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SITE BASED STORMWATER MANAGEMENT PLAN

Proposed Lot 105, Flagstone Logistics Estate

Prepared for CH Hydrangea Pty Ltd

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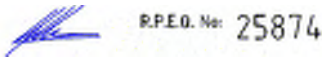
3	Issued For Approval	Alex De Andrade	Sam Killoran RPEQ: 25874	26 April 2026	

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Executive Summary

This Site Based Stormwater Management Plan (SBSMP) has been prepared on behalf of CH Hydrangea Pty Ltd (Applicant) in support of a Development Application (DA) over land described as: proposed lot 105, part of Lot 1 on SP352820 (site). This Priority Development Area (PDA) DA seeks approval for the following aspects of development:

- Development Permit for Reconfiguring a lot – 1 into 2 lots
- Development Permit for a Material Change of Use for a Warehouse, Low impact industry, and Medium impact industry.

The proposed development seeks to facilitate the establishment of a speculative warehouse and/or industrial facility that will operate 24 hours a day, 7 days a week, and will be located on proposed Lot 105.

It is noted that the infrastructure referred to as existing in this report is the estate infrastructure that is currently under construction.

This SBSMP addresses the stormwater management strategy for the proposed development and demonstrates that the proposed development can be constructed and operated in accordance with all stormwater objectives required for the development. The primary outcomes of this SBSMP are as follows:

Lawful Point of Discharge

As outlined in the Arcadis SBSMP EAG001-30109334-AAR Revision 12 and Approved as part of the EDQ approval DEV2018/961/18. The subject site has one lawful point of discharge:

Minor flows and Major flows from the development are to discharge to the combined bioretention and detention basin located along the eastern site boundary (Lot 900).

Stormwater Quantity

As outlined in the Arcadis SBSMP EAG001-30109334-AAR Revision 12 and Approved as part of the EDQ approval DEV2018/961/18. The subject site's stormwater quantity objectives are catered for within the regional detention basin. No further quantity measures are proposed for the site (proposed Lot 105, or existing Lot 1 on SP352820).

Stormwater Quality

As part of the PDA Development Approvals DEV2023/1466 and DEV2023/1446 Arcadis completed a SBSQMP EAG003-30109334-AAR Rev 4. Bioretention systems have been constructed within the development layout to treat stormwater runoff from the internal road reserve and Catchment INTNL-1 as well as EXTNL-1A and EXTNL-1B. Stormwater runoff from Lot 1 (INTNL-1) and external catchments 1A and 1B (EXTNL-1A and EXTNL-1B) will be treated by the northern bioretention basin. Rainwater tanks are to be included in each allotment for roof water runoff which is to be reused across each lot through irrigation and toilet flushing. Half of each roof catchment is to be directed to rainwater harvesting tanks. The rainwater harvesting tank for proposed Lot 105 has been sized in the MUSIC Modelling Software with a 80% non-potable reuse target in accordance with the MUSIC Modelling Guidelines and the Blacktown Council WSUD Developer Handbook. The required size for the rainwater harvesting tank is 75kL.

Erosion and Sediment Control

Construction phase ESCP measures are to be completed by a CPESC in detailed design and implemented during construction in accordance with the relevant requirements.

1. Introduction

This Site Based Stormwater Management Plan (SBSMP) has been prepared on behalf of CH Hydrangea Pty Ltd (Applicant) in support of a Development Application (DA) over land described as: proposed lot 105, part of Lot 1 on SP352820 (site). This Priority Development Area (PDA) DA seeks approval for the following aspects of development:

- Development Permit for Reconfiguring a lot – 1 into 2 lots
- Development Permit for a Material Change of Use for a Warehouse, Low impact industry, and Medium impact industry.

The proposed development seeks to facilitate the establishment of a speculative warehouse and/or industrial facility that will operate 24 hours a day, 7 days a week, and will be located on proposed Lot 105.

Table 1 – Property Details

Site Address	Enterprise Drive, North Maclean, QLD , 4280
Lot Title	Proposed Lot 105, Part of Lot 1 on SP352820
Total Site Area	32,559m^2
Proposed Land Use	Low & Medium Impact Industry

1.1. Related Reports and Documents

This report is to be read in conjunction with the following reference documents:

- Arcadis SBSMP EAG001-30109334-AAR Revision 12
- PDA Development Approval DEV2018/961/18
- Civil Design Drawings by Northrop. Appendix A

2. Site Context and Existing Characteristics

The site, Proposed Lot 105 is part of approved Lot 1, which was approved by the MEDQ as part of the PDA Development Approvals DEV2023/1466 and DEV2023/1446 issued on 11 October 2024 and 19 March 2025, respectively. The subject site is located within stage 1 of the overarching PDA Development Approval for the Flagstone Logistics Estate (DEV2018/961/18) and is located within the Industrial Warehouse, Business, Research and Technology Precinct of the endorsed greater Flagstone context plan. The stormwater management strategy for the development has been designed to satisfy the quantity and quality requirements as outlined in the Arcadis SBSMP EAG001-30109334-AAR Revision 12.

The subject site falls within the INTNL-1 catchment and is catered for by the estate's stormwater quantity or quality management device – Northern Basin (Lot 900). The subject site is not required to provide on lot stormwater quantity treatment quality and quantity treatment. As outlined in Arcadis SBSQMP EAG001-30109334-AAR stormwater runoff from Lot 1 (INTNL-1) will be treated by the Northern Bio-retention Basin. Rainwater tanks are to be included in each allotment for the harvesting of roof water runoff which is to be reused across each lot through irrigation and toilet flushing. Half of each roof catchment is to be direction to rainwater re-use tanks.

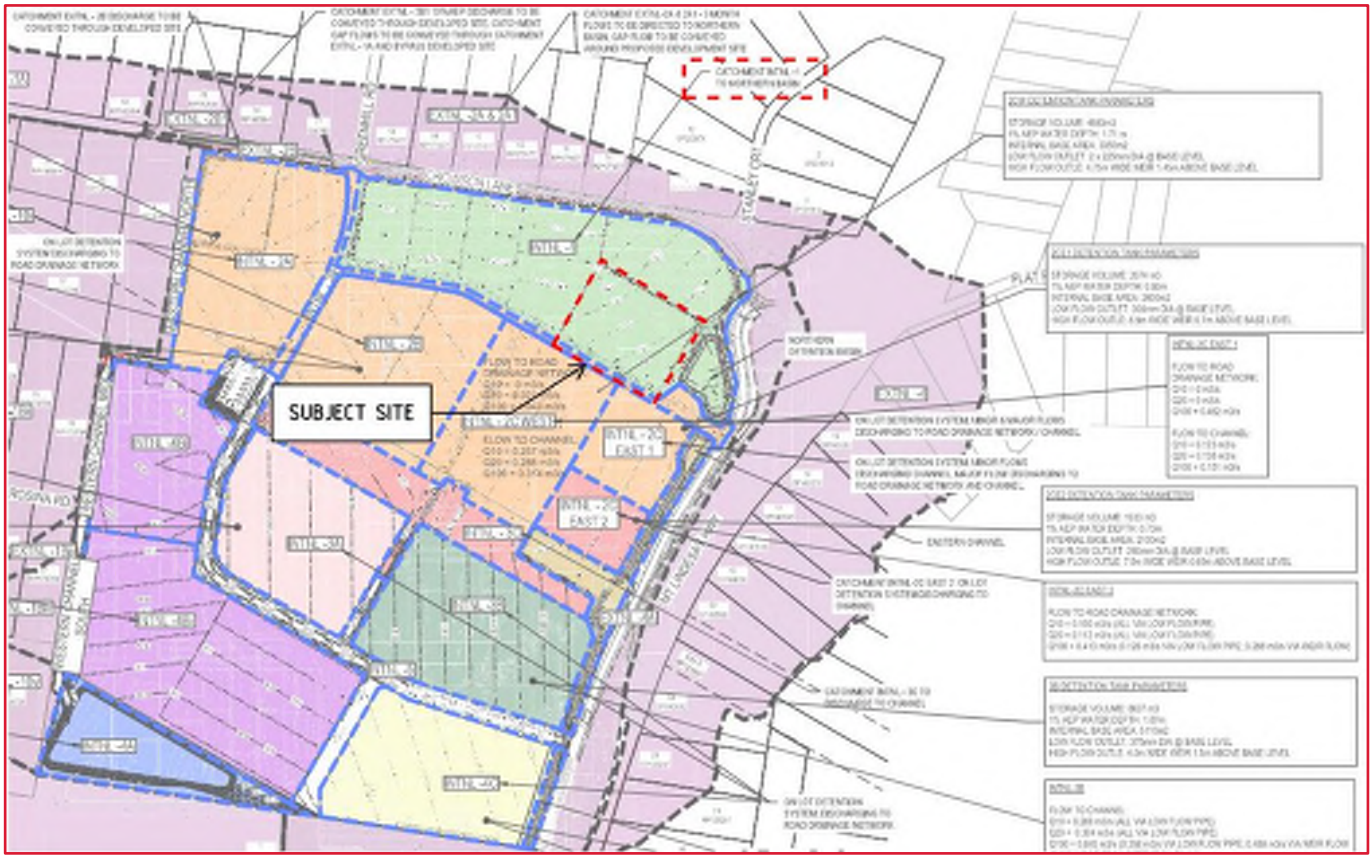


Figure 1 – Site Locality

2.1. Existing Site Characteristics

The site, Proposed Lot 105 (par of approved Lot 1), was approved by the MEDQ as part of the PDA Development Approvals DEV2023/1466 and DEV2023/1446 issued on 11 October 2024 and 19 March 2025, respectively. The site is currently cleared and undeveloped, comprising primarily of exposed soils. The site generally falls east towards the existing combined bio-retention and detention basin (Lot 900) at approximately 0.5% grade. The subject site is located within stage 1 of the overarching PDA Development Approval for the Flagstone Logistics Estate (DEV2018/961/18) and is located within the Industrial Warehouse, Business, Research and Technology Precinct of the endorsed greater Flagstone context plan.

The site is currently bound by:

Future Industrial development to the north
Existing combined bio-retention and detention basin to the east (Lot 900)
Enterprise Road to the south
Future Industrial development to the west

A site locality is located above in Figure 1.

2.2. Existing Lawful Point of Discharge

The following existing stormwater infrastructure has been identified in the vicinity of the site. The information has been sourced from the Arcadis Detailed Design documentation and the SBSMP EAG001-30109334-AAR Revision 12.

- Minor and major flows from the development are to discharge to the existing lot connection point located along the eastern site boundary and discharge into the existing combined bio-retention and detention basin (Lot 900).

3. Proposed Development

The proposed development involves the construction of a low & medium impact industrial warehouse (distribution centre) on Proposed Lot 105 (Part of existing Lot 1) in support of the Reconfiguration of Lot – 1 into 2 Lots, plus access easements. The proposed architectural layout of the development prepared by Watson Young is shown below in Figure 3-1. Architectural drawings are included in Appendix C.

The material change of use of the proposed development seeks approval for a Warehouse, Low impact industry, and Medium impact industry.

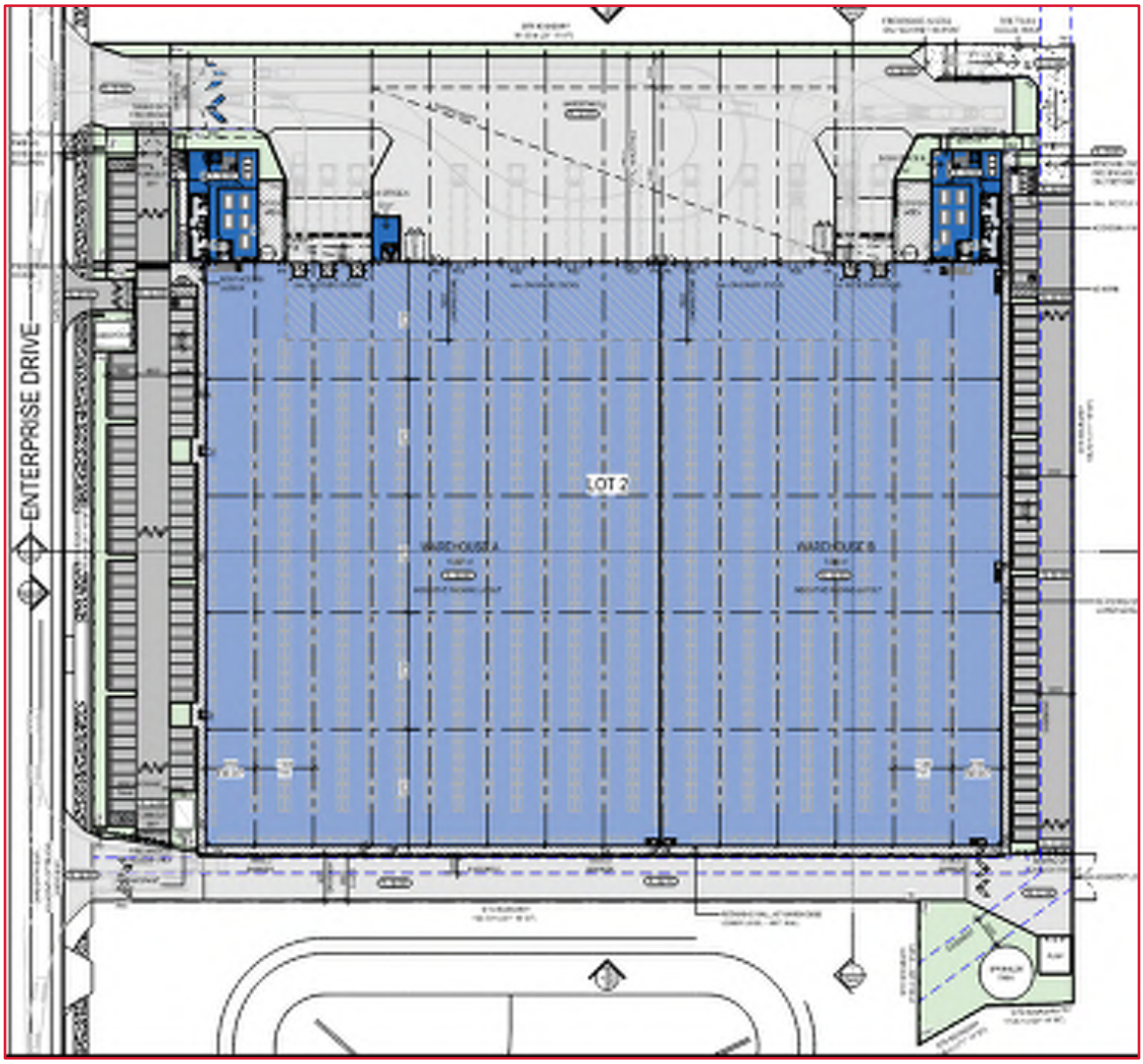


Figure 2 – Proposed Development (Watson Young 2026)

3.1. Proposed Stormwater Management Strategy

The proposed development will introduce a new internal pit and pipe system and connect into the existing lawful point of discharge defined in Section 2.2.

Runoff generated from the site will be captured and conveyed to the lawful point of discharge, similar to the existing conditions, the site will discharge minor and major flows to the combined bio-retention and detention basin located at the eastern boundary of the site (Lot 900).

4. Stormwater Management Objectives

4.1. Development Control Plan Objectives

Stormwater management for the proposed development has been designed in accordance with the following documents:

- EDQ Guideline – PDA Guideline No. 13 Engineering Standards, Stormwater Quantity and Quality
- State Planning Policy (SPP), 2017
- Environmental Protection (Water) Policy, 2009)
- Queensland Urban Drainage Manual (QUDM) Fourth Edition, 2016
- Water By Design MUSIC Modelling Guidelines, Version 3.0, 2018
- Water by Design - Construction and Establishment Guidelines: Swales, Bioretention Systems and Wetlands V1.1, 2010
- Plumbing and Drainage Code AS3500.3
- Australian Rainfall and Runoff Guideline (ARR)
- International Erosion Control Association – Best Practise Erosion and Sediment Control, 2008

The stormwater management objectives for the development are summarised below:

- Development should not result in water being diverted onto land that is not normally subject to overland flow
- Define a lawful point of discharge that will not cause an actionable nuisance in accordance with QUDM
- Ensure that the development does not create adverse flood impacts to upstream or adjacent properties
- No increase in post development flows for all rainfall events up to and including 100-year event
- Stormwater quality to achieve the minimum design requirements of the State Planning Policy (2017) and achieve Water quality objectives in accordance with Environmental Protection (Water) Policy (2019), as follows in Table 2 Below.

Table 2 - Water Quality Objectives

Pollutant	Percent Reduction
Gross Pollutants (>5mm), GP	90%
Total Suspended Solids, TSS	80%
Total Phosphorous, TP	60%
Total Nitrogen, TN	45%

5. Flooding

The estate Site Based Stormwater Management Plan (Quantity) by Arcadis (EAG001-30109334-AAR Revision 12) discusses the flood risk associated with the proposed estate for design storms up to and including the 1% AEP. The report demonstrates that the proposed Lot 105 development has immunity for all design storms.

Further to their SBSMP, Arcadis have prepared a technical memorandum (EAG001-30109334-AAR-02) which discusses the flood risk associated with the proposed estates for design storms exceeding the 1% AEP 2100, up to and including the 0.2% 2100 AEP (Note. This memorandum was submitted and considered by EDQ as part of previous approvals within the estate). This memorandum was prepared in response to Logan City Council Planning Scheme 2015 Section 8.2.5 – Flood Overlay Code. In accordance with the memorandum and Council's requirements, the proposed lot 105 development is required to achieve immunity to the defined flood level (1% AEP at 2100). Proposed Lot 105 is considered as part of the A1 catchment in the approved flood memorandum. The memorandum nominates an RL of 25.7 for the 0.2% AEP @2100. The proposed FFL of the warehouse is RL 26.00. Based on the design levels the proposed lot 105 development will have immunity up to and including the 0.2% AEP @ 2100.

6. Stormwater Quantity Management

As outlined in the approved Arcadis Site Based Stormwater Management Plan (SBSMP) EAG001-30109334-AAR Rev 12: The northern on-site detention basin is situated in the north-east corner of the proposed development and attenuates flows from INTNL-1 (subject site) and the major flows from the northern portion of the internal road network, prior to discharge to the northernmost portion of the eastern conveyance channel. As such, no further onsite stormwater attenuation is proposed for the development

7. Stormwater Quality Management – Construction Phase

7.1. Erosion and Sediment Control

Prior to construction commencing, it is the principal contractor's responsibility to ensure adequate erosion and sediment control measures are installed around the subject site to minimise disturbance and ensure the quality of runoff discharging from the site is of an acceptable standard.

An erosion and sediment control plan (ESCP) is to be produced by a Certified professional in Erosion and Sediment Control (CPESC) and submitted to the relevant authorities for approval prior to construction. The ESCP is to be prepared in accordance with the Best Practice Erosion and Sediment Control Manual (ICEA 2009) based on Type 1 techniques. Typical erosion and sediment control techniques to be used include but are not limited to:

- Sediment barriers to be installed on all entrances to stormwater inlet pits
- Construction entry and exit shakedown areas
- Sediment fences are to be installed on the downstream boundaries of the subject site
- Construction of temporary bunds at the top of all earthworks batters to ensure runoff is directed away from exposed batters
- Construction of temporary diversion drains to divert water to sediment basins and around any stockpiles
- Sediment fences to be installed on the downstream side of any stockpiles
- Stabilisation of all batters upon reaching the finished earthworks levels
- Dust control measures which includes covering stockpiles, maintain site fences and watering exposed areas
- Sediment basin in accordance with IECA Best Practice Erosion and Sediment Control.

8. Stormwater Quality Management – Operational Phase

8.1. Stormwater Quality Treatment Approach

As part of the PDA Development Approvals DEV2023/1466 and DEV2023/1446 Arcadis completed a SBSQMP EAG003-30109334-AAR Rev 4. Bioretention systems have been constructed within the development layout to treat stormwater runoff from the internal road reserve and Catchment INTNL-1 as well as EXTNL-1A and EXTNL-1B. Stormwater runoff from Lot 1 (INTNL-1) and external catchments 1A and 1B (EXTNL-1A and EXTNL-1B) will be treated by the northern bioretention basin. Rainwater tanks are to be included in each allotment for roof water runoff which is to be reused across each lot through irrigation and toilet flushing. Half of each roof catchment is to be directed to rainwater harvesting tanks.

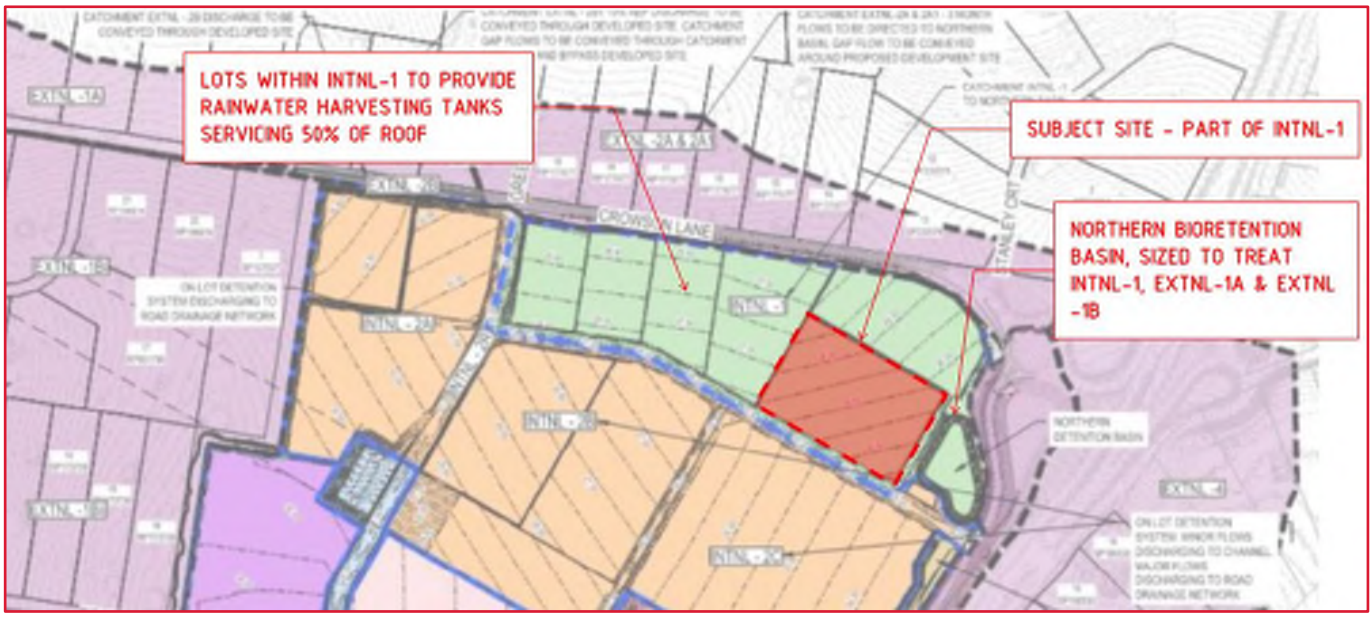


Figure 3- Stormwater Quality Strategy – INTNL-1

8.2. Stormwater Quality Modelling (MUSIC) Methodology

Stormwater quality modelling for the site was prepared using 'Model for Urban Stormwater Improvement Conceptualisation' (MUSIC) Version 6.3. The model has been built to determine the rainwater tank sizing against the 80% non-potable re-use requirements. The reuse demand has been calculated based on an annual irrigation application of 548mm/m2/yr across landscaped areas and a toilet/urinal demand of 0.1kL/toilet/day, in accordance with the specifications outlined by Arcadis and the MUSIC Modelling Guidelines 2020. The number of toilets and landscaping area has been calculated based on Watson Young – Preliminary Issue Plan Rev P1.

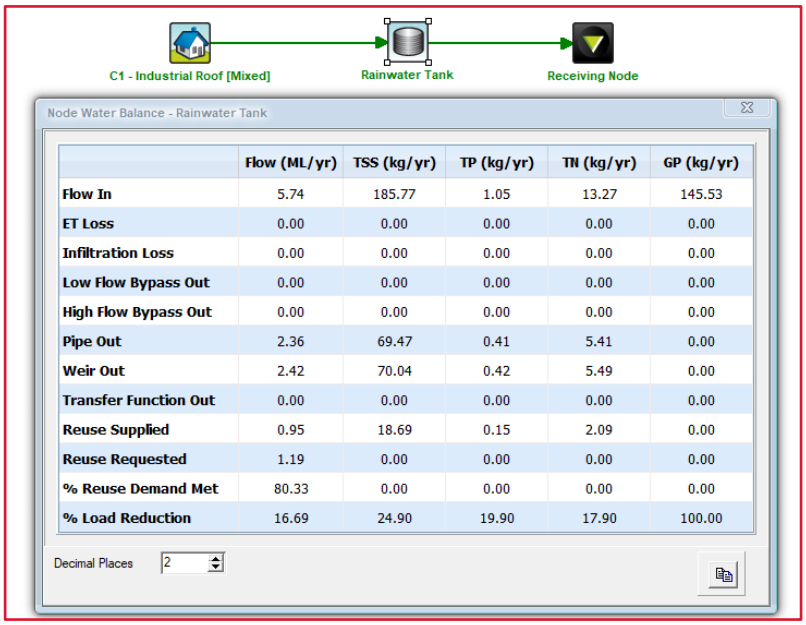
Table 3 below, summarises the parameters used to model the rainwater tank.

Table 3 - Rainfall Runoff Parameters

Parameter	Value*
Irrigated landscape area (m2)	1635
Number of toilets/urinals	8
Number of Tanks	1
Volume below overflow pipe (kL)	75
Depth above overflow pipe (kL)	0.75
Surface Area (m2)	37.5
Initial Volume (kL)	0
Overflow Pipe Diameter (mm)	90 (x2)
Max Drawdown Height (m)	2
Demand (kL/yr)	1188

MUSIC Model Layout

The development site has been modelled in MUSIC based on the assumptions outlined above. A diagrammatic view of the MUSIC model layout is presented in Figure 5 below:



	Flow (ML/yr)	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	GP (kg/yr)
Flow In	5.74	185.77	1.05	13.27	145.53
ET Loss	0.00	0.00	0.00	0.00	0.00
Infiltration Loss	0.00	0.00	0.00	0.00	0.00
Low Flow Bypass Out	0.00	0.00	0.00	0.00	0.00
High Flow Bypass Out	0.00	0.00	0.00	0.00	0.00
Pipe Out	2.36	69.47	0.41	5.41	0.00
Weir Out	2.42	70.04	0.42	5.49	0.00
Transfer Function Out	0.00	0.00	0.00	0.00	0.00
Reuse Supplied	0.95	18.69	0.15	2.09	0.00
Reuse Requested	1.19	0.00	0.00	0.00	0.00
% Reuse Demand Met	80.33	0.00	0.00	0.00	0.00
% Load Reduction	16.69	24.90	19.90	17.90	100.00

Figure 4 - MUSIC Link and Node Diagram

For the analysis of the MUSIC modelling, Meteorological data (average potential evapotranspiration (PET) and Rainfall Station) was based on the recommendations listed in WBD MUSIC Modelling Guidelines for SEQ, Table 3.1. The rainfall data was obtained from the Bureau of Meteorology for Station No. 40659 at Greenbank. The analysis was undertaken using a 6min time step from the period of 01/01/1980 to 31/12/1989.

The following rainfall and runoff parameters shown in Table 4 have been utilised.

Table 4 – Rainfall Runoff Parameters

Parameter	Value*
Land Use Category	Commercial and Industrial
Rainfall Threshold (mm/day)	1
Soil Storage Capacity (mm)	18
Initial Storage (% of Capacity)	10
Field Capacity (mm)	80
Infiltration Capacity Coefficient – a	243
Infiltration Capacity Exponent – b	0.6
Initial Depth (mm)	50
Daily Recharge Rate (%)	0
Daily Base flow Rate (%)	31
Daily Deep Seepage Rate (%)	0

Table 5 - Water Quality Parameters for MUSIC Source Nodes

Catchment ID	MUSIC Source Nodes	Catchment Area (Ha)	Impervious %
C (Treated Catchment)	C1 – Industrial Roof (50% roof)	1.06	100%

Table 6 - MUSIC Model Results

Node	Reuse ML/yr		% Reuse demand met		Compliance
	Reuse Supplied	Reuse requested	Actual	Target	
Rainwater Tank	0.95	1.19	80.33	80	OK

9. Maintenance

All the stormwater infrastructure detailed in this document are contained within the subject site and will remain an asset of the development's property owner, tenant or similar internal authority.

Maintenance of all rainwater tanks will be the responsibility of body corporate or the development owner. The maintenance should be carried out in accordance with the local authority recommendations and conducted by a professional.

10. Conclusion

This Site Based Stormwater Management Plan (SBSMP) has been prepared on behalf of CH Hydrangea Pty Ltd (Applicant) in support of a Development Application (DA) over land described as: proposed lot 105, part of Lot 1 on SP352820 (site). This Priority Development Area (PDA) DA seeks approval for the following aspects of development:

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Erosion and Sediment Control

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Appendix A – Civil Engineering Plans

PROPOSED INDUSTRIAL DEVELOPMENT

PROPOSED LOT 105, 4499-4651 MT. LINDESAY HIGHWAY, NORTH MACLEAN QLD 4280
DEVELOPMENT APPLICATION

LOCALITY PLAN
NTS

SOURCE : METROMAP.COM.AU

DRAWING SCHEDULE

DWG NUMBER	DWG TITLE
DA-001	COVER SHEET, LOCALITY PLAN AND DRAWING SCHEDULE
DA-101	BULK EARTHWORKS LAYOUT PLAN
DA-111	BULK EARTHWORKS SECTIONS
DA-210	ROADWORKS & STORMWATER OVERALL LAYOUT PLAN
DA-211	ROADWORKS & STORMWATER DRAINAGE LAYOUT PLAN - SHEET 1 OF 4
DA-212	ROADWORKS & STORMWATER DRAINAGE LAYOUT PLAN - SHEET 2 OF 4
DA-213	ROADWORKS & STORMWATER DRAINAGE LAYOUT PLAN - SHEET 3 OF 4
DA-214	ROADWORKS & STORMWATER DRAINAGE LAYOUT PLAN - SHEET 4 OF 4
DA-311	STORMWATER DRAINAGE CATCHMENT LAYOUT PLAN
DA-321	STORMWATER DRAINAGE LONGITUDINAL SECTIONS - SHEET 1 OF 4
DA-322	STORMWATER DRAINAGE LONGITUDINAL SECTIONS - SHEET 2 OF 4
DA-323	STORMWATER DRAINAGE LONGITUDINAL SECTIONS - SHEET 3 OF 4
DA-324	STORMWATER DRAINAGE LONGITUDINAL SECTIONS - SHEET 4 OF 4

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VERIFIER: S.KILLORAN
RPEQ No: 25874

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PROJECT: PROPOSED INDUSTRIAL DEVELOPMENT
PROPOSED LOT 105
4499-4651 MT. LINDESAY HIGHWAY
NORTH MACLEAN, QLD 4280

DRAWING TITLE: COVER SHEET, LOCALITY PLAN AND DRAWING SCHEDULE

JOB NUMBER: 26000287
DRAWING NUMBER: DA-001
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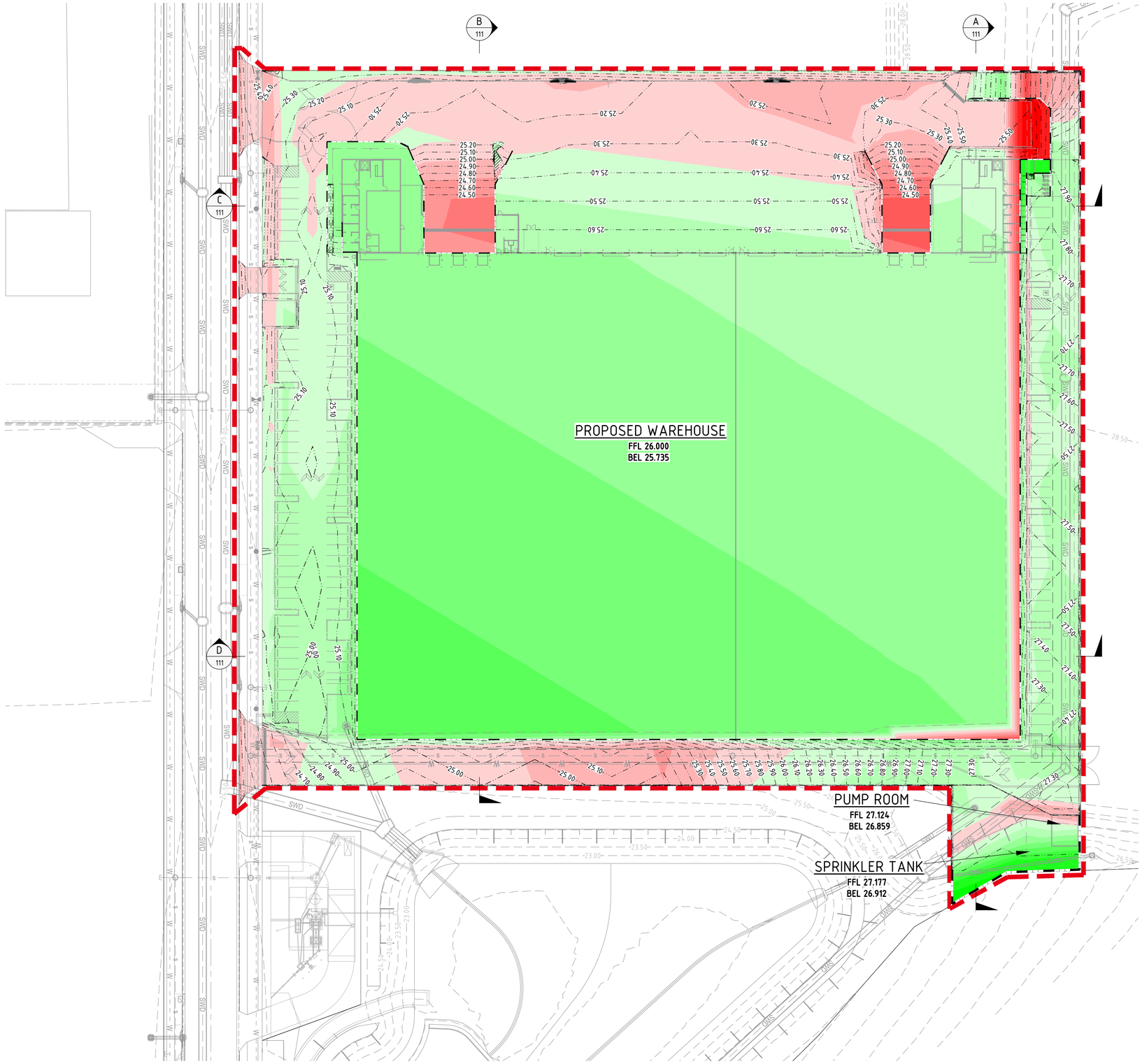

VOLUME NOTES

1. VOLUMES ARE CALCULATED BETWEEN STRIPPED SURFACE AND BOXING (BULK) LEVELS.
2. VOLUMES DO NOT CONSIDER BULKING / COMPACTION FACTORS, UNSUITABLE GROUND REMOVAL OR CONTAMINATED GROUND REMOVAL.
3. IT HAS BEEN ASSUMED THAT THE SITE WILL REQUIRE 0mm TOPSOIL STRIP TO REMOVE ORGANIC MATERIAL. SHOULD THIS DEPTH VARY, PLEASE NOTIFY SUPERINTENDENT, GEOTECH & NORTHROP IMMEDIATELY.
4. REFER TO CIVIL PAVEMENT & STRUCTURAL FOUNDATION / SLAB DRAWINGS FOR PAVEMENT DEPTHS, TO BE CONFIRMED & VALIDATED AGAINST BULK / BOXING LEVELS BY CONTRACTOR & SURVEYOR PRIOR TO COMMENCEMENT OF EARTHWORKS.
5. ALL EARTHWORKS VOLUMES ARE PRELIMINARY ONLY, AND ARE TO BE USED AS A GUIDE ONLY. CONTRACTOR IS TO ALLOW ADEQUATE CONTINGENCY.

UNKNOWN GEOTECH PARAMETERS

THE CONTRACTORS IS TO ALLOW ADEQUATE PROVISIONAL AMOUNTS FOR CONTINGENCIES FOR THE FOLLOWING UNKNOWN EARTHWORKS/GEOTECH PARAMETERS:

- SWELLING/COMPACTION FACTORS - UNKNOWN
- SUBGRADE CBR - UNKNOWN
- SUBGRADE SUITABLE FOR FILLING/PAVEMENT - UNKNOWN
- IF CUT IS CONSIDERED SUITABLE FOR FILLING - UNKNOWN
- TOPSOIL DEPTH - 50mm
- ONSITE SOILS ARE DISPERSIVE/HIGHLY REACTIVE - UNKNOWN

LEVELS AND SETOUT NOTES

1. EARTHWORKS LEVELS SHOWN ARE BULK SURFACE LEVELS (UNDERSIDE OF PAVEMENT AND TOPSOIL LAYERS)
2. EARTHWORKS LEVELS ALLOW DRIVEWAY / CAR PARK SLAB THICKNESS AND BUILDING SLAB THICKNESS AS PER STRUCTURAL ENGINEERING DRAWINGS. REFER TO FINAL 'FOR CONSTRUCTION' STRUCTURAL DESIGN DRAWINGS FOR FINAL PAD THICKNESS AND CROSS-CHECK/VERIFY THE ASSOCIATED FINAL CIVIL BULK PAD LEVELS PRIOR TO CONSTRUCTION SETOUT.
3. FLOOD IMMUNITY - 200 YR ARI RIVER FLOOD LEVEL = 25.3m AHD ('FLOOD TECHNICAL NOTE' PREPARED BY ARCADIS DATED 1/03/24). ENSURE THE MINIMUM FINISHED FLOOR LEVELS FOR HABITABLE BUILDINGS CAN BE CONSTRUCTED AT ABOVE THIS RL.
4. ALL RETAINING WALL HEIGHT LABELS ARE CALCULATED TO FINISHED SURFACE LEVELS INCLUDING TOPSOIL (AND TO NEAREST 200mm HEIGHT). FINAL RETAINING WALL DESIGNS AND DETAILED STEPPING IS SUBJECT TO STRUCTURAL DESIGN BY OTHERS.
5. REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING SETOUT INFORMATION.
6. CONTRACTOR TO CONFIRM SITE SURVEY STATION LOCATION AND BUILDING/PAD SETOUT LOCATIONS IN RELATION TO BOUNDARIES PRIOR TO CONSTRUCTION AND ADVISE SUPERINTENDENT IF ANY DISCREPANCIES/ANOMALIES FOUND.

PRELIMINARY BOXING DEPTHS

TRUCK MANEUVERING HARDSTAND, CONTAINER SET DOWN = 170mm THICK CONCRETE + 100mm CBR 15 SUBBASE = 270 TOTAL BOX

LIGHT DUTY PAVEMENT = 130mm THICK CONCRETE + 100mm CBR 15 SUBBASE = 230 TOTAL BOX

WAREHOUSE, OFFICE, PUMP ROOM = 165mm THICK CONCRETE + 100mm CBR 15 SUBBASE = 265 TOTAL BOX

TANK SLAB = 300mm THICK CONCRETE + 100mm CBR 15 SUBBASE = 400 TOTAL BOX

QFES = 230mm TOTAL BOX

FOOTPATH SLAB = 100mm THICK CONCRETE + 100mm CBR 15 SUBBASE = 200 TOTAL BOX

NOTE: FOR INTERNAL PAVEMENT DESIGN REFER TO STRUCTURAL DRAWINGS FOR DETAILS AND SPECIFICATIONS

LEGEND

- PROPOSED SURFACE CONTOURS (XX.XX)
- EXISTING SURFACE CONTOURS (XX.XX)
- EXISTING PROPERTY BOUNDARY
- WORKS BOUNDARY
- PROPOSED RETAINING WALL IN ACCORDANCE WITH STRUCTURAL ENGINEER'S SPECIFICATIONS

NOTES:

1. FOR FULL EXISTING FEATURES LEGEND REFER TO C-020.
2. ALL WORKS TO BE CARRIED OUT STRICTLY IN ACCORDANCE WITH NORTHROP SPECIFICATION NOTES FOUND WITHIN C-010 SERIES DRAWINGS. NORTHROP WILL NOT BE HELD LIABLE FOR NON-COMPLIANT WORKS.

CUT/FILL DEPTH

DEPTH COLOUR	LOWER DEPTH	UPPER DEPTH
	-999m	-2.0m
	-2.0m	-1.5m
	-1.5m	-1.25m
	-1.25m	-1.0m
	-1.0m	-0.75m
	-0.75m	-0.5m
	-0.5m	-0.25m
	-0.25m	0.0m
	0.0m	0.25m
	0.25m	0.5m
	0.5m	0.75m
	0.75m	1.0m
	1.0m	1.25m
	1.25m	1.5m
	1.5m	2.0m
	2.0m	999m

FIRE ANT TREATMENT ZONE

MOVEMENT OF MATERIAL SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF AGRICULTURE AND FISHERIES ACTS AND REGULATIONS. FOR MORE INFORMATION CALL BIOSECURITIES QUEENSLAND ON 13 25 23 OR VISIT WWW.DAF.QLD.GOV.AU FOR MORE INFORMATION.

WARNING

UNDERGROUND SERVICES

UNDERGROUND SERVICES EXIST IN THIS AREA. UNDERGROUND SERVICE LOCATIONS AND DEPTHS TO BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS.

