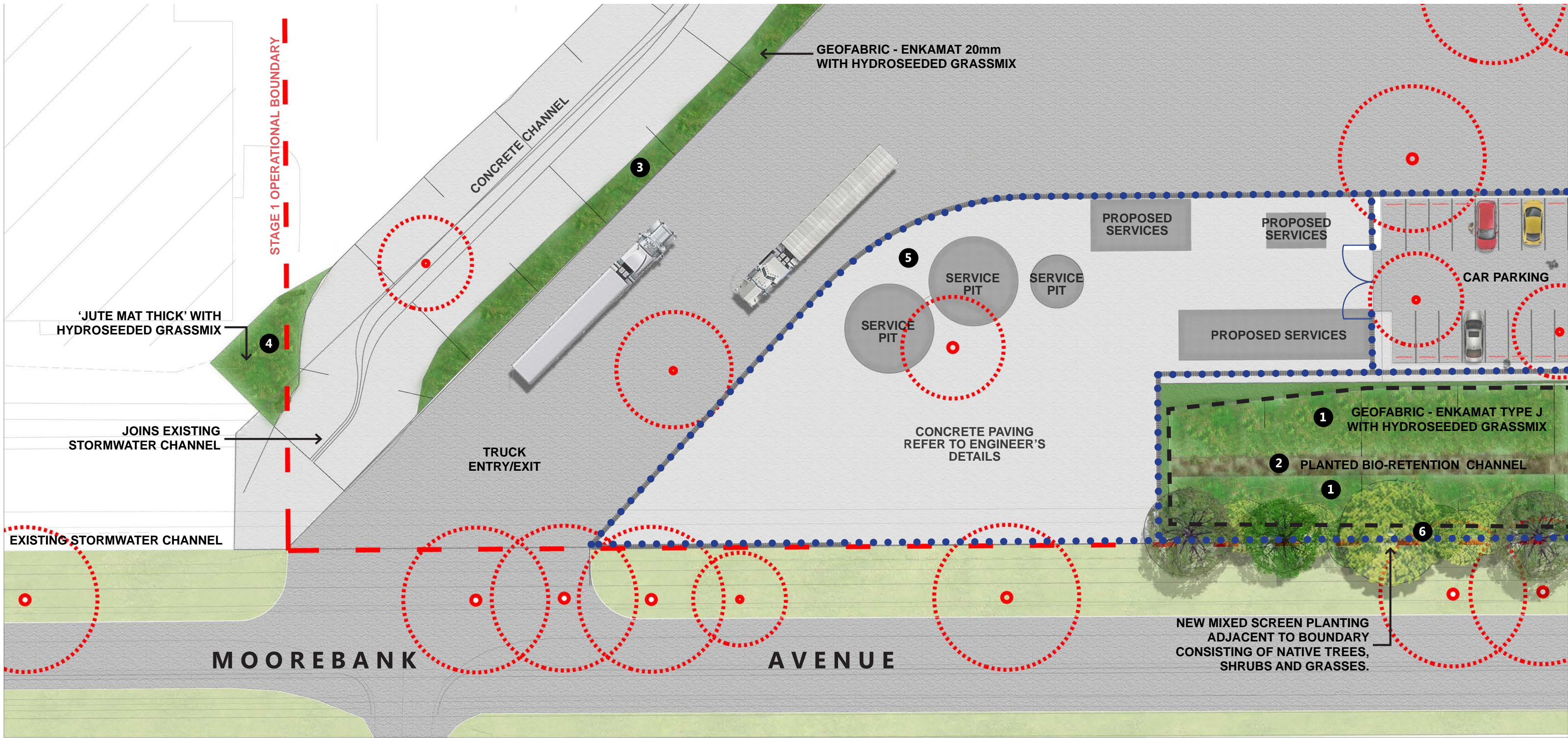
Proposed plant species have been selected for their site-suitability with many species selected from Liverpool City Council's recommended plant list.

LEGEND

- STAGE 1 OPERATIONAL BOUNDARY
- EXISTING TREES TO BE RETAINED
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES
- 'JUTE MAT THICK' WITH HYDROSEEDED GRASS MIX
- HYDROSEEDED GRASS MIX
- GEOFABRIC (ENKAMAT 20mm WITH HYDROSEEDED GRASS MIX)
- GEOFABRIC (ENKAMAT TYPE J WITH HYDROSEEDED GRASS MIX)
- BIO-RETENTION PLANTING MIX
- CONCRETE CHANNEL
- CONTAINER STORAGE
- RAIL LINK

NOTE: EXISTING TREES WILL BE RETAINED WHERE REASONABLE, FEASIBLE AND PRACTICAL TO DO SO

This drawing and design is subject to Ground Ink Pty Ltd copyright and may not be reproduced without written consent. Verify all dimensions on site prior to commencing work. Report all discrepancies to the project manager, prior to construction. Figured dimensions to be taken in preference to scaled drawings. Drawings made to larger scales and those particulars of the work shall take precedence over drawings made to smaller scale and those for general purposes. All work is to conform to relevant Australian standards and other codes as applicable, together with other authorities' requirements and regulations.	DRAFT FOR REVIEW	Engineer 	Architect 	Project Manager 	Issue	Date	Description	Drawn	Checked	Landscape Architect landscape architecture · design visuals ABN 55 163 025 45 ACN 163 025 456 Suite 201, 75 Archer St, Chatswood NSW 2067 Ph (02) 9411 3279 www.groundink.com.au	Project MOOREBANK PRECINCT EAST - STAGE 1 IMEX TERMINAL, Moorebank, NSW Project Address Moorebank Avenue, Moorebank, NSW	Date 16.05.2017 Scale 1:1500 @ A1 (1:3000 @ A3) 0 10 20 30 40 50 60 70 80 90 100M Drawing Name MPE STAGE 1 - LANDSCAPE MASTERPLAN
					A	30.3.15	FOR DEVELOPMENT APPLICATION	KM	RL			
					B	21.4.17	UDLP REVIEW	BH	RL			
					C	16.5.17	UDLP REVIEW	CL	RL			



LANDSCAPE PLAN

KEY PLAN



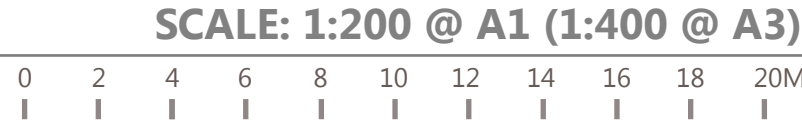
LEGEND

- STAGE 1 OPERATIONAL BOUNDARY
- PROPOSED SECURITY FENCE
- EXTENT OF BIO-RETENTION CHANNEL
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES
- BIO-RETENTION PLANTING MIX
- HYDROSEEDED GRASS MIX (REFER TO PLANTING KEY)
- CONCRETE CHANNEL

NOTE: EXISTING TREES WILL BE RETAINED WHERE REASONABLE, FEASIBLE AND PRACTICAL TO DO SO

PLANTING KEY

- 1 GEOFABRIC - ENKAMAT TYPE J WITH HYDROSEEDED GRASSMIX
- 2 BIO-RETENTION PLANTING MIX
- 3 GEOFABRIC - ENKAMAT 20mm WITH HYDROSEEDED GRASSMIX
- 4 'JUTE MAT THICK' WITH HYDROSEEDED GRASSMIX
- 5 LOW NATIVE GRASSES TO ENSURE SITE LINES ARE MAINTAINED
- 6 NATIVE SCREEN PLANTING



HYDROSEEDED GRASS MIX 1 3 4

BOTANICAL NAME	COMMON NAME	POT SIZE	MIX	EXPECTED MATURE HEIGHT	NATIVE
Groundcovers					
<i>Aristida ramosa</i>	Wire Grass	Seed	10%	1.2m	✓
<i>Austroranthonia fulva</i>	Wallaby Grass	Seed	10%	0.5m	✓
<i>Austroripida pubescens</i>	Speargrass	Seed	15%	1.2m	✓
<i>Dianella revoluta</i>	Blue Flax-lily, Spreading Flax-lily	Seed	5%	0.8m	✓
<i>Dichondra repens</i>	Kidney-weed, Mercury Bay Weed	Seed	10%	0.2m	✓
<i>Eragrostis brownii</i>	Brown's Lovegrass	Seed	5%	0.3m	✓
<i>Goodenia hederacea</i>	Ivy Goodenia	Seed	5%	0.5m	✓
<i>Lomandra cylindrica</i>	Needle Mat-Rush	Seed	10%	0.3m	✓
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Seed	10%	1.5m	✓
<i>Microlaena stipoides</i>	Weeping Grass, Meadow Rice-grass	Seed	10%	0.7m	✓
<i>Themeda australis</i>	Kangaroo Grass	Seed	10%	0.5m	✓

NATIVE GRASSES PLANT MIX 5

BOTANICAL NAME	COMMON NAME	POT SIZE	MIX	EXPECTED MATURE HEIGHT	NATIVE
Groundcovers					
<i>Austroranthonia fulva</i>	Wallaby Grass	Viro Tube	4/m ²	0.5m	✓
<i>Dianella revoluta</i>	Blue Flax-lily, Spreading Flax-lily	Viro Tube	4/m ²	1.5m	✓
<i>Imperata cylindrica</i>	Blady Grass	Viro Tube	4/m ²	0.5m	✓
<i>Lomandra longifolia</i> 'katrinus'	Needle Mat-Rush	Viro Tube	4/m ²	1.2m	✓
<i>Lomandra longifolia</i> 'tanika'	Spiny-headed Mat-rush	Viro Tube	4/m ²	0.6m	✓
<i>Microlaena stipoides</i>	Weeping Grass, Meadow Rice-grass	Viro Tube	4/m ²	0.7m	✓
<i>Themeda australis</i>	Kangaroo Grass	Viro Tube	4/m ²	0.5m	✓

BIO-RETENTION PLANT MIX 2

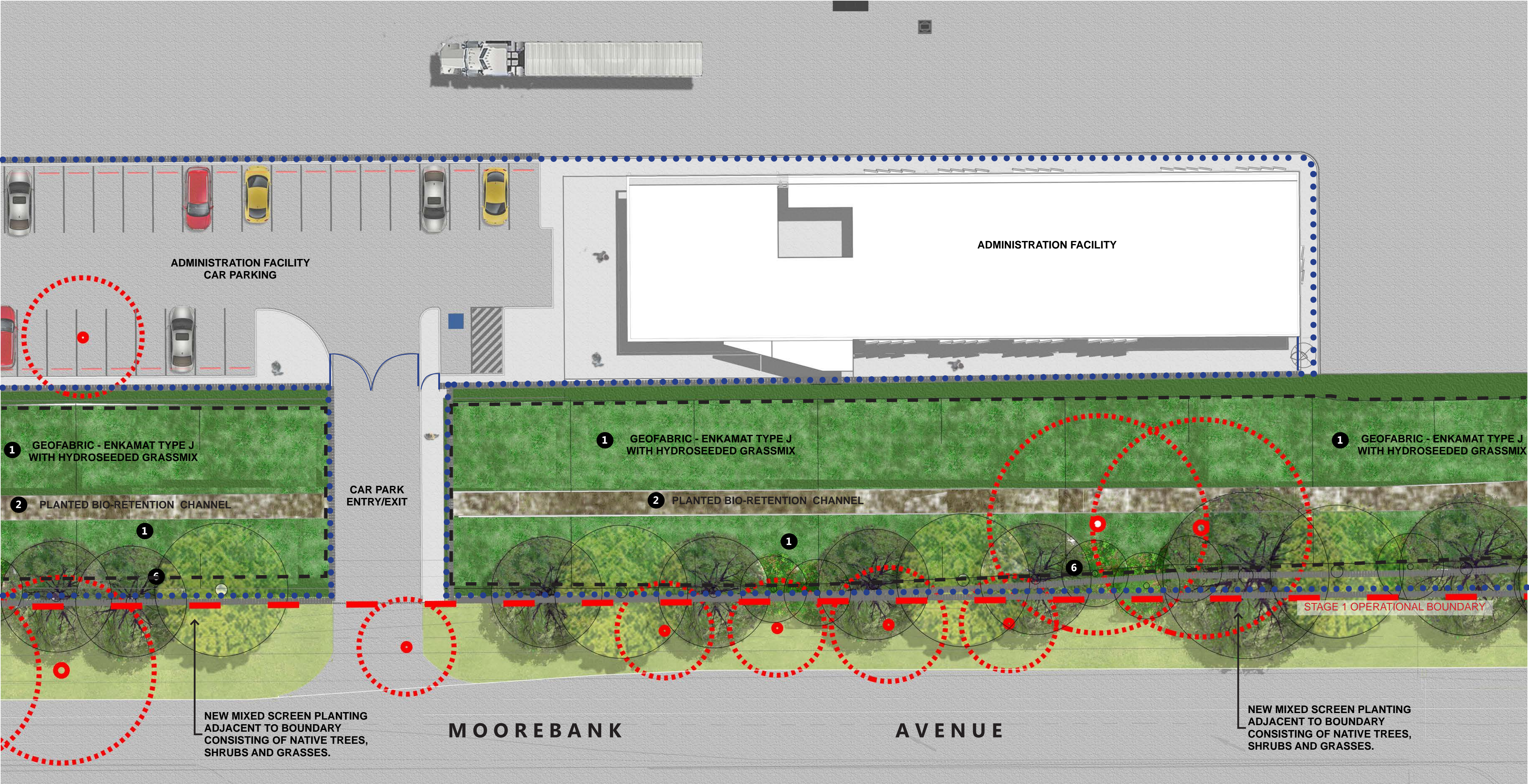
BOTANICAL NAME	COMMON NAME	POT SIZE	DENSITY	EXPECTED MATURE HEIGHT	NATIVE
Groundcovers					
<i>Baumea articulata</i>	Jointed Twig-rush	Viro Tube	4/m ²	1.5m	✓
<i>Bolboschoenus fluviatilis</i>	Club-rush	Viro Tube	4/m ²	1.5m	✓
<i>Carex appressa</i>	Tall Sedge	Viro Tube	4/m ²	1m	✓
<i>Carex breviculmis</i>		Viro Tube	4/m ²	0.4m	✓
<i>Dampiera stricta</i>	Blue Dampiera	Viro Tube	4/m ²	0.3m	✓
<i>Dichondra repens</i>	Kidney-weed, Mercury Bay Weed	Viro Tube	4/m ²	0.2m	✓
<i>Gahnia clarkii</i>	Tall Saw-sedge	Viro Tube	4/m ²	1.8m	✓
<i>Goodenia hederacea</i>	Ivy Goodenia	Viro Tube	4/m ²	0.5m	✓
<i>Hemarthria uncinata</i>	Mat Grass	Viro Tube	4/m ²	1m	✓
<i>Isolepis inundata</i>	Water Club-rush	Viro Tube	4/m ²	0.5m	✓
<i>Juncus continuus</i>	Rush	Viro Tube	4/m ²	1m	✓
<i>Juncus prismatocarpus</i>	Branching Rush	Viro Tube	4/m ²	0.6m	✓
<i>Juncus usitatus</i>	Common Rush	Viro Tube	4/m ²	0.8m	✓
<i>Laxmannia gracilis</i>	Slender Wire Lily	Viro Tube	4/m ²	0.3m	✓
<i>Leptocarpus tenax</i>		Viro Tube	4/m ²	0.7m	✓
<i>Lepyrodia scariosa</i>		Viro Tube	4/m ²	0.7m	✓
<i>Microlaena stipoides</i>	Weeping Grass, Meadow Rice-grass	Viro Tube	4/m ²	0.7m	✓
<i>Philydrum lanuginosum</i>	Woolly Waterlily, Frogmouth	Viro Tube	4/m ²	0.6m	✓
<i>Schoenus apogon</i>	Fluke Bog-rush, Common Bog-rush	Viro Tube	4/m ²	0.3m	✓

WESTERN BUFFER PLANT SCHEDULE 6

BOTANICAL NAME	COMMON NAME	POT SIZE	DENSITY	EXPECTED MATURE HEIGHT	NATIVE	MIX
Trees						
<i>Angophora floribunda</i>	Rough-barked Apple	5L	As Shown	Up to 30m	✓	N/A
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	5L	As Shown	Up to 30m	✓	N/A
<i>Eucalyptus fibrosa</i>	Red Ironbark	5L	As Shown	Up to 35m	✓	N/A
<i>Eucalyptus longifolia</i>	Woollybutt	5L	As Shown	Up to 35m	✓	N/A
<i>Eucalyptus moluccana</i>	Grey Box	5L	As Shown	Up to 25m	✓	N/A
<i>Eucalyptus sclerophylla</i>	Hard-leaved Scribbly Gum	5L	As Shown	Up to 15m	✓	N/A
<i>Melaleuca decora</i>	White Cloud Tree	5L	As Shown	Up to 10m	✓	N/A
<i>Zelkova serrata</i> 'Schmidlow' Wireless	Zelkova	100L	As Shown	Up to 9m	✓	N/A
Shrubs						
<i>Acacia brownii</i>	Golden Prickly Moses	150mm	1	Up to 1m	✓	5%
<i>Acacia falcata</i>	Sickle Wattle	150mm	0.5	Up to 3m	✓	5%
<i>Acacia parramattensis</i>	Parramatta Green Wattle	150mm	0.5	Up to 6m	✓	5%
<i>Banksia spinulosa</i>	Hairpin Banksia	150mm	0.5	Up to 1.5m	✓	5%
<i>Banksia oblongifolia</i>	Fern-Leaved Banksia	150mm	1	Up to 1m	✓	5%
<i>Callistemon linearis</i>	Narrow-leaved Bottlebrush	150mm	0.5	Up to 2m	✓	10%
<i>Dillwynia parvifolia</i>	Coral Heath	150mm	2	Up to 0.5m	✓	5%
<i>Egicris micophylla</i>		150mm	1	Up to 1m	✓	10%
<i>Hakea sericea</i>	Needlebrush, Silky Hakea	150mm	0.5	Up to 1.5m	✓	10%
<i>Hakea teretifolia</i>	Needlebrush, Dagger Hakea	150mm	0.5	Up to 1.5m	✓	10%
<i>Kunzea ambigua</i>	Tick-bush	150mm	0.5	Up to 3m	✓	10%
<i>Melaleuca nodosa</i>	Ball Honey-myrtle	150mm	0.5	Up to 3m	✓	10%
<i>Philotheca salsolifolia</i>	Philotheca	150mm	1	Up to 1m	✓	5%
<i>Pultenaea villosa</i>	Hairy Bush-pea	150mm	0.5	Up to 2m	✓	5%
Groundcovers						
<i>Austroranthonia fulva</i>	Wallaby Grass	Viro Tube	4/m ²	0.5m	✓	10%
<i>Billardiera scandens</i>	Hairy Apple Berry	Viro Tube	2/m ²	1.5m	✓	5%
<i>Dampiera stricta</i>	Blue Dampiera	Viro Tube	2/m ²	0.3m	✓	5%
<i>Dianella caerulea</i>	Blue Flax-lily	Viro Tube	4/m ²	0.8m	✓	10%
<i>Dianella revoluta</i>	Blue Flax-lily, Spreading Flax-lily	Viro Tube	4/m ²	0.8m	✓	10%
<i>Dichondra repens</i>	Kidney-weed, Mercury Bay Weed	Viro Tube	4/m ²	0.2m	✓	10%
<i>Hardenbergia violacea</i>	False Sarsaparilla	Viro Tube	2/m ²	1m	✓	10%
<i>Imperata cylindrica</i>	Blady Grass	Viro Tube	4/m ²	0.3m	✓	10%
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Viro Tube	2/m ²	1.5m	✓	10%
<i>Microlaena stipoides</i>	Weeping Grass, Meadow Rice-grass	Viro Tube	4/m ²	0.7m	✓	10%
<i>Themeda australis</i>	Kangaroo Grass	Viro Tube	4/m ²	0.5m	✓	10%

PLANT IMAGES





LANDSCAPE PLAN

KEY PLAN



LEGEND

- STAGE 1 OPERATIONAL BOUNDARY
- PROPOSED SECURITY FENCE
- EXTENT OF BIO-RETENTION CHANNEL
- EXISTING TREES TO BE REMOVED
- PROPOSED TREES
- BIO-RETENTION PLANTING MIX
- HYDROSEEDED GRASS MIX (REFER TO PLANTING KEY)

NOTE: EXISTING TREES WILL BE RETAINED WHERE REASONABLE, FEASIBLE AND PRACTICAL TO DO SO

PLANTING KEY

- 1 GEOFABRIC - ENKAMAT TYPE J WITH HYDROSEEDED GRASSMIX
- 2 BIO-RETENTION PLANTING MIX
- 6 NATIVE SCREEN PLANTING

PLANT IMAGES



Angophora floribunda



Eucalyptus sclerophylla



Acacia brownii



Banksia spinulosa



Lomandra longifolia



Microlaena stipoides

HYDROSEEDED GRASS MIX 1

BOTANICAL NAME	COMMON NAME	POT SIZE	MIX	EXPECTED MATURE HEIGHT	NATIVE
Groundcovers					
<i>Aristida ramosa</i>	Wire Grass	Seed	10%	1.2m	✓
<i>Austrodranthonia fulva</i>	Wallaby Grass	Seed	10%	0.5m	✓
<i>Austrostipida pubescens</i>	Speargrass	Seed	15%	1.2m	✓
<i>Dianella revoluta</i>	Blue Flax-lily, Spreading Flax-lily	Seed	5%	0.8m	✓
<i>Dichondra repens</i>	Kidney-weed, Mercury Bay Weed	Seed	10%	0.2m	✓
<i>Eragrostis brownii</i>	Brown's Lovegrass	Seed	5%	0.3m	✓
<i>Goodenia hederacea</i>	Ivy Goodenia	Seed	5%	0.5m	✓
<i>Lomandra cylindrica</i>	Needle Mat-Rush	Seed	10%	0.3m	✓
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Seed	10%	1.5m	✓
<i>Microlaena stipoides</i>	Weeping Grass, Meadow Rice-grass	Seed	10%	0.7m	✓
<i>Themeda australis</i>	Kangaroo Grass	Seed	10%	0.5m	✓

BIO-RETENTION PLANT MIX 2

BOTANICAL NAME	COMMON NAME	POT SIZE	DENSITY	EXPECTED MATURE HEIGHT	NATIVE
Groundcovers					
<i>Baumea articulata</i>	Jointed Twig-rush	Viro Tube	4/m ²	1.5m	✓
<i>Balboschoenus fluviatilis</i>	Club-rush	Viro Tube	4/m ²	1.5m	✓
<i>Carex appressa</i>	Tall Sedge	Viro Tube	4/m ²	1m	✓
<i>Carex breviculmis</i>		Viro Tube	4/m ²	0.4m	✓
<i>Dampiera stricta</i>	Blue Dampiera	Viro Tube	4/m ²	0.3m	✓
<i>Dichondra repens</i>	Kidney-weed, Mercury Bay Weed	Viro Tube	4/m ²	0.2m	✓
<i>Gahnia clarkei</i>	Tall Saw-sedge	Viro Tube	4/m ²	1.8m	✓
<i>Goodenia hederacea</i>	Ivy Goodenia	Viro Tube	4/m ²	0.5m	✓
<i>Hemarthria uncinata</i>	Mat Grass	Viro Tube	4/m ²	1m	✓
<i>Isolepis inundata</i>	Water Club-rush	Viro Tube	4/m ²	0.5m	✓
<i>Juncus continous</i>	Rush	Viro Tube	4/m ²	1m	✓
<i>Juncus prismatocarpus</i>	Branching Rush	Viro Tube	4/m ²	0.6m	✓
<i>Juncus usitatus</i>	Common Rush	Viro Tube	4/m ²	0.8m	✓
<i>Laxmannia gracilis</i>	Slender Wire Lily	Viro Tube	4/m ²	0.3m	✓
<i>Leptocarpus tenax</i>		Viro Tube	4/m ²	0.7m	✓
<i>Lepydria scariosa</i>		Viro Tube	4/m ²	0.7m	✓
<i>Microlaena stipoides</i>	Weeping Grass, Meadow Rice-grass	Viro Tube	4/m ²	0.7m	✓
<i>Philydrum lanuginosum</i>	Woolly Waterlily, Frogmouth	Viro Tube	4/m ²	0.6m	✓
<i>Schoenus apogon</i>	Fluke Bog-rush, Common Bog-rush	Viro Tube	4/m ²	0.3m	✓

WESTERN BUFFER PLANT SCHEDULE 6

BOTANICAL NAME	COMMON NAME	POT SIZE	DENSITY	EXPECTED MATURE HEIGHT	NATIVE	MIX
Trees						
<i>Angophora floribunda</i>	Rough-barked Apple	5L	As Shown	Up to 30m	✓	N/A
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	5L	As Shown	Up to 30m	✓	N/A
<i>Eucalyptus fibrosa</i>	Red Ironbark	5L	As Shown	Up to 35m	✓	N/A
<i>Eucalyptus longifolia</i>	Woollybutt	5L	As Shown	Up to 35m	✓	N/A
<i>Eucalyptus moluccana</i>	Grey Box	5L	As Shown	Up to 25m	✓	N/A
<i>Eucalyptus sclerophylla</i>	Hard-leaved Scribbly Gum	5L	As Shown	Up to 15m	✓	N/A
<i>Melaleuca decora</i>	White Cloud Tree	5L	As Shown	Up to 10m	✓	N/A
<i>Zelkova serrata</i>	'Schmidlow' Wireless	100L	As Shown	Up to 9m	✓	N/A
Shrubs						
<i>Acacia brownii</i>	Golden Prickly Moses	150mm	1	Up to 1m	✓	5%
<i>Acacia falcata</i>	Sickle Wattle	150mm	0.5	Up to 3m	✓	5%
<i>Acacia paramattensis</i>	Parramatta Green Wattle	150mm	0.5	Up to 6m	✓	5%
<i>Banksia spinulosa</i>	Hairpin Banksia	150mm	0.5	Up to 1.5m	✓	5%
<i>Banksia oblongifolia</i>	Fern-Leafed Banksia	150mm	1	Up to 1m	✓	5%
<i>Callistemon linearis</i>	Narrow-leaved Bottlebrush	150mm	0.5	Up to 2m	✓	10%
<i>Dillwynia parvifolia</i>		150mm	2	Up to 0.5m	✓	5%
<i>Epacris micophylla</i>	Coral Heath	150mm	1	Up to 1m	✓	10%
<i>Hakea sericea</i>	Needlebrush, Silky Hakea	150mm	0.5	Up to 1.5m	✓	10%
<i>Hakea teretifolia</i>	Needlebrush, Dagger Hakea	150mm	0.5	Up to 1.5m	✓	10%
<i>Kunzea ambigua</i>	Tick-bush	150mm	0.5	Up to 3m	✓	10%
<i>Melaleuca nodosa</i>	Ball Honey-myrtle	150mm	0.5	Up to 3m	✓	10%
<i>Philotheca saelsolifolia</i>	Philotheca	150mm	1	Up to 1m	✓	5%
<i>Pultenaea villosa</i>	Hairy Bush-pea	150mm	0.5	Up to 2m	✓	5%
Groundcovers						
<i>Austrodranthonia fulva</i>	Wallaby Grass	Viro Tube	4/m ²	0.5m	✓	10%
<i>Billardiera scandens</i>	Hairy Apple Berry	Viro Tube	2/m ²	1.5m	✓	5%
<i>Dampiera stricta</i>	Blue Dampiera	Viro Tube	2/m ²	0.3m	✓	5%
<i>Dianella caerulea</i>	Blue Flax-lily	Viro Tube	4/m ²	0.8m	✓	10%
<i>Dianella revoluta</i>	Blue Flax-lily, Spreading Flax-lily	Viro Tube	4/m ²	0.8m	✓	10%
<i>Dichondra repens</i>	Kidney-weed, Mercury Bay Weed	Viro Tube	4/m ²	0.2m	✓	10%
<i>Hardenbergia violacea</i>	False Sarsaparilla	Viro Tube	2/m ²	1m	✓	10%
<i>Imperata cylindrica</i>	Blady Grass	Viro Tube	4/m ²	0.3m	✓	10%
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Viro Tube	2/m ²	1.5m	✓	10%
<i>Microlaena stipoides</i>	Weeping Grass, Meadow Rice-grass	Viro Tube	4/m ²	0.7m	✓	10%
<i>Themeda australis</i>	Kangaroo Grass	Viro Tube	4/m ²	0.5m	✓	10%

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DRAFT
FOR REVIEW

Engineer

ARCADIS

Architect

REIDCAMPBELL

Project Manager

TACTICAL
GROUP

Issue

Date

30.3.15
21.4.17
16.5.17

FOR DEVELOPMENT APPLICATION
UDLP REVIEW
UDLP REVIEW

Drawn

Checked

KL

RL

RL

RL

Landscape Architect

groundink.
landscape architecture · design visuals
ABN 55 163 025 45 ACN 163 025 456
Suite 201, 75 Archer St, Chatswood NSW 2067
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Project

MOOREBANK PRECINCT EAST - STAGE 1
IMEX TERMINAL, Moorebank, NSW

Project Address

Moorebank Avenue, Moorebank, NSW

Date

Revision

Job Number

Drawing Number

16.05.2017

C

20170305

LA03

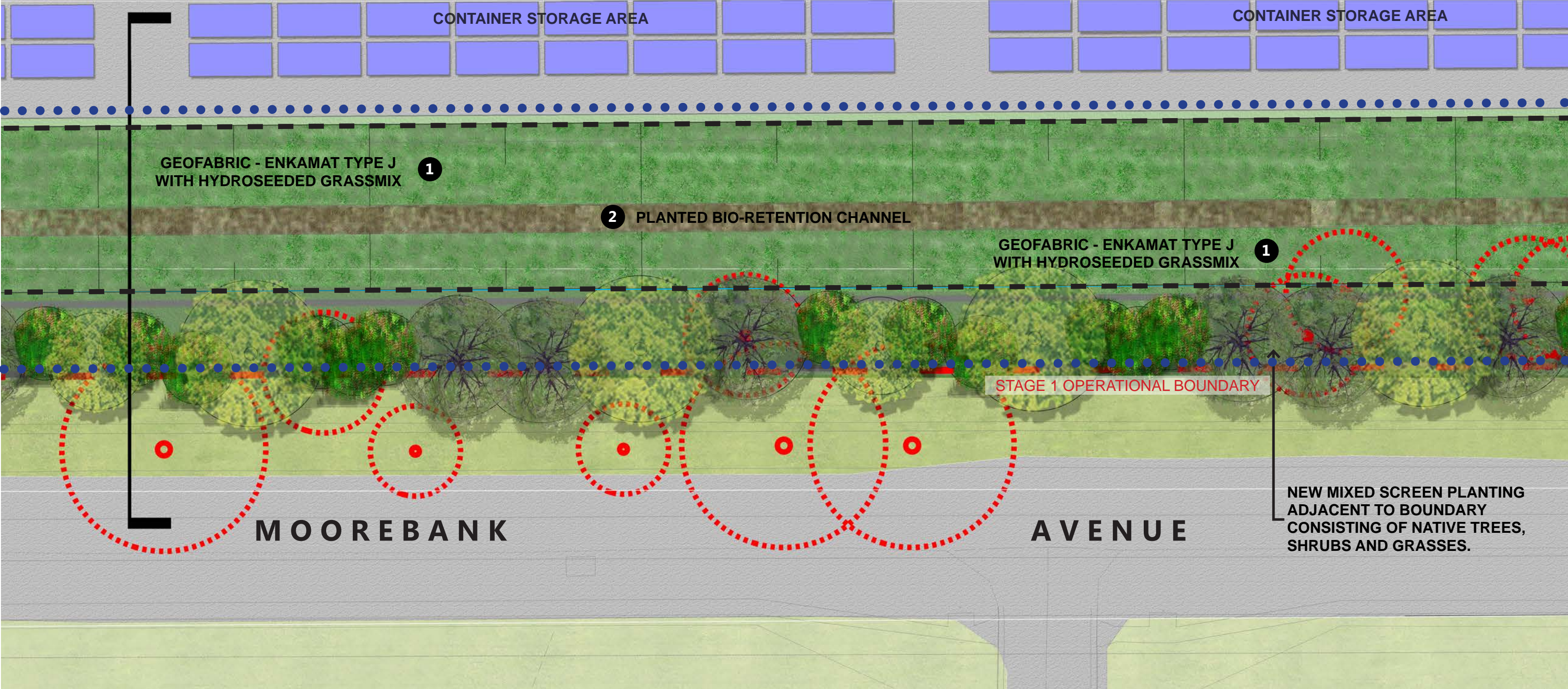
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1:200 @ A1 (1:400 @ A3)

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Drawing Name

ADMINISTRATION FACILITY LANDSCAPE PLAN



LANDSCAPE PLAN

SCALE: 1:200 @ A1 (1:400 @ A3)



LANDSCAPE SECTION

SCALE: 1:50 @ A1 (1:100 @ A3)

HYDROSEEDED GRASS MIX 1

BOTANICAL NAME	COMMON NAME	POT SIZE	MIX	EXPECTED MATURE HEIGHT	NATIVE
Groundcovers					
<i>Aristida ramosa</i>	Wire Grass	Seed	10%	1.2m	✓
<i>Austrodanthonia fulva</i>	Wallaby Grass	Seed	10%	0.5m	✓
<i>Austrostipida pubescens</i>	Speargrass	Seed	15%	1.2m	✓
<i>Dianella revoluta</i>	Blue Flax-lily, Spreading Flax-lily	Seed	5%	0.8m	✓
<i>Dichondra repens</i>	Kidney-weed, Mercury Bay Weed	Seed	10%	0.2m	✓
<i>Eragrostis brownii</i>	Brown's Lovegrass	Seed	5%	0.3m	✓
<i>Goodenia hederacea</i>	Ivy Goodenia	Seed	5%	0.5m	✓
<i>Lomandra cylindrica</i>	Needle Mat-Rush	Seed	10%	0.3m	✓
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Seed	10%	1.5m	✓
<i>Microlaena stipoides</i>	Weeping Grass, Meadow Rice-grass	Seed	10%	0.7m	✓
<i>Themeda australis</i>	Kangaroo Grass	Seed	10%	0.5m	✓

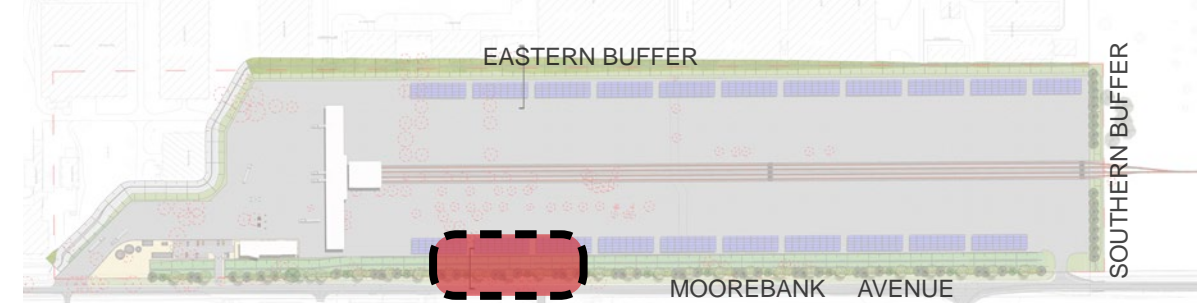
BIO-RETENTION PLANT MIX 2

BOTANICAL NAME	COMMON NAME	POT SIZE	DENSITY	EXPECTED MATURE HEIGHT	NATIVE
Groundcovers					
<i>Baumea articulata</i>	Jointed Twig-rush	Viro Tube	4/m ²	1.5m	✓
<i>Bolboschoenus fluviatilis</i>	Club-rush	Viro Tube	4/m ²	1.5m	✓
<i>Carex appressa</i>	Tall Sedge	Viro Tube	4/m ²	1m	✓
<i>Carex breviculmis</i>		Viro Tube	4/m ²	0.4m	✓
<i>Dampiera stricta</i>	Blue Dampiera	Viro Tube	4/m ²	0.3m	✓
<i>Dichondra repens</i>	Kidney-weed, Mercury Bay Weed	Viro Tube	4/m ²	0.2m	✓
<i>Gahnia clarkii</i>	Tall Saw-sedge	Viro Tube	4/m ²	1.8m	✓
<i>Goodenia hederacea</i>	Ivy Goodenia	Viro Tube	4/m ²	0.5m	✓
<i>Hemarthria uncinata</i>	Mat Grass	Viro Tube	4/m ²	1m	✓
<i>Isolepis inundata</i>	Water Club-rush	Viro Tube	4/m ²	0.5m	✓
<i>Juncus continuus</i>	Rush	Viro Tube	4/m ²	1m	✓
<i>Juncus prismatocarpus</i>	Branching Rush	Viro Tube	4/m ²	0.6m	✓
<i>Juncus usitatus</i>	Common Rush	Viro Tube	4/m ²	0.8m	✓
<i>Laxmannia gracilis</i>	Slender Wire Lily	Viro Tube	4/m ²	0.3m	✓
<i>Leptocarpus tenax</i>		Viro Tube	4/m ²	0.7m	✓
<i>Lepyrodia scariosa</i>		Viro Tube	4/m ²	0.7m	✓
<i>Microlaena stipoides</i>	Weeping Grass, Meadow Rice-grass	Viro Tube	4/m ²	0.7m	✓
<i>Philydrum lanuginosum</i>	Woolly Waterlily, Frogmouth	Viro Tube	4/m ²	0.6m	✓
<i>Schoenus apogon</i>	Fluke Bog-rush, Common Bog-rush	Viro Tube	4/m ²	0.3m	✓

WESTERN BUFFER PLANT SCHEDULE 6

BOTANICAL NAME	COMMON NAME	POT SIZE	DENSITY	EXPECTED MATURE HEIGHT	NATIVE	MIX
Trees						
<i>Angophora floribunda</i>	Rough-barked Apple	5L	As Shown	Up to 30m	✓	N/A
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	5L	As Shown	Up to 30m	✓	N/A
<i>Eucalyptus fibrosa</i>	Red Ironbark	5L	As Shown	Up to 35m	✓	N/A
<i>Eucalyptus longifolia</i>	Woollybutt	5L	As Shown	Up to 35m	✓	N/A
<i>Eucalyptus moluccana</i>	Grey Box	5L	As Shown	Up to 25m	✓	N/A
<i>Eucalyptus sclerophylla</i>	Hard-leaved Scribbly Gum	5L	As Shown	Up to 15m	✓	N/A
<i>Melaleuca decora</i>	White Cloud Tree	5L	As Shown	Up to 10m	✓	N/A
<i>Zelkova serrata</i> 'Schmidlaw' 'Wireless'	Zelkova	100L	As Shown	Up to 9m	✓	N/A
Shrubs						
<i>Acacia brownii</i>	Golden Prickly Moses	150mm	1	Up to 1m	✓	5%
<i>Acacia falcata</i>	Sickle Wattle	150mm	0.5	Up to 3m	✓	5%
<i>Acacia parramattensis</i>	Parramatta Green Wattle	150mm	0.5	Up to 6m	✓	5%
<i>Banksia spinulosa</i>	Hairpin Banksia	150mm	0.5	Up to 1.5m	✓	5%
<i>Banksia oblongifolia</i>	Fern-Leafed Banksia	150mm	1	Up to 1m	✓	5%
<i>Callistemon linearis</i>	Narrow-leaved Bottlebrush	150mm	0.5	Up to 2m	✓	10%
<i>Dillwynia parvifolia</i>		150mm	2	Up to 0.5m	✓	5%
<i>Eporcis micophylla</i>	Coral Heath	150mm	1	Up to 1m	✓	10%
<i>Hakea sericea</i>	Needlebrush, Silky Hakea	150mm	0.5	Up to 1.5m	✓	10%
<i>Hakea teretifolia</i>	Needlebrush, Dagger Hakea	150mm	0.5	Up to 1.5m	✓	10%
<i>Kunzea ambigua</i>	Tick-bush	150mm	0.5	Up to 3m	✓	10%
<i>Melaleuca nodosa</i>	Ball Honey-myrtle	150mm	0.5	Up to 3m	✓	10%
<i>Philotheca salsolifolia</i>	Philotheca	150mm	1	Up to 1m	✓	5%
<i>Pultenaea villosa</i>	Hairy Bush-pea	150mm	0.5	Up to 2m	✓	5%
Groundcovers						
<i>Austrodanthonia fulva</i>	Wallaby Grass	Viro Tube	4/m ²	0.5m	✓	10%
<i>Billardiera scandens</i>	Hairy Apple Berry	Viro Tube	2/m ²	1.5m	✓	5%
<i>Dampiera stricta</i>	Blue Dampiera	Viro Tube	2/m ²	0.3m	✓	5%
<i>Dianella caerulea</i>	Blue Flax-lily	Viro Tube	4/m ²	0.8m	✓	10%
<i>Dianella revoluta</i>	Blue Flax-lily, Spreading Flax-lily	Viro Tube	4/m ²	0.8m	✓	10%
<i>Dichondra repens</i>	Kidney-weed, Mercury Bay Weed	Viro Tube	4/m ²	0.2m	✓	10%
<i>Hardenbergia violacea</i>	False Sarsaparilla	Viro Tube	2/m ²	1m	✓	10%
<i>Imperata cylindrica</i>	Blady Grass	Viro Tube	4/m ²	0.3m	✓	10%
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Viro Tube	2/m ²	1.5m	✓	10%
<i>Microlaena stipoides</i>	Weeping Grass, Meadow Rice-grass	Viro Tube	4/m ²	0.7m	✓	10%
<i>Themeda australis</i>	Kangaroo Grass	Viro Tube	4/m ²	0.5m	✓	10%