PRELIMINARY BULK EARTHWORKS VOLUMES

CUT	FILL	BALANCE
1,835 m^3	14,907 m^3	13,072 m^3 (FILL)

DRAWN: M.MANLAPIT
DESIGNED: G.DE LANGE
JOB MANAGER: A.DE ANDRADE
VERIFIER: S.KILLORAN
RPEQ No: 25814

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	ISSUED FOR APPROVAL	MM	ADA	SK	02.04.26
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C	ISSUED FOR APPROVAL	MM	ADA	SK	26.04.26

CLIENT: Charter Hall

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ARCHITECT: watson young

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SCALE 1:500@A1

0 5 10 15 20 25m

NORTHROP
Brisbane
Level 25, 12 Creek Street, Brisbane QLD 4000
GPO BOX 423 Brisbane QLD 4001
(07) 3365 0400 brisbane@northrop.com.au
ABN 81 094 433 100

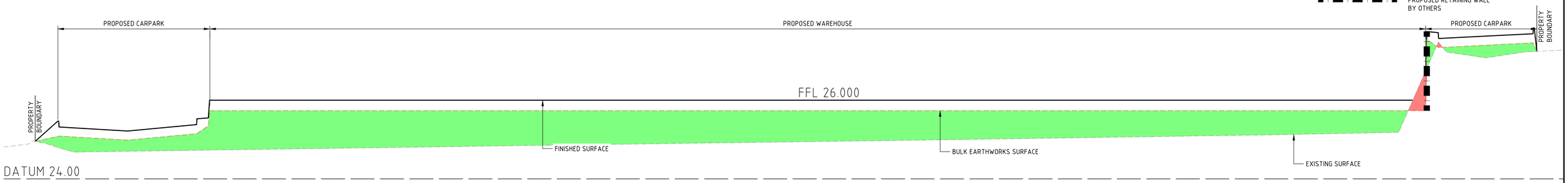
PROJECT
PROPOSED INDUSTRIAL DEVELOPMENT
PROPOSED LOT 105
4499-4651 MT. LINDESAY HIGHWAY
NORTH MACLEAN, QLD 4280

DRAWING TITLE
BULK EARTHWORKS LAYOUT PLAN

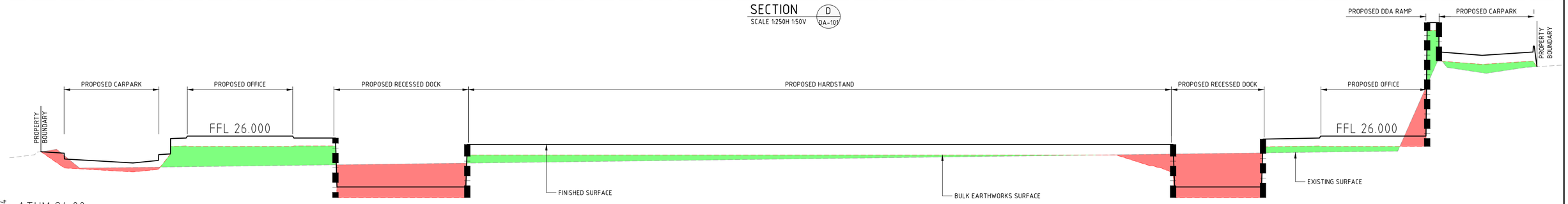
JOB NUMBER: **26000287**
DRAWING NUMBER: **DA-101**
REVISION: **C**
DRAWING SHEET SIZE = A1

LEGEND

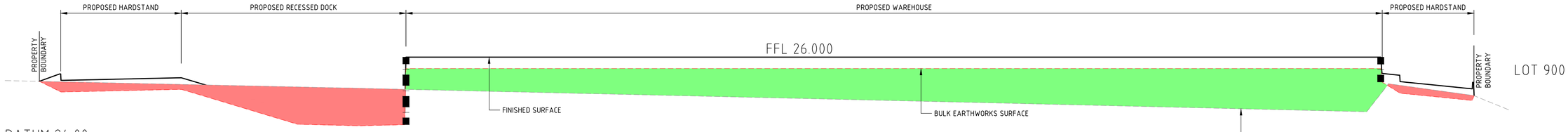
- FINISHED SURFACE
- EXISTING SURFACE
- STRIPPED SURFACE
- BULK EARTHWORKS SURFACE
- EARTHWORKS AREA OF CUT
- EARTHWORKS AREA OF FILL
- PROPOSED RETAINING WALL BY OTHERS



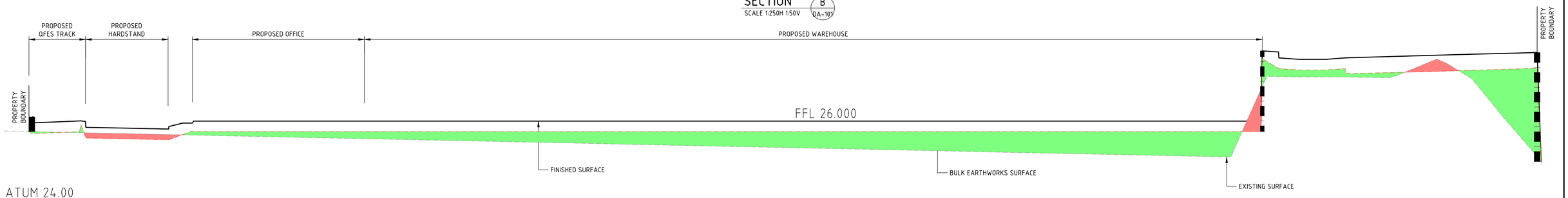
SECTION D
SCALE 1:250H 1:50V
DA-101



SECTION C
SCALE 1:250H 1:50V
DA-101



SECTION B
SCALE 1:250H 1:50V
DA-101



SECTION A
SCALE 1:250H 1:50V
DA-101

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ARCHITECT: watson young

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SCALE 1:50@A1
SCALE 1:250@A1
0.0 0.5 1.0 1.5 2.0 2.5m
0 2 4 6 8 10 12m

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Brisbane
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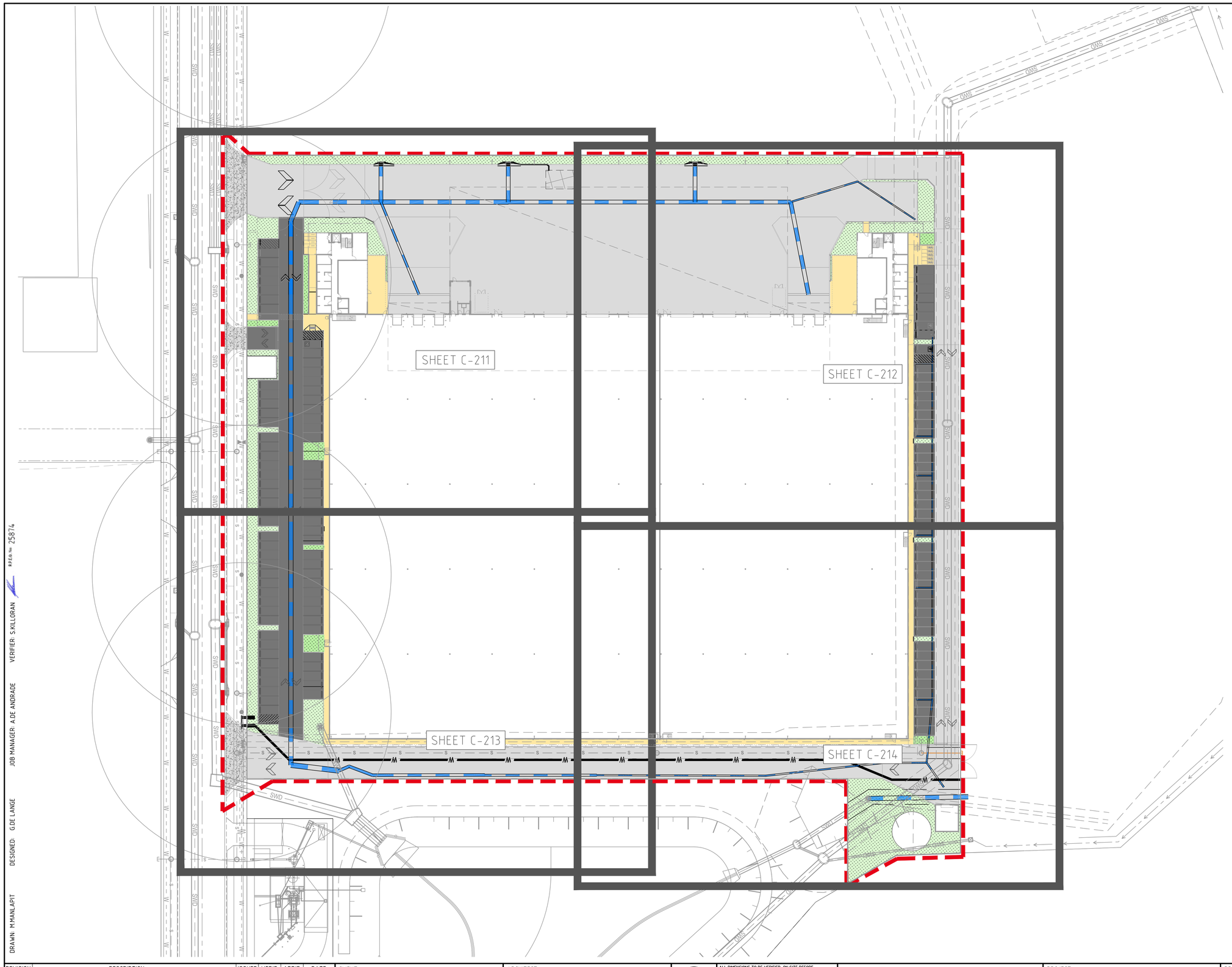
GPO BOX 423 Brisbane QLD 4001
(07) 3365 0400 brisbane@northrop.com.au
ABN 81 094 433 100

PROJECT
PROPOSED INDUSTRIAL DEVELOPMENT
PROPOSED LOT 105
4499-4651 MT. LINDESAY HIGHWAY
NORTH MACLEAN, QLD 4280

DRAWING TITLE
BULK EARTHWORKS SECTIONS

JOB NUMBER: **26000287**
DRAWING NUMBER: **DA-111**
REVISION: **C**
DRAWING SHEET SIZE = A1

DESIGNED: G.DE LANGE
DRAWN: M.MANLAPIT
JOB MANAGER: A.DE ANDRADE
VERIFIER: S.KILLORAN
RPEQ No. 25874



LEGEND

- PROPOSED SURFACE CONTOURS (XX.XX)
- EXISTING SURFACE CONTOURS (XX.XX)
- PROPOSED INTEGRAL KERB (IK)
- PROPOSED KERB RAMP (KR)
- PROPOSED STORMWATER DRAINAGE
- PROPOSED SEWERAGE RETICULATION (S)
- PROPOSED WATER RETICULATION (W)
- EXISTING STORMWATER DRAINAGE (SWD)
- EXISTING SEWERAGE RETICULATION (S)
- EXISTING WATER RETICULATION (W)
- PROPOSED RETAINING WALL
- WORKS BOUNDARY
- PROPOSED LIGHT DUTY CONCRETE PAVEMENT
- PROPOSED HEAVY DUTY CONCRETE PAVEMENT
- PROPOSED CONCRETE FOOTPATH
- PROPOSED LANDSCAPE AREA
- PROPOSED STORMWATER HEADWALL
- PROPOSED STORMWATER MANHOLE
- PROPOSED STORMWATER INLET PIT

WARNING

UNDERGROUND SERVICES

UNDERGROUND SERVICES EXIST IN THIS AREA. UNDERGROUND SERVICE LOCATIONS AND DEPTHS TO BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS.

DRAWN: M.MANLAPIT
DESIGNED: G.DE LANGE
JOB MANAGER: A.DE ANDRADE
VERIFIER: S.KILLORAN
RPEQ No. 25814

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ARCHITECT: watson young

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SCALE 1:500@A1 (0 5 10 15 20 25m)

NORTHROP
Brisbane
Level 25, 12 Creek Street, Brisbane QLD 4000
GPO BOX 423 Brisbane QLD 4001
(07) 3365 0400 brisbane@northrop.com.au
ABN 81 094 433 100

PROJECT: **PROPOSED INDUSTRIAL DEVELOPMENT**
PROPOSED LOT 105
4499-4651 MT. LINDESAY HIGHWAY
NORTH MACLEAN, QLD 4280

DRAWING TITLE: **ROADWORKS & STORMWATER OVERALL LAYOUT PLAN**

JOB NUMBER: **26000287**
DRAWING NUMBER: **DA-210**
REVISION:
DRAWING SHEET SIZE = A1

EXISTING VALVE TO BE REMOVED AND SEALED AT TEE

PROVIDE 15.32m WIDE TYPE "GENERAL WIDE FLAIRED" HEAVY DUTY CROSSOVER IN ACCORDANCE WITH IPWEA STD DRG RS-051

EXISTING "MIMIC BASIN" TO BE REMOVED.

EXISTING 150ø SEWER PROPERTY CONNECTION TO BE REUSED TO SERVICE THE PROPOSED DEVELOPMENT, SUBJECT TO CCTV INSPECTION

PROPOSED 75kL RAINWATER HARVESTING TANK TO CAPTURE 50% OF TOTAL ROOF AREA IN ACCORDANCE WITH NORTHROP STORMWATER MANAGEMENT PLAN 26000028r_ SBSMP001 LOCATION SHOWN INDICATIVELY. FINAL LOCATION TO BE DETERMINED BY THE HYDRAULIC CONSULTANT IN DETAILED DESIGN

LOT 1

PROPOSED 6x BICYCLE PARKING BAYS

ENTERPRISE DRIVE

PROPOSED OFFICE
FFL26.000m

PROVIDE 6.0m WIDE TYPE "GENERAL WIDE" HEAVY DUTY CROSSOVER IN ACCORDANCE WITH IPWEA STD DRG RS-051

PMT
FFL25.453m

PROPOSED WAREHOUSE
FFL26.000m

FOR CONTINUATION REFER TO SHEET C-212

FOR CONTINUATION REFER TO SHEET C-213

LEGEND

- PROPOSED SURFACE CONTOURS
- EXISTING SURFACE CONTOURS
- PROPOSED INTEGRAL KERB
- PROPOSED STORMWATER DRAINAGE
- PROPOSED SEWERAGE RETICULATION
- PROPOSED WATER RETICULATION
- EXISTING STORMWATER DRAINAGE
- EXISTING SEWERAGE RETICULATION
- EXISTING WATER RETICULATION
- PROPOSED RETAINING WALL
- WORKS BOUNDARY
- PROPOSED LIGHT DUTY CONCRETE PAVEMENT
- PROPOSED HEAVY DUTY CONCRETE PAVEMENT
- PROPOSED CONCRETE FOOTPATH
- PROPOSED LANDSCAPE AREA
- PROPOSED STORMWATER HEADWALL
- PROPOSED STORMWATER MANHOLE
- PROPOSED STORMWATER INLET PIT
- PROPOSED STRUCTURE NUMBER
- EXISTING STRUCTURE NUMBER

NOTES:

1. FOR FULL EXISTING FEATURE LEGENDS REFER TO C-020.
2. FOR ROADWORKS & STORMWATER DRAINAGE DETAILS REFER TO C-220 DRAWING.
3. ALL WORKS TO BE CARRIED OUT STRICTLY IN ACCORDANCE WITH NORTHROP SPECIFICATION NOTES FOUND WITHIN C-010 SERIES DRAWINGS. NORTHROP WILL NOT BE HELD LIABLE FOR NON-COMPLIANT WORKS.
4. FOR RETAINING WALL AND GUARDRAIL SPECIFICATION, REFER TO STRUCTURAL DRAWINGS.

THRESHOLD NOTES:

1. PROVIDE A 50mm LEVEL DIFFERENCE BETWEEN THE INTERNAL AND EXTERNAL SLABS AT ALL ROLLER SHUTTER DOORS UNDER AWNINGS.
2. PROVIDE A 100mm LEVEL DIFFERENCE BETWEEN THE INTERNAL AND EXTERNAL SLABS OF THE WAREHOUSE ALONG OTHER EDGES.
3. PROVIDE A 30mm LEVEL DIFFERENCE BETWEEN THE INSIDE AND OUTSIDE SLABS AT THE OFFICES AND ALL DDA COMPLIANT DOORS.
4. REFER TO ARCHITECT DRAWINGS FOR LOCATION OF DDA COMPLIANT DOORS.

WARNING

UNDERGROUND SERVICES

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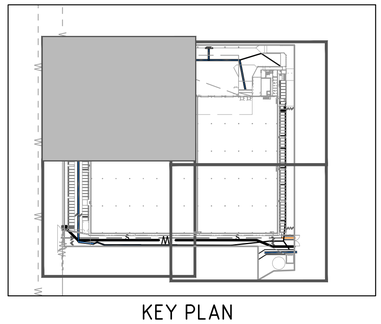

KEY PLAN
NTS

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DRAWN: M.MANLAPIT
DESIGNED: G.DE LANGE
JOB MANAGER: A.DE ANDRADE
VERIFIER: S.KILLORAN
RPEQ No: 25874

CLIENT: Charter Hall

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ARCHITECT: watson young

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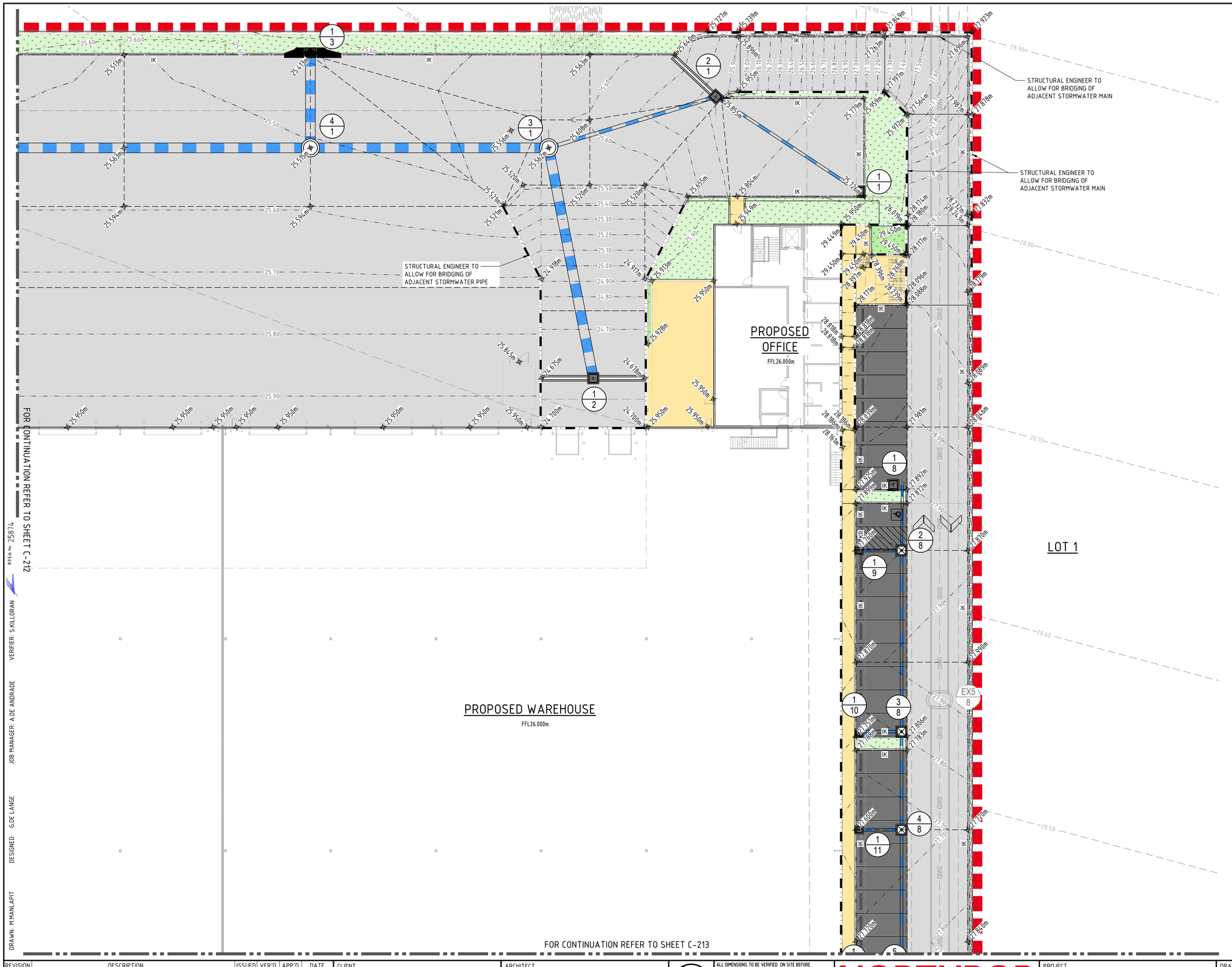
GPO BOX 423 Brisbane QLD 4001
(07) 3365 0400 brisbane@northrop.com.au
ABN 81 094 433 100

PROJECT: PROPOSED INDUSTRIAL DEVELOPMENT
PROPOSED LOT 105
4499-4651 MT. LINDESAY HIGHWAY
NORTH MACLEAN, QLD 4280

DRAWING TITLE: ROADWORKS & STORMWATER DRAINAGE LAYOUT PLAN SHEET 1 OF 4

JOB NUMBER: 26000287
DRAWING NUMBER: DA-211
REVISION:
DRAWING SHEET SIZE = A1



LEGEND

- PROPOSED SURFACE CONTOURS
- EXISTING SURFACE CONTOURS
- PROPOSED INTEGRAL KERB
- PROPOSED STORMWATER DRAINAGE
- PROPOSED SEWERAGE RETICULATION
- PROPOSED WATER RETICULATION
- EXISTING STORMWATER DRAINAGE
- EXISTING SEWERAGE RETICULATION
- EXISTING WATER RETICULATION
- PROPOSED RETAINING WALL
- WORKS BOUNDARY
- PROPOSED LIGHT DUTY CONCRETE PAVEMENT
- PROPOSED HEAVY DUTY CONCRETE PAVEMENT
- PROPOSED CONCRETE FOOTPATH
- PROPOSED LANDSCAPE AREA
- PROPOSED STORMWATER HEADWALL
- PROPOSED STORMWATER MANHOLE
- PROPOSED STORMWATER INLET PIT
- PROPOSED STRUCTURE NUMBER
- EXISTING STRUCTURE NUMBER

NOTES:

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2. FOR ROADWORKS & STORMWATER DRAINAGE DETAILS REFER TO C-220 DRAWING.
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4. FOR RETAINING WALL AND GUARDRAIL SPECIFICATION, REFER TO STRUCTURAL DRAWINGS.

THRESHOLD NOTES:

1. PROVIDE A 50mm LEVEL DIFFERENCE BETWEEN THE INTERNAL AND EXTERNAL SLABS AT ALL ROLLER SHUTTER DOORS UNDER AWNINGS.
2. PROVIDE A 100mm LEVEL DIFFERENCE BETWEEN THE INTERNAL AND EXTERNAL SLABS OF THE WAREHOUSE ALONG OTHER EDGES.
3. PROVIDE A 30mm LEVEL DIFFERENCE BETWEEN THE INSIDE AND OUTSIDE SLABS AT THE OFFICES AND ALL DDA COMPLIANT DOORS.
4. REFER TO ARCHITECT DRAWINGS FOR LOCATION OF DDA COMPLIANT DOORS.

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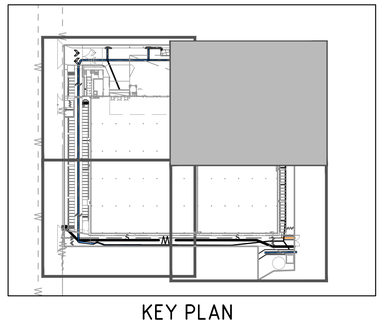

KEY PLAN
NTS

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DRAWN: M.MANLAPIT
DESIGNED: G.DE LANGE
JOB MANAGER: A.DE ANDRADE
VERIFIER: S.KILLORAN
PLOT DATE: 25/04/26

CLIENT: Charter Hall

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ARCHITECT: watson young

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ABN 81 094 433 100

PROJECT: PROPOSED INDUSTRIAL DEVELOPMENT
PROPOSED LOT 105
4499-4651 MT. LINDESAY HIGHWAY
NORTH MACLEAN, QLD 4280

DRAWING TITLE: ROADWORKS & STORMWATER DRAINAGE LAYOUT PLAN SHEET 2 OF 4

JOB NUMBER: 26000287
DRAWING NUMBER: DA-212
REVISION:
DRAWING SHEET SIZE = A1

FOR CONTINUATION REFER TO SHEET C-213

ENTERPRISE DRIVE

PROPOSED WAREHOUSE
FFL26.000m

LOT 900

REDUNDANT SEWER PROPERTY CONNECTION TO BE DEMOLISHED AND REMOVED FROM SITE

PROPOSED COMBINED FIRE AND DOMESTIC SERVICE TO SERVICE THE PROPOSED DEVELOPMENT. SIZING SUBJECT TO HYDRAULIC CONSULTANTS ASSESSMENT IN DETAILED DESIGN

PROPOSED COMBINED FIRE AND DOMESTIC SERVICE TO SERVICE UPSTREAM FUTURE DEVELOPMENT. SIZING SUBJECT TO HYDRAULIC CONSULTANTS ASSESSMENT IN DETAILED DESIGN.

EXISTING VALVE TO BE REMOVED AND SEALED AT TEE

PROVIDE 15.20m WIDE TYPE "GENERAL WIDE FLAIRED" HEAVY DUTY CROSSOVER IN ACCORDANCE WITH IPWEA STD DRG RS-051

EXISTING REDUNDANT STORMWATER TO BE TAKEN UP AND REMOVED FROM SITE

CONSTRUCT PROPOSED 15/1 OVER EXISTING 1350ϕ RCP STORMWATER MAIN

EXISTING SEWER LINE DEPTH AND GRADE TO BE CONFIRMED TO SUIT UPSTREAM CONNECTION. LINE TO BE RELAYED AS REQUIRED

FOR CONTINUATION REFER TO SHEET C-212

RPEQ No. 25874
VERIFIER: S.KILLORAN
JOB MANAGER: A.DE ANDRADE
DESIGNED: G.DE LANGE
DRAWN: M.MANLAPIT

LEGEND

- PROPOSED SURFACE CONTOURS
- EXISTING SURFACE CONTOURS
- PROPOSED INTEGRAL KERB
- PROPOSED STORMWATER DRAINAGE
- PROPOSED SEWERAGE RETICULATION
- PROPOSED WATER RETICULATION
- EXISTING STORMWATER DRAINAGE
- EXISTING SEWERAGE RETICULATION
- EXISTING WATER RETICULATION
- PROPOSED RETAINING WALL
- WORKS BOUNDARY
- PROPOSED LIGHT DUTY CONCRETE PAVEMENT
- PROPOSED HEAVY DUTY CONCRETE PAVEMENT
- PROPOSED CONCRETE FOOTPATH
- PROPOSED LANDSCAPE AREA
- PROPOSED STORMWATER HEADWALL
- PROPOSED STORMWATER MANHOLE
- PROPOSED STORMWATER INLET PIT
- PROPOSED STRUCTURE NUMBER
- EXISTING STRUCTURE NUMBER

NOTES:

1. FOR FULL EXISTING FEATURE LEGENDS REFER TO C-020.
2. FOR ROADWORKS & STORMWATER DRAINAGE DETAILS REFER TO C-220 DRAWING.
3. ALL WORKS TO BE CARRIED OUT STRICTLY IN ACCORDANCE WITH NORTHROP SPECIFICATION NOTES FOUND WITHIN C-010 SERIES DRAWINGS. NORTHROP WILL NOT BE HELD LIABLE FOR NON-COMPLIANT WORKS.
4. FOR RETAINING WALL AND GUARDRAIL SPECIFICATION, REFER TO STRUCTURAL DRAWINGS.

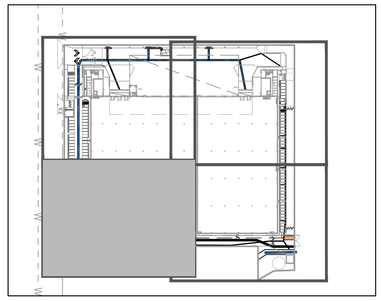
THRESHOLD NOTES:

1. PROVIDE A 50mm LEVEL DIFFERENCE BETWEEN THE INTERNAL AND EXTERNAL SLABS AT ALL ROLLER SHUTTER DOORS UNDER AWNINGS.
2. PROVIDE A 100mm LEVEL DIFFERENCE BETWEEN THE INTERNAL AND EXTERNAL SLABS OF THE WAREHOUSE ALONG OTHER EDGES.
3. PROVIDE A 30mm LEVEL DIFFERENCE BETWEEN THE INSIDE AND OUTSIDE SLABS AT THE OFFICES AND ALL DDA COMPLIANT DOORS.
4. REFER TO ARCHITECT DRAWINGS FOR LOCATION OF DDA COMPLIANT DOORS.

WARNING

UNDERGROUND SERVICES

UNDERGROUND SERVICES EXIST IN THIS AREA. UNDERGROUND SERVICE LOCATIONS AND DEPTHS TO BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS.



KEY PLAN
NTS

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	ISSUED FOR APPROVAL	MM	SK	ADA	02.04.26
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CLIENT
Charter Hall

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ARCHITECT
watson young

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SCALE 1:200@ A1 (0 2 4 6 8 10m)

NORTHROP
Brisbane
Level 25, 12 Creek Street, Brisbane QLD 4000
GPO BOX 423 Brisbane QLD 4001
(07) 3365 0400 brisbane@northrop.com.au
ABN 81 094 433 100

PROJECT
PROPOSED INDUSTRIAL DEVELOPMENT
PROPOSED LOT 105
4499-4651 MT. LINDESAY HIGHWAY
NORTH MACLEAN, QLD 4280

DRAWING TITLE
ROADWORKS & STORMWATER DRAINAGE LAYOUT PLAN SHEET 3 OF 4

JOB NUMBER **26000287**
DRAWING NUMBER **DA-213**
REVISION
DRAWING SHEET SIZE = A1

FOR CONTINUATION REFER TO SHEET C-213

FOR CONTINUATION REFER TO SHEET C-212

PROPOSED WAREHOUSE
FFL26.000m

LOT 1

PUMP ROOM
FFL27.660m

SPRINKLER TANK
FFL27.694m

EXISTING PROPERTY CONNECTION TO BE DISUSED

PROPOSED 150Φ SEWER PROPERTY CONNECTION TO SERVICE UPSTREAM LOT.
S.L. 27.200
I.L. 25.830
DEPTH 1.37m

PROPOSED 3m WIDE SEWER EASEMENT

CAPPED FIRE SERVICE FOR FUTURE EXTENSION. MARK LOCATION WITH HARDWOOD STAKE

CAPPED DOMESTIC SERVICE FOR FUTURE EXTENSION C/W ISOLATION VALVE IN TRAFFICABLE BOX.

PROPOSED 4m WIDE STORMWATER EASEMENT

EXISTING UPSTREAM LOT CONNECTION:
900X600GRATE ON 1200Φ MH.
S.L. 27.754
I.L. 25.206

PIT TO BE LOWERED TO SUIT PROPOSED FSL

300mm MIN. VERTICAL CLEARANCE. TO BE CONFIRMED IN DETAILED DESIGN

1050Φ RCP CL 3
USIL 25.450
DSIL 25.226
GRADE 0.8%
LENGTH 26.7m

PROPOSED UPSTREAM PROPERTY CONNECTION 1200Φ MH. CLASS 'D' LID
S.L. 27.10
I.L. 25.450
DEPTH: 1.607m

STRUCTURAL ENGINEER TO ALLOW FOR BRIDGING OF ADJACENT STORMWATER PIPE

STRUCTURAL ENGINEER TO ALLOW FOR BRIDGING OF ADJACENT STORMWATER MAIN

LEGEND

- PROPOSED SURFACE CONTOURS
- EXISTING SURFACE CONTOURS
- PROPOSED INTEGRAL KERB
- PROPOSED STORMWATER DRAINAGE
- PROPOSED SEWERAGE RETICULATION
- PROPOSED WATER RETICULATION
- EXISTING STORMWATER DRAINAGE
- EXISTING SEWERAGE RETICULATION
- EXISTING WATER RETICULATION
- PROPOSED RETAINING WALL
- WORKS BOUNDARY
- PROPOSED LIGHT DUTY CONCRETE PAVEMENT
- PROPOSED HEAVY DUTY CONCRETE PAVEMENT
- PROPOSED CONCRETE FOOTPATH
- PROPOSED LANDSCAPE AREA
- PROPOSED STORMWATER HEADWALL
- PROPOSED STORMWATER MANHOLE
- PROPOSED STORMWATER INLET PIT
- PROPOSED STRUCTURE NUMBER
- EXISTING STRUCTURE NUMBER

NOTES:

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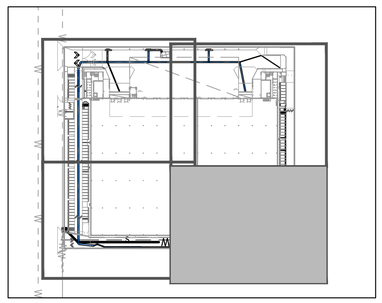

KEY PLAN
NTS

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CLIENT: Charter Hall

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ARCHITECT: watson young

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SCALE 1:200@ A1 (0 2 4 6 8 10m)

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ABN 81 094 433 100

PROJECT: PROPOSED INDUSTRIAL DEVELOPMENT
PROPOSED LOT 105
4499-4651 MT. LINDESAY HIGHWAY
NORTH MACLEAN, QLD 4280

DRAWING TITLE: ROADWORKS & STORMWATER DRAINAGE LAYOUT PLAN SHEET 4 OF 4

JOB NUMBER: 26000287
DRAWING NUMBER: DA-214
REVISION:
DRAWING SHEET SIZE = A1

DRAWN: M.MANLAPIT
DESIGNED: G.DE LANGE
JOB MANAGER: A.DE ANDRADE
VERIFIER: S.KILLORAN

ROOFWATER CATCHMENTS 1/RW2,1/RW3,1/RW4, 1/RW5, TO BE DIRECTED TO THE 75kL RAINWATER HARVESTING TANK. TANK OVERFLOW TO DISCHARGE TO THE STORMWATER NETWORK.

1/4 0.0342ha
1/3 0.0385ha
1/6 0.0229ha
2/1 0.0283ha
8/1 0.0669ha
1/1 0.0270ha
1/2 0.0643ha
9/1 0.0397ha
1/RW6 0.0300ha
1/5 0.0565ha
1/RW1 0.0300ha
1/8 0.0366ha
1/RW5 0.3521ha
1/RW3 0.3521ha
1/9 0.0275ha
10/1 0.0547ha
1/RW4 0.2423ha
1/RW2 0.2423ha
1/10 0.0082ha
11/1 0.0556ha
1/11 0.0328ha
1/12 0.0047ha
12/1 0.0556ha
1/13 0.0372ha
1/RW10 0.2204ha
1/RW9 0.2204ha
1/RW8 0.2204ha
1/RW7 0.2204ha
13/1 0.0399ha
1/14 0.0390ha
1/7 0.0285ha
13/8 0.0319ha
12/8 0.0320ha
11/8 0.0848ha
9/8 0.0491ha
1/15 0.0446ha

LEGEND

- XX.XX — PROPOSED SURFACE CONTOURS
- XX.XX — EXISTING SURFACE CONTOURS
- EXISTING PROPERTY BOUNDARY
- EXISTING EASEMENT BOUNDARY
- W — EXISTING WATER MAIN
- SWD — PROPOSED STORMWATER DRAINAGE
- SWD — EXISTING STORMWATER DRAINAGE
- PROPOSED CATCHMENT BOUNDARY
- X/XX X.XXXXha — PROPOSED CATCHMENT IDENTIFIER AND AREA (ha)

DRAWN: M.MANLAPIT DESIGNED: G.DE LANGE JOB MANAGER: A.DE ANDRADE VERIFIER: S.KILLORAN AREA No: 25874

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
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SCALE 1:500@ A1 — 0 5 10 15 20 25m

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ABN 81 094 433 100

PROJECT
PROPOSED INDUSTRIAL DEVELOPMENT
PROPOSED LOT 105
4499-4651 MT. LINDESAY HIGHWAY
NORTH MACLEAN, QLD 4280

DRAWING TITLE
STORMWATER DRAINAGE CATCHMENT LAYOUT PLAN

JOB NUMBER **26000287**
DRAWING NUMBER **DA-311**
REVISION
DRAWING SHEET SIZE = A1

STRUCTURE NAME	1/1	2/1	3/1	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	13/1	14/1	15/1	16/1	EX/1
STRUCTURE DESCRIPTION	FIELD INLET PIT – TYPE 2 900x600mm, CLASS D	GRATED TRENCH DRAIN 300mm WIDE CLASS D GRATE OVER 1050mm DIA MANHOLE	1500mm DIA MANHOLE CLASS D LID	1500mm DIA MANHOLE CLASS D LID	1500mm DIA MANHOLE CLASS D LID	1500mm DIA MANHOLE CLASS D LID	1800mm DIA MANHOLE CLASS D LID	1500mm DIA MANHOLE CLASS D LID	FIELD INLET PIT – TYPE 2 900x900mm, CLASS D OVER 1500mm DIA MANHOLE	FIELD INLET PIT – TYPE 2 900x900mm, CLASS D OVER 1500mm DIA MANHOLE	FIELD INLET PIT – TYPE 2 900x900mm, CLASS D OVER 1500mm DIA MANHOLE	FIELD INLET PIT – TYPE 2 900x900mm, CLASS D OVER 1500mm DIA MANHOLE	FIELD INLET PIT – TYPE 2 900x900mm, CLASS D OVER 1500mm DIA MANHOLE	FIELD INLET PIT – TYPE 2 900x900mm, CLASS D OVER 1500mm DIA MANHOLE	1800mm DIA MANHOLE CLASS D LID	2100mm DIA MANHOLE CLASS D LID	CUSTOM STRUCTURE EXISTING CUSTOM STRUCTURE
PIPE SIZE (mm)	300	375	750	900	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1200
PIPE CLASS	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	RCP2
PIPE GRADE (%)	2.00%	0.50%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.50%
PIPE SLOPE (1 in X)	50.0	200.0	333.3	333.3	333.3	333.3	333.3	333.3	333.3	333.3	333.3	333.3	333.3	333.3	333.3	333.3	199.6
PIPE FLOW (cumecs)	0.015	0.046	0.211	0.418	0.616	0.741	0.776	0.771	0.807	0.836	0.859	0.879	0.899	0.889	0.921	1.567	
CAPACITY FLOW (cumecs)	0.140	0.131	0.617	0.979	1.621	1.621	1.621	1.621	1.621	1.621	1.621	1.621	1.621	1.621	1.621	2.990	
FULL PIPE VELOCITY (m/s)	0.22	0.43	0.50	0.70	0.71	0.86	0.90	0.89	0.93	0.97	0.99	1.02	1.04	1.03	1.06	1.39	
NORMAL DEPTH VELOCITY (m/s)	1.34	1.10	1.33	1.58	1.74	1.83	1.85	1.85	1.87	1.89	1.90	1.91	1.92	1.91	1.93	2.67	
DATUM RL	9.000																
HGL ELEVATION	24.495	24.472 / 24.247 / 24.250	24.228	24.224 / 24.229	24.205	24.191	24.173	24.073	24.065	24.049	24.040	24.002	23.993	23.968 / 23.971	23.915	23.909	23.882	23.854	23.839	23.816	23.798	23.778	23.759	23.742	23.722	23.705	23.695	23.687 / 23.709	23.581	23.573 / 23.593	23.411	23.281
DEPTH TO INVERT	1.350	1.832	1.652	1.668	1.688	1.718	1.738	1.862	1.882	1.939	1.959	2.016	2.036	1.931	1.951	1.885	1.905	2.004	2.024	2.053	2.073	2.131	2.151	2.209	2.229	2.364	2.384	2.260	2.280	2.477	2.497	2.104	2.104
INVERT LEVEL OF DRAIN	24.380	24.007	23.987	23.893	23.873	23.797	23.777	23.627	23.607	23.560	23.540	23.484	23.464	23.398	23.378	23.365	23.345	23.283	23.263	23.187	23.167	23.080	23.060	22.973	22.953	22.865	22.845	22.805	22.785	22.746	22.726	22.664	22.664
DESIGN (& EXISTING) SURFACE LEVEL	25.731	25.839 (25.700)	25.562 (25.627)	25.515 (25.561)	25.489 (25.433)	25.499 (25.392)	25.500 (25.345)	25.329 (25.291)	25.250 (25.268)	25.287 (25.175)	25.240 (25.054)	25.211 (24.917)	25.182 (24.778)	25.229 (24.641)	25.065 (24.829)	25.223 (24.911)	24.768	24.675 (25.534)	25.562 (25.627)												
SETOUT COORDINATES	501810.729E 6929617.157N	501794.111E 6929608.786N	501789.884E 6929590.507N	501777.071E 6929568.361N	501752.035E 6929525.080N	501744.207E 6929511.548N	501734.978E 6929495.594N	501723.962E 6929476.551N	501726.362E 6929472.714N	501744.281E 6929462.349N	501766.267E 6929449.630N	501791.370E 6929435.109N	501816.472E 6929420.588N	501841.661E 6929406.017N	501853.347E 6929399.257N	501861.091E 6929409.601N	501873.356E 6929407.928N	501813.700E 6929582.253N	501789.884E 6929590.507N												
CHAINAGE	0.000	18.657 / 18.657	18.761 / 37.419	25.585 / 63.004	50.000 / 113.004	15.633 / 128.637	18.431 / 147.068	22.000 / 169.068	4.527 / 173.594	20.700 / 194.294	25.400 / 219.694	29.000 / 248.694	29.000 / 277.694	29.100 / 306.794	13.500 / 320.294	12.922 / 333.216	12.378 / 345.595	0.000	25.212 / 25.212												
LINE	1																	2													

STRUCTURE NAME	1/2	3/1	1/3	4/1	1/4	5/1
STRUCTURE DESCRIPTION	GRATED TRENCH DRAIN 300mm WIDE CLASS D GRATE OVER 900x600 INTEGRATED PIT	1500mm DIA MANHOLE CLASS D LID OVER 1800mm DIA MANHOLE	LIP IN LINE GULLY (SAG) 2.4m Lintel	1500mm DIA MANHOLE CLASS D LID OVER 1350mm DIA MANHOLE	LIP IN LINE GULLY (SAG) 2.4m Lintel	1500mm DIA MANHOLE CLASS D LID OVER 1500mm DIA MANHOLE
PIPE SIZE (mm)	375		450		450	
PIPE CLASS	HDPE (SN8)		HDPE (SN8)		HDPE (SN8)	
PIPE GRADE (%)	0.50%		1.00%		1.00%	
PIPE SLOPE (1 in X)	200.0		100.0		100.0	
PIPE FLOW (cumecs)	0.035		0.212		0.209	
CAPACITY FLOW (cumecs)	0.131		0.288		0.288	
FULL PIPE VELOCITY (m/s)	0.32		1.41		1.39	
NORMAL DEPTH VELOCITY (m/s)	1.02		2.09		2.08	
DATUM RL	8.000		8.000		8.000	
HGL ELEVATION	24.278 / 24.227	24.224 / 24.229	24.489 / 24.225	24.191	24.471 / 24.212	24.073
DEPTH TO INVERT	0.656	1.668	1.515	1.718	1.475	1.703 / 1.882
INVERT LEVEL OF DRAIN	24.019	23.893	23.898	23.797	23.888	23.786 / 23.607
DESIGN (& EXISTING) SURFACE LEVEL	24.675 (25.534)	25.562 (25.627)	25.413 (25.606)	25.515 (25.561)	25.363 (25.477)	25.489 (25.433)
SETOUT COORDINATES	501813.700E 6929582.253N	501789.884E 6929590.507N	501768.258E 6929573.458N	501777.071E 6929568.361N	501743.222E 6929530.178N	501752.035E 6929525.080N
CHAINAGE	0.000 / 25.212	25.212	0.000 / 10.181	10.181	0.000 / 10.181	10.181
LINE	2		3		4	

STORMWATER GRATED PITS	
DEPTH	MIN SIZE
0-0.9m	600x600 Grated Pit
0.9m-1.2m	900x600 Grated Pit
1.2-2m	900x900 Grated Pit
Over 2m	900x600 Grate over MH

NOTE

- ALL EXISTING SERVICES, LOCATION AND SIZES ARE TO BE CONFIRMED PRIOR TO CONSTRUCTION.
- CONFIRM ANY POTENTIAL CLASHES PRIOR TO CONSTRUCTION AND NOTIFY SUPERINTENDENT.
- REFER TO BCC STD DRG BSD-8011, BSD-8021 & BSD-8091 AND MANUFACTURERS SPECIFICATIONS FOR FURTHER DETAILS.
- ALL MANHOLE CHAMBERS DEEPER THAN 1.20m TO HAVE STEP IRONS INSTALLED IN ACCORDANCE WITH AS1657 AND BSD-8021.
- ALL GRATED INLETS TO BE FITTED WITH TRASH BASKETS

LEGEND

- 5% AEP HGL
- DESIGN SURFACE
- EXISTING SURFACE

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DRAWN: M.MANLAPIT DESIGNED: G.DE LANGE JOB MANAGER: A.DE ANDRADE VERIFIER: S.KILLORAN RPEQ No: 25874

CLIENT: Charter Hall

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ARCHITECT: watson young

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SCALE 1:100 @ A1
SCALE 1:1000 @ A1
0 1 2 3 4 5m
0 10 20 30 40 50m

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PROPOSED LOT 105
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NORTH MACLEAN, QLD 4280

DRAWING TITLE
STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 1 OF 4

JOB NUMBER: **26000287**
DRAWING NUMBER: **DA-321**
REVISION:
DRAWING SHEET SIZE = A1

STRUCTURE NAME	1/5	7/1	1/6	7/1	1/7	15/1	1/8	2/8	3/8	4/8	5/8	6/8	7/8	8/8	9/8	10/8	11/8	12/8	13/8	14/8	16/1	1/9	2/8
STRUCTURE DESCRIPTION	GRATED TRENCH DRAIN 300mm WIDE CLASS D GRATE OVER 900x600 INTEGRATED PIT	1800mm DIA MANHOLE CLASS D LID OVER 1800mm DIA MANHOLE	LIP IN LINE GULLY 2.4m Lintel	1800mm DIA MANHOLE CLASS D LID OVER 1800mm DIA MANHOLE	GRATED TRENCH DRAIN 300mm WIDE CLASS D GRATE OVER 900x900 INTEGRATED PIT	1800mm DIA MANHOLE CLASS D LID	FIELD INLET PIT – TYPE 2 900x900mm; CLASS D	FIELD INLET PIT – TYPE 2 900x900mm; CLASS D CONCRETE INFILL	FIELD INLET PIT – TYPE 2 900x900mm; CLASS D CONCRETE INFILL	FIELD INLET PIT – TYPE 2 900x900mm; CLASS D CONCRETE INFILL	FIELD INLET PIT – TYPE 2 900x900mm; CLASS D CONCRETE INFILL	FIELD INLET PIT – TYPE 2 900x900mm; CLASS D CONCRETE INFILL	FIELD INLET PIT – TYPE 2 900x900mm; CLASS D CONCRETE INFILL	1050mm DIA MANHOLE CLASS D LID OVER 1200mm DIA MANHOLE	1050mm DIA MANHOLE CLASS D LID	FIELD INLET PIT – TYPE 2 900x900mm; CLASS D OVER 1200mm DIA MANHOLE	FIELD INLET PIT – TYPE 2 900x900mm; CLASS D OVER 1200mm DIA MANHOLE	FIELD INLET PIT – TYPE 2 900x900mm; CLASS D OVER 1200mm DIA MANHOLE	1200mm DIA MANHOLE CLASS D LID	2100mm DIA MANHOLE CLASS D LID	FIELD INLET PIT – TYPE 2 600x600mm; CLASS D	FIELD INLET PIT – TYPE 2 900x900mm; CLASS D OVER 1200mm DIA MANHOLE
PIPE SIZE (mm)	600		450		375		225	300	300	300	300	300	375	375	375	375	450	600	750	750	750		225
PIPE CLASS	HDPE (SN8)		HDPE (SN8)		HDPE (SN8)		HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)	HDPE (SN8)		HDPE (SN8)
PIPE GRADE (%)	0.50%		1.00%		1.00%		0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	3.00%	3.00%	0.50%	0.50%	0.50%	0.50%		1.50%
PIPE SLOPE (1 in X)	200.0		100.0		100.0		200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	33.3	33.3	200.0	200.0	200.0	200.0		66.7
PIPE FLOW (cumecs)	0.031		0.010		0.037		0.020	0.035	0.039	0.056	0.059	0.078	0.098	0.121	0.146	0.259	0.414	0.541	0.553	0.666			0.015
CAPACITY FLOW (cumecs)	0.452		0.013		0.185		0.034	0.070	0.070	0.070	0.070	0.131	0.131	0.131	0.320	0.498	0.452	0.797	0.797	0.797			0.058
FULL PIPE VELOCITY (m/s)	0.11		0.66		0.34		0.51	0.51	0.57	0.83	0.86	0.72	0.91	1.12	1.35	1.72	1.51	1.29	1.32	1.59			0.38
NORMAL DEPTH VELOCITY (m/s)	0.94		0.97		1.34		0.90	1.03	1.06	1.15	1.16	1.26	1.33	1.37	2.89	3.34	1.87	2.04	2.05	2.12			1.25
DATUM RL	8.000		8.000		8.000		9.000															11.000	
HGL ELEVATION	24.008	24.002	24.462	24.341	24.234	24.002	23.750	23.692	23.687	23.709	23.581	26.699	26.607	26.584	26.574	26.475	26.473	26.469	26.453	26.429	26.385	26.377	26.342	26.335	26.296	26.284	26.237	26.266	26.114	26.074	25.978	25.203	25.093	24.056	23.959	23.833	23.805	23.762	23.723	23.710	23.714	23.579	23.573	23.593	23.411	26.690	26.617	26.584	26.574
DEPTH TO INVERT	1.057	2.016	1.146	1.355	1.473	1.936	1.413	1.351	1.371	1.476	1.496	1.391	1.411	1.571	1.591	1.521	1.541	1.631	1.651	1.831	1.851	1.823	1.843	2.107	2.127	1.836	1.856	1.946	1.966	2.066	2.086	2.237	2.257	2.276	2.497	2.414										1.237		1.351	1.371
INVERT LEVEL OF DRAIN	23.618	23.484	24.247	24.145	23.245	23.129	26.484	26.448	26.428	26.331	26.311	26.258	26.238	26.158	26.138	26.068	26.048	25.898	25.878	25.795	25.775	25.716	25.696	24.754	24.734	23.376	23.356	23.206	23.186	23.036	23.016	22.982	22.962	22.947	22.726											26.516		26.448	26.428
DESIGN (& EXISTING) SURFACE LEVEL	24.675 (25.263)	25.500 (25.345)	25.392 (25.389)	25.500 (25.345)	24.718 (24.791)	25.065 (24.829)	27.896 (27.577)	27.799 (27.515)	27.807 (27.417)	27.669 (27.365)	27.729 (27.284)	27.626 (27.081)	27.529 (27.064)	27.539 (27.188)	26.860 (26.395)	25.212 (25.548)	25.152 (25.252)	25.102 (24.957)	25.218 (24.972)	25.223 (24.911)		27.753 (27.804)	27.799 (27.515)
SETOUT COORDINATES	501761.361E 6929491.776N	501734.978E 6929495.594N	501726.164E 6929500.693N	501734.978E 6929495.594N	501850.389E 6929388.053N	501853.347E 6929399.257N	501839.71E 6929604.397N	501846.288E 6929601.641N	501863.135E 6929551.896N	501872.256E 6929586.619N	501886.076E 6929578.625N	501937.729E 6929547.024N	501924.193E 6929556.575N	501932.157E 6929536.546N	501919.630E 6929507.748N	501896.962E 6929468.562N	501881.94E 6929442.594N	501866.935E 6929416.620N	501861.461E 6929412.577N	501861.991E 6929409.601N		501844.010E 6929597.703N	501846.288E 6929601.641N
CHAINAGE	0.000	26.711	26.711	10.183	10.183	11.587	11.587	0.000	7.107	7.107	19.462	26.569	10.538	37.107	15.965	53.073	14.035	67.107	30.000	97.107	16.569	113.676	11.867	125.544	31.405	156.949	45.270	202.218	30.000	232.218	30.006	262.224	6.789	269.013	2.999	272.012										0.000	4.550	4.550
LINE	5		6		7		8															9	