KEY PLAN



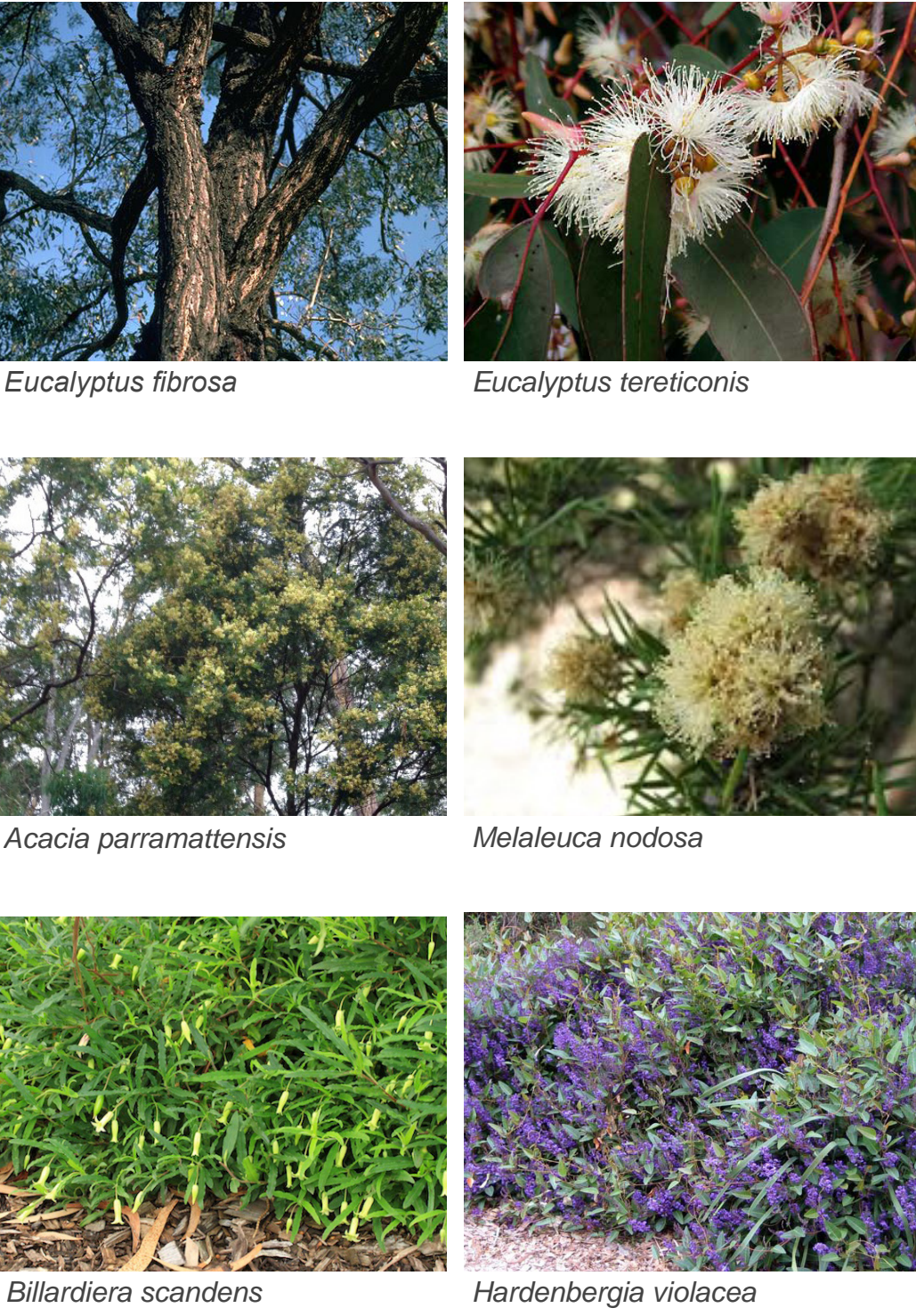
LEGEND

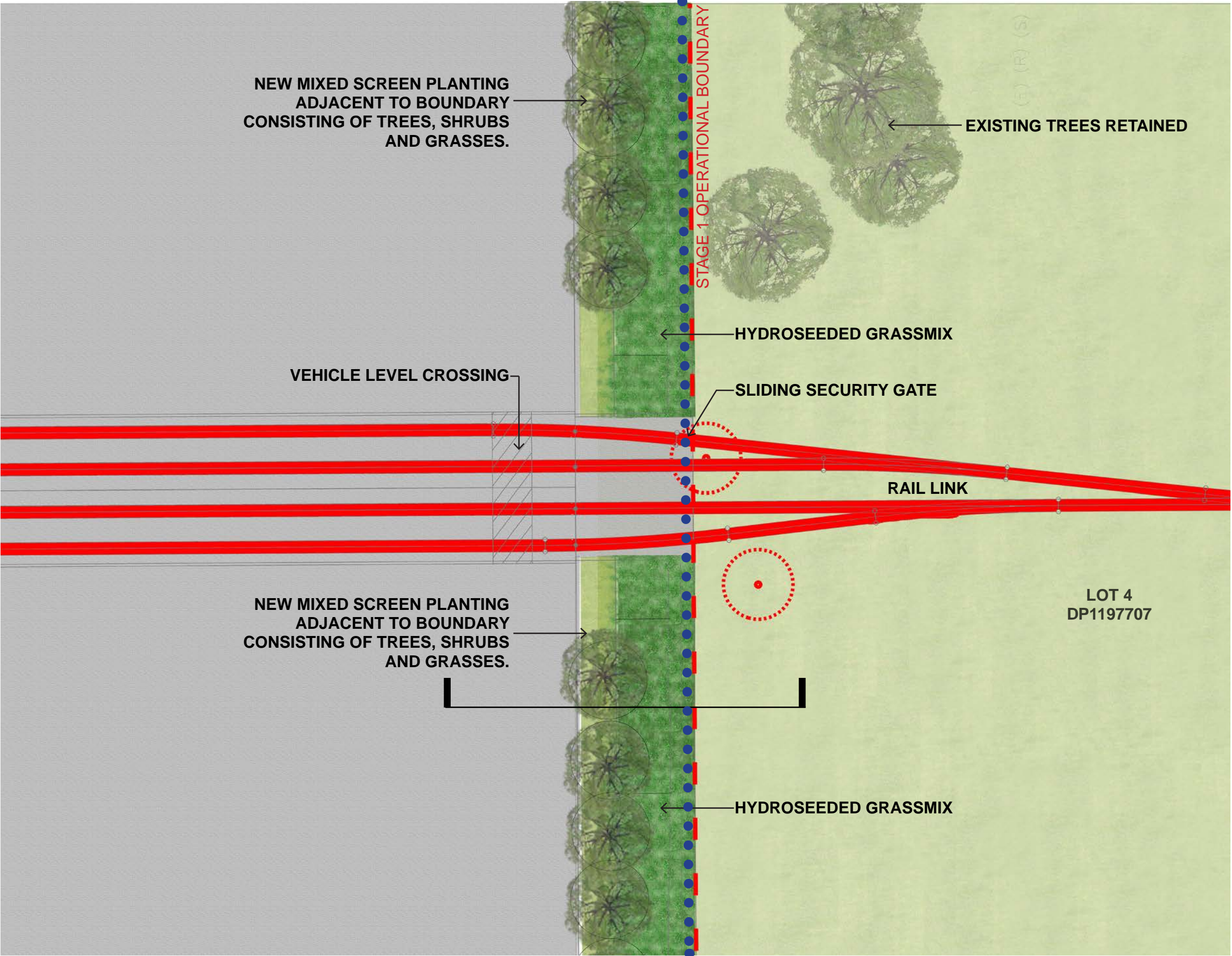
- STAGE 1 OPERATIONAL BOUNDARY
- PROPOSED SECURITY FENCE
- EXTENT OF BIO-RETENTION CHANNEL
- Existing trees to be removed
- Proposed trees
- BIO-RETENTION PLANTING MIX
- HYDROSEEDED GRASS MIX (REFER TO PLANTING KEY)
- CONTAINER STORAGE
- NOTE: EXISTING TREES WILL BE RETAINED WHERE REASONABLE, FEASIBLE AND PRACTICAL TO DO SO

PLANTING KEY

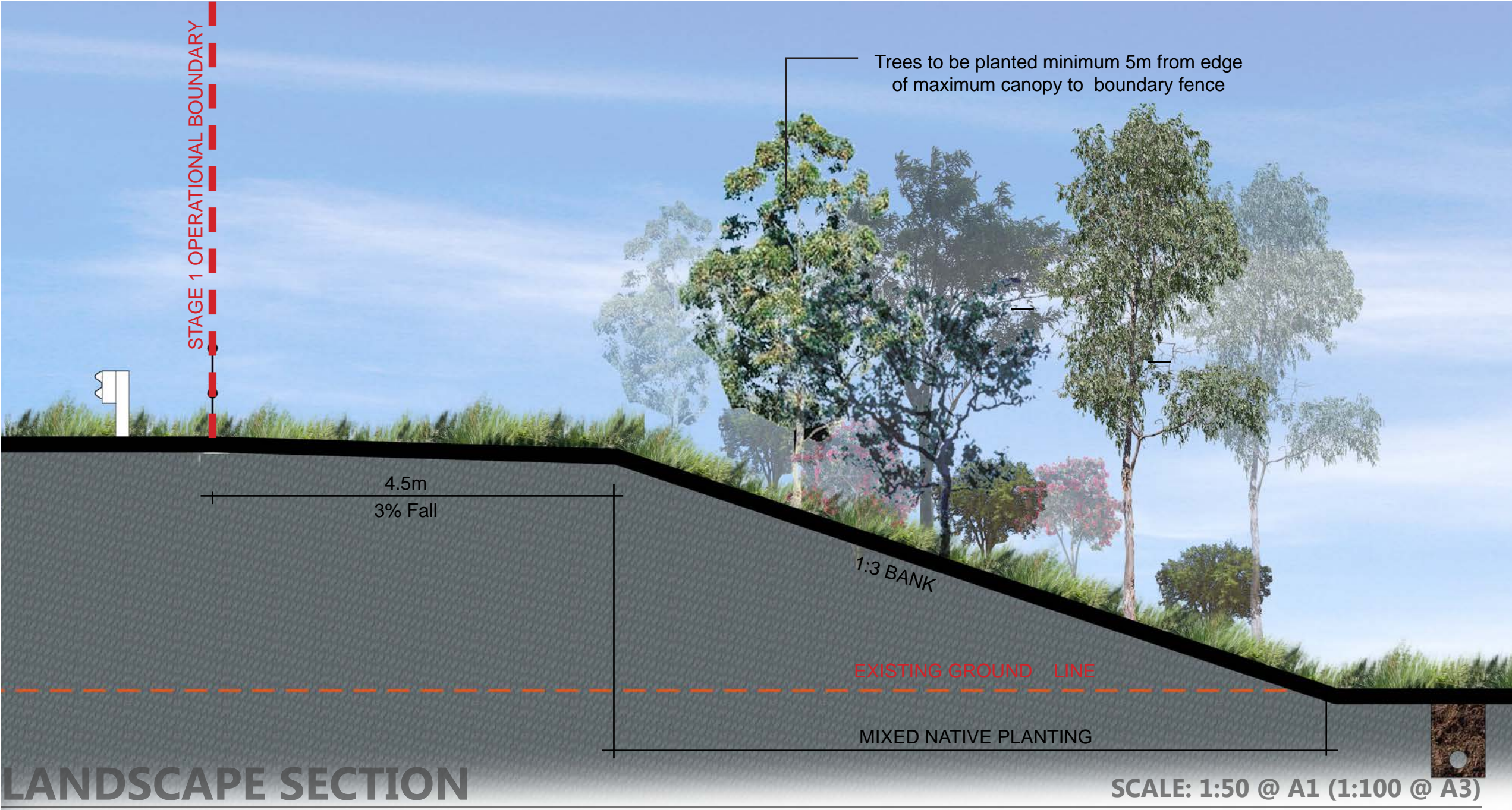
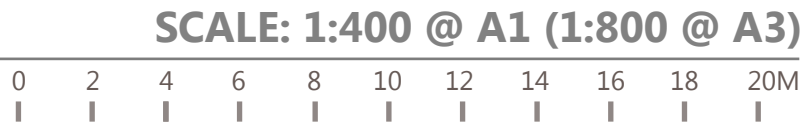
- 1 GEOFABRIC - ENKAMAT TYPE J WITH HYDROSEEDED GRASSMIX
- 2 BIO-RETENTION PLANTING MIX
- 6 NATIVE SCREEN PLANTING

PLANT IMAGES





LANDSCAPE PLAN



LANDSCAPE SECTION

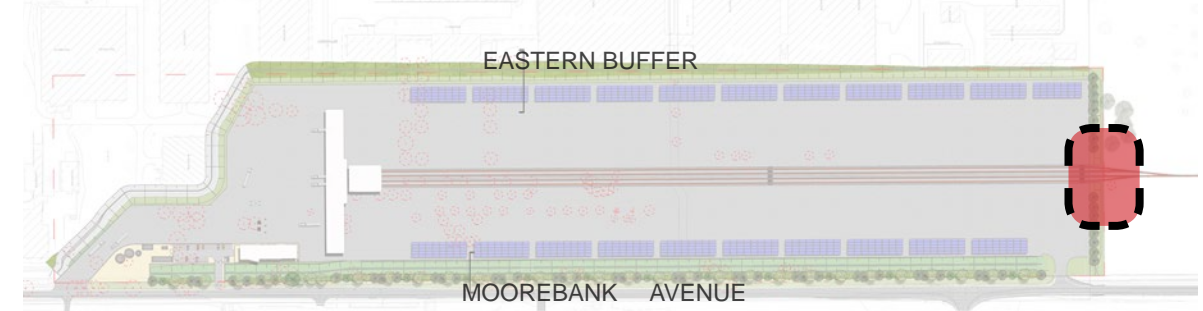
HYDROSEEDED GRASS MIX

BOTANICAL NAME	COMMON NAME	POT SIZE	MIX	EXPECTED MATURE HEIGHT	NATIVE
Groundcovers					
<i>Aristida ramosa</i>	Wire Grass	Seed	10%	1.2m	✓
<i>Austroranthonia fulva</i>	Wallaby Grass	Seed	10%	0.5m	✓
<i>Auistrostipida pubescens</i>	Speargrass	Seed	15%	1.2m	✓
<i>Dianella revoluta</i>	Blue Flax-lily, Spreading Flax-lily	Seed	5%	0.8m	✓
<i>Dichondra repens</i>	Kidney-weed, Mercury Bay Weed	Seed	10%	0.2m	✓
<i>Eragrostis brownii</i>	Brown's Lovegrass	Seed	5%	0.3m	✓
<i>Goodenia hederacea</i>	Ivy Goodenia	Seed	5%	0.5m	✓
<i>Lomandra cylindrica</i>	Needle Mat-Rush	Seed	10%	0.3m	✓
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Seed	10%	1.5m	✓
<i>Microlaena stipoides</i>	Weeping Grass, Meadow Rice-grass	Seed	10%	0.7m	✓
<i>Themeda australis</i>	Kangaroo Grass	Seed	10%	0.5m	✓

SOUTHERN BUFFER PLANT SCHEDULE

BOTANICAL NAME	COMMON NAME	POT SIZE	DENSITY	EXPECTED MATURE HEIGHT	NATIVE	MIX
Trees						
<i>Angophora bakeri</i>	Narrow-leaved Apple	5L	As Shown	Up to 10m	✓	N/A
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	5L	As Shown	Up to 30m	✓	N/A
<i>Eucalyptus parramattensis</i>	Parramatta Red Gum	5L	As Shown	Up to 15m	✓	N/A
<i>Eucalyptus sclerophylla</i>	Hard-leaved Scribbly Gum	5L	As Shown	Up to 15m	✓	N/A
<i>Eucalyptus tereticornis</i>	Forest Red Gum	5L	As Shown	Up to 25m	✓	N/A
<i>Melaleuca decora</i>	White Cloud Tree	5L	As Shown	Up to 10m	✓	N/A
<i>Zelkova serrata</i>	'Schmidlow' Wireless	100L	As Shown	Up to 9m	✓	N/A
Shrubs						
<i>Acacia brownii</i>	Golden Prickly Moses	150mm	1	Up to 1m	✓	5%
<i>Acacia falcata</i>	Sickle Wattle	150mm	0.5	Up to 3m	✓	5%
<i>Acacia parramattensis</i>	Parramatta Green Wattle	150mm	0.5	Up to 4m	✓	5%
<i>Callistemon linearis</i>	Narrow-leaved Bottlebrush	150mm	0.5	Up to 2m	✓	10%
<i>Dillwynia parvifolia</i>		150mm	2	Up to 0.5m	✓	5%
<i>Epacris micophylla</i>	Coral Heath	150mm	1	Up to 1m	✓	10%
<i>Hakea sericea</i>	Needlebush, Silky Hakea	150mm	0.5	Up to 1.5m	✓	10%
<i>Hakea teretifolia</i>	Needlebush, Dagger Hakea	150mm	0.5	Up to 1.5m	✓	10%
<i>Kunzea ambigua</i>	Tick-bush	150mm	0.5	Up to 3m	✓	10%
<i>Leptospermum polygalifolium</i>	Tantoon	150mm	0.5	Up to 2m	✓	5%
<i>Leptospermum trinervium</i>	Slender Tea-tree	150mm	0.5	Up to 3m	✓	5%
<i>Melaleuca nodosa</i>	Ball Honey-myrtle	150mm	0.5	Up to 3m	✓	5%
<i>Philotheca salsolifolia</i>	Philotheca	150mm	1	Up to 1m	✓	5%
<i>Pultenaea villosa</i>	Hairy Bush-pea	150mm	0.5	Up to 2m	✓	10%
Groundcovers						
<i>Austroranthonia fulva</i>	Wallaby Grass	Viro Tube	4/m ²	0.5m	✓	10%
<i>Billardiera scandens</i>	Hairy Apple Berry	Viro Tube	2/m ²	1.5m	✓	10%
<i>Dampiera stricta</i>	Blue Dampiera	Viro Tube	2/m ²	0.3m	✓	10%
<i>Dianella caerulea</i>	Blue Flax-lily	Viro Tube	4/m ²	0.8m	✓	10%
<i>Dianella revoluta</i>	Blue Flax-lily, Spreading Flax-lily	Viro Tube	4/m ²	0.8m	✓	10%
<i>Dichondra repens</i>	Kidney-weed, Mercury Bay Weed	Viro Tube	4/m ²	0.2m	✓	10%
<i>Imperata cylindrica</i>	Blady Grass	Viro Tube	4/m ²	0.3m	✓	10%
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Viro Tube	2/m ²	1.5m	✓	10%
<i>Microlaena stipoides</i>	Weeping Grass, Meadow Rice-grass	Viro Tube	4/m ²	0.7m	✓	10%
<i>Themeda australis</i>	Kangaroo Grass	Viro Tube	4/m ²	0.5m	✓	10%

KEY PLAN



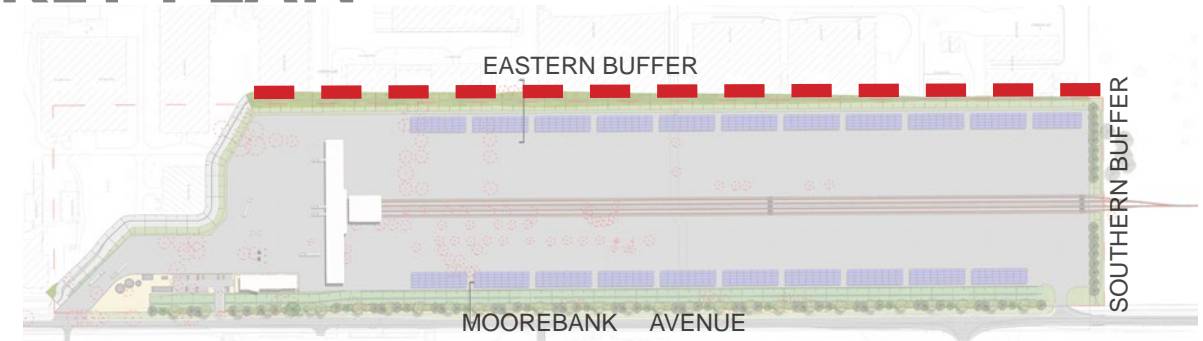
LEGEND

- STAGE 1 OPERATIONAL BOUNDARY
 - PROPOSED SECURITY FENCE
 - EXISTING TREES TO BE RETAINED
 - EXISTING TREES TO BE REMOVED
 - PROPOSED TREES
 - HYDROSEEDED GRASS MIX (REFER TO PLANTING KEY)
 - RAIL LINK
- NOTE:** EXISTING TREES WILL BE RETAINED WHERE REASONABLE, FEASIBLE AND PRACTICAL TO DO SO

PLANT IMAGES



KEY PLAN



PLANT IMAGES



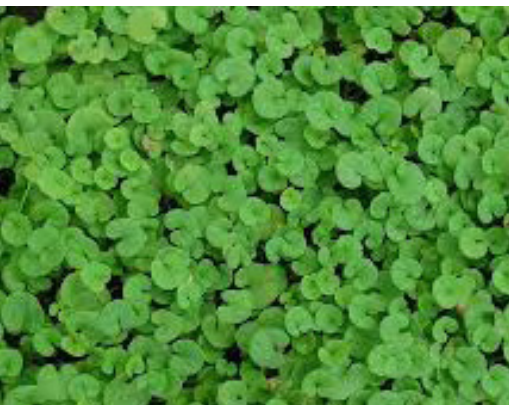
Aristida ramosa



Austrodanthonia fulva



Dianella revoluta



Dichondra repens



Lomandra cylindrica



Lomandra longifolia



Eragrostis brownii



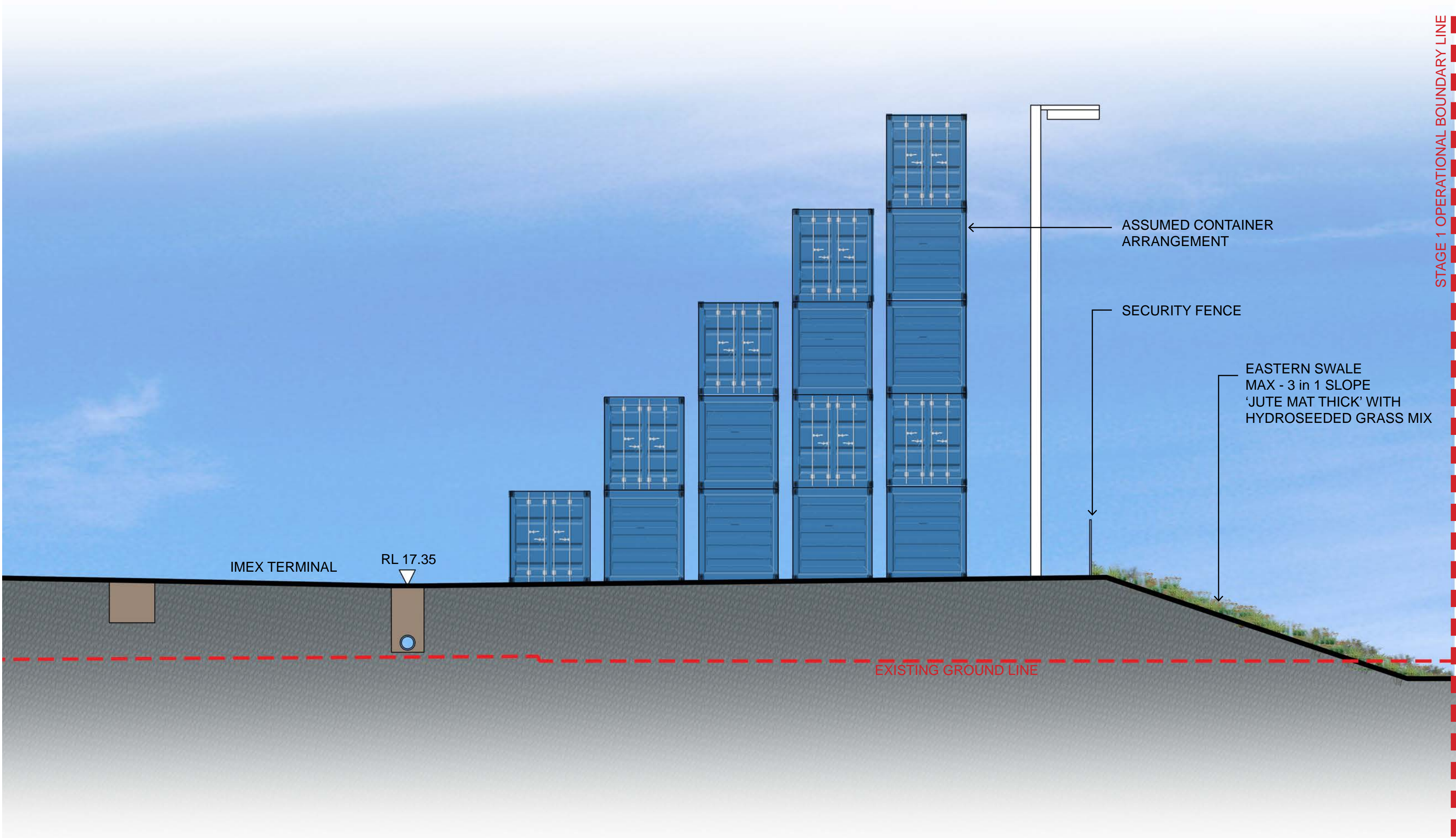
Goodenia hederacea



Microlaena stipoides



Themeda australis



LANDSCAPE SECTION

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

HYDROSEEDED GRASS MIX

BOTANICAL NAME	COMMON NAME	POT SIZE	MIX	EXPECTED MATURE HEIGHT	NATIVE
Groundcovers					
Aristida ramosa	Wire Grass	Seed	10%	1.2m	✓
Austrodanthonia fulva	Wallaby Grass	Seed	10%	0.5m	✓
Austrastipida pubescens	Speargrass	Seed	15%	1.2m	✓
Dianella revoluta	Blue Flax-lily, Spreading Flax-lily	Seed	5%	0.8m	✓
Dichondra repens	Kidney-weed, Mercury Bay Weed	Seed	10%	0.2m	✓
Eragrostis brownii	Brown's Lovegrass	Seed	5%	0.3m	✓
Goodenia hederacea	Ivy Goodenia	Seed	5%	0.5m	✓
Lomandra cylindrica	Needle Mat-Rush	Seed	10%	0.3m	✓
Lomandra longifolia	Spiny-headed Mat-rush	Seed	10%	1.5m	✓
Microlaena stipoides	Weeping Grass, Meadow Rice-grass	Seed	10%	0.7m	✓
Themeda australis	Kangaroo Grass	Seed	10%	0.5m	✓

APPENDIX B

IMEX - Site Layout



CONSTRUCTION DOCUMENTATION

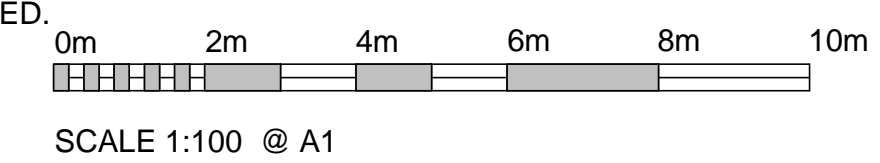
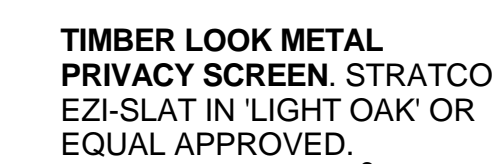
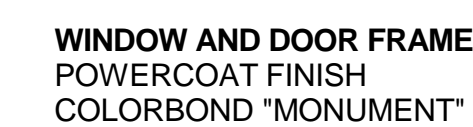


TACTICAL
GROUP

Drawn	Checked	Print Date
BF	GP	13-Jun-17 4:05:37 PM

C:\Users\bfarid\Documents\115123 MB ADMIN BUILDING CC bfarid.rvt

IMEX - Administration Building



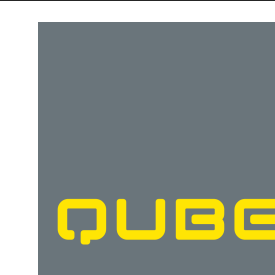
NOTES:
1. THIS DRAWING IS TO BE READ IN CONJUNCTION
WITH ALL CONSULTANT'S DOCUMENTATION
INCLUDING SECTION J REPORT (AUTHOR ARCADIS)
DATED 12/04/17 AND ACOUSTIC REPORT (AUTHOR
WILKINSON MURRAY) DATED 26/04/17

[illegible]

REIDCAMPBELL
Architecture, Interiors, Planning
ACN 002 033 801 ABN 28 317 605 875
Level 15, 124 Walker Street
North Sydney NSW 2060 Australia
Tel: 61 02 9954 5011 Email: sydney@reidcampbell.com
Fax: 61 02 9954 4946 Web: www.reidcampbell.com

CONSTRUCTION DOCUMENTATION

	Client
--	--------



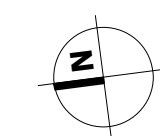
Managing Consultant



Project	MOOREBANK INTERMODAL ADMINISTRATION BUILDING MOOREBANK AVENUE, MOOREBANK, NSW
---------	---

Drawn	Checked	Print Date
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North Point



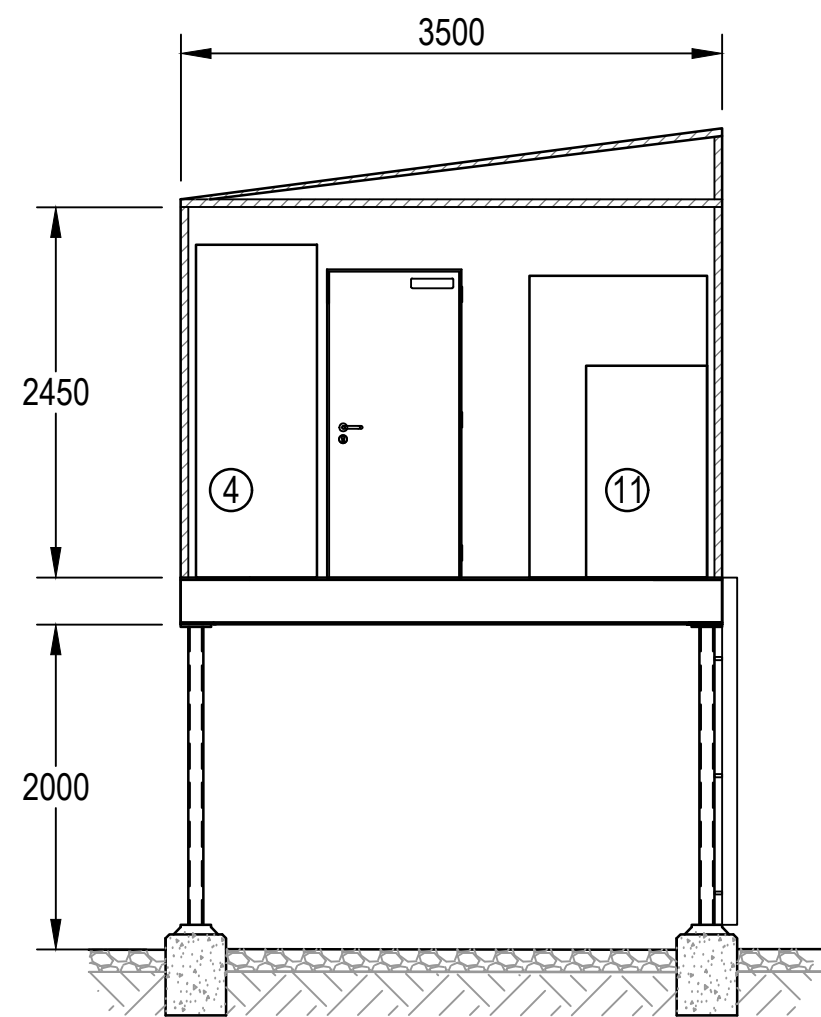
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Drawing Number
117101 A CD A320

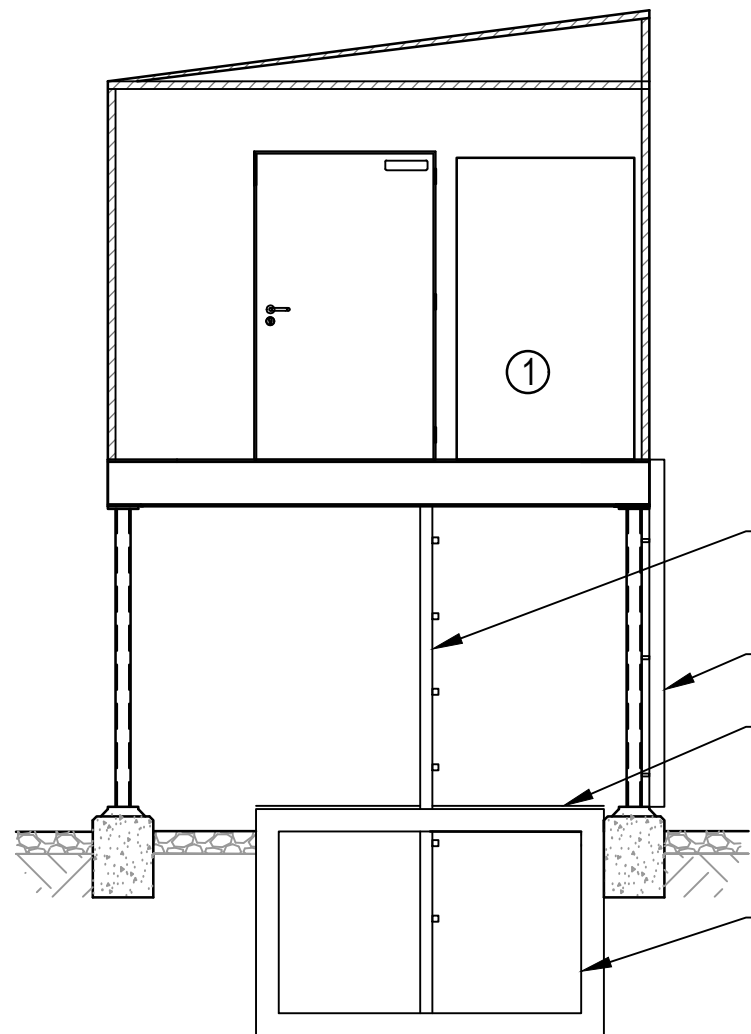
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IMEX - HV Substation

- NOTES:
1. REFER DRAWING IMEX-ARC-EL-DWG-0020 FOR SWITCHROOM PLAN VIEW

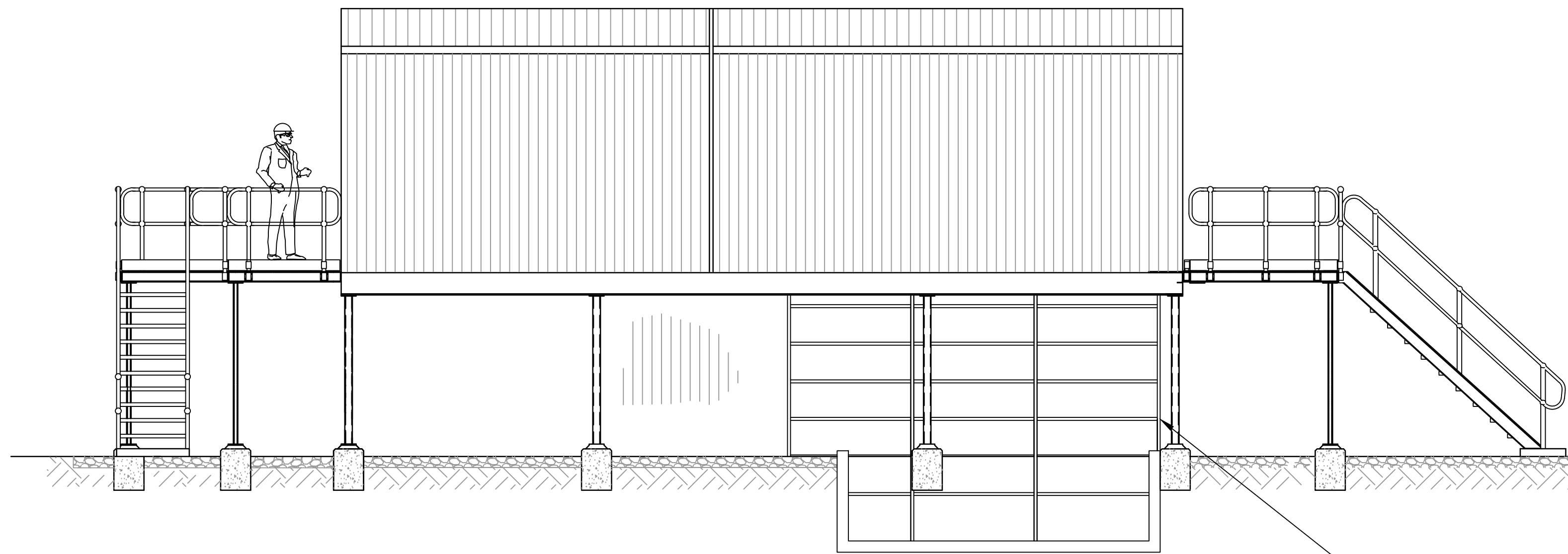


SECTION B
1:50



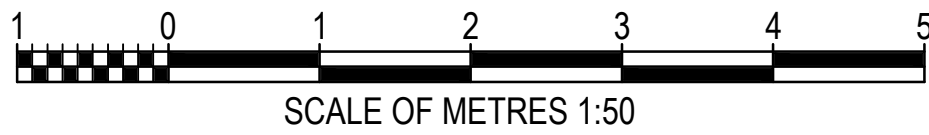
SECTION C
1:50

CABLE SUPPORT STRUCTURE
UNISTRUT P1000 + FITTINGS
FIRE WALL 120/120/120
GALV. CHEQUER PLATE
STEEL COVERS
CABLE TRENCH



SECTION D
1:50

CABLE SUPPORT STRUCTURE



SCALE OF METRES 1:50

Issue	Description	Date
04	ISSUED FOR CONSTRUCTION	28-04-17
03	ISSUED FOR CONSTRUCTION	28-04-17
02	DETAILED DESIGN UPDATE	21-04-17
01	DETAILED DESIGN	07-04-17



Status ISSUED FOR CONSTRUCTION			
Scales		Current Issue Signatures	
		Drawn	N.SINGH
Original Size	A1	Designed	A.NATHAN
Height Datum	N/A	Checked	B.LATHOURAS
Grid	N/A	Approved	P.HOGAN
Filename:			

Project MOOREBANK MPE STAGE 1 IMEX NUMBER 1	
Title ELECTRICAL MANUAL OPERATION PHASE NORTH SUBSTATION BUILDING ELEVATIONS	

Arcadis Australia Pacific Pty Limited
Level 5, 141 Walker St
NORTH SYDNEY NSW 2060
ABN 76 104 485 289
Tel No: +61 2 8907 9000
Fax No: +61 2 8907 9001
arcadis.com

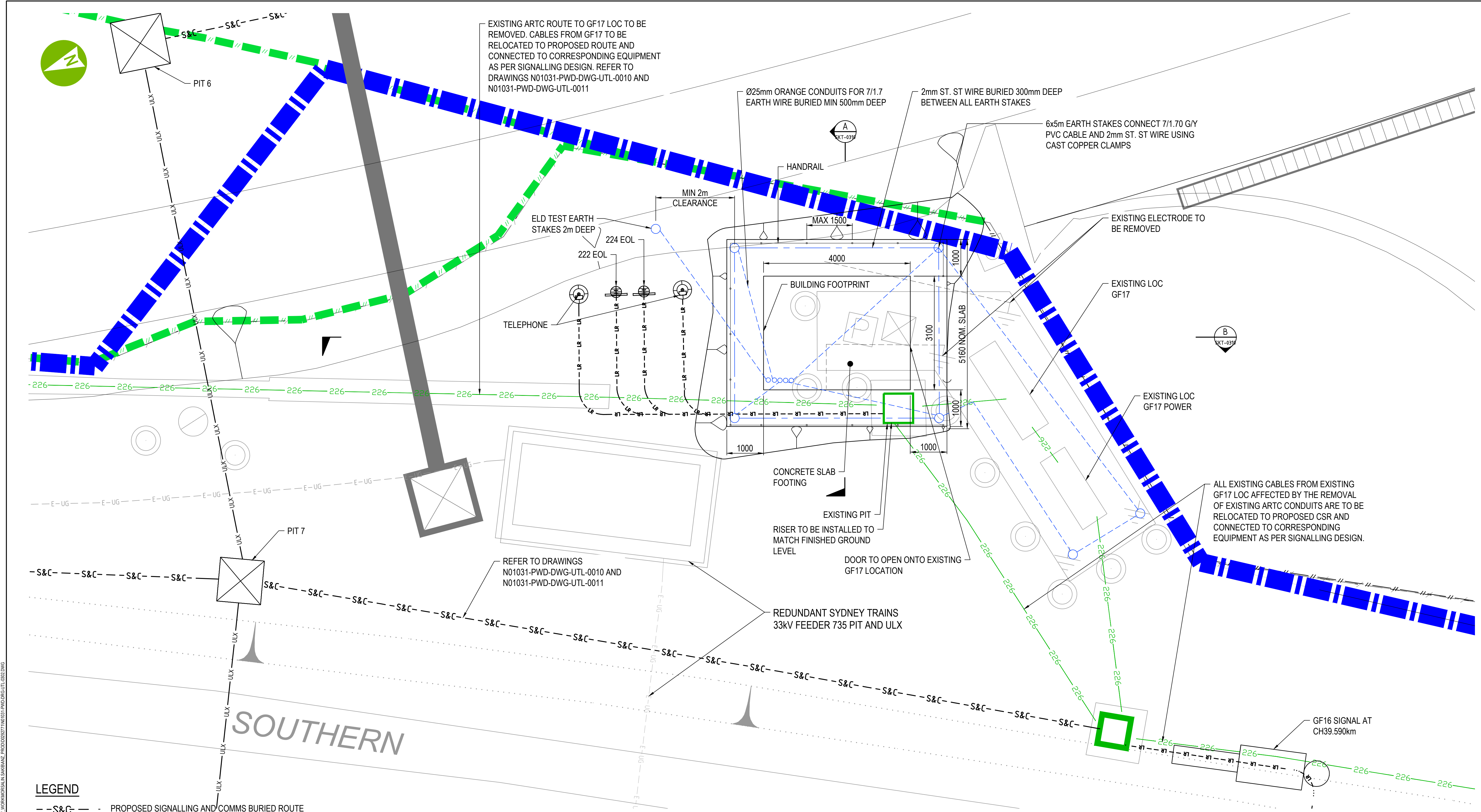
Volume No.
M03

Project No.
10004975

Drawing No.
IMEX -ARC-EL -DWG-0021 -

Issue
04

Rail Corridor - Signal Bungalow



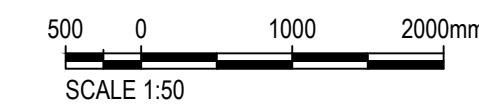
PLAN
1:50

LEGEND

- S&C-- PROPOSED SIGNALLING AND COMMS BURIED ROUTE
- 226 EXISTING ARTC FIBRE CABLE ROUTE
- LR LOCAL ROUTE
- ☒ SERVICES PIT
- ⚡ EOL
- ☎ PHONE
- EXISTING FENCE TO BE REMOVED
- SYDNEY TRAINS BOUNDARY

NOTES

- REPLACE EXISTING GF17 EARTH STAKES WITH NEW 5mm EARTH STAKES AND CONNECT EXISTING CABLES TO THE NEW EARTH STAKE.
- SIGNALLING EARTH GRID TO BE INSTALLED TO THE REQUIREMENTS OF ESC-09-02.
- ALL EARTH LEADS TO BE 7/1.7 GREEN AND YELLOW PVC INSULATED.
- EARTH STAKES TO BE INSTALLED IN SUITABLE INSPECTION PIT (300mm x 300mm).