STORMWATER GRATED PITS

DEPTH	MIN SIZE
0-0.9m	600x600 Grated Pit
0.9m-1.2m	900x600 Grated Pit
1.2-2m	900x900 Grated Pit
Over 2m	900x600 Grate over MH

NOTE

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- REFER TO BCC STD DRG BSD-8011, BSD-8021 & BSD-8091 AND MANUFACTURERS SPECIFICATIONS FOR FURTHER DETAILS.
- ALL MANHOLE CHAMBERS DEEPER THAN 1.20m TO HAVE STEP IRONS INSTALLED IN ACCORDANCE WITH AS1657 AND BSD-8021.
- ALL GRATED INLETS TO BE FITTED WITH TRASH BASKETS

LEGEND

- 5% AEP HGL
- DESIGN SURFACE
- EXISTING SURFACE

RPEQ No. 25874
VERIFIER: S.KILLORAN
JOB MANAGER: A.DE ANDRADE
DESIGNED: G.DE LANGE
DRAWN: M.MANLAPIT

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	ISSUED FOR APPROVAL	MM	SK	ADA	02.04.26
B	ISSUED FOR APPROVAL	MM	SK	ADA	21.04.26
C	ISSUED FOR APPROVAL	MM	SK	ADA	26.04.26

CLIENT: Charter Hall

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ARCHITECT: watson young

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SCALE 1:100 @ A1
SCALE 1:1000 @ A1
0 1 2 3 4 5m
0 10 20 30 40 50m

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Brisbane
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(07) 3365 0400 brisbane@northrop.com.au
ABN 81 094 433 100

PROJECT: PROPOSED INDUSTRIAL DEVELOPMENT
PROPOSED LOT 105
4499-4651 MT. LINDESAY HIGHWAY
NORTH MACLEAN, QLD 4280

DRAWING TITLE: STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 2 OF 4

JOB NUMBER: 26000287
DRAWING NUMBER: DA-322
REVISION:
DRAWING SHEET SIZE = A1

STRUCTURE NAME	1/10	3/8	1/11	4/8	1/12	5/8	1/13	6/8	1/14	7/8	1/15	8/8
STRUCTURE DESCRIPTION	FIELD INLET PIT – TYPE 2 600x600mm, CLASS D	FIELD INLET PIT – TYPE 2 900x900mm, CLASS D OVER 1200mm DIA MANHOLE	FIELD INLET PIT – TYPE 2 600x600mm, CLASS D	FIELD INLET PIT – TYPE 2 900x900mm, CLASS D OVER 1200mm DIA MANHOLE	FIELD INLET PIT – TYPE 2 600x600mm, CLASS D	FIELD INLET PIT – TYPE 2 900x900mm, CLASS D OVER 1200mm DIA MANHOLE	FIELD INLET PIT – TYPE 2 600x600mm, CLASS D	FIELD INLET PIT – TYPE 2 900x900mm, CLASS D OVER 1200mm DIA MANHOLE	FIELD INLET PIT – TYPE 2 600x600mm, CLASS D	FIELD INLET PIT – TYPE 2 900x900mm, CLASS D OVER 1200mm DIA MANHOLE	FIELD INLET PIT – TYPE 2 900x900mm, CLASS D	1050mm DIA MANHOLE CLASS D LID OVER 1200mm DIA MANHOLE
PIPE SIZE (mm)	225		225		225		225		225		300	
PIPE CLASS	HDPE (SN8)		HDPE (SN8)		HDPE (SN8)		HDPE (SN8)		HDPE (SN8)		HDPE (SN8)	
PIPE GRADE (%)	1.50%		1.50%		1.50%		1.50%		1.50%		1.50%	
PIPE SLOPE (1 in X)	66.7		66.7		66.7		66.7		66.7		66.7	
PIPE FLOW (cumecs)	0.004		0.018		0.003		0.020		0.021		0.024	
CAPACITY FLOW (cumecs)	0.058		0.058		0.058		0.058		0.058		0.122	
FULL PIPE VELOCITY (m/s)	0.11		0.46		0.07		0.52		0.54		0.36	
NORMAL DEPTH VELOCITY (m/s)	0.88		1.31		0.75		1.35		1.37		1.40	
DATUM RL	11.000		11.000		11.000		10.000		10.000		10.000	
HGL ELEVATION	26.581 / 26.576	26.496 / 26.473 / 26.469	26.579 / 26.477	26.453 / 26.439	26.488 / 26.486	26.409 / 26.385 / 26.377	26.551 / 26.424	26.342 / 26.335	26.504 / 26.367	26.296 / 26.284	26.607 / 26.561	26.407 / 26.266 / 26.114
DEPTH TO INVERT	1.237	1.353 / 1.496	1.237	1.351 / 1.411	1.237	1.352 / 1.591	1.237	1.351 / 1.541	1.237	1.351 / 1.651	1.060	1.309 / 1.851
INVERT LEVEL OF DRAIN	26.522	26.454 / 26.311	26.366	26.298 / 26.238	26.445	26.377 / 26.138	26.306	26.238 / 26.048	26.246	26.178 / 25.878	26.442	26.318 / 25.775
DESIGN (& EXISTING) SURFACE LEVEL	27.759 / (27.703)	27.807 / (27.417)	27.603 / (27.650)	27.649 / (27.365)	27.682 / (27.567)	27.729 / (27.284)	27.543 / (27.496)	27.589 / (27.214)	27.483 / (27.342)	27.529 / (27.064)	27.502 / (27.303)	27.626 / (27.081)
SETOUT COORDINATES	501860.986E 6929587.882N	501863.135E 6929591.896N	501869.978E 6929592.681N	501872.256E 6929586.619N	501883.927E 6929574.611N	501886.076E 6929578.625N	501895.946E 6929567.659N	501898.224E 6929571.597N	501921.914E 6929552.637N	501924.193E 6929556.575N	501946.003E 6929547.547N	501937.729E 6929547.024N
CHAINAGE	0.000 / 4.553	4.553	0.000 / 4.550	4.550	0.000 / 4.553	4.553	0.000 / 4.550	4.550	0.000 / 4.550	4.550	0.000 / 8.290	8.290
LINE	10		11		12		13		14		15	

STORMWATER GRATED PITS

DEPTH	MIN SIZE
0-0.9m	600x600 Grated Pit
0.9m-1.2m	900x600 Grated Pit
1.2-2m	900x900 Grated Pit
Over 2m	900x600 Grate over MH

NOTE

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- ALL GRATED INLETS TO BE FITTED WITH TRASH BASKETS

LEGEND

- 5% AEP HGL
- DESIGN SURFACE
- EXISTING SURFACE

RPEQ No. 25874
VERIFIER: S.KILLORAN
JOB MANAGER: A.DE ANDRADE
DESIGNED: G.DE LANGE
DRAWN: M.MANLAPIT

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	ISSUED FOR APPROVAL	MM	SK	ADA	02.04.26
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ARCHITECT
watson young
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SCALE 1:100 @ A1
SCALE 1:1000 @ A1
0 1 2 3 4 5m
0 10 20 30 40 50m

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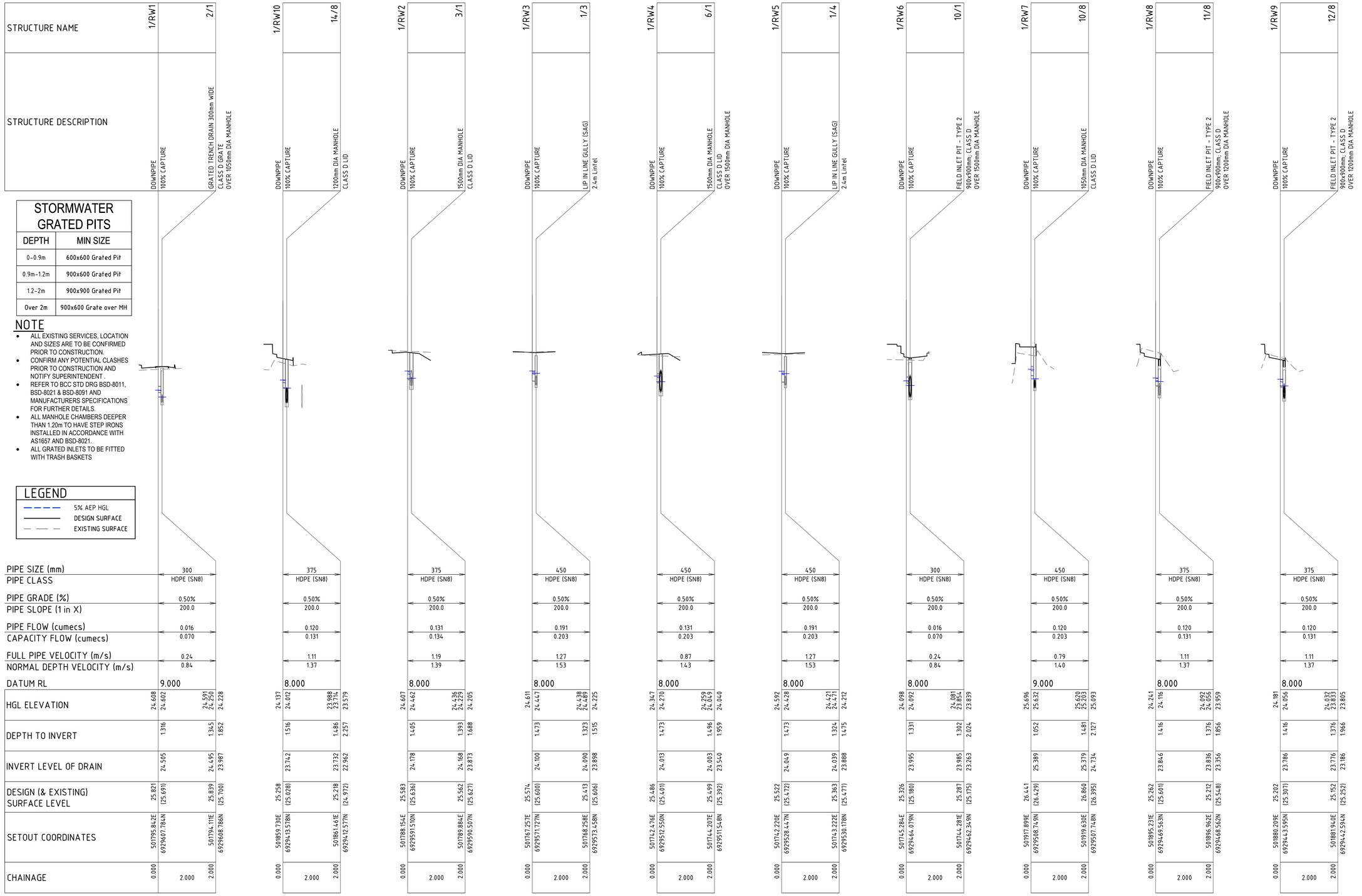
ABN 81 094 433 100

PROJECT
PROPOSED INDUSTRIAL DEVELOPMENT
PROPOSED LOT 105
4499-4651 MT. LINDESAY HIGHWAY
NORTH MACLEAN, QLD 4280

DRAWING TITLE
STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 3 OF 4

JOB NUMBER **26000287**
DRAWING NUMBER **DA-323**
REVISION
DRAWING SHEET SIZE = A1



STORMWATER GRATED PITS

DEPTH	MIN SIZE
0-0.9m	600x600 Grated Pit
0.9m-1.2m	900x600 Grated Pit
1.2-2m	900x900 Grated Pit
Over 2m	900x600 Grate over MH

NOTE

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LEGEND

- 5% AEP HGL
- DESIGN SURFACE
- EXISTING SURFACE

DRAWN: M.MANLAPIT
DESIGNED: G.DE LANGE
JOB MANAGER: A.DE ANDRADE
VERIFIER: S.KILLORAN
RPEQ No: 25874

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ARCHITECT
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0 10 20 30 40 50m

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PROPOSED LOT 105
4499-4651 MT. LINDESAY HIGHWAY
NORTH MACLEAN, QLD 4280

DRAWING TITLE
STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 4 OF 4

JOB NUMBER **26000287**
DRAWING NUMBER **DA-324**
REVISION
DRAWING SHEET SIZE = A1

Appendix B – Arcadis IFC Documentation (Existing Estate Infrastructure)

FLAGSTONE LOGISTICS ESTATE - STAGE 1

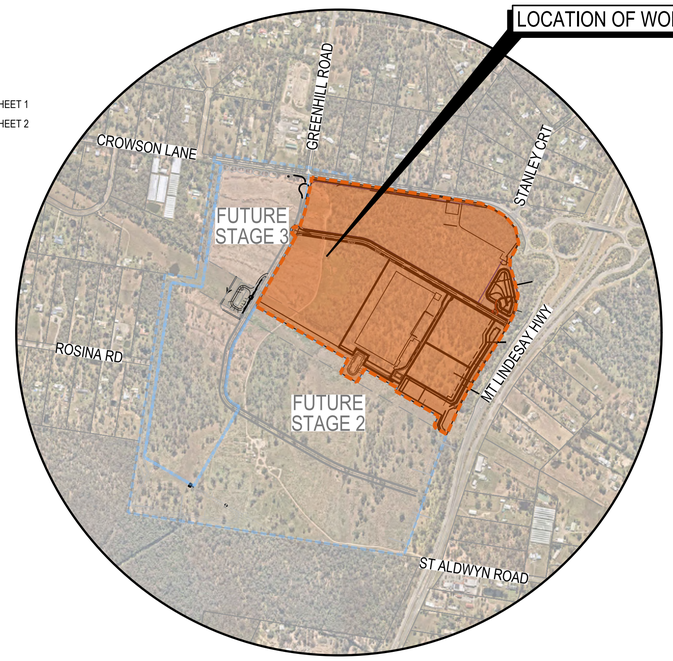
4499-4651 MOUNT LINDESAY HIGHWAY, NORTH MACLEAN
DETAILED DESIGN
ECONOMIC DEVELOPMENT QUEENSLAND (GREATER FLAGSTONE) & LOGAN CITY COUNCIL

DRAWING LIST

DRAWING NUMBER	DESCRIPTION
GENERAL	
30109334-AAP-P301OP-CV-DRG-0001	COVER SHEET, LOCALITY PLAN AND DRAWING SCHEDULE
30109334-AAP-P301OP-CV-DRG-0010	EXISTING FEATURES SURVEY PLAN
30109334-AAP-P301OP-CV-DRG-0021	GENERAL NOTES
30109334-AAP-P301OP-CV-DRG-0041	SAFETY IN DESIGN
30109334-AAP-P301OP-CV-DRG-0061	OVERALL SITE LAYOUT PLAN
EARTHWORKS	
30109334-AAP-P301OP-CV-DRG-0101	EARTHWORKS PLAN SHEET 1
30109334-AAP-P301OP-CV-DRG-0102	EARTHWORKS PLAN SHEET 2
30109334-AAP-P301OP-CV-DRG-0103	EARTHWORKS PLAN SHEET 3
30109334-AAP-P301OP-CV-DRG-0104	EARTHWORKS PLAN SHEET 4
30109334-AAP-P301OP-CV-DRG-0121	EARTHWORKS SITE SECTIONS SHEET 1
~~30109334-AAP-P301OP-CV-DRG-0122~~	~~EARTHWORKS SITE SECTIONS SHEET 2~~
30109334-AAP-P301OP-CV-DRG-0141	RETAINING WALL PLAN
30109334-AAP-P301OP-CV-DRG-0161	RETAINING WALL ELEVATIONS AND DETAILS SHEET 1
30109334-AAP-P301OP-CV-DRG-0162	RETAINING WALL ELEVATIONS AND DETAILS SHEET 2
30109334-AAP-P301OP-CV-DRG-0171	EROSION AND SEDIMENT CONTROL LAYOUT PLAN SHEET 1
30109334-AAP-P301OP-CV-DRG-0172	EROSION AND SEDIMENT CONTROL LAYOUT PLAN SHEET 2
30109334-AAP-P301OP-CV-DRG-0173	EROSION AND SEDIMENT CONTROL LAYOUT PLAN SHEET 3
30109334-AAP-P301OP-CV-DRG-0174	EROSION AND SEDIMENT CONTROL LAYOUT PLAN SHEET 4
30109334-AAP-P301OP-CV-DRG-0191	EROSION AND SEDIMENT CONTROL DETAILS SHEET 1
30109334-AAP-P301OP-CV-DRG-0192	EROSION AND SEDIMENT CONTROL DETAILS SHEET 2
30109334-AAP-P301OP-CV-DRG-0193	EROSION AND SEDIMENT CONTROL DETAILS SHEET 3
ROAD WORKS	
30109334-AAP-P301OP-CV-DRG-0201	ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 1
30109334-AAP-P301OP-CV-DRG-0202	ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 2
30109334-AAP-P301OP-CV-DRG-0203	ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 3
30109334-AAP-P301OP-CV-DRG-0204	ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 4
30109334-AAP-P301OP-CV-DRG-0205	ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 5
30109334-AAP-P301OP-CV-DRG-0206	ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 6
30109334-AAP-P301OP-CV-DRG-0207	ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 7
30109334-AAP-P301OP-CV-DRG-0208	ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 8
30109334-AAP-P301OP-CV-DRG-0209	STORMWATER OUTLET DETAILS LAYOUT PLAN
30109334-AAP-P301OP-CV-DRG-0215	ROADWORKS AND DRAINAGE DETAILS
30109334-AAP-P301OP-CV-DRG-0221	CONTROL LINE SETOUT PLAN SHEET 1
30109334-AAP-P301OP-CV-DRG-0222	CONTROL LINE SETOUT PLAN SHEET 2
30109334-AAP-P301OP-CV-DRG-0223	CONTROL LINE SETOUT PLAN SHEET 3
~~30109334-AAP-P301OP-CV-DRG-0224~~	~~CONTROL LINE SETOUT PLAN SHEET 4~~
30109334-AAP-P301OP-CV-DRG-0251	ROAD LONGITUDINAL SECTION SHEET 1
30109334-AAP-P301OP-CV-DRG-0252	ROAD LONGITUDINAL SECTION SHEET 2
30109334-AAP-P301OP-CV-DRG-0281	ROAD 1 CROSS SECTIONS SHEET 1
30109334-AAP-P301OP-CV-DRG-0282	ROAD 1 CROSS SECTIONS SHEET 2

DRAWING NUMBER	DESCRIPTION
30109334-AAP-P301OP-CV-DRG-0283	ROAD 1 CROSS SECTIONS SHEET 3
30109334-AAP-P301OP-CV-DRG-0284	ROAD 1 CROSS SECTIONS SHEET 4
~~30109334-AAP-P301OP-CV-DRG-0285~~	~~MC TEMP ACCESS CROSS SECTIONS SHEET 1~~
~~30109334-AAP-P301OP-CV-DRG-0286~~	~~MC TEMP ACCESS CROSS SECTIONS SHEET 2~~
30109334-AAP-P301OP-CV-DRG-0311	INTERSECTION LAYOUT PLAN
30109334-AAP-P301OP-CV-DRG-0341	PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 1
30109334-AAP-P301OP-CV-DRG-0342	PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 2
30109334-AAP-P301OP-CV-DRG-0343	PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 3
~~30109334-AAP-P301OP-CV-DRG-0344~~	~~PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 4~~
~~30109334-AAP-P301OP-CV-DRG-0345~~	~~PAVEMENT, SIGNAGE AND LINEMARKING DETAILS~~
30109334-AAP-P301OP-CV-DRG-0346	PAVEMENT DESIGN LAYOUT PLAN
30109334-AAP-P301OP-CV-DRG-0347	PAVEMENT DETAILS
30109334-AAP-P301OP-CV-DRG-0348	PAVEMENT NOTES
D 30109334-AAP-P301OP-CV-DRG-0421	STORMWATER CATCHMENT PLAN SHEET 1
30109334-AAP-P301OP-CV-DRG-0422	STORMWATER CATCHMENT PLAN SHEET 2
30109334-AAP-P301OP-CV-DRG-0423	STORMWATER CATCHMENT PLAN SHEET 3
30109334-AAP-P301OP-CV-DRG-0424	STORMWATER CATCHMENT PLAN SHEET 4
30109334-AAP-P301OP-CV-DRG-0441	STORMWATER DRAINAGE LONGITUDINAL SECTION SHEET 1
30109334-AAP-P301OP-CV-DRG-0442	STORMWATER DRAINAGE LONGITUDINAL SECTION SHEET 2
30109334-AAP-P301OP-CV-DRG-0443	STORMWATER DRAINAGE LONGITUDINAL SECTION SHEET 3
30109334-AAP-P301OP-CV-DRG-0444	STORMWATER DRAINAGE LONGITUDINAL SECTION SHEET 4
30109334-AAP-P301OP-CV-DRG-0445	STORMWATER DRAINAGE LONGITUDINAL SECTION SHEET 5
30109334-AAP-P301OP-CV-DRG-0446	STORMWATER DRAINAGE LONGITUDINAL SECTION SHEET 6
~~30109334-AAP-P301OP-CV-DRG-0447~~	~~STORMWATER DRAINAGE LONGITUDINAL SECTION SHEET 7~~
30109334-AAP-P301OP-CV-DRG-0461	STORMWATER DRAINAGE CALCULATION TABLE SHEET 1
30109334-AAP-P301OP-CV-DRG-0462	STORMWATER DRAINAGE CALCULATION TABLE SHEET 2
30109334-AAP-P301OP-CV-DRG-0463	STORMWATER DRAINAGE CALCULATION TABLE SHEET 3
~~30109334-AAP-P301OP-CV-DRG-0464~~	~~STORMWATER DRAINAGE CALCULATION TABLE SHEET 4~~
~~30109334-AAP-P301OP-CV-DRG-0465~~	~~STORMWATER DRAINAGE CALCULATION TABLE SHEET 5~~
~~30109334-AAP-P301OP-CV-DRG-0466~~	~~STORMWATER DRAINAGE CALCULATION TABLE SHEET 6~~
30109334-AAP-P301OP-CV-DRG-0481	STORMWATER DRAINAGE DETAILS SHEET 1
30109334-AAP-P301OP-CV-DRG-0482	STORMWATER DRAINAGE DETAILS SHEET 2
30109334-AAP-P301OP-CV-DRG-0483	STORMWATER DRAINAGE DETAILS SHEET 3
30109334-AAP-P301OP-CV-DRG-0491	COMBINED DETENTION BIO-RETENTION BASIN LAYOUT PLAN AND SECTION SHEET 1
30109334-AAP-P301OP-CV-DRG-0492	COMBINED DETENTION BIO-RETENTION BASIN LAYOUT PLAN AND SECTION SHEET 2
30109334-AAP-P301OP-CV-DRG-0493	COMBINED DETENTION BIO-RETENTION BASIN LAYOUT PLAN AND SECTION SHEET 3
30109334-AAP-P301OP-CV-DRG-0494	COMBINED DETENTION BIO-RETENTION BASIN LAYOUT PLAN AND SECTION SHEET 4
30109334-AAP-P301OP-CV-DRG-0495	COMBINED DETENTION BIO-RETENTION BASIN LAYOUT PLAN AND SECTION SHEET 5
SERVICES	
30109334-AAP-P301OP-CV-DRG-0521	SEWER RETICULATION LAYOUT PLAN SHEET 1
30109334-AAP-P301OP-CV-DRG-0522	SEWER RETICULATION LAYOUT PLAN SHEET 2
30109334-AAP-P301OP-CV-DRG-0523	SEWER RETICULATION LAYOUT PLAN SHEET 3

DRAWING NUMBER	DESCRIPTION
30109334-AAP-P301OP-CV-DRG-0524	SEWER RETICULATION LAYOUT PLAN SHEET 4
30109334-AAP-P301OP-CV-DRG-0525	SEWER RETICULATION LAYOUT PLAN SHEET 5
30109334-AAP-P301OP-CV-DRG-0581	SEWER LONGITUDINAL SECTION SHEET 1
30109334-AAP-P301OP-CV-DRG-0582	SEWER LONGITUDINAL SECTION SHEET 2
30109334-AAP-P301OP-CV-DRG-0583	SEWER LONGITUDINAL SECTION SHEET 3
30109334-AAP-P301OP-CV-DRG-0584	SEWER LONGITUDINAL SECTION SHEET 4
30109334-AAP-P301OP-CV-DRG-0585	CUSTOM X TYPE MANHOLE STRUCTURE DETAILS SHEET 1
30109334-AAP-P301OP-CV-DRG-0586	CUSTOM X TYPE MANHOLE STRUCTURE DETAILS SHEET 2
30109334-AAP-P301OP-CV-DRG-0587	SEWER LONGITUDINAL SECTION SHEET 5
30109334-AAP-P301OP-CV-DRG-0621	WATER RETICULATION LAYOUT PLAN SHEET 1
30109334-AAP-P301OP-CV-DRG-0622	WATER RETICULATION LAYOUT PLAN SHEET 2
30109334-AAP-P301OP-CV-DRG-0623	WATER RETICULATION LAYOUT PLAN SHEET 3
30109334-AAP-P301OP-CV-DRG-0624	WATER RETICULATION LAYOUT PLAN SHEET 4
30109334-AAP-P301OP-CV-DRG-0625	WATER RETICULATION DETAILS



LOCALITY PLAN
SCALE 1:10000

LEVELS & GRID

LEVEL DATUM - AHD
ORIGIN - PM72575
R.L. - 10.664

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Issue	Description	DR	CH	VE	Date
D	UPDATED IFC - DWGS 0346 AND 0347 ADDED	A.O.	S.S.	B.K.	18.10.24
C	UPDATED IFC - DWGS 0483 AND 0587 ADDED	A.O.	S.S.	B.K.	03.09.24
B	UPDATED ISSUED FOR CONSTRUCTION	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 100 200 400 600 800 1000m

1 : 10000

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: COVER SHEET, LOCALITY PLAN AND DRAWING SCHEDULE

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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0001

Issue: D

Date Plotted: 13 Mar 2025 - 08:59AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0001-Cover.dwg

LEGEND

- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- EXISTING STORMWATER DRAINAGE RETICULATION
- EXISTING ROOFWATER DRAINAGE RETICULATION
- EXISTING SEWER RETICULATION
- EXISTING WATER RETICULATION
- EXISTING RECYCLED WATER RETICULATION

WARNING: EXISTING SERVICES

ABOVE AND UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.

SERVICE CONFLICT NOTES

1. THE EXISTING UTILITY SERVICES INFORMATION SHOWN HAS BEEN COMPILED FROM SURVEY INFORMATION SUPPLIED BY THE VARIOUS SERVICE AUTHORITIES.
2. THE INFORMATION IS NOT INTENDED TO PROVIDE THE CONTRACTOR WITH COMPLETE OR ACCURATE INFORMATION CONCERNING THE LOCATION AND EXTENT OF UTILITY SERVICES.
3. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR ANY DAMAGE INCURRED TO EXISTING UTILITY SERVICES AS A RESULT OF THE EXECUTION OF WORK UNDER THE CONTRACT.
4. NO WORK SHALL BE CARRIED OUT WITHIN 3 METRES OF ANY EXISTING SERVICES WITHOUT PRIOR RECORDED CONSULTATION WITH THE RELEVANT AUTHORITY.
5. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND EXTENT OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF WORK.
6. ALL EXISTING SERVICES AND STRUCTURES ARE TO BE MAINTAINED IN GOOD ORDER FOR THE DURATION OF THE CONTRACT AND WHERE RELOCATION IS REQUIRED, REFER SPECIFICATION.

Issue	Description	DR	CH	VE	Date
B	UPDATED BOUNDARY	A.O.	S.S.	B.K.	10.03.25
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 40 80 120 160 200 250 300m

1 : 3000

100mm on Original

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: EXISTING FEATURES SURVEY PLAN

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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0010

Issue: B

Date Plotted: 13 Mar 2025 - 09:00AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0010-ExistingFeaturesSurveyPlan.dwg

GENERAL NOTE:

ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH LOGAN CITY COUNCIL DESIGN GUIDELINES & WORKS SPECIFICATION.
WHERE DISCREPANCIES OCCUR THE MORE STRINGENT SPECIFICATION WILL TAKE PRECEDENCE.

EXISTING SURVEY PLAN:

1. THE EXISTING UTILITY SERVICES INFORMATION SHOWN HAS BEEN COMPILED FROM SURVEY INFORMATION.
2. THE INFORMATION IS NOT INTENDED TO PROVIDE THE CONTRACTOR WITH COMPLETE OR ACCURATE INFORMATION CONCERNING THE LOCATION & EXTENT OF UTILITY SERVICES.
3. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR ANY DAMAGE INCURRED TO EXISTING UTILITY SERVICES AS A RESULT OF THE EXECUTION OF WORK UNDER THE CONTRACT.
4. NO WORK SHALL BE CARRIED OUT WITHIN 3 METRES OF ANY EXISTING SERVICES WITHOUT PRIOR RECORDED CONSULTATION WITH THE RELEVANT AUTHORITY.
5. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH & EXTENT OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF WORK.
6. ALL EXISTING SERVICES & STRUCTURES ARE TO BE MAINTAINED IN GOOD ORDER FOR THE DURATION OF THE CONTRACT & WHERE RELOCATION IS REQUIRED, REFER SPECIFICATION.

RETAINING WALL NOTES:

1. CONCRETE SLEEPER WALL DETAILS ARE INDICATIVE ONLY. DETAILED DESIGN & CERTIFICATION TO BE PROVIDED BY CONTRACTORS RPEQ.
2. LAND SLIPS (e.g. SLIP CIRCLE FAILURE MECHANISMS) IS TO BE CONSIDERED IN THE RETAINING WALL DESIGN. THE DETERMINATION OF THE SITE SUSCEPTIBILITY TO SLIP IS THE RESPONSIBILITY OF THE CONTRACTOR AND THEIR GEOTECHNICAL CONSULTANT.
3. CONCRETE STANDARD - AS3600 STANDARD DESIGN EXPOSURE CLASSIFICATION SLEEPERS & POSTS - B1, FOOTINGS - A2
4. MINIMUM SURCHARGE LOAD OF 5 KPa TO BE USED FOR DESIGN U.N.O.
5. WALL TO BE DESIGNED TO BRIDGE ANY UNDERGROUND SERVICES SO AS NOT TO IMPOSE ANY ADDITIONAL LOADING ON SERVICES.
6. DESIGN DRAWINGS AND RPEQ CERTIFICATION TO BE PROVIDED TO SUPERINTENDENT 5 WORKING DAYS PRIOR TO COMMENCEMENT OF RETAINING WALL CONSTRUCTION.

BULK EARTHWORKS NOTES:

1. THE CONTRACTOR IS TO FENCE LIMIT OF WORKS PRIOR TO PRE START MEETING WITH COUNCIL.
2. SEDIMENT & EROSION CONTROL MEASURES ARE TO BE INSTALLED PRIOR TO COMMENCEMENT OF CLEARING & GRUBBING WORKS.
3. AN AUTHORISED SPOTTER-CATCHER IS TO BE ON SITE PRIOR TO THE COMMENCEMENT OF AND DURING THE CLEARING WORK.
4. ANY CLEARING REQUIRED TO BE UNDERTAKEN BY THE CONTRACTOR IS TO BE STRICTLY IN ACCORDANCE WITH THE COUNCIL APPROVED VEGETATION MANAGEMENT PLAN.
5. THE AREA WITHIN THE LIMITS OF CLEARING SHALL BE CLEARED OF ALL VEGETATION, ALL MINOR MAN-MADE STRUCTURES (SUCH AS FENCES, BUILDING MATERIAL AND EXISTING DRIVEWAYS), ALL RUBBISH AND OTHER MATERIALS WHICH, IN THE OPINION OF THE SUPERINTENDENT, ARE UNSUITABLE FOR USE IN THE WORKS WITH THE EXCEPTION OF CERTAIN TREES MARKED FOR PRESERVATION.
6. TREES ARE TO BE MULCHED & STOCKPILED ON SITE FOR USE IN LANDSCAPING.
7. WHERE PARTS OF TREES CANNOT BE MULCHED, THEY ARE TO BE DISPOSED OF OFF-SITE AT AN APPROVED FACILITY.
8. ALL TOPSOIL FROM EARTHWORKS AREA SHALL BE STRIPPED AND STOCKPILED PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS OPERATIONS. A TOPSOIL DEPTH OF 100mm HAS BEEN USED TO DETERMINE TOPSOIL AND EARTHWORK QUANTITIES.
9. NOTWITHSTANDING THE LIMITS OF CUTTING AND FILLING SHOWN ON THE DRAWINGS, THE ACTUAL LIMITS SHALL BE DETERMINED ON SITE BY THE ENGINEER DURING CONSTRUCTION. FINISHED SURFACE CONTOURS MAY BE ADJUSTED BY WRITTEN DIRECTION OF THE ENGINEER DURING CONSTRUCTION.
10. FILL AREAS SHALL BE CONSTRUCTED IN LAYERS NOT EXCEEDING 300mm LOOSE DEPTH. THE FILL MATERIAL SHALL BE COMPACTED TO 95% (MINIMUM) OF THE MAXIMUM DRY DENSITY. TESTING SHALL BE IN ACCORDANCE WITH A.S.1289 (MODIFIED COMPACTION). THE CONTRACTOR SHALL SUPPLY TO THE ENGINEER CERTIFICATION OF THE COMPACTION ACHIEVED.
11. ALL EARTHWORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH AS3798 UNDER LEVEL 1 SUPERVISION.
12. ALL FILL PLACED ON THE SITE IS TO COMPRISE OF ONLY NATURAL EARTH AND ROCK AND IS TO BE FREE OF ALL CONTAMINANTS (REFER TO THE ENVIRONMENTAL PROTECTION ACT 1994 SECTION 11). nOT DEMOLITION MATERIAL IS TO BE USED.
13. UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT ALL FILL SHALL BE PLACED AT BETWEEN +2% AND -2% OF OPTIMUM MOISTURE CONTENT.
14. DESIGN LEVELS GIVEN ARE FINISHED SURFACE LEVELS.
15. ALL NEW WORKS TO MATCH NEATLY WITH EXISTING. THE CONTRACTOR SHALL CONFIRM LOCATION OF ALL EXISTING SERVICES AND PROTECT THESE SERVICES DURING CONSTRUCTION. DAMAGED SERVICES SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.
16. ALL OF THE SITE SHALL BE KEPT FREE DRAINING DURING ALL PHASES OF THE PROJECT.
17. REFER TO ROAD CROSS SECTIONS FOR BATTER GRADES. WHERE GRADES ARE NOT SPECIFIED:-

    FILL - 1 IN 4 CUT - 1 IN 4
18. ALL ALLOTMENTS TO BE GRASS SEEDED WITH MINIMUM 80% COVERAGE. SEEDING TO OCCUR WITHIN 7 DAYS OF COMPLETION OF EARTHWORKS.

LINEMARKING AND SIGNS NOTES:

1. ALL SIGNAGE, LINEMARKING & REFLECTORISED PAVEMENT MARKERS ARE TO BE IN ACCORDANCE WITH THE CURRENT DEPARTMENT OF TRANSPORT AND MAIN ROADS 'MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES' (M.U.T.C.D).
2. ALL LINEMARKING TO BE REFLECTORISED WHITE.
3. FINAL SIGN LOCATIONS TO BE DETERMINED ON SITE BY THE SUPERINTENDENT.
4. EXISTING LINEMARKING MADE REDUNDANT BY NEW LINEMARKING IS TO BE REMOVED BY ROUTING OR OTHER METHOD APPROVED BY DEPARTMENT OF TRANSPORT AND MAIN ROADS.
5. ALL TRAFFIC SIGNS TO BE SIZE 'B' UNLESS NOTED OTHERWISE.
6. FOR GUIDE POST INSTALLATION AND DETAILS, REFER QUEENSLAND TRANSPORT STANDARD DRAWING No.1356
7. FOR TRAFFIC SIGN SUPPORT DETAILS, REFER QUEENSLAND TRANSPORT STANDARD DRAWING No.'s 1360 & 1362.
8. ALL ROUTE NAMES ON NEW GUIDE SIGNS TO BE BLACK LETTERING ON WHITE BACKGROUND U.N.O.
9. ALL SIGN MATERIAL TO BE CLASS 1.
10. DIRECTION SIGNS ARE SHOWN INDICATIVE ONLY. DETAILED DESIGNS ARE TO BE USED FOR ORDERING.

ROADWORKS NOTES:

1. ALL DIMENSIONS ON THE DRAWINGS ARE IN METRES UNLESS SHOWN OTHERWISE.
2. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RELEVANT LOGAN CITY COUNCIL SPECIFICATIONS & STANDARD DRAWINGS & ARCADIS SPECIFICATIONS & PROJECT DRAWINGS.
3. THE CONTRACTOR SHALL VERIFY THE LOCATION & RELATIVE LEVELS OF EXISTING SERVICES PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO TAKE ALL NECESSARY PRECAUTIONS REGARDING CONSTRUCTION ADJACENT TO EXISTING SERVICES. CONTRACTOR TO PROTECT IN PLACE EXISTING SERVICES. ANY DAMAGE TO EXISTING SERVICES TO BE REPAIRED AT CONTRACTORS EXPENSE.
4. THE DRAWINGS SHALL BE READ IN CONJUNCTION WITH OTHER CONSULTANTS PLANS, SPECIFICATIONS & OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED BY THE SUPERINTENDENT DURING THE COURSE OF THE CONTRACT.
5. THE CONTRACTOR SHALL ERECT TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE APPROVED TRAFFIC MANAGEMENT PLAN.
6. THE CONTRACTOR SHALL VERIFY OFFSET PEG LOCATIONS & BENCH MARK LEVELS & ADVISE THE SUPERINTENDENT OF ANY DISCREPANCY BEFORE COMMENCEMENT OF CONSTRUCTION.
7. THE ROAD PAVEMENT ADOPTED WILL BE DETERMINED BY THE ENGINEER & APPROVED BY LOGAN CITY COUNCIL. THIS PAVEMENT SHALL BE BASED ON SOIL TEST TAKEN AT MINIMUM SUBGRADE LEVEL. ANY VARIATIONS TO THE NOMINAL PAVEMENT THICKNESS WILL BE PAID AT THE RATES SHOWN IN THE PRICED SCHEDULE OF RATES.
8. SIDE DRAINS SHALL BE PROVIDED UNDER ALL KERBS AS PER LOGAN CITY COUNCIL STANDARDS.
9. MITRE DRAIN LOCATION & EXTENTS SHALL BE CONFIRMED WITH THE SUPERINTENDENT ON SITE. THE CONTRACTOR SHALL ENSURE THAT ALL SUBSOIL & SIDE DRAINS ARE FREE DRAINING & CONNECTED TO A SUITABLE OUTLET STRUCTURE.

DRAINAGE NOTES:

1. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RELEVANT LOGAN CITY COUNCIL SPECIFICATIONS & STANDARD DRAWINGS & ARCADIS SPECIFICATIONS & PROJECT DRAWINGS.

CONSTRUCTION AND DESIGN LOADS:

1. PIPE CLASSES HAVE BEEN DESIGNED FOR A MINIMUM CONSTRUCTION TRENCH TYPE H2.
2. THE CONTRACTOR SHALL CONSIDER THE PIPE CLASS SPECIFIED IN THE DESIGN DRAWINGS AS WELL AS THEIR OWN PIPE LAYING/BACKFILILING METHODOLOGY TO ENSURE THAT THE MAXIMUM PERMISSIBLE CONSTRUCTION LOADS OF THE PIPES (AS SPECIFIED BY THE PIPE SUPPLIER) ARE NOT EXCEED DURING INSTALLATION AND/OR BACKFILLING OF THE PIPEWORK.

DISPERSIVE SOIL MANAGEMENT:

1. ALL TRENCHES, EXPOSED BATTERS AND RETAINING WALL EXCAVATIONS SHALL REQUIRE TREATMENT IN ACCORDANCE WITH THE DSMP PREPARED BY PSM CONSULT.

BIO-RETENTION AREA NOTES

1. THE BASIN SHALL BE PROVIDED WITH A BENTOFIX STANDARD GEOSYNTHETIC CLAY LINER (GCL). SUBGRADE SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY AND TO FORM CONTINUOUS BED FREE OF VOIDS AND FREE OF SHARP OBJECTS TO PREVENT TEARING. SUBGRADE SHALL BE GRADED AS SHOWN ON THE DRAWINGS TO FORM ROUNDED BASE. LINER TO HAVE ALL WELDED JOINTS SEALED IN ACCORDANCE WITH PRODUCT SPECIFICATIONS TO ENSURE THE SYSTEM IS WATERTIGHT. LINER NEEDS TO BE APPROPRIATELY KEYED INTO THE BATTERS AND EMBANKMENTS AND WRAPPED UP AGAINST DRAINAGE PITS TO TOP OF SOIL LAYER WITH CONSIDERATION TO PROTRUSIONS THROUGH THE LINERS SUCH AS OUTLET PIPES.
2. THE UNDERDRAIN FOR THE BIORETENTION SYSTEM SHALL BE MIN.100mm SLOTTED PVC PIPE TO THE REQUIREMENTS OF AS2439 PART 1 ACCORDING TO THE FOLLOWING:
   - PIPE SPACING FOR SYSTEMS <100m² IS 1.5m AND FOR SYSTEMS >100m² IS 2.5m OR AS SHOWN ON DRAWINGS.
   - THE MINIMUM CLEAR OPENING FOR SLOTS SHOULD BE 1500mm²/m, WITH THE MAXIMUM SLOT WIDTH OF 1.5mm.
   - ALL PIPE JUNCTIONS AND CONNECTIONS TO THE OVERFLOW PIT SHALL BE SEALED TO PREVENT SOIL ENTERING THE PIPE NETWORK.
   - FILTER CLOTH WRAPPINGS OR SOCKS ARE NOT PERMITTED AROUND SLOTTED UNDERDRAINS.
   - AN INSPECTION RISER SHALL BE PROVIDED BY EXTENDING THE UNDERDRAIN VERTICALLY BEYOND THE SURFACE OF THE BIORETENTION SYSTEM BY A MINIMUM OF 150mm. ALL VERTICAL SECTIONS OF THE UNDERDRAIN SHALL NOT BE PERFORATED AND SHALL BE CAPPED WITH SECURED SCREWS TO REDUCE THE RISK OF VANDALISM. USE 45 DEGREE ELBOWS RATHER THAN 90 DEGREE ELBOWS TO FACILITATE ENTRY OF MAINTENANCE EQUIPMENT.
3. UNDERDRAINS SHALL BE LAID IN A DRAINAGE LAYER COMPRISED OF FINE GRAVEL (2-5mm), WITH <2% FINES AND HYDRAULIC CONDUCTIVITY OF 4000mm/hr. THE DRAINAGE LAYER DEPTH MUST ENSURE AT LEAST 50mm COVER OVER THE UNDERDRAIN. BRIDGING CRITERIA SHALL BE APPLIED TO AVOID MIGRATION OF THE ON-TOP LAYER INTO THE DRAINAGE LAYER. D15 (DRAINAGE LAYER) Ø5 x D85 (ON-TOP LAYER).
4. WHERE INDICATED ON THE DESIGN DRAWINGS A TRANSITION LAYER SHALL BE INCLUDED. THE TRANSITION LAYER MATERIAL SHALL BE CLEAN, WELL GRADED SAND MATERIAL (0.5-2mm) CONTAINING <2% FINES. THE PARTICLE SIZE DISTRIBUTION OF THE SAND SHALL BE ASSESSED TO MEET BRIDGING CRITERIA THAT THE SMALLEST 15% OF THE SAND PARTICLES BRIDGE WITH THE LARGEST 15% OF THE FILTER MEDIA. D15 (TRANSITION LAYER) Ø5 x D85 (FILTER MEDIA).
5. BIORETENTION FILTER MEDIA SHALL COMPLY WITH THE WATER BY DESIGN *BIORETENTION TECHNICAL GUIDELINES* AND THE CRC FOR WATER SENSITIVE CITIES APPENDIX C *GUIDELINES FOR FILTER MEDIA IN STORMWATER BIORETENTION SYSTEMS.*
6. THE BIORETENTION FILTER MEDIA SHALL BE TESTED TO DEMONSTRATE COMPLIANCE WITH THE ABOVE-MENTIONED REQUIREMENTS AT THE FOLLOWING FREQUENCIES:
   - FOR BIORETENTION SYSTEMS <500m², ONE SAMPLE PER 500m³ OF FILTER MEDIA.
   - FOR BIORETENTION SYSTEMS >500m², ONE SAMPLE PER 500m³ OF FILTER MEDIA FOR THE HYDRAULIC CONDUCTIVITY TEST PLUS ONE SAMPLE PER 2000m³ OF FILTER MEDIA FOR ALL OTHER REQUIRED TESTS.
7. TESTING SHALL BE UNDERTAKEN ON THE ACTUAL MATERIAL TO BE DELIVERED TO THE SITE. THE SUPPLIER AND CONTRACTOR WILL BE RESPONSIBLE FOR ENSURING THE FILTER MEDIA MEETS THE SPECIFICATIONS AND THE CORRECT MATERIAL IS DELIVERED TO THE SITE PRIOR TO INSTALLATION. THE SUPPLIER SHALL ARRANGE FOR THE FILTER MEDIA TO BE TESTED BY A CERTIFIED SOIL LABORATORY IN ACCORDANCE WITH THE ABOVE SPECIFICATIONS. ON THE BASIS OF THE TESTING, THE SOIL LABORATORY AND SUPPLIER SHALL CERTIFY THAT THE MATERIAL MEETS THESE SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE A COPY OF THE SUPPLIER'S CERTIFICATION, TEST RESULTS AND SUPPLY DOCKET TO THE DESIGNER (THROUGH THE SITE SUPERINTENDENT) FOR REVIEW AND APPROVAL.
8. FIELD TESTING OF HYDRAULIC CONDUCTIVITY SHOULD BE CARRIED OUT BY THE RESPONSIBLE PARTY AT LEAST TWICE :
   - ONE MONTH FOLLOWING COMMENCEMENT OF OPERATION, AND
   - IN THE SECOND YEAR OF OPERATION TO ASSESS THE IMPACT OF VEGETATION ON HYDRAULIC CONDUCTIVITY. FOLLOWING THIS, HYDRAULIC CONDUCTIVITY TESTING SHOULD BE CONDUCTED EVERY TWO YEARS OR WHEN THERE HAS BEEN A SIGNIFICANT CHANGE IN CATCHMENT CHARACTERISTICS (e.g. CONSTRUCTION WITHOUT APPROPRIATE SEDIMENT CONTROL).

   THIS TESTING SHALL BE ACCORDING TO PRACTICE NOTE 1: IN-SITU MEASUREMENT OF HYDRAULIC CONDUCTIVITY (HATT AND LE COUSTUMER, 2009), WHICH CAN BE FOUND IN HTTP://WWW.MONASH.EDU.AU/FAWB/PUBLICATIONS/INDEX.HTML
9. THE FILTER MEDIA SHALL BE LIGHTLY COMPACTED DURING INSTALLATION TO PREVENT MIGRATION OF FINE PARTICLES. A SINGLE PASS OF COMPACTING MACHINERY (VIBRATING PLATE FOR SMALL SYSTEMS AND DRUM LAWN ROLLER FOR LARGER SYSTEMS) SHALL BE USED. NO HEAVY COMPACTION OR MULTI-PASS SHALL BE MADE.
10. FILTER MEDIA SHALL BE INSTALLED IN TWO LIFTS, EACH LESS THAN 500mm DEPTH.
11. THE BIORETENTION SYSTEMS SHALL BE CONSTRUCTED TO THE FOLLOWING TOLERANCES UNLESS OTHERWISE SPECIFIED IN THE LOCAL AUTHORITIES GUIDELINE:

BIO-RETENTION AREA NOTES CONT'D

BIORETENTION ELEMENT	TOLERANCE
HYDRAULIC STRUCTURES (OVERFLOW PIT, PIPE AND WEIRS)	+/-25mm
	WHERE SYSTEM INSTALLED IN STREETSCAPE THEN +/-15mm
UNDERDRAINS	+25mm BUT MIN 0.5% GRADE
EARTHWORKS (BASE OF BIORETENTION)	+/-50mm
DRAINAGE AND TRANSITION LAYERS	+/-25mm
SURFACE LEVEL (FILTER MEDIA SURFACE)	+/-25mm FOR BASINS <300m²
	+/-40mm FOR BASINS >300m²
EMBANKMENTS AND BUNDS	-25mm
	+50mm

12. CONTRACTOR TO INSTALL GEOFABRIC, LAY 50mm FILTER MEDIA AND TURF AFTER BASIN INTERNAL DRAINAGE AND FILTER MEDIA IS INSTALLED TO PROTECT FILTER MEDIA. TURF AND GEOFABRIC TO BE REMOVED AFTER 95% OF BUILDINGS ARE CONSTRUCTED.
13. THE CONSTRUCTION OF THE BIORETENTION SYSTEMS SHALL COMPLY WITH THE FOLLOWING STEPS AND HOLD POINTS UNLESS OTHERWISE SPECIFIED IN THE LOCAL AUTHORITIES GUIDELINE:

CONSTRUCTION STEP	HOLD POINT	SUBMISSION DETAILS	RELEASE OF HOLD POINT
BULK EARTHWORKS AND HYDRAULIC STRUCTURES. THIS INCLUDES SITE PREPARATION, INSTALLING OVERFLOW PIT AND OUTLET PIPE, UNDERTAKE BULK EARTHWORKS, TRIMMING AND PROFILING AND CONSTRUCT OVERFLOW WEIR	-INSPECTION AND SIGN OFF TO CONFIRM COMPLIANCE WITH DESIGN AND TOLERANCES.	-AS-CONSTRUCTED SURVEY OF THE SYSTEM AT THIS STAGE INCLUDING HYDRAULIC STRUCTURES.	THE DESIGNER (THROUGH THE SITE'S SUPERINTENDENT) SHALL INSPECT THE SYSTEM, REVIEW THE AS-CONSTRUCTED SURVEY AND TAKE PHOTOS. IF THE CONSTRUCTED SYSTEM CONFORMS TO THE DESIGN AND SPECIFICATIONS, A SIGN-OFF FORM SHALL BE COMPLETED WITH AS-CONSTRUCTED SURVEY AND PHOTOS AS ATTACHMENTS.
LINER AND UNDER-DRAINAGE. THIS INCLUDES INSTALLING HDPE LINER, UNDERDRAINS AND CLEANOUTS.	-INSPECTION AND SIGN OFF TO CONFIRM COMPLIANCE WITH DESIGN AND TOLERANCES.	-SITE INSPECTION	THE DESIGNER (THROUGH THE SITE'S SUPERINTENDENT) SHALL INSPECT THE SYSTEM AND TAKE PHOTOS. IF THE CONSTRUCTED SYSTEM CONFORMS TO THE DESIGN AND SPECIFICATIONS, A SIGN-OFF FORM SHALL BE COMPLETED WITH PHOTOS AS ATTACHMENTS.
SOURCE MATERIALS FOR BIORETENTION SYSTEM. THIS INCLUDES MATERIALS FOR DRAINAGE LAYER, SUBMERGED ZONE, TRANSITION LAYER AND FILTER MEDIA	-CERTIFICATION AND SIGN OFF OF MATERIALS TO CONFIRM COMPLIANCE WITH TESTING REQUIREMENTS	-SUPPLIER CERTIFICATION (THROUGH CERTIFIED SOIL LABORATORY) THAT MATERIALS COMPLY WITH TESTING REQUIREMENTS. -TEST RESULTS AND SUPPLY DOCKET.	THE DESIGNER (THROUGH THE SITE'S SUPERINTENDENT) SHALL REVIEW THE SUBMITTED DOCUMENTATION AND IF THE MATERIALS CONFORM TO THE TESTING SPECIFICATIONS, A SIGN-OFF FORM SHALL BE COMPLETED WITH THE SUBMITTED DOCUMENTATION AS ATTACHMENTS.
CONSTRUCTION OF DRAINAGE LAYER, SUBMERGED ZONE, TRANSITION LAYER AND FILTER MEDIA	-INSPECTION TO ENSURE BIORETENTION SYSTEM LAYERS ARE CONSTRUCTED TO DESIGN SPECIFICATIONS	-SITE INSPECTION -AS-CONSTRUCTED SURVEY OF LAYERS.	THE DESIGNER (THROUGH THE SITE'S SUPERINTENDENT) SHALL INSPECT THE SYSTEM AND TAKE PHOTOS. NO STOP TO CONSTRUCTION IS NEEDED
FINAL INSPECTION AND SIGN OFF	-INSPECTION AND SIGN OFF TO CONFIRM COMPLIANCE WITH DESIGN AND TOLERANCES	-AS-CONSTRUCTED SURVEY OF THE SYSTEM SURFACE AND SURROUNDING BUNDS.	THE DESIGNER (THROUGH THE SITE'S SUPERINTENDENT) SHALL INSPECT THE SYSTEM, REVIEW THE AS-CONSTRUCTED SURVEY AND TAKE PHOTOS. IF THE CONSTRUCTED SYSTEM CONFORMS TO THE DESIGN AND SPECIFICATIONS, A SIGN-OFF FORM SHALL BE COMPLETED WITH AS-CONSTRUCTED SURVEY AND PHOTOS AS ATTACHMENTS.

14. BIO BASIN TO BE CONSTRUCTED IN ACCORDANCE WITH THE PSM CONSULT DISPERSIVE SOIL MANAGEMENT PLAN.

B

Issue	Description	DR	CH	VE	Date
B	NOTES UPDATED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	T.FANNING	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: GENERAL NOTES

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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0021

Issue: B

Date Plotted: 13 Mar 2025 - 09:00AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0021-GeneralNotes.dwg

SAFETY IN DESIGN	
PROJECT	FLAGSTONE LOGISTICS ESTATE - STAGE 1
LOCATION	4499-4651 MOUNT LINDESAY HIGHWAY, NORTH MACLEAN
PROJECT NUMBER	30109334
PROJECT DESCRIPTION	DETAILED DESIGN FOR STAGE 1 INTERNAL WORKS

A HAZARD is something with the potential to cause harm.
RISK is a combination of the likelihood of the harm occurring and the severity of the harm should it occur.
CONTROLS are measures to eliminate or reduce risk to an acceptable level.
ABNORMAL RISKS are aspects of our project, structure or materials as identified by our design which may present significant hazards that are unusual, not obvious or may be difficult to manage

Risk ID No	Project Phase	Hazard / Risk Description	Risk Manager	Consequence / Likely Harm	Likelihood	Severity	Initial Risk Rating = L x S	Treatment Option Mitigation Action Plan for Avoidance Controls to be Provided	Consequence / Likely Harm	Likelihood	Severity	Residual Risk Rating = L x S	- Treatment may be Adopted - Cost prohibitive but highly effected at reducing likelihood - Civil Contractor	Comment
1	Construction	Open excavation overnight. private site operators or others may fall into trenches.	Civil Contractor	Falling from heights / Major injury or death	3	4	12	Trench is backfilled each day before contractor leaves site	Trench is filled and therefore cannot be fallen into	0	4	0	Treatment may be Adopted - Cost prohibitive but highly effected at reducing likelihood - Civil Contractor	
								Contractor provides man-proof fencing around open benched areas with adequate warning of deep excavation as well as covering open trench with boards.	Adequate warning and protection provided to prevent non-intentional entry.	1	4	4	Treatment may be Adopted - Cost prohibitive but highly effected at reducing likelihood - Civil Contractor	
2	Design/ Construction	Works adjacent to existing services (underground & high voltage overhead electricity, optic fibre, gas and water etc.) / Damage to services, electrocution	Civil Contractor	Existing service is struck / Property damage, private property without services, physical injury or death (i.e. electrocution).	2	5	10	- Design considers clearances to mains as required by asset holders and has been approved by asset holders. -The principal contractor shall locate all existing services and ensure they are marked and protected appropriately onsite in accordance with the requirements of the respective asset holder and ensure safe work method statements are undertaken and approved by any asset holders as required.	Service is not struck/ No Harm	1	5	5	- Treatment adopted - Cost effective - Civil Contractor	
3	Construction/ Maintenance	Traffic and pedestrians / Collision with traffic or pedestrian during works.	Civil Contractor	Collision / Injury, death, property damage	3	5	15	Principal contractor shall implement and maintain a safe work method statement and ensure personal awareness. Appropriate traffic control is to be implemented by the contractor.	Collision/ Injury, death, property damage	2	5	10	- Treatment adopted - Cost effective - Civil Contractor	
4	Design/ Construction	Flood waters / Rainfall from upstream catchment may cause erosion and damage to drainage channels and may be prone to dangerous flood waters	Civil Contractor	Erosion / Damage to channel & drowning	3	5	15	Contractor to install and maintain erosion and sediment control devices and ensure extent of waterways are known to all site visitors and staff.	No erosion in channel and known areas of potential deep water zones.	1	5	5	- Treatment adopted - Cost and likelihood reduction effective - Civil Contractor	
5	Design & Construction	Batter and/or Wall Stability/Batters Collapse	Civil Contractor	Batter or retaining walls fails/death	3	5	15	Design and geotechnical reporting has been undertaken in accordance with Council requirements. The contractor shall implement a safe work method statement, design, undertake works with the required level of supervision from a geotechnical engineer and provide certifications as required.	No failure	1	5	5	- Treatment adopted - Required - Civil Contractor	
6	Design & Construction	Settlement of deep earthworks fill	Civil Contractor	Increased settlement of deep fill leading to failure of build structures	3	3	9	Geotechnical design and specification for placement and compaction of deep earthworks fill to be undertaken and implemented.	Reduced settlement	2	3	6	- Treatment adopted - Required - Civil Contractor	
7	Design & Construction	Test pressure exceeds 1200kPa generating forces larger than what is stipulated in the SEQ Code	Arcadis and Contractor	Injury / fatality and damage to infrastructure	4	5	20	- Increased design pressure to 1350kPa to remove risk if testing exceeds 1200kPa - Pressure test must be undertaken by NATA approved testing authority -Pressure gauge calibration must be presented to Arcadis 48hours prior to pressure test -Arcadis to witness pressure test. Arcadis must be notified 48hours prior to testing	Reduce risk of failure	1	5	5	- Civil Contractor	
8	Construct	Opens trenching	Civil Contractor	Death by suffocation - trench collapse	5	5	25	Noted on drawings that trenches greater than 1.5m in height must be supported to QLD government legislation.	Trench is supportes which reduces likely hood of trench collapsing	2	5	10	- Civil Contractor to provide support for trenches greater than 1.5m in height	Contractor to provide preferred management measure in safe work method statement
								It has been noted on the drawings that excavation should provide 1in1 batters oppose to using large/deep trenches	Removes the risks associated with trench collapsing. Does not entirly remove risk of earth subsidence.	2	5	10	- Civil Contractor to provide batters instead of trenches where possible	
9	Construct	Thrust block fails	Civil Contractor	Injury / fatality	3	5	15	Ensure adequate time for concrete to cure as per suppliers specifications	Adequate warning	1	5	5	- Civil Contractor	
10	Design	Insitu material cannot provide allowable horizontal bearing pressure for thrust blocks	Arcadis	Pipeline failure	4	5	20	Arcadis liaside with external RPEQ Geotechnical Engineer for ground improvement - Stabilised san or similar	As identified but lesser chance	1	5	5	- Arcadis	
11	Design	Deep sewer mains	Civil Contractor	Deep trench leading to increased risk for falling from heights	3	4	12	Deep sewer mains to be tunnel bored where feasible	Eliminate trench requirement but still require thrust and receiving pits	1	4	4	- Treatment adopted	
12	Design	Deep outlet / high structure >3.0m	Arcadis and Contractor	Risk for falling from heights / injury / fatality / drowning in flood waters	3	5	15	Install 1.80m high security fence and pedestrian gate around outlet structure (weir 01)	Outlet will be secured and therefore cannot be fallen into	1	5	5	- Treatment adopted	
13	Design	Stormwater inlet headwalls	Arcadis and Contractor	Risk being pulled into stormwater pipe / drowning in flood waters	3	5	15	Install inlet screens on all headwall inlets	Inlet will be secured and therefore cannot be trapped in stormwater pipe	1	5	5	- Treatment adopted	
14	Design	Stormwater headwalls	Arcadis and Contractor	Risk falling from heights	3	4	12	Install safety rail / fencing around stormwater headwalls >1.0m in height.	Reduce chance of falling from height	1	4	4	- Treatment adopted	

LIKELIHOOD	SCORE
OCCURRENCE VIRTUALLY INEVITABLE, MAY OCCUR MANY TIMES	5
OCCURRENCE NOT SURPRISING, MAY OCCUR MORE THAN ONCE	4
LIKELY TO OCCUR SOMETIMES	3
UNLIKELY TO OCCUR, THOUGH CONCEIVABLE	2
SO UNLIKELY THAT PROBABILITY IS CLOSE TO ZERO	1

SEVERITY	SCORE
FATALITY	5
MAJOR INJURY	4
SIGNIFICANT INJURY	3
FIRST AID INJURY	2
MINOR INJURY	1

SEVERITY

RISK RATING					
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5
	1	2	3	4	5

LIKELIHOOD

RISK RATING RESULTS		
15-25	VERY HIGH	THIS ACTIVITY MUST NOT BE UNDERTAKEN, OR SHOULD BE STOPPED, UNTIL ADDITIONAL MEASURES HAVE BEEN PUT IN PLACE TO REDUCE THE RISK
8-12	HIGH	ALL REASONABLY PRACTICABLE CONTROL MEASURES MUST BE PUT IN PLACE BEFORE THIS TASK MAY PROCEED
3-6	MEDIUM	CONTROL MEASURES MUST BE PUT IN PLACE TO REDUCE THIS RISK UNLESS IT WOULD INVOLVE EXCESSIVE COST FOR LITTLE BENEFIT
1-2	LOW	NO FURTHER ACTION REQUIRED UNLESS BENEFICIAL ACTION CAN BE EASILY UNDERTAKEN

Issue	Description	DR	CH	VE	Date
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: SAFETY IN DESIGN

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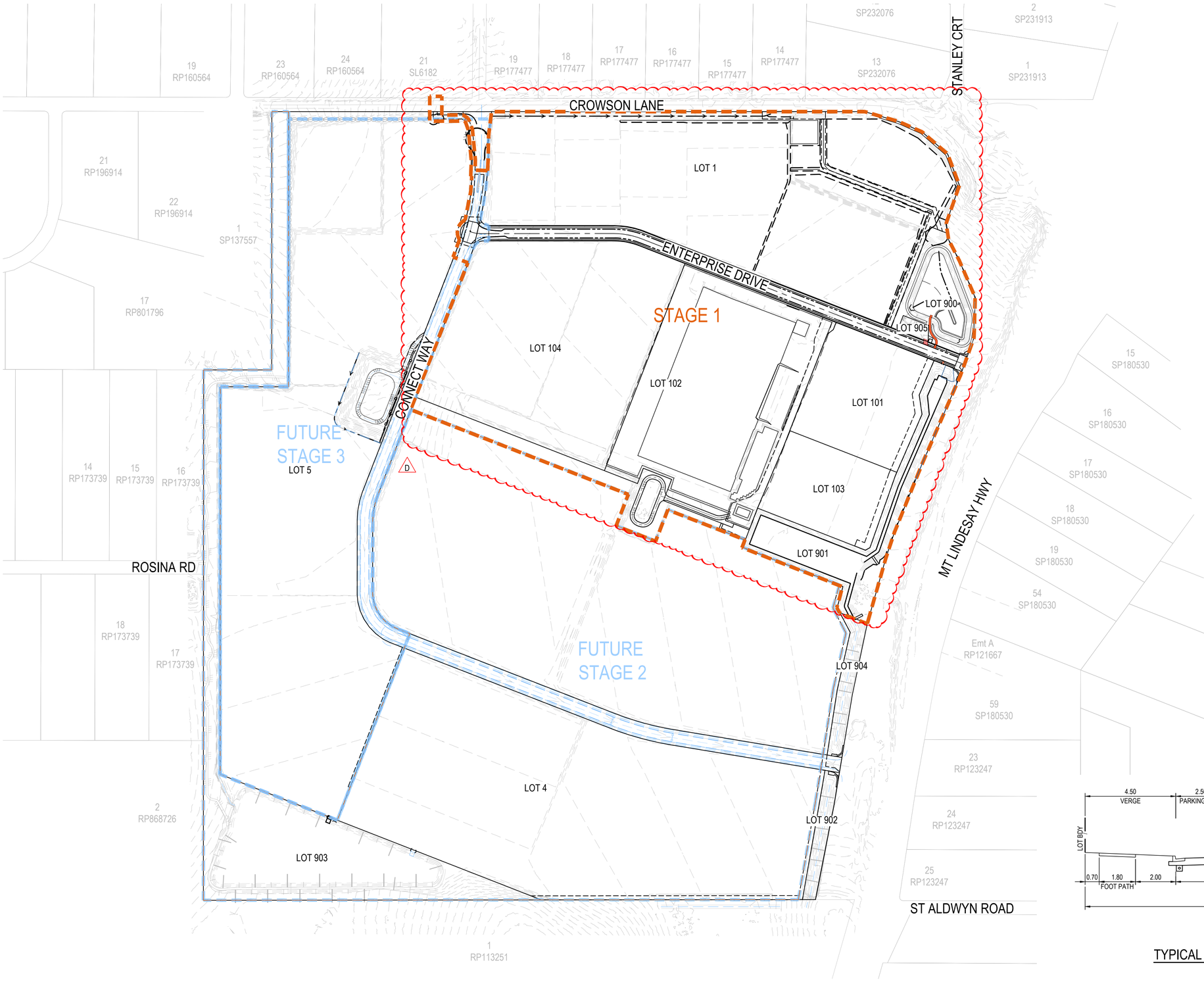
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0041

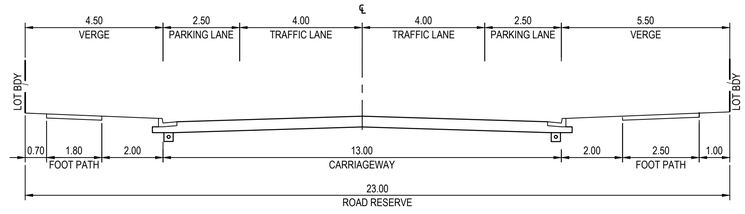
Issue: A

Date Plotted: 13 Mar 2025 - 09:00AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0041-SafetyInDesign.dwg



LEGEND

- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1"
- PROPOSED EDGE OF BITUMEN



TYPICAL ROAD CROSS SECTION - ENTERPRISE DRIVE
1 : 100

Issue	Description	DR	CH	VE	Date
D	UPDATED BOUNDARIES AND LOT NUMBERS	A.O	S.S	B.K	10.03.25
C	UPDATED DESIGN	A.O	S.S.	B.K.	03.09.24
B	LAYOUT UPDATED TEMPORARY ACCESS ROAD REMOVED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 40 80 120 160 200 250 300m

1 : 3000

100mm on Original

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: OVERALL SITE LAYOUT PLAN

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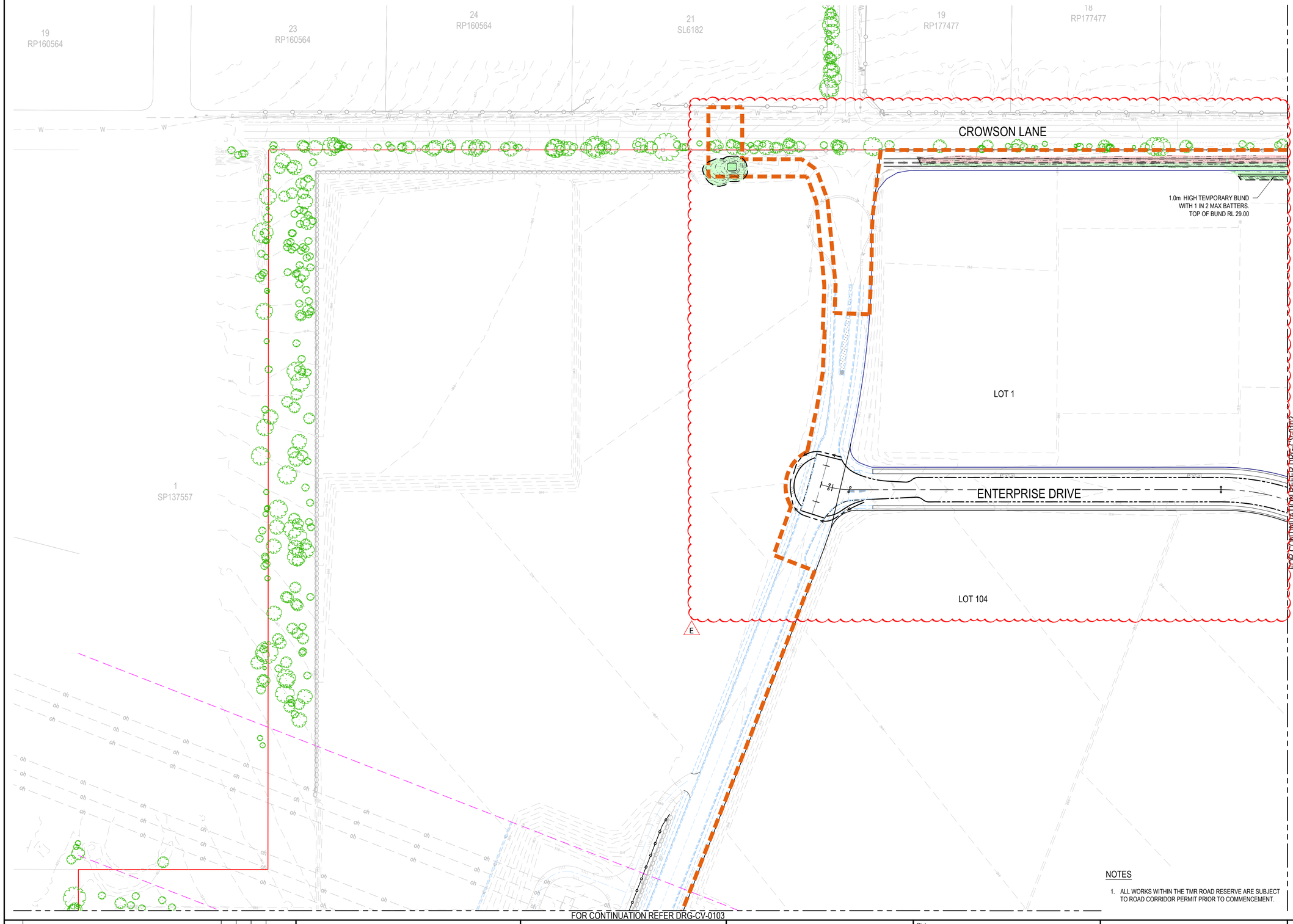
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0061

Issue: D

Date Plotted: 13 Mar 2025 - 09:00AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0061-OverallSiteLayoutPlan.dwg



LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- EARTHWORKS BATTER
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- EXISTING OVERHEAD ELECTRICAL RETICULATION
- POWERLINK EASEMENT
- EXISTING TREES
- TREES TO BE REMOVED

STAGE 1 TOTAL VOLUMES

CUT	37,201m³
FILL	57,742m³
BALANCE (IMPORT)	20,541m³

NOTES

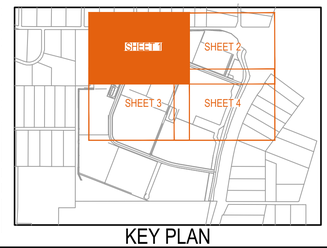
1. VOLUMES ARE COMPARED TO CURRENT BULK EARTHWORKS IFC DESIGN DATED 08.07.2024.
2. NO COMPACTION OR BULKING FACTORS HAVE BEEN APPLIED.
3. REFER TO DRAWING No. 30109334-AAP-P301OP-CV-DRG-0021 FOR EARTHWORKS NOTES.

EARTHWORKS CUT & FILL

-8.00	to	-7.00	m
-7.00	to	-6.00	m
-6.00	to	-5.00	m
-5.00	to	-4.00	m
-4.00	to	-3.00	m
-3.00	to	-2.00	m
-2.00	to	-1.00	m
-1.00	to	0.00	m
0.00	to	1.00	m
1.00	to	2.00	m
2.00	to	3.00	m
3.00	to	4.00	m
4.00	to	5.00	m
5.00	to	6.00	m

NOTES

1. ALL WORKS WITHIN THE TMR ROAD RESERVE ARE SUBJECT TO ROAD CORRIDOR PERMIT PRIOR TO COMMENCEMENT.



KEY PLAN

Issue	Description	DR	CH	VE	Date
E	UPDATED EWKS, BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
D	UPDATED EWKS	A.O	S.S.	B.K.	03.09.24
C	UPDATED LAYOUT AND VOLUMES	A.O	S.S.	B.K.	01.08.24
B	UPDATED LAYOUT	J.B.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 10 20 40 60 80 100m

1 : 1000

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: EARTHWORKS PLAN SHEET 1

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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0101

Issue: E

Date Plotted: 13 Mar 2025 - 09:13AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0101-EarthworksPlan.dwg

15
RP177477

13
SP232076

1
SP231913

CROWSON LANE

1.0m HIGH TEMPORARY BUND
WITH 1 IN 2 MAX BATTERS.
TOP OF BUND RL 29.00

0.5m HIGH TEMPORARY BUND
WITH 1 IN 2 BATTERS

LOT 1

FOR CONTINUATION REFER DRG-CV-0101

ENTERPRISE DRIVE

LOT 102

F

FUTURE LOT 102 VOLUMES ONLY
CUT = 12,371 m³
FILL = 50,567 m³
BALANCE= 38,196 m³ (IMPORT)

LOT 1

CONTRACTOR TO ENSURE ADEQUATE ESC MEASURE ARE IN PLACE TO DIVERT EXTERNAL CLEAN WATER.

PROPOSED BIO-RETENTION BASIN
FOR DETAILS REFER CV-DRG-0491

BASIN Q100
WSL - 24.48m

LOT 900

BASIN CREST
24.5m

LOT 905

ENTERPRISE DRIVE

Q100 FLOOD LEVELS:
REGIONAL (CC) = 24.2m
LOCAL = 24.46m
RW08 - REFER DRAWING 0141
FOR WALL SETOUT

2
0121

1

LOT 101

F

FOR CONTINUATION REFER DRG-CV-0104

LEGEND

- 5.0 — DESIGN SURFACE CONTOUR
- 5.0 — EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- EARTHWORKS BATTER
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- oh — EXISTING OVERHEAD ELECTRICAL RETICULATION
- POWERLINK EASEMENT
- EXISTING TREES
- TREES TO BE REMOVED

STAGE 1 TOTAL VOLUMES

CUT	37,201m³
FILL	57,742m³
BALANCE (IMPORT)	20,541m³

E

NOTES

1. VOLUMES ARE COMPARED TO CURRENT BULK EARTHWORKS IFC DESIGN DATED 08.07.2024.
2. NO COMPACTION OR BULKING FACTORS HAVE BEEN APPLIED.
3. REFER TO DRAWING No. 30109334-AAP-P301OP-CV-DRG-0021 FOR EARTHWORKS NOTES.

EARTHWORKS CUT & FILL

-8.00	to	-7.00	m
-7.00	to	-6.00	m
-6.00	to	-5.00	m
-5.00	to	-4.00	m
-4.00	to	-3.00	m
-3.00	to	-2.00	m
-2.00	to	-1.00	m
-1.00	to	0.00	m
0.00	to	1.00	m
1.00	to	2.00	m
2.00	to	3.00	m
3.00	to	4.00	m
4.00	to	5.00	m
5.00	to	6.00	m

NOTES

1. ALL WORKS WITHIN THE TMR ROAD RESERVE ARE SUBJECT TO ROAD CORRIDOR PERMIT PRIOR TO COMMENCEMENT.

SHEET 1 | SHEET 2 | SHEET 3 | SHEET 4

KEY PLAN

Issue	Description	DR	CH	VE	Date
F	UPDATED BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
E	UPDATED EWKS	A.O.	S.S.	B.K.	03.09.24
D	UPDATED VOLUMES	A.O.	S.S.	B.K.	01.08.24
C	UPDATED LAYOUT	J.B.	S.S.	B.K.	15.07.24
B	EARTHWORKS UPDATED	A.O.	S.S.	G.E.	03.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 10 20 40 60 80 100m

1 : 1000

100mm on Original

Surveyor

WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

EARTHWORKS PLAN SHEET 2

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com.au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0102

Issue: F

Date Plotted: 13 Mar 2025 - 09:13AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0101-EarthworksPlan.dwg

FOR CONTINUATION REFER DRG-CV-0101

FUTURE LOT 102 VOLUMES ONLY
CUT = 12,371 m³
FILL = 50,567 m³
BALANCE= 38,196 m³ (IMPORT)

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- EARTHWORKS BATTER
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- EXISTING OVERHEAD ELECTRICAL RETICULATION
- POWERLINK EASEMENT
- EXISTING TREES
- TREES TO BE REMOVED

STAGE 1 TOTAL VOLUMES

CUT	37,201m³
FILL	57,742m³
BALANCE (IMPORT)	20,541m³

NOTES

1. VOLUMES ARE COMPARED TO CURRENT BULK EARTHWORKS IFC DESIGN DATED 08.07.2024.
2. NO COMPACTION OR BULKING FACTORS HAVE BEEN APPLIED.
3. REFER TO DRAWING No. 30109334-AAP-P301OP-CV-DRG-0021 FOR EARTHWORKS NOTES.

E

EARTHWORKS CUT & FILL

-8.00	to	-7.00	m	
-7.00	to	-6.00	m	
-6.00	to	-5.00	m	
-5.00	to	-4.00	m	
-4.00	to	-3.00	m	
-3.00	to	-2.00	m	
-2.00	to	-1.00	m	
-1.00	to	0.00	m	
0.00	to	1.00	m	
1.00	to	2.00	m	
2.00	to	3.00	m	
3.00	to	4.00	m	
4.00	to	5.00	m	
5.00	to	6.00	m	

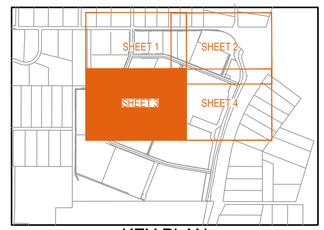
FOR CONTINUATION REFER DRG-CV-0104

CONTRACTOR TO TRIM EXISTING SURFACE AREA TO MATCH SURROUNDING ACCESS TRACK LEVEL

D

NOTES

1. ALL WORKS WITHIN THE TMR ROAD RESERVE ARE SUBJECT TO ROAD CORRIDOR PERMIT PRIOR TO COMMENCEMENT.



KEY PLAN

Issue	Description	DR	CH	VE	Date
E	UPDATED EWKS	A.O	S.S.	B.K.	03.09.24
D	UPDATED VOLUMES	A.O	S.S.	B.K.	01.08.24
C	UPDATED LAYOUT	J.B.	S.S.	B.K.	15.07.24
B	EARTHWORKS UPDATED	A.O.	S.S.	G.E.	03.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 10 20 40 60 80 100m

1 : 1000

Surveyor

WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: EARTHWORKS PLAN SHEET 3

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

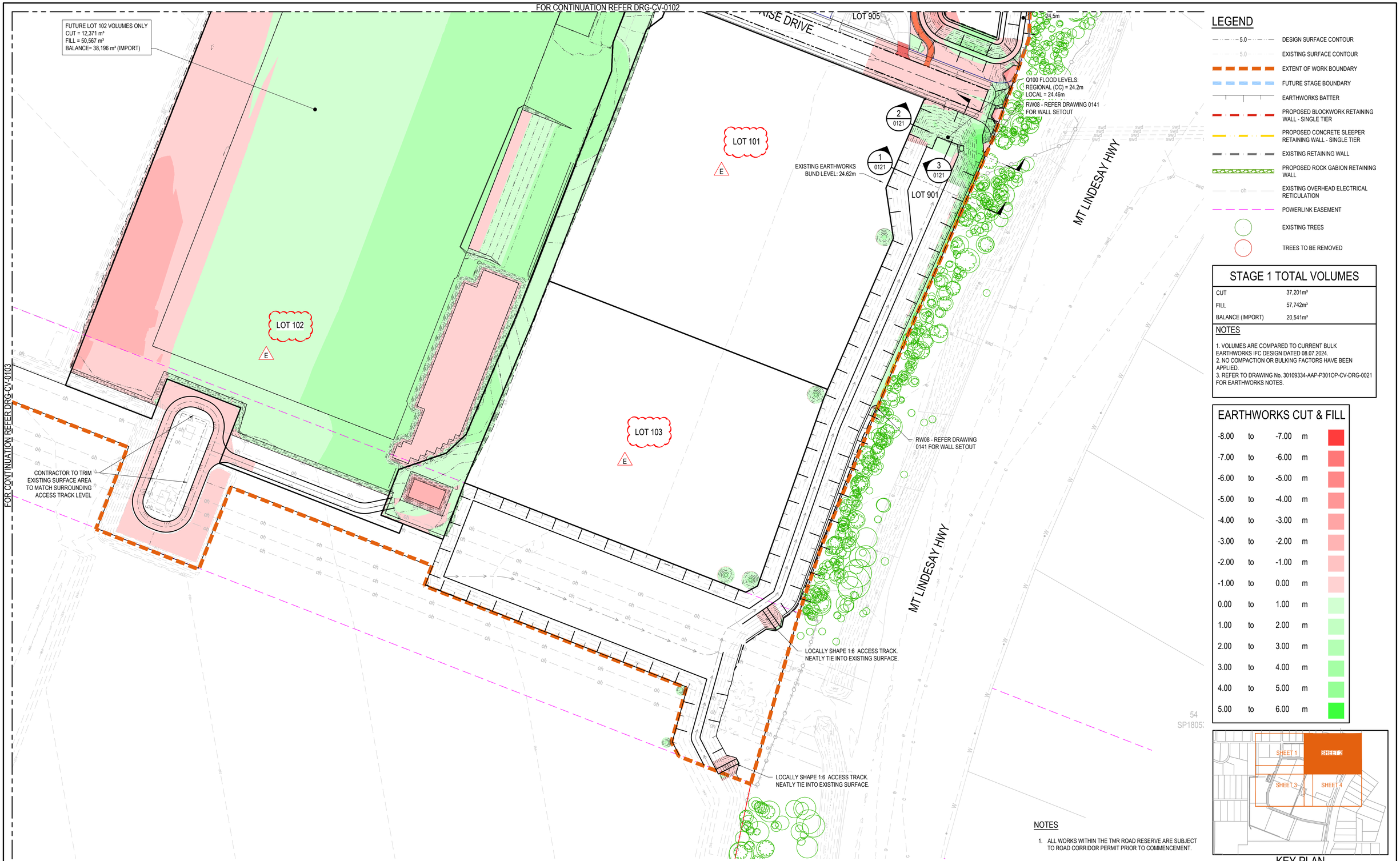
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0103

Issue: E

100mm on Original

Date Plotted: 13 Mar 2025 - 09:13AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0101-EarthworksPlan.dwg



LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- EARTHWORKS BATTER
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- EXISTING OVERHEAD ELECTRICAL RETICULATION
- POWERLINK EASEMENT
- EXISTING TREES
- TREES TO BE REMOVED

STAGE 1 TOTAL VOLUMES

CUT	37,201m³
FILL	57,742m³
BALANCE (IMPORT)	20,541m³

NOTES

1. VOLUMES ARE COMPARED TO CURRENT BULK EARTHWORKS IFC DESIGN DATED 08.07.2024.
2. NO COMPACTION OR BULKING FACTORS HAVE BEEN APPLIED.
3. REFER TO DRAWING No. 30109334-AAP-P301OP-CV-DRG-0021 FOR EARTHWORKS NOTES.

EARTHWORKS CUT & FILL

-8.00	to	-7.00	m	
-7.00	to	-6.00	m	
-6.00	to	-5.00	m	
-5.00	to	-4.00	m	
-4.00	to	-3.00	m	
-3.00	to	-2.00	m	
-2.00	to	-1.00	m	
-1.00	to	0.00	m	
0.00	to	1.00	m	
1.00	to	2.00	m	
2.00	to	3.00	m	
3.00	to	4.00	m	
4.00	to	5.00	m	
5.00	to	6.00	m	

KEY PLAN

NOTES

1. ALL WORKS WITHIN THE TMR ROAD RESERVE ARE SUBJECT TO ROAD CORRIDOR PERMIT PRIOR TO COMMENCEMENT.

Issue	Description	DR	CH	VE	Date
E	UPDATED BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
D	UPDATED EWKS	A.O	S.S.	B.K.	03.09.24
C	UPDATED VOLUMES	A.O	S.S.	B.K.	01.08.24
B	UPDATED LAYOUT	J.B.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 10 20 40 60 80 100m

1 : 1000

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: EARTHWORKS PLAN SHEET 4

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0104

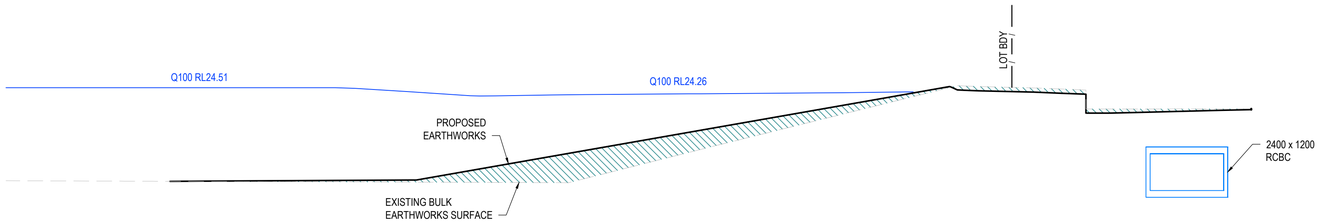
Issue: E

Date Plotted: 13 Mar 2025 - 09:14AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0101-EarthworksPlan.dwg

LEGEND

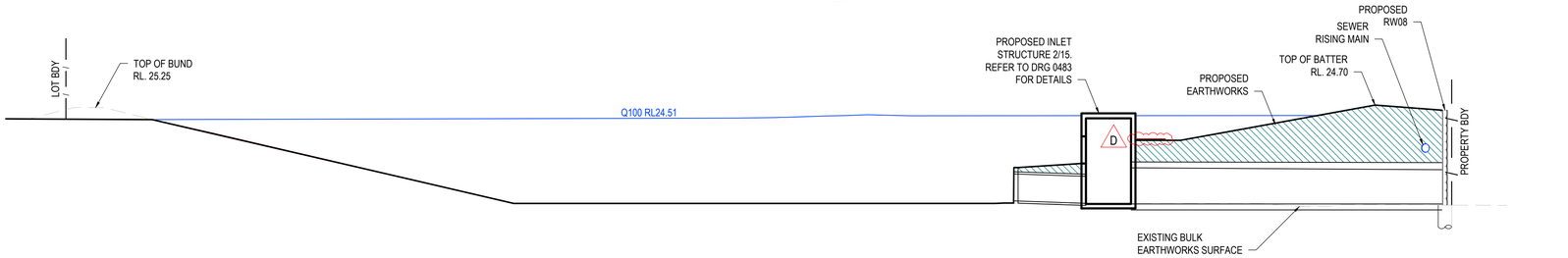
FILL AREA

CUT AREA



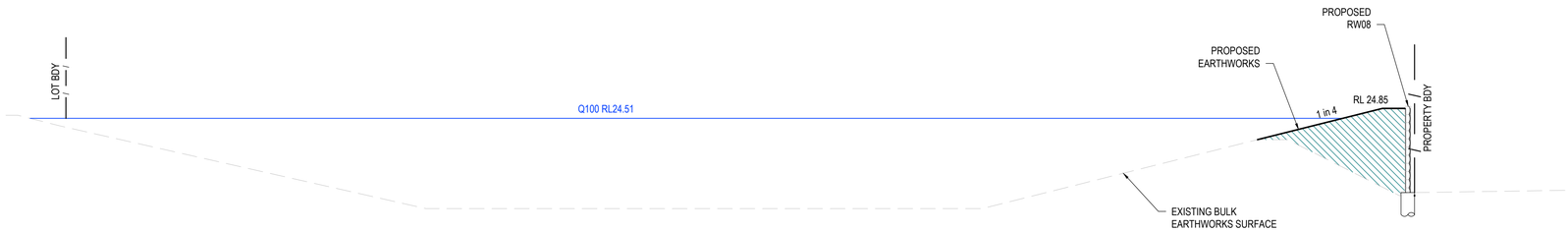
DATUM RL 19.25

SECTION 3
1 : 100 0102



DATUM RL 19.25

SECTION 2
1 : 100 0102



DATUM RL 19.50

SECTION 1
1 : 100 0102

Issue	Description	DR	CH	VE	Date
D	EARTHWORKS AROUND STRUCTURE 2/15 AMENDED	A.O	S.S.	B.K.	18.10.24
C	UPDATED REFERENCE DRAWING	A.O	S.S.	B.K.	03.09.24
B	UPDATED SECTIONS	J.B.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 1 2 4 6 8 10m

1 : 100

100mm on Original

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: EARTHWORKS SITE SECTIONS SHEET 1

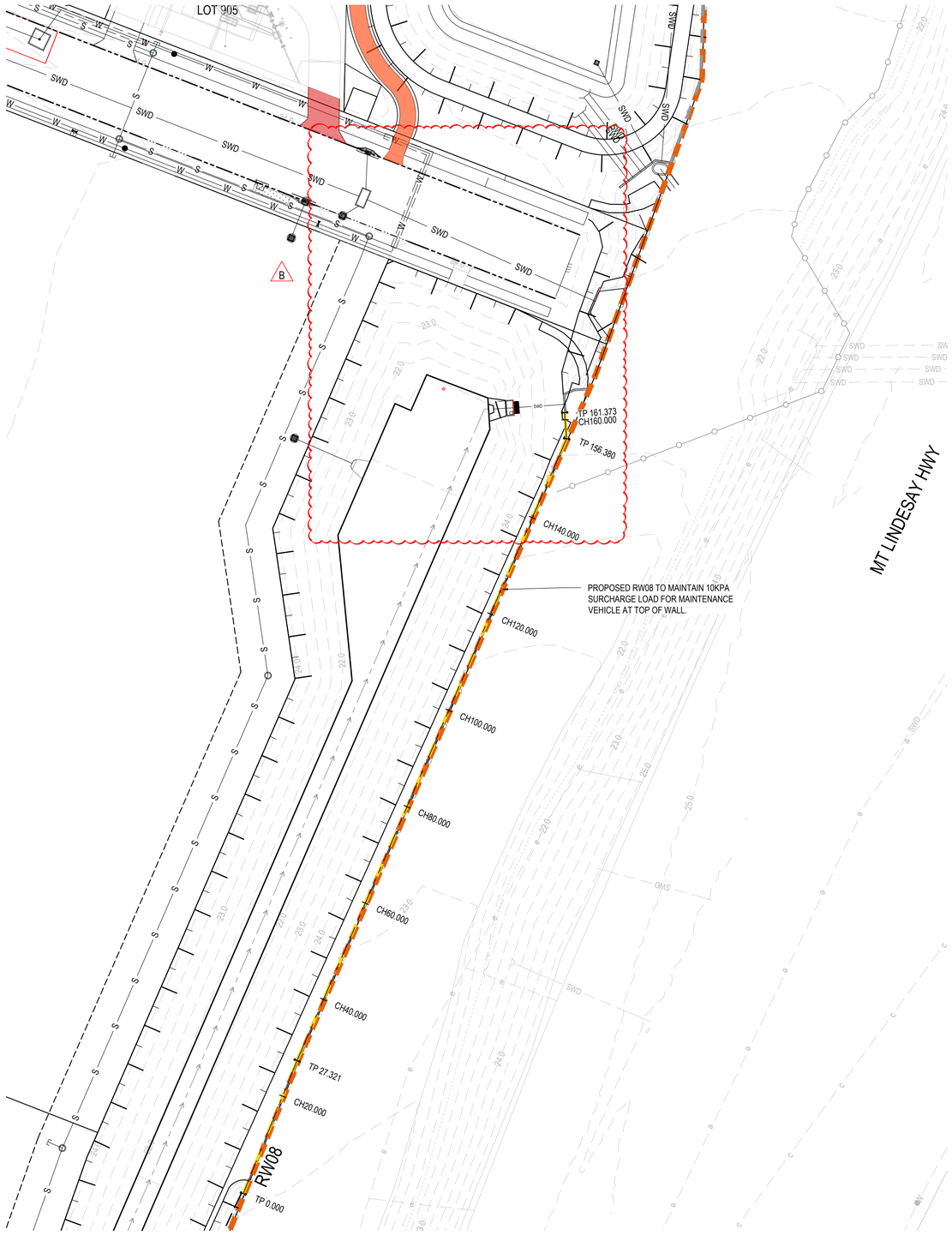
ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0121

Issue: D

Date Plotted: 13 Mar 2025 - 09:14AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0121-EarthworksSiteSections.dwg



INSET 'A'
1 : 500

CONTROL LINE SETOUT - RW08

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING
IP 1	0.000	501851.762	6929156.812	23.534	30°49'03.45"
IP 2	27.321	501865.759	6929180.276	24.716	
IP 3	156.380	501934.578	6929289.455	24.716	
IP 4	161.373	501934.981	6929294.432	24.716	4°37'30.74"

B

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- SITE BOUNDARY
- EARTHWORKS BATTER
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- EXISTING OVERHEAD ELECTRICAL RETICULATION
- POWERLINK EASEMENT

KEY PLAN

Issue	Description	DR	CH	VE	Date
B	UPDATED LAYOUT AND RW08 SETOUT TABLE	J.B.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales
0 5 10 20 30 40 50m
1 : 500

Surveyor
WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client
Charter Hall

Status
FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project
FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title
RETAINING WALL PLAN

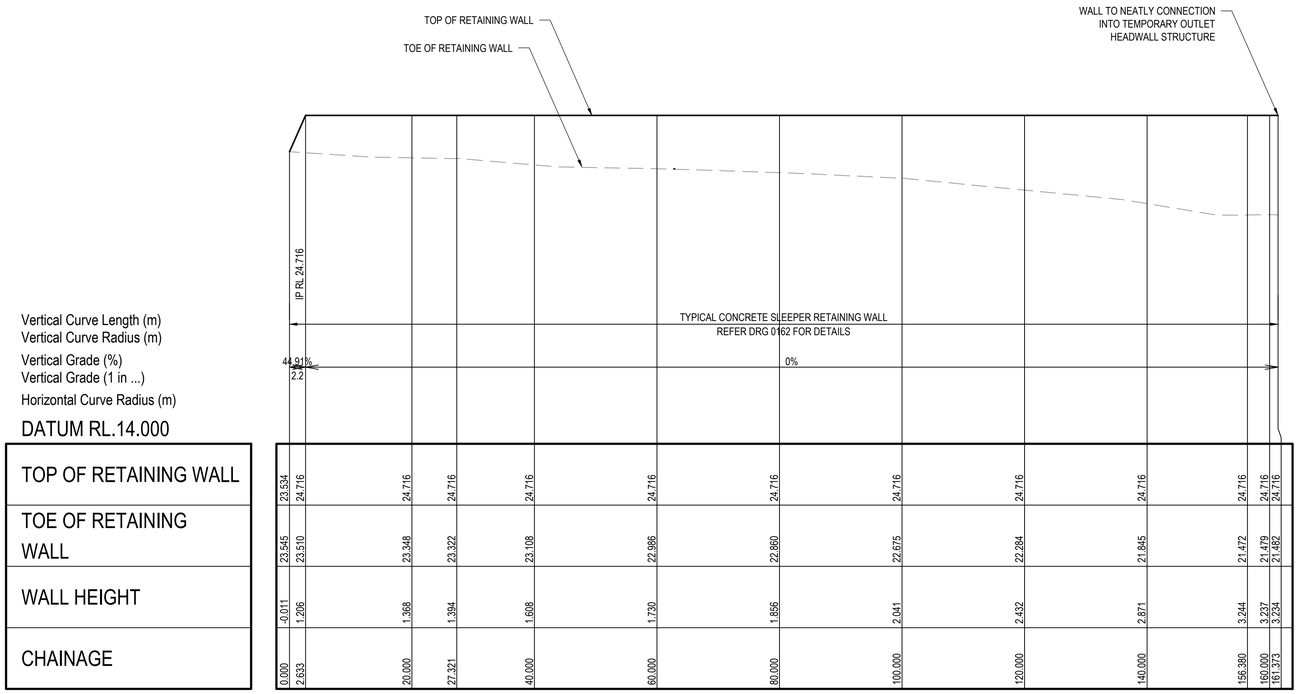
ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0141

Issue: B

Date Plotted: 13 Mar 2025 - 09:14AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0141-RetainingWallPlan.dwg


TOP OF RETAINING WALL
TOE OF RETAINING WALL
WALL TO NEATLY CONNECTION
INTO TEMPORARY OUTLET
HEADWALL STRUCTURE
IP RL 24.716
TYPICAL CONCRETE SLEEPER RETAINING WALL
REFER DRG 0162 FOR DETAILS
44.91%
2.2
0%

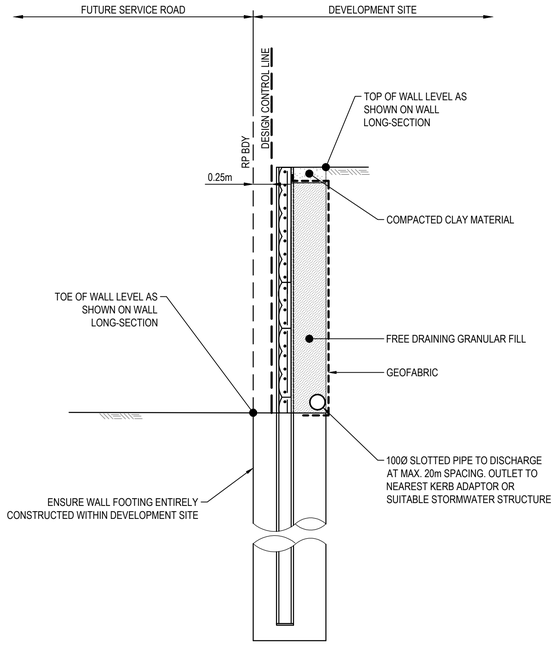
| | | |

NOTES:

1. RETAINING WALL DETAILS ARE INDICATIVE ONLY. DETAILED DESIGN & CERTIFICATION TO BE PROVIDED BY CONTRACTORS RPEQ.
2. RETAINING WALL DESIGN IS REQUIRED TO COMPLY WITH GLOBAL STABILITY ASSESSMENT ASSUMPTIONS TO ENSURE ADEQUATE LONG TERM FoS AGAINST SLIP FAILURE IS ACHIEVED. GLOBAL STABILITY ASSESSMENT BY OTHERS (PRINCIPAL APPOINTED GEOTECHNICAL ENGINEER).
3. CONTRACTOR TO PROVIDE GALVANIZED STEEL BRACKETS BOLTED TO CONCRETE SLEEPERRETAINING WALL TO FACILITATE CONSTRUCTION OF BOUNDARY FENCING.