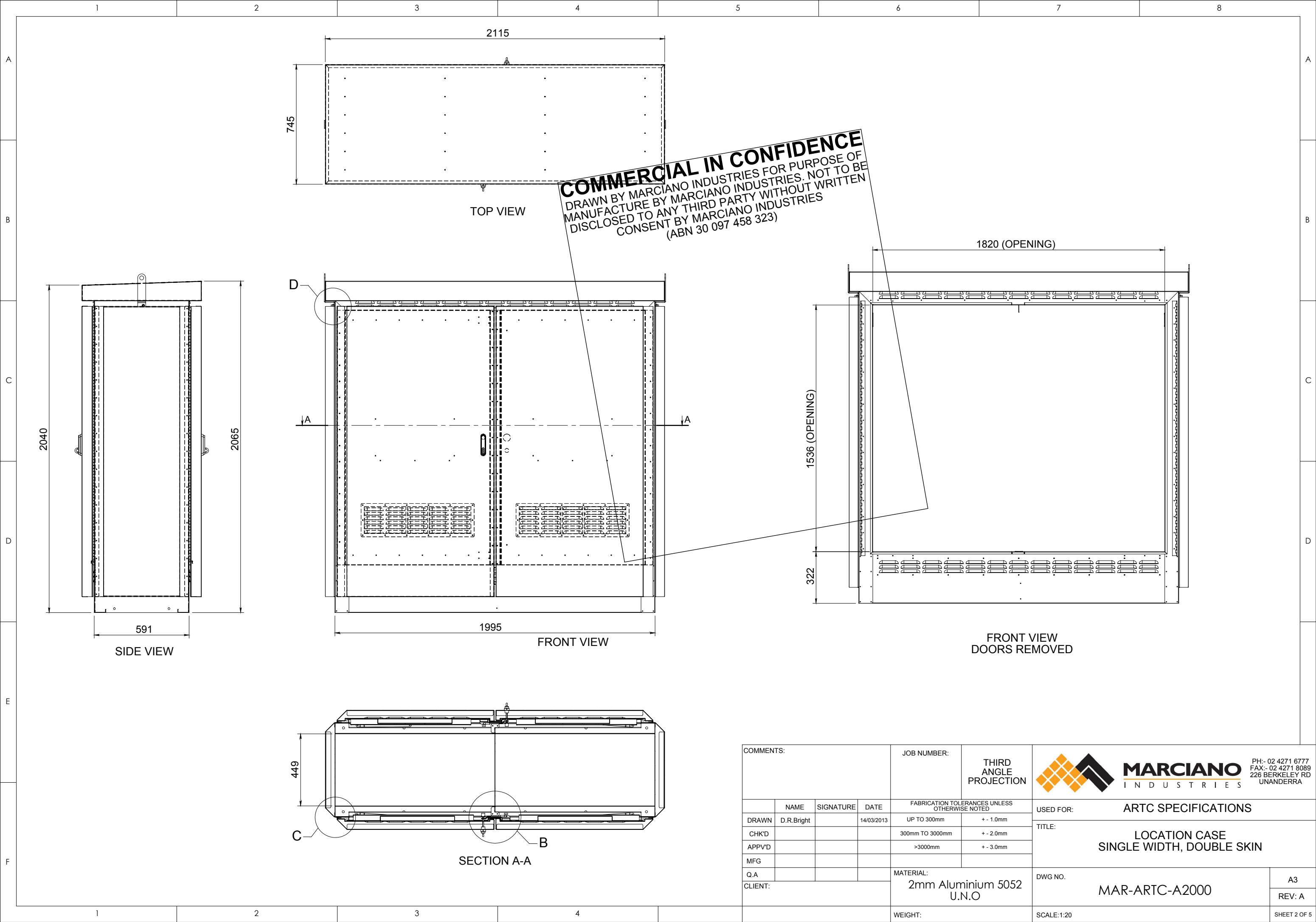
ARTC DRAWING No		EDMS No			EDMS REV	
PROJECT	MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1					
TITLE	SERVICES AND UTILITIES GF 16 GENERAL ARRANGEMENT					
DRAWING No.	PROJECT No.	ZONE	TYPE	DISC	NUMBER	REV
	N01031	- PWD -	DRG	- UTL -	0302	-


REV	DATE	REVISION DETAILS	APPROVED

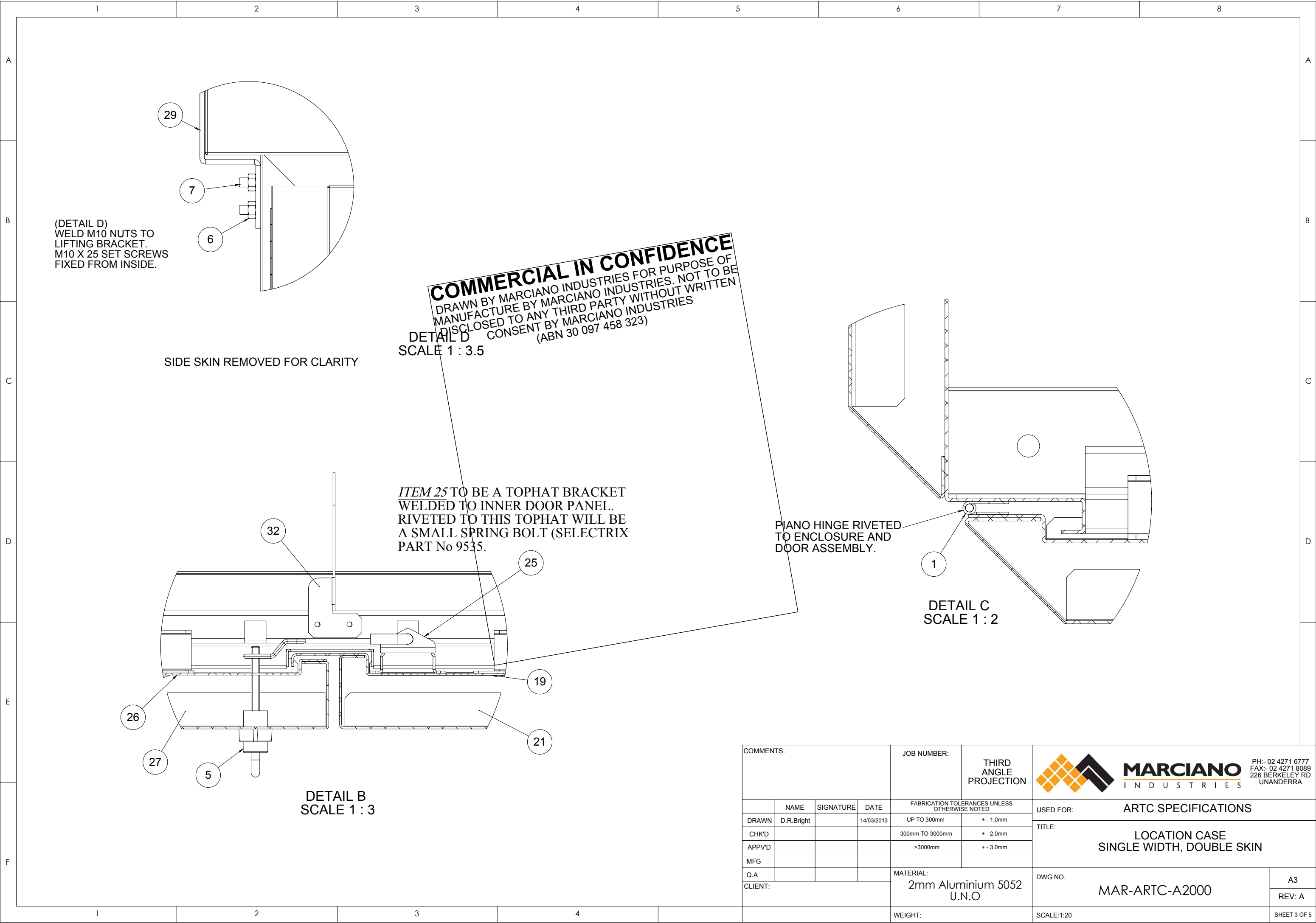
SCALE	SIZE
1:50	A1
DRAWN	
M.BUCKLAND	
DESIGNED	
H.Y.LEUNG	
CHECKED	
A.SHAH	


FOR CONSTRUCTION	
APPROVED	DATE
A. O'SHEA	

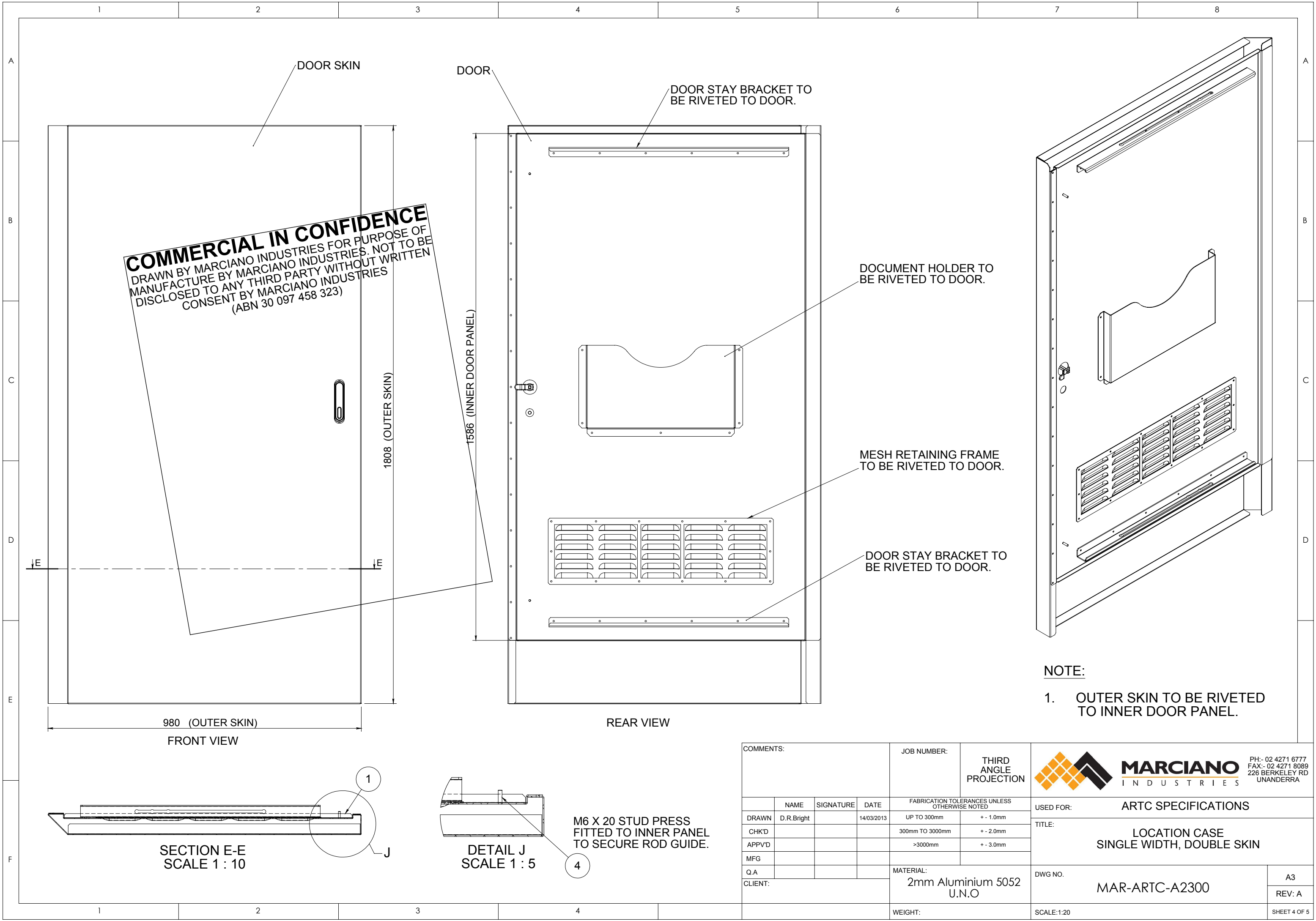
Rail Corridor - Location Case




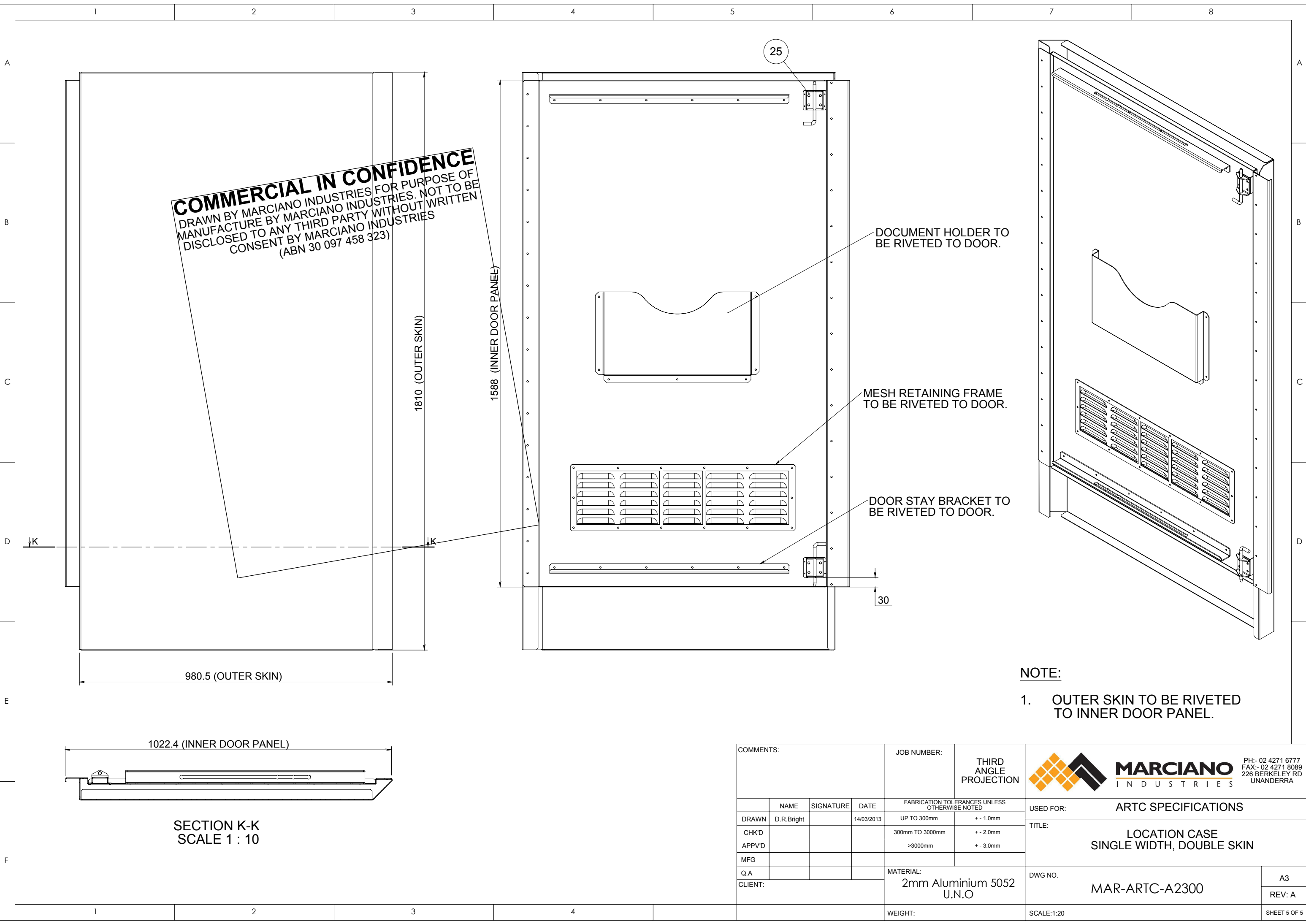
COMMENTS:				JOB NUMBER:		THIRD ANGLE PROJECTION		 <div>MARCIANO INDUSTRIES</div> <div>PH:- 02 4271 6777 FAX:- 02 4271 8089 226 BERKELEY RD UNANDERRA</div>	
	NAME	SIGNATURE	DATE	FABRICATION TOLERANCES UNLESS OTHERWISE NOTED		USED FOR: ARTC SPECIFICATIONS			
DRAWN	D.R.Bright		14/03/2013	UP TO 300mm	+ - 1.0mm	TITLE: LOCATION CASE SINGLE WIDTH, DOUBLE SKIN			
CHK'D				300mm TO 3000mm	+ - 2.0mm				
APPV'D				>3000mm	+ - 3.0mm				
MFG									
Q.A				MATERIAL: 2mm Aluminium 5052 U.N.O		DWG NO.		MAR-ARTC-A2000	
CLIENT:								A3	
								REV: A	
				WEIGHT:		SCALE:1:20		SHEET 2 OF 5	



COMMENTS:				JOB NUMBER:		THIRD ANGLE PROJECTION		 <div>MARCIANO INDUSTRIES</div> <div>PH: 02 4271 6777 FAX:- 02 4271 8089 226 BERKELEY RD UNANDERRA</div>	
				FABRICATION TOLERANCES UNLESS OTHERWISE NOTED		USED FOR: ARTC SPECIFICATIONS			
DRAWN	NAME	SIGNATURE	DATE			TITLE: LOCATION CASE SINGLE WIDTH, DOUBLE SKIN			
CHKD	D.R.Bright		14/03/2013	UP TO 300mm	+ - 1.0mm				
APPV'D				300mm TO 3000mm	+ - 2.0mm				
MFG				>3000mm	+ - 3.0mm				
Q.A									
CLIENT:				MATERIAL: 2mm Aluminium 5052 U.N.O		DWG NO.		MAR-ARTC-A2000	
								A3	
								REV: A	
				WEIGHT:		SCALE:1:20		SHEET 3 OF 5	

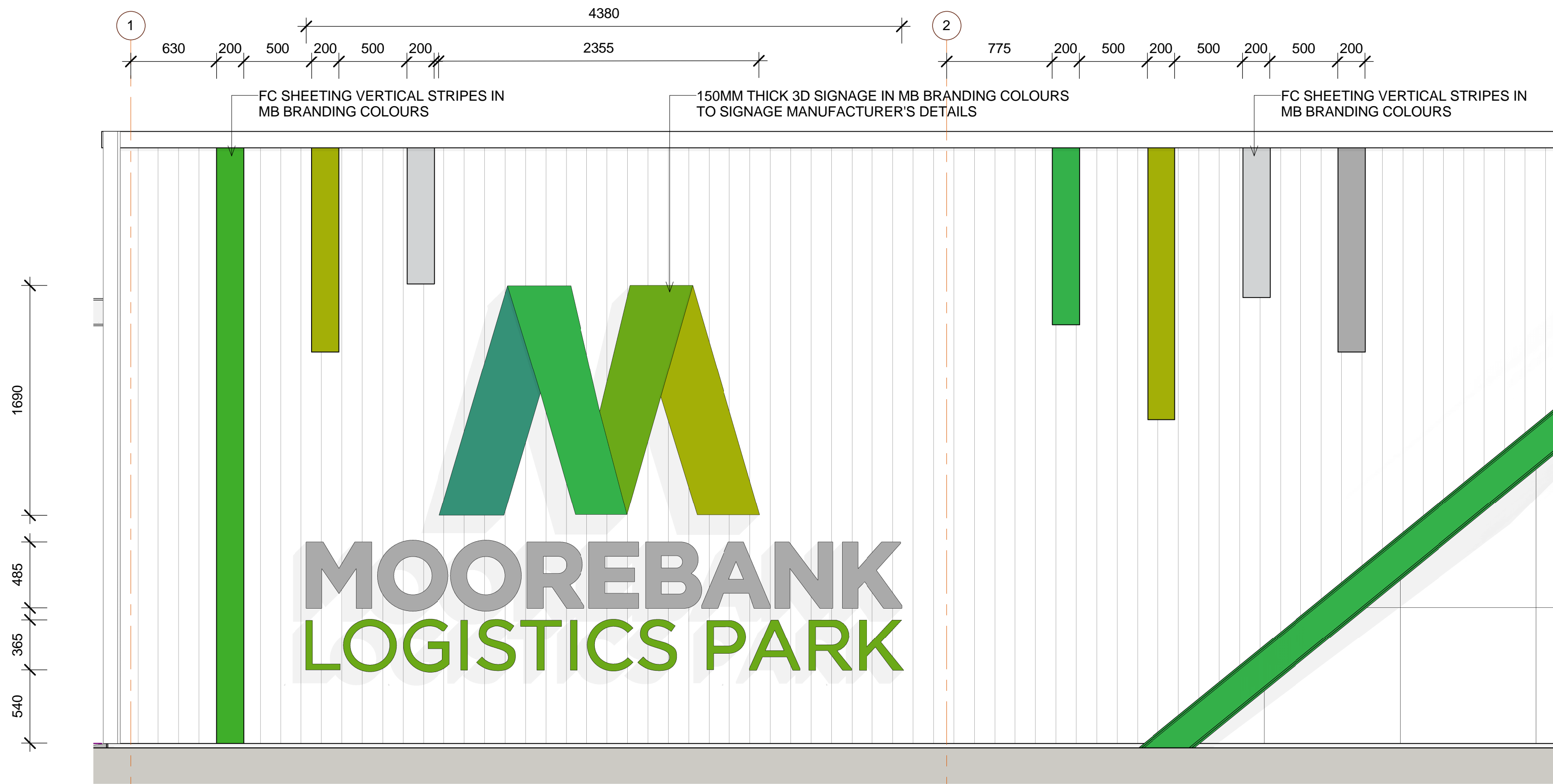


COMMENTS:				JOB NUMBER:		THIRD ANGLE PROJECTION		 <div>MARCIANO INDUSTRIES</div> <div>PH:- 02 4271 6777 FAX:- 02 4271 8089 226 BERKELEY RD UNANDERRA</div>	
	NAME	SIGNATURE	DATE	FABRICATION TOLERANCES UNLESS OTHERWISE NOTED		USED FOR: ARTC SPECIFICATIONS			
DRAWN	D.R.Bright		14/03/2013	UP TO 300mm	+ - 1.0mm	TITLE: LOCATION CASE SINGLE WIDTH, DOUBLE SKIN			
CHK'D				300mm TO 3000mm	+ - 2.0mm				
APPV'D				>3000mm	+ - 3.0mm				
MFG									
Q.A				MATERIAL: 2mm Aluminium 5052 U.N.O		DWG NO. MAR-ARTC-A2300		A3	
CLIENT:								REV: A	
				WEIGHT:		SCALE:1:20		SHEET 4 OF 5	



APPENDIX C

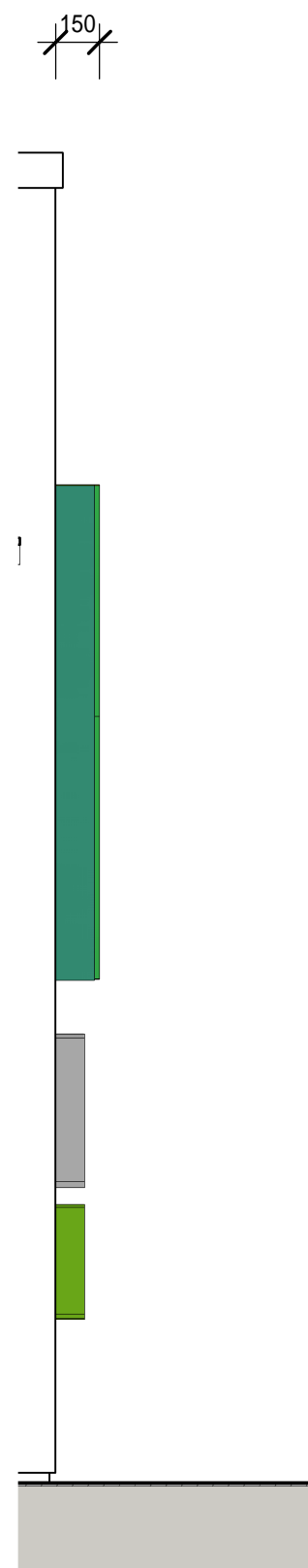
Fencing, Barriers and Gates



1
A720

SIGNAGE ELEVATION

1 : 25



2
A720

SIGNAGE SIDE VIEW

1 : 25

Notes This drawing and design is subject to Reid Campbell (NSW) Pty Ltd copyright and may not be reproduced without prior written consent. Contractor to verify all dimensions on site before commencing work. Report all discrepancies to project manager prior to construction. Figured dimensions to be taken in preference to scaled drawings. All work is to conform to relevant Australian Standards and other Codes as applicable, together with other Authorities' requirements and regulations.	Issue	Description	Date	Ver	Auth
	1	CONSTRUCTION ISSUE	05/05/2017		

REIDCAMPBELL
Architecture, Interiors, Planning
ACN 002 033 901 ABN 28 317 605 875
Level 15, 124 Walker Street
North Sydney NSW 2060 Australia
Tel: 61 02 9954 5011 Email: sydney@reidcampbell.com
Fax: 61 02 9954 4946 Web: www.reidcampbell.com

CONSTRUCTION
DOCUMENTATION

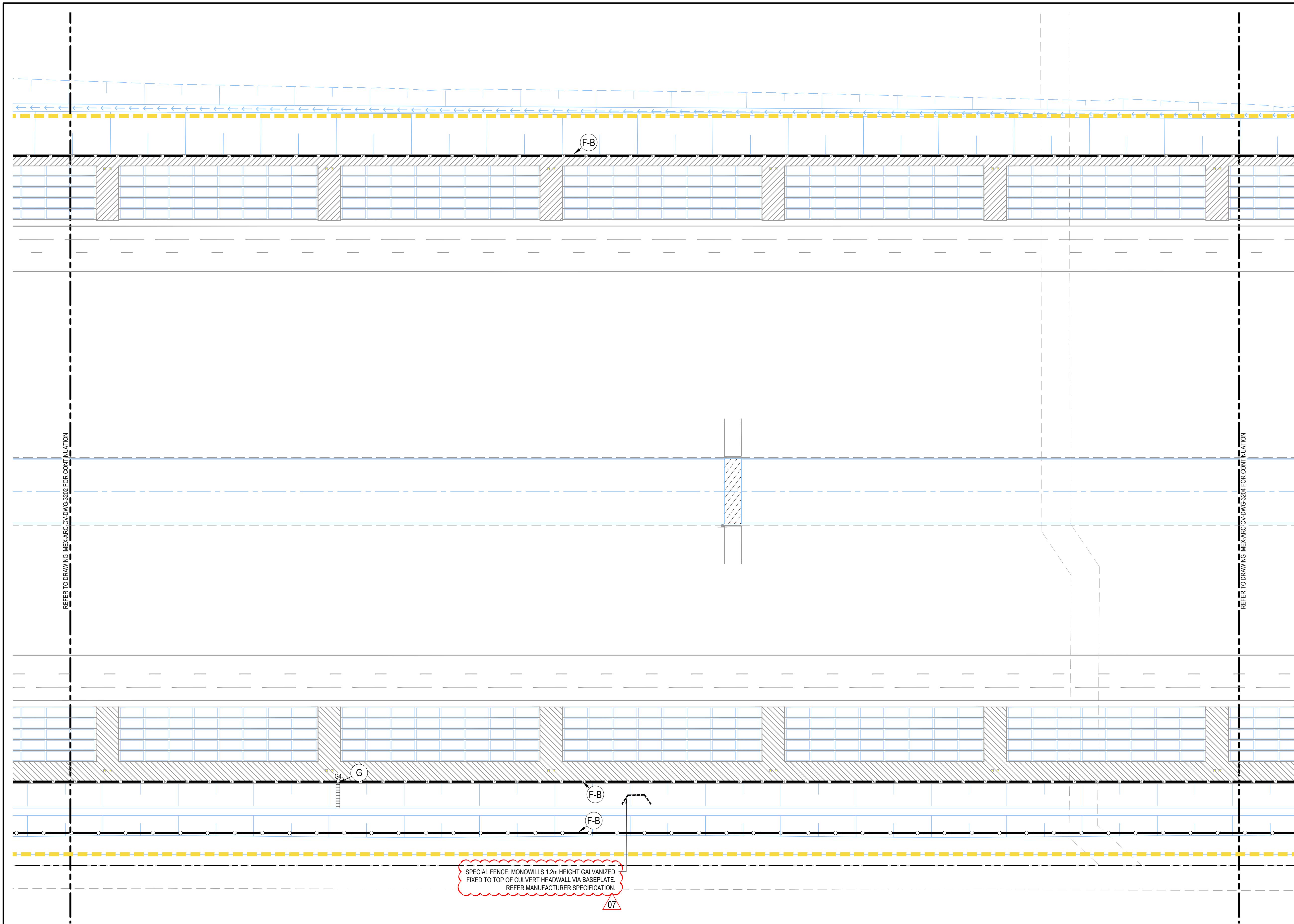


Project
**MOOREBANK INTERMODAL
ADMINISTRATION BUILDING**
MOOREBANK AVENUE, MOOREBANK, NSW

Drawn	Checked	Print Date
Author	Approver	5-May-17 4:37:20 PM

North Point
N/A

NOTES: 1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL CONSULTANT'S DOCUMENTATION INCLUDING SECTION J REPORT (AUTHOR ARCADIS) DATED 12/04/17 AND ACOUSTIC REPORT (AUTHOR WILKINSON MURRAY) DATED 26/04/17		
Drawing Title	EXTERNAL SIGNAGE	
Drawing Number	117101_A_CD_A720	Issue
		1



LEGEND

- IMEX BOUNDARY
- TYPE 1 FENCE
- TYPE 2 FENCE
- TYPE 3 FENCE
- TYPE 4 FENCE
- VEHICLE SWING GATES
- VEHICLE SLIDING GATES
- PEDESTRIAN SWING GATE
- B1 BARRIER WITH FENCE. REFER DRAWING IMEX-ARC-CV-DWG-3111 FOR DETAILS
- SPECIAL FENCE. REFER NOTE ON PLAN.
- ISOLATION PANELS. REFER NOTE ON PLAN.
- GANTRY STEPS - REFER TO DWG 3111 FOR DETAIL
- GATE NUMBER - REFER TO DWG 3001 FOR GATE SCHEDULE
- TURNSTILE

NOTES

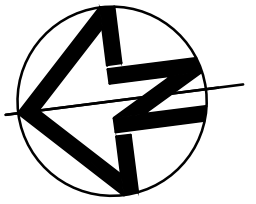
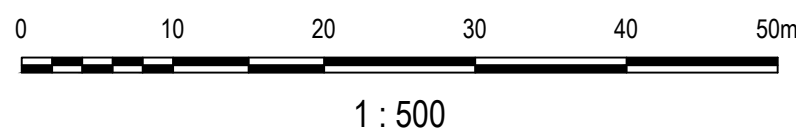
- UNLESS OTHERWISE INDICATED ON PLAN OR ON SETOUT DETAIL, ALL FENCES SHALL USE INDEPENDENT FOOTING. THE USE OF BRACKETS FOR DIRECT CONCRETE PAVEMENT CONNECTION WILL BE INDICATED.
- REFER DRAWING IMEX-ARC-CV-DWG-3001 FOR FURTHER NOTES.
- REFER DRAWING IMEX-ARC-CV-DWG-3201 FOR TYPICAL FENCE SETOUT DETAILS
- GANTRY STEPS TO BE GALVANISED STEEL WITH HANDRAIL IN ACCORDANCE WITH AS165.7 CONCRETE FOOTING AND GANTRY STEP IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION. REFER TO DRAWING IMEX-ARC-CV-DWG-3111 FOR TYPICAL DETAIL.

07

SPECIAL FENCE: MONOWILLS 1.2m HEIGHT GALVANIZED FIXED TO TOP OF CULVERT HEADWALL VIA BASEPLATE. REFER MANUFACTURER SPECIFICATION.

07

Issue	Description	Date
07	AFC UPDATE	05/06/2017
06	AFC UPDATE	19/05/2017
05	AFC UPDATE	17/05/2017
04	ISSUE FOR CONSTRUCTION	12/05/2017
03	ISSUE FOR COMMENTS	10/05/2017
02	REVIEWER COMMENTS INCORPORATED	07/04/2017
01	DETAILED DESIGN	30/03/2017



Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

Status	FOR CONSTRUCTION	
Scales	1 : 500	Current Issue Signatures
Original Size	A1	Drawn B.SHAW
Height Datum	AHD	Designed L.CORSCADDEN
Grid	MGA	Checked G.DE SILVA
Filename:	IMEX-ARC-CV-DWG-3203-FencingPlanSheet3.dwg	
		Approved M.KEFFORD

Project

MOOREBANK MPE
STAGE 1
IMEX NUMBER 1

Title

FENCING AND GATE PLAN
SHEET 3

ARCADIS

Arcadis Australia Pacific Pty Limited
Level 5, 141 Walker St
NORTH SYDNEY NSW 2060
ABN 76 104 485 289

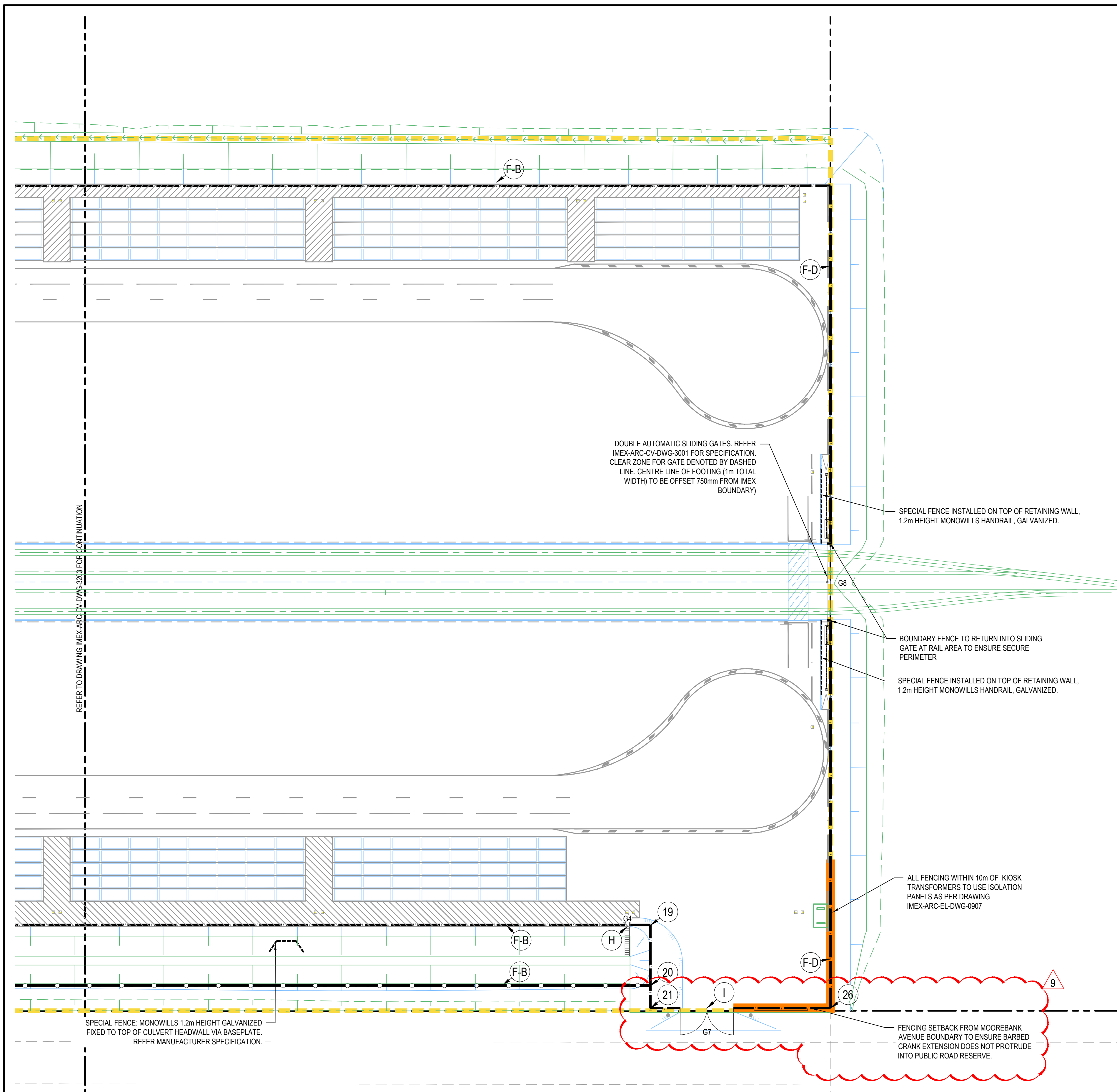
Tel No: +61 2 8907 9000
Fax No: +61 2 8907 9001
arcadis.com

Volume No.
M06

Project No.
10004975

Drawing No.
IMEX -ARC-CV-DWG-3203-

Issue
07



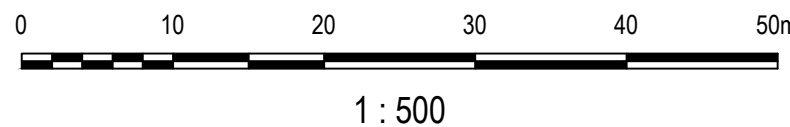
LEGEND

- IMEX BOUNDARY
- TYPE 1 FENCE
- TYPE 2 FENCE
- TYPE 3 FENCE
- TYPE 4 FENCE
- VEHICLE SWING GATES
- VEHICLE SLIDING GATES
- PEDESTRIAN SWING GATE
- B1 BARRIER WITH FENCE. REFER DRAWING IMEX-ARC-CV-DWG-3111 FOR DETAILS
- SPECIAL FENCE. REFER NOTE ON PLAN.
- ISOLATION PANELS. REFER NOTE ON PLAN.
- GANTRY STEPS - REFER TO DRAWING IMEX-ARC-CV-DWG-3111 FOR DETAIL
- GX GATE NUMBER - REFER TO DRAWING IMEX-ARC-CV-DWG-3001 FOR GATE SCHEDULE
- T1 TURNSTILE

NOTES

- UNLESS OTHERWISE INDICATED ON PLAN OR ON SETOUT DETAIL, ALL FENCES SHALL USE INDEPENDENT FOOTING. THE USE OF BRACKETS FOR DIRECT CONCRETE PAVEMENT CONNECTION WILL BE INDICATED.
- REFER DRAWING IMEX-ARC-CV-DWG-3001 FOR FURTHER NOTES.
- REFER DRAWING IMEX-ARC-CV-DWG-3201 FOR TYPICAL FENCE SETOUT DETAILS.
- GANTRY STEPS TO BE GALVANISED STEEL WITH HANDRAIL IN ACCORDANCE WITH AS165.7 CONCRETE FOOTING AND GANTRY STEP IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION. REFER TO DRAWING IMEX-ARC-CV-DWG-3111 FOR TYPICAL DETAIL.

09	AFC UPDATE	07/07/2017
08	AFC UPDATE	05/06/2017
07	AFC UPDATE	19/05/2017
06	AFC UPDATE	17/05/2017
05	ISSUE FOR CONSTRUCTION	12/05/2017
04	ISSUE FOR COMMENTS	10/05/2017
03	PROVIDED PRODUCT SPECIFICATION FOR RAIL GATE	03/05/2017
02	REVIEWER COMMENTS INCORPORATED	07/04/2017
01	DETAILED DESIGN	30/03/2017
Issue	Description	Date



Client



Status

FOR CONSTRUCTION

Scales

1 : 500

Current Issue Signatures

Original Size

A1

Height Datum

AHD

Grid

MGA

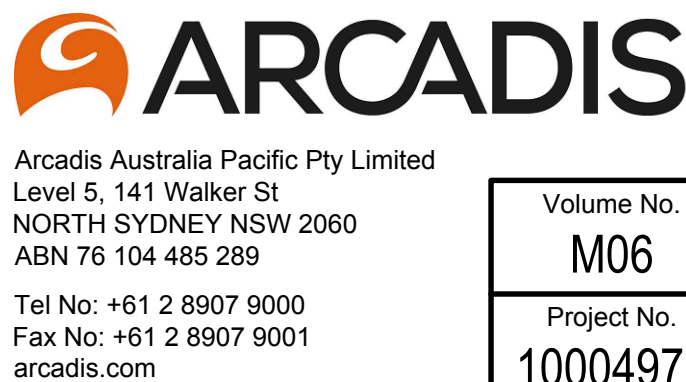
Drawn J.RAMOS
Designed L.CORSCADDEN
Checked G.DE SILVA
Approved M.KEFFORD
Filename: IMEX-ARC-CV-DWG-3204-FencingPlanSheet4.dwg

Project

MOOREBANK MPE
STAGE 1
IMEX NUMBER 1

Title

FENCING AND GATE PLAN
SHEET 4



Volume No. M06
Project No. 10004975
Drawing No. IMEX -ARC-CV-DWG-3204-
Issue 09

GENERAL NOTES

- 1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
- 2. PROPOSED CHAIN WIRE FENCE TO BE IN ACCORDANCE WITH SYDNEY TRAINS DRAWING CV 0285934 WITH NO BARBED WIRE.
- 3. PROPOSED INSULATED CHAIN WIRE FENCE TO BE IN ACCORDANCE WITH SYDNEY TRAINS DRAWING CV 0285942 WITH NO BARBED WIRE.
- 4. PROPOSED CHAIN WIRE GATE TO BE IN ACCORDANCE WITH SYDNEY TRAINS DRAWING CV 0285938 AND CV 0285939 WITH NO BARBED WIRE.
- 5. INSULATION PANELS ARE TO BE INSTALLED EVERY 100 METRES BETWEEN CHAINAGE 40km950 AND 41km750 ON THE NORTHERN PERIMETERS.
- 6. ALL FENCE POSTS AND FOOTINGS TO BE COORDINATED ON SITE BY CONTRACTOR. POT HOLING REQUIRED PRIOR TO ANY EXCAVATION OR CONSTRUCTION TO IDENTIFY EXISTING INFRASTRUCTURE AND SERVICES.

FENCING

- 1. CHAIN-LINK FABRIC FENCES ARE TO BE INSTALLED IN ACCORDANCE WITH SYDNEY TRAINS STANDARD DRAWINGS CV0285934, CV0285938, CV0285939 AND CV0285942.
- 2. EXISTING FENCES THAT ARE TO BE INCORPORATED INTO THIS DESIGN THAT DO NOT COMPLY WITH THE DESIGN REQUIREMENTS AS SET OUT IN ESC 510 ARE TO BE REPLACED WITH NEW FENCING AS SET OUT IN ESC 510.
- 3. WHERE EXISTING FENCE IS TO BE CUT AND TIED INTO PROPOSED FENCE, THEY ARE TO TERMINATE ON THEIR OWN END POST TO THE SATISFACTION OF THE OWNER. THE CONNECTION BETWEEN THE PRIVATE FENCE AND THE RAILWAY BOUNDARY FENCE IS TO BE ADEQUATE FOR STOCK OR TRESPASS CONTROL.
- 4. WHERE THE FENCE IS REQUIRED TO BE ERECTED ON AN EXISTING CURVED BOUNDARY, THE FENCE IS TO BE ERECTED AS A SERIES OF CHORDS OR TANGENTS WITH THE DISTANCE BETWEEN THE POSTS REDUCED, IN ACCORDANCE WITH ASA STANDARD (T HR CI 12160 ST).
- 5. URBAN FENCES ARE TO BE 1800mm HIGH, PLAIN TOP CHAIN-LINK FABRIC FENCE IN ACCORDANCE WITH AS1725.
- 6. ALL ACCESS GATES ARE TO HAVE THE STANDARD RAIL BOUNDARY GATE SIGN ATTACHED.

BOLLARDS, STEEL CHAINS AND PADLOCKS

- 1. BOLLARDS TO MEET THE FOLLOWING REQUIREMENTS, ARTC-11-01 SECTION 16.4
 - BOLLARDS TO HAVE EYELETS FOR CONNECTING THE CHAIN TO THE EYELETS.
 - THE BOLLARDS TO BE CONSTRUCTED OF GREATER THAN OR EQUAL 100mm NOMINAL BORE HEAVY GALVANISED STEEL PIPE TO AS1074 AND TO INCLUDE CAPS.
 - IN-GROUND BOLLARDS SHALL BE CONCRETED 1m INTO THE GROUND.
 - THE MINIMUM HEIGHT ABOVE GROUND LEVEL TO BE 1.5m AND THE BOLLARDS TO BE FINISHED IN GLOSS WHITE ENAMEL.
- 2. CHAIN TO BE HEAVY DUTY 6mm GALVANISED FINISH CHAIN WITH 22X35mm (OR SIMILAR) LINKS.
- 3. ALL PADLOCKS TO BE STANDARD BRASS PADLOCK.
- 4. FOR PADLOCK SCHEDULE, REFER TO DRAWING N01031-PWD-DRG-FEN-0041.

INSULATION PANELS

- 1. INSULATION PANELS ARE TO BE A MINIMUM OF 2200mm IN LENGTH.
- 2. NON-METALLIC POSTS OF THE INSULATION PANELS ARE TO HAVE A MINIMUM CLEARANCE OF 50mm AND MAXIMUM CLEARANCE OF 100mm FROM THE ADJACENT METALLIC POST OF THE CONTINUOUS FENCING.
- 3. INSULATION PANEL NON-METALLIC FENCING MUST HAVE A WARNING SIGN ATTACHED AS SHOWN IN SYDNEY TRAINS STANDARD DRAWING CV0285942.

SIGNAGE

- 1. ALL W560 SIGNS ARE TO BE INSTALLED ON GATES TO ACCESS THE RAIL CORRIDOR FACING THE NON-RAIL CORRIDOR SIDE.
- 2. ALL SIGNS ARE TO BE INSTALLED 1500mm ABOVE THE FINISHED LEVEL AT THE LOCATION THAT THEY ARE INSTALLED.
- 3. ALL SIGN ARE TO BE INSTALLED IN ACCORDANCE WITH ARTC STANDARDS ETF-11-01 AND ETF-16-01.
- 4. ALL SIGNAGE TO BE PROVIDED IN ACCORDANCE WITH ARTC ENGINEERING STANDARD SPS 03.
- 5. LIMITED CLEARANCE SIGNS TO BE INSTALLED IN ACCORDANCE WITH T HR CI 12070 ST (SECTION 6.4). IN ACCORDANCE WITH T HR CI 12070 ST THE CENTRE OF THE SIGNS TO BE LOCATED APPROXIMATELY 1.5 METRES ABOVE THE GROUND. THE 'LIMITED CLEARANCE' SIGN TO BE ATTACHED ON THE HANDRAILS OR END OF THE WALL STRUCTURES AND POSITIONED SO THAT IT IS CLEARLY VISIBLE TO WORKERS APPROACHING THE WALL STRUCTURE.
- 6. NO SAFE PLACE SIGNS TO BE INSTALLED IN ACCORDANCE WITH T HR CI 12070 ST (SECTION 7.0) AND SHALL COMPLY WITH DRAWING CV 0282111. DETAILS OF FIXING BRACKETS, BOLTS, ETC. ARE DETAILED IN THE DRAWING CV 0282111. ALL SIGNS TO BE POST MOUNTED. THE CENTRE OF THE SIGN TO BE LOCATED APPROXIMATELY 1.5 METRES ABOVE THE GROUND. THE CLOSEST PART OF THE SIGN SHALL NOT BE ANY CLOSER TO THE GAUGE FACE OF THE NEAREST RUNNING RAIL THAN 1800 MM.
- 7. SIGNALLING SIGNAGE TO BE PROVIDED IN ACCORDANCE WITH SIGNALLING STANDARDS AND SPECIFICATIONS ANSG 604, SPS 03 AND SPG 1210.
- 8. LIMITED CLEARANCE SIGN, NETWORK CONTROL BOUNDARY SIGN, RMS R2-4, NO VEHICULAR ACCESS SIGN, ACCESS SYDNEY TRAIN CORRIDOR SIGN, ACCESS SIMTA RAIL CORRIDOR SIGN, RMS R6-11 SIGN AND RMS R6-11 SIGN TO BE MOUNTED ON POSTS 1.5m ABOVE THE NEAREST EDGE OF TRAVELLED WAY IN ACCORDANCE WITH AS 1742.2-2009 CLAUSE D2.3.4.
- 9. RX-2 ASSEMBLY SIGNS TO BE MOUNTED ON POSTS 1.5m ABOVE THE NEAREST EDGE OF TRAVELLED WAY IN ACCORDANCE WITH AS 1742.7:2016 CLAUSE B2.3.4.
- 10. KILOMETRE AND HALF KILOMETRE POSTS TO BE INSTALLED IN ACCORDANCE WITH RAILCORP ENGINEERING STANDARD ESC 210 SECTION 8.3 (KILOMETRE POSTS) AND MANUFACTURED IN ACCORDANCE WITH SPC 213. LATERAL PLACEMENT OF KILOMETRE POSTS IN ACCORDANCE WITH RAILCORP ENGINEERING STANDARD ESC 210 FIGURE 16.

Plot Date: 16/01/17 10:18 PM Client: AUSTRALIAN Drawing: C-001 - WORKING DRAWING N01031-PWD-DRG-FEN-0005.DWG

REV	DATE	REVISION DETAILS	APPROVED
01	17.02.17	ACCEPTED FOR CONSTRUCTION	A.O'SHEA
02	01.06.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA

SCALE	SIZE
N.T.S.	A1
DRAWN	
A.LITTLE	
DESIGNED	
M.SAKIB	
CHECKED	
S.MURPHY	

FOR CONSTRUCTION	
APPROVED	
	DATE
A. O'SHEA	01.06.17
A.O'SHEA	

ARTC DRAWING No		EDMS No		EDMS REV		
PROJECT	MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1					
TITLE	FENCING GENERAL NOTES					
DRAWING No.	PROJECT No.	ZONE	TYPE	DISC	NUMBER	REV
	N01031	- PWD	- DRG	- FEN	- 0005	- 02



GEORGES RIVER

From
Sydney

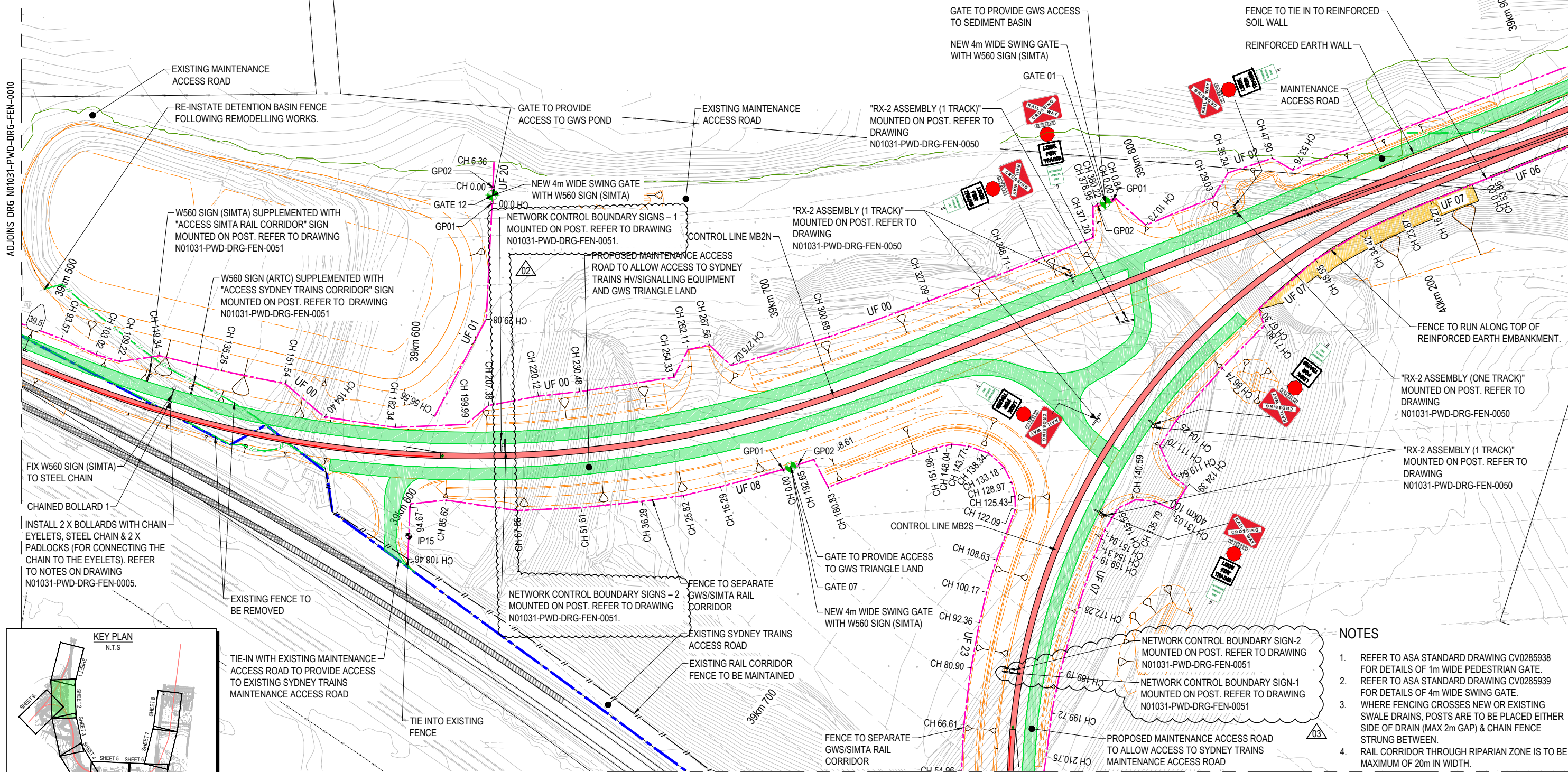
To Moorebank Imex
Terminal

LEGEND

	PROPOSED TRACK ALIGNMENT		CADASTRAL BOUNDARY		RIPARIAN VEGETATION MANAGEMENT PLAN BOUNDARIES
	PROPOSED SECURITY FENCE		CONTOUR		SIGN LOCATION
	4m WIDE SWING GATE		EXISTING FENCE		km SIGNS
	1m WIDE PEDESTRIAN GATE		EXISTING FENCE TO BE INCORPORATED WITH NEW FENCE		HALF km SIGNS
	PROPOSED REINFORCED EARTH WALL		EXISTING FENCE TO BE REMOVED		
	FUTURE INTERMODAL TERMINAL TRACK ALIGNMENT		INSULATION PANEL		

ADJOINS DRG N01031-PWD-DRG-FEN-0010

ADJOINS DRG N01031-PWD-DRG-FEN-0012



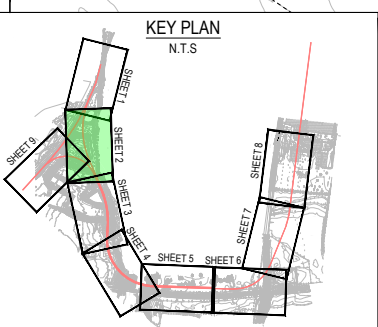
PLAN
1:500

ADJOINS DRG N01031-PWD-DRG-FEN-0018

5 0 10 20m
SCALE 1:500

NOTES

- REFER TO ASA STANDARD DRAWING CV0285938 FOR DETAILS OF 1m WIDE PEDESTRIAN GATE.
- REFER TO ASA STANDARD DRAWING CV0285939 FOR DETAILS OF 4m WIDE SWING GATE.
- WHERE FENCING CROSSES NEW OR EXISTING SWALE DRAINS, POSTS ARE TO BE PLACED EITHER SIDE OF DRAIN (MAX 2m GAP) & CHAIN FENCE STRUNG BETWEEN.
- RAIL CORRIDOR THROUGH RIPARIAN ZONE IS TO BE MAXIMUM OF 20m IN WIDTH.



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CLIENT

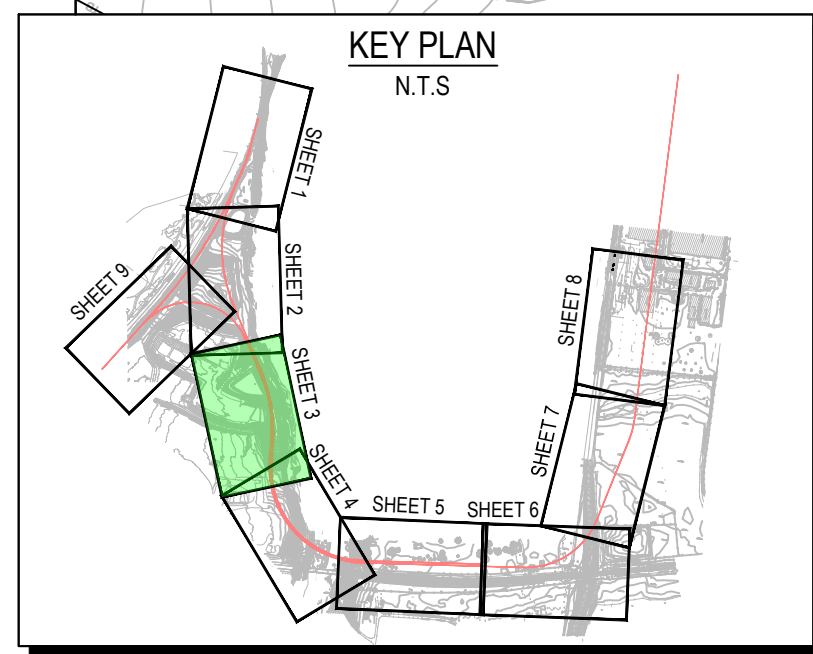
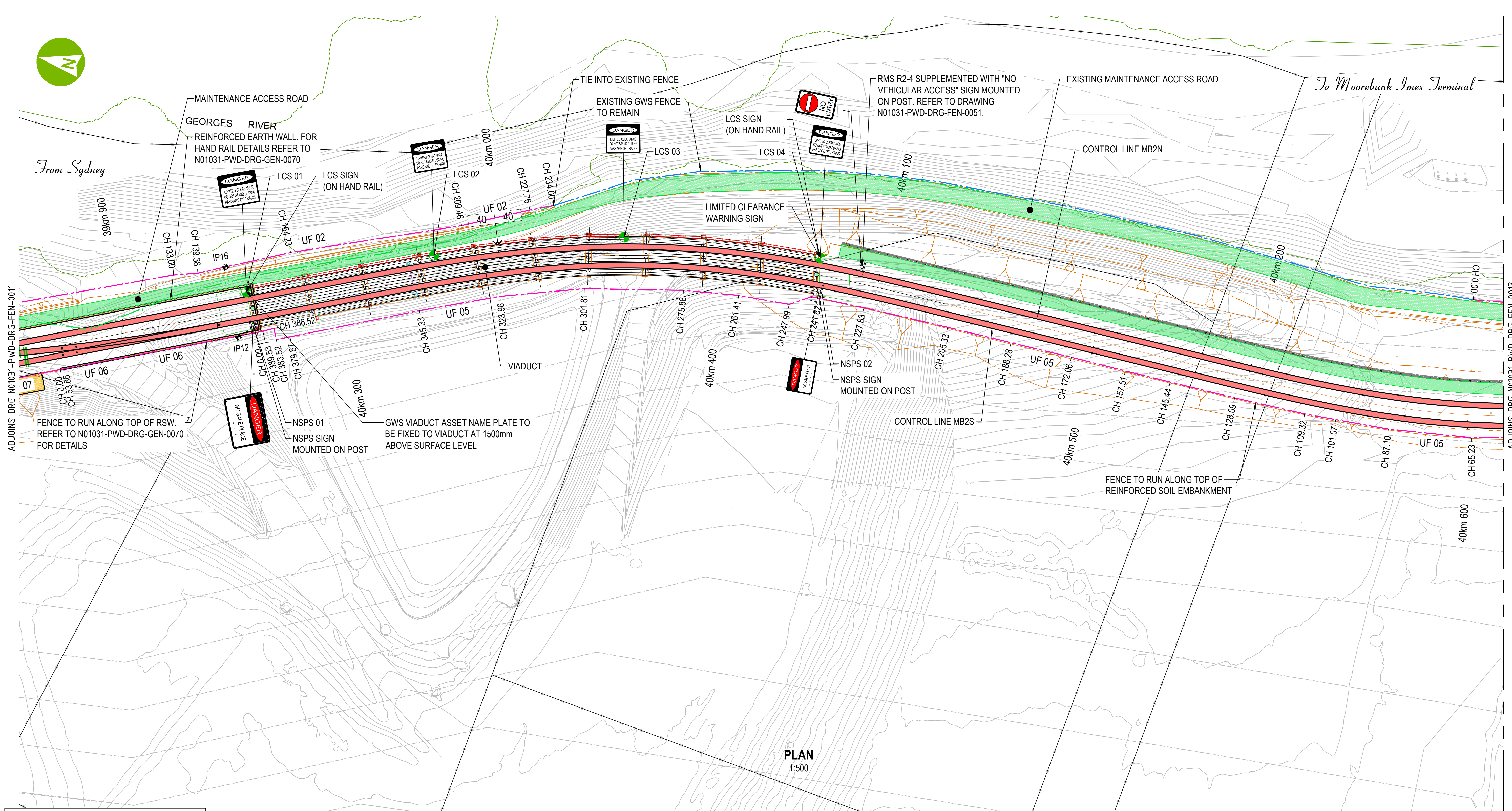


REV	DATE	REVISION DETAILS	APPROVED
01	17.02.17	ACCEPTED FOR CONSTRUCTION	A.O'SHEA
02	13.04.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA
03	01.06.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA

SCALE	SIZE
AS SHOWN	A1
DRAWN	A.LITTLE
DESIGNED	M.SAKIB
CHECKED	S.MURPHY

FOR CONSTRUCTION
APPROVED
DATE 01.06.17
A.O'SHEA

PROJECT	MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1
TITLE	FENCING GENERAL ARRANGEMENT PLAN SHEET 2 OF 9
DRAWING No.	N01031
PROJECT No.	PWD
ZONE	DRG
TYPE	FEN
DISC	
NUMBER	0011
REV	03



LEGEND

	PROPOSED TRACK ALIGNMENT		CADASTRAL BOUNDARY		RIPIARIAN VEGETATION MANAGEMENT PLAN BOUNDARIES
	PROPOSED SECURITY FENCE		CONTOUR		SIGN LOCATION
	4m WIDE SWING GATE		EXISTING FENCE		km SIGNS
	1m WIDE PEDESTRIAN GATE		EXISTING FENCE TO BE INCORPORATED WITH NEW FENCE		HALF km SIGNS
	PROPOSED REINFORCED EARTH WALL		EXISTING FENCE TO BE REMOVED		
	FUTURE INTERMODAL TERMINAL TRACK ALIGNMENT		INSULATION PANEL		

NOTES

- REFER TO ASA STANDARD DRAWING CV0285938 FOR DETAILS OF 1m WIDE PEDESTRIAN GATE.
- REFER TO ASA STANDARD DRAWING CV0285939 FOR DETAILS OF 4m WIDE SWING GATE.
- WHERE FENCING CROSSES NEW OR EXISTING SWALE DRAINS, POSTS ARE TO BE PLACED EITHER SIDE OF DRAIN (MAX 2m GAP) & CHAIN FENCE STRUNG BETWEEN.
- RAIL CORRIDOR THROUGH RIPARIAN ZONE IS TO BE MAXIMUM OF 20m IN WIDTH.

5 0 10 20m
SCALE 1:500

ARTC DRAWING No. EDMS No. EDMS REV.

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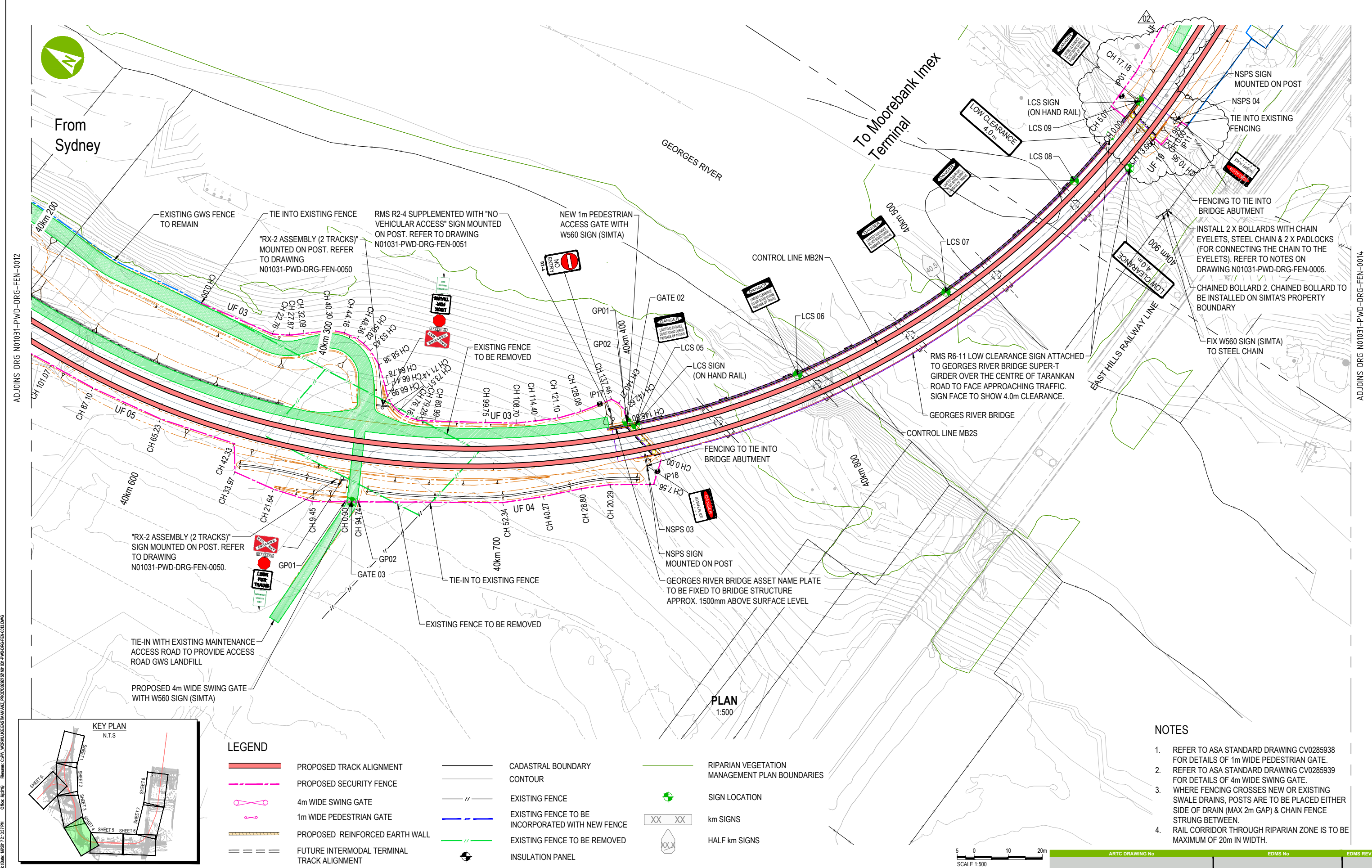


REV	DATE	REVISION DETAILS	APPROVED
01	17.02.17	ACCEPTED FOR CONSTRUCTION	A.O'SHEA

SCALE	SIZE
AS SHOWN	A1
DRAWN	A.LITTLE
DESIGNED	P.NOONAN
CHECKED	M.SAKIB

FOR CONSTRUCTION
APPROVED
A.O'SHEA
A.O'SHEA

PROJECT	MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1
TITLE	FENCING GENERAL ARRANGEMENT PLAN SHEET 3 OF 9
DRAWING No.	N01031
PROJECT No.	N01031
ZONE	PWD
TYPE	DRG
DISC	FEN
NUMBER	0012
REV	01



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REV	DATE	REVISION DETAILS	APPROVED	SCALE	SIZE
01	17.02.17	ACCEPTED FOR CONSTRUCTION	A.O'SHEA	AS SHOWN	A1
02	01.06.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA		

FOR CONSTRUCTION	PROJECT	TITLE	DRAWING No.	PROJECT No.	ZONE	TYPE	DISC	NUMBER	REV
	MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1	FENCING GENERAL ARRANGEMENT PLAN SHEET 4 OF 9	N01031	N01031	PWD	DRG	FEN	0013	02

DATE 01.06.17

A. O'SHEA



From
Sydney

To Moorebank Imex
Terminal

FENCE FOOTINGS TO BE LOCALLY
RELOCATED AROUND BELOW GROUND
DRAINAGE PIPE

RMS R2-4 SUPPLEMENTED WITH "NO
VEHICULAR ACCESS" SIGN MOUNTED ON POST.
REFER TO DRAWING N01031-PWD-DRG-FEN-0051

EXISTING TARAKAN ROAD

GATE 04
4m WIDE SWING GATE
WITH W560 SIGN (SIMTA)

MAINTENANCE ACCESS ROAD

CONTROL LINE MB2S

CH 206.22

40km 900

CH 291.43

GEORGES RIVER
BRIDGE

LCS SIGN (ON
HAND RAIL)
LCS 09

LCS 08

CH 5.07

CH 17.18

UF 09

GP01

CH 36.18

CH 46.96

UF 10

GP02

CH 126.7

CH 127.08

CH 121.63

CH 147.61

UF 10

IP03

CH 121.63

CH 147.61

CH 127.08

CH 121.63

CH 147.61

CH 127.08

CH 121.63

CH 147.61

CH 127.08

CH 121.63

CH 147.61

CH 127.08

CH 121.63

CH 147.61

CH 127.08

CH 121.63

CH 147.61

CH 127.08

CH 121.63

CH 147.61

CH 127.08

CH 121.63

CH 147.61

CH 127.08

CH 121.63

FENCING TO TIE INTO
BRIDGE ABUTMENT

UF 19

CH 13.66

CH 1.96

CH 0.00

IP11

CH 10.95

NSPS 04

NSPS SIGN
MOUNTED ON POST

INSTALL 2 X BOLLARDS WITH CHAIN
EYELETS, STEEL CHAIN & 2 X PADLOCKS
(FOR CONNECTING THE CHAIN TO THE
EYELETS). REFER TO NOTES ON
DRAWING N01031-PWD-DRG-FEN-0005.

CHAINED BOLLARD 2. CHAINED BOLLARD TO
BE INSTALLED ON SIMTA'S PROPERTY
BOUNDARY

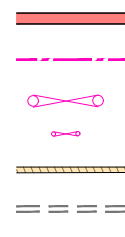
FIX W560 SIGN (SIMTA)
TO STEEL CHAIN

EAST
HILLS
RAILWAY
LINE

EAST HILLS RAILWAY LINE

PLAN
1:500

LEGEND



PROPOSED TRACK ALIGNMENT

PROPOSED SECURITY FENCE

4m WIDE SWING GATE

1m WIDE PEDESTRIAN GATE

PROPOSED REINFORCED EARTH WALL

FUTURE INTERMODAL TERMINAL
TRACK ALIGNMENT

CADASTRAL BOUNDARY

CONTOUR

EXISTING FENCE

EXISTING FENCE TO BE
INCORPORATED WITH NEW FENCE

EXISTING FENCE TO BE REMOVED

INSULATION PANEL

RIPIARIAN VEGETATION
MANAGEMENT PLAN BOUNDARIES

SIGN LOCATION

XX XX km SIGNS

XX X HALF km SIGNS

NOTES

- REFER TO ASA STANDARD DRAWING CV0285938 FOR DETAILS OF 1m WIDE PEDESTRIAN GATE.
- REFER TO ASA STANDARD DRAWING CV0285939 FOR DETAILS OF 4m WIDE SWING GATE.
- WHERE FENCING CROSSES NEW OR EXISTING SWALE DRAINS, POSTS ARE TO BE PLACED EITHER SIDE OF DRAIN (MAX 2m GAP) & CHAIN FENCE STRUNG BETWEEN.
- RAIL CORRIDOR THROUGH RIPARIAN ZONE IS TO BE MAXIMUM OF 20m IN WIDTH.

5 0 10 20m
SCALE 1:500

ARTC DRAWING No EDMS No EDMS REV

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CPB
CONTRACTORS

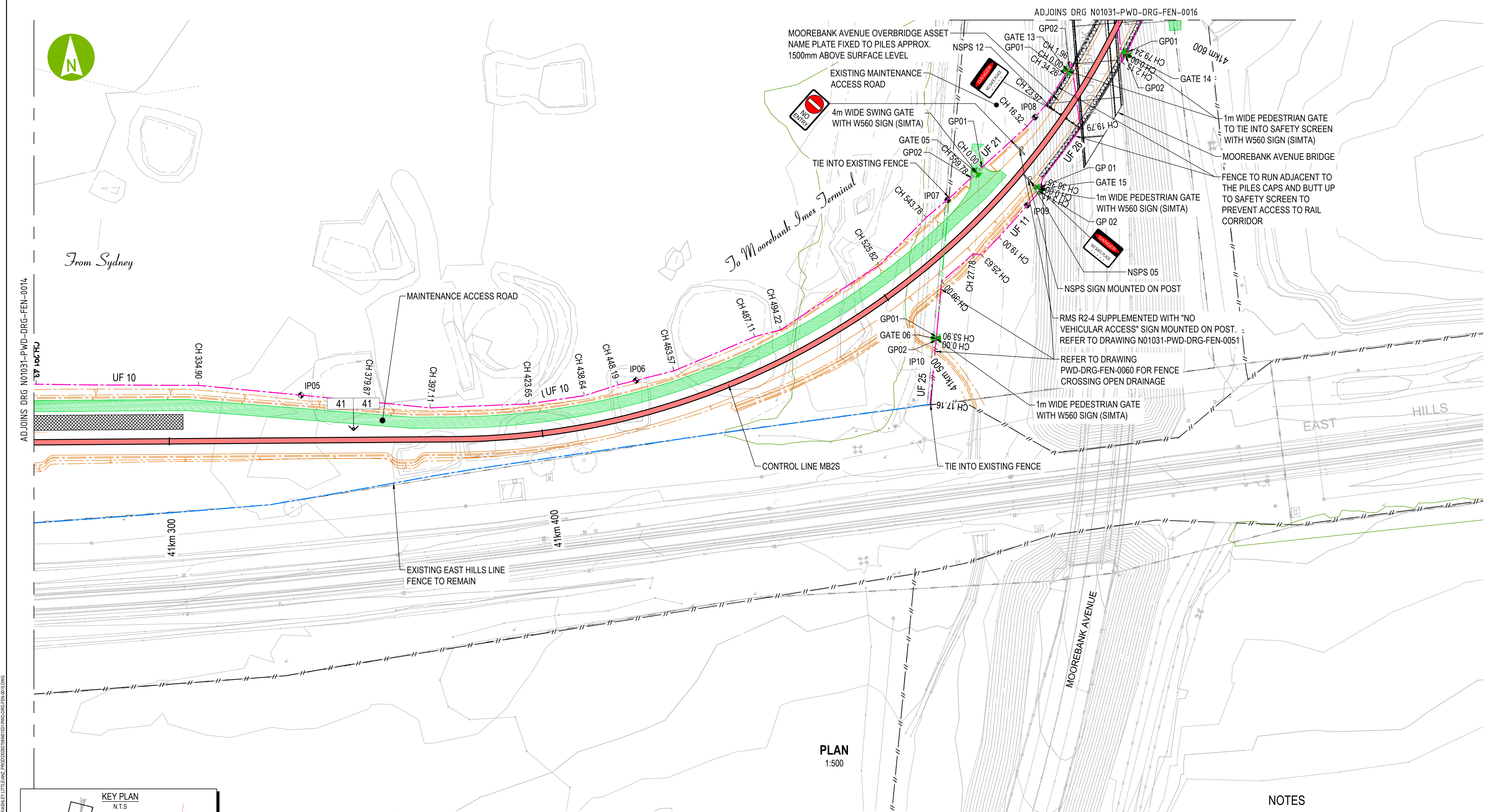
SIMTA SYDNEY
INTERMODAL
TERMINAL
ALLIANCE

REV	DATE	REVISION DETAILS	APPROVED
01	17.02.17	ACCEPTED FOR CONSTRUCTION	A.O'SHEA
02	13.04.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA
03	01.06.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA

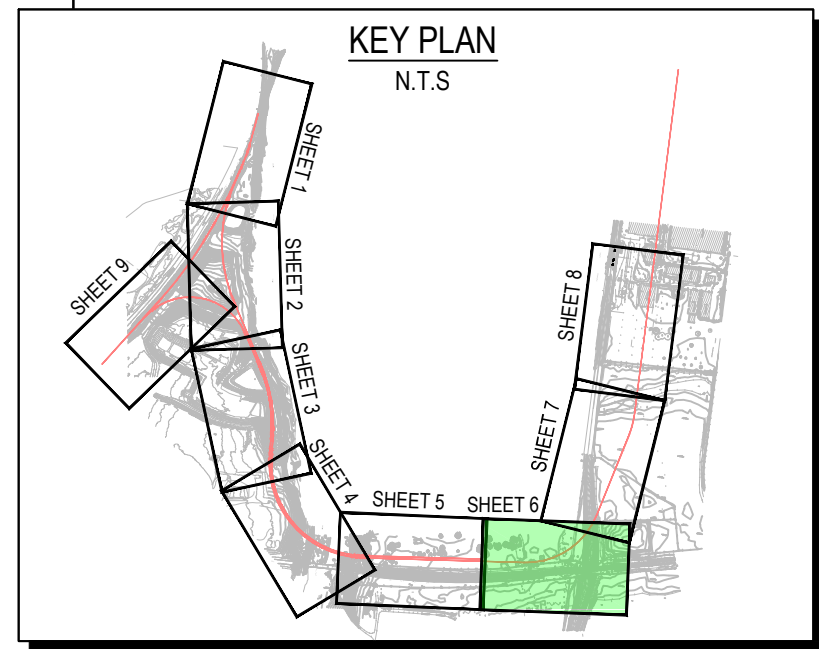
SCALE	SIZE
AS SHOWN	A1
DRAWN	A.LITTLE
DESIGNED	M.SAKIB
CHECKED	S.MURPHY

FOR CONSTRUCTION	APPROVED
	A.O'SHEA
	A.O'SHEA

PROJECT	MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1
TITLE	FENCING GENERAL ARRANGEMENT PLAN SHEET 5 OF 9
DRAWING No.	N01031
PROJECT No.	
ZONE	PWD
TYPE	DRG
DISC	FEN
NUMBER	0014
REV	03



PLAN
1:500



LEGEND

	PROPOSED TRACK ALIGNMENT		CADASTRAL BOUNDARY		RIPIARIAN VEGETATION MANAGEMENT PLAN BOUNDARIES
	PROPOSED SECURITY FENCE		CONTOUR		SIGN LOCATION
	4m WIDE SWING GATE		EXISTING FENCE		km SIGNS
	1m WIDE PEDESTRIAN GATE		EXISTING FENCE TO BE INCORPORATED WITH NEW FENCE		HALF km SIGNS
	PROPOSED REINFORCED EARTH WALL		EXISTING FENCE TO BE REMOVED		
	FUTURE INTERMODAL TERMINAL TRACK ALIGNMENT		INSULATION PANEL		

NOTES

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- RAIL CORRIDOR THROUGH RIPARIAN ZONE IS TO BE MAXIMUM OF 20m IN WIDTH.

5 0 10 20m
SCALE 1:500

ARTC DRAWING No. EDMS No. EDMS REV

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CPB
CONTRACTORS

SIMTA
SYDNEY INTERMODAL TERMINAL ALLIANCE

REV	DATE	REVISION DETAILS	APPROVED
01	17.02.17	ACCEPTED FOR CONSTRUCTION	A.O'SHEA

SCALE	SIZE
AS SHOWN	A1
DRAWN	A.LITTLE
DESIGNED	P.NEONAN
CHECKED	M.SAKIB

FOR CONSTRUCTION
APPROVED
DATE 17.02.17
A.O'SHEA
A.O'SHEA

PROJECT	MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1
TITLE	FENCING GENERAL ARRANGEMENT PLAN SHEET 6 OF 9
DRAWING No.	N01031
PROJECT No.	N01031
ZONE	PWD
TYPE	DRG
DISC	FEN
NUMBER	0015
REV	01

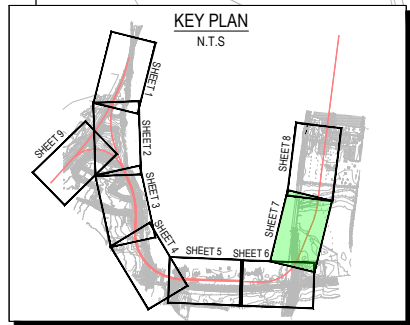
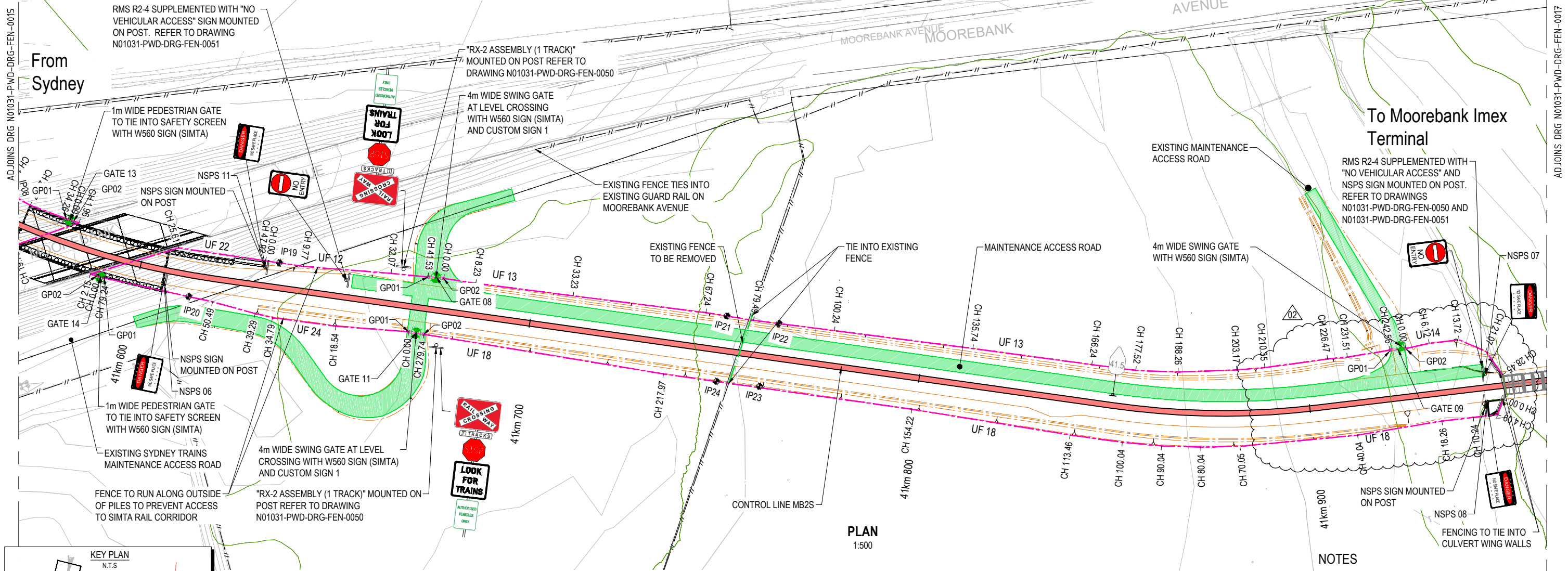


ADJOINS DRG N01031-PWD-DRG-FEN-0015

ADJOINS DRG N01031-PWD-DRG-FEN-0017

From
Sydney

To Moorebank Imex
Terminal

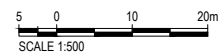


LEGEND

	PROPOSED TRACK ALIGNMENT		CADASTRAL BOUNDARY		RIPIARIAN VEGETATION MANAGEMENT PLAN BOUNDARIES
	PROPOSED SECURITY FENCE		CONTOUR		SIGN LOCATION
	4m WIDE SWING GATE		EXISTING FENCE		km SIGNS
	1m WIDE PEDESTRIAN GATE		EXISTING FENCE TO BE INCORPORATED WITH NEW FENCE		HALF km SIGNS
	PROPOSED REINFORCED EARTH WALL		EXISTING FENCE TO BE REMOVED		
	FUTURE INTERMODAL TERMINAL TRACK ALIGNMENT		INSULATION PANEL		

NOTES

- REFER TO ASA STANDARD DRAWING CV0285938 FOR DETAILS OF 1m WIDE PEDESTRIAN GATE.
- REFER TO ASA STANDARD DRAWING CV0285939 FOR DETAILS OF 4m WIDE SWING GATE.
- WHERE FENCING CROSSES NEW OR EXISTING SWALE DRAINS, POSTS ARE TO BE PLACED EITHER SIDE OF DRAIN (MAX 2m GAP) & CHAIN FENCE STRUNG BETWEEN.
- RAIL CORRIDOR THROUGH RIPARIAN ZONE IS TO BE MAXIMUM OF 20m IN WIDTH.



ARTC DRAWING No. EDMS No. EDMS REV.