DESIGN PARAMETERS:

1. REFER DESIGN CERTIFICATION FOR RETAINED AND FOUNDING SOIL DESIGN PARAMETERS, DESIGN SURCHARGE LOADS AND WALL DESIGN GEOMETRY.
2. CONCRETE STANDARD - AS3600 STANDARD DESIGN EXPOSURE CLASSIFICATION SLEEPERS & POSTS - B1, FOOTINGS - A2
3. WALL TO BE DESIGNED TO BRIDGE ANY UNDERGROUND SERVICES SO AS NOT TO IMPOSE ANY ADDITIONAL LOADING ON SERVICES.
4. DESIGN DRAWINGS AND RPEQ CERTIFICATION TO BE PROVIDED TO SUPERINTENDENT 5 WORKING DAYS PRIOR TO COMMENCEMENT OF RETAINING WALL CONSTRUCTION.



TYPICAL SLEEPER WALL DETAIL

N. T. S.

- CONCRETE SLEEPER RETAINING WALL 08 TO BE DESIGNED TO 10KPA SURCHARGE FOR MAINTENANCE VEHICLE AT TOP OF CHANNEL.
- REFER DESIGN PARAMETER NOTES FOR IMPORTANT RETAINING WALL DESIGN CONSIDERATION.

B

Issue	Description	DR	CH	VE	Date
B	DETAILS REMOVED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 10 20 40 60 80 100m

1 : 1000

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

RETAINING WALL ELEVATIONS AND DETAILS SHEET 2

ARCADIS

Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289

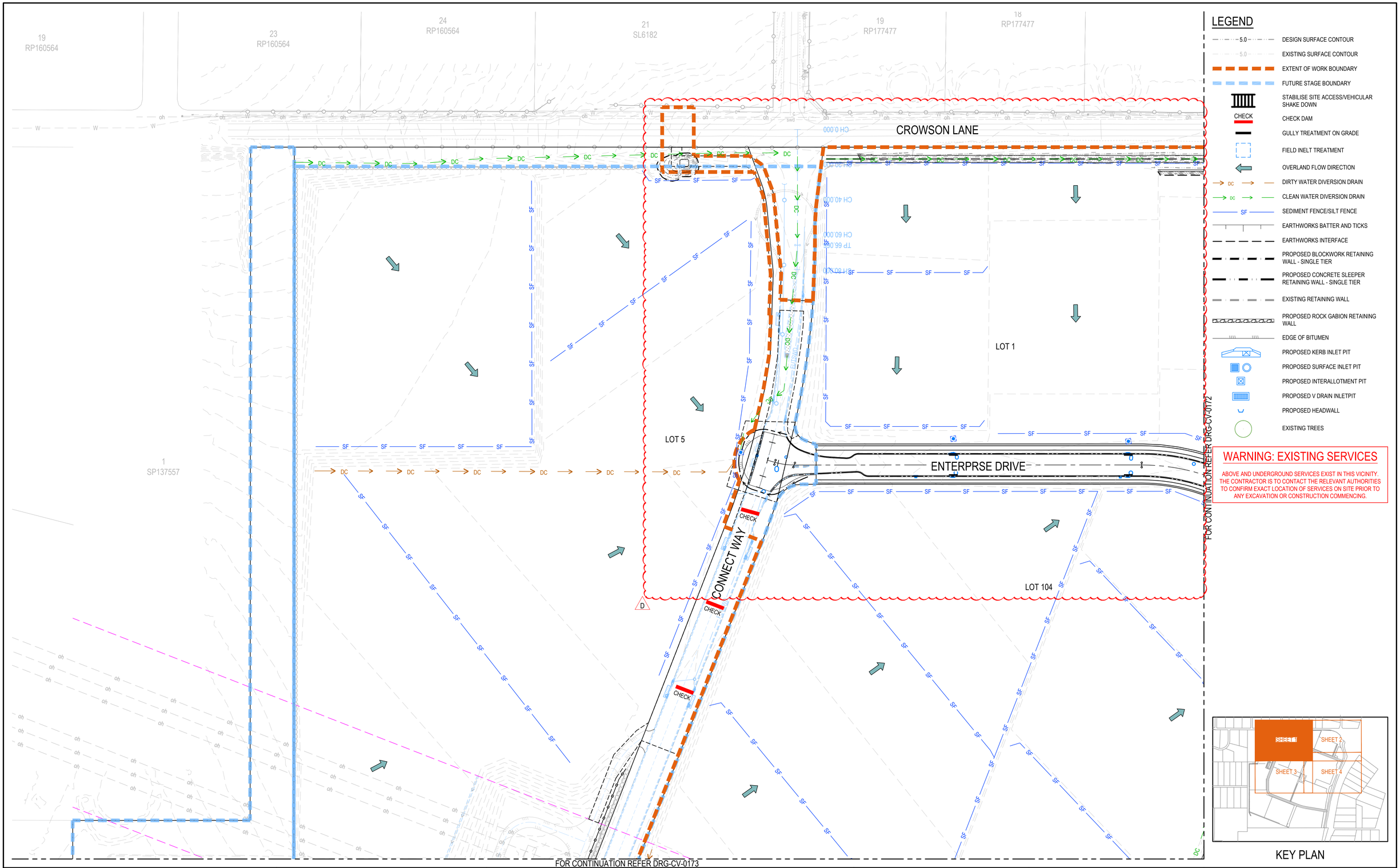
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0162

Issue: B

Date Plotted: 13 Mar 2025 - 09:15AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0161-RetainingWallElevations.dwg



LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- STABILISE SITE ACCESS/VEHICULAR SHAKE DOWN
- CHECK DAM
- GULLY TREATMENT ON GRADE
- FIELD INLET TREATMENT
- OVERLAND FLOW DIRECTION
- DIRTY WATER DIVERSION DRAIN
- CLEAN WATER DIVERSION DRAIN
- SEDIMENT FENCE/SILT FENCE
- EARTHWORKS BATTER AND TICKS
- EARTHWORKS INTERFACE
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- EDGE OF BITUMEN
- PROPOSED KERB INLET PIT
- PROPOSED SURFACE INLET PIT
- PROPOSED INTERALLOTMENT PIT
- PROPOSED V DRAIN INLETPIT
- PROPOSED HEADWALL
- EXISTING TREES

WARNING: EXISTING SERVICES

ABOVE AND UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.

KEY PLAN

Issue	Description	DR	CH	VE	Date
D	UPDATED BOUNDARIES AND LOT NUMBERS	A.O	S.S.	B.K.	10.03.25
C	UPDATED DESIGN	A.O	S.S.	B.K.	03.09.24
B	UPDATED LAYOUT	A.O.	S.S.	B.K.	01.08.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 10 20 40 60 80 100m

1 : 1000

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: EROSION AND SEDIMENT CONTROL LAYOUT PLAN SHEET 1

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0171

Issue: D

Date Plotted: 13 Mar 2025 - 09:21AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0171-ESCPlan.dwg

15
RP177477

13
SP232076

1
SP231913

CROWSON LANE

LOT 1

LOT 102

LOT 900

LOT 905

ENTERPRISE DRIVE

FOR CONTINUATION REFER DRG-CV-0171

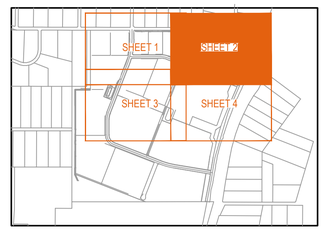
FOR CONTINUATION REFER DRG-CV-0174

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- STABILISE SITE ACCESS/VEHICULAR SHAKE DOWN
- CHECK DAM
- GULLY TREATMENT ON GRADE
- FIELD INLET TREATMENT
- OVERLAND FLOW DIRECTION
- DIRTY WATER DIVERSION DRAIN
- CLEAN WATER DIVERSION DRAIN
- SEDIMENT FENCE/SILT FENCE
- EARTHWORKS BATTER AND TICKS
- EARTHWORKS INTERFACE
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- EDGE OF BITUMEN
- PROPOSED KERB INLET PIT
- PROPOSED SURFACE INLET PIT
- PROPOSED INTERALLOTMENT PIT
- PROPOSED V DRAIN INLETPIT
- PROPOSED HEADWALL
- EXISTING TREES

WARNING: EXISTING SERVICES

ABOVE AND UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.



KEY PLAN

Issue	Description	DR	CH	VE	Date
E	UPDATED BOUNDARIES AND LOT NUMBERS	A.O	S.S.	B.K.	10.03.25
D	UPDATED DESIGN	A.O	S.S.	B.K.	03.09.24
C	UPDATED LAYOUT	A.O	S.S.	B.K.	01.08.24
B	UPDATED LAYOUT	J.B.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 10 20 40 60 80 100m

1 : 1000

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

EROSION AND SEDIMENT CONTROL LAYOUT PLAN SHEET 2

ARCADIS

Arcadis Australia Pacific Pty Limited
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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0172

Issue: E

100mm on Original

Date Plotted: 13 Mar 2025 - 09:21AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0171-ESCPlan.dwg

FOR CONTINUATION REFER DRG-CV-0171

LOT 5

6
73739

FUTSWD

B

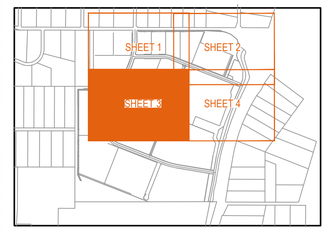
FOR CONTINUATION REFER DRG-CV-0174

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- STABILISE SITE ACCESS/VEHICULAR SHAKE DOWN
- CHECK DAM
- GULLY TREATMENT ON GRADE
- FIELD INLET TREATMENT
- OVERLAND FLOW DIRECTION
- DIRTY WATER DIVERSION DRAIN
- CLEAN WATER DIVERSION DRAIN
- SEDIMENT FENCE/SILT FENCE
- EARTHWORKS BATTER AND TICKS
- EARTHWORKS INTERFACE
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- EDGE OF BITUMEN
- PROPOSED KERB INLET PIT
- PROPOSED SURFACE INLET PIT
- PROPOSED INTERALLOTMENT PIT
- PROPOSED V DRAIN INLETPIT
- PROPOSED HEADWALL
- EXISTING TREES

WARNING: EXISTING SERVICES

ABOVE AND UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.



KEY PLAN

Issue	Description	DR	CH	VE	Date
B	UPDATED LAYOUT	J.B.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 10 20 40 60 80 100m

1 : 1000

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: EROSION AND SEDIMENT CONTROL LAYOUT PLAN SHEET 3

ARCADIS

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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0173

Issue: B

Date Plotted: 13 Mar 2025 - 09:21AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0171-ESCPlan.dwg

FOR CONTINUATION REFER DRG-CV-0172

FOR CONTINUATION REFER DRG-CV-0173

LOT 102

LOT 101

LOT 103

LOT 901

LOT 905

LOT 3

RISE DRIVE

Emt A
RP121667

54
SP1805

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- STABILISE SITE ACCESS/VEHICULAR SHAKE DOWN
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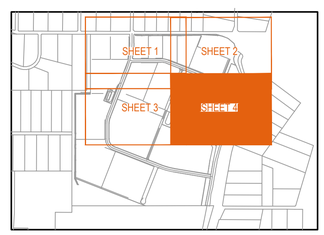

KEY PLAN

Issue	Description	DR	CH	VE	Date
C	UPDATED BOUNDARIES AND LOT NUMBERS	A.O	S.S.	B.K.	10.03.25
B	UPDATED LAYOUT	J.B.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

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Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: EROSION AND SEDIMENT CONTROL LAYOUT PLAN SHEET 4

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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0174

Issue: C

Date Plotted: 13 Mar 2025 - 09:21AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0171-ESCPlan.dwg

GENERAL

1. EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE DRAWINGS ARE MINIMUM REQUIREMENTS BASED ON THE UNDERSTOOD CONSTRUCTION SCOPE AND METHODOLOGY. IT IS THE CONTRACTORS RESPONSIBILITY AT ALL TIMES TO EMPLOY APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES BASED ON THE CONSTRUCTION METHODOLOGY, SEQUENCING OF WORKS AND LOCAL SITE CONDITIONS TO THE APPROVAL OF THE AUTHORISING AUTHORITY
2. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE INSPECTION, MAINTENANCE & TESTING OF ALL DRAINAGE, EROSION & SEDIMENT CONTROL MEASURES ARE UNDERTAKEN ON SITE.
3. ALL DRAINAGE, EROSION & SEDIMENT CONTROL MEASURES MUST BE APPLIED & MAINTAINED IN ACCORDANCE WITH THE LATEST INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) AUSTRALASIA BEST PRACTICE EROSION & SEDIMENT CONTROL (BPESC) DOCUMENT.
4. REFER TO APPROVED PLANS FOR LOCATION, EXTENT, & CONSTRUCTION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
5. ADDITIONAL EROSION & SEDIMENT CONTROL MEASURES MUST BE IMPLEMENTED & A REVISED EROSION & SEDIMENT CONTROL PLAN (ESCP) MUST BE SUBMITTED FOR APPROVAL IN THE EVENT THAT SITE CONDITIONS CHANGE SIGNIFICANTLY FROM THOSE CONSIDERED WITHIN THIS ESCP.
6. IN CIRCUMSTANCES WHERE IT IS CONSIDERED NECESSARY TO PREPARE AN AMENDED EROSION & SEDIMENT CONTROL PLAN (ESCP), & WHERE THE DELIVERY OF SUCH AN AMENDED ESCP IS NOT IMMINENT, THEN ALL NECESSARY NEW OR MODIFIED EROSION & SEDIMENT CONTROL WORKS MUST BE IN ACCORDANCE WITH THE LATEST VERSION OF THE IECA BPESC DOCUMENT. UPON APPROVAL OF THE AMENDED ESCP, ALL WORKS MUST BE IMPLEMENTED IN ACCORDANCE WITH THE AMENDED PLAN.
7. WHERE THERE IS A HIGH PROBABILITY THAT SERIOUS OR MATERIAL ENVIRONMENTAL HARM MAY OCCUR AS A RESULT OF SEDIMENT LEAVING THE SITE, APPROPRIATE ADDITIONAL EROSION & SEDIMENT CONTROL MEASURES MUST BE IMPLEMENTED SUCH THAT ALL REASONABLE & PRACTICABLE MEASURES ARE BEING TAKEN TO PREVENT OR MINIMISE SUCH HARM. ONLY THOSE WORKS NECESSARY TO MINIMISE OR PREVENT ENVIRONMENTAL HARM SHALL BE CONDUCTED ON-SITE PRIOR TO APPROVAL OF THE AMENDED EROSION & SEDIMENT CONTROL PLAN (ESCP).
8. AT ALL TIMES THE CONTRACTOR SHALL MONITOR THE PREVAILING WEATHER CONDITIONS & PROTECT ANY DOWNSTREAM CONSTRUCTION OR RECEIVING ENVIRONMENTS.
9. WORKS SHALL BE COMPLETED ON SITE GENERALLY IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:
   (i) PRE CONSTRUCTION - CONSTRUCT SILT FENCES PRIOR TO PRE-START MEETING, WHICH WILL PROTECT EXISTING DOWNSTREAM PROPERTIES, PARKS OR ROAD RESERVES FROM SEDIMENTATION & EROSION.
   (ii) CLEARING & BULK EARTHWORKS - CONSTRUCT & MAINTAIN SILT FENCES WHICH CONTROL SEDIMENTATION & EROSION DURING CLEARING & BULK EARTHWORKS. ALL DISTURBED AREAS TO BE EITHER GRASS SEEDED OR TURFED, AS SPECIFIED, AS SOON AS POSSIBLE OR WITHIN 7 DAYS OF FINAL TRIMMING OF EARTHWORKS.
   (iii) MAINTENANCE PERIOD - CONSTRUCT & MAINTAIN SILT MANAGEMENT CONTROLS WHICH CONTROL SEDIMENTATION & EROSION PRIOR TO THE ESTABLISHMENT OF GRASS COVER & REHABILITATION. PROVIDE GRASS FILTER STRIPS IN LOCATIONS AS SHOWN ON EROSION & SEDIMENT CONTROL PLANS.
10. EROSION & SEDIMENT CONTROL PROTECTION MEASURES SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONTRACT.

RECOMMENDED IMPLEMENTATION SEQUENCE

1 ALL EROSION & SEDIMENT CONTROL MEASURES SHALL BE INSTALLED & FUNCTIONAL PRIOR TO WORKS COMMENCING & IN THE FOLLOWING SEQUENCE:
   a. CONSTRUCT TEMPORARY STABILISED SITE ACCESS
   b. PROVIDE INLET PROTECTION TO STORMWATER INLETS & GULLIES ON ALL ROADS ADJOIN THE SITE.
   c. CONSTRUCT BARRIER FENCING AROUND RESTRICTED 'NO-GO' ZONES OF THE RETAINED VEGETATION & AREAS NOT TO BE DISTURBED & AREAS WHICH REMAIN UN-WORKED.
   d. INSTALL ALL TEMPORARY SEDIMENT FENCES
   e. CONSTRUCT DIVERSION BANKS AS NECESSARY (PARALLEL TO CONTOURS) TO DIVERT RUNOFF FROM DISTURBED AREAS INTO THE SEDIMENT PONDS/BASINS
   f. WORK AREAS TO BE DELINEATED BY BARRIER FENCING & DIVERSION CHANNEL UPSLOPE & SEDIMENT FENCING DOWNSLOPE.
   g. MAINTAIN EXISTING SEDIMENT PONDS/BASINS AS LONG AS PRACTICALLY POSSIBLE
   h. STABILISE ALL DISTURBED AREAS ASAP & PROGRESSIVELY AS WORKS ARE COMPLETED.
   i. TEMPORARY STABILISATION TO BE DONE USING MULCHING, HYDROMULCHING, HYDROSEEDING OR DIRECT SEEDING TO GIVE A 70% COVERAGE OF GROUND SURFACE WITHIN 14 DAYS OF WORKS COMPLETING (EVEN IF WORKS MAY CONTINUE LATER)
2 EROSION & SEDIMENT CONTROL PROTECTION MEASURES MAY NEED TO BE REVISED & UPDATED TO REFLECT THE SITE CONDITIONS & PROGRESSION OF THE WORKS, I.E. MEASURES INCLUDING SEDIMENT FENCES SHOULD BE MOVED & REINSTATED AS WORKS PROGRESS.

SITE MANAGEMENT

1. ALL OFFICE FACILITIES & OPERATIONAL ACTIVITIES MUST BE LOCATED SUCH THAT ANY LIQUID EFFLUENT (E.G. PROCESS WATER, WASH-DOWN WATER, EFFLUENT FROM EQUIPMENT CLEANING, OR PLANT WATERING), CAN BE TOTALLY CONTAINED & TREATED WITHIN THE SITE.
2. THE CONSTRUCTION SCHEDULE MUST AIM TO MINIMISE THE DURATION THAT ANY & ALL AREAS OF SOIL ARE EXPOSED TO THE EROSIVE EFFECTS OF WIND, RAIN & SURFACE WATER.
3. LAND-DISTURBING ACTIVITIES MUST BE UNDERTAKEN IN ACCORDANCE WITH THE ESCP & ASSOCIATED DEVELOPMENT CONDITIONS.
4. LAND-DISTURBING ACTIVITIES MUST BE UNDERTAKEN IN SUCH A MANNER THAT ALLOWS ALL REASONABLE & PRACTICABLE MEASURES TO BE UNDERTAKEN TO:
   (i) ALLOW STORMWATER TO PASS THROUGH THE SITE IN A CONTROLLED MANNER & AT NON-EROSIVE FLOW VELOCITIES UP TO THE SPECIFIED DESIGN STORM DISCHARGE;
   (ii) MINIMISE SOIL EROSION RESULTING FROM RAIN, WATER FLOW &/OR WIND;
   (iii) MINIMISE ADVERSE EFFECTS OF SEDIMENT RUNOFF, INCLUDING SAFETY ISSUES;
   (iv) PREVENT, OR AT LEAST MINIMISE, ENVIRONMENTAL HARM RESULTING FROM WORK-RELATED SOIL EROSION & SEDIMENT RUNOFF;
   (v) ENSURE THAT THE VALUE & USE OF LAND/PROPERTIES ADJACENT TO THE DEVELOPMENT (INCLUDING ROADS) ARE NOT DIMINISHED AS A RESULT OF THE ADOPTED EROSION & SEDIMENT CONTROL MEASURES.
5. ALL EROSION & SEDIMENT CONTROL MEASURES MUST CONFORM TO THE STANDARDS & SPECIFICATIONS CONTAINED IN:
   (i) THE DEVELOPMENT APPROVAL CONDITION ISSUED BY THE RELEVANT REGULATORY AUTHORITY; &
   (ii) THE APPROVED ESCP & SUPPORTING DOCUMENTATION; OR
   (iii) THE LATEST VERSION OF THE IECA BPESC DOCUMENT, IF THE STANDARDS & SPECIFICATIONS ARE NOT CONTAINED IN THE APPROVED ESCP.
6. ANY WORKS THAT MAY CAUSE SIGNIFICANT SOIL DISTURBANCE & ARE ANCILLARY TO ANY ACTIVITY FOR WHICH REGULATORY BODY APPROVAL IS REQUIRED, MUST NOT COMMENCE BEFORE THE ISSUE OF THAT APPROVAL.
7. ADDITIONAL &/OR ALTERNATIVE EROSION & SEDIMENT CONTROL MEASURES MUST BE IMPLEMENTED IN THE EVENT THAT SITE INSPECTIONS, THE SITE'S MONITORING & MAINTENANCE PROGRAM, OR THE REGULATORY AUTHORITY, IDENTIFIES THAT UNACCEPTABLE OFF-SITE SEDIMENTATION IS OCCURRING AS A RESULT OF THE WORK ACTIVITIES.
8. LAND-DISTURBING ACTIVITIES MUST NOT CAUSE UNNECESSARY SOIL DISTURBANCE IF AN ALTERNATIVE CONSTRUCTION PROCESS IS AVAILABLE THAT ACHIEVES THE SAME OR EQUIVALENT OUTCOMES AT AN EQUIVALENT COST.
9. SEDIMENT (INCLUDING CLAY, SILT, SAND, GRAVEL, SOIL, MUD, CEMENT & CERAMIC WASTE) DEPOSITED OFF THE SITE AS A DIRECT RESULT OF AN ON-SITE ACTIVITY, MUST BE COLLECTED & THE AREA APPROPRIATELY CLEANED/REHABILITATED AS SOON AS REASONABLE & PRACTICABLE, & IN A MANNER THAT GIVES APPROPRIATE CONSIDERATION TO THE SAFETY & ENVIRONMENTAL RISKS ASSOCIATED WITH THE SEDIMENT DEPOSITION.
10. WHEREVER REASONABLE & PRACTICABLE, BRICK, TILE & MASONRY CUTTING MUST BE CARRIED OUT ON A PERVIOUS SURFACE, SUCH AS GRASS, OR OPEN SOIL, OR IN SUCH A MANNER THAT ALL SEDIMENT-LADEN RUNOFF IS PREVENTED FROM DISCHARGING INTO A GUTTER, DRAIN, OR WATER BODY.
11. ADEQUATE WASTE COLLECTION BINS MUST BE PROVIDED ON-SITE & MAINTAINED SUCH THAT POTENTIAL & ACTUAL ENVIRONMENTAL HARM RESULTING FROM SUCH MATERIAL WASTE IS MINIMISED.
12. CONCRETE WASTE & CHEMICAL PRODUCTS, INCLUDING PETROLEUM & OIL-BASED PRODUCTS, MUST BE PREVENTED FROM ENTERING AN INTERNAL WATER BODY, OR AN EXTERNAL DRAIN, STORMWATER SYSTEM, OR WATER BODY.
13. ALL FLAMMABLE & COMBUSTIBLE LIQUIDS, INCLUDING ALL LIQUID CHEMICALS IF SUCH CHEMICALS COULD POTENTIALLY BE WASHED OR DISCHARGED FROM THE SITE, ARE STORED & HANDLED ON-SITE IN ACCORDANCE WITH RELEVANT STANDARDS SUCH AS AS1940 THE STORAGE & HANDLING OF FLAMMABLE & COMBUSTIBLE LIQUIDS.
14. TRENCHES NOT LOCATED WITHIN ROADWAYS MUST BE BACKFILLED, CAPPED WITH TOPSOIL, & COMPACTED TO A LEVEL AT LEAST 75mm ABOVE ADJOINING GROUND LEVEL & APPROPRIATELY STABILISED.
15. ALL STORMWATER, SEWER LINE & OTHER SERVICE TRENCHES, NOT LOCATED WITHIN ROADWAYS, MUST BE MULCHED & SEEDED, OR OTHERWISE APPROPRIATELY STABILISED WITHIN 7 DAYS AFTER BACKFILL.
16. NO MORE THAN 150m OF A STORMWATER, SEWER LINE OR OTHER SERVICE TRENCH MUST TO BE OPEN AT ANY ONE TIME.
17. SITE SPOIL MUST BE LAWFULLY DISPOSED OF IN A MANNER THAT DOES NOT RESULT IN ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
18. ALL FILL MATERIAL PLACED ON SITE MUST COMPRISE ONLY NATURAL EARTH & ROCK, & IS TO BE FREE OF CONTAMINANTS, BE FREE DRAINING, & BE COMPACTED IN LAYERS NOT EXCEEDING 300mm TO 95% STANDARD RELATIVE DRY DENSITY IN ACCORDANCE WITH AS1289.
19. FOOT & VEHICULAR TRAFFIC WILL BE RESTRICTED IN RECENTLY STABILISED AREAS INCLUDING THOSE HYDROSEEDED, TURFED OR GRASS SEEDED.
20. TEMPORARY SITE STABILISATION PROCEDURES MUST COMMENCE AT LEAST 30 DAYS PRIOR TO THE NOMINATED SITE SHUTDOWN DATE. AT LEAST 70% STABLE COVER OF ALL UNSTABLE &/OR DISTURBED SOIL SURFACES MUST BE ACHIEVED PRIOR TO SHUTDOWN. THE STABILISATION WORKS MUST NOT RELY UPON THE LONGEVITY OF NON-VEGETATED EROSION CONTROL BLANKETS, OR TEMPORARY SOIL BINDERS.
21. IF BIO-RETENTION FILTER MEDIA IS INSTALLED PRIOR TO 80% OF THE UPSTREAM CATCHMENT BEING FULLY DEVELOPED, THE FILTER MEDIA SHALL BE PROTECTED WITH A LAYER OF GEOFABRIC WITH TURF ON TOP.

LAND CLEARING

1. LAND CLEARING MUST BE DELAYED AS LONG AS PRACTICABLE & MUST BE UNDERTAKEN IN CONJUNCTION WITH DEVELOPMENT OF EACH STAGE OF WORKS, UNLESS OTHERWISE APPROVED BY SUPERINTENDENT.
2. ALL REASONABLE & PRACTICABLE EFFORTS MUST BE TAKEN TO DELAY THE REMOVAL OF, OR DISTURBANCE TO, EXISTING GROUND COVER (ORGANIC OR INORGANIC) PRIOR TO LAND-DISTURBING ACTIVITIES.
6. BULK TREE CLEARING MUST OCCUR IN A MANNER THAT MINIMISES DISTURBANCE TO EXISTING GROUND COVER (ORGANIC OR INORGANIC).
7. BULK TREE CLEARING & GRUBBING OF THE SITE MUST BE IMMEDIATELY FOLLOWED BY SPECIFIED TEMPORARY STABILISATION MEASURES (E.G. TEMPORARY GRASSING, OR MULCHING) PRIOR TO COMMENCEMENT OF EACH STAGE OF CONSTRUCTION WORKS.
8. DISTURBANCE TO NATURAL WATERCOURSES (INCLUDING BED & BANKS) & THEIR ASSOCIATED RIPARIAN ZONES MUST BE LIMITED TO THE MINIMUM PRACTICABLE.
9. NO LAND CLEARING SHALL BE UNDERTAKEN UNLESS PRECEDED BY THE INSTALLATION OF ADEQUATE DRAINAGE & SEDIMENT CONTROL MEASURES, UNLESS SUCH CLEARING IS REQUIRED FOR THE PURPOSE OF INSTALLING SUCH MEASURES, IN WHICH CASE, ONLY THE MINIMUM CLEARING REQUIRED TO INSTALL SUCH MEASURES SHALL OCCUR.
10. LAND CLEARING MUST BE LIMITED TO 5M FROM THE EDGE OF PROPOSED CONSTRUCTED WORKS, 2M OF ESSENTIAL CONSTRUCTION TRAFFIC ROUTES, & A TOTAL OF 10M WIDTH FOR CONSTRUCTION ACCESS, UNLESS OTHERWISE APPROVED BY SUPERINTENDENT.
11. PRIOR TO LAND CLEARING, AREAS OF PROTECTED VEGETATION, & SIGNIFICANT AREAS OF RETAINED VEGETATION MUST BE CLEARLY IDENTIFIED (E.G. WITH HIGH-VISIBILITY TAPE, OR LIGHT FENCING) FOR THE PURPOSES OF MINIMISING THE RISK OF UNNECESSARY LAND CLEARING.
12. ALL REASONABLE & PRACTICABLE MEASURES MUST BE TAKEN TO MINIMISE THE REMOVAL OF, OR DISTURBANCE TO, THOSE TREES, SHRUBS & GROUND COVERS (ORGANIC OR INORGANIC) THAT ARE INTENDED TO BE RETAINED.
13. ALL LAND CLEARING MUST BE IN ACCORDANCE WITH THE FEDERAL, STATE & LOCAL GOVERNMENT VEGETATION PROTECTION/PRESERVATION REQUIREMENTS &/OR POLICIES.
14. LAND CLEARING IS LIMITED TO THE MINIMUM PRACTICABLE DURING THOSE PERIODS WHEN SOIL EROSION DUE TO WIND, RAIN OR SURFACE WATER IS POSSIBLE.
15. LAND CLEARING MUST NOT EXTEND BEYOND THAT NECESSARY TO PROVIDE UP TO EIGHT (8) WEEKS OF SITE ACTIVITY DURING THOSE MONTHS WHEN THE ACTUAL OR AVERAGE RAINFALL IS LESS THAN 45mm, SIX (6) IF BETWEEN 45 & 100mm, FOUR (4) WEEKS IF BETWEEN 100 & 225mm, & TWO (2) WEEKS IF GREATER THAN 225mm.
16. NATIVE SITE VEGETATION REQUIRED & APPROVED FOR CLEARING SHOULD BE MULCHED & STOCKPILED FOR LATER USE IN LANDSCAPING, STABILISATION &/OR SITE REHABILITATION WORKS.

SITE ACCESS

1. PRIOR TO THE COMMENCEMENT OF SITE WORKS, THE LOCATION OF THE SITE ACCESS POINT(S) MUST BE VERIFIED WITH THE RELEVANT REGULATORY AUTHORITY.
2. SITE ACCESS MUST BE RESTRICTED TO THE MINIMUM PRACTICAL NUMBER OF LOCATIONS.
3. SITE EXIT POINTS MUST BE APPROPRIATELY MANAGED TO MINIMISE THE RISK OF SEDIMENT BEING TRACKED ONTO SEALED, PUBLIC ROADWAYS.
5. INSTALL SEDIMENT FENCING &/OR BARRIER FENCING TO CONFINE INGRESS TO & EGRESS FROM THE SITE TO STABILISED ACCESS POINTS ONLY.
4. STORMWATER RUNOFF FROM ACCESS ROADS & STABILISED ENTRY/EXIT POINTS MUST DRAIN TO AN APPROPRIATE SEDIMENT CONTROL DEVICE.

CONSTRUCTION EXIT - ROCK PAD

MATERIALS:

1. ROCK: WELL GRADED, HARD, ANGULAR, EROSION RESISTANT ROCK, NOMINAL DIAMETER OF 50 TO 75mm (SMALL DISTURBANCES) OR 100 TO 150mm (LARGE DISTURBANCES). ALL REASONABLE MEASURES MUST BE TAKEN TO OBTAIN ROCK OF NEAR UNIFORM SIZE.
2. FOOTPATH STABILISING AGGREGATE: 25 TO 50mm GRAVEL OR AGGREGATE.
3. GEOTEXTILE FABRIC: HEAVY-DUTY, NEEDLE -PUNCHED, NON-WOVEN FILTER CLOTH ('BIDIM' A24 OR EQUIVALENT).

INSTALLATION:

1. CLEAR THE LOCATION OF THE ROCK PAD, REMOVING STUMPS, ROOTS & OTHER VEGETATION TO PROVIDE A FIRM FOUNDATION SO THAT THE ROCK IS NOT PRESSED INTO SOFT GROUND. CLEAR SUFFICIENT WIDTH TO ALLOW PASSAGE OF LARGE VEHICLES, BUT CLEAR ONLY THAT NECESSARY FOR THE EXIT. DO NOT CLEAR ADJACENT AREAS UNTIL THE REQUIRED EROSION & SEDIMENT CONTROL DEVICES ARE IN PLACE.
2. IF THE EXPOSED SOIL IS SOFT, PLASTIC OR CLAYEY, PLACE A SUB-BASE OF CRUSHED ROCK OR A LAYER OF HEAVY-DUTY FILTER CLOTH TO PROVIDE A FIRM FOUNDATION.
3. PLACE THE ROCK PAD FORMING A MINIMUM 200mm THICK LAYER OF CLEAN, OPEN-VOID ROCK.
4. IF THE ASSOCIATED CONSTRUCTION SITE IS UP-SLOPE OF THE ROCKPAD, THUS CAUSING STORMWATER RUNOFF TO FLOW TOWARD THE ROCK PAD, THEN FORM A MINIMUM 300mm HIGH FLOW CONTROL BERM ACROSS THE ROCK PAD TO DIVERT SUCH RUNOFF TO A SUITABLE SEDIMENT TRAP.
5. THE LENGTH OF THE ROCK PAD SHOULD BE AT LEAST 15m WHERE PRACTICABLE, & AS WIDE AS THE FULL WIDTH OF THE ENTRY OR EXIT & AT LEAST 3m. THE ROCK PAD SHOULD COMMENCE AT THE EDGE OF THE OFF-SITE SEALED ROAD OR PAVEMENT.
6. FLARE THE END THE ROCK PAD WHERE IT MEETS THE PAVEMENT SO THAT THE WHEELS OF TURNING VEHICLES DO NOT TRAVEL OVER UNPROTECTED SOIL.
7. IF THE FOOTPATH IS OPEN TO PEDESTRIAN MOVEMENT, THEN COVER THE COARSE ROCK WITH FINE AGGREGATE OR GRAVEL, OR OTHERWISE TAKE WHATEVER MEASURES ARE NEEDED TO MAKE THE AREA SAFE.

SOIL & STOCKPILE MANAGEMENT

1. TOPSOIL SHALL BE STRIPPED & STOCKPILED FOR LATER USE ONSITE.
2. ALL REASONABLE & PRACTICABLE MEASURES MUST BE TAKEN TO OBTAIN THE MAXIMUM BENEFIT FROM EXISTING TOPSOIL, INCLUDING:
   (i) WHERE THE PROPOSED AREA OF SOIL DISTURBANCE DOES NOT EXCEED 2500m², & THE TOPSOIL DOES NOT CONTAIN UNDESIRABLE WEED SEED, THE TOP 100mm OF SOIL LOCATED WITHIN AREAS OF PROPOSED SOIL DISTURBANCE (INCLUDING STOCKPILE AREAS) MUST BE STRIPPED & STOCKPILED SEPARATELY FROM THE REMAINING SOIL.
   (ii) WHERE THE PROPOSED AREA OF SOIL DISTURBANCE EXCEEDS 2500m², & THE TOPSOIL DOES NOT CONTAIN UNDESIRABLE WEED SEED, THE TOP 50mm OF SOIL MUST BE STRIPPED & STOCKPILED SEPARATELY FROM THE REMAINING TOPSOIL, & SPREAD AS A FINAL SURFACE SOIL.
   (iii) IN AREAS WHERE THE TOPSOIL CONTAINS UNDESIRABLE WEED SEED, THE AFFECTED SOIL MUST BE SUITABLY BURIED OR REMOVED FROM THE SITE.
3. STOCKPILES OF ERODIBLE MATERIAL THAT HAS THE POTENTIAL TO CAUSE ENVIRONMENTAL HARM IF DISPLACED, MUST BE:
   (i) APPROPRIATELY PROTECTED FROM WIND, RAIN, CONCENTRATED SURFACE FLOW & EXCESSIVE UP-SLOPE STORMWATER SURFACE FLOWS.
   (ii) LOCATED AT LEAST 2M (PREFERABLY 5M) FROM ANY HAZARDOUS AREA, RETAINED VEGETATION, ROADS & CONCENTRATED WATER FLOW.
   (iii) LOCATED UP-SLOPE OF AN APPROPRIATE SEDIMENT CONTROL SYSTEM.
   (iv) PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 28 DAYS.
   (v) PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 10 DAYS DURING THOSE MONTHS THAT HAVE A HIGH EROSION RISK.
   (vi) PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 5 DAYS DURING THOSE MONTHS THAT HAVE AN EXTREME EROSION RISK.
4. A SUITABLE FLOW DIVERSION SYSTEM MUST BE ESTABLISHED IMMEDIATELY UP-SLOPE OF A STOCKPILE OF ERODIBLE MATERIAL THAT HAS THE POTENTIAL TO CAUSE ENVIRONMENTAL HARM IF DISPLACED, IF THE UP-SLOPE CATCHMENT AREA DRAINING TO THE STOCKPILE EXCEEDS 1500m².

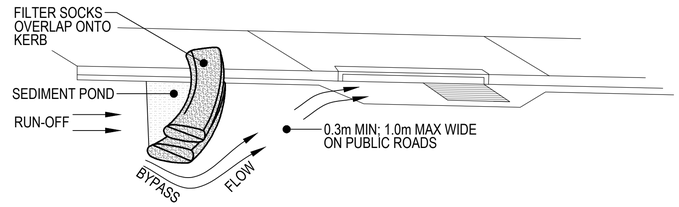
FILTER SOCKS-CONCENTRATED FLOW

MATERIALS:

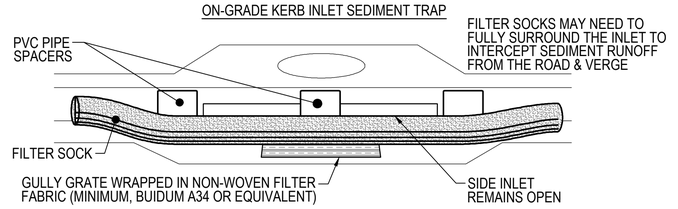
1. SOCKS: MINIMUM Ø200mm SYNTHETIC OR BIODEGRADABLE TUBES MANUFACTURED FROM NON-WOVEN OR COMPOSITE FABRIC SUITABLE FOR THE "FILTRATION" OF COURSE SEDIMENT.
2. FILL MATERIALS: STRAW, CANE MULCH, COMPOSTED MATERIAL (AS4454), COARSE SAND, OR CLEAN AGGREGATE

INSTALLATION:

1. ENSURE THE SOCKS ARE PLACED INDIVIDUALLY OR COLLECTIVELY (AS A SINGLE SEDIMENT TRAP) SUCH THAT:
   i) LEAKAGE AROUND OR UNDER THE SOCKS IS MINIMISED;
   ii) ADJOINING SOCKS ARE TIGHTLY BUTTED OR OVERLAPPED AT LEAST 450mm.
   iii) THE SURFACE AREA OF POTENTIAL WATER PONDING UP-SLOPE OF EACH SEDIMENT TRAP IS MAXIMISED.
   iv) TO THE MAXIMUM DEGREE PRACTICAL, ALL SEDIMENT-LADEN WATER WILL PASS THROUGH THE FORMED POND BEFORE FLOWING OVER THE DOWN-SLOPE END OF THE SEDIMENT TRAP.