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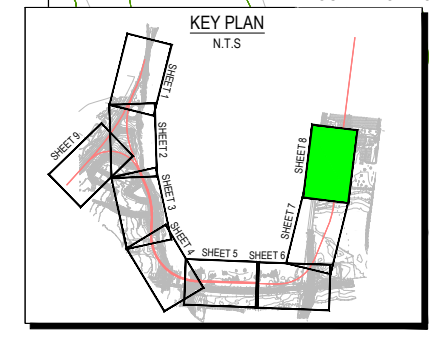
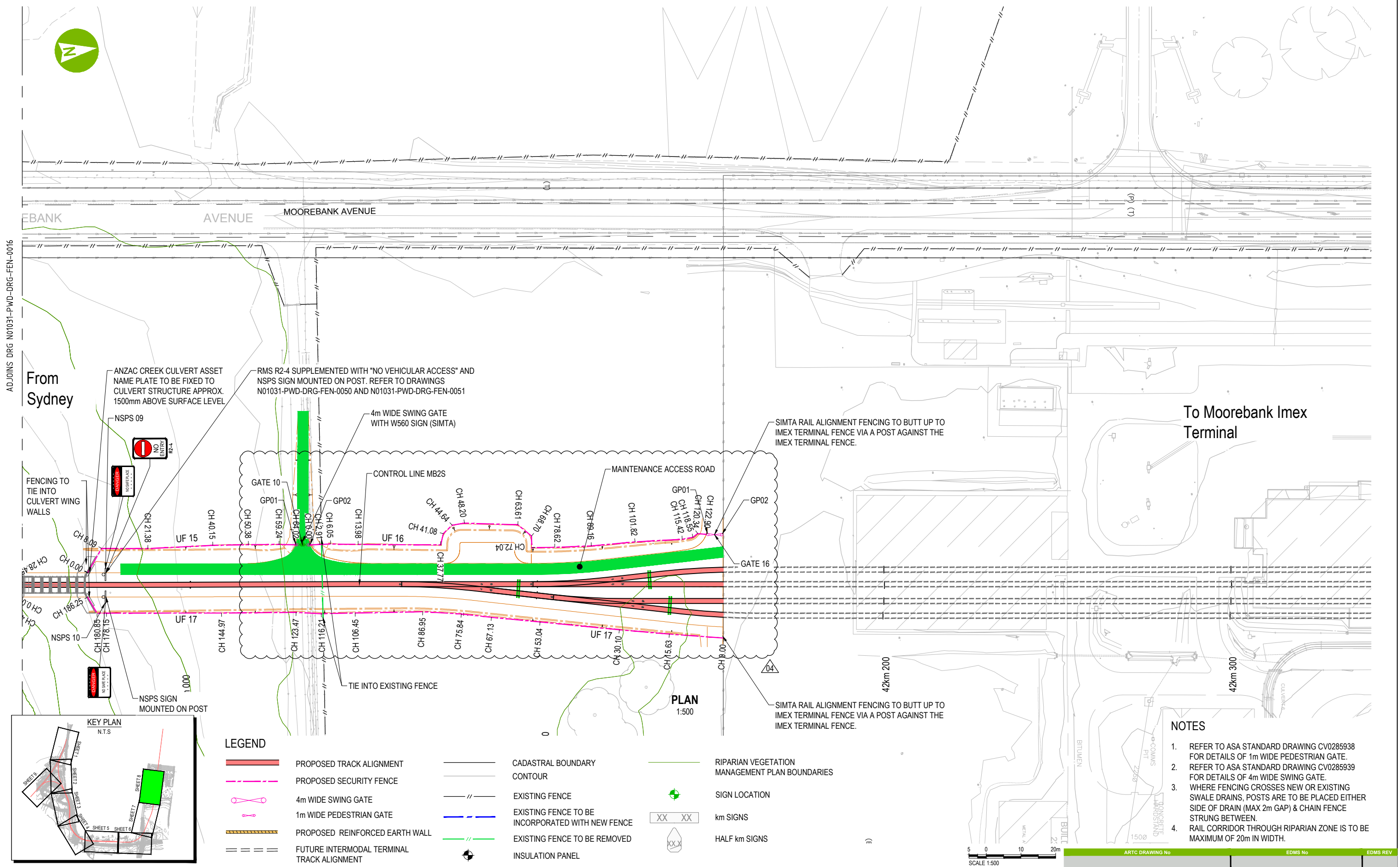
REV	DATE	REVISION DETAILS	APPROVED
01	17.02.17	ACCEPTED FOR CONSTRUCTION	A.O'SHEA
02	01.06.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA

SCALE	SIZE
AS SHOWN	A1
DRAWN	A.LITTLE
DESIGNED	M.SAKIB
CHECKED	S.MURPHY

FOR CONSTRUCTION
APPROVED
DATE 01.06.17
A.O'SHEA

PROJECT	MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1
TITLE	FENCING GENERAL ARRANGEMENT PLAN SHEET 7 OF 9
DRAWING No.	N01031
PROJECT No.	PWD
ZONE	DRG
TYPE	FEN
DISC	
NUMBER	0016
REV	02

ADJOINS DRG N01031-PWD-DRG-FEN-0016



LEGEND

- | | | | | | |
|--|--|--|--|--|---|
| | PROPOSED TRACK ALIGNMENT | | CADASTRAL BOUNDARY | | RIPIARIAN VEGETATION MANAGEMENT PLAN BOUNDARIES |
| | PROPOSED SECURITY FENCE | | CONTOUR | | SIGN LOCATION |
| | 4m WIDE SWING GATE | | EXISTING FENCE | | km SIGNS |
| | 1m WIDE PEDESTRIAN GATE | | EXISTING FENCE TO BE INCORPORATED WITH NEW FENCE | | HALF km SIGNS |
| | PROPOSED REINFORCED EARTH WALL | | EXISTING FENCE TO BE REMOVED | | |
| | FUTURE INTERMODAL TERMINAL TRACK ALIGNMENT | | INSULATION PANEL | | |

NOTES

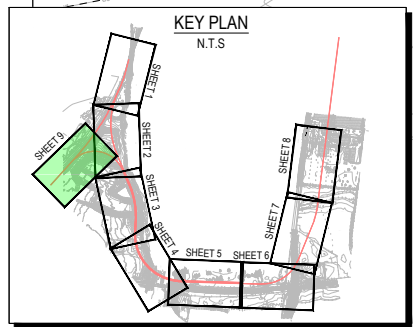
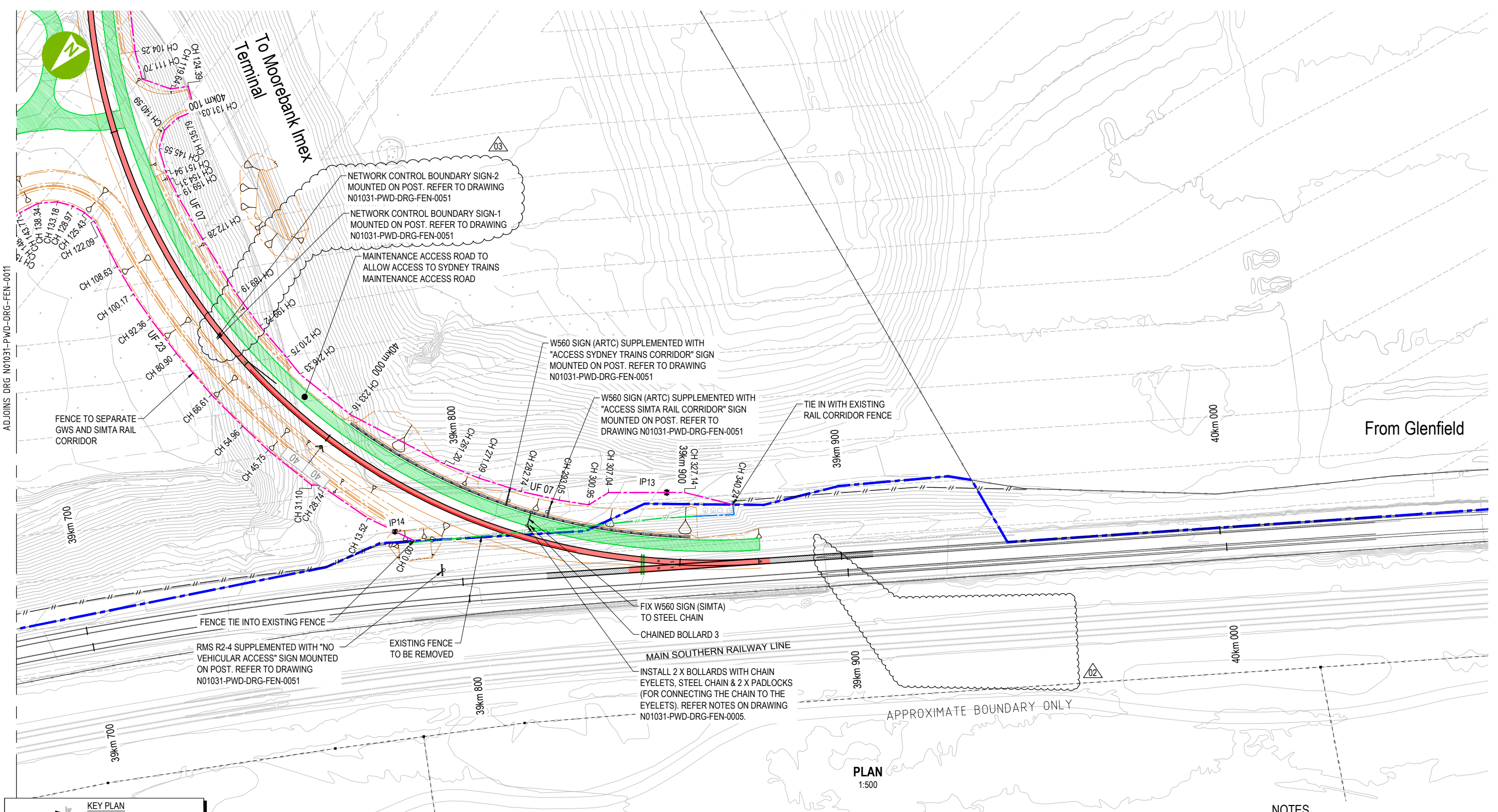
- REFER TO ASA STANDARD DRAWING CV0285938 FOR DETAILS OF 1m WIDE PEDESTRIAN GATE.
- REFER TO ASA STANDARD DRAWING CV0285939 FOR DETAILS OF 4m WIDE SWING GATE.
- WHERE FENCING CROSSES NEW OR EXISTING SWALE DRAINS, POSTS ARE TO BE PLACED EITHER SIDE OF DRAIN (MAX 2m GAP) & CHAIN FENCE STRUNG BETWEEN.
- RAIL CORRIDOR THROUGH RIPARIAN ZONE IS TO BE MAXIMUM OF 20m IN WIDTH.

REV	DATE	REVISION DETAILS	APPROVED
01	17.02.17	ACCEPTED FOR CONSTRUCTION	A.O'SHEA
02	13.04.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA
03	01.06.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA
04	14.06.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA

SCALE	AS SHOWN	SIZE	A1
DRAWN	A.LITTLE		
DESIGNED	M.SAKIB		
CHECKED	S.MURPHY		

FOR CONSTRUCTION	
APPROVED	DATE 14.06.17
A.O'SHEA	
A.O'SHEA	

PROJECT	MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1				
TITLE	FENCING GENERAL ARRANGEMENT PLAN SHEET 8 OF 9				
DRAWING No.	PROJECT No.	ZONE	TYPE	DISC	NUMBER
N01031	N01031	PWD	DRG	FEN	0017
					REV 04

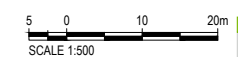


LEGEND

	PROPOSED TRACK ALIGNMENT		CADASTRAL BOUNDARY		RIPIARIAN VEGETATION MANAGEMENT PLAN BOUNDARIES
	PROPOSED SECURITY FENCE		CONTOUR		SIGN LOCATION
	4m WIDE SWING GATE		EXISTING FENCE		km SIGNS
	1m WIDE PEDESTRIAN GATE		EXISTING FENCE TO BE INCORPORATED WITH NEW FENCE		HALF km SIGNS
	PROPOSED REINFORCED EARTH WALL		EXISTING FENCE TO BE REMOVED		
	FUTURE INTERMODAL TERMINAL TRACK ALIGNMENT		INSULATION PANEL		

NOTES

1. REFER TO ASA STANDARD DRAWING CV0285938 FOR DETAILS OF 1m WIDE PEDESTRIAN GATE.
2. REFER TO ASA STANDARD DRAWING CV0285939 FOR DETAILS OF 4m WIDE SWING GATE.
3. WHERE FENCING CROSSES NEW OR EXISTING SWALE DRAINS, POSTS ARE TO BE PLACED EITHER SIDE OF DRAIN (MAX 2m GAP) & CHAIN FENCE STRUNG BETWEEN.
4. RAIL CORRIDOR THROUGH RIPARIAN ZONE IS TO BE MAXIMUM OF 20m IN WIDTH.



ARTC DRAWING No	EDMS No	EDMS REV
PROJECT	MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1	
TITLE	FENCING GENERAL ARRANGEMENT PLAN SHEET 9 OF 9	
DRAWING No.	PROJECT No.	ZONE
N01031		PWD
	TYPE	DISC
	DRG	FEN
	NUMBER	REV
	0018	03



REV	DATE	REVISION DETAILS	APPROVED
01	17.02.17	ACCEPTED FOR CONSTRUCTION	A.O'SHEA
02	13.04.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA
03	01.06.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA

SCALE	SIZE
AS SHOWN	A1
DRAWN	
A.LITTLE	
DESIGNED	
M.SAKIB	
CHECKED	
S.MURPHY	

FOR CONSTRUCTION	APPROVED	DATE
		01.06.17
	A.O'SHEA	
	A.O'SHEA	

UF 00		
CHAINAGE	EASTING	NORTHING
0.00	306983.799	6240792.451
5.47	306981.846	6240787.337
21.76	306976.425	6240771.980
51.00	306964.767	6240745.168
56.06	306962.336	6240740.725
61.03	306960.507	6240736.105
70.54	306958.025	6240726.926
73.85	306957.261	6240723.704
93.57	306950.805	6240705.071
103.02	306947.098	6240696.378
109.22	306945.540	6240690.377
119.34	306947.242	6240680.407
135.26	306943.884	6240664.840
151.54	306941.058	6240648.804
164.40	306933.011	6240638.780
182.34	306930.867	6240620.970
199.99	306932.073	6240603.354
207.38	306936.957	6240597.814
220.12	306939.639	6240585.354
230.48	306941.012	6240575.086
254.33	306945.253	6240551.623
262.11	306952.257	6240548.238
267.56	306953.554	6240542.942
275.02	306948.570	6240537.390
300.68	306956.390	6240512.953
327.09	306966.022	6240488.361
348.71	306974.123	6240468.317
371.20	306982.952	6240447.627
378.95	306990.692	6240447.850
380.22	306991.148	6240446.663

UF 01		
CHAINAGE	EASTING	NORTHING
0.00	306987.581	6240598.243
29.08	306958.514	6240598.945
56.56	306933.923	6240611.215

UF 02		
CHAINAGE	EASTING	NORTHING
0.00	306992.538	6240442.912
0.84	306992.816	6240442.117
10.73	306986.411	6240434.582
29.03	306993.779	6240417.837
36.24	307000.061	6240414.288
47.90	307003.985	6240403.308
53.76	307001.192	6240398.154
133.00	307031.078	6240324.767
139.38	307032.891	6240318.650
164.23	307043.215	6240296.055
209.46	307059.418	6240253.825
227.76	307067.165	6240237.242
234.00	307069.507	6240231.462

UF 03		
CHAINAGE	EASTING	NORTHING
0.00	307095.711	6239991.147
22.76	307098.616	6239968.568
27.87	307100.898	6239964.000
32.09	307103.458	6239960.650
40.30	307108.491	6239954.165
44.16	307109.695	6239950.491
48.36	307110.148	6239946.320
50.62	307109.873	6239944.079
53.43	307109.165	6239941.358
58.38	307106.835	6239936.989
64.78	307102.474	6239932.302
66.41	307101.251	6239931.230
68.99	307099.562	6239929.274
71.14	307098.610	6239927.353
73.51	307097.993	6239925.061
76.18	307097.919	6239922.393
79.28	307098.536	6239919.356
80.99	307099.174	6239917.772
99.75	307108.306	6239901.374
108.70	307112.731	6239893.594
114.40	307116.192	6239889.071
121.10	307120.302	6239883.780
128.08	307125.359	6239878.966
137.86	307133.117	6239873.016
140.27	307133.183	6239870.607
142.63	307132.369	6239868.391
145.80	307130.117	6239866.162

UF 04		
CHAINAGE	EASTING	NORTHING
0.00	307125.287	6239851.440
7.56	307117.943	6239849.654
20.29	307111.365	6239860.551
28.80	307106.058	6239867.207
40.27	307098.290	6239875.651
52.34	307090.667	6239885.000
94.74	307069.177	6239921.555

UF 05		
CHAINAGE	EASTING	NORTHING
0.00	307067.141	6239924.998
9.45	307062.347	6239933.146
21.64	307059.571	6239945.008
33.97	307058.120	6239957.262
42.33	307065.194	6239961.709
65.23	307060.323	6239984.088
87.10	307057.993	6240005.829
101.07	307057.570	6240019.792
109.32	307057.310	6240028.041
128.09	307057.597	6240046.805
145.44	307058.113	6240064.151
157.51	307058.493	6240076.212
172.06	307059.053	6240090.752
188.28	307059.481	6240106.971
205.33	307059.952	6240124.008
227.83	307060.408	6240146.503
241.82	307060.356	6240160.499
247.99	307057.169	6240165.780
261.41	307056.712	6240179.187
275.88	307054.991	6240193.561
301.81	307050.016	6240219.011
323.96	307043.431	6240240.150
345.33	307035.396	6240259.952
383.52	307020.166	6240294.976
386.52	307022.917	6240296.173
389.53	307021.569	6240298.868

UF 06		
CHAINAGE	EASTING	NORTHING
0.00	307021.569	6240298.868
53.86	307000.717	6240348.522

UF 07		
CHAINAGE	EASTING	NORTHING
0.00	307000.718	6240348.520
16.27	306994.325	6240363.485
23.87	306991.208	6240370.418
34.42	306986.546	6240379.88
48.55	306978.955	6240391.795
67.30	306966.320	6240405.646
71.80	306962.028	6240404.281
86.74	306951.147	6240414.515
104.25	306937.652	6240425.670
111.70	306931.311	6240429.585
119.64	306924.094	6240426.266
124.39	306921.152	6240422.549
131.03	306915.479	6240426.010
135.79	306917.376	6240430.375
140.59	306917.685	6240435.165
145.55	306915.432	6240439.583
151.94	306909.894	6240442.766
154.31	306907.675	6240443.604
159.19	306903.073	6240445.230
172.28	306890.508	6240448.910
189.19	306874.107	6240453.035
199.72	306863.744	6240454.878
210.75	306852.764	6240455.936
216.33	306847.229	6240456.643
233.16	306830.474	6240455.112
261.20	306803.551	6240447.256
271.09	306794.368	6240443.593
282.74	306783.928	6240438.412
293.05	306775.102	6240433.084
300.95	306768.633	6240428.546
307.04	306767.168	6240422.644
327.14	306752.725	6240408.654
340.24	306741.368	6240402.136

UF 08		
CHAINAGE	EASTING	NORTHING
0.00	306922.925	6240523.647
16.29	306918.163	6240539.221
25.82	306915.727	6240548.440
36.29	306913.999	6240558.769
51.61	306911.981	6240573.952
67.66	306910.876	6240589.964
85.62	306913.006	6240607.795
94.67	306911.839	6240616.776
108.46	306898.050	6240616.973

UF 09		
CHAINAGE	EASTING	NORTHING
0.00	307281.554	6239785.884
5.07	307282.271	6239790.903
10.00	307287.179	6239790.436
17.18	307294.327	6239789.756
20.00	307297.147	6239789.778
30.00	307307.146	6239789.858
40.00	307317.146	6239789.937
46.96	307324.106	6239789.992
49.66	307326.581	6239791.072
50.00	307326.908	6239791.165
56.18	307332.849	6239792.859

UF 10		
CHAINAGE	EASTING	NORTHING
0.00	307336.783	6239793.584
12.67	307349.265	6239791.406
66.05	307402.637	6239792.069
121.63	307458.141	6239789.194
127.08	307461.087	6239793.783
141.46	307475.447	6239793.022
147.61	307478.716	6239787.815
206.22	307537.215	6239784.154
291.43	307622.383	6239781.454
334.90	307665.810	6239779.503
397.11	307727.456	6239771.177
423.65	307753.997	6239771.265
438.64	307768.901	6239772.911
448.19	307778.099	6239775.480
463.57	307793.147	6239778.648
487.11	307815.145	6239787.010
494.22	307822.087	6239788.555
518.63	307842.934	6239801.259
525.82	307849.160	6239804.863
543.78	307862.204	6239817.209
559.78	307874.550	6239827.375

UF 11		
CHAINAGE	EASTING	NORTHING
0.00	307893.430	6239825.592
3.41	307892.165	6239822.430
19.00	307881.396	6239811.152
25.63	307876.511	6239806.676
27.78	307874.379	6239806.992
39.00	307865.631	6239799.960
53.90	307863.696	6239785.187

UF 12		
CHAINAGE	EASTING	NORTHING
0.00	307923.570	6239900.760
9.77	307927.307	6239909.786
32.07	307934.428	6239930.924
41.53	307937.597	6239939.836

UF 13		
CHAINAGE	EASTING	NORTHING
0.00	307938.938	6239943.605
8.23	307942.108	6239951.201
10.00	307942.755	6239952.847
20.00	307946.409	6239962.156
30.00	307950.063	6239971.464
33.23	307951.244	6239974.474
40.00	307953.703	6239980.778
50.00	307957.337	6239990.094
60.00	307960.972	6239999.411
67.24	307963.601	6240006.152
70.00	307964.692	6240008.691
79.49	307968.436	6240017.410
80.00	307968.622	6240017.886
90.00	307972.259	6240027.202
100.00	307975.896	6240036.517
100.24	307975.983	6240036.741
110.00	307979.550	6240045.825
120.00	307983.205	6240055.134
130.00	307986.859	6240064.442
135.74	307988.958	6240069.788
140.00	307990.537	6240073.741
150.00	307994.246	6240083.028
160.00	307997.956	6240092.314
166.24	308000.271	6240098.112
170.00	308001.660	6240101.603
177.52	308004.442	6240108.592
180.00	308005.132	6240110.972
188.26	308007.431	6240118.906
190.00	308007.796	6240120.606
200.00	308009.891	6240130.384
203.17	308010.554	6240133.479
210.00	308011.667	6240140.223
210.35	308011.725	6240140.571
220.00	308012.769	6240150.161
226.47	308013.469	6240156.590
230.00	308013.998	6240160.084
231.51	308014.224	6240161.576
240.00	308014.951	6240170.035
242.56	308015.170	6240172.584

UF 14		
CHAINAGE	EASTING	NORTHING
0.00	308015.732	6240176.545
6.12	308015.931	6240182.659
10.00	308016.426	6240186.510
13.72	308016.899	6240190.197
20.00	308020.671	6240195.221
21.07	308021.315	6240196.078
28.45	308028.194	6240198.741

UF 15		
CHAINAGE	EASTING	NORTHING
0.00	308030.084	6240219.47
8.09	308023.649	6240224.368
10.00	308023.898	6240226.266
20.00	308025.203	6240236.181
21.38	308025.383	6240237.544
30.00	308026.048	6240246.143
40.00	308026.819	6240256.114
40.15	308026.830	6240256.262
50.00	308027.878	6240266.057
50.38	308027.918	6240266.436
59.24	308028.995	6240275.233
60.00	308029.104	6240275.982
64.02	308029.689	6240279.963

UF 16		
CHAINAGE	EASTING	NORTHING
0.00	308030.240	6240283.925
2.91	308030.461	6240286.822
6.05	308030.738	6240289.954
10.00	308031.302	6240293.861
13.98	308031.870	6240297.803
20.00	308032.661	6240303.771
30.00	308033.977	6240313.685
37.77	308034.998	6240321.384
40.00	308032.908	6240322.171
41.08	308031.893	6240322.553
44.64	308029.780	6240325.408
48.20	308029.675	6240328.972
50.00	308029.955	6240330.748
60.00	308031.513	6240340.626
63.61	308032.075	6240344.191
68.70	308035.796	6240347.660
70.00	308037.095	6240347.539
72.04	308039.125	6240347.351
78.62	308039.865	6240353.886
80.00	308039.988	6240355.265
89.16	308040.802	6240364.392
90.00	308040.831	6240365.228
100.00	308041.181	6240375.222
101.82	308041.245	6240377.043
110.00	308041.826	6240385.200
115.42	308042.211	6240390.610
118.55	308042.044	6240393.734
120.00	308041.299	6240394.976
120.33	308041.127	6240395.263
122.90	308041.725	6240397.762

UF 17		
CHAINAGE	EASTING	NORTHING
0.00	308071.921	6240398.808
10.00	308069.936	6240389.007
15.63	308068.818	6240383.490
20.00	308067.896	6240379.218
30.00	308065.786	6240369.443
30.10	308065.764	6240369.344
40.00	308063.547	6240359.697
50.00	308061.307	6240349.951
53.04	308060.625	6240346.984
60.00	308059.100	6240340.198
67.13	308057.537	6240333.242
70.00	308056.862	6240330.451
75.84	308055.488	6240324.771
80.00	308054.721	6240320.687
86.95	308053.439	6240313.855
90.00	308053.112	6240310.824
100.00	308052.038	6240300.881
106.45	308051.345	6240294.464
110.00	308050.964	6240290.939
116.21	308050.297	6240284.769
120.00	308049.621	6240281.036
123.47	308049.003	6240277.625
130.00	308048.235	6240271.137
140.00	308047.061	6240261.206
144.97	308046.478	6240256.273
150.00	308045.844	6240251.280
160.00	308044.584	6240241.360
170.00	308043.324	6240231.440
178.15	308042.297	6240223.355
180.00	308042.098	6240221.515
180.85	308042.007	6240220.673
186.25	308037.027	6240218.587

REV	DATE	REVISION DETAILS	APPROVED
01	17.02.17	ACCEPTED FOR CONSTRUCTION	A.O'SHEA
02	13.04.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA
03	01.06.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA
04	14.06.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA

SCALE	SIZE
NTS	A1
DRAWN	
A.LITTLE	
DESIGNED	
M.SAKIB	
CHECKED	
S.MURPHY	

FOR CONSTRUCTION

APPROVED

DATE
14.06.17

A. O'SHEA

A.O'SHEA

ARTC DRAWING No				EDMS No				EDMS REV			
PROJECT		MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1									
TITLE		FENCING SET-OUT POINTS - FENCING SHEET 1 OF 2									
DRAWING No.		PROJECT No.	ZONE	TYPE	DISC	NUMBER	REV				
		N01031	- PWD	- DRG	- FEN	- 0030	- 04				

UF 19		
CHAINAGE	EASTING	NORTHING
0.00	307288.747	6239768.726
1.96	307288.801	6239770.687
10.00	307280.915	6239772.245
10.95	307279.983	6239772.429
13.66	307280.645	6239775.057

02

UF 21		
CHAINAGE	EASTING	NORTHING
0.00	307877.565	6239830.003
16.32	307890.007	6239840.561
23.97	307895.271	6239846.122
34.26	307901.122	6239854.583

UF 23		
CHAINAGE	EASTING	NORTHING
0.00	306795.242	6240467.330
13.52	306808.114	6240471.485
28.74	306823.115	6240473.997
31.10	306824.886	6240475.559
45.75	306839.484	6240476.891
54.96	306848.686	6240476.994
66.61	306860.334	6240476.769
80.90	306874.553	6240475.321
92.36	306885.868	6240473.504
100.17	306893.521	6240471.955
108.63	306901.667	6240469.678
122.09	306914.402	6240465.303
125.43	306917.734	6240465.457
128.97	306921.154	6240466.381
133.18	306924.861	6240468.364
138.34	306928.275	6240472.236
143.77	306930.002	6240477.385
148.04	306930.341	6240481.643
151.98	306929.385	6240485.462
180.83	306918.781	6240512.295
188.61	306925.592	6240516.062
192.65	306924.252	6240519.873

UF 25		
CHAINAGE	EASTING	NORTHING
0.00	307863.565	6239784.195
17.16	307861.316	6239767.183

UF 26		
CHAINAGE	EASTING	NORTHING
0.00	307901.637	6239855.440
1.96	307902.645	6239857.116
19.79	307904.256	6239839.356
36.35	307893.803	6239826.521

ARTC DRAWING No.			EDMS No.			EDMS REV		
PROJECT MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1								
TITLE FENCING SET-OUT POINTS - FENCING SHEET 2 OF 2								
DRAWING No.		PROJECT No.	ZONE	TYPE	DISC	NUMBER	REV	
N01031		-	PWD	-	DRG	-	FEN	-
						0031	-	02

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Print Date: 16/07/2022 9:49 PM
Client: Aurecon
Revision: C-CPB

GATE 01					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	306992.538	6240442.912	4m WIDE	VEHICLE ACCESS GATE	CV0285939
GP02	306991.148	6240446.663			

GATE 02					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	307130.117	6239866.162	1m WIDE	PEDESTRIAN ACCESS GATE	CV0285938
GP02	307129.406	6239865.459			

GATE 03					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	307067.141	6239924.998	4m WIDE	VEHICLE ACCESS GATE	CV0285939
GP02	307069.177	6239921.555			

GATE 04					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	307332.849	6239792.859	4m WIDE	VEHICLE ACCESS GATE	CV0285939
GP02	307336.783	6239793.584			

GATE 05					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	307877.565	6239830.004	4m WIDE	VEHICLE ACCESS GATE	CV0285939
GP02	307874.556	6239827.369			

GATE 06					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	307863.696	6239785.187	1m WIDE	PEDESTRIAN ACCESS GATE	CV0285938
GP02	307863.565	6239784.195			

GATE 07					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	306922.925	6240523.647	4m WIDE	VEHICLE ACCESS GATE	CV0285939
GP02	306924.252	6240519.873			

GATE 08					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	307937.597	6239939.836	4m WIDE	VEHICLE ACCESS GATE	CV0285939
GP02	307938.938	6239943.605			

GATE 09					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	308015.170	6240172.584	4m WIDE	VEHICLE ACCESS GATE	CV0285939
GP02	308015.732	6240176.545			

GATE 10					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	308029.689	6240279.963	4m WIDE	VEHICLE ACCESS GATE	CV0285939
GP02	308030.240	6240283.925			

GATE 11					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	307949.887	6239931.583	4m WIDE	VEHICLE ACCESS GATE	CV0285939
GP02	307951.474	6239935.255			

GATE 12					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	306987.581	6240598.243	4m WIDE	VEHICLE ACCESS GATE	CV0285939
GP02	306991.580	6240598.147			

GATE 13					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	307901.122	6239854.583	1m WIDE	PEDESTRIAN ACCESS GATE	CV0285938
GP02	307901.637	6239855.440			

GATE 14					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	307917.599	6239859.418	1m WIDE	PEDESTRIAN ACCESS GATE	CV0285938
GP02	307917.096	6239858.554			

GATE 15					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	307892.450	6239823.142	1m WIDE	PEDESTRIAN ACCESS GATE	CV0285938
GP02	307892.828	6239824.069			

GATE 16					
POINT	EASTING	NORTHING	SIZE	OPERATION	DRAWING REF
GP01	308041.787	6240398.095	4m WIDE	VEHICLE ACCESS GATE	CV0285939
GP02	308042.339	6240402.057			

INSULATION PANELS		
POINT	EASTING	NORTHING
IP01	307286.312	6239789.757
IP02	307383.548	6239791.848
IP03	307483.531	6239787.513
IP04	307583.508	6239782.687
IP05	307693.138	6239775.858
IP06	307782.896	6239776.490
IP07	307867.841	6239821.619
IP08	307892.301	6239842.804
IP09	307889.302	6239819.432
IP10	307862.740	6239777.855
IP11	307283.766	6239770.082
IP12	307018.837	6240304.856
IP13	306756.112	6240411.935
IP14	306800.534	6240469.038
IP15	306903.754	6240616.891
IP16	307035.961	6240311.929
IP17	307130.157	6239875.286
IP18	307121.808	6239850.594
IP19	307924.930	6239904.045
IP20	307927.808	6239879.489
IP21	307965.780	6240011.114
IP22	307970.781	6240023.473
IP23	307985.053	6240014.784
IP24	307980.901	6240004.220

02

02

02

REV	DATE	REVISION DETAILS	APPROVED
01	17.02.17	ACCEPTED FOR CONSTRUCTION	A.O'SHEA
02	01.06.17	ACCEPTED FOR CONSTRUCTION RE-SUBMISSION	A.O'SHEA

SCALE	SIZE
NTS	A1
DRAWN	
A.LITTLE	
DESIGNED	
M.SAKIB	
CHECKED	
S.MURPHY	

FOR CONSTRUCTION	
<i>A. O'SHEA</i>	DATE 01.06.17
	A.O'SHEA

ARTC DRAWING No			EDMS No			EDMS REV	
PROJECT	MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1						
TITLE	FENCING SET-OUT POINTS - GATES AND INSULATION PANELS						
DRAWING No.	PROJECT No.	ZONE	TYPE	DISC	NUMBER	REV	
	N01031	- PWD	- DRG	- FEN	- 0040	- 02	

NAMe/NO.	QTY.	COMMENTS
W560	17	POSTED AT SITE ENTRANCE
NO SAFE PLACE SIGN	13	POSTED WHERE ACCESS IS NOT PERMITTED DURING NORMAL OPERATING CONDITIONS
LIMITED CLEARANCE WARNING SIGN	9	
NETWORK CONTROL BOUNDARY SIGN-1	2	
NETWORK CONTROL BOUNDARY SIGN-2	2	
RX-2 ASSEMBLY (1 TRACK)	8	
RX-2 ASSEMBLY (2 TRACKS)	2	
RMS R2-4	7	
NO VEHICULAR ACCESS SIGN	7	
ACCESS SYDNEY TRAIN CORRIDOR SIGN	1	
ACCESS SIMTA TRAIN CORRIDOR SIGN	1	
RMS R6-11	2	

SIGNAGE SCHEDULE

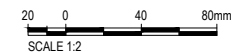
REFERENCE	SIGN	EASTING	NORTHING	COMMENTS
GATE 01	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 1
GATE 02	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 2
GATE 03	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 3
GATE 04	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 2
GATE 05	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 2
GATE 06	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 2
GATE 07	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 1
GATE 08	W560 (SIMTA) AND CUSTOM SIGN 1	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 5
GATE 09	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 2
GATE 10	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 2
GATE 11	W560 (SIMTA) AND CUSTOM SIGN 1	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 5
GATE 12	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 1
GATE 13	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 2
GATE 14	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 2
GATE 15	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 2
GATE 16	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 2
CHAINED BOLLARD 1	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 4
CHAINED BOLLARD 2	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 2
CHAINED BOLLARD 3	W560 (SIMTA)	CENTRALLY AFFIXED TO GATE		PADLOCK TYPE 4
ACCESS SIMTA RAIL CORRIDOR	W560 (SIMTA)	306942.155	6240682.558	
ACCESS SYDNEY RAIL CORRIDOR	W560 (SIMTA)	306939.477	6240672.462	
NETWORK CONTROL BOUNDARY	SIGN -1	306927.105	6240593.858	
NETWORK CONTROL BOUNDARY	SIGN -1	306988.554	6240378.589	
NETWORK CONTROL BOUNDARY	SIGN -2	306927.105	6240593.858	
NETWORK CONTROL BOUNDARY	SIGN -2	306988.554	6240378.589	
				02
LCS 01	LOW CLEARANCE SIGN	307036.094	6240311.990	
LCS 02	LOW CLEARANCE SIGN	307050.352	6240259.255	
LCS 03	LOW CLEARANCE SIGN	307065.345	6240211.627	
LCS 04	LOW CLEARANCE SIGN	307070.769	6240160.432	
LCS 05	LOW CLEARANCE SIGN	307130.260	6239863.161	
LCS 06	LOW CLEARANCE SIGN	307167.329	6239829.777	
LCS 07	LOW CLEARANCE SIGN	307210.478	6239804.690	
LCS 08	LOW CLEARANCE SIGN	307257.849	6239788.968	
LCS 09	LOW CLEARANCE SIGN	307281.933	6239785.004	
NSPS 12	LOW CLEARANCE SIGN	307897.182	6239843.913	
NSPS 11	LOW CLEARANCE SIGN	307926.266	6239899.791	
NSPS 01	NO SAFE PLACE SIGN	307018.784	6240304.856	
NSPS 02	NO SAFE PLACE SIGN	307062.080	6240158.872	
NSPS 03	NO SAFE PLACE SIGN	307127.120	6239852.403	
NSPS 04	NO SAFE PLACE SIGN	307279.327	6239776.039	
NSPS 05	NO SAFE PLACE SIGN	307892.692	6239827.538	
NSPS 06	NO SAFE PLACE SIGN	307921.398	6239873.540	
NSPS 07	NO SAFE PLACE SIGN	308026.895	6240194.506	
NSPS 08	NO SAFE PLACE SIGN	308033.857	6240193.277	
NSPS 09	NO SAFE PLACE SIGN	307287.874	6239784.468	
NSPS 10	NO SAFE PLACE SIGN	308037.604	6240223.099	
NSPS 11	NO SAFE PLACE SIGN	307925.096	6239900.274	
NSPS 12	NO SAFE PLACE SIGN	307897.497	6239844.400	

SIGNAGE SCHEDULE

REFERENCE	SIGN	EASTING	NORTHING	COMMENTS
ASSEMBLY (1 TRACK)	RX-2	306914.726	6240443.726	
ASSEMBLY (1 TRACK)	RX-2	306937.269	6240445.038	
ASSEMBLY (1 TRACK)	RX-2	306936.164	6240431.405	
ASSEMBLY (1 TRACK)	RX-2	306962.817	6240438.809	
ASSEMBLY (1 TRACK)	RX-2	306973.327	6240452.298	
ASSEMBLY (1 TRACK)	RX-2	306990.257	6240412.557	
ASSEMBLY (2 TRACKS)	RX-2	307096.530	6239929.660	
ASSEMBLY (2 TRACKS)	RX-2	307072.746	6239929.293	
ASSEMBLY (1 TRACK)	RX-2	307934.151	6239934.267	
ASSEMBLY (1 TRACK)	RX-2	307954.927	6239937.643	
NO VEHICULAR ACCESS SIGN	R2-4	307933.257	6239919.462	
NO VEHICULAR ACCESS SIGN	R2-4	307128.419	6239869.669	
NO VEHICULAR ACCESS SIGN	R2-4	308026.895	6240194.506	
NO VEHICULAR ACCESS SIGN	R2-4	307888.358	6239834.749	
NO VEHICULAR ACCESS SIGN	R2-4	307299.542	6239783.836	
NO VEHICULAR ACCESS SIGN	R2-4	307288.449	6239774.297	
NO VEHICULAR ACCESS SIGN	R2-4	307070.705	6240149.268	
NO VEHICULAR ACCESS SIGN	R2-4	306716.873	6240394.180	

NOTES

1. PADLOCKS ARE TO BE PROVIDED WITH DIFFERENT KEYS BASED ON THE FOLLOW ACCESS AUTHORITY:
 - PADLOCK TYPE 1 - GWS ACCESS ONLY
 - PADLOCK TYPE 2 - SIMTA ACCESS ONLY
 - PADLOCK TYPE 3 - GWS AND SIMTA ACCESS ONLY
 - PADLOCK TYPE 4 - SYDNEY TRAINS AND ARTC ACCESS ONLY
 - PADLOCK TYPE 5 - SYDNEY TRAINS AND SIMTA ACCESS ONLY

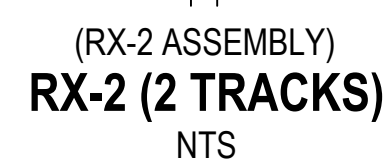
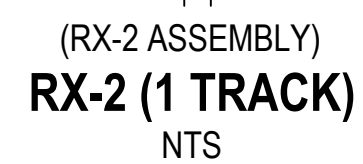


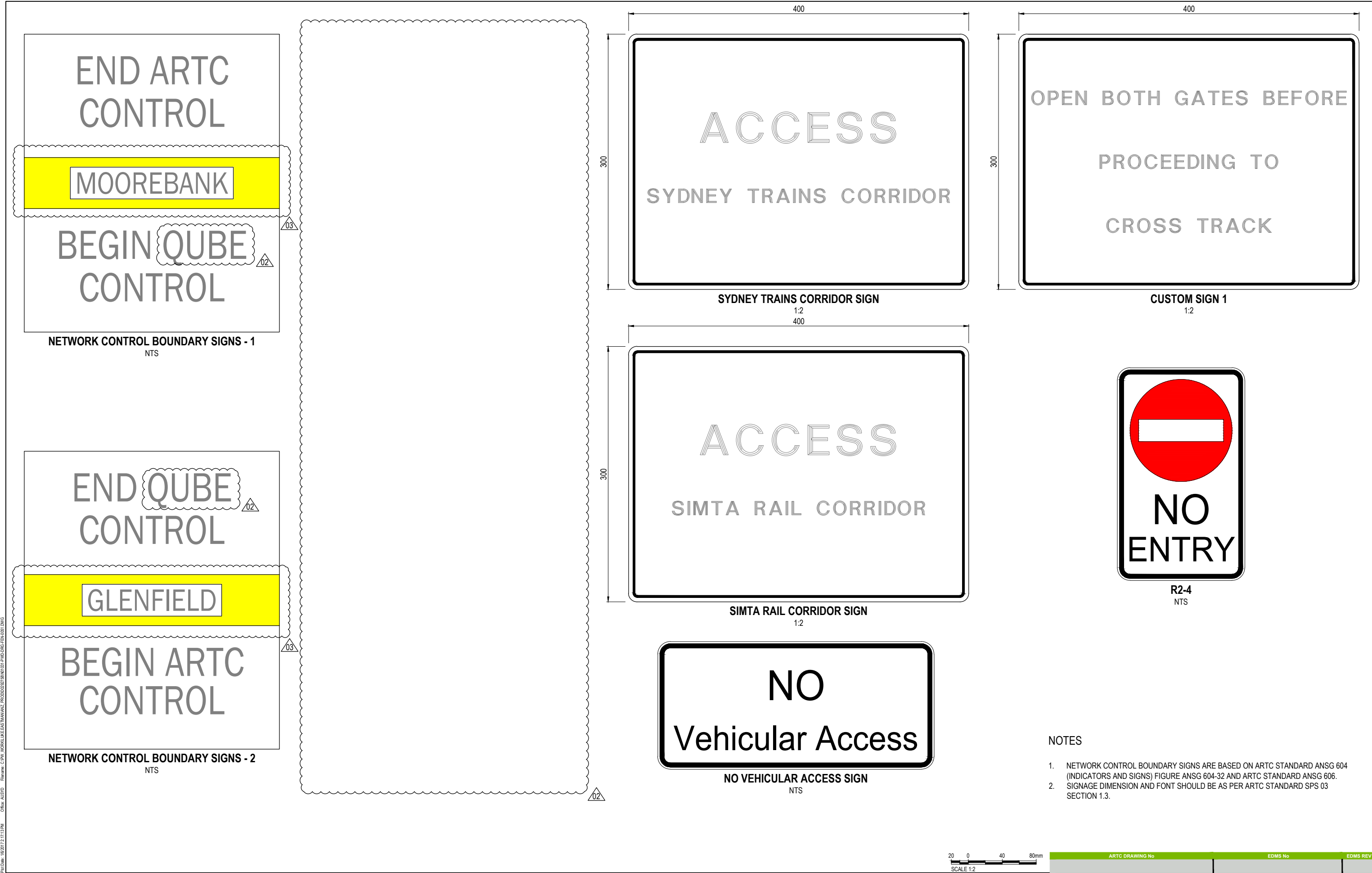
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PROJECT		MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1				
TITLE		FENCING SIGNAGE SCHEDULE				
DRAWING No.	PROJECT No.	ZONE	TYPE	DISC	NUMBER	REV
	N01031	- PWD	- DRG	- FEN	0041	- 03