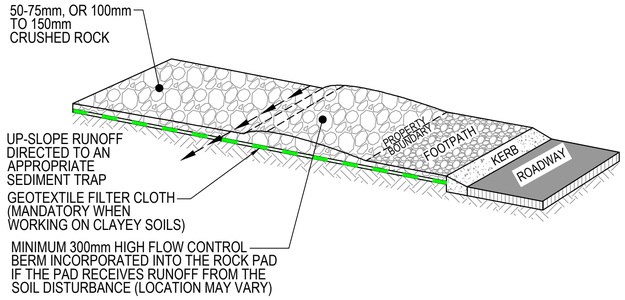


ON-GRADE KERB INLET SEDIMENT TRAP

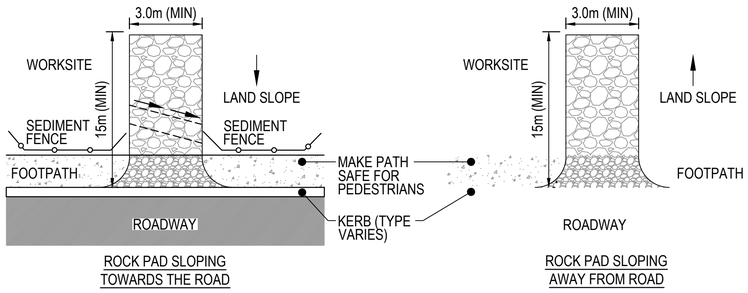


SAG INLET SEDIMENT TRAP

FILTER SOCKS - CONCENTRATED FLOWS



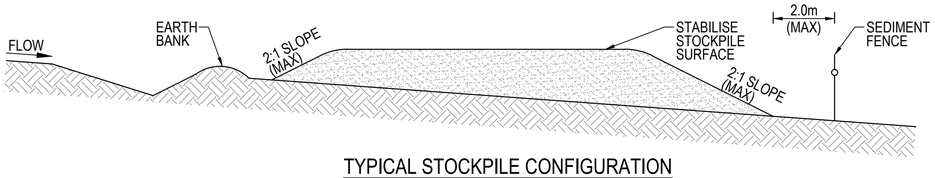
ROCK ENTRY/EXIT PAD FOR CONSTRUCTION SITES



ROCK PAD SLOPING TOWARDS THE ROAD

ROCK PAD SLOPING AWAY FROM ROAD

CONSTRUCTION EXIT - ROCK PAD
(CONSTRUCTION SITES ONLY)



TYPICAL STOCKPILE CONFIGURATION

Issue	Description	DR	CH	VE	Date
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: EROSION AND SEDIMENT CONTROL DETAILS SHEET 1

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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0191

Issue: A

100mm on Original

Date Plotted: 13 Mar 2025 - 09:21AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0191-ESCNotes.dwg

DRAINAGE CONTROL

1. WHEREVER REASONABLE & PRACTICABLE, STORMWATER RUNOFF ENTERING THE SITE FROM EXTERNAL AREAS, & NON-SEDIMENT LADEN (CLEAN) STORMWATER RUNOFF ENTERING A WORK AREA OR AREA OF SOIL DISTURBANCE, MUST BE DIVERTED AROUND OR THROUGH THAT AREA IN A MANNER THAT MINIMISES SOIL EROSION & THE CONTAMINATION OF THAT WATER FOR ALL DISCHARGES UP TO THE SPECIFIED DESIGN STORM DISCHARGE.
2. DURING THE CONSTRUCTION PERIOD, ALL REASONABLE & PRACTICABLE MEASURES MUST BE IMPLEMENTED TO CONTROL FLOW VELOCITIES IN SUCH A MANNER THAT PREVENTS SOIL EROSION ALONG DRAINAGE PATHS & AT THE ENTRANCE & EXIT OF ALL DRAINS & DRAINAGE PIPES DURING ALL STORMS UP TO THE RELEVANT DESIGN STORM DISCHARGE.
3. TO THE MAXIMUM DEGREE REASONABLE & PRACTICABLE, ALL WATERS DISCHARGED DURING THE CONSTRUCTION PHASE MUST DISCHARGE ONTO STABLE LAND, IN A NON-EROSIVE MANNER, & AT A LEGAL POINT OF DISCHARGE.
4. DURING THE CONSTRUCTION PERIOD, ROOF WATER MUST BE MANAGED IN A MANNER THAT MINIMISES SOIL EROSION THROUGHOUT THE SITE, & SITE WETNESS WITHIN ACTIVE WORK AREAS.

DIVERSION CHANNELS & CATCH DRAINS

1. CLEAR THE LOCATION FOR THE CHANNEL, CLEARING ONLY WHAT IS NEEDED TO PROVIDE ACCESS FOR PERSONNEL & CONSTRUCTION EQUIPMENT.
2. REMOVE ROOTS, STUMPS, & OTHER DEBRIS & DISPOSE OF THEM PROPERLY. DO NOT USE DEBRIS TO BUILD ANY ASSOCIATED EMBANKMENTS.
3. EXCAVATE THE CHANNEL TO THE SPECIFIED SHAPE, ELEVATION & GRADIENT (1% MIN). THE SIDES OF THE CHANNEL SHOULD BE NO STEEPER THAN A 2:1 (H:V) IF CONSTRUCTED IN EARTH, UNLESS SPECIFICALLY DIRECTED WITHIN THE APPROVED PLANS.
4. STABILISE THE CHANNEL & BANKS IMMEDIATELY UNLESS IT WILL OPERATE FOR LESS THAN 30 DAYS. IN EITHER CASE, TEMPORARY EROSION PROTECTION (MATTING, ROCK, TURF, ETC.) WILL BE REQUIRED AS SPECIFIED WITHIN THE APPROVED PLANS OR AS DIRECTED.
5. IF THE CHANNEL IS CUT INTO A DISPERSIVE (SODIC) SOIL, THE EXPOSED DISPERSIVE SOIL MUST BE COVERED & MAINTAINED WITH A MINIMUM 200mm THICK LAYER OF NON-DISPERSIVE SOIL PRIOR TO PLACEMENT OF EROSION PROTECTION MEASURES.
6. ENSURE THE CHANNEL DISCHARGES TO A STABLE AREA SUCH THAT SOIL EROSION WILL BE PREVENTED. SPECIFICALLY, ENSURE THE DRAIN DOES NOT DISCHARGE TO AN UNSTABLE FILL SLOPE.

EROSION CONTROL

1. THE APPLICATION OF LIQUID-BASED DUST SUPPRESSION MEASURES MUST ENSURE THAT SEDIMENT-LADEN RUNOFF RESULTING FROM SUCH MEASURES DOES NOT CREATE A TRAFFIC OR ENVIRONMENTAL HAZARD.
2. ALL TEMPORARY EARTH BANKS, FLOW DIVERSION SYSTEMS, & EMBANKMENTS ASSOCIATED WITH CONSTRUCTED SEDIMENT BASINS MUST BE MACHINE-COMPACTED, SEEDED & MULCHED FOR THE PURPOSE OF ESTABLISHING A TEMPORARY VEGETATIVE COVER WITHIN 10 DAYS AFTER GRADING.
3. UNPROTECTED SLOPE LENGTHS MUST NOT EXCEED 80M, OR AN EQUIVALENT VERTICAL FALL OF 3M.
4. THE CONSTRUCTION & STABILISATION OF EARTH BATTERS STEEPER THAN 6:1 (H:V) MUST BE STAGED SUCH THAT NO MORE THAN 3 VERTICAL-METRES OF ANY BATTER IS EXPOSED TO RAINFALL AT ANY INSTANT.
5. SYNTHETIC REINFORCED EROSION CONTROL MATS & BLANKETS MUST NOT BE PLACED WITHIN, OR ADJACENT TO, RIPARIAN ZONES & WATERCOURSES IF SUCH MATERIALS ARE LIKELY TO CAUSE ENVIRONMENTAL HARM TO WILDLIFE OR WILDLIFE HABITATS.
6. A MINIMUM 60% GROUND COVER MUST BE ACHIEVED ON ALL NON-COMPLETED EARTHWORKS EXPOSED TO ACCELERATED SOIL EROSION IF FURTHER CONSTRUCTION ACTIVITIES OR SOIL DISTURBANCES ARE LIKELY TO BE SUSPENDED FOR MORE THAN 30 DAYS DURING THOSE MONTHS WHEN THE EXPECTED RAINFALL IS LESS THAN 30mm; MINIMUM 70% COVER WITHIN 30 DAYS IF BETWEEN 30 & 45mm; MINIMUM 70% COVER WITHIN 20 DAYS IF BETWEEN 45 & 100mm; MINIMUM 75% COVER WITHIN 10 DAYS IF BETWEEN 100 & 225mm; & MINIMUM 80% COVER WITHIN 5 DAYS IF GREATER THAN 225mm. (ALTERNATIVE TO ABOVE)

EROSION CONTROL MAT LINING

1. EROSION CONTROL MATS MUST BE STORED AWAY FROM DIRECT SUNLIGHT OR COVERED WITH ULTRAVIOLET PROTECTIVE SHEETING UNTIL THE SITE IS READY FOR THEIR INSTALLATION.
2. VEHICLES & CONSTRUCTION EQUIPMENT MUST NOT BE PERMITTED TO MANEUVER OVER THE MATTING UNLESS IT HAS BEEN COVERED WITH A LAYER OF SOIL OR GRAVEL AT LEAST 150mm THICK.
3. IF THE CHANNEL IS TO BE GRASSED, PREPARE A SMOOTH SEED BED OF APPROXIMATELY 75mm OF TOPSOIL, SEED, FERTILISE, WATER & RAKE TO REMOVE ANY REMAINING SURFACE IRREGULARITIES.
4. EXCAVATE A 300mm DEEP BY 150mm WIDE ANCHOR TRENCH ALONG THE FULL WIDTH OF THE UPSTREAM END OF THE AREA TO BE TREATED.
5. AT LEAST 300mm OF THE MAT MUST BE ANCHORED INTO THE TRENCH WITH THE ROLL OF MATTING RESTING ON THE GROUND UP-SLOPE OF THE TRENCH.
6. WHEN SPREADING THE MATS, AVOID STRETCHING THE FABRIC. THE MATS SHOULD REMAIN IN GOOD CONTACT WITH THE SOIL.
7. THE INSTALLATION PROCEDURE MUST ENSURE THAT THE MAT ACHIEVES & RETAINS GOOD CONTACT WITH THE SOIL.
8. DAMAGED MATTING MUST BE REPAIRED OR REPLACED.

TURF LINED

1. TURF SHOULD BE USED WITHIN 12 HOURS OF DELIVERY, OTHERWISE ENSURE THE TURF IS STORED IN CONDITIONS APPROPRIATE FOR THE WEATHER CONDITIONS (e.g. A SHADED AREA).
2. MOISTENING THE TURF AFTER IT IS UNROLLED WILL HELP MAINTAIN ITS VIABILITY.
3. TURF SHOULD BE LAID ON A MINIMUM 75mm BED OF ADEQUATELY FERTILISED TOPSOIL. RAKE THE SOIL SURFACE TO BREAK THE CRUST JUST BEFORE LAYING THE TURF.
4. DURING THE WARMER MONTHS, LIGHTLY IRRIGATE THE SOIL IMMEDIATELY BEFORE LAYING THE TURF.
5. ENSURE THE TURF IS NOT LAID ON GRAVEL, HEAVILY COMPACTED SOILS, OR SOILS THAT HAVE BEEN RECENTLY TREATED WITH HERBICIDES.
6. ENSURE THE TURF EXTENDS UP THE SIDES OF THE DRAIN AT LEAST 100mm ABOVE THE ELEVATION OF THE CHANNEL INVERT, OR AT LEAST TO A SUFFICIENT ELEVATION TO FULLY CONTAIN EXPECTED CHANNEL FLOW.
7. ON CHANNEL GRADIENTS OF 3:1(H:V) OR STEEPER, OR IN SITUATIONS WHERE HIGH FLOW VELOCITIES (i.e. VELOCITY >1.5m/s) ARE LIKELY WITHIN THE FIRST TWO WEEK FOLLOWING PLACEMENT, SECURE THE INDIVIDUAL TURF STRIPS WITH WOODEN OR PLASTIC PEGS.
8. ENSURE THAT INTIMATE CONTACT IS ACHIEVED & MAINTAINED BETWEEN THE TURF & THE SOIL SUCH THAT SEEPAGE FLOW BENEATH THE TURF IS AVOIDED.
9. WATER UNTIL THE SOIL IS WET 100mm BELOW THE TURF. THEREAFTER, WATERING SHOULD BE SUFFICIENT TO MAINTAIN & PROMOTE HEALTHY GROWTH.

ROCK-LINED

1. ALL ROCK MUST BE HARD, WEATHER RESISTANT, & DURABLE AGAINST DISINTEGRATION UNDER CONDITIONS TO BE MET IN HANDLING, PLACEMENT & OPERATION.
2. ALL ROCK MUST HAVE ITS GREATEST DIMENSION NOT GREATER THAN 3 TIMES ITS LEAST DIMENSIONS.
3. THE ROCK USED IN FORMATION OF THE DRAIN MUST BE EVENLY GRADED WITH 50% BY WEIGHT LARGER THAN THE SPECIFIED NOMINAL ROCK SIZE & HAVE SUFFICIENT SMALL ROCK TO FILL THE VOIDS BETWEEN THE LARGER ROCK. DIRT, FINES, & SMALLER ROCK MUST NOT EXCEED 5% BY WEIGHT.
4. THE DIAMETER OF THE LARGEST ROCK SIZE SHOULD BE NO LARGER THAN 1.5 TIMES THE NOMINAL ROCK SIZE. SPECIFIC GRAVITY TO BE AT LEAST 2.5.
5. FILTER CLOTH GEOTEXTILE FABRIC: HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH, MINIMUM 'BIDIM' A24 OR EQUIVALENT.
6. PRIOR TO PLACEMENT, ALL ROCKS MUST BE VISUALLY CHECKED FOR SIZE, ELONGATION, CRACKS, DETERIORATION & OTHER VISIBLE DEFECTS. THE DEGREE & THOROUGHNESS OF SUCH CHECKING MUST BE APPROPRIATE FOR THE POTENTIAL CONSEQUENCES ASSOCIATED WITH FAILURE OF THE STRUCTURE OR PURPOSE FOR WHICH THE MATERIAL WILL BE USED.
7. IF A FILTER CLOTH UNDERLAY IS SPECIFIED, PLACE THE FILTER FABRIC DIRECTLY ON THE PREPARED FOUNDATION. IF MORE THAN ONE SHEET OF FILTER CLOTH IS REQUIRED OVER THE AREA, OVERLAP THE EDGE OF EACH SHEET AT LEAST 300mm, & SECURE ANCHOR PINS AT MINIMUM 1M SPACING ALONG THE OVERLAP.
8. ENSURE THE FILTER CLOTH IS PROTECTED FROM PUNCHING OR TEARING DURING INSTALLATION OF THE FABRIC & THE ROCK. REPAIR ANY DAMAGE BY REMOVING THE ROCK & REPLACING WITH ANOTHER PIECE OF FILTER CLOTH OVER THE DAMAGED AREA OVERLAPPING THE EXISTING FABRIC A MINIMUM OF 300mm.
9. PLACEMENT OF ROCK SHOULD FOLLOW IMMEDIATELY AFTER PLACEMENT OF THE FILTER LAYER. PLACE ROCK SO THAT IT FORMS A DENSE, WELL-GRADED MASS OF ROCK WITH A MINIMUM OF VOIDS.
10. PLACE ROCK LINING TO THE EXTENT & DEPTH INDICATED WITHIN THE APPROVED PLANS.
11. ENSURE THE ROCK IS PLACED IN AN APPROPRIATE MANNER TO AVOID DISPLACING UNDERLYING MATERIALS OR PLACING UNDUE IMPACT FORCE ON THE BEDDING MATERIALS.
12. ENSURE THE ROCK IS PLACED WITH A MINIMUM THICKNESS OF 1.5 TIMES THE NOMINAL ROCK SIZE (D50).
13. ENSURE MATERIALS THAT ARE D50 & LARGER ARE POSITIONED FLUSH WITH THE TOP SURFACE WITH FACES & SHAPES MATCHED TO MINIMISE VOIDS.
14. ENSURE PROJECTIONS ABOVE OR DEPRESSIONS UNDER THE SPECIFIED TOP SURFACE ARE LESS THAN 20% OF THE ROCK LAYER THICKNESS. THE AVERAGE SURFACE PLANE OF THE FINISHED ROCK IS DEFINED AS THE PLANE WHERE 50% OF THE TOPS OF ROCKS WOULD CONTACT.
15. ENSURE THE COMPLETED CHANNEL HAS SUFFICIENT DEPTH (AS SPECIFIED FOR THE TYPE OF CHANNEL) MEASURED FROM THE CHANNEL INVERT (AVERAGE SURFACE PLANE ALONG CHANNEL INVERT) TO THE TOP OF THE EMBANKMENT. THE AVERAGE SURFACE PLANE OF THE FINISHED ROCK IS DEFINED AS THE PLANE WHERE 50% OF THE TOPS OF ROCKS WOULD CONTACT.
16. TO THE MAXIMUM DEGREE PRACTICABLE, THE MATERIAL BETWEEN LARGER ROCK MUST NOT BE LOOSE OR EASILY DISPLACED BY THE EXPECTED FLOW.
17. AFTER PLACEMENT OF THE ROCK LINING, ENSURE THE DRAIN HAS A CONSTANT FALL IN THE DESIRED DIRECTION FREE OF OBSTRUCTIONS.

CHECK DAMS

1. CHECK DAMS CAN BE BUILT WITH VARIOUS MATERIALS INCLUDING ROCKS & SANDBAGS.

MATERIALS:

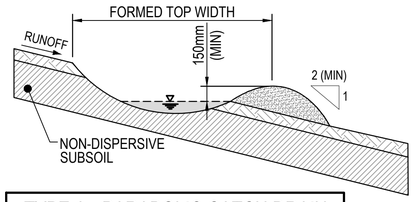
1. ROCK: 150 TO 300mm EQUIVALENT DIAMETER HARD EROSION RESISTANT ROCK.
2. RECYCLED CONCRETE: 150 TO 300mm EQUIVALENT DIAMETER FREE FROM FINES & CEMENT DUST.
3. SANDBAGS: GEOTEXTILE BAGS (WOVEN SYNTHETIC, OR NON-WOVEN BIODEGRADABLE) FILLED WITH CLEAN COARSE SAND, CLEAN AGGREGATE, OR COMPOST.

INSTALLATION:

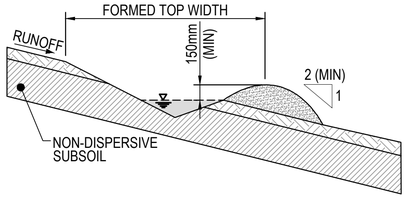
1. PRIOR TO PLACEMENT OF THE SEDIMENT TRAP, ENSURE THE DRAINAGE CHANNEL IS DEEP ENOUGH TO PREVENT WATER BEING UNSAFELY DIVERTED OUT OF THE DRAIN ONCE THE CHECK DAMS ARE INSTALLED.
2. LOCATE EACH CHECK DAM SEDIMENT TRAP AS DIRECTED WITHIN THE APPROVED PLANS, OR OTHERWISE AT SUCH A SPACING TO ACHIEVE THE REQUIRED SEDIMENT TRAPPING OUTCOMES. REFER DETAIL.
3. PLACE EACH CHECK DAM SEDIMENT TRAP TO THE LINES & PROFILE SHOWN IN THE APPROVED PLAN OR AS DIRECTED BY THE SITE SUPERVISOR.

LEVEL SPREADER INSTALLATION:

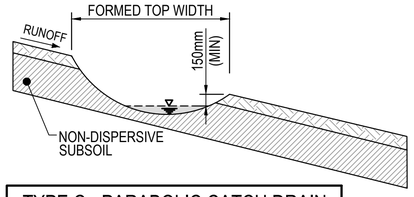
1. THE OUTLET SILL OF THE SPREADER SHOULD BE PROTECTED WITH EROSION CONTROL MATTING TO PREVENT EROSION DURING THE ESTABLISHMENT OF VEGETATION. THE MATTING SHOULD BE A MINIMUM OF 1200mm WIDE EXTENDING AT LEAST 300mm UPSTREAM OF THE EDGE OF THE OUTLET CREST & BURIED AT LEAST 150mm IN A VERTICAL TRENCH. THE DOWNSTREAM EDGE SHOULD BE SECURELY HELD IN PLACE WITH CLOSELY SPACED HEAVY-DUTY WIRE STAPLES AT LEAST 150mm LONG.
2. ENSURE THAT THE OUTLET SILL (CREST) IS LEVEL FOR THE SPECIFIED LENGTH.
3. IMMEDIATELY AFTER CONSTRUCTION, TURF, OR SEED & MULCH WHERE APPROPRIATE, THE LEVEL SPREADER.



TYPE A - PARABOLIC CATCH DRAIN WITH DOWN-SLOPE BANK



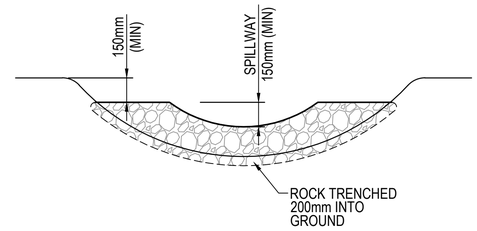
TYPE B - TRIANGULAR V-DRAIN CATCH DRAIN WITH DOWN-SLOPE BANK



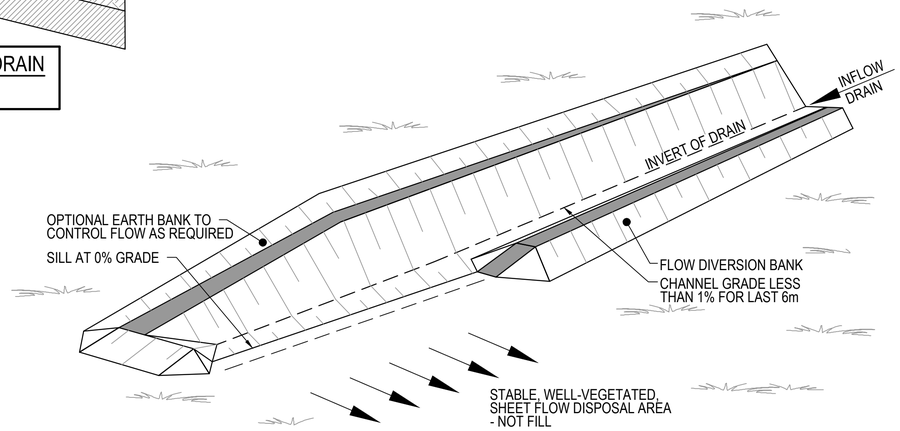
TYPE C - PARABOLIC CATCH DRAIN WITHOUT BANK

CONSTRUCTED DIMENSIONS OF PARABOLIC CATCH DRAINS		
DRAIN TYPE	FORMED WIDTH WITH OR WITHOUT BANK	FORMED DEPTH WIDTH OR WITHOUT BANK
TYPE-A TYPE-B TYPE-C	1.6m 2.4m 3.6m	0.30m 0.45m 0.65m

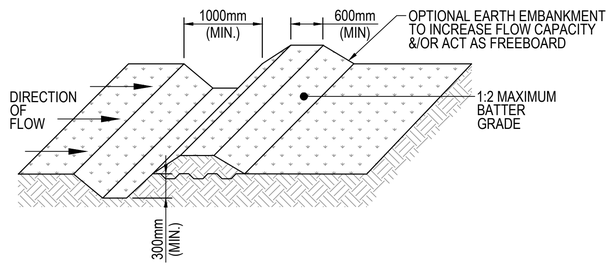
CONSTRUCTED DIMENSIONS OF TRIANGULAR V-DRAINS		
DRAIN TYPE	FORMED WIDTH WITH OR WITHOUT BANK	FORMED DEPTH WIDTH OR WITHOUT BANK
TYPE-AV TYPE-BV TYPE-CV	2.0m 2.7m 3.9m	0.30m 0.45m 0.65m



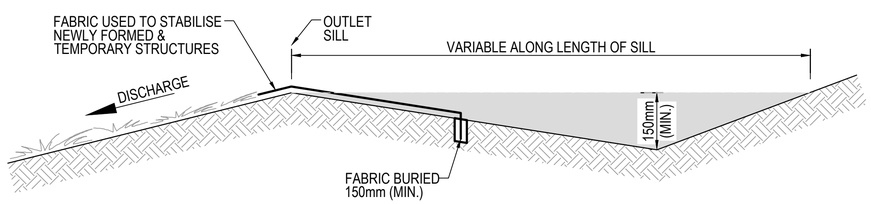
CHECK DAMS



TYPICAL LAYOUT OF LEVEL SPREADER



DIVERSION CHANNEL



TYPICAL PROFILE OF THE OUTLET WEIR

LEVEL SPREADER

Issue	Description	DR	CH	VE	Date
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

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Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
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Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: EROSION AND SEDIMENT CONTROL DETAILS SHEET 2

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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0192

Issue: A

Date Plotted: 13 Mar 2025 - 09:21AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0191-ESCNotes.dwg

SEDIMENT CONTROL

1. OPTIMUM BENEFIT MUST BE MADE OF EVERY OPPORTUNITY TO TRAP SEDIMENT WITHIN THE WORK SITE, & AS CLOSE AS PRACTICABLE TO ITS SOURCE.
2. SEDIMENT TRAPS MUST BE INSTALLED & OPERATED TO BOTH COLLECT & RETAIN SEDIMENT.
3. THE POTENTIAL SAFETY RISK OF A PROPOSED SEDIMENT TRAP TO SITE WORKERS & THE PUBLIC MUST BE GIVEN APPROPRIATE CONSIDERATION, ESPECIALLY THOSE DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS.
4. ALL REASONABLE & PRACTICABLE MEASURES MUST BE TAKEN TO PREVENT, OR AT LEAST MINIMISE, THE RELEASE OF SEDIMENT FROM THE SITE.
5. SUITABLE ALL-WEATHER MAINTENANCE ACCESS MUST BE PROVIDED TO ALL SEDIMENT CONTROL DEVICES.

SEDIMENT FENCE

1. SEDIMENT FENCE TO BE INSTALLED ALONG A LINE OF CONSTANT GROUND ELEVATION WHEREVER PRACTICAL.
2. BOTH ENDS OF THE SEDIMENT FENCE TO EXTEND UP THE SLOPE AT LEAST 1m.
3. SUPPORT POST TO BE SPACED A MAXIMUM 2m UNLESS THE FENCE IS SUPPORTED BY A TOP WIRE OR MESH BACKING, IN WHICH CASE 3m MAXIMUM SPACING.
4. FENCE 'RETURNS' SHALL BE INSTALLED AT MAXIMUM 20m SPACING IF FENCE IS INSTALLED ALONG THE CONTOUR, OTHERWISE 5 TO 10m MAXIMUM SPACING DEPENDING ON SLOPE.
5. MINIMUM 4 STAPLES OR TIE WIRES PER STAKE.

MATERIALS:

1. FABRIC: POLYPROPYLENE, POLYAMIDE, NYLON, POLYESTER, OR POLYETHYLENE WOVEN OR NON-WOVEN FABRIC, AT LEAST 700mm IN WIDTH & A MINIMUM UNIT WEIGHT OF 140GSM. ALL FABRICS TO CONTAIN ULTRAVIOLET INHIBITORS & STABILISERS TO PROVIDE A MINIMUM OF 6 MONTHS OF USEABLE CONSTRUCTION LIFE (ULTRAVIOLET STABILITY EXCEEDING 70%).
2. FABRIC REINFORCEMENTS: WIRE OR STEEL MESH MINIMUM 14-GAUGE WITH A MAXIMUM MESH SPACING OF 200mm.
3. SUPPORT POSTS/STAKES: 1500mm² (MIN.) HARDWOOD, 2500mm² (MIN.) SOFTWOOD, OR 1.5kg/m (MIN) STEEL STAR PICKETS SUITABLE FOR ATTACHING FABRIC.

INSTALLATION OF A SPILL-THROUGH WEIR:

1. LOCATE THE SPILL-THROUGH WEIR SUCH THAT THE WEIR CREST WILL BE LOWER THAN THE GROUND LEVEL AT EACH END OF THE FENCE.
2. ENSURE THE CREST OF THE SPILL-THROUGH WEIR IS AT LEAST 300mm ABOVE THE GROUND ELEVATION.
3. SECURELY TIE A HORIZONTAL CROSS MEMBER (WEIR) TO THE SUPPORT POSTS/STAKES EACH SIDE OF THE WEIR. CUT THE FABRIC DOWN THE SIDE OF EACH POST & FOLD THE FABRIC OVER THE CROSS MEMBER & APPROPRIATELY SECURE THE FABRIC.
4. INSTALL A SUITABLE SPLASH PAD &/OR CHUTE IMMEDIATELY DOWN-SLOPE OF THE SPILL-THROUGH WEIR TO CONTROL SOIL EROSION & APPROPRIATELY DISCHARGE THE CONCENTRATED FLOW PASSING OVER THE WEIR.

INSTALLATION FABRIC DROP INLET PROTECTION:

1. ENSURE THAT THE INSTALLATION OF THE SEDIMENT TRAP WILL NOT CAUSE UNDESIRABLE SAFETY OR FLOODING ISSUES.
2. WHERE POSSIBLE, EXCAVATE A 200x200mm TRENCH AROUND THE INLET STRUCTURE.
3. SPACE STAKES EVENLY AROUND THE PERIMETER OF THE STORMWATER INLET AT A MAXIMUM 1m SPACING & SECURELY DRIVE THEM INTO THE GROUND.
4. WHERE NECESSARY, INSTALL A HORIZONTAL SPILL-THROUGH WEIR TO LIMIT THE MAXIMUM HEIGHT WATER PONDING AROUND THE STRUCTURE.
5. ENSURE THE MAXIMUM POND HEIGHT WILL NOT CAUSE A SAFETY HAZARD, INCLUDING UNDESIRABLE FLOODING OF AN ADJACENT PROPERTY OR ROADWAY. WHEREVER PRACTICAL, THE SPILL-THROUGH WEIR SHOULD BE AT LEAST 300mm ABOVE GROUND LEVEL.
6. IF A SPILL THROUGH WEIR IS NOT INSTALLED, THEN FRAME THE TOP OF THE STAKES WITH HORIZONTAL CROSS MEMBERS.
7. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS.
8. PLACE THE BOTTOM 300mm OF FABRIC IN THE EXCAVATED TRENCH
9. SECURELY FASTEN THE FABRIC TO THE STAKES & CROSS MEMBERS AT THE FABRIC JOINT, OVERLAP THE FABRIC TO THE NEXT STAKE.
10. BACKFILL THE TRENCH WITH AT LEAST 200mm OF AGGREGATE OR COMPACTED SOIL. IF A TRENCH CANNOT BE EXCAVATED, LAY THE BOTTOM 300mm OF FABRIC EVENLY ON THE GROUND SURFACE & COVER WITH A 300mm LAYER OF AGGREGATE, NOT EARTH OR SOIL.
11. WHERE REQUIRED, INSTALL A FLOW CONTROL BUND TO MAINTAIN THE SPECIFIED POOL DEPTH & CONTROL THE MOVEMENT OF WATER.
12. TAKE ALL NECESSARY MEASURES TO MINIMISE THE SAFETY RISK CAUSED BY THE STRUCTURE & TO PREVENT UNSAFE ENTRY INTO THE STORMWATER INLET.

SEDIMENT BASIN

1. REMOVE ALL VEGETATION & TOPSOIL FROM UNDER THE DAM WALL & FROM WITHIN THE STORAGE AREA.
2. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
3. FOR EARTH EMBANKMENT MATERIAL TYPE & COMPACTION REFER TO DTMR SPECIFICATION MRTS04 SECTION14.2.6 - WATER RETAINING EMBANKMENTS.
4. CONSTRUCT EMERGENCY SPILLWAY.
5. INSTALL MARKER POST SHOWING MAXIMUM STORAGE & SETTLING ZONE VOLUMES.
6. AS-CONSTRUCTED PLANS MUST BE PREPARED FOR ALL CONSTRUCTED SEDIMENT BASINS & ASSOCIATED EMERGENCY SPILLWAYS. SUCH PLANS MUST APPROPRIATELY VERIFY THE BASIN'S DIMENSIONS, LEVELS & VOLUMES, & MUST BE SUBMITTED TO THE RELEVANT REGULATORY AUTHORITY WITHIN 14 CALENDAR DAYS OF THE CONSTRUCTION OF EACH BASIN.
7. BASINS SHOULD BE APPROPRIATELY FENCED & MARKED BY WARNING SIGNS IF UNSUPERVISED PUBLIC ACCESS IS LIKELY & PUBLIC SAFETY IS AT RISK.

SITE MONITORING & MAINTENANCE

1. ALL DRAINAGE, EROSION & SEDIMENT CONTROL MEASURES MUST BE INSPECTED:
   (i) AT LEAST DAILY (WHEN WORK IS OCCURRING ON-SITE);
   (ii) AT LEAST WEEKLY (WHEN WORK IS NOT OCCURRING ON-SITE);
   (iii) WITHIN 24 HOURS OF EXPECTED RAINFALL; &
   (iv) WITHIN 18 HOURS OF A RAINFALL EVENT OF SUFFICIENT INTENSITY & DURATION TO CAUSE RUNOFF ON-SITE).
2. INSPECTION SHALL BE CONDUCTED IN LINE WITH THE FOLLOWING AS A MINIMUM:
   i) RECORD TYPE OF DEVICE/CONTROL MEASURE BEING INSPECTED & ITS LOCATION;
   ii) RECORD THE CONDITION OF EACH DEVICE/CONTROL MEASURE BEING INSPECTED;
   iii) RECORD MAINTENANCE REQUIREMENTS FOR DEVICE/CONTROL MEASURE BEING INSPECTED;
   iv) RECORD SEDIMENT VOLUMES REMOVED FROM DEVICE/CONTROL MEASURE BEING INSPECTED;
   v) RECORD DETAILS OF SEDIMENT BASIN TREATMENT, FLOCULANT DOSAGE & CLEANOUTS;
   vi) RECORD SEDIMENT DISPOSAL PROCEDURES & LOCATION;
2. ALL DRAINAGE, EROSION & SEDIMENT CONTROL MEASURES MUST BE MAINTAINED IN PROPER WORKING ORDER AT ALL TIMES DURING THEIR OPERATIONAL LIVES.
4. SEDIMENT CONTROL DEVICES MUST BE DE-SILTED & MADE FULLY OPERATIONAL AS SOON AS REASONABLE & PRACTICABLE AFTER A SEDIMENT-PRODUCING EVENT, WHETHER NATURAL OR ARTIFICIAL, IF THE DEVICE'S SEDIMENT RETENTION CAPACITY FALLS BELOW 75% OF ITS DESIGN RETENTION CAPACITY. DE-SILT SEDIMENT TRAP IF THE SEDIMENT LEVEL EXCEEDS 1/3 OF THE CREST HEIGHT.
5. MATERIALS, WHETHER LIQUID OR SOLID, REMOVED FROM SEDIMENT CONTROL DEVICES DURING MAINTENANCE OR DECOMMISSIONING, MUST BE DISPOSED OF IN A MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
7. ALL WATER QUALITY DATA, INCLUDING DATES OF RAINFALL, DATES OF TESTING, TESTING RESULTS & DATES OF WATER RELEASE, MUST BE KEPT IN AN ON-SITE REGISTER. THE REGISTER IS TO BE MAINTAINED UP TO DATE FOR THE DURATION OF THE APPROVED WORKS & BE AVAILABLE ON-SITE FOR INSPECTION BY THE RELEVANT REGULATORY AUTHORITY ON REQUEST.
8. AT NOMINATED INSTREAM WATER MONITORING SITES, A MINIMUM OF 3 WATER SAMPLES MUST BE TAKEN & ANALYSED, & THE AVERAGE RESULT USED TO DETERMINE QUALITY.
9. ALL ENVIRONMENTALLY RELEVANT INCIDENTS MUST BE RECORDED IN A FIELD LOG THAT MUST REMAIN ACCESSIBLE TO ALL RELEVANT REGULATORY AUTHORITIES.
10. WASHING/FLUSHING OF SEALED ROADWAYS MUST ONLY OCCUR WHERE SWEEPING HAS FAILED TO REMOVE SUFFICIENT SEDIMENT & THERE IS A COMPELLING NEED TO REMOVE THE REMAINING SEDIMENT (E.G. FOR SAFETY REASONS). IN SUCH CIRCUMSTANCES, ALL REASONABLE & PRACTICABLE SEDIMENT CONTROL MEASURES MUST BE USED TO PREVENT, OR AT LEAST MINIMISE, THE RELEASE OF SEDIMENT INTO RECEIVING WATERS. ONLY THOSE MEASURES THAT WILL NOT CAUSE SAFETY & PROPERTY FLOODING ISSUES SHALL BE EMPLOYED. SEDIMENT REMOVED FROM ROADWAYS MUST BE DISPOSED OF IN A LAWFUL MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
11. ALL SEEDING, HYDROSEEDING & TURFING REQUIRES REGULAR WATERING UNTIL EFFECTIVE COVER IS ESTABLISHED & PLANTS ARE GROWING VIGOROUSLY. WATERING SHOULD DEPEND ON WEATHER & SOIL CONDITIONS. WATERING SHOULD START IMMEDIATELY AFTER PLANTING & SHOULD COMPLY WITH THE FOLLOWING AS A MINIMUM:
    i) WEEK 1 3 WATERINGS PER WEEK
    ii) WEEK 2-6 2 WATERINGS PER WEEK
    iii) WEEK 7-12 1 WATERING PER WEEK
11. MAINTENANCE MOWING OF ALL ROAD SHOULDERS, TABLE DRAINS, BATTERS & OTHER SURFACES LIKELY TO EXPERIENCE ACCELERATED SOIL EROSION MUST AIM TO LEAVE THE GRASS LENGTH NO SHORTER THAN 50mm WHERE REASONABLE & PRACTICABLE.
12. MAINTENANCE MOWING MUST BE DONE IN A MANNER THAT WILL NOT DAMAGE THE PROFILE OF FORMED, SOFT EDGES, SUCH AS THE CREST OF EARTH EMBANKMENTS.

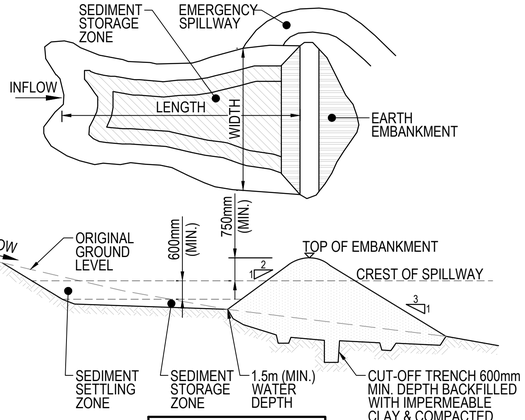
SEDIMENT BASIN

1. CONSTRUCTED SEDIMENT BASINS MUST BE MAINTAINED & FULLY OPERATIONAL THROUGHOUT THE CONSTRUCTION PERIOD & UNTIL EACH BASIN'S CATCHMENT AREA ACHIEVES 80% GROUND COVER ON ALL SOIL SURFACES.
2. SETTLED SEDIMENT MUST BE REMOVED FROM SEDIMENT BASINS WHEN THE VOLUME OF THE SEDIMENT EXCEEDS THE DESIGNATED SEDIMENT STORAGE VOLUME, OR THE DESIGN MAXIMUM SEDIMENT STORAGE ELEVATION.
3. SEDIMENT BASIN WATER QUALITY SAMPLES MUST BE TAKEN AT A DEPTH NO GREATER THAN 200mm ABOVE THE LEVEL OF SETTLED SEDIMENT BY A SUITABLY QUALIFIED PERSON. WATER TESTING TO BE UNDERTAKEN USING EITHER A HANDHELD PH/TURBIDITY METER OR SAMPLES COLLECTED FOR LABORATORY TESTING PRIOR TO BASIN DEWATERING. ALL LABORATORY TESTING TO BE UNDERTAKEN BY A NATA ACCREDITED LABORATORY.
4. ALL WATER PUMPED FROM THE SEDIMENT BASIN SHALL BE TESTED FOR ENVIRONMENTAL COMPLIANCE AGAINST THE RELEASE CRITERIA IN THE TABLE BELOW (AS A MINIMUM), UNLESS ALTERNATIVE (MORE STRINGENT) STANDARDS ARE SPECIFIED BY THE LOCAL AUTHORITY PRIOR TO RELEASE.
5. THE SEDIMENT BASIN SHALL BE TREATED BY FLOCCULATION AFTER ALL RAINFALL EVENTS (> 5mm) USING GYPSUM OR ALUM. MANUAL DOSAGE OF BASIN SHALL BE UNDERTAKEN USING A MINIMUM RATE OF 32kg/100m³ FOR GYPSUM & 1.5-8kg/100m³ FOR ALUM. HIGHER DOSAGE MAY BE REQUIRED DEPENDING ON SOIL TYPE & APPLICATION TECHNIQUE. ALUM SHALL NOT BE USED WHERE THE CATCHMENT DISCHARGES DIRECTLY TO A WATERWAY.
6. THE CHOSEN FLOCCULENT SHALL BE SPREAD EVENLY OVER THE BASIN SURFACE AREA. THE BASIN WILL REQUIRE A PUMP SYSTEM TO SPRAY SLURRY OF FLOCCULANTS OVER SURFACE AT AN ANGLE OF 10°-20°.
7. THE TREATED BASIN SHALL BE DEWATERED WITH A PUMP SYSTEM WITH A FLOATING INLET TO ENSURE SETTLED SEDIMENT IS NOT ENTRAINED & DISCHARGED. BASIN DEWATERING SHALL OCCUR WITHIN 5 DAYS FROM CONCLUSION OF RAINFALL EVENT.

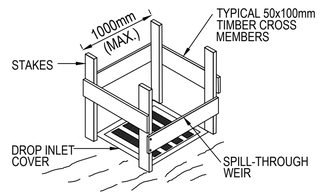
SITE REHABILITATION

1. ALL DISTURBED AREAS IDENTIFIED AS VERY LOW, LOW, MEDIUM, HIGH, OR EXTREME EROSION RISK MUST BE SUITABLY STABILISED WITHIN 60, 30, 20, 10 OR 5 DAYS RESPECTIVELY, OR PRIOR TO ANTICIPATED RAINFALL, WHICHEVER IS THE GREATER, FROM THE DAY THAT SOIL DISTURBANCES ON THE AREA HAVE BEEN FINALISED.
2. THE TYPE OF GROUND COVER APPLIED TO COMPLETED EARTHWORKS SHOULD BE COMPATIBLE WITH THE ANTICIPATED LONG-TERM LAND USE, ENVIRONMENTAL RISK, & SITE REHABILITATION MEASURES.
3. UNLESS OTHERWISE DIRECTED BY SUPERINTENDENT OR WHERE DIRECTED BY THE APPROVED REVEGETATION PLAN, TOPSOIL MUST BE PLACED AT A MINIMUM DEPTH OF 75mm ON SLOPES 4:1 (H:V) OR FLATTER, & 50mm ON SLOPES STEEPER THAN 4:1.
4. THE PH LEVEL (SOIL:WATER 1:5) OF TOPSOIL MUST BE ADEQUATE TO ENABLE ESTABLISHMENT & GROWTH OF THE SPECIFIED VEGETATION.
5. SOIL AMELIORANTS MUST BE ADDED TO THE SOIL IN ACCORDANCE WITH THE APPROVED LANDSCAPE/REVEGETATION PLANS &/OR SOIL ANALYSIS.
6. SOIL DENSITY/COMPACTION MUST BE ADJUSTED PRIOR TO SEEDING/PLANTING IN ACCORDANCE WITH THE RELEVANT SPECIFICATIONS, SOIL REPORT &/OR APPROPRIATE REFERENCE PLANS.
7. ALL UNSTABLE OR DISTURBED SOIL SURFACES MUST BE ADEQUATELY STABILISED AGAINST EROSION (MINIMUM 80%) PRIOR TO COMMENCEMENT OF USE, OR SURVEY PLAN ENDORSEMENT.

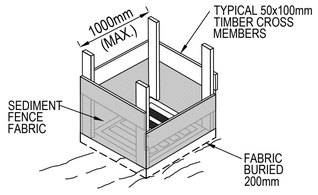
8. ALL TEMPORARY DRAINAGE, EROSION & SEDIMENT CONTROL MEASURES MUST BE REMOVED AFTER ACHIEVING A SATISFACTORY "OFF-MAINTENANCE INSPECTION" BY THE RELEVANT REGULATORY AUTHORITY.
9. DISPOSE OF ANY COLLECTED SEDIMENT OR FILL IN A LAWFUL MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
10. IMMEDIATELY PRIOR TO THE CONSTRUCTION OF THE PERMANENT STORMWATER TREATMENT DEVICE, APPROPRIATE FLOW BYPASS CONDITIONS MUST BE ESTABLISHED TO PREVENT SEDIMENT-LADEN WATER ENTERING THE DEVICE.
11. IMMEDIATELY FOLLOWING THE CONSTRUCTION OF THE FILTER MEDIA OF THE PERMANENT STORMWATER TREATMENT DEVICE, THE FILTER MEDIA MUST BE COVERED BY HEAVY-DUTY FILTER CLOTH (MINIMUM BIDUM A44 OR EQUIVALENT) & A MINIMUM 200mm LAYER OF EARTH OR SACRIFICIAL FILTER MEDIA. SUCH EARTH & FILTER CLOTH MUST NOT BE REMOVED FROM THE DEVICE UNTIL SUITABLE SURFACE CONDITIONS BEING ACHIEVED WITHIN THE BASIN'S CATCHMENT AREA.
12. IMMEDIATELY FOLLOWING THE CONSTRUCTION OF THE PERMANENT STORMWATER TREATMENT DEVICE AN APPROPRIATE TYPE 2 SEDIMENT TRAP MUST BE INSTALLED IN A MANNER TO PREVENT SEDIMENT INTRUSION INTO THE DEVICE.
13. THE MINIMUM SEDIMENT CONTROL STANDARD FOR THE PROTECTION OF THE PERMANENT STORMWATER TREATMENT DEVICE DURING THE CONSTRUCTION & MAINTENANCE PHASES IS A TYPE 2 SEDIMENT TRAP. (ALTERNATIVE TO ABOVE)
14. PLANT ESTABLISHMENT WITHIN THE PERMANENT STORMWATER TREATMENT DEVICE MUST BE DELAYED UNTIL SEDIMENT INTRUSION INTO THE DEVICE IS SUITABLY UNDER CONTROL.
15. UPON SUITABLE CONDITIONS BEING ACHIEVED WITHIN THE BASIN'S CATCHMENT AREA, THE OPERATIONAL FEATURES OF THE PERMANENT STORMWATER TREATMENT SYSTEM MUST BE MADE FULLY OPERATIONAL (I.E. MAINTENANCE &/OR RECONSTRUCTION AS REQUIRED).
16. THE PERMANENT STORMWATER TREATMENT FEATURES OF THE REHABILITATED BASIN MUST NOT BE MADE OPERATIONAL UNTIL ALL UP-SLOPE SITE STABILISATION MEASURES HAVE BEEN IMPLEMENTED & ARE APPROPRIATELY WORKING TO CONTROL SOIL EROSION & SEDIMENT RUNOFF IN ACCORDANCE WITH THE SPECIFIED EROSION & SEDIMENT CONTROL STANDARD. (ALTERNATIVE TO ABOVE).