[illegible]

SCALE	SIZE
AS SHOWN	A1
DRAWN	
A.LITTLE	
DESIGNED	
M.SAKIB	
CHECKED	
S.MURPHY	

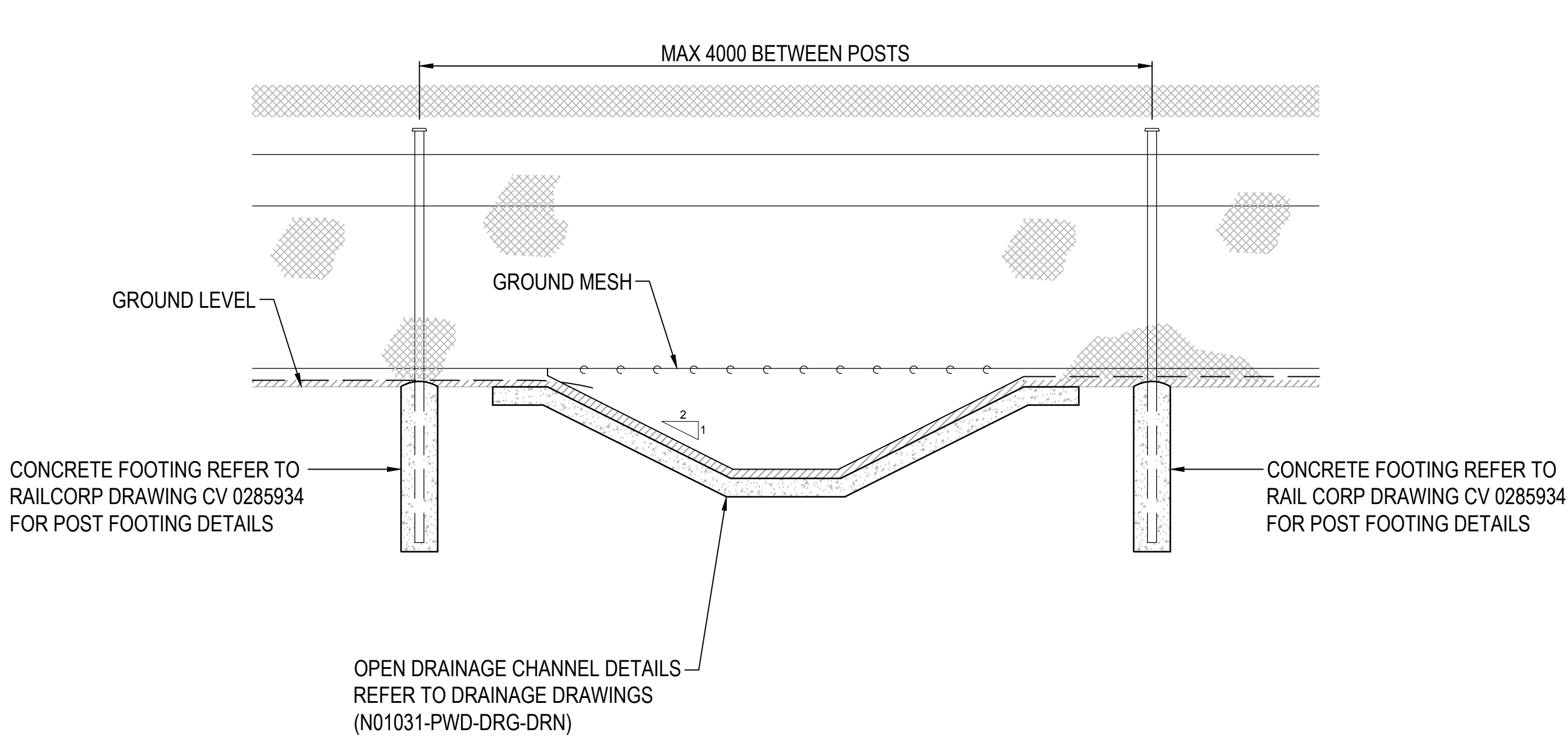
FOR CONSTRUCTION	
APPROVED	DATE
A. O'SHEA	01.06.17
A.O'SHEA	



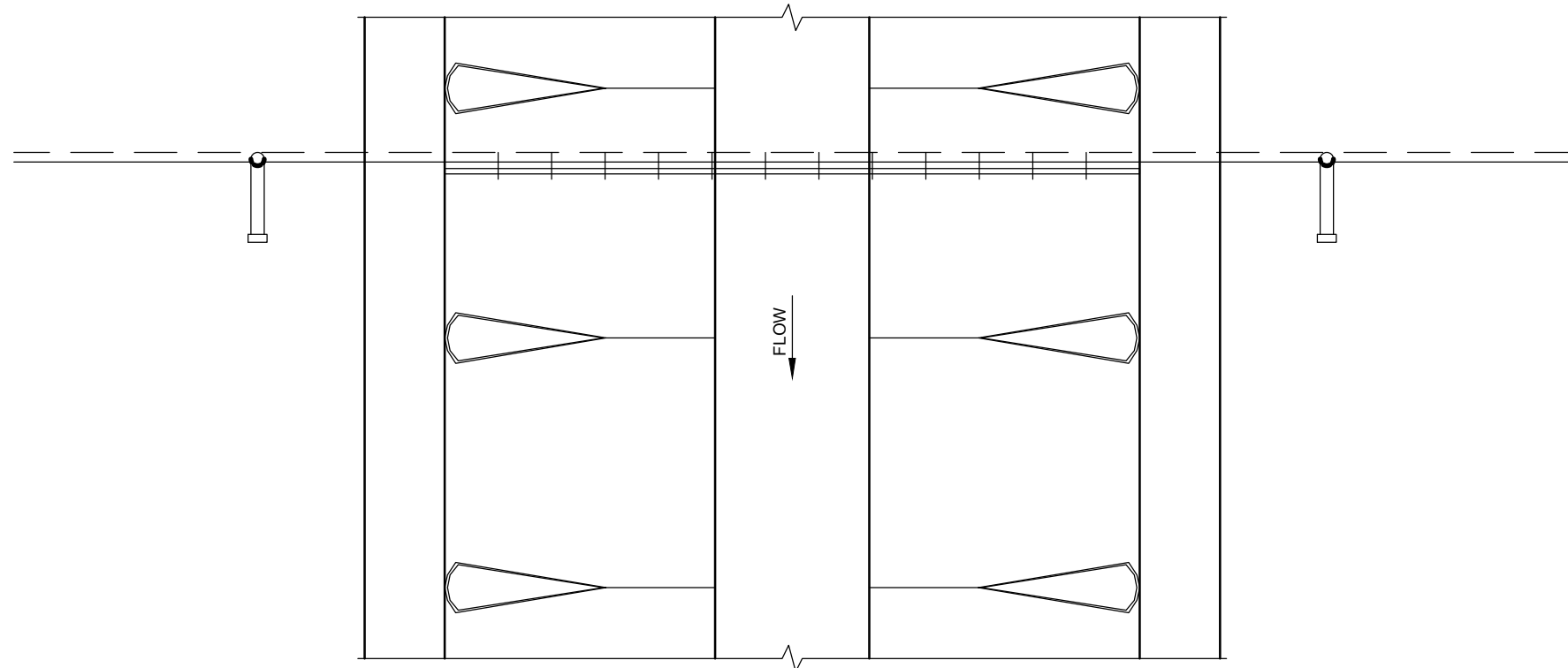


- NOTES
- 1. NETWORK CONTROL BOUNDARY SIGNS ARE BASED ON ARTC STANDARD ANSG 604 (INDICATORS AND SIGNS) FIGURE ANSG 604-32 AND ARTC STANDARD ANSG 606.
 - 2. SIGNAGE DIMENSION AND FONT SHOULD BE AS PER ARTC STANDARD SPS 03 SECTION 1.3.

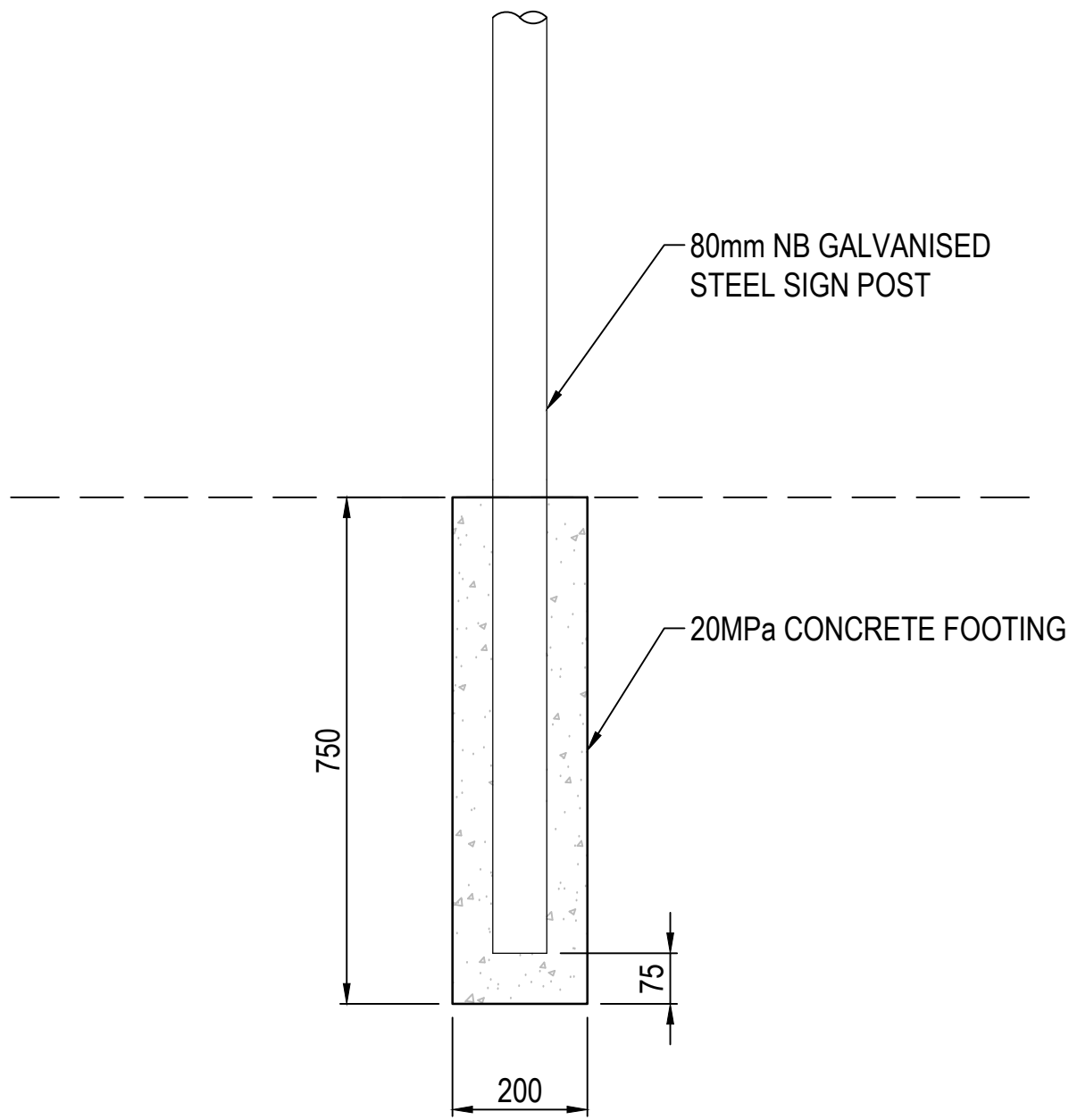
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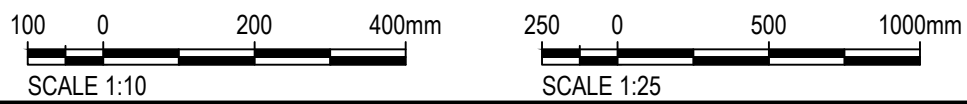
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1:25



FENCE ELEVATION
1:25



SIGN FOOTING DETAIL
1:10



REV	DATE	REVISION DETAILS	APPROVED
01	17.02.17	ACCEPTED FOR CONSTRUCTION	A.O'SHEA

SCALE	SIZE
AS SHOWN	A1
DRAWN	A.LITTLE
DESIGNED	P.NOONAN
CHECKED	M.SAKIB

FOR CONSTRUCTION
APPROVED
A.O'SHEA
A.O'SHEA

ARTC DRAWING No	EDMS No	EDMS REV
PROJECT	MOOREBANK INTERMODAL TERMINAL DEVELOPMENT PACKAGE 1- RALP No.1	
TITLE	FENCING FENCING DETAIL - CROSSING OPEN DRAIN TYPICAL DETAILS	
DRAWING No.	PROJECT No.	ZONE
N01031	-	PWD
	TYPE	DISC
	-	DRG
	FEN	NUMBER
	-	0060
	REV	
	-	01

APPENDIX D

Erosion and Sediment Control Plan

Site area	Site					Remarks
	1	2	3	4	5	
Total catchment area (ha)	8.7	2.52	4.13	4.83	4.65	
Disturbed catchment area (ha)	3.66	2.52	4.13	4.83	4.65	

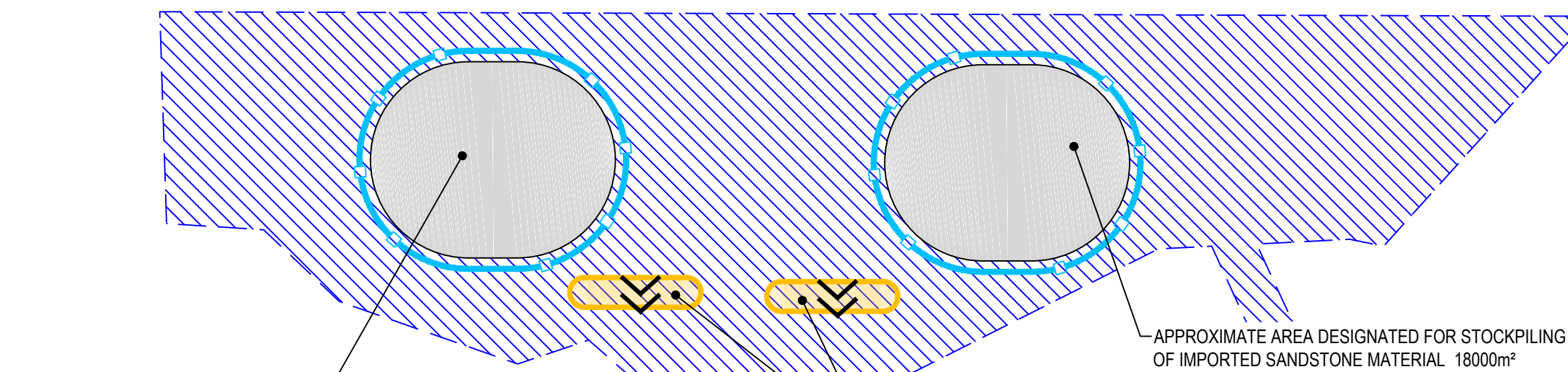
Soil analysis						Soil texture should be assessed through mechanical dispersion only. Dispersing agents (e.g. Calgon) should not be used.
% sand (fraction 0.02 to 2.00 mm)	20	20	20	20	20	
% silt (fraction 0.002 to 0.02 mm)	40	40	40	40	40	
% clay (fraction finer than 0.002 mm)	40	40	40	40	40	
Dispersion percentage						
% of whole soil dispersible						
Soil Texture Group	F	F	F	F	F	See Section 6.3.3(c), (d) and (e)

Rainfall data						See Sections 6.3.4 (d) and (e)
Design rainfall depth (days)	5	5	5	5	5	
Design rainfall depth (percentile)	75	75	75	75	75	
x-day, y-percentile rainfall event	19.2	19.2	19.2	19.2	19.2	
Rainfall intensity: 2-year, 6-hour storm	10.8	10.8	10.8	10.8	10.8	See IFD chart for the site

RUSLE Factors						Automatic calculation from above data
Rainfall erosivity (R-factor)	2540	2540	2540	2540	2540	
Soil erodibility (K-factor)	0.075	0.075	0.075	0.075	0.075	
Slope length (m)	100	125	100	50	150	
Slope gradient (%)	1	1	1	1	1	
Length/gradient (LS-factor)	0.2	0.22	0.2	0.17	0.23	
Erosion control practice (P-factor)	1.3	1.3	1.3	1.3	1.3	RUSLE data can be obtained from Appendices A, B and C
Ground cover (C-factor)	1	1	1	1	1	

Calculations						See Section 4.4.2(b)
Soil loss (t/ha/yr)	50	54	50	42	57	
Soil Loss Class	1	1	1	1	1	
Soil loss (m3/ha/yr)	38	42	38	32	44	
Sediment basin storage volume, m3	24	18	27	27	35	See Sections 6.3.4(i) and 6.3.5 (e)

07



APPROXIMATE AREA DESIGNATED FOR STOCKPILING TOPSOIL 13300m²

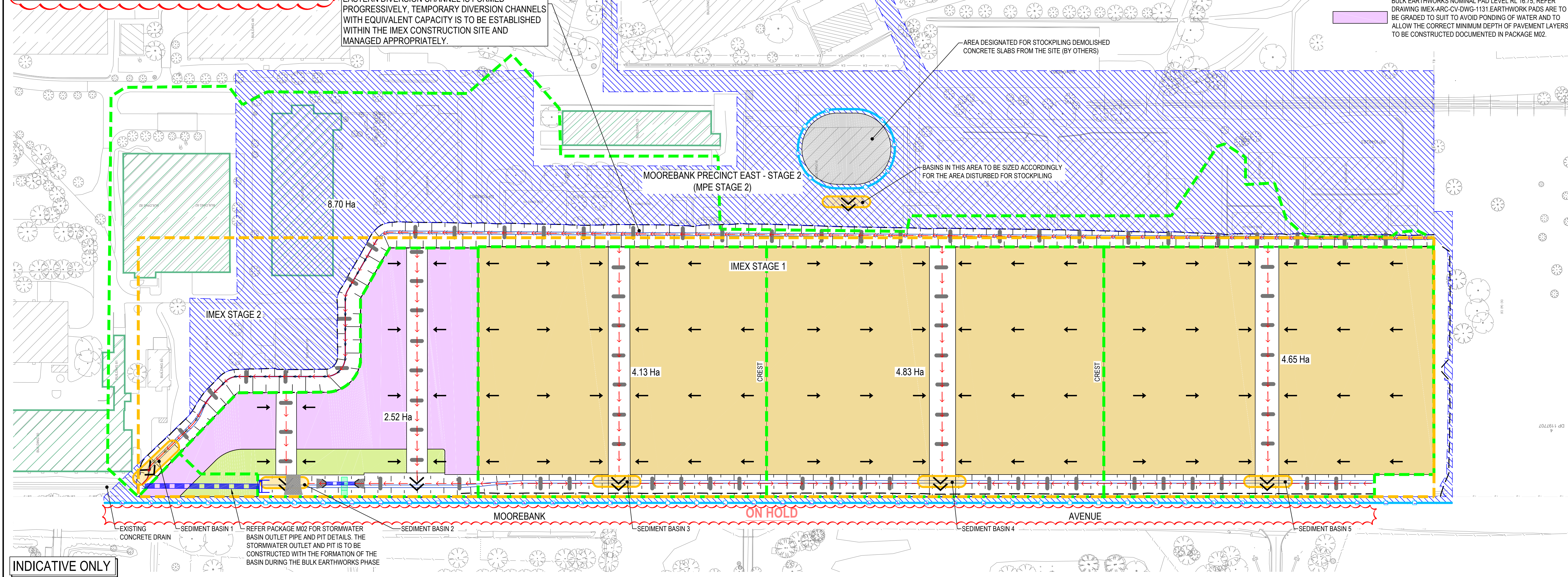
BASINS IN THIS AREA TO BE SIZED ACCORDINGLY FOR THE AREA DISTURBED FOR STOCKPILING

EASTERN DIVERSION CHANNEL TO BE CONSTRUCTED PRIOR TO DECOMMISSIONING ANY STORMWATER INFRASTRUCTURE WITHIN THE IMEX SITE. IF THE EASTERN DIVERSION CHANNEL IS FORMED PROGRESSIVELY, TEMPORARY DIVERSION CHANNELS WITH EQUIVALENT CAPACITY IS TO BE ESTABLISHED WITHIN THE IMEX CONSTRUCTION SITE AND MANAGED APPROPRIATELY.

AREA DESIGNATED FOR STOCKPILING DEMOLISHED CONCRETE SLABS FROM THE SITE (BY OTHERS)

MOOREBANK PRECINCT EAST - STAGE 2 (MPE STAGE 2)

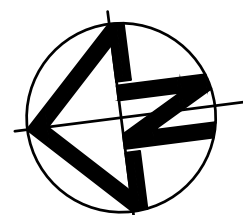
BASINS IN THIS AREA TO BE SIZED ACCORDINGLY FOR THE AREA DISTURBED FOR STOCKPILING



INDICATIVE ONLY

Issue	Description	Date
07	AFC UPDATE	19/05/2017
06	AFC UPDATE	17/05/2017
05	REVIEWER COMMENTS INCORPORATED	07/04/2017
04	ISSUE FOR CONSTRUCTION	27/03/2017
03	INDEPENDENT VERIFIERS COMMENTS INCORPORATED	24/02/2017
02	CLIENT COMMENTS INCORPORATED	21/02/2017
01	DETAILED DESIGN	17/02/2017

0 30 60 90 120 150m
1 : 1500



Client

SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

TACTICAL GROUP

Status		FOR CONSTRUCTION TO BE USED FOR CONSTRUCTION	
Scales	1:1500	Current Issue Signatures	
Original Size	A1	Drawn	A.ZHAO
Height	AHD	Designed	L.CORSCADDEN
Datum	MGA	Checked	G.DE SILVA
Grid		Approved	M.KEFFORD
Filename: IMEX-ARC-CV-DWG-1101-ErosionAndSedimentControlPlan.dwg			

Project		MOOREBANK MPE STAGE 1 IMEX NUMBER 1	
Title		EROSION AND SEDIMENT CONTROL PLAN	

ARCADIS

Arcadis Australia Pacific Pty Limited
Level 5, 141 Walker St
NORTH SYDNEY NSW 2060
ABN 76 104 485 289
Tel No: +61 2 8907 9000
Fax No: +61 2 8907 9001
arcadis.com

Drawing No. **IMEX -ARC-CV-DWG-1101-** Issue **07**

Volume No. **M01**
Project No. **10004975**

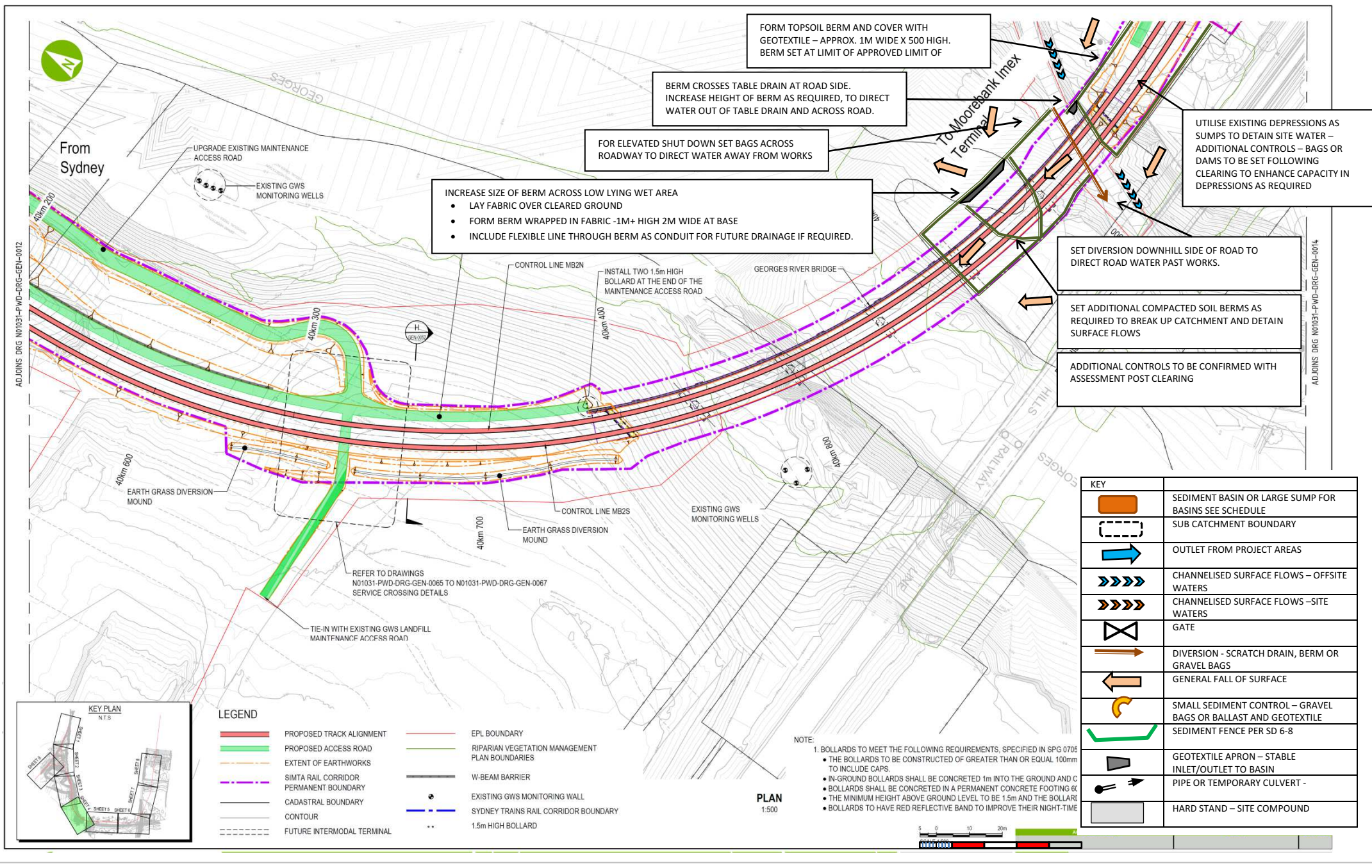
Total Basin Volume						
Site	Cv	Rx-day, y-%ile	Total catchment area (ha)	Settling zone volume (m3)	Sediment storage volume (m3)	Total basin volume (m3)
1	0.50	19.2	8.7	835.2	24	859.2
2	0.50	19.2	2.52	241.92	18	259.92
3	0.50	19.2	4.13	396.48	27	423.48
4	0.50	19.2	4.83	463.68	27	490.68
5	0.50	19.2	4.65	446.4	35	481.4

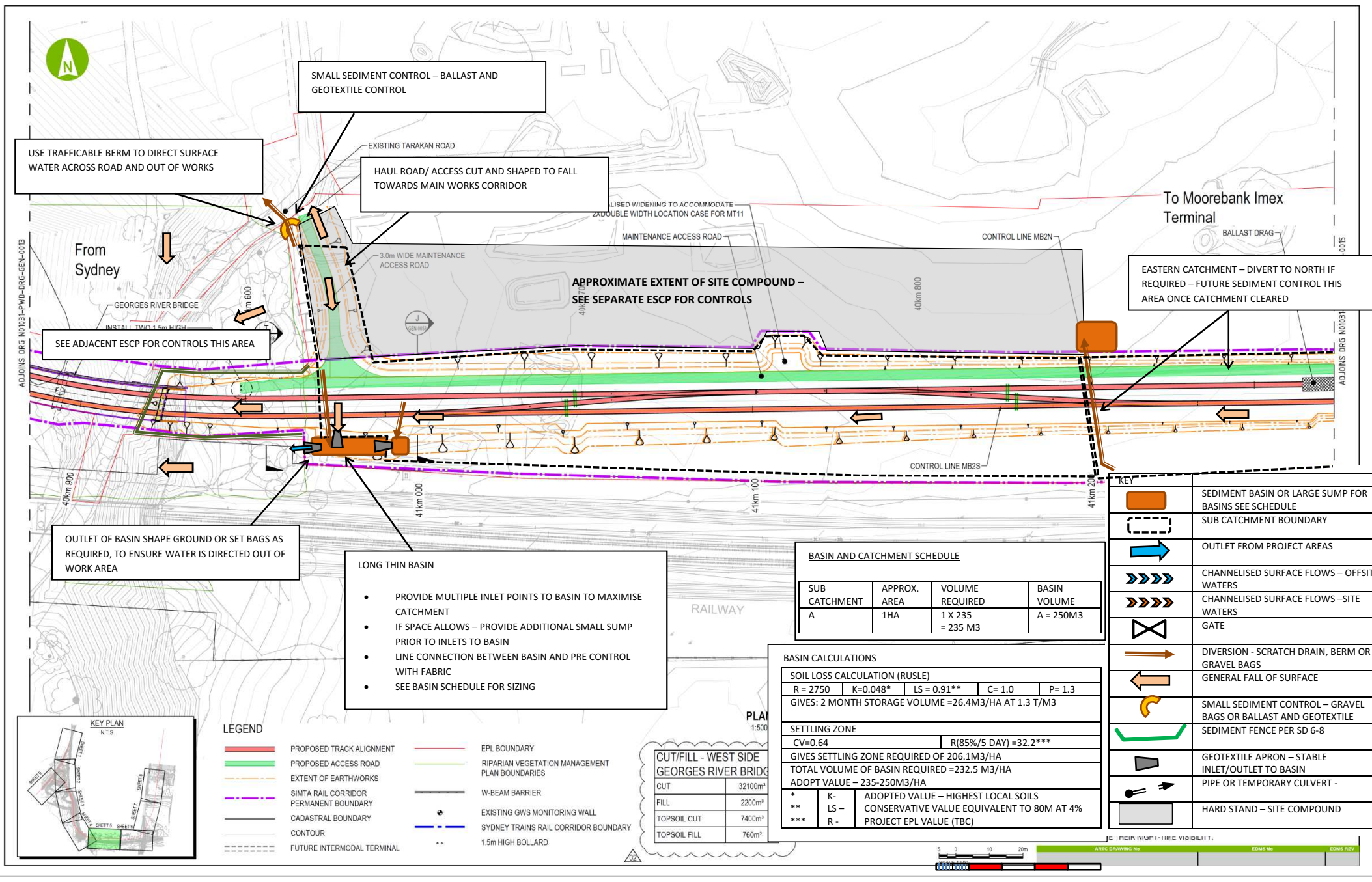
LEGEND

- IMEX SITE BOUNDARY
- SEDIMENT BASIN CATCHMENT BOUNDARY
- BATTER FORMATION
- SURFACE FALL LINES AT 1%
- FLOW PATHS & CHECK DAMS @ 100m SPACING
- DETENTION BASIN OUTLINE
- STABILISED SITE ACCESS
- STORMWATER PIPE AND SCOUR PROTECTION
- BATTER CHUTE
- SEDIMENT FENCE (SD6-7)
- SEDIMENT BASIN
- INDICATIVE STOCKPILE LOCATION
- EXISTING BUILDING STRUCTURES TO BE RETAINED
- ROCK SCOUR PROTECTION
- CONSTRUCTION AREA
- BULK EARTHWORKS NOMINAL PAD LEVEL RL 16.45, REFER DRAWING IMEX-ARC-CV-DWG-1131. EARTHWORK PADS ARE TO BE GRADED TO SUIT TO AVOID PONDING OF WATER AND TO ALLOW THE CORRECT MINIMUM DEPTH OF PAVEMENT LAYERS TO BE CONSTRUCTED DOCUMENTED IN PACKAGE M02.
- BULK EARTHWORKS NOMINAL PAD LEVEL RL 17.50, REFER DRAWING IMEX-ARC-CV-DWG-1131. EARTHWORK PADS ARE TO BE GRADED TO SUIT TO AVOID PONDING OF WATER AND TO ALLOW THE CORRECT MINIMUM DEPTH OF PAVEMENT LAYERS TO BE CONSTRUCTED DOCUMENTED IN PACKAGE M02.
- BULK EARTHWORKS NOMINAL PAD LEVEL RL 16.75, REFER DRAWING IMEX-ARC-CV-DWG-1131. EARTHWORK PADS ARE TO BE GRADED TO SUIT TO AVOID PONDING OF WATER AND TO ALLOW THE CORRECT MINIMUM DEPTH OF PAVEMENT LAYERS TO BE CONSTRUCTED DOCUMENTED IN PACKAGE M02.

- NOTES**
- EROSION AND SEDIMENT CONTROL MEASURES ARE FOR TOP OF FILL LAYER SURFACE. THESE MEASURES ARE INDICATIVE ONLY AND SHOWN FOR ILLUSTRATIVE PURPOSES. REFER DRAWING IMEX-ARC-CV-DWG-1131 FOR EARTHWORKS DETAILS OF THE TOP OF FILL LAYER.
 - ANY EROSION AND SEDIMENT CONTROL MEASURES ADOPTED BY THE DEMOLITION CONTRACTOR (DEMOLITION BY OTHERS), LEFT IN PLACE ARE TO BE EVALUATED AND CAN BE UTILISED BY THE CONTRACTOR IF DEEMED SATISFACTORY TO BE INCORPORATED AS PART OF EROSION AND SEDIMENT CONTROL MEASURES FOR THE BOTTOM OF FILL LAYER. REFER DRAWING IMEX-ARC-CV-DWG-1121 FOR EARTHWORKS DETAILS OF THE BOTTOM OF FILL LAYER.
 - THE CONTRACTOR IS TO PREPARE A SOIL AND WATER MANAGEMENT PLAN (SWMP) AND EROSION AND SEDIMENT CONTROL PLAN (ESCP) IN ACCORDANCE WITH THE PRINCIPLES AND REQUIREMENTS OF MANAGING URBAN STORMWATER - SOILS & CONSTRUCTION VOLUME 1 (BLUE BOOK/LANDCOM, 2004) AND VOLUME 2 (DEC 2008). THE CONTROL MEASURES IN THE SWMP AND ESCP ARE TO BE IMPLEMENTED BY THE CONTRACTOR FOR THE DURATION OF THE EARTHWORKS AS REQUIRED.

ON HOLD:
MOOREBANK AVENUE TEMPORARY DRAINAGE TO BE CONSTRUCTED ACCORDINGLY TO ALLOW FOR IMEX SITE CONSTRUCTION AND ELIMINATE NUISANCE FLOODING ON MOOREBANK AVENUE DESIGN TO BE FINALISED.





APPENDIX E

Lighting Plan and Lighting Layouts

BASIS OF DESIGN REPORT

MOOREBANK MPE STAGE 1 IMEX NUMBER 1

10 JANUARY 2018

EXTRACT

Incorporating



2 IMEX TERMINAL DESIGN CRITERIA

2.1 Design Codes and Standards

The latest version of the following design codes, standards and guidelines have been referenced for the project design and where relevant, incorporated as a requirement for construction:

2.1.1 Australian Standards

AS 1049 – 2003	Telecommunication Cables Insulation and Sheath Polyethylene
AS 1085 – 2002	Railway Track Materials
AS/NZS 1158 – 2010	Set - Access Lighting / Carparks / Roadways
AS/NZS 1170.0 – 2002	Structural design actions – general principles
AS/NZS 1170.1 – 2002	Structural design actions – permanent, imposed and other actions
AS/NZS 1170.2 – 2011	Structural design actions – Part 2, Wind actions
AS 1170.4 – 2007	Earthquake Loads
AS 1289 (set)	Methods of testing soils for engineering purposes
AS/NZS 1477 – 2006	PVC Pipes and Fitting for Pressure Application
AS 1554 – 2010	Set - Structural Steel Welding
AS 1597	Precast reinforced concrete box culverts
AS 1657 – 2013	Fixed platform, walkway, stairways and ladders
AS 1670.1 – 2015	Fire Detection, warning, control and intercom systems – System design, installation and commissioning
AS/NZS 1680.1	General Lighting
AS 1725.1 – 2010	Chain link fabric fencing Part 1: Security Fences and Gates – General Requirements
AS/NZS 2033 – 2008	Installation of Polyethylene Pipe Systems
AS/NZS 2053	Non-metallic conduits and fittings
AS 2067 – 2016	Substation and High Voltage Installations exceeding 1KV _a - a.c.
AS 2159 – 2009	Piling – Design and installation
AS 2200 – 2006	Design Charts for Water Supply and Sewerage
AS/NZS 2293.1	Emergency Lighting
AS 2419.1 – 2005	Fire Hydrant Installations
AS/NZS 2439	Perforated plastic drainage and effluent pipe and associated fittings
AS 2441 – 2005	Installation of Fire Hose Reels
AS 2444 – 2001	Fire Extinguishers
AS 2566.1 – 1998	Buried Flexible Pipelines – Structural Design
AS 2601 – 2001	The Demolition of Structures
AS/NZS 2638 – 2011	Gate Valves for Waterworks Purposes
AS 2756 – 1991	(R2016) Low-voltage switchgear and control gear - Mounting rails for mechanical support of electrical equipment
AS 2890 – 2009	Parking Facilities
AS 2941 – 2013	Fixed Pump set installations
AS/NZS 3000	Electrical Wiring Rules

AS/NZS 3080	Telecommunications Installation – Generic cabling for commercial premises.
AS/NZS 3084	Telecommunication Installations – Telecommunication Pathways and Spaces for Commercial Buildings
AS/NZS 3500 – 2015	Plumbing and Drainage
AS 3600 – 2009	Concrete structures
AS 3725 – 2007	Design for Installation of Buried Concrete Pipes
AS 3735 – 2001	Concrete Structures Retaining Liquids
AS 3798 – 2007	Guidelines on earthworks for commercial and residential developments
AS 3996 – 2006	Access covers and grates
AS/NZS 4058	Precast concrete pipes (pressure and non-pressure)
AS 4100 – 1998	Steel structures
AS/NZS 4129 – 2008	Fittings for Polyethylene Pipes for Pressure Purposes
AS/NZS 4130 – 2009	Polyethylene Pipes for Pressure Purposes
AS 4282 – 1997	Control of the obtrusive effects of outdoor lighting
AS 4600 – 2005	Cold-formed steel structures
AS 4678 – 2002	Earth-retaining structures
AS 4680 – 2006	Hot-dip Galvanized (Zinc) Coatings on Fabricated Ferrous Articles
AS 4795 – 2006	Butterfly Valves for Waterworks Purposes
AS 4997 – 2005	Guidelines for the design of maritime structures
AS 5100 – 2007	Bridge Design Code Set
AS 5200.000 – 2006	Plumbing and Drainage Products
BCA 2016	Building Code of Australia
WSA 01 – 2004	Water Supply Code of Australia
WSA 02 – 2014	Gravity Sewerage Code of Australia
WSA 03 – 2011	Water Supply Code of Australia
WSA 04 – 2005	Sewage Pumping Station Code of Australia
Relevant Building Surveyor	
NSW Fire & Rescue (NSWFR) requirements	
Liverpool City Council Development Design Specification D5 – Stormwater Drainage Design	

2.1.2 International Standards

ISO 14763-3	Telecommunications installations – Generic cabling systems – Specification for the testing of optical fibre communication cabling
ISO 12488-1	Cranes – Tolerances for wheels and travel and traversing tracks – Part 1: General, 2 nd Edition
BS EN 15011:2011	Cranes – Bridge and gantry cranes
FEM 1.001(10.1998)	Rules for the design of hoisting appliances
FEM 1.004(07.2000)	Recommendation for the calculation of wind loads on crane structures

2.1.3 Guidelines

Australian Rainfall & Runoff

Austrorads Guide to Pavement Technology Part 2: Pavement Structural Design

The Structural Design of Heavy Duty Pavements for Ports and Other Industries (Edition. 4) December 2007 published by Interpave.

Austrorads Guide to Road Design - Set

Austrorads Guide to Pavement Technology - Set

Austrorads Guide to Bridge Technology - Set

Austrorads Guide to Traffic Engineering Management - Set

Austrorads Guide to Transport Planning

Austrorads Guide to Road Safety - Set

Austrorads Design Vehicles and Turning Path Templates

Austrorads Waterway design. A Guide to Hydraulic design of Bridges Culverts and Floodways

RMS Supplements to the Austrorads Guide to Pavement Technology

RMS Supplements to the Austrorads Guide to Bridge Technology

RMS Supplements to the Austrorads Guide to Traffic Engineering Management

RMS Supplements to the Austrorads Guide to Transport Planning

RMS Supplements to the Austrorads Guide to Road Safety

RMS Traffic Signal Operation Specification

RMS Supplement to AS 1742

RMS Supplement to AS 1743

RMS Procedures for use in the Preparation of a Traffic Management Plan (TMP)

RMS Roads and Maritime Services Guidelines for Road Safety Audit Practices

RMS Supplement to AS 2890

The Structural Design of Heavy Duty Pavements for Port and Other Industries (Interpave, 2008)

Guide to Industrial Floors and Pavements (Cement Concrete & Aggregates Australia, 2009)

2.1.4 RMS Specifications

RMS 3051 RMS QA Specification 3051 - Granular Base and Subbase Materials for Surfaced Road Pavements

RMS 3071 RMS QA Specification 3071 – Selected Material in Formation Layers

RMS 3222 RMS QA Specification 3222 – No-Fines Concrete (For Subsurface Drainage)

RMS 3252 RMS QA Specification 3252 – Polymer Modified Binder for Pavements

RMS 3552 Subsurface Drainage Pipe (Corrugated Perforated and Non-Perforated Plastic)

RMS 3557 RMS QA Specification 3557 - Flexible Strip Filter Drains

RMS 3580 RMS QA Specification 3580 - Aggregate Filter Materials for Subsurface Drainage

RMS B110 RMS QA Specification B110 - Supply of Pretensioned Precast Concrete Members

RMS B113 RMS QA Specification B113 - Post-Tensioning of Concrete

RMS B114 RMS QA Specification B114 - Ground anchors

RMS B115 RMS QA Specification B115 - Precast Concrete Members (Not Pretensioned)

RMS B150 RMS QA Specification B150 - Erection of Pretensioned Precast Concrete Members

RMS B153 RMS QA Specification B153 - Erection of Precast Concrete Members (Not Pretensioned)

RMS B200 RMS QA Specification B200 - Fabrication of Major Steel Structural Members

RMS B204 RMS QA Specification B204 - Welding of Bridges and Other Road Structures

RMS B220 RMS QA Specification B220 - Protective Treatment of Bridge Steelwork

RMS B240 RMS QA Specification B240 - Supply of Bolts, Nuts, Screws and Washers

RMS B260 RMS QA Specification B260 - Erection of Structural Steelwork

RMS B264 RMS QA Specification B264 - Erection of Barrier Railings and Minor Components

RMS B280 RMS QA Specification B280 - Unreinforced Elastomeric Bearing Pads and Strips

RMS B281 RMS QA Specification B281 - Laminated Elastomeric Bearings

RMS B282 RMS QA Specification B282 - Pot Bearings – Structural Steel

RMS B283 RMS QA Specification B283 - Pot Bearings – Stainless Steel

RMS B284 RMS QA Specification B284 - Installation of Bridge Bearings

RMS B30 RMS QA Specification B30 - Excavation and Backfill for Bridgeworks

RMS B341 RMS QA Specification B341 - Demolition of Existing Structure

RMS B349 RMS QA Specification B349 - Supply of Precast Concrete Noise Walls (Not Pretensioned)

RMS B57 RMS QA Specification B57 - Driven Cast-in-Place Concrete Piles

RMS B58 RMS QA Specification B58 - Permanently Cased Cast-in-Place Reinforced Concrete Piles

RMS B59 RMS QA Specification B59 - Bored Cast-in-Place Reinforced Concrete piles (without Permanent Casing)

RMS B61 RMS QA Specification B61 - Driven Composite Piles

RMS B63 RMS QA Specification B63 - Concrete Injected (CFA) Piling

RMS B80 RMS QA Specification B80 - Concrete Work for Bridges

RMS B82 RMS QA Specification B82 - Shotcrete Work

RMS GTD 2012/001 Roads & Maritime Services - GTD 2012/001 - Technical Direction Geotechnology

RMS Pub 13.184 Traffic Modelling Guidelines. (Issued Feb 2013)

RMS Q6 RMS Specification D&C Q6 - Quality Management System

RMS R11 RMS QA Specification R11 - Stormwater Drainage

RMS R15 RMS QA Specification R15 - Kerbs and Gutters

RMS R83 RMS QA Specification R83 - Jointed Concrete Base

RMS R132 RMS QA Specification R132 - Safety Barrier Systems

RMS R271 RMS QA Specification R271 - Design and Construction of Noise Walls

RMS R44 RMS QA Specification R44 - Earthworks

RMS R50 RMS QA Specification R50 - Stabilisation of Earthworks

RMS R53 RMS QA Specification R53 - Concrete (for General Use), Mortar and Grout

RMS R55 RMS QA Specification R55 - Rock Filled Gabions and Mattresses

RMS R57 RMS QA Specification R57 - Design of Reinforced Soil Walls

RMS R58 RMS QA Specification R58 - Construction of Reinforced Soil Walls (Contractor's Design)

RMS R63 RMS QA Specification R63 - Geotextiles (Separation and Filtration)

RMS R64 RMS QA Specification R64 - Soil Nailing

RMS R68 RMS QA Specification R68 - Shotcrete work without steel fibres

RMS R73 RMS QA Specification R73 – Construction of Plant Mixed Heavily Bound Pavement Course

RMS R116 RMS QA Specification R116 – Heavy Duty Dense Graded Asphalt

RMS R132 RMS QA Specification R132 - Safety Barrier Systems

RMS R173 RMS QA Specification R173 – General Concrete Paving

RMS Soil Testing Methods

2.1.5 Additional Requirements to RMS Specifications

Additional specification requirements to RMS R83 are provided in section 12 of this report.

2.2 Reference Documents

The design has been based on the following documents:

- The SIMTA Principal's Project Requirements document;
- The AECOM Basis of Design document, number 60492251, dated 24 November 2016;
- AECOM Drawings included in *Laing O'Rourke Final Offer*, received via Aconex reference number LORAC-GCOR-000197, dated 02 August 2016

2.3 Durability and Design Life

The Design Life of Assets and Sub Assets are to be set out in a separate Durability Report for the project, at Appendix B, and included in the final detailed design package.

The Arcadis design for durability is based on the following;

- on relevant Industry standards, guidelines and good industry practice in following normal maintenance and replacement of maintenance spares,
- to provide a service life which falls within the range of conditions contemplated by the manufacturer in deducing the design life of the asset.

The design life of proprietary equipment and other assets designed by suppliers will need to be referenced to the suppliers to ascertain the service life of these proprietary goods based on the supplier's experience and its assessment of the maintainability and reliability of its products

16 LIGHTING

16.1 Design Strategy

The lighting design for the Moorebank IMEX terminal takes into account the eventual transition from Manual Phase to Automatic Phase that forms part of the operational strategy of the site. As such, the lighting design covers the both of the following phases:

- Manual Operation Phase;
- Automatic Operation Phase.

Taking into account the above planned transition, the design strategy aims to achieve the following:

- Provide sufficient lighting to the Manual Operation Phase in accordance with relevant Australian Standards.
- Minimise the impact of operation during Manual Operation Phase;
- Minimise the impact of transition from Manual Operation Phase to Automatic Operation Phase
- Minimise the impact of the automatic phase transition by maximising the reusability of the lighting design proposed for the manual operation.

16.2 Design Criteria

The following table shows the lighting levels designed for the Manual Operation Phase

Manual Phase Area	Lighting Level
Overall Site	General Storage – Pedestrian Access with Through Traffic E_{av} 20 lx, E_{min} 2.5lx,
Local Driveways	P4 as per AS1158.3
Carpark	P11b as per AS1158.3
Pedestrian Crossing	PX3 as per AS1158.4
Fencing	5 lux average illuminance

The following table shows the lighting levels designed for the Automatic Operation Phase

Manual Phase Area	Lighting Level
Site – Loading / Drive-in Area	General Storage – Pedestrian Access with Through Traffic E_{av} 20 lx, E_{min} 2.5lx,
Local Driveways	P4 as per AS1158.3
Carpark	P11b as per AS1158.3
Pedestrian Crossing	PX3 as per AS1158.4
Fencing	5 lux average illuminance

The lighting design have been undertaken in accordance to the above standards. The design calculations have been completed using the lighting software AGI32. The design calculations are provided within the Appendix.

16.2.1 Manual Phase - Lighting Design

16.2.1.1 Lighting Design

Overall Terminal Site

The lighting design features 18m high mast poles, mounted with high powered LED floodlights, as the main source to illuminate most of the site area.

Within the rail cargo area, 18m high mast poles have been positioned at less than 50m spacing's along the rail corridor, between the second and third track. Each pole is mounted with four high power LED floodlights, angled 90° apart, with a tilt of 8° to allow wider illumination.

18m poles have been chosen, taking into consideration the transition phase from Manual to Automatic Operation. Keeping all the high mast poles at no more than 18m height, the light poles situated within the rail corridor can continue to operate even during the installation of the new crane for automatic phase.

For the remainder of the site, 18m high mast poles with one or two high power LED floodlights are used to cover the majority of the drive-in area.

A combination of 12m and 9m poles is used to provide the additional required lighting in the more restricted areas.

The perimeter fencing is illuminated mainly by the 12m height pole. These fences are illuminated at a level which allow the perimeter CCTVs to operate effectively.

Local Driveway / Carpark

The local driveways and the carpark are illuminated by a combination of the 18m high mast poles and the 12m light poles. The 12m light poles have been used to illuminate the areas which are difficult to reach from the 18m high mast poles.

Pedestrian Crossing

A number of 9m poles have been allocated near the pedestrian crossing given its higher point vertical illuminance light level requirement as required by AS1158.

Emergency/Maintenance lighting

SIMTA have not advised to provide any emergency/maintenance lighting.

SIMTA have advised that all planned maintenance will be performed during daylight hours. For emergency, overnight maintenance, if the permanently installed lighting is not adequate to perform detailed tasks in a specific location, then SIMTA have advised that portable flood light plant will be used to supplement the installed lighting.

16.2.1.2 Lighting Power Supply

Each light pole within the terminal site is powered by one of the distribution boards provided throughout the site. Generally light poles shall be powered by the closest distribution boards, minimizing the wiring distance and cable sizes required.

Unless otherwise stated in the distribution board and circuit schedule, each light pole is typically wired by a single phase 2c x 16mm² + earth XLPE cable. Adjacent light poles are alternately wired in different circuits through the three-phase supply, reducing the chance of two adjacent poles failing together due to any one circuit failing.

16.2.2 Automated Phase:

16.2.2.1 Lighting Design

Automated Rail Cargo Area

Given the site will be transitioned into full automation with no manual labours, SIMTA advised there is no requirement for lighting. Some illumination is anticipated from the automated crane that is to be installed for the automatic phase.

The 18m high mast poles along the rail corridor shall be decommissioned as part of the transition from manual to automated phase.

The 12m light poles provided for the perimeter/security fencing lighting will remain and serve the same purpose as the manual operation phase. Both the eastern and western fencelines will be shifted outward as part of the transition from manual to automatic phase, generating more space within the rail cargo area. As such, the perimeter poles will correspondingly shift with the new fence lines to keep the illuminance the same as manual operation phase.

Local Driveway / Carpark

The local driveway and the carpark will be kept generally the same as for manual phase. As the front of house, drive in area of the automated phase is greater than the manual phase, additional 18m high mast poles shall be provided to illuminate the additional area.

Pedestrian Crossing

The pedestrian crossing will be removed during the transition from manual to automated phase. Therefore the lighting will not be required during Automatic phase.

Emergency/Maintenance lighting

No additional emergency / maintenance lighting will be provided as per manual phase.

16.2.2.2 Lighting Power Supply

The lighting power supply will follow the same topology as the manual phase wiring.

16.2.3 Luminaires

LED luminaires is used in the design given the advantages LED technology has over other luminaire technologies such as the following:

- Energy efficiency;
- Increased life time;
- Colour rendering;
- No warm up period.

Luminaires are constructed as full cut off type, with all lights sitting flat (zero-degree tilt) except the luminaires within the rail corridor.

The luminaires can be controlled via photoelectric cell which can be mounted at the top of each pole/luminaire.

Luminaires are minimum IP66 grade which are suitable for outdoor application.

The colour temperature for all luminaires used in the design are 4000K standard.

16.2.4 Light Poles

The design features three types of poles, 18m, 12m and 9m height. The 18m high mast poles shall be minimum HD grade given some of it being positioned within the rail corridor.

The luminaires are typically mounted at the top of the poles with a typical outreach of 2m. In addition to luminaires, some of the poles are used to mount CCTVs and WAPs in order to reduce the number of dedicated CCTV security poles needed for the design.

For all 18m high mast poles, 1 x 80mm orange HD uPVC conduit shall be used as the underground entry pathway for the electrical cabling to the luminaires. For all other light poles, 1 x 50mm orange HD uPVC shall be used.

For all the light poles mounted with communications equipment such as CCTVs or WAPs, an additional 1 x 50mm white HD uPVC conduit is used as a dedicated pathway to maintain the required segregation between ELV and LV cables in accordance with AS/CF S009

EXTRACT

The EIS contains new visual impact assessment (by Reid Campbell 2015) and a new light spill assessment (AECOM 2015). This new light spill assessment was required for a new arrangement to be considered after the 2013 EIS.

19.1.3 Revised Statement of Commitments

1. The principles of Crime Prevention Through Environmental Design have been considered and incorporated into the design
2. The proponent shall encourage walking and cycling by the inclusion of appropriate facilities including under cover bike storage, showers and change facilities.
3. Appropriate areas have been provided for the storage of waste and recyclable material

19.1.4 CoA Compliance

1. Condition B1: Access for people with disabilities has been allowed for in offices and amenities in accordance with the Disability Discrimination Act 1992 (Commonwealth).
2. Condition B4: Site layout and access. The design of the main access gate precludes heavy road freight vehicles from using Moorebank Avenue south. There is no left turn from the site onto Moorebank Avenue, and no right turn from Moorebank Avenue into the terminal site.
3. Condition B5: The conditions stipulated in condition B5 have been included within the design to ensure access for heavy vehicles and minimise disruption to Moorebank Avenue. Such measures include:
 - a. internal roads, driveways and parking have been designed in accordance with the latest versions of AS 2890.1 – 2004, AS 2890.6-2009 and AS 2890.2 – 2002 for heavy vehicle usage;
 - b. the swept path of the longest vehicle entering and exiting the subject as well as manoeuvrability through the site is in accordance with AUSTROADS
 - c. The layout of the site has been designed to ensure heavy vehicles associated with the operation of the intermodal terminal can be accommodated on site in the event of an incident blocking access to the M5 Motorway/ Moorebank Avenue to avoid queuing on public roads.
 - d. The layout of the site has been designed so that heavy vehicles are not required to select reverse gear.
 - e. the design ensures that all vehicles are wholly contained on site before being required to stop;
4. Condition B6: Emergency access provision has been included.
5. Condition B7: A lighting plan will be prepared and submitted by Arcadis based on the illumination strategy and lighting drawings and specifications by the Designer. The Developed Design complies with B7.

The Stage 1 EIS states that the light pole heights will vary between 13.55m and 21m, these heights have been adhered to. This is further emphasised by the EPBC approval stating that light poles must not exceed the height of warehouses; the building heights permitted under the Concept Plan Approval included allowances for 32 m high materials handling equipment, a 30 m high control tower, 21 m high warehouse and 15 m high "other" buildings.

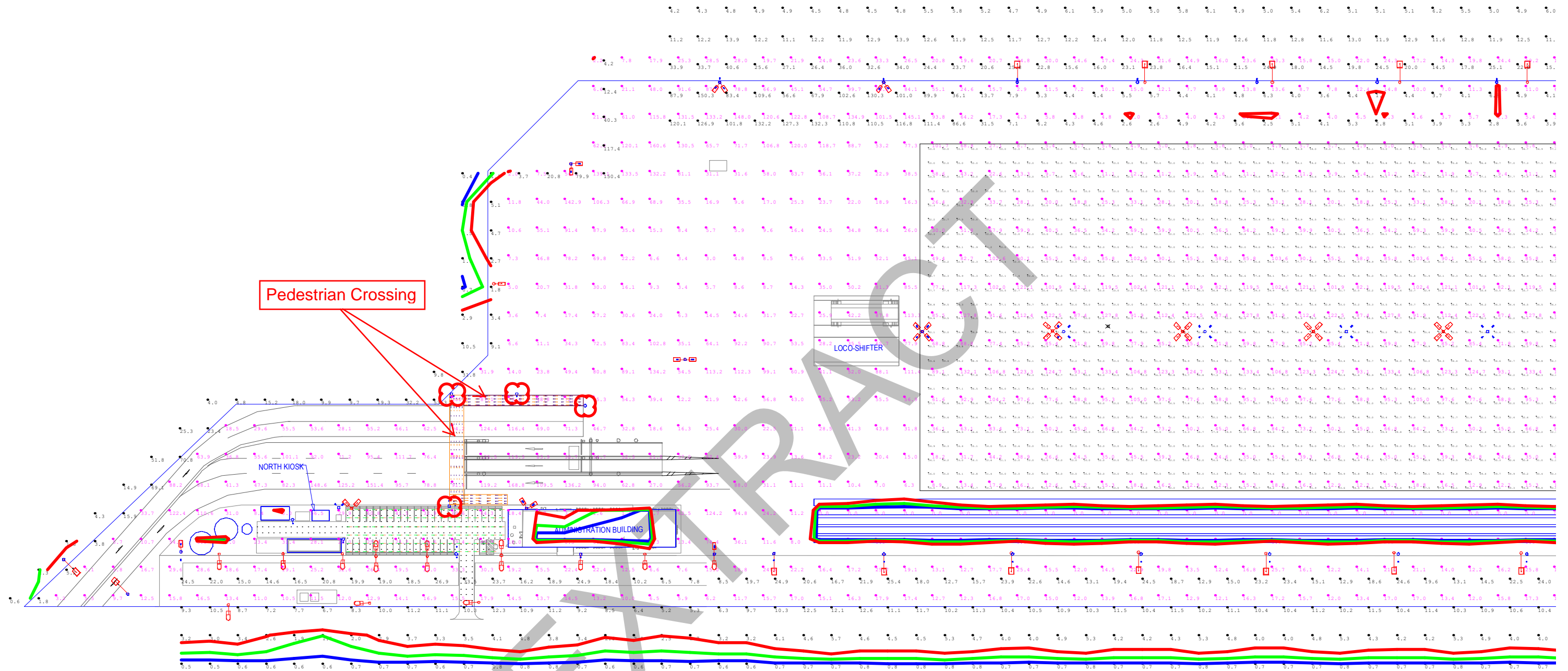
The effects of light spill are discussed in Section 17.3.2 of the EIS, which assessed the lighting arrangement for the Proposal

The assessment demonstrated that the proposed arrangement would be consistent with AS4282-1997 and no further mitigation measures were deemed necessary, in addition to the commitments included under the Concept Plan Approval."

6. Condition B8: The design does not preclude the ability to install a bus stop on Moorebank Avenue.

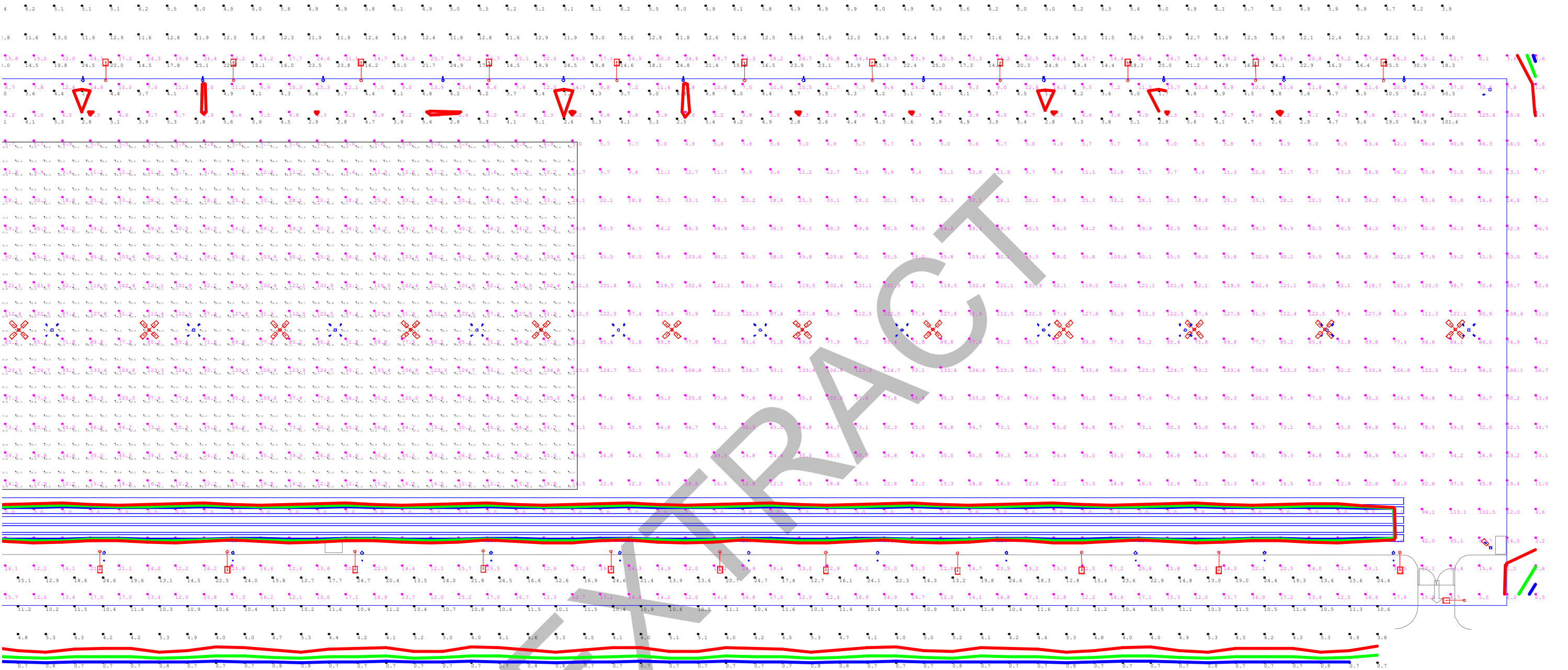
AL PHASE OPERATION - LIGHTING CALCULATIONS




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




Isoline Legend	
Illuminance (Lux)	
Color	Value
<div></div>	0.85
<div></div>	1.5
<div></div>	2.5

 Pedestrian Crossing Lights



Isoline Legend	
Illuminance (Lux)	
Color	Value
	0.85
	1.5
	2.5

Luminaire Schedule				
Symbol	Qty	Label	Arrangement	LLF
	72	SR4H757A2 Raptor 1270W NB gla	SINGLE	0.750
	45	ATB2_60BLEDE13 XXXXX R3	SINGLE	0.750
	2	StreetLED 37W 4K Aeroscreen 2	SINGLE	0.750

Calculation Summary						
Label	CalcType	Units	Avg	Max	Min	Max/Min
Carpark Horizontal	Illuminance	Lux	36.18	77.8	10.6	7.34
Carpark Vertical	Illuminance	Lux	23.17	48.3	9.1	N.A.
Carpark Vertical_1	Illuminance	Lux	32.79	74.2	10.8	N.A.
Fence	Illuminance	Lux	8.46	33.5	0.5	67.00
Fence_1	Illuminance	Lux	16.24	150.3	1.6	93.94
Fence_2	Illuminance	Lux	20.70	150.4	0.4	376.00
Glare in Rail Cargo_1	Illuminance	Lux	64.18	142.9	5.7	25.07
Glare in Rail Cargo_1	Glare Rating	N.A.	26.08	36.2	10.0	3.62
ObtrusiveLight_1_Cd_Seg1	Obtrusive Light - Cd	N.A.	601.22	1513	490	3.09
ObtrusiveLight_1_Cd_Seg2	Obtrusive Light - Cd	N.A.	685.04	956	509	1.88
ObtrusiveLight_1_Cd_Seg3	Obtrusive Light - Cd	N.A.	859.79	1867	561	3.33
ObtrusiveLight_1_Cd_Seg4	Obtrusive Light - Cd	N.A.	570.48	1048	466	2.25
ObtrusiveLight_1_Ill_Seg1	Obtrusive Light - Ill	Lux	0.14	0.2	0.1	2.00
ObtrusiveLight_1_Ill_Seg2	Obtrusive Light - Ill	Lux	0.50	0.9	0.0	N.A.
ObtrusiveLight_1_Ill_Seg3	Obtrusive Light - Ill	Lux	0.33	0.7	0.1	7.00
ObtrusiveLight_1_Ill_Seg4	Obtrusive Light - Ill	Lux	0.18	0.3	0.1	3.00
PedX_Vert1Left	Illuminance	Lux	52.76	90.1	29.4	N.A.
PedX_Vert1Right	Illuminance	Lux	52.78	80.9	16.1	5.02
PedX_Vert2Down	Illuminance	Lux	71.81	117.4	20.0	N.A.
PedX_Vert2Up	Illuminance	Lux	48.50	103.4	18.4	5.62
PedX_Vert3Left	Illuminance	Lux	44.30	61.4	18.2	N.A.
PedX_Vert3Right	Illuminance	Lux	50.84	75.8	38.0	N.A.
Site	Illuminance	Lux	43.97	168.8	0.0	N.A.

Obtrusive Light - Compliance Report

AS 4282-1997, Pre-Curfew, Commercial

Filename: 2017-04-06 - Moorebank IMEX Manual Phase

11/04/2017 11:47:22 AM

Illuminance

Maximum Allowable Value: 25 Lux

Calculations Tested (4):

Calculation Label	Test Results	Max. Illum.	
ObtrusiveLight_1_III_Seg1	PASS		0.2
ObtrusiveLight_1_III_Seg2	PASS		0.9
ObtrusiveLight_1_III_Seg3	PASS		0.7
ObtrusiveLight_1_III_Seg4	PASS		0.3

Luminous Intensity (Cd) Per Luminaire

Maximum Allowable Value: 7500 Cd

Control Angle: 83 Degrees

Luminaire Locations Tested (119)

Test Results: **PASS**

EXTRA

Obtrusive Light - Compliance Report

AS 4282-1997, Post-Curfew, Commercial

Filename: 2017-04-06 - Moorebank IMEX Manual Phase

11/04/2017 11:46:16 AM

Illuminance

Maximum Allowable Value: 4 Lux

Calculations Tested (4):

<u>Calculation Label</u>	<u>Test Results</u>	<u>Max. Illum.</u>	
ObtrusiveLight_1_Ill_Seg1	PASS		0.2
ObtrusiveLight_1_Ill_Seg2	PASS		0.9
ObtrusiveLight_1_Ill_Seg3	PASS		0.7
ObtrusiveLight_1_Ill_Seg4	PASS		0.3

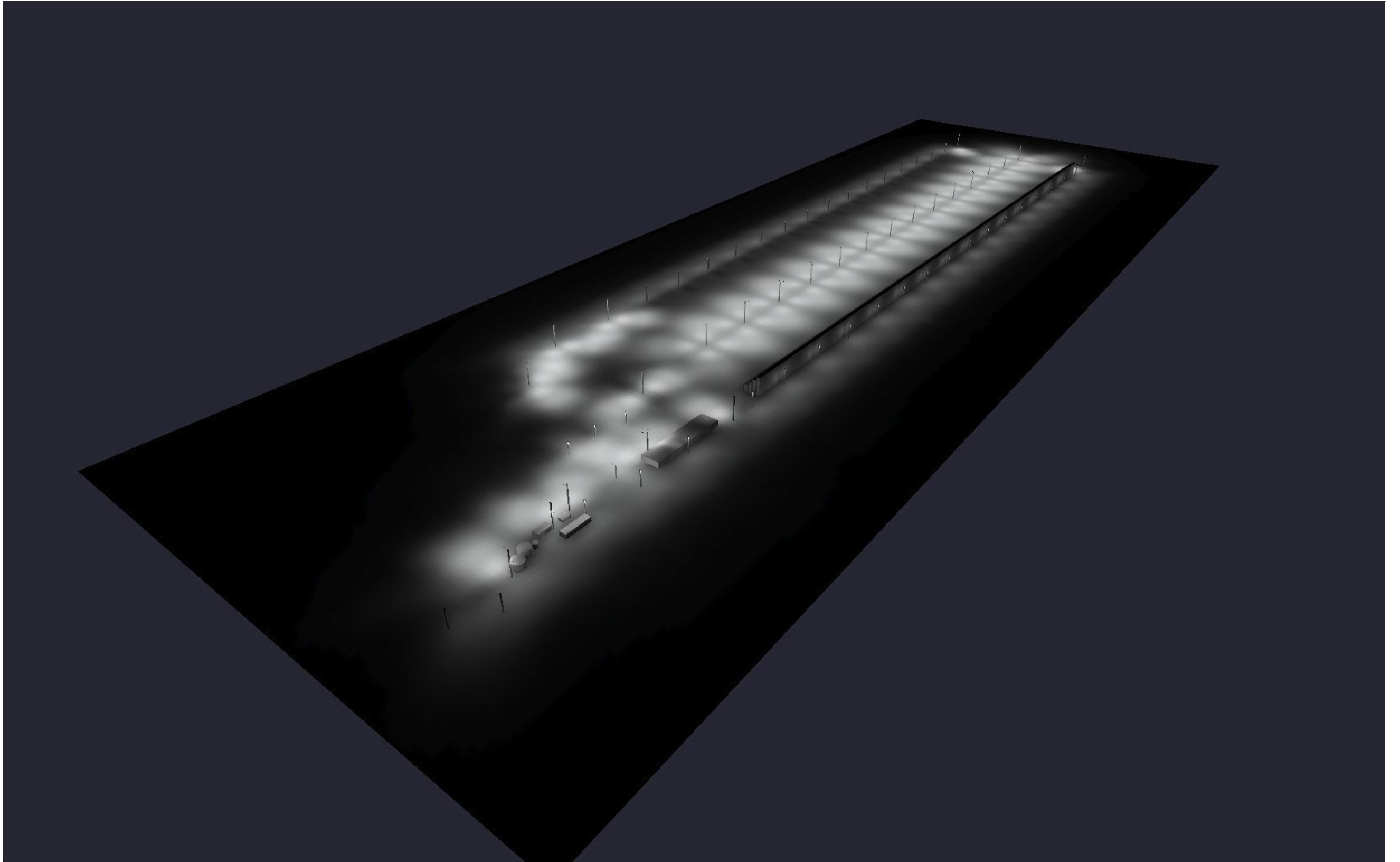
Luminous Intensity (Cd) At Vertical Planes

Maximum Allowable Value: 2500 Cd

Calculations Tested (4):

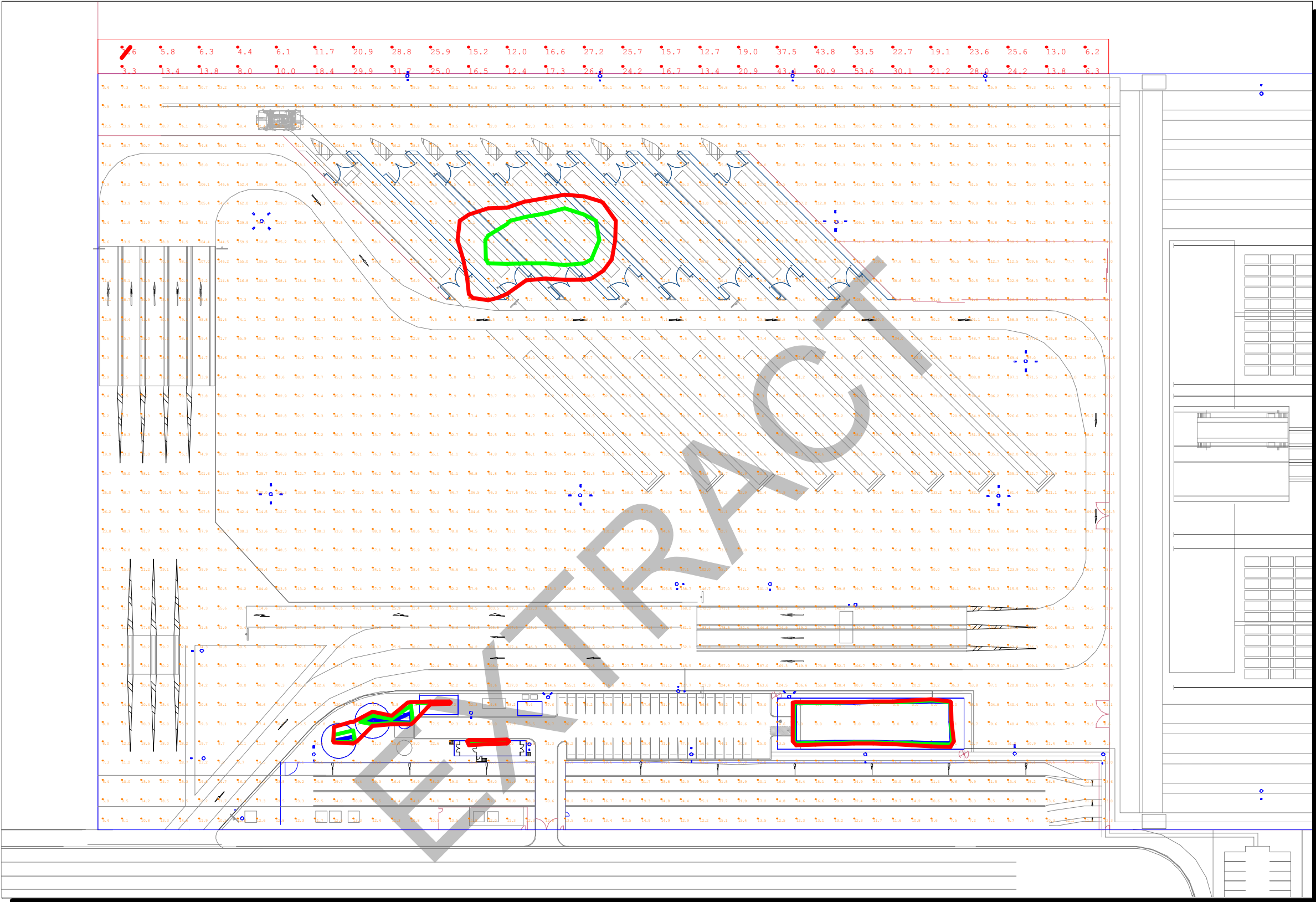
<u>Calculation Label</u>	<u>Test Results</u>
ObtrusiveLight_1_Cd_Seg1	PASS
ObtrusiveLight_1_Cd_Seg2	PASS
ObtrusiveLight_1_Cd_Seg3	PASS
ObtrusiveLight_1_Cd_Seg4	PASS




EXTRA






0 PHASE OPERATION - LIGHTING CALCUL

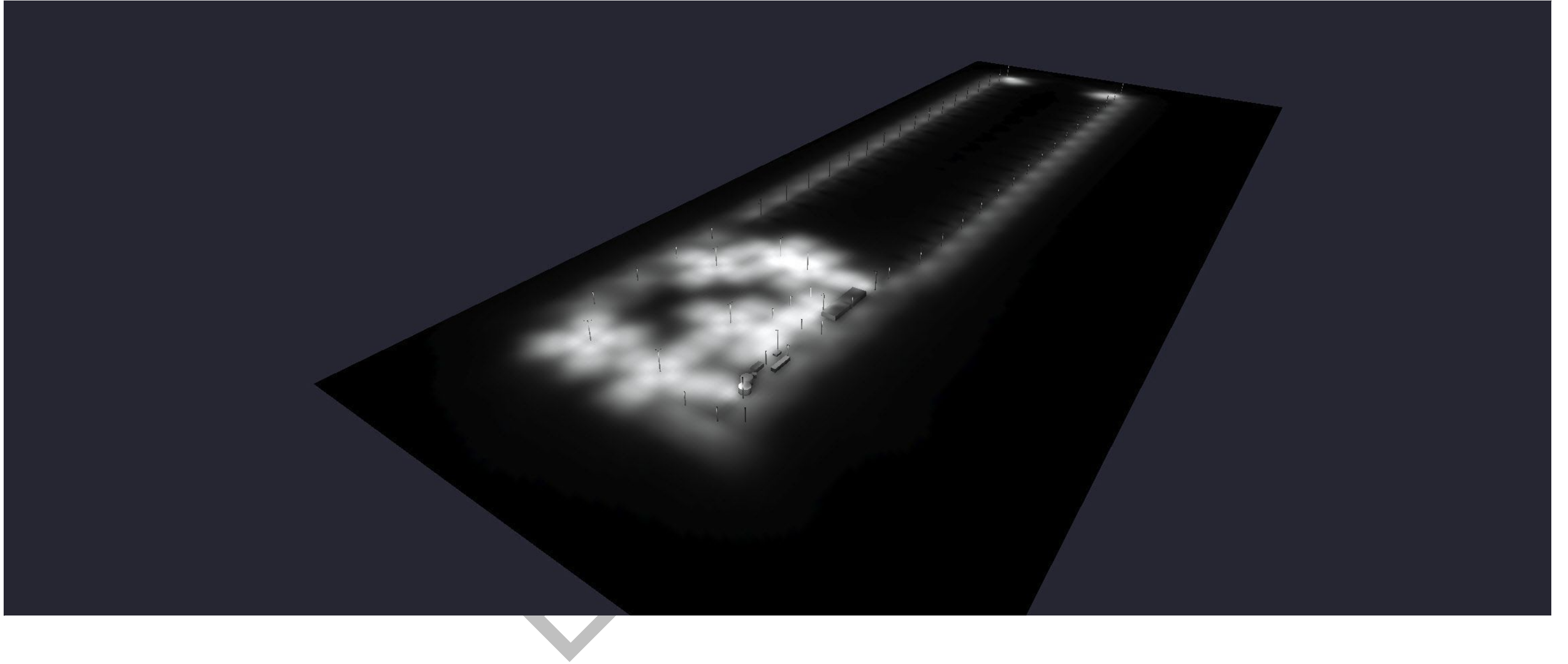
[illegible]



Isoline Legend	
Illuminance (Lux)	
Color	Value
	0.85
	1.5
	2.5

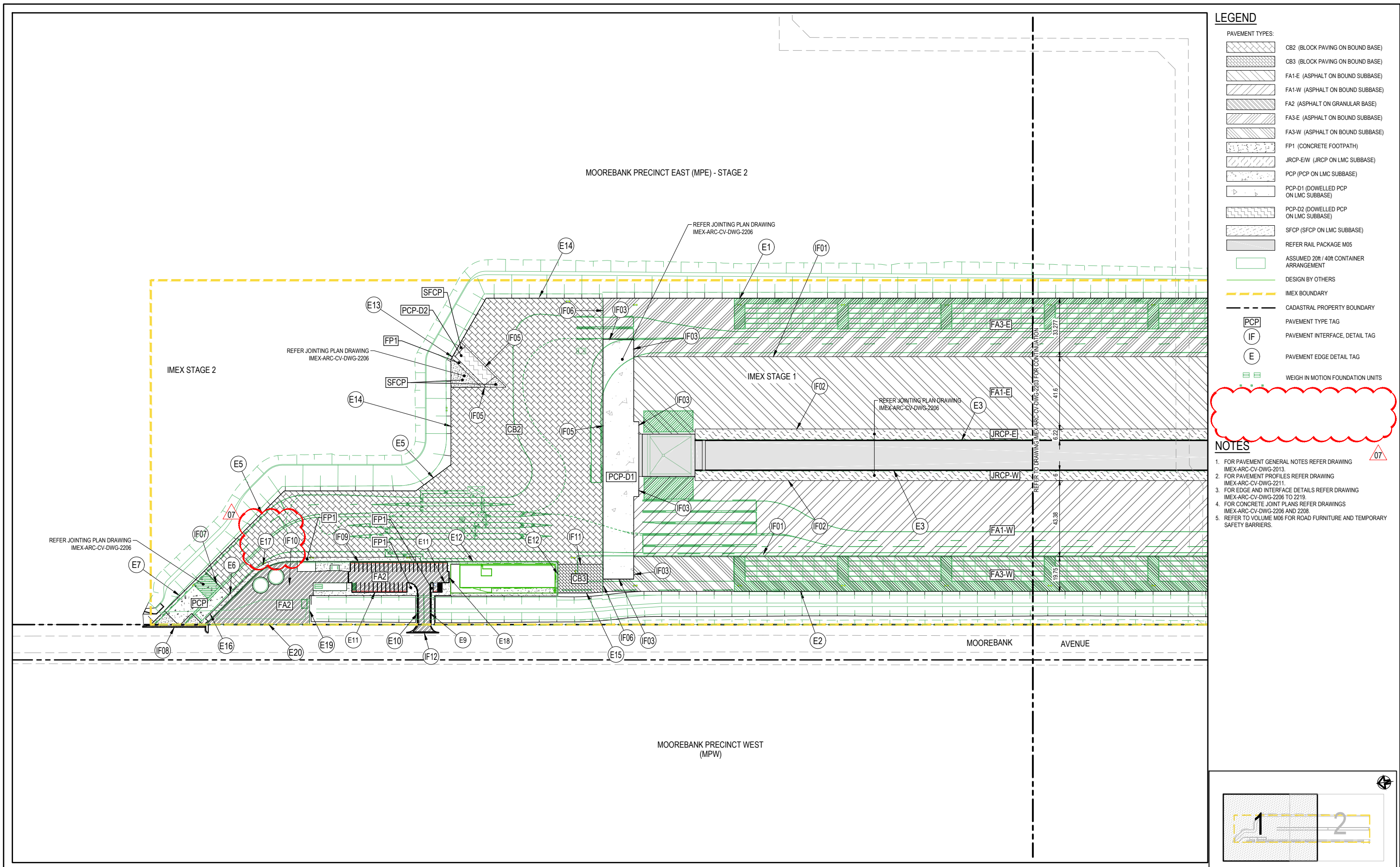
Luminaire Schedule					
Symbol	Qty	Label		Arrangement	LLF
	32	SR4H757A2 Raptor 1270W NB gla		SINGLE	0.750
	54	ATB2_60BLEDE13_XXXXX_R3		SINGLE	0.750
	1	StreetLED 37W 4K Aeroscreen 2		SINGLE	0.750

Calculation Summary						
Label	CalcType	Units	Avg	Max	Min	Max/Min
FENCE	Illuminance	Lux	20.46	60.9	1.6	38.06
Front Area	Illuminance	Lux	62.12	259.5	0.0	N.A.

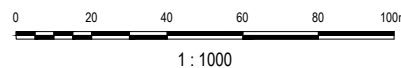


APPENDIX F

Car Park – Pavement Materials



Issue	Description	Date
07	AFC UPDATE	07/07/2017
06	AFC UPDATE	22/05/2017
05	AFC UPDATE	19/05/2017
04	AFC UPDATE	17/05/2017
03	ISSUE FOR CONSTRUCTION	27/04/2017
02	REVIEWER COMMENTS INCORPORATED	07/04/2017
01	DETAILED DESIGN	31/03/2017



Client



Status

FOR CONSTRUCTION TO BE USED FOR CONSTRUCTION	
Scales	1 : 1000
Original Size	A1
Height Datum	AHD
Grid	MGA
Filename:	IMEX-ARC-CV-DWG-2202-PavementPlanSheet1.dwg

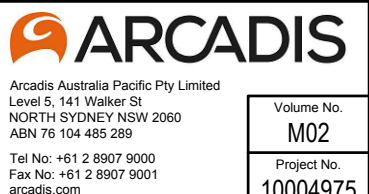
Date Plotted: 7 Jul 2017 - 11:30AM File Name: F:\10004975\E-CAD\Drawings\CV\M02_Manual Phase Civil And Lead In Services\IMEX-ARC-CV-DWG-2202-PavementPlanSheet1.dwg

Project

MOOREBANK MPE
STAGE 1
IMEX NUMBER 1

Title

PAVEMENT PLAN
SHEET 1



Drawing No. IMEX -ARC-CV-DWG-2202- Issue 07

Volume No.
M02
Project No.
10004975

APPENDIX G

Depot Licence Application Guidelines



Australian Government

Department of Immigration
and Border Protection

Applying for a Depot Licence – Application Guidelines

NOTE: Identity documents must be either originals or certified copies. A certified copy is a copy of an original document that has been certified as a true and correct copy by a person who is authorised to witness a statutory declaration. These copies should be annotated with “**certified true copy of the original, which I have sighted**” and the signature, date, full name and appointment/qualifications of the person certifying. Refer to the document *100 Point Identification Guidelines* for more details on document certification.

This guide provides information on the application process for a licence to operate a Depot under Part IVA of the *Customs Act 1901* (the Act).