SEDIMENT BASIN

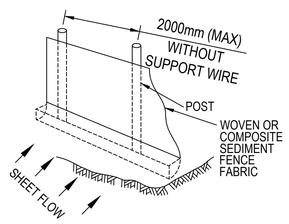


DETAILS OF SUPPORT FRAME WITH SPILL-THROUGH WEIR

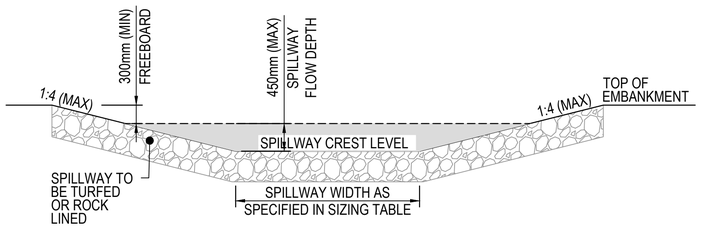


FABRIC DROP INLET PROTECTION WITH SPILL-THROUGH WEIR

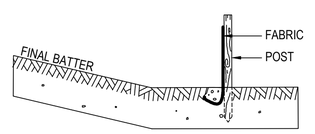
FABRIC DROP INLET PROTECTION



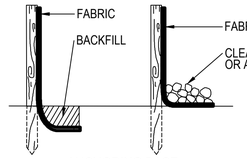
INSTALLATION WITHOUT BACKING SUPPORT



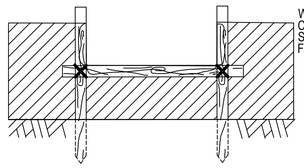
EMERGENCY SPILLWAY



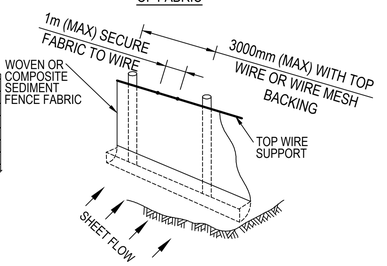
LOCATION OF FENCE RELATIVE TO BASE OF SLOPE



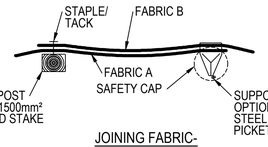
ANCHORING BASE OF FABRIC



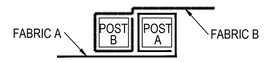
SPILL THROUGH WEIR



INSTALLATION WITH TOP WIRE SUPPORT

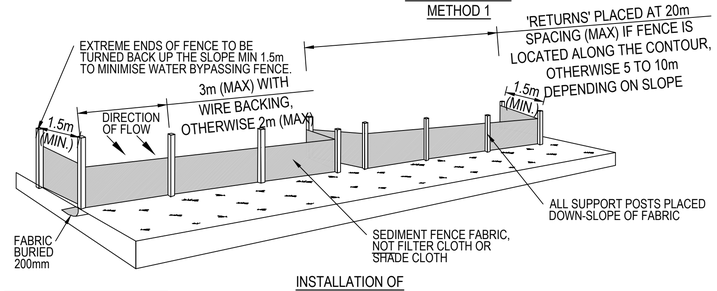


JOINING FABRIC- METHOD 2



FABRIC TO FOLD AROUND EACH STAKE ONE FULL TURN. STAKE B TO BE DRIVEN TIGHTLY AGAINST STAKE A. THE TOPS OF BOTH STAKES TO BE SECURED WITH WIRE.

JOINING FABRIC - METHOD 1



INSTALLATION OF SEDIMENT FENCE

SEDIMENT FENCE

Issue	Description	DR	CH	VE	Date
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: EROSION AND SEDIMENT CONTROL DETAILS SHEET 3

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Date Plotted: 13 Mar 2025 - 09:21AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0191-ESCNotes.dwg

FOR CONTINUATION REFER DRG-CV-0204

FOR CONTINUATION REFER DRG-CV-0202

FOR CONTINUATION REFER DRG-CV-0207

ENTERPRISE DRIVE

MT LINDESAY HWY

LOT 1

LOT 900

LOT 905

LOT 101

PROPOSED BIO-RETENTION BASIN
FOR DETAILS REFER CV-DRG-0491

PROPOSED 2.5m WIDE
CONCRETE FOOTPATH,
REFER IPWEAQ STD.
DWG. RS-065 FOR DETAILS

REFER TYPICAL ALLOTMENT GRATED PIT ON
MANHOLE CONNECTION DETAIL ON DRG-0215.

PROPOSED 1.8m WIDE
CONCRETE FOOTPATH,
REFER IPWEAQ STD.
DWG. RS-065 FOR DETAILS.

PROPOSED 1.8m WIDE CONCRETE
FOOTHPATH, REFER IPWEAQ STD.
DWG. RS-065 FOR DETAILS.

PROPOSED 6.0m WIDE HEAVY DUTY DRIVEWAY CROSS-OVERS
IN ACCORDANCE WITH IPWEAQ RS-051. CONTRACTOR TO
DOWEL INTO EXISTING INTERNAL SPS DRIVEWAY WITH R24
GALVANIZED, 400 LONG BARS @ 300 CRS AND EPOXY BONDED

PROPOSED 3.0m WIDE HEAVY
DUTY CONCRETE CROSSOVER
175mm DEPTH

TYPICAL BOLLARDS TO DRAINAGE LOT ALONG ROAD
RESERVE - REFER LANDSCAPE ARCHITECT FOR DETAILS.

PROVIDE LOCKABLE GATE AT BOUNDARY
IN ACCORDANCE WITH IPWEAQ GS-043

LOCALLY GRADE CHANNEL BASE AT
MIN. 0.5% TO LOW FLOW INLET

REFER TYPICAL ALLOTMENT GRATED PIT ON
MANHOLE CONNECTION DETAIL ON DRG-0215.

EXISTING 900mm CONCRETE
INVERT CHANNEL

REFER DETAIL 'C' ON DRG 0209 FOR
OUTLET DETAILS AND SETOUT.

FUTURE ROAD EXTENSION TO MT LINDESAY HWY SERVICE
ROAD COMPLETED UNDER SEPARATE APPLICATION.

REFER DETAIL 'B' ON DRG 0209 FOR
OUTLET DETAILS AND SETOUT.

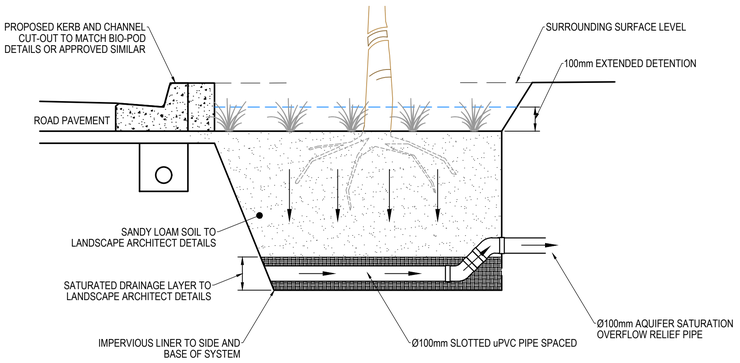
HYDROMULCHING TO STABILIZE WORKS.
CHANNEL SUBJECT TO FINAL
LANDSCAPE ARCHITECT SPECIFICATION

REFER DETAIL 'A' ON DRG 0209 FOR
OUTLET DETAILS AND SETOUT.

EXTEND EXISTING 900mm
CONCRETE INVERT CHANNEL TO
MATCH NEW INLET HEADWALL

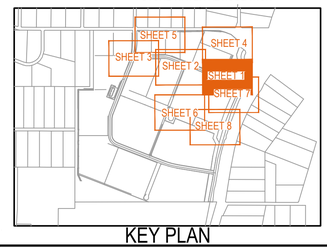
LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1" NOM. 450mm WIDE
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2" NOM. 230mm WIDE
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- PROPOSED EDGE OF BITUMEN
- ROAD PAVEMENT
- CONCRETE FOOTPATH
- HEAVY DUTY CONCRETE CROSSOVER (225mmDEPTH)
- HYDROMULCHING TREATMENT
- TEMPORARY TURNAROUND INFILL PAVEMENT
- HEAVY DUTY CONCRETE CROSSOVER / TRACK (175mm DEPTH)
- COMPACTED GRAVEL PAVEMENT TYPE 2.3 (MIN 150mm THICK UNLESS OTHERWISE SPECIFIED)
- 1/A1 PROPOSED STORMWATER DRAINAGE STRUCTURE NAME
- SWD PROPOSED STORMWATER DRAINAGE RETICULATION
- PROPOSED STORMWATER DRAINAGE STRUCTURE
- PROPOSED BIOPOD
- PROPOSED LANDSCAPE POD
- S PROPOSED SEWER RETICULATION
- W PROPOSED WATER RETICULATION
- POWERLINK EASEMENT
- 1/A1 EXISTING STORMWATER DRAINAGE STRUCTURE NAME
- swd EXISTING STORMWATER DRAINAGE RETICULATION
- EXISTING STORMWATER DRAINAGE STRUCTURE
- s EXISTING SEWER RETICULATION
- w EXISTING WATER RETICULATION
- oh EXISTING OVERHEAD ELECTRICAL RETICULATION
- 1/A1 FUTURE STORMWATER DRAINAGE STRUCTURE NAME
- FUTSWD FUTURE STORMWATER DRAINAGE RETICULATION
- FUTURE STORMWATER DRAINAGE STRUCTURE
- FUTS FUTURE SEWER RETICULATION
- FUTW FUTURE WATER RETICULATION



NOTE: TYPICAL DETAIL ONLY
REFER TO LANDSCAPE ARCHITECT
FOR DETAILS AND SPECIFICATIONS.

LANDSCAPE POD TYPICAL DETAIL
NTS



KEY PLAN

Issue	Description	DR	CH	VE	Date
H	UPDATED DRIVEWAYS, BOUNDARIES AND LOT NUMBERS	A.O	S.S.	B.K	10.03.25
G	UPDATED SWD STRUCTURES AND 2/15 SAFETY UPDATE	A.O.	S.S.	B.K.	18.10.24
F	UPDATED SWD STRUCTURES AND SEWER LINE	A.O.	S.S.	B.K.	03.09.24
E	UPDATED LAYOUT	A.O.	S.S.	B.K.	01.08.24
D	UPDATED LAYOUT TEMPORARY ACCESS ROAD REMOVED	A.O.	S.S.	B.K.	15.07.24
C	AMENDMENTS TO SWD DESIGN	A.O.	S.S.	G.E.	03.07.24
B	SEEDED TREATMENT AMENDED TO HYDROMULCH	J.B.	T.F.	G.E.	19.03.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

N

0 5 10 20 30 40 50m

1 : 500

Surveyor

WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 1

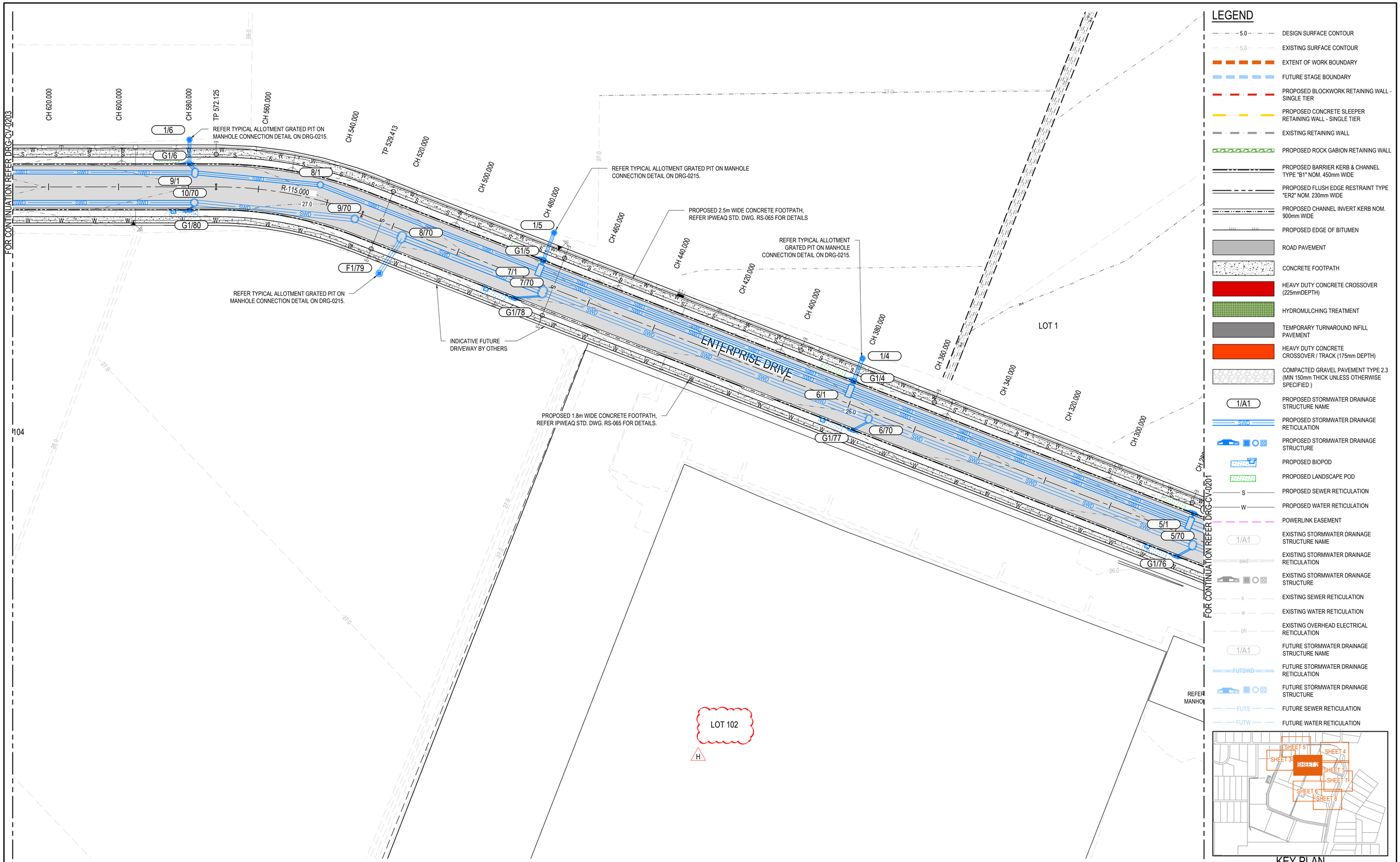
ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number 30109334

Drawing No. 30109334-AAP-P301OP-CV-DRG-0201 Issue H

100mm on Original

Date Plotted: 13 Mar 2025 - 09:37AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0201-CivilWorksPlan.dwg



Issue	Description	DR	CH	VE	Date
H	UPDATED BOUNDARIES AND LOT NUMBERS	A.O	S.S.	B.K	10.03.25
G	UPDATED SWD LAYOUT AND DRIVEWAYS	A.O.	S.S.	B.K.	18.10.24
F	STRUCTURE LABEL REVISED	A.O.	S.S.	B.K.	06.08.24
E	UPDATED LAYOUT, CROSSOVER REMOVED	A.O.	S.S.	B.K.	15.07.24
D	AMENDMENTS TO SWD DESIGN	A.O.	S.S.	G.E.	03.07.24
C	PCN17 AMENDMENTS TO SWD LINES 60, 65 & 79	G.P.	T.F.	G.E.	25.06.24
B	SEEDED TREATMENT AMENDED TO HYDROMULCH	J.B.	T.F.	G.E.	19.03.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 2

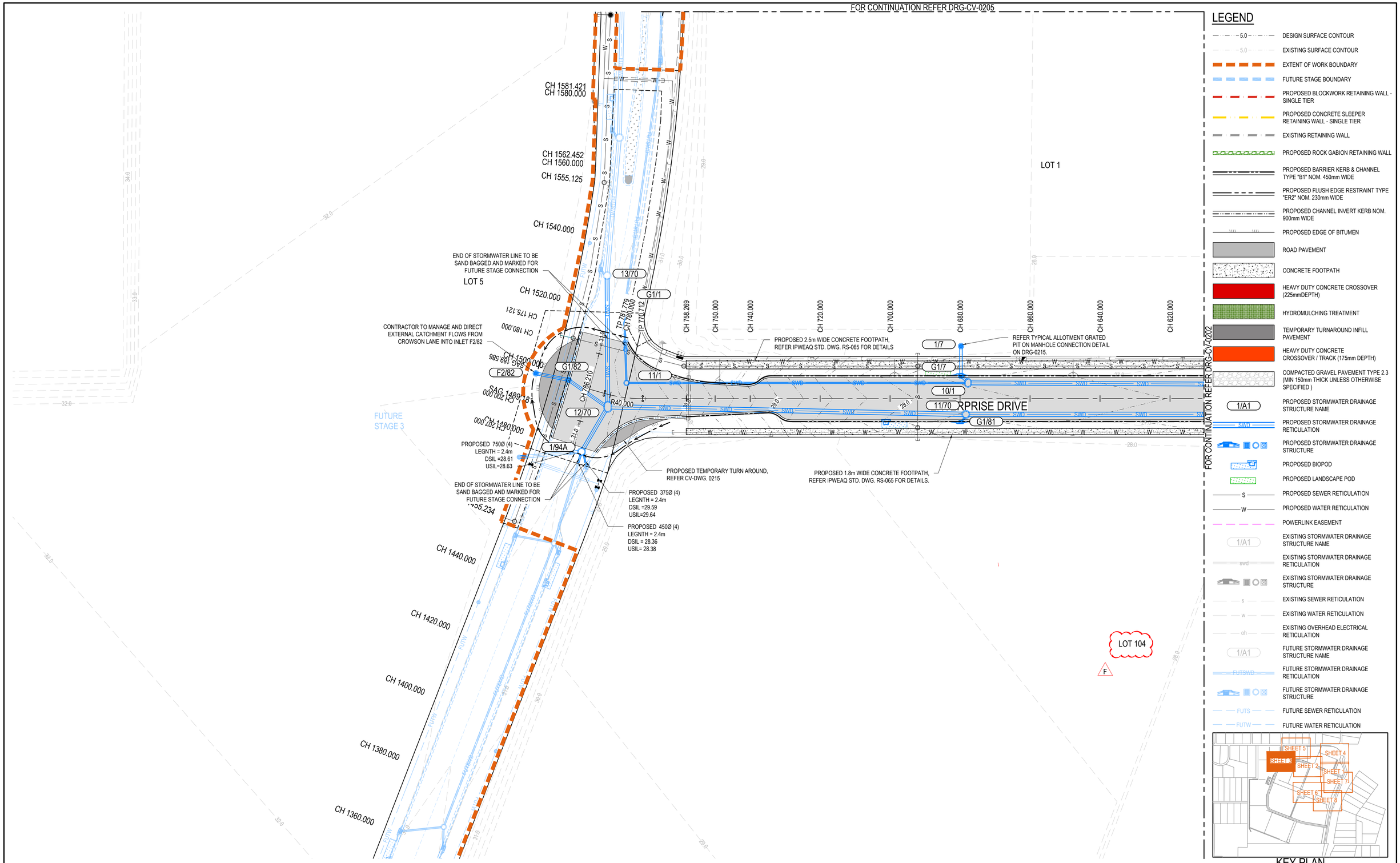
ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number 30109334

Drawing No. 30109334-AAP-P301OP-CV-DRG-0202

Issue H

Date Plotted: 13 Mar 2025 - 09:37AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0201-CivilWorksPlan.dwg



Issue	Description	DR	CH	VE	Date
F	UPDATED BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
E	UPDATED DRIVEWAYS	A.O.	S.S.	B.K.	18.10.24
D	SWD STRUCTURE TO BE CONSTRUCTED	A.O.	S.S.	G.E.	03.09.24
C	STRUCTURE LABEL REVISED	A.O.	S.S.	B.K.	06.08.24
B	SEEDED TREATMENT AMENDED TO HYDROMULCH	J.B.	T.F.	G.E.	19.03.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 3

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number 30109334

Drawing No. 30109334-AAP-P301OP-CV-DRG-0203

Issue F

Date Plotted: 13 Mar 2025 - 09:37AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0201-CivilWorksPlan.dwg

FOR CONTINUATION REFER DRG-CV-0205 INSET 'A'

CROWSON LANE

2 0215 | 3 0215 | 4 0215 | 5 0215

8/8 | 7/8 | 6/8 | 5/8 | 4/8 | 3/8 | 2/9 | 1/9 | F1/16 | F1/9

TEMPORARY BUND MAX BATTERS. TOP RL 29.10

OPEN DRAIN TO BE TURFED UNDER BEW WORKS.

CHANNEL GRADE: 0.5% VELOCITY AT CAPACITY: 1.70 (m/s)

REFER TO DWG 0483 FOR STRUCTURE 8/8.

CHANNEL GRADE: 0.5% VELOCITY AT CAPACITY: 0.50 (m/s)

EXISTING 4.0m WIDE TURFED DIVERSION DRAIN TO FOLLOW EXISTING SURFACE PROFILE AT TOE OF BATTER. MAINTAIN 0.5% MIN FREE-DRAINING.

SWALE TO BE STONE PITCHED AS VELOCITY EXCEEDS 1.5m/s

CHANNEL GRADE: 3% VELOCITY AT CAPACITY: 1.70 (m/s)

6.00m EASEMENT OVER STORMWATER LINE.

0.5m HIGH TEMPORARY BUND WITH 1 IN 2 BATTERS

EXISTING TYPICAL 3.0m WIDE TURFED DIVERSION DRAIN TO FOLLOW EXISTING SURFACE PROFILE AT TOP OF BATTER. MAINTAIN 0.5% MIN FREE-DRAINING.

SWALE TO BE STONE PITCHED AS VELOCITY EXCEEDS 1.5m/s

0.5m HIGH TEMPORARY BUND WITH 1 IN 2 BATTERS

CHANNEL GRADE: 6% VELOCITY AT 50yr STORM EVENT : 2.42 (m/s)

0.5m HIGH TEMPORARY BUND WITH 1 IN 2 BATTERS

REFER TYPICAL ALLOTMENT GRATED PIT ON MANHOLE CONNECTION DETAIL ON DRG-0215.

SWD LINE 1/8A(Q3 MONTH BYPASS)

CONTRACTOR TO INSTALL NO-RETURN VALVE TO SUIT PROPOSED 0.45m RCP

FOR CONTINUATION REFER DRG-CV-0201

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1" NOM. 450mm WIDE
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2" NOM. 230mm WIDE
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- PROPOSED EDGE OF BITUMEN
- ROAD PAVEMENT
- CONCRETE FOOTPATH
- HEAVY DUTY CONCRETE CROSSOVER (225mmDEPTH)
- HYDROMULCHING TREATMENT
- TEMPORARY TURNAROUND INFILL PAVEMENT
- HEAVY DUTY CONCRETE CROSSOVER / TRACK (175mm DEPTH)
- COMPACTED GRAVEL PAVEMENT TYPE 2.3 (MIN 150mm THICK UNLESS OTHERWISE SPECIFIED)
- PROPOSED STORMWATER DRAINAGE STRUCTURE NAME (1/A1)
- PROPOSED STORMWATER DRAINAGE RETICULATION (SWD)
- PROPOSED STORMWATER DRAINAGE STRUCTURE
- PROPOSED BIOPOD
- PROPOSED LANDSCAPE POD
- PROPOSED SEWER RETICULATION (S)
- PROPOSED WATER RETICULATION (W)
- POWERLINK EASEMENT
- EXISTING STORMWATER DRAINAGE STRUCTURE NAME (1/A1)
- EXISTING STORMWATER DRAINAGE RETICULATION (swd)
- EXISTING STORMWATER DRAINAGE STRUCTURE
- EXISTING SEWER RETICULATION (s)
- EXISTING WATER RETICULATION (w)
- EXISTING OVERHEAD ELECTRICAL RETICULATION (oh)
- FUTURE STORMWATER DRAINAGE STRUCTURE NAME (1/A1)
- FUTURE STORMWATER DRAINAGE RETICULATION (FUTSWD)
- FUTURE STORMWATER DRAINAGE STRUCTURE
- FUTURE SEWER RETICULATION (FUTS)
- FUTURE WATER RETICULATION (FUTW)

KEY PLAN

SHEET 1 | SHEET 2 | SHEET 3 | SHEET 4 | SHEET 5 | SHEET 6 | SHEET 7 | SHEET 8

Issue	Description	DR	CH	VE	Date
F	UPDATED SWD ALIGNMENT	A.O.	S.S.	B.K.	03.09.24
E	STRUCTURE LABEL REVISED	A.O.	S.S.	B.K.	06.08.24
D	UPDATED LAYOUT	A.O.	S.S.	B.K.	01.08.24
C	UPDATED LAYOUT TEMPORARY ACCESS ROAD REMOVED	A.O.	S.S.	B.K.	15.07.24
B	SEEDED TREATMENT AMENDED TO HYDROMULCH	J.B.	T.F.	G.E.	19.03.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 20 30 40 50m

1 : 500

100mm on Original

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 4

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0204

Issue: F

Date Plotted: 13 Mar 2025 - 09:37AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0201-CivilWorksPlan.dwg

19
RP177477

18
RP177477

17
RP177477

16
RP177477

CROWSON LANE

LOT 1

EXISTING TYPICAL 4.5m WIDE TURFED DIVERSION DRAIN TO FOLLOW EXISTING SURFACE PROFILE AT TOE OF BATTER. MAINTAIN 0.5% MIN FREE-DRAINING.

CHANNEL GRADE: 0.5%
VELOCITY AT CAPACITY: 0.75 (m/s)

1.0m HIGH TEMPORARY BUND WITH 1 IN 2 MAX BATTERS. TOP OF BUND RL 29.10

FOR CONTINUATION REFER INSET 'A'

FOR CONTINUATION REFER DRG-CV-0203

FOR CONTINUATION REFER DRG-CV-0204

FOR CONTINUATION REFER DRG-CV-0205

1
0215

1.0m HIGH TEMPORARY BUND WITH 1 IN 2 MAX BATTERS. TOP OF BUND RL 29.10

INSET 'A'
1 : 500

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1" NOM. 450mm WIDE
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2" NOM. 230mm WIDE
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- PROPOSED EDGE OF BITUMEN
- ROAD PAVEMENT
- CONCRETE FOOTPATH
- HEAVY DUTY CONCRETE CROSSOVER (225mmDEPTH)
- HYDROMULCHING TREATMENT
- TEMPORARY TURNAROUND INFILL PAVEMENT
- HEAVY DUTY CONCRETE CROSSOVER / TRACK (175mm DEPTH)
- COMPACTED GRAVEL PAVEMENT TYPE 2.3 (MIN 150mm THICK UNLESS OTHERWISE SPECIFIED)
- PROPOSED STORMWATER DRAINAGE STRUCTURE NAME
- PROPOSED STORMWATER DRAINAGE RETICULATION
- PROPOSED STORMWATER DRAINAGE STRUCTURE
- PROPOSED BIOPOD
- PROPOSED LANDSCAPE POD
- PROPOSED SEWER RETICULATION
- PROPOSED WATER RETICULATION
- POWERLINK EASEMENT
- EXISTING STORMWATER DRAINAGE STRUCTURE NAME
- EXISTING STORMWATER DRAINAGE RETICULATION
- EXISTING STORMWATER DRAINAGE STRUCTURE
- EXISTING SEWER RETICULATION
- EXISTING WATER RETICULATION
- EXISTING OVERHEAD ELECTRICAL RETICULATION
- FUTURE STORMWATER DRAINAGE STRUCTURE NAME
- FUTURE STORMWATER DRAINAGE RETICULATION
- FUTURE STORMWATER DRAINAGE STRUCTURE
- FUTURE SEWER RETICULATION
- FUTURE WATER RETICULATION

KEY PLAN

Issue	Description	DR	CH	VE	Date
D	UPDATED BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
C	UPDATED DESIGN	A.O.	S.S.	B.K.	03.09.24
B	SEEDED TREATMENT AMENDED TO HYDROMULCH	J.B.	T.F.	G.E.	19.03.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor

WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status
FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project
FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title
ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 5

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0205

Issue: D

100mm on Original

Date Plotted: 13 Mar 2025 - 09:37AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0201-CivilWorksPlan.dwg

FOR CONTINUATION REFER DRG-CV-0202

TOWER SURROUNDS
100mm THICK

CONTRACTOR TO ENSURE THAT
TOWER AREA AND SURROUNDS ARE
FREE DRAINING WITH NO PONDING

REFER TYPICAL ALLOTMENT GRATED PIT ON
MANHOLE CONNECTION DETAIL ON DRG-0215.
ENSURE MIN 0.55m PONDING DEPTH

CONTRACTOR TO PROOF ROLL
POWERLINK TOWER MAINTENANCE
ACCESS TRACK SUBGRADE IN PRESENCE
OF SUPERVISING ENGINEER PRIOR TO
INSTALLATION OF COMPACTED GRAVEL

DRAINAGE FLOOR AREA
100mm THICK

REFER TYPICAL ALLOTMENT GRATED PIT ON
MANHOLE CONNECTION DETAIL ON DRG-0215.

JOIN TO EXISTING STUB

JOIN TO EXISTING STUB

225 DIA PVC

F1/61

F1/60

4/60

3/60

2/60

2/65

3/65

1/65

1/60

H

6m

FUTURE
STAGE 2

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1" NOM. 450mm WIDE
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2" NOM. 230mm WIDE
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- PROPOSED EDGE OF BITUMEN
- ROAD PAVEMENT
- CONCRETE FOOTPATH
- HEAVY DUTY CONCRETE CROSSOVER (225mmDEPTH)
- HYDROMULCHING TREATMENT
- TEMPORARY TURNAROUND INFILL PAVEMENT
- HEAVY DUTY CONCRETE CROSSOVER / TRACK (175mm DEPTH)
- COMPACTED GRAVEL PAVEMENT TYPE 2.3 (MIN 150mm THICK UNLESS OTHERWISE SPECIFIED)
- PROPOSED STORMWATER DRAINAGE STRUCTURE NAME
- PROPOSED STORMWATER DRAINAGE RETICULATION
- PROPOSED STORMWATER DRAINAGE STRUCTURE
- PROPOSED BIOPOD
- PROPOSED LANDSCAPE POD
- PROPOSED SEWER RETICULATION
- PROPOSED WATER RETICULATION
- POWERLINK EASEMENT
- EXISTING STORMWATER DRAINAGE STRUCTURE NAME
- EXISTING STORMWATER DRAINAGE RETICULATION
- EXISTING STORMWATER DRAINAGE STRUCTURE
- EXISTING SEWER RETICULATION
- EXISTING WATER RETICULATION
- EXISTING OVERHEAD ELECTRICAL RETICULATION
- FUTURE STORMWATER DRAINAGE STRUCTURE NAME
- FUTURE STORMWATER DRAINAGE RETICULATION
- FUTURE STORMWATER DRAINAGE STRUCTURE
- FUTURE SEWER RETICULATION
- FUTURE WATER RETICULATION

FOR CONTINUATION REFER DRG-CV-0208

KEY PLAN

Issue	Description	DR	CH	VE	Date
H	UPDATED SWD - NEW F1/61 SUMP LINE	A.O.	S.S.	B.K	28.03.25
G	STRUCTURE LABEL REVISED	A.O.	S.S.	B.K.	06.08.24
F	UPDATED LAYOUT	A.O.	S.S.	B.K.	01.08.24
E	UPDATED LAYOUT	A.O.	S.S.	B.K.	15.07.24
D	AMENDMENTS TO SWD DESIGN	A.O.	S.S.	G.E.	03.07.24
C	PCN17 AMENDMENTS TO SWD LINES 60, 65 & 79	G.P.	T.F.	G.E.	25.06.24
B	SEEDED TREATMENT AMENDED TO HYDROMULCH	J.B.	T.F.	G.E.	19.03.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 20 30 40 50m

1 : 500

100mm on Original

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 04.04.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 6

ARCADIS

Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289

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Project Number 30109334

Drawing No. 30109334-AAP-P301OP-CV-DRG-0206 Issue H

Date Plotted: 4 Apr 2025 - 03:10PM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0201-CivilWorksPlan.dwg

FOR CONTINUATION REFER DRG-CV-0201

FOR CONTINUATION REFER DRG-CV-0208

PROPOSED 1.8m WIDE CONCRETE FOOTHPATH, REFER IPWEAQ STD. DWG. RS-065 FOR DETAILS.

PROPOSED 6.0m WIDE HEAVY DUTY DRIVEWAY CROSS-OVERS IN ACCORDANCE WITH IPWEAQ RS-051. CONTRACTOR TO DOWEL INTO EXISTING INTERNAL SPS DRIVEWAY WITH R24 GALVANIZED, 400 LONG BARS @ 300 CRS AND EPOXY BONDED

REFER TYPICAL ALLOTMENT GRATED PIT ON MANHOLE CONNECTION DETAIL ON DRG-0215.

PROPOSED 3.0m WIDE HEAVY DUTY CONCRETE CROSSOVER 175mm DEPTH

TYPICAL BOLLARDS TO DRAINAGE LOT ALONG ROAD RESERVE - REFER LANDSCAPE ARCHITECT FOR DETAILS.

PROVIDE LOCKABLE GATE AT BOUNDARY IN ACCORDANCE WITH IPWEAQ GS-043

LOCALLY GRADE CHANNEL BASE AT MIN. 0.5% TO LOW FLOW INLET

REFER TYPICAL ALLOTMENT GRATED PIT ON MANHOLE CONNECTION DETAIL ON DRG-0215.

EXISTING 900mm CONCRETE INVERT CHANNEL

REFER DETAIL 'C' ON DRG 0209 FOR OUTLET DETAILS AND SETOUT.

FUTURE ROAD EXTENSION TO MT LINDESAY HWY SERVICE ROAD COMPLETED UNDER SEPARATE APPLICATION.

REFER DETAIL 'B' ON DRG 0209 FOR OUTLET DETAILS AND SETOUT.

HYDROMULCHING TO STABILIZE WORKS. CHANNEL SUBJECT TO FINAL LANDSCAPE ARCHITECT SPECIFICATION

REFER DETAIL 'A' ON DRG 0209 FOR OUTLET DETAILS AND SETOUT.

EXTEND EXISTING 900mm CONCRETE INVERT CHANNEL TO MATCH NEW INLET HEADWALL

HYDROMULCHING TO STABILIZE WORKS. CHANNEL SUBJECT TO FINAL LANDSCAPE ARCHITECT SPECIFICATION

LOT 101

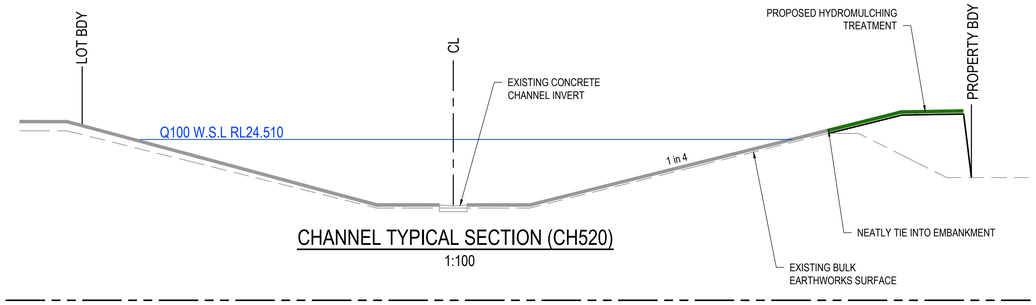
LOT 103

MT LINDESAY HWY

Wall 8

CHANNEL TYPICAL SECTION (CH520)

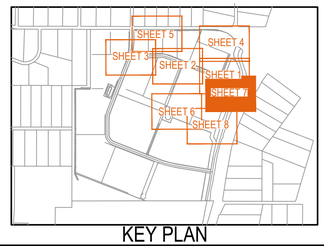
1:100



LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1" NOM. 450mm WIDE
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2" NOM. 230mm WIDE
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- PROPOSED EDGE OF BITUMEN
- ROAD PAVEMENT
- CONCRETE FOOTPATH
- HEAVY DUTY CONCRETE CROSSOVER (225mmDEPTH)
- HYDROMULCHING TREATMENT
- TEMPORARY TURNAROUND INFILL PAVEMENT
- HEAVY DUTY CONCRETE CROSSOVER / TRACK (175mm DEPTH)
- COMPACTED GRAVEL PAVEMENT TYPE 2.3 (MIN 150mm THICK UNLESS OTHERWISE SPECIFIED)
- PROPOSED STORMWATER DRAINAGE STRUCTURE NAME (1/A1)
- PROPOSED STORMWATER DRAINAGE RETICULATION (SWD)
- PROPOSED STORMWATER DRAINAGE STRUCTURE
- PROPOSED BIOPOD
- PROPOSED LANDSCAPE POD
- PROPOSED SEWER RETICULATION (S)
- PROPOSED WATER RETICULATION (W)
- POWERLINK EASEMENT
- EXISTING STORMWATER DRAINAGE STRUCTURE NAME (1/A1)
- EXISTING STORMWATER DRAINAGE RETICULATION (swd)
- EXISTING STORMWATER DRAINAGE STRUCTURE
- EXISTING SEWER RETICULATION (s)
- EXISTING WATER RETICULATION (w)
- EXISTING OVERHEAD ELECTRICAL RETICULATION (oh)
- FUTURE STORMWATER DRAINAGE STRUCTURE NAME (1/A1)
- FUTURE STORMWATER DRAINAGE RETICULATION (FUTSWD)
- FUTURE STORMWATER DRAINAGE STRUCTURE
- FUTURE SEWER RETICULATION (FUTS)
- FUTURE WATER RETICULATION (FUTW)

KEY PLAN



Issue	Description	DR	CH	VE	Date
F	UPDATED DRIVEWAYS, BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
E	STRUCTURE 2/15 SAFETY UPDATE	A.O.	S.S.	B.K.	18.10.24
D	UPDATED LAYOUT, SWD LINE 15 UPDATED	A.O.	S.S.	B.K.	15.07.24
C	AMENDMENTS TO SWD DESIGN	A.O.	S.S.	G.E.	03.07.24
B	SEEDED TREATMENT AMENDED TO HYDROMULCH	J.B.	T.F.	G.E.	19.03.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 20 30 40 50m

1 : 500

0 1 2 4 6 8 10m

1 : 100

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 7

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
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Tel No: +61 7 3337 0000
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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0207

Issue: F

100mm on Original

Date Plotted: 13 Mar 2025 - 09:37AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0201-CivilWorksPlan.dwg

FOR CONTINUATION REFER DRG-CV-0207

FOR CONTINUATION REFER DRG-CV-0206

LOT 103

LOT 901

FUTURE STAGE 2

FUTURE STAGE 2

REFER TYPICAL ALLOTMENT GRATED PIT ON MANHOLE CONNECTION DETAIL ON DRG-0215.

REFER TYPICAL ALLOTMENT GRATED PIT ON MANHOLE CONNECTION DETAIL ON DRG-0215.

F1/61

F1/64

1/64

JOIN TO EXISTING STUB

JOIN TO EXISTING STUB

2/65

1/65

2/60

1/60

SWD 225 DIA PVC

SWD

SWD

SWD

SWD

SWD

CH 420.000

CH 400.000

CH 380.000

CH 360.000

CH 340.000

CH 320.000

CH 300.000

CH 280.000

CH 260.000

CH 240.000

CH 220.000

CH 200.000

CH 180.000

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- EXISTING RETAINING WALL
- PROPOSED ROCK GABION RETAINING WALL
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1" NOM. 450mm WIDE
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2" NOM. 230mm WIDE
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- PROPOSED EDGE OF BITUMEN
- ROAD PAVEMENT
- CONCRETE FOOTPATH
- HEAVY DUTY CONCRETE CROSSOVER (225mmDEPTH)
- HYDROMULCHING TREATMENT
- TEMPORARY TURNAROUND INFILL PAVEMENT
- HEAVY DUTY CONCRETE CROSSOVER / TRACK (175mm DEPTH)
- COMPACTED GRAVEL PAVEMENT TYPE 2.3 (MIN 150mm THICK UNLESS OTHERWISE SPECIFIED)
- 1/A1 PROPOSED STORMWATER DRAINAGE STRUCTURE NAME
- SWD PROPOSED STORMWATER DRAINAGE RETICULATION
- PROPOSED STORMWATER DRAINAGE STRUCTURE
- PROPOSED BIOPOD
- PROPOSED LANDSCAPE POD
- S PROPOSED SEWER RETICULATION
- W PROPOSED WATER RETICULATION
- POWERLINK EASEMENT
- 1/A1 EXISTING STORMWATER DRAINAGE STRUCTURE NAME
- swd EXISTING STORMWATER DRAINAGE RETICULATION
- EXISTING STORMWATER DRAINAGE STRUCTURE
- s EXISTING SEWER RETICULATION
- w EXISTING WATER RETICULATION
- oh EXISTING OVERHEAD ELECTRICAL RETICULATION
- 1/A1 FUTURE STORMWATER DRAINAGE STRUCTURE NAME
- FUTSWD FUTURE STORMWATER DRAINAGE RETICULATION
- FUTURE STORMWATER DRAINAGE STRUCTURE
- FUTS FUTURE SEWER RETICULATION
- FUTW FUTURE WATER RETICULATION

KEY PLAN

Issue	Description	DR	CH	VE	Date
I	UPDATED SWD - NEW F1/61 SUMP LINE	A.O.	S.S.	B.K	28.03.25
H	UPDATED BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K	10.03.25
G	SEWER LINE 4 ADDED	A.O.	S.S.	B.K.	03.09.24
F	STRUCTURE LABEL REVISED	A.O.	S.S.	B.K.	06.08.24
E	UPDATED LAYOUT	A.O.	S.S.	B.K.	15.07.24
D	AMENDMENTS TO SWD DESIGN	A.O.	S.S.	G.E.	03.07.24
C	PCN17 AMENDMENTS TO SWD LINES 60, 65 & 79	G.P.	T.F.	G.E.	25.06.24
B	SEEDED TREATMENT AMENDED TO HYDROMULCH	J.B.	T.F.	G.E.	19.03.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 20 30 40 50m

1 : 500

0 5 10 15 20 25m

1 : 250

100mm on Original

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 04.04.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 8

ARCADIS

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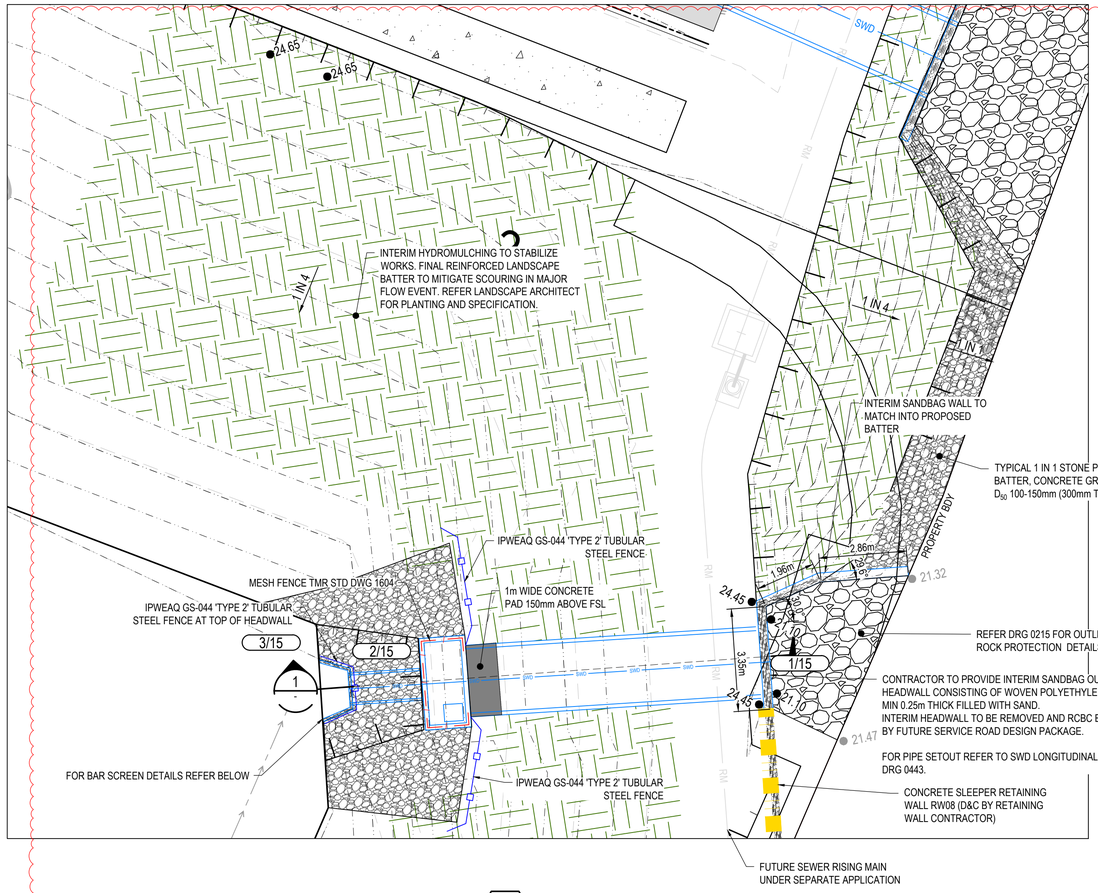
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0208

Issue: I

Date Plotted: 4 Apr 2025 - 03:11PM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0201-CivilWorksPlan.dwg



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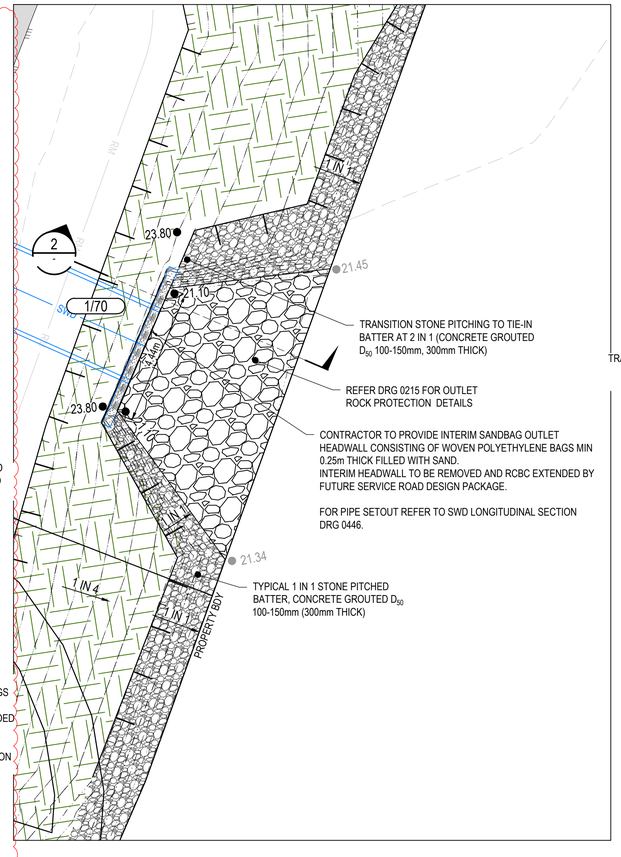