Applications are to be made to the Department of Immigration and Border Protection (the Department). Successful applications will be granted a licence to operate the premises as a Depot under Section 77G of the Act and in accordance with Customs-related laws¹.

The Department requires the business and personal information outlined in this application guide and any other information requested as part of the application process to assess applications against the requirements of Customs-related laws. Any information provided will be used only for that purpose for which it is collected. Failure to provide the required information may result in the application for a Depot Licence being rejected.

¹ Customs-related laws, as defined in Section 4B of the Act, includes:
(c) any other Act, or any Regulations made under any other Act, in so far as the *Customs Act 1901* or *Customs Regulation 2015* relate to the importation or exportation of goods, where the importation or exportation is subject to compliance with any condition or restriction or is subject to any tax, duty, levy or charge (however described).

Table of Contents

1. General Information.....	4
1.1 Customs Control	4
1.2 Integrated Cargo System (ICS)	4
1.3 Licensing	5
1.4 Types of licences	5
1.5 Depot Activities.....	6
1.6 Licence Conditions.....	6
1.7 Licence Fees	6
1.8 Department of Agriculture and Water Resources (DAWR).....	7
1.9 Application Process	7
1.10 Review of Decisions.....	8
2. How to Complete the Application Form.....	9
1. Contact Details for Application	9
2. Client Name.....	9
3. Australian Business Number (ABN).....	9
4. Establishment (Depot) Name	9
5. Physical Site Address	9
6. Location of the Depot Relative to Australian Border Force Offices	10
7. After Hours Contact	10
8. Address of Head Office.....	10
9. ICS Client Registration.....	10
10. Communicating Electronically with the Department	10
11. Company membership and persons who participate in the management or control of the depot.....	10
12. Prior Experience	11

13.	Depot Activities	11
14.	Depot Categories	12
15.	Use of Premises for Purposes other than Depot Activities	12
16.	Customs section 79 Warehouses	12
17.	Quality Management System	12
18.	Standard Operating Procedures (SOPs).....	13
	Attachments to be included in your Application	13
19.	Constitutional Documents	13
20.	Management and Control – MANDATORY	13
21.	Corporate Membership Structure – MANDATORY	14
22.	Company Extract – MANDATORY	15
23.	Financial Information – MANDATORY	15
24.	Depot Site Plans – MANDATORY	15
25.	Construction of Premises – MANDATORY	16
26.	Physical Security of the Premises – MANDATORY	17
27.	Examination Facilities for ABF Officers – MANDATORY	17
28.	Physical Separation of Premises	18
29.	Ownership/Lease Verification – MANDATORY	19
30.	Depot Procedures and Recording Systems – MANDATORY	19
3.	Submitting the Application	21
	Appendix 1	22
	Your legal responsibilities.....	22
	Appendix 2	23
	Physical Security Standards	23

1. General Information

1.1 Customs Control

The Department, which incorporates the Australian Border Force (ABF), protects Australia's border and manages the movement of people and goods across it. In terms of goods, management means facilitating legitimate trade and cross-border movement; and protection means monitoring for prohibited exports and imports, breaches of customs-related laws and threats to the revenue. Section 30 of the Act establishes customs control of goods from the time of their importation until they are entered into home consumption or re-exported to a place outside Australia; and for goods intended for export, from the time of receipt at a customs place until their exportation to a place outside Australia. Goods under customs control may be inspected at a Depot or other customs place.

A range of provisions in the Act also applies to goods under customs control. For example, goods under customs control must:

- Not be moved/tampered with unless under authority (section 33)
- Be kept safely and/or accounted for (sections 36, 37)
- Be accessible to officers for inspection etc. (section 77N(6))
- Only be dealt with under authority (sections 71E, 119AA, 119AB, 119AC)
- Not be received by a Depot the licence for which has been suspended (section 77VA)
- Have appropriate commercial documentation (section 77N(8))

The movement of goods under customs control (for example between licensed premises) requires permission. A number of reporting obligations also fall upon licensees in relation to both goods and business operations.

To help licensed and registered operators at customs places comply with obligations under Customs-related laws, the Department manages an Infringement Notice Scheme. While statutory penalties exist, the Department's preference is to work cooperatively with industry, in the first instance, to increase compliance (ACN2014/07 and ACN 2013/67).

1.2 Integrated Cargo System (ICS)

The ICS is an electronic system used to facilitate and record the movement of goods into and out of Australia.

All applicants are required to register as a client in the ICS and purchase a digital certificate in order to communicate electronically with the Department. The ICS registration must be completed using the ABN under which the Depot application has been made.

For information on how to register in and access the ICS and any related matters please see the Department website at www.border.gov.au then proceed to the Cargo Support page. There are a number of useful fact sheets and step-by-step processes, however if you are still having difficulty please contact Cargo Support on 1300 558 099 or by email at cargosupport@border.gov.au.

Note: The National Depot and Warehouse Licensing section is unable to assist with ICS registration or digital certificates.

Licence applications are unable to be processed if client registration has not been completed.

1.3 Licensing

The Department administers a number of licensing and registration regimes under the Act. These regimes are designed to allow industry to work with Government to facilitate the achievement of legitimate business goals while maintaining border security. Section IVA sets out the legislative framework for the licensing of Depots. Even though licences are issued to individuals, companies or partnerships, each licence is issued for a specific place and licensees with more than one Depot require a licence for each of their premises.

Language

In some international publications, warehouses are referred to as bonds or bonded warehouses. This is a legacy from the use of bonds as security for licensed premises and does not have a meaning under Australia's current legislative regime. However, the term underbond movement is still used administratively to refer to the movement of goods subject to customs control.

1.4 Types of licences

Depots

A Depot is a place that is operated under licence to hold and/or unpack imported goods, hold and/or unpack goods for export and for the examination of goods by officers of the Department. Because a person may hold several licences to conduct distinct activities at distinct places, each licence must be maintained separately.

Goods for export remain under customs control until their export and imported goods remain under customs control until they are entered for domestic consumption or re-exported. This means that goods can only leave a Licensed Depot under permission.

Storage of goods subject to customs control in a Licensed Depot is permitted until the end of the month after the month of receipt in the Depot. The Depot may seek an extension under section 77P the Act to hold the goods for a further 30 days. If legislative import requirements have not been met and this period has elapsed, the goods must be transferred to a Licensed Warehouse (if possible) or arrangements be made for the disposal/destruction of the goods.

Customs Brokers

The statutory scheme for the licensing of customs brokers operates to protect the Commonwealth Revenue and to protect the community by giving assurance that customs reporting and payment of duty are undertaken in a professional and ethical manner. Licensed Brokers are expected to understand a range of import and export policies.

Warehouses

Licensed Warehouses allow long-term storage of goods that are subject to customs control and subsequently, deferral of any payable duties and taxes. Special classes of

warehouse exist including duty free shops, catering bonds, providores and specialist warehouses that deal in Excise Equivalent Goods (EEGs).

Activities permitted in warehouses are limited to ensure the security of the goods and the revenue payable to the Commonwealth is protected. Apart from approved storage, blending, unpacking, repacking and packaging of certain types of goods, any activities that involve "value adding" are not permitted.

Ship and aircraft stores are also managed via the warehouse licensing regime. Companies managing stores are commonly called providores or catering bonds. There are a range of special reporting requirements for ship and aircraft stores.

1.5 Depot Activities

Persons may only be licensed to conduct the following activities at Depots:

- Holding of imported goods subject to customs control
- Unpacking of imported goods subject to customs control
- Holding of goods for export subject to customs control and/or
- Packing of goods for export subject to customs control into containers etc.

The licence may be issued in relation to goods generally, or only in relation to goods of specific classes. Licence holders may only use the premises for the purposes specified in the licence. Activities permitted in warehouses are limited to ensure the security of the goods and the revenue payable to the Commonwealth is protected. Authorised officers may conduct cargo examinations and/or audits at all Licensed Depots.

Note: Goods that are not currently under customs control may also be packed for export at places other than a licensed Depot.

1.6 Licence Conditions

Depot operators are subject to a range of obligations, including compliance with conditions of the licence (see [ACN 2013/56](#)), reporting obligations and maintenance of systems to ensure accountability. One such condition of a licence is to provide adequate training to make staff aware of their obligations in dealing with goods subject to customs control. This means that all employees working in the management and control of a Depot or of customs controlled goods are expected to understand their obligations under Customs-related laws.

A breach of a Depot licence condition is an offence and non-compliance with the conditions of a licence may lead to administrative action, including the issuing of an Infringement Notice, prosecution for the offence, and suspension or even cancellation of the licence if deemed necessary.

1.7 Licence Fees

Depot licence fees are imposed by operation of the Act and *Customs Depot Licensing Charges Act 1997*. For initial applications, a fee of \$3000 must be paid before processing of the application can commence. An invoice will be issued once the application has been received.

An annual \$4000 fee is payable for every Depot Licence. This fee is applied pro rata in the first year and must be paid within 30 days of the approval of the licence. It is also applied pro rata for the last year, so operators intending to surrender a licence are encouraged to contact the Warehouse and Depot Licensing team as early as possible to ensure that the appropriate refund can be processed.

Fees are paid annually and are based on a standard financial year (1 July to 30 June).

If a Depot has handled less than 300 transactions or lines of cargo in the previous 12 months they may be eligible for a reduced renewal fee of \$1500. To qualify for the reduced licence fee operators need to contact Warehouse and Depot Licensing in writing prior to May each year.

Note that the reduced fee of \$1500 does not apply to the initial year.

1.8 Department of Agriculture and Water Resources (DAWR)

DAWR separately approves places for the provision of biosecurity activities through Approved Arrangements (AA). AA sites, formerly known as Quarantine Approved Premises (QAP), are not managed through the Department. Depending on the type of cargo being handled at a Licensed Depot, biosecurity requirements may apply. Licence holders should contact their nearest DAWR regional office or visit the DAWR website at www.agriculture.gov.au for information regarding AA requirements.

1.9 Application Process

All applications are assessed against the criteria laid out in customs legislation and associated policies. The applicant and all persons in positions of 'management or control' are required to be 'fit and proper'. Not all premises are appropriate to be operated as a Licensed Warehouse. The application process includes a site visit, to determine the adequacy of the premises to deal with goods subject to customs control and the viability of the business model and operating systems.

On receipt of an application an invoice is issued for the application fee. Assessment and processing of an application commences once the application fee has been paid; and any additional or missing information/supporting documentation will be requested at this stage. The application process can take up to 60 days from the date that all information and documentation required to complete the application assessment has been received.

Note: a Depot licence cannot be held by a Trust. While licences are usually held by natural persons, partnerships or companies, a licence may also be granted to the Trustee of a Trust upon presentation of a "Deed of Trusteeship" but the licence cannot be issued to the Trust itself.

Important Note: Under Section 234(1)(d) of the Act, it is an offence to intentionally make a false or misleading statement to an officer, or intentionally omit information from a statement made to an officer without which the statement is false or misleading.

A false or misleading statement made in an application for a Depot licence may result in a decision not to grant a Depot licence and/or the person may be convicted of an offence under section 234(2)(b) of the Act.

1.10 Review of Decisions

Applicants who feel that a decision is injudicious can contact the Department to request internal review. Whether or not an applicant initially requests an internal review, some decisions are appealable to the Administrative Appeals Tribunal.

A decision not to grant a Depot Licence is a reviewable decision, under section 273GA(aaq) of the Act. A decision not to extend the time given to produce further information in relation to an application (when requested to do so in writing by the applicant) is also a reviewable decision.

In order to have a decision reviewed by the Administrative Appeals Tribunal, an applicant must apply to the Tribunal within 28 days of the decision being made, or any such further time as allowed in accordance with section 29 of the *Administrative Appeals Tribunal Act, 1975*.

2. How to Complete the Application Form

You must complete each section of the application form unless otherwise stated. The paragraphs below are numbered to correspond with the questions on the application form.

1. Contact Details for Application

A contact for the application process needs to be nominated. This person must be the person who lodges the application and also must have knowledge of all aspects of the application. This usually means that they should know all relevant details of the business case for the operation of the proposed site.

This section is for the details of the contact and may be different to the details in the rest of the application. The contact must remain the same throughout the application process. Where this is not possible, complete details of a new contact must be provided.

2. Client Name

The client name is the name of the person, partnership or company applying for the Depot licence. **A Depot licence cannot be held by a Trust**; however a licence may be issued to the Trustee of a Trust upon presentation of a "Deed of Trusteeship".

3. Australian Business Number (ABN)

The ABN of the person, partnership or company applying for the Depot licence must be used on the application. Depot applications must be completed using the ABN under which the ICS registration has been made (see part 1.2 of this document).

4. Establishment (Depot) Name

The Establishment name is the name by which the Depot is to be known. This name does not have to be the same as the client name or even a name registered with the Australian Business Register (ABR).

5. Physical Site Address

The physical site address is the address of the premises where the proposed Depot is situated.

Although a Depot licence may be issued to a person, company or partnership, the licence is for a single specified place only. Licensees operating multiple Depots will need a licence for each premises.

Once issued, any intended variation to a licensed premises, including a change of address, must be approved by the Department **before** the Depot site is changed or operations are moved to another premises. The application to vary a licence may take up to 60 days from receipt of a completed application and so sufficient time must be allowed for business planning to move a licensed Depot to a different site.

6. Location of the Depot Relative to Australian Border Force Offices

Will the proposed Depot will be located more than 40 km from the nearest ABF office?

Depots located more than 40 km from a place where ABF officers conduct their normal business are liable to pay the travelling expenses of authorised officers performing their duties at such Depots in accordance with the *Customs Regulation 2015*.

Note: Under the Act, an application may be refused if the premises to be licensed is considered to be too remote from the nearest ABF office.

7. After Hours Contact

You must provide the name and phone number of a person who can be contacted after hours in regards to the Depot, for example, a night manager.

8. Address of Head Office

The following addresses where applicable:

- The street and/or postal address of the registered company office in the State or Territory in which the application for a licence is made or
- The street and/or postal address of the company head office of the applicant if not in the State or Territory where the application for a licence is made.

9. ICS Client Registration

You are required to be registered as a client in the ICS (see part 1.2 of this document). The registration must be completed using the ABN under which the Depot application has been made. Please indicate on the form if the registration has been completed.

10. Communicating Electronically with the Department

All Depots must maintain electronic communication with the Department via the ICS.

Please indicate the method that you will use to access the ICS:

- Customs Interactive (CI) or
- Electronic Data Interchange (EDI).

If you will be accessing the ICS via EDI, you must provide details of the software that you will be using.

11. Company membership and persons who participate in the management or control of the depot

Each person in a position of Management or Control (ACN2014/23 refers) of the proposed Depot or of goods subject to customs control that would be dealt with by the proposed Depot must be identified as part of the application process.

Applicants must provide a list of the following persons:

- The applicant (where the applicant is an individual natural person)

- All partners (where the applicant is a partnership) and
- All persons who will participate in a position of management or control of the Depot including all company directors, officers, shareholders, managers, supervisors, employees who cover for supervisors and managers leave, any staff who have control over the recording and movement of goods when they enter and leave the Depot, and any staff that have afterhours access to the Depot (regardless of whether swipe access, key or alarm code holders).

All persons nominated in response to this question will be the subject of police records and other background checks. A separate B301 form must be attached for each person in a position of Management or Control. The information is used to satisfy the requirement that the nominees are “fit and proper” persons for the purposes of section 77K of the Act. Each person must ensure that the full 10 years of address history is completed on the form.

If the form is submitted incomplete or if any information is missing from the form, the Department may be unable to process the request and/or may be unable to determine if the person is a fit and proper person. If a person chooses not to submit a consent form, the Department must consider this when assessing the application. The failure of an individual to give consent or provide all required information may result in the rejection of the application as the Department may be unable to determine whether that individual is a fit and proper person.

Additionally, those people nominated as being involved in the management and/or control of the Depot will be required to establish their identity by providing **certified** copies of identification documents, which total **100 points** or more

It is a condition of a Depot licence that the licence holder provides details to the Department within 30 days of a new staff member commencing in a position of management or control. These persons will be subject to the same “fit and proper person” requirements as staff nominated during the application process.

Note: If you run out of space on the form, please attach a separate piece of paper.

12. Prior Experience

Do you or any of the persons nominated as being in management or control of the Depot have prior experience in the operation of a Licensed Depot? If any person nominated as being in management or control of the Depot currently holds or has ever held another customs licence of any kind, this should be noted here.

If you have ticked yes, please provide a brief outline of the experience and/or other licences held in the space provided on the form.

Note: If you run out of space on the form, please attach a separate piece of paper.

13. Depot Activities

Please include the activities that you propose to conduct in the Depot. The following are the only activities that may be undertaken in a Depot by the licence holder:

- Holding of imported goods subject to customs control;

- Unpacking of imported goods subject to customs control;
- Holding of goods for export subject to customs control; and
- Packing of goods for export subject to customs control into containers etc.

14. Depot Categories

Please include the type of Depot/s that you are proposing to operate. All Depot activities as listed in point 13 may be conducted in any of the following Depot categories:

- Air Cargo – CTO functions
- Air Cargo - General
- Sea Cargo – Containerised general cargo (LCL and FAK)
- Personal effects – Sea
- Personal effects – Air
- Postal articles only

Activities that can be carried out at the following categories of Depots are restricted:

- Sea Cargo – FCL container park – hold imported goods subject to customs control only
- Sea Cargo – Non-containerised general cargo – hold imported goods subject to customs control and hold goods for export subject to customs control only.

“FCL” means a full container load

“LCL” means less than full container load

“FAK” means freight all kinds

“CTO” means Cargo Terminal Operator

15. Use of Premises for Purposes other than Depot Activities

Do you propose to use the premises for any activities other than those outlined in question 13 (Depot Activities)? If yes, please provide a brief explanation in the space provided. For example, if a section of the premises will not be part of the licensed Depot and will be used for other purposes.

16. Customs section 79 Warehouses

Is any part of the premises where the proposed Depot is located currently licensed as a section 79 warehouse or proposed to be licensed as a section 79 warehouse?

17. Quality Management System

Do you have a certified Quality Management System? If yes, please indicate the standard you are using.

Although a certified QMS is not mandatory, it is expected that Licensed Depots conduct Quality Assurance (QA) on consignments received each month. In particular, ‘time-up’ cargo must be accounted for. Any discrepancy identified through QA activities must be notified to the Department. This forms the bare

minimum of QA and licence applications for high-volume operators are expected to demonstrate an appropriately rigorous audit and stocktake schedule as well as an effective QMS.

18. Standard Operating Procedures (SOPs)

You are required to have documented SOPs for the operations to take place within the Depot. These documents will need to be made available upon request by the Department.

As a part of our assessment of your application you must indicate if you have developed SOPs for your proposed operation.

Attachments to be included in your Application

While some of the following information and documentation is mandatory and must accompany the application, other documents and information should only be submitted on request by the Licensing Officer who is processing your application.

19. Constitutional Documents

You **may** be required to provide a copy of one or more of the following documents to establish the arrangements under which the company operates:

- Articles of Association
- Constitution
- Replaceable Rules
- Partnership Agreement
- Certificate of Registration of a Foreign Company

20. Management and Control – MANDATORY

A Department pro-forma consent form (B301) **must** be completed by each nominated person including the applicant (if an individual natural person), partners (if applicable) and any director, shareholder or employee who will be involved in the management and/or control of the Depot.

Personnel who will have control of, or are responsible for delivery of cargo, have afterhours access or provide absence cover for supervisors and managers should also be included in this list.

Such persons will be subject to police record and other background checks, which are required in order to determine eligibility requirements for granting a Depot licence as per section 77K of the Act.

Each person ensure that the full 10 years of address history is completed on the form.

If the form is submitted incomplete or if any information is missing from the form, the Department may be unable to process the request and/or may be unable to determine if the person is a “fit and proper person” and/or the application may be refused.

If a person chooses not to submit a consent form, the Department must consider this when assessing the application. The failure of an individual to give consent

may result in the rejection of your application as the Department may be unable to determine whether that individual is a “fit and proper person”.

Additionally, those people nominated as being involved in the management and/or control of the Depot will be required to establish their identity by providing **certified** copies of identification documents, which total **100 points** or more.

A copy of the *B301 ‘Consent to Obtain Personal Information’ form* and a *100 Points of Identification Guideline* can be found on the Licensing page of the Department’s website at www.border.gov.au.

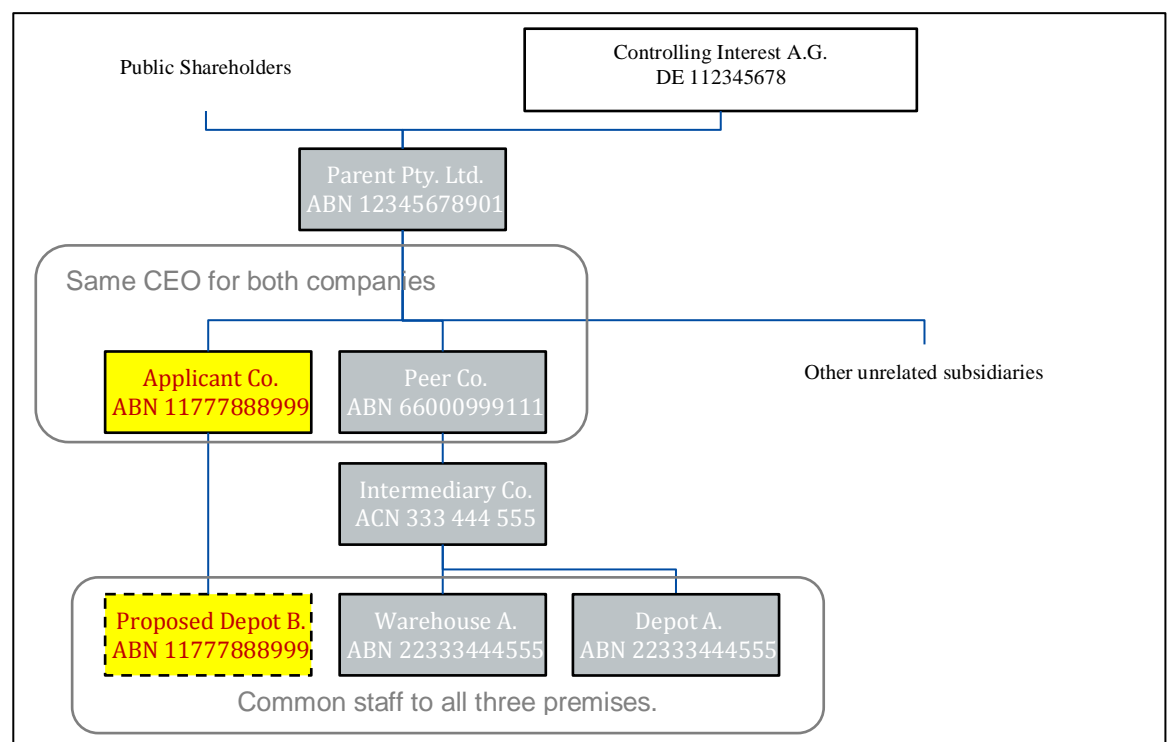
Any details about individuals contained within the Depot application form, associated information or information obtained as a result of police record and other background checks is personal information and will remain confidential in accordance with the Australian Privacy Principles of the *Privacy Act 1988* and the requirements of Part 6 of the *Australian Border Force Act 2015*.

21. Corporate Membership Structure – MANDATORY

This information **must** be provided. For small businesses, this may be as brief as a statement that no other corporate structures exist beyond the owner and any directors listed in the Depot Management section. However, large operators are expected to set out the organisational relationships comprehensively. Where relationships exist with other businesses unconnected with the proposed Depot, these can be summarised.

All other licensed premises must be included in this information and their relationships explained.

A diagram is often useful in addition to the full explanation to help with visualisation. The following example shows a simple diagram for a company structure of moderate complexity:



The information provided will be used by the Department to risk assess the company, companies and individuals associated with the applicants.

22. Company Extract – MANDATORY

If the application relates to a registered company, a 'Company Extract' **must** accompany the application. This document is available for purchase from the Australian Securities and Investment Commission (ASIC) website at www.asic.gov.au/search.

ASIC may also be contacted via:

Phone: 03 5177 3988

Email: info.enquiries@asic.gov.au

Company search documents must include full details of company registration, registered addresses, share details and company administration including directors.

23. Financial Information – MANDATORY

You **must** provide a copy of the last audited financial statements, that is:

- Balance Sheet
- Trading and Profit and Loss Accounts

If an audited statement is not available, you must provide the most current profit and loss statement and balance sheet or any financial statements showing the present trading position of the company.

If the application relates to a new company and no financial records are available, you must provide a comprehensive business plan including, but not limited to:

- Sales projections
- Estimated expenses
- Assessment of strengths and weaknesses
- Assessment of opportunities and threats
- Estimated profit / loss figures
- Estimated number of transactions

The information provided will be used by the Department to assess the company in relation to its financial viability and risk to the revenue of the Commonwealth.

24. Depot Site Plans – MANDATORY

You **must** provide three certified copies of the plan (no larger than A3) of the proposed Depot premises outlining **ALL** of the following details:

- The area to be licensed must be outlined in **RED**
- The location of access points including doors, windows, roller shutters, vehicular access, lifts and staircases
- The location of a secure storage area (deadhouse) for customs purposes

- The location of electronic security system movement sensors and reed switches
- The location of where activities will occur within the Depot, for example, storage of cargo, unpacking of containers and export consolidation
- The location of the area set aside for ABF officers to conduct cargo examinations
- The location of facilities for ABF officers to conduct compliance checks including, but not limited to, office space, desk, chair, access to Depot records and telephone
- If the premises include a section 79 warehouse, indicate the location of this on the plan
- The location of a car park specifically designated for use by ABF officers
- If the proposed licensed area only forms part of a building, the remaining areas of the building and usage/tenants must be noted.
- If the proposed licensed area is a whole building, surrounding features should be noted (secure complex, fencing, public roads, other buildings, etc).

Note: Office space and amenities should be excluded from the proposed licensed area.

The site plan does not have to be professionally drafted; however, if you choose to draft the site plan yourself, either using a computer or by hand-drawing it on graph paper, it must be neat, legible, use the appropriate colour coding detailed above and be reasonably to scale. The site plan forms an important part of the Depot licence as it is used by ABF officers to identify approved physical layout and security measures, and so it must be functional.

Each copy must include the following endorsement on the plan, and must be signed by an authorised official of the company.

"I hereby certify that this is a correct plan of the premises at (insert street address) operated by (insert name of business) and referred to in the application for a new/amended Depot licence dated --/--/--. I also certify that the area/areas bound in red is/are the area/areas of the proposed licensed Depot."

Name:

Signature:

Date:

25. Construction of Premises – MANDATORY

You **must** describe the construction and layout of the proposed Depot premises. For example, two storey building, double brick walls, reinforced concrete floors, tile roof, two doorways secured by steel doors, a vehicular entrance.

You must also provide written evidence from the relevant state authority of compliance with WH&S Regulations with regard to asbestos, including written evidence of the risk assessment if asbestos is present in the proposed premises.

By this requirement a competent person (defined in the WHS Regulation) must identify the presence and location of asbestos and assess the risks in accordance with the code of practice. The information must then be recorded in an asbestos register to be kept on the premises.

The Department has a duty of care not to place staff at risk of injury from asbestos; however, the primary duty of care obligation for controlling asbestos in licensed premises sits with the building owner. Where the licence applicant leases the premises the applicant must apply to the building owner for this information.

Note: Where asbestos is identified in the premises and the licensing officer has deemed the risk low enough to allow the granting of a licence that licence will be conditioned to require ongoing assessments by the relevant authority. The frequency of ongoing assessments must be in accordance with the relevant State or Territory legislation or Asbestos Management Plan. Reassessment is required sooner than scheduled if there is any disturbance of the asbestos.

Failure to comply with this requirement may lead to the rejection of the application or, where a licence has been granted, cancellation of the licence.

26. Physical Security of the Premises – MANDATORY

The physical security of the Depot must be at a minimum equal to commercial security standards having regard to the nature of the place and the procedures and methods that are put in place to ensure the security of goods.

Details of existing and/or proposed security arrangements for the Depot including, but not limited to, the following:

- Alarm systems
- CCTV / IPTV
- Window and door security
- Fencing
- Dead house construction
- Security patrols
- Name and address of the security company used
- Details about access to the Depot by personnel including names and positions of key holders and other staff who have unfettered access the controlled area.

As previously stated, if electronic security systems have been installed, you should clearly mark the location of all the movement sensors and reed switches on the certified plans.

See Appendix 2 for guidelines relating to physical security requirements for Depots.

Note: An authorised officer can visit the proposed Depot location to discuss physical security provisions during the licence application process.

27. Examination Facilities for ABF Officers – MANDATORY

It is a condition of a Depot licence for you as the licence holder to provide **adequate space and facilities** for the examination of goods by ABF officers.

Minimum requirements of such facilities, include, but are not limited to:

- Access to the proposed premises for ABF vehicles including Mobile X-ray Units (MXUs) and operating space which is not exposed to the elements. The minimum operating space required for the MXU is 8m x 8m.
- Access to single phase flat pin 10 amp plug for MXUs (standard 240 volt plug).
- High visibility bollard/barriers or equivalent protection from mobile plant/vehicles for ABF work areas.
- Adequate lighting levels (minimum 400 lux in examination area and office accommodation as prescribed by performance standard: AS1680.2 Interior lighting - Industrial tasks and processes).
- ABF examination work bench with a **stainless steel** bench top and **minimum dimensions** of 1.8m length by 750mm width and 900mm high, with power source access. An additional stainless steel bench with a minimum height of 700mm may also be required – **ABF officers will advise applicants of the bench dimension requirements during the application process.**
- S77G Depot staff to present cargo for inspection and to remove upon completion of examination.

The examination area is to be located a safe distance from areas where fumigant activity and biosecurity inspection would be taking place and protected from natural elements, artificially produced temperature devices and vehicle emissions. It is the responsibility of the licence holder to maintain the ABF examination area and keep it clear when not in use by ABF officers.

The ABF examination facilities **cannot** be shared with those used by other government officers conducting biosecurity inspections due to cross-contamination concerns.

Goods should be stacked in such a way as to allow reasonable access for authorised officers to examine the goods and, unless otherwise authorised by the Department, import and export cargo must be separated.

It is a condition of all Depot licences that any goods **not** subject to customs control ('free goods') must be stored in a separate and distinct area from goods subject to customs control.

28. Physical Separation of Premises

If the place to be licensed is a section or part of a building as opposed to the whole building, please provide details as to how the area to be licensed will be physically separated from the rest of the building. For example, internal fencing or by clearly delineating the area by painted lines, dependant on the outcome of a risk assessment by the regional ABF officers.

If the building is shared with another tenant or company, the proposed licensed area can only be under the control of the applicant company and must not include any area under the control of another tenant. The area must be separated by a floor to ceiling wall or strong metal fencing and a higher level of security may be required in this instance.

If the proposed premises is shared with another entity, you must provide details of the other tenants and nature of their business.

29. Ownership/Lease Verification – MANDATORY

You must provide evidence of ownership of the land/property where the Depot will be situated.

If the land/property is leased, you must provide a signed copy of the lease document.

30. Depot Procedures and Recording Systems – MANDATORY

It is a requirement that all Depots are registered in the ICS and that all cargo movements are communicated electronically to the Department via the ICS. Records must be maintained and they must provide a clear audit trail of all incoming and outgoing goods. The Depot licence holder is responsible for all goods in the Depot and is liable for the duty on any goods that cannot be accounted for.

Relevant commercial documents must be kept for a minimum period of five years; however, it is essential that the Depot licence holder also maintain permanent records to allow the history of the movement of all goods into and out of the Depot to be readily traced.

The types of records to be kept include, but are not limited to:

- The date and time of receipt of goods
- The date and time of unpack of containers/cargo (if applicable)
- Details of surplus or short landed goods, pillages etc.
- Details of the release of goods including the date and time.

Note: These records may be manual or computer based and must be made available to authorised officers upon request.

Manual Based Recording Systems

If your recording system is manual, you must provide the Department with the following detailed information:

- The location of the documents and the designation of the person/s who process them
- Copies of registers, forms or other documents used or proposed to be used in connection with the Depot operations

Computer Based Recording Systems

If you will be using commercially available software, please provide the name of the software and company.

If you are using non-commercially available software, please provide specific details about the system and include screen prints of receipt and delivery screens.

Irrespective of whether you are using commercially or non-commercially available software:

- Does the software interface with the ICS?
- Are cargo receipt and release reports available?
- Is a stock list report available?
- Does the software generate a 'delivery notice' for releasing cargo? If yes, is the generation of the notice linked to the ICS consolidated status of the cargo?
- Are all computer records accessible from on-site? If no, please provide details regarding the location of computer records.

Note: Customs will evaluate such procedures and systems and will either accept their adequacy for Customs purposes or indicate the nature of any inadequacies.

Depot Procedures

All standard operating procedures or other procedural documents relating to the operation of the Depot must be provided in the application supporting documentation.

It is a condition of all Depot licences that the holder must provide adequate training to make staff aware of their obligations in dealing with goods subject to customs control.

3. Submitting the Application

When the application form and requested attachments have been completed, please submit your application to:

Department of Immigration and Border Protection
National Depot and Warehouse Licensing
GPO Box 9984
Sydney NSW 2001
Email: licensing@border.gov.au

Receipt of your application will be acknowledged by a Licensing officer and you will be invoiced for the \$3,000 application fee.

Processing of your application will not begin until the \$3000 application fee has been paid.

On receipt of payment the Licensing officer will assess your application and advise you of any outstanding information.

Provided that all the required information and accompanying documentation has been submitted, and pending the status of access to the Integrated Cargo System, your application will take up to 60 days to process.

If you do not provide all information, including any outstanding information advised at the time of initial assessment of your application, processing of the application may be delayed or refused. If an application is refused, you will be required to submit a new application. Where administrative processing work and a site inspection have been conducted as part of an application, the application fee will not be refunded if the application is withdrawn or refused.

Appendix 1

Your legal responsibilities

It is your responsibility to be aware of all your legislative responsibilities. When granted your licence will contain a number of conditions. It is important that you read and understand these conditions. A breach of a licence condition is a strict liability offence and may result in the issuance of an Infringement Notice, prosecution under the Act and ultimately suspension and/or cancellation of your licence.

Please visit the Federal Register of Legislation website at <https://www.legislation.gov.au/> to review Depot and warehouse legislation, including but not limited to:

- Sections 77G to 77ZA of the Act (Depots)
- Sections 79 to 102A of the Act (warehouses including duty free stores)
- Sections 33 and 34 of the Regulation
- Sections 35 to 71 of the Regulation and
- *The Customs Licensing Charges Act 1997*

***Below is an extract from the Customs Act 1901 outlining
the role of a Licensed Depot***

Customs Act 1901 Section 77G - Depot licences

- 1) Subject to this Part, the Comptroller-General of Customs may, on an application made by a person or partnership in accordance with section 77H, grant the person or partnership a licence in writing, to be known as a Depot licence, to use a place described in the licence for any one or more of the following purposes:
 - a) the holding of imported goods that are subject to customs control section 30;
 - b) the unpacking of goods referred to in paragraph (a) from receptacles;
 - c) the holding of goods for export that are subject to customs control under section 30;
 - d) the packing of goods referred to in paragraph (c) into receptacles;
 - e) the examination of goods referred to in paragraph (a) or (c) by authorised officers.
- 2) A Depot licence may be granted:
 - a) in relation to all the purposes referred to in subsection (1) or only to a particular purpose or purposes referred to in subsection (1) as specified in the licence; and
 - b) in relation to goods generally or to goods of a specified class or classes as specified in the licence.

Appendix 2

Physical Security Standards

The physical security standards that are required in order for premises to be licensed to operate as a Depot are designed to protect the security of goods subject to customs control; and in turn are an important factor in the Department's role of protecting the Australian community and the revenue of the Commonwealth.

Individual site inspections are conducted for all Depot licence applications as well as applications to vary an existing Depot licence. The security measures required in order for a licence application to be approved will vary between premises.

Physical security assessments consider the threats and the risks and take into account the location and construction of the premises; the type, value and volume of the goods that will be stored at the premises; the activities that will be conducted at the premises; and any other relevant risk factors, such as the compliance history of the company.

Threats range from petty crime, such as incidental theft, to major crimes such as criminal infiltration. While no security system is infallible, by using a collective number of security measures the risk is minimised. The physical security measures required of a licensed Depot work on the principle of deter, detect, delay and control.

The following details **some** of the considerations and measures that may be applied when risk assessing a proposed Depot premises.

The Building(s)

1. Internal Size – will be dependent on the proposed operation and should take into account the capacity to accommodate the relevant cargo transport mode (e.g. trailers with shipping containers), type and volume of cargo, sufficient space for unpacking/packing, the need for a deadhouse, a requirement for a 'free goods' area, storage requirements, and ABF office and inspection area requirements for cargo examination. **Essentially, the premises must be fit for purpose.**
2. Entry Doors and Locks – entrance/external doors must be of solid construction and be fitted with deadlock type devices/keypad code locks/electronic locks except for those that are prohibited by state or local authority legislation (that is, safety or fire exit restrictions). In those instances, there will be a type of lock that is approved. Entry doors to the licensed area must **not** be kept in the open position, even during business hours.
3. Freight Doors – receiving/delivery freight doors must be of robust material and access via the doors is to be monitored. Doors may include a separate lockable pedestrian access, which should be used when doors are not being used by trucks. Depending on the environment some freight doors may be fitted with sensors to open/close the door automatically during business hours.
4. Windows – should be constructed of material to prevent illegal entry or be fitted with barriers (steel mesh or bars) which will be fixed to resist removal.
5. Alarms and/or intrusion detection devices – must be configured to cover doors, windows, walls, floor, roof and manholes. This system should be connected to a security monitoring point such as a security company or the police.
6. Internal Fencing – if applicable, areas set aside within the secure perimeter for the storage of un-entered cargo in shipping containers are to be fenced to a total

minimum height of 3 meters. The area is to be separate to those used for storage of 'free goods', export and deconsolidation space. Mesh should be chain link to Australian Standards that is minimum thickness of 3.15mm and in the 5 cm gauge range. Fences are to be topped with security wire to deter intrusion. Shipping containers must be stored door-to-door Note: Internal fencing is not required for all Depots.

7. Secure Area (Deadhouse) Requirements – All Depots (excluding FCL container parks and those handling break-bulk cargo) **must** have a secure area known as a deadhouse. The deadhouse must be a fully enclosed cage (including a roof) and should be bolted to the floor and building walls if the walls form part of the deadhouse. The mesh used must meet Australian Standards – chain link type in 5cm range with minimum thickness of 3.15mm. If the building walls are tin or stud wall, the mesh is to extend to all sides.

The **MINIMUM** size of the deadhouse must be:

- General – 2.4m long x 2.4m wide x 2.4m high
- HVSO (High Volume Special Operator) – 1.2m long x 1.2m wide x 2.4m high

The deadhouse must be locked and in a highly secure condition **at all times**. The chain and padlock should be of sufficient thickness and strength, and secured tightly with as little 'slack' as possible in the chain, so that it is not easily defeated. Padlocks that meet the Australian Standard for padlocks (AS4145.4) should be utilised for both the deadhouse and any internal gates into the licensed area.

The types of goods to be secured in the deadhouse are high-risk or high value goods, for example, firearms, prohibited imports, damaged cargo or packages that have become opened during transport or there is evidence of possible pillage.

The issuing of keys for the deadhouse must be controlled and suitable records maintained (see Access to Controlled Areas). A specific employee should be in charge of the deadhouse and be responsible for the safekeeping of the goods and relevant recordkeeping.

The deadhouse must be kept accessible and not be used for any purpose other than that for which it is intended. Nothing should be stored on top of or above the deadhouse.

Perimeter Fencing

Buildings used for the consolidation/deconsolidation, packing/unpacking, storage and examination of goods subject to customs control are generally required to be encircled by perimeter fencing constructed of materials that discourage illegal entry.

Perimeter fencing for Depots should be either palisade or heavy-duty chain link in 5-10 cm gauge range with a thickness of no less than 3.15mm, and be of sufficient height to prevent illegal entry through, over or under. Depending on the assessed risk, perimeter fences total height minimum requirements range from 2.4m to 3m

Where chain link fencing is used, the base of the fence should be secured where practicable and must be topped with fixed security wire. There should be no overhanging trees, which could facilitate a breach of the perimeter and fences must be maintained in good condition at all times.

Gates

External and/or internal perimeter gates should be constructed of materials robust enough to prevent entry, be of similar height to fences and topped with security wire that is at least the total height of the corresponding fence. Entry and exit points should be controlled and access restricted. All gates are to be fitted with security locks and, where possible, alarms to a central control point.

Lighting

Exterior security lighting must be installed at certain points including all entries and exits to the licensed premises, container storage areas, vehicle parking and holding areas. Lighting should be sufficient to ensure every part of the area is sufficiently illuminated to enable identification of persons at a distance of 10 metres.

Access to Controlled Areas

The issuing of keys / combinations / cards for access to buildings, doors, gates and high security areas must be controlled including the maintenance of suitable records. For example, a register that includes details such as key/pass number, date of issue, name and date returned.

Rail Access (if applicable)

Rail gates are to be manned when rail operations are in progress. Gates are to be constructed to prevent vehicle access and are to be as robust as the fencing, securely locked when not in use.

Signage

ABF signs are to be posted at all entrances and in public areas advising of conditions of entry, including that goods and vehicles may be searched. The ABF will provide the required number of signs if/when the licence application is approved. It is a condition of a Depot licence that ABF signage **must not be removed** without prior authorisation.

Security Patrols

After normal working hours, security patrols should be engaged to make random inspections to ensure the safekeeping of the cargo in the Depot.

Vehicle Parking

Parking for employer/employee (non-customs) vehicles is to be a noticeable distance from the doors leading to cargo storage/unpacking areas. If space permits, the parking area should be outside the perimeter fencing.

Operating Procedures in respect to Physical Security

Operating procedures are to be such that cargo, containers, vehicles or other equipment are not placed near fences in such a manner as to facilitate unauthorised access to freight stored inside. In addition:

- Machinery and vehicles must be immobilised when the Depot is closed

- Containers must be stacked door to door with separate areas for full and empty containers
- All containers and pallets where unpacking has started but not finished are to be stored inside the building when the Depot is closed
- Lost or stolen keys, access passes or attempts to illegally enter the area are to be reported to the Department without delay
- Keys and passes are to be returned to Depot management prior to an employee ceasing employment with the company. The Department is to be informed immediately of failures to comply

Issue of Licence

When a Depot licence is granted, a hard copy of that licence is forwarded to the Depot. It is a requirement that the licence, which sets out the conditions under which the Depot is licensed must remain at the premises. Upon renewal a Certificate of Renewal will be forwarded; however the original licence must be retained, until such time as a new licence is issued. The licence must be surrendered if the licence is cancelled for any reason, including voluntary surrender.