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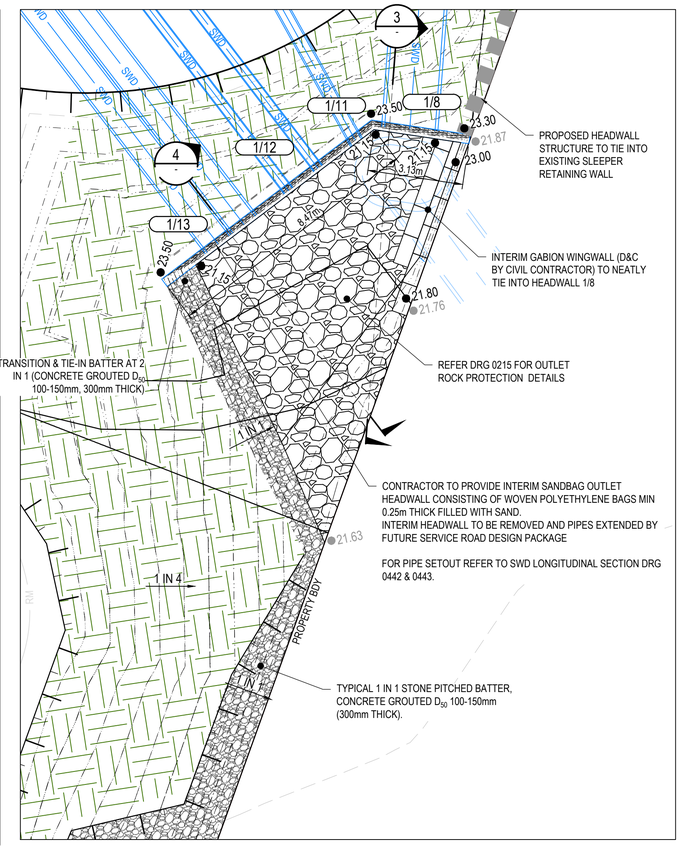

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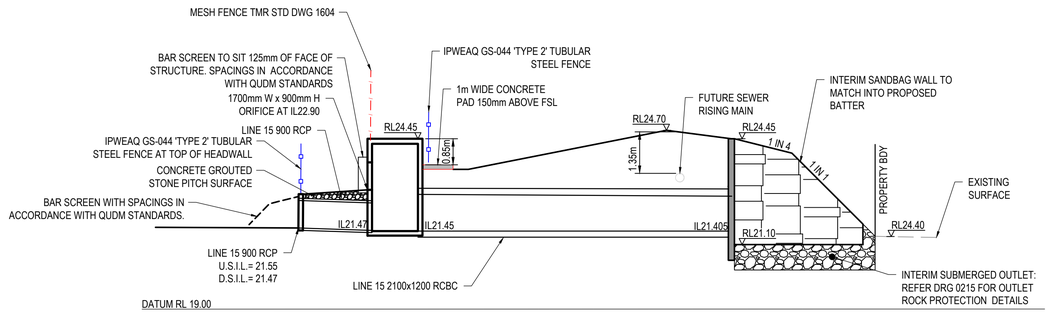

SECTION 1
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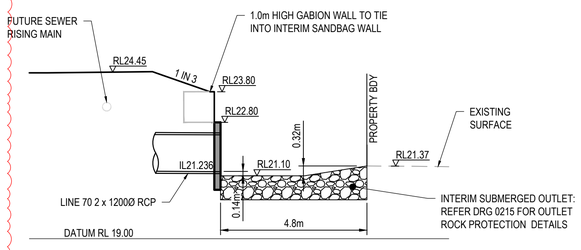

SECTION 2
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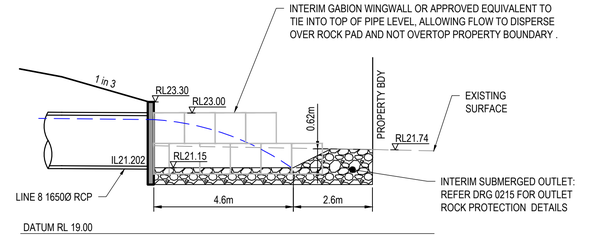

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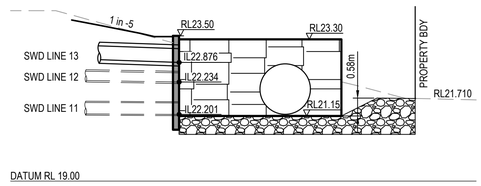

SECTION 4
1 : 100

E

Issue	Description	DR	CH	VE	Date
E	STRUCTURE 2/15 AND SECTION 1 AMENDED	A.O.	S.S.	B.K.	18.10.24
D	UPDATED DETAILS AND SECTION	A.O.	S.S.	B.K.	15.07.24
C	AMENDMENTS TO SWD DESIGN	A.O.	S.S.	G.E.	03.07.24
B	SEEDED TREATMENT AMENDED TO HYDROMULCH	J.B.	T.F.	G.E.	19.03.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 20 30 40 50m
1 : 500
0 1 2 4 6 8 10m
1 : 100

Surveyor
WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client
Charter Hall

Status
FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project
FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title
STORMWATER OUTLET DETAILS LAYOUT PLAN

ARCADIS
Arcadis Australia Pacific Pty Limited
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ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

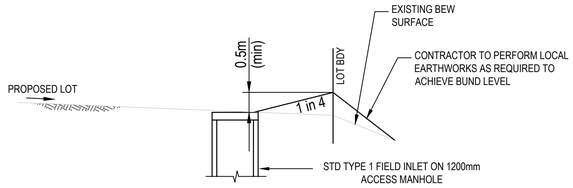
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0209

Issue: E

100mm on Original

Date Plotted: 13 Mar 2025 - 09:38AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0201-CivilWorksPlan.dwg



TYPICAL ALLOTMENT FIELD INLET ON MANHOLE CONNECTION DETAIL

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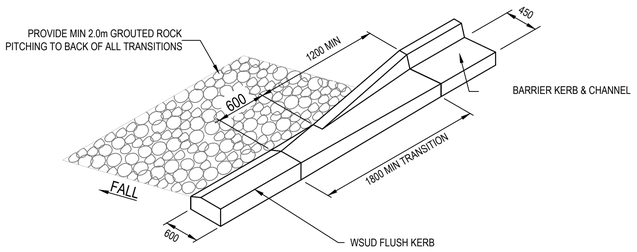
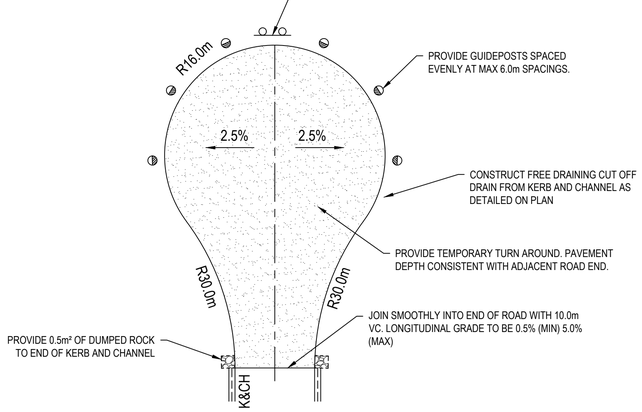


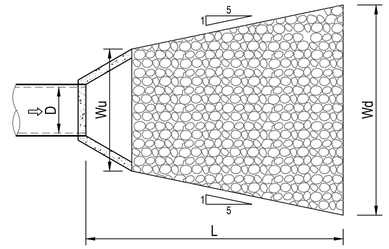
KERB TRANSITION DETAIL

SCALE 1:25



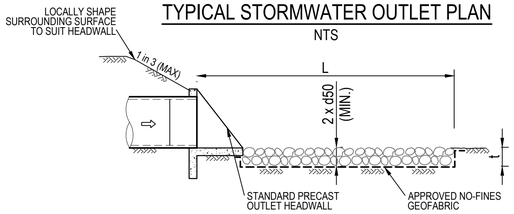
TYPICAL TEMPORARY TURN AROUND DETAIL

NOT TO SCALE



TYPICAL STORMWATER OUTLET PLAN

NTS



TYPICAL STORMWATER OUTLET SECTION

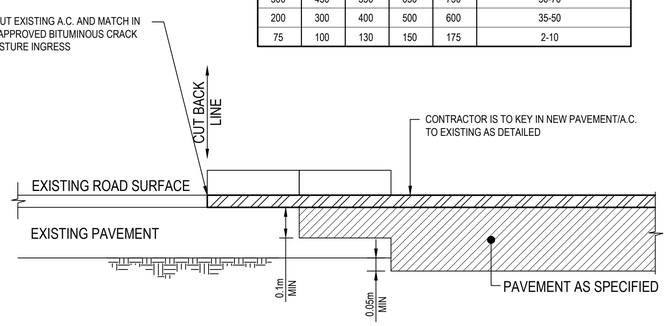
NTS

OUTLET / INLET PROTECTION TABLE

CULVERT No.	PIPE Ø	VELOCITY	LENGTH OF PROTECTION	WIDTH OF PROTECTION	NOMINAL ROCK SIZE	THICKNESS OF PROTECTION
	D	V	L	Wd	d50	T
1/1	2x1350Ø	2.69m/s	5.40m	10.50m	300	600
1/8	1650Ø	3.44m/s	6.60m	4.50m	400	800
1/9	1050Ø	2.54m/s	3.15m	4.40m	200	400
1/11	COMBINED WITH OUTLET 1/8					
1/12	COMBINED WITH OUTLET 1/8					
1/13	COMBINED WITH OUTLET 1/8					
1/15	1800x1200	3.38m/s	4.80m	4.00m	300	600
1/60	1200Ø	2.42m/s	3.60m	6.00m	200	400
1/64	600Ø	1.75m/s	1.80m	6.00m	200	400
1/65	750Ø	2.05m/s	2.25m	6.00m	200	400
1/66	450Ø	1.94m/s	1.35m	6.00m	200	400
1/70	2x900Ø	4.517m/s	4.50m	6.50m	600	1200

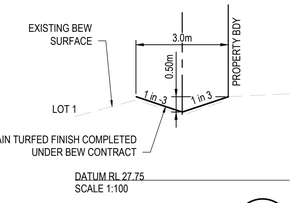
ROCK GRADATION TABLE

SMALLEST DIMENSIONS IN (mm)					% OF ROCK SMALLER THAN SIZE SHOWN
$200d_{50}$	$300d_{50}$	$400d_{50}$	$500d_{50}$	$600d_{50}$	
380	525	630	750	850	100
300	450	550	650	750	50-70
200	300	400	500	600	35-50
75	100	130	150	175	2-10



CONNECTION TO EXISTING PAVEMENT

TYPICAL DETAIL
SHOWING LONGITUDINAL CONSTRUCTION DETAIL FOR CONNECTION TO EXISTING PAVEMENT/A.C.
N.T.S



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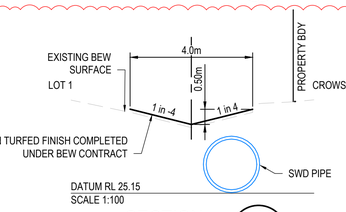

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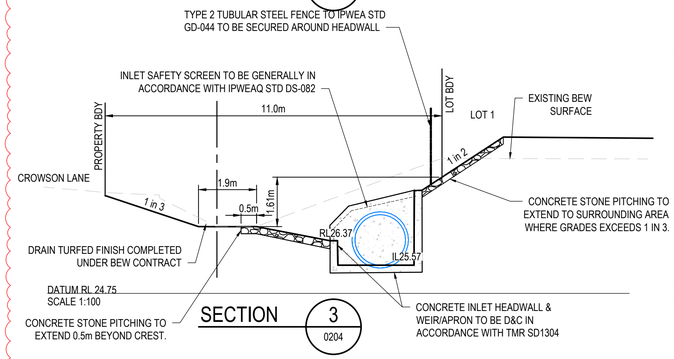

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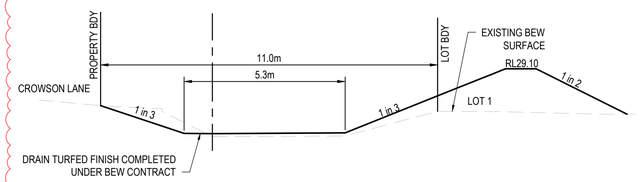

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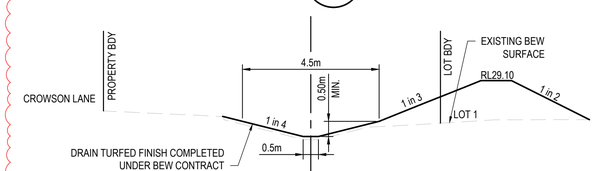

SECTION 1 (0205)

F

Issue	Description	DR	CH	VE	Date
F	SECTIONS UPDATED	A.O.	S.S.	B.K.	03.09.24
E	UPDATED NOTE	A.O.	S.S.	B.K.	09.08.24
D	SECTIONS UPDATED	A.O.	S.S.	B.K.	01.08.24
C	DETAIL UPDATED, CULVERT 1/14 REMOVED FROM TABLE	A.O.	S.S.	B.K.	15.07.24
B	DETAIL UPDATED	A.O.	S.S.	G.E.	03.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 1 2 4 6 8 10m

1 : 100

0 0.5 1 1.5 2 2.5m

1 : 25

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: ROADWORKS AND DRAINAGE DETAILS

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

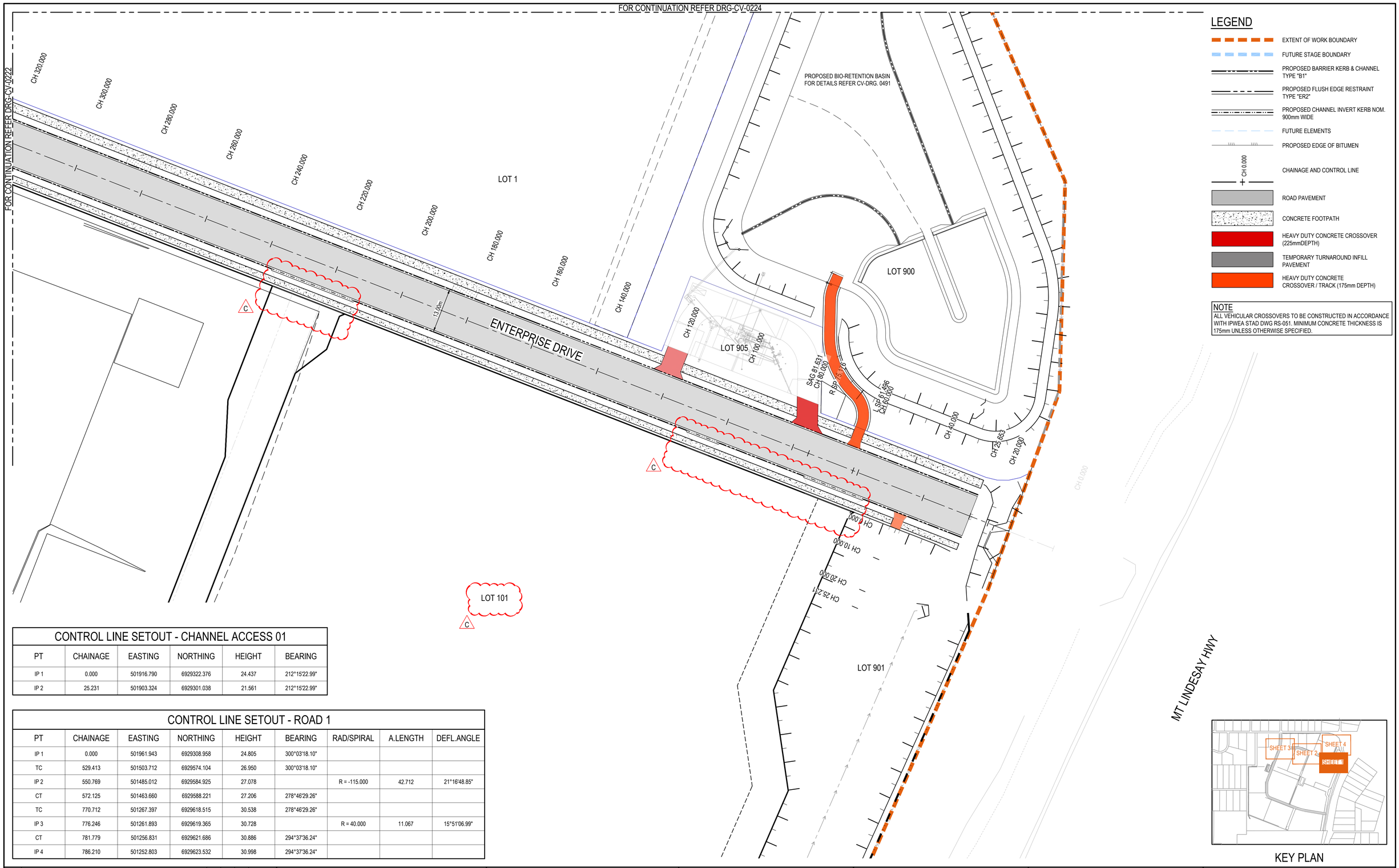
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0215

Issue: F

100mm on Original

Date Plotted: 13 Mar 2025 - 09:48AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0215-Rdworks&DrainageDetails.dwg



LEGEND

- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1"
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2"
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- FUTURE ELEMENTS
- PROPOSED EDGE OF BITUMEN
- CH 0.000 — CHAINAGE AND CONTROL LINE
- ROAD PAVEMENT
- CONCRETE FOOTPATH
- HEAVY DUTY CONCRETE CROSSOVER (225mmDEPTH)
- TEMPORARY TURNAROUND INFILL PAVEMENT
- HEAVY DUTY CONCRETE CROSSOVER / TRACK (175mm DEPTH)

NOTE
ALL VEHICULAR CROSSOVERS TO BE CONSTRUCTED IN ACCORDANCE WITH IPWEA STAD DWG RS-051. MINIMUM CONCRETE THICKNESS IS 175mm UNLESS OTHERWISE SPECIFIED.

CONTROL LINE SETOUT - CHANNEL ACCESS 01

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING
IP 1	0.000	501916.790	6929322.376	24.437	212°15'22.99"
IP 2	25.231	501903.324	6929301.038	21.561	212°15'22.99"

CONTROL LINE SETOUT - ROAD 1

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	501961.943	6929308.958	24.805	300°03'18.10"			
TC	529.413	501503.712	6929574.104	26.950	300°03'18.10"			
IP 2	550.769	501485.012	6929584.925	27.078		R = -115.000	42.712	21°16'48.85"
CT	572.125	501463.660	6929588.221	27.206	278°46'29.26"			
TC	770.712	501267.397	6929618.515	30.538	278°46'29.26"			
IP 3	776.246	501261.893	6929619.365	30.728		R = 40.000	11.067	15°51'06.99"
CT	781.779	501256.831	6929621.686	30.886	294°37'36.24"			
IP 4	786.210	501252.803	6929623.532	30.998	294°37'36.24"			

KEY PLAN

Issue	Description	DR	CH	VE	Date
C	UPDATED DRIVEWAYS, BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
B	LAYOUT UPDATED TEMPORARY ACCESS ROAD REMOVED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: CONTROL LINE SETOUT PLAN SHEET 1

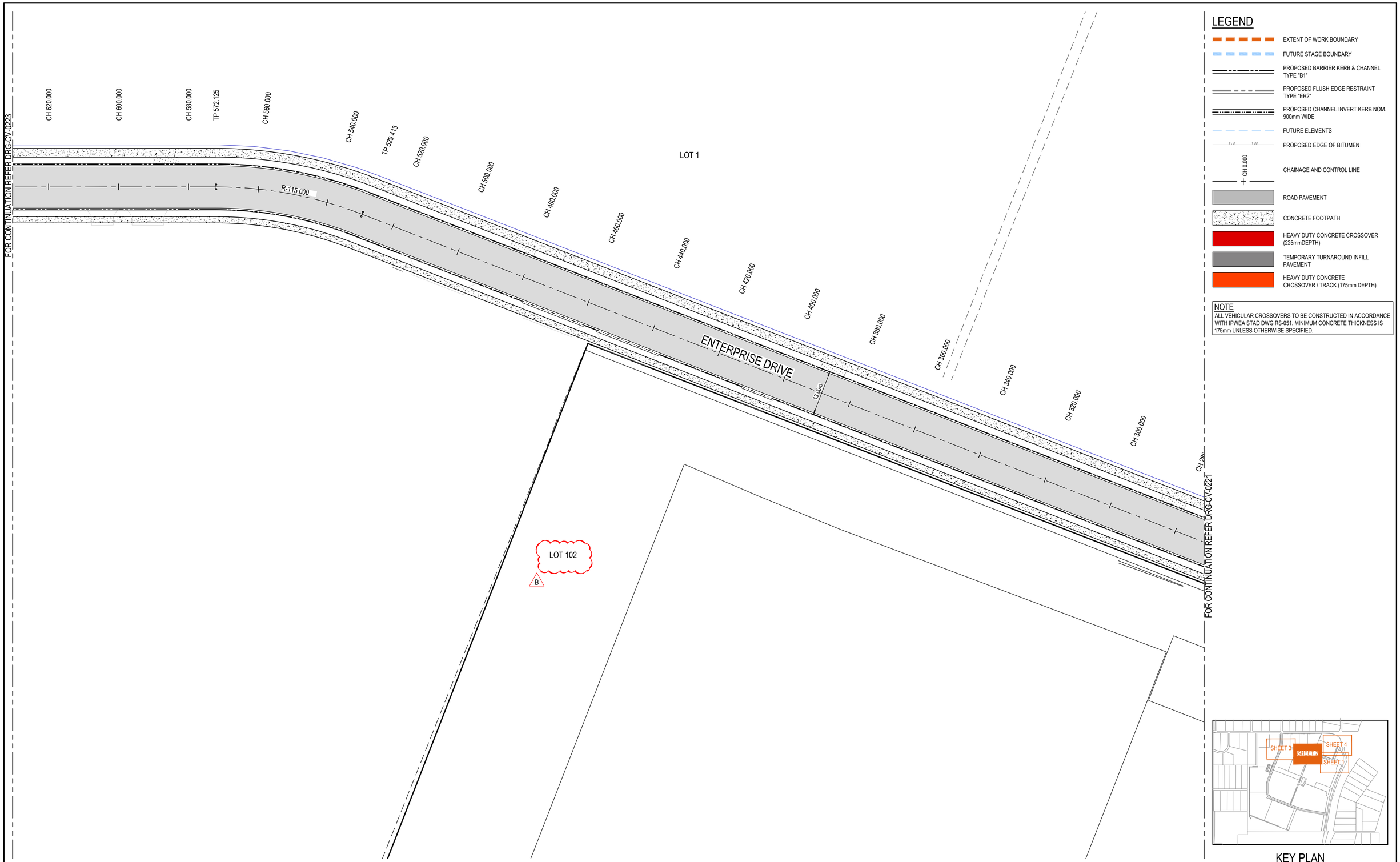
ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0221 | Issue: C

100mm on Original

Date Plotted: 13 Mar 2025 - 09:48AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0221-ControlSetoutPlan.dwg



LEGEND

- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1"
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2"
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- FUTURE ELEMENTS
- PROPOSED EDGE OF BITUMEN
- CH 0.000 — CHAINAGE AND CONTROL LINE
- ROAD PAVEMENT
- CONCRETE FOOTPATH
- HEAVY DUTY CONCRETE CROSSOVER (225mmDEPTH)
- TEMPORARY TURNAROUND INFILL PAVEMENT
- HEAVY DUTY CONCRETE CROSSOVER / TRACK (175mm DEPTH)

NOTE
ALL VEHICULAR CROSSOVERS TO BE CONSTRUCTED IN ACCORDANCE WITH IPWEA STAD DWG RS-051. MINIMUM CONCRETE THICKNESS IS 175mm UNLESS OTHERWISE SPECIFIED.

KEY PLAN

Issue	Description	DR	CH	VE	Date
B	UPDATED DRIVEWAYS, BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K	10.03.25
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: CONTROL LINE SETOUT PLAN SHEET 2

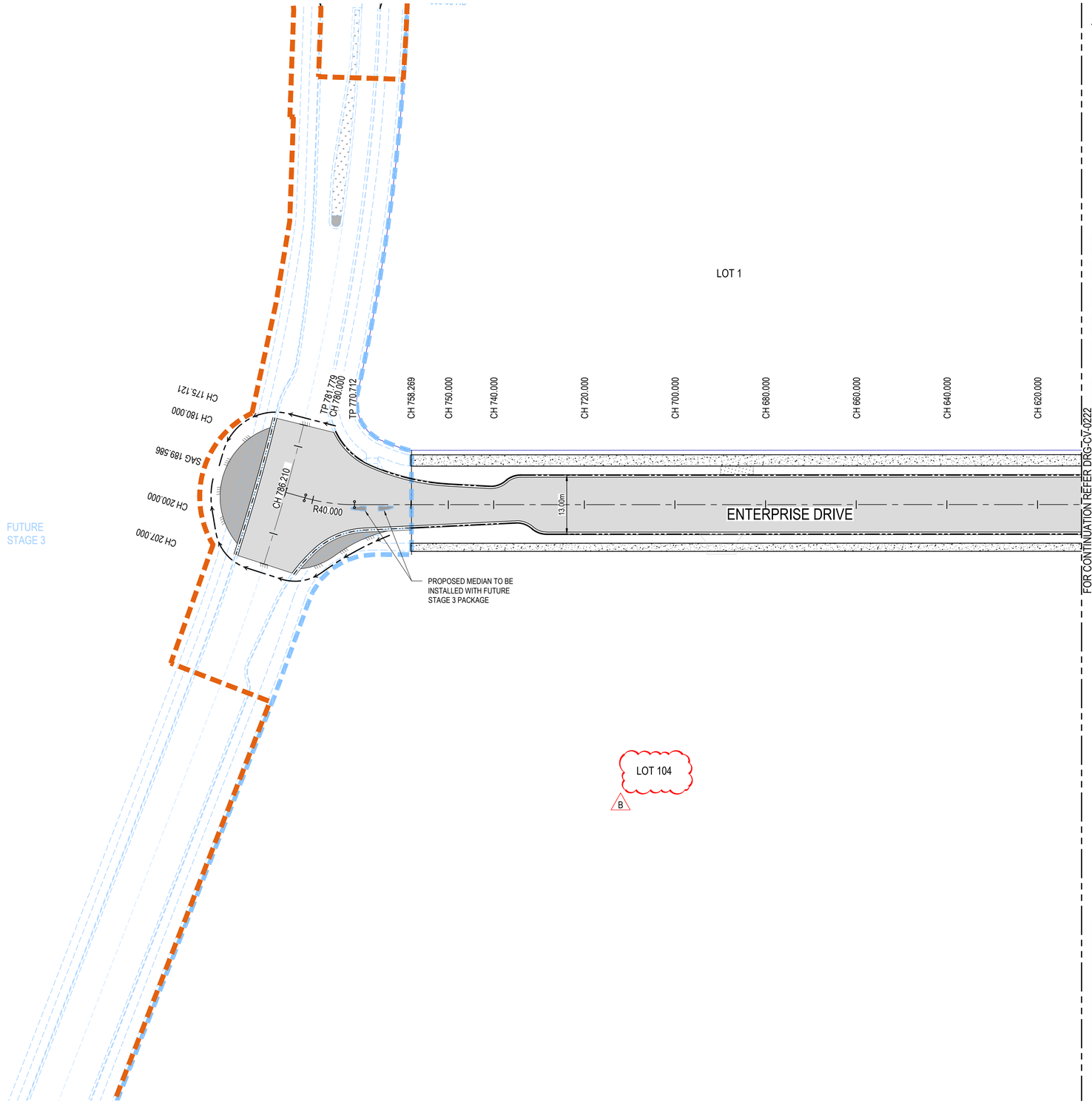
ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0222

Issue: B

Date Plotted: 13 Mar 2025 - 09:49AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0221-ControlSetoutPlan.dwg



LEGEND

- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1"
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2"
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
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- PROPOSED EDGE OF BITUMEN
- CH 0.000 — CHAINAGE AND CONTROL LINE
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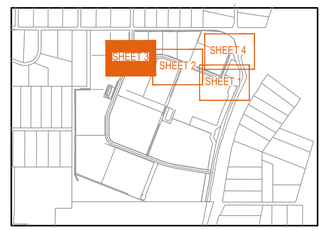
NOTE
ALL VEHICULAR CROSSOVERS TO BE CONSTRUCTED IN ACCORDANCE WITH IPWEA STAD DWG RS-051. MINIMUM CONCRETE THICKNESS IS 175mm UNLESS OTHERWISE SPECIFIED.



KEY PLAN

Issue	Description	DR	CH	VE	Date
B	UPDATED DRIVEWAYS, BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor

WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: CONTROL LINE SETOUT PLAN SHEET 3

ARCADIS
Arcadis Australia Pacific Pty Limited
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Tel No: +61 7 3337 0000
www.arcadis.com/au

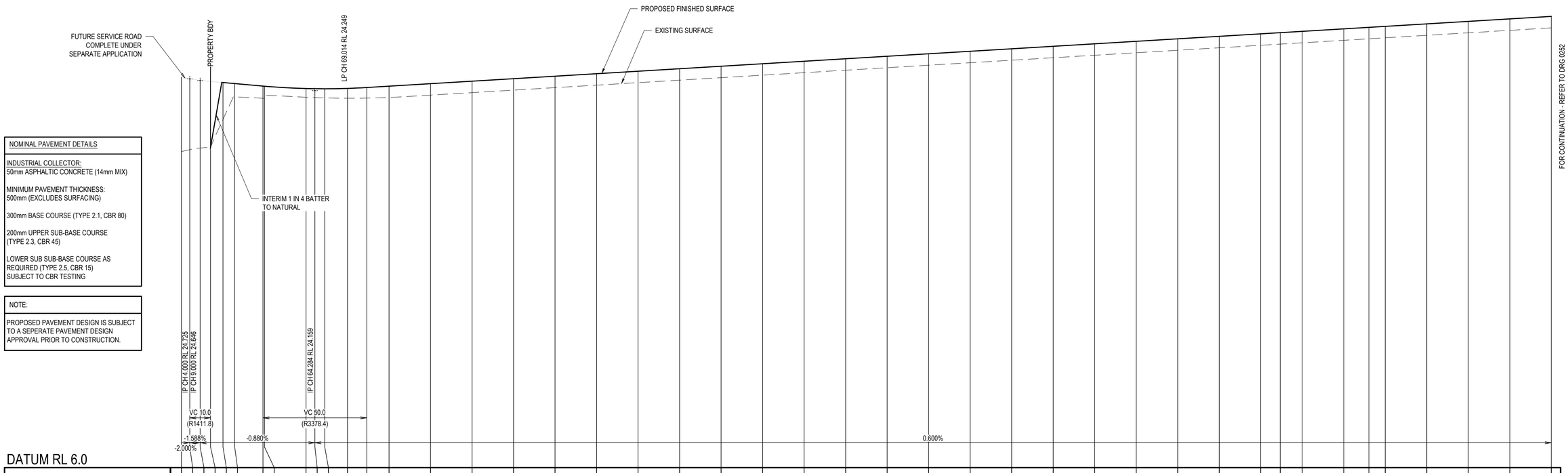
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0223

Issue: B

100mm on Original

Date Plotted: 13 Mar 2025 - 09:49AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0221-ControlSetoutPlan.dwg

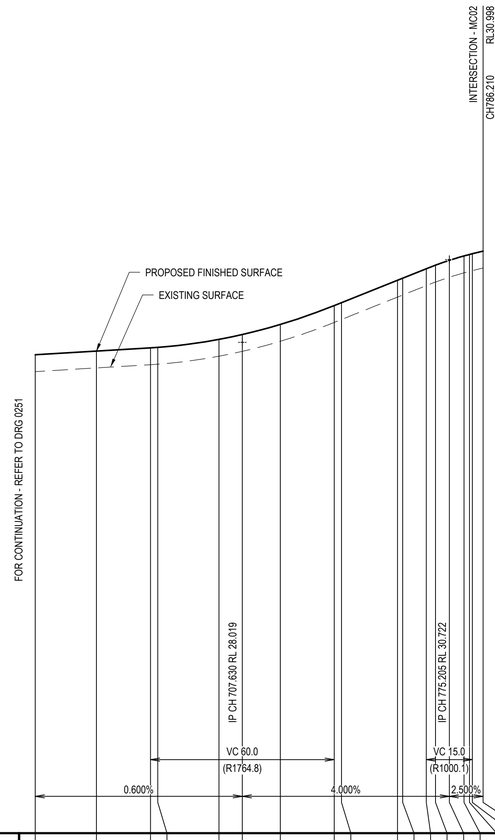


NOMINAL PAVEMENT DETAILS
INDUSTRIAL COLLECTOR: 50mm ASPHALTIC CONCRETE (14mm MIX) MINIMUM PAVEMENT THICKNESS: 500mm (EXCLUDES SURFACING) 300mm BASE COURSE (TYPE 2.1, CBR 80) 200mm UPPER SUB-BASE COURSE (TYPE 2.3, CBR 45) LOWER SUB SUB-BASE COURSE AS REQUIRED (TYPE 2.5, CBR 15) SUBJECT TO CBR TESTING

NOTE:
PROPOSED PAVEMENT DESIGN IS SUBJECT TO A SEPERATE PAVEMENT DESIGN APPROVAL PRIOR TO CONSTRUCTION.

DATUM RL 6.0

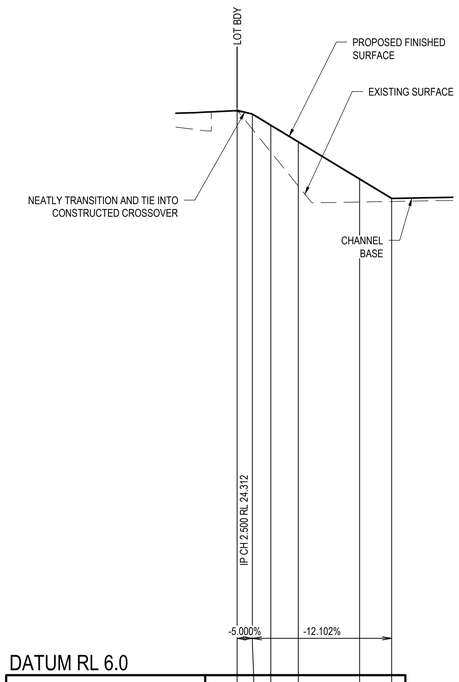
| | | |



DATUM RL 12.0

CUT (-) / FILL	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550
LHS LIP LEVEL	27.462	27.562	27.688	27.704	27.964	28.124	28.451	29.127	29.219	29.928	29.996	30.295										
RHS LIP LEVEL	27.462	27.562	27.688	27.704	27.964	28.124	28.451	29.108	29.224													
DESIGN SURFACE	27.614	27.734	27.839	27.855	28.116	28.274	28.602	29.219	29.314	30.045	30.114	30.422	30.538	30.694	30.839	30.886	30.910	30.998				
EXISTING SURFACE	27.064	27.184	27.289	27.305	27.566	27.725	28.052	28.669	28.764	29.495	29.564	29.872	29.988	30.144	30.289	30.336	30.360	30.448				
CHAINAGES	640.000	660.000	677.630	680.000	700.000	707.630	720.000	737.630	740.000	758.269	760.000	767.705	770.712	775.205	780.000	781.779	782.705	786.210				
HORIZONTAL CURVES	R40.000																					

ROAD 1 - ENTERPRISE DRIVE * REFER TO KERB DETAILS FOR INTERSECTION LIP LEVELS



DATUM RL 6.0

CUT (-) / FILL	-0.083	0.428	0.827	1.426		0.753	0.101
LHS LIP LEVEL	24.437	24.312	23.949	23.405		22.194	21.561
RHS LIP LEVEL	24.437	24.312	23.949	23.405		22.194	21.561
DESIGN SURFACE	24.437	24.312	23.949	23.405		22.194	21.561
EXISTING SURFACE	24.520	23.885	23.122	21.978		21.442	21.460
CHAINAGES	0.000	2.500	5.500	10.000		20.000	25.231
HORIZONTAL CURVES							

CHANNEL ACCESS 01

B

Issue	Description	DR	CH	VE	Date
B	TEMPORARY ACCESS ROAD REMOVED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

HORZ 0 10 20 40 60 80 100m
1:1000

VERT 0 1 2 4 6 8 10m
1:100

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: ROAD LONGITUDINAL SECTION SHEET 2

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

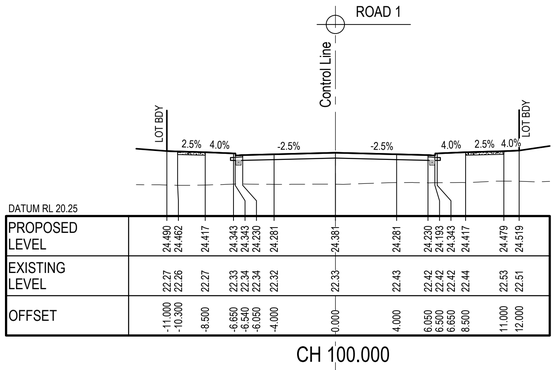
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0252

Issue: B

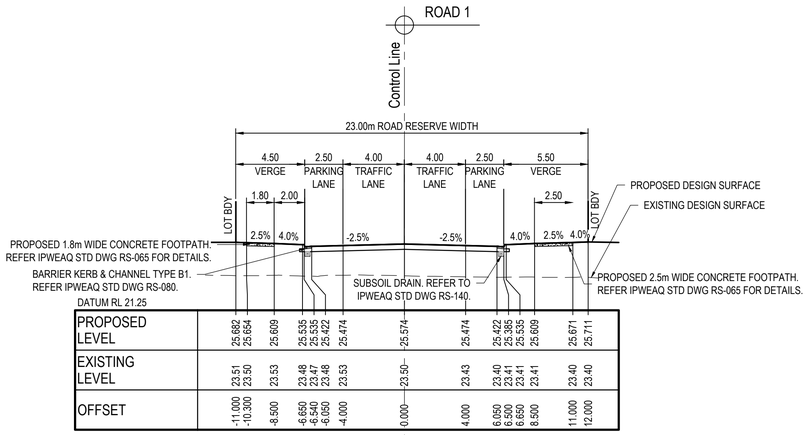
100mm on Original

Date Plotted: 13 Mar 2025 - 09:49AM File Name: C:\Users\ao67297\DCIACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0251-LX.dwg



DATUM RL 20.25

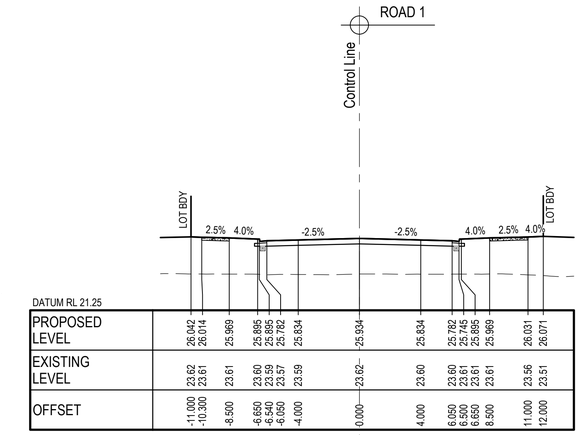
| | | |



DATUM RL 21.25

PROPOSED LEVEL	25.682	25.634	25.609	25.535	25.535	25.422	25.474	25.574	25.474	25.422	25.395	25.535	25.609	25.671	25.711
EXISTING LEVEL	23.51	23.50	23.53	23.48	23.47	23.48	23.53	23.50	23.43	23.40	23.41	23.41	23.41	23.40	23.40
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

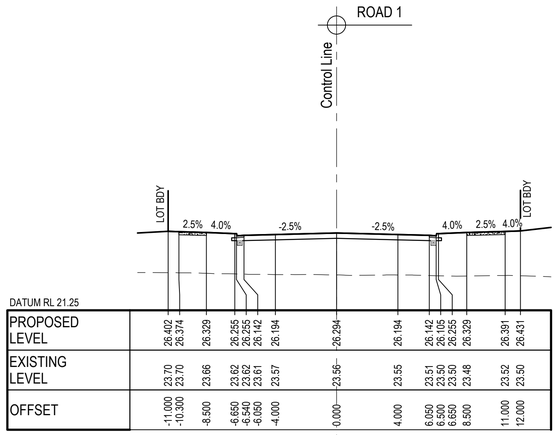
CH 300.000



DATUM RL 21.25

PROPOSED LEVEL	26.042	26.014	25.969	25.895	25.895	25.782	25.834	25.934	25.834	25.782	25.745	25.895	25.969	26.031	26.071
EXISTING LEVEL	23.62	23.61	23.61	23.60	23.59	23.57	23.59	23.62	23.60	23.60	23.61	23.61	23.61	23.56	23.51
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

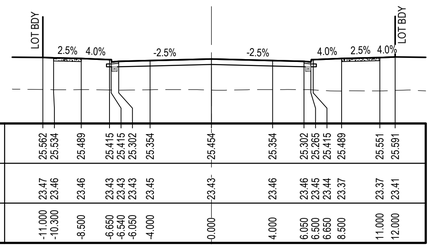
CH 360.000



DATUM RL 21.25

PROPOSED LEVEL	26.402	26.374	26.329	26.255	26.255	26.142	26.194	26.294	26.194	26.142	26.105	26.255	26.329	26.381	26.431
EXISTING LEVEL	23.70	23.70	23.66	23.62	23.62	23.61	23.57	23.56	23.55	23.51	23.50	23.50	23.48	23.52	23.50
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

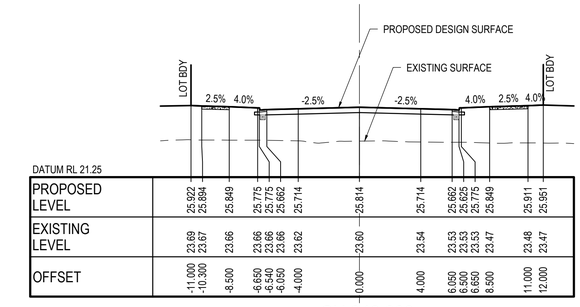
CH 420.000



DATUM RL 21.25

PROPOSED LEVEL	25.562	25.534	25.489	25.415	25.415	25.302	25.354	25.454	25.354	25.302	25.245	25.415	25.489	25.551	25.591
EXISTING LEVEL	23.47	23.46	23.46	23.43	23.43	23.43	23.45	23.43	23.46	23.46	23.45	23.44	23.37	23.37	23.41
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

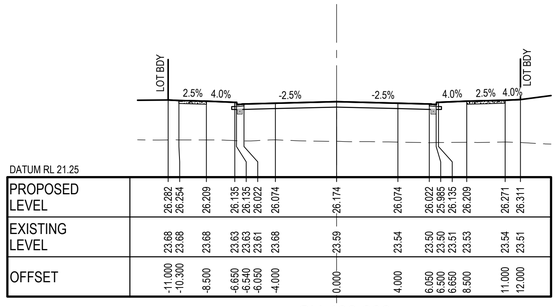
CH 280.000



DATUM RL 21.25

PROPOSED LEVEL	25.922	25.894	25.849	25.775	25.775	25.662	25.714	25.814	25.714	25.662	25.625	25.775	25.849	25.911	25.951
EXISTING LEVEL	23.69	23.67	23.66	23.66	23.66	23.66	23.62	23.60	23.54	23.53	23.53	23.53	23.47	23.48	23.47
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

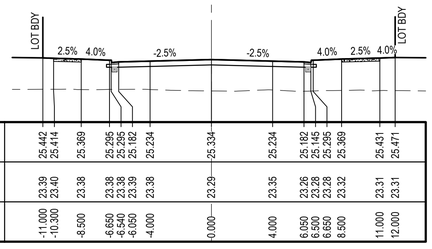
CH 340.000



DATUM RL 21.25

PROPOSED LEVEL	26.282	26.254	26.209	26.135	26.135	26.022	26.074	26.174	26.074	26.022	25.985	26.135	26.209	26.271	26.311
EXISTING LEVEL	23.68	23.68	23.68	23.63	23.63	23.61	23.68	23.59	23.54	23.50	23.50	23.51	23.53	23.54	23.51
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

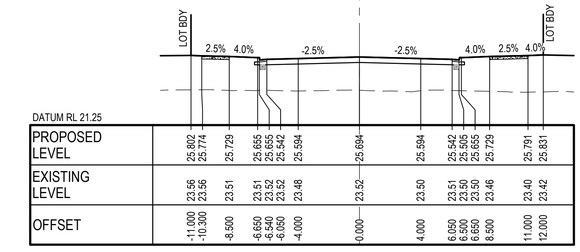
CH 400.000



DATUM RL 21.25

PROPOSED LEVEL	25.442	25.414	25.369	25.295	25.295	25.182	25.234	25.334	25.234	25.182	25.145	25.295	25.369	25.431	25.471
EXISTING LEVEL	23.39	23.40	23.38	23.38	23.38	23.39	23.38	23.29	23.35	23.26	23.28	23.28	23.32	23.31	23.31
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

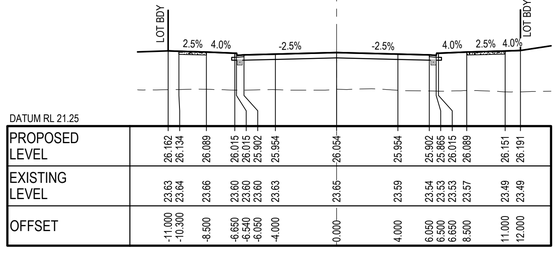
CH 260.000



DATUM RL 21.25

PROPOSED LEVEL	25.802	25.774	25.729	25.655	25.655	25.542	25.594	25.694	25.594	25.542	25.505	25.655	25.729	25.791	25.831
EXISTING LEVEL	23.56	23.56	23.51	23.51	23.52	23.52	23.48	23.52	23.50	23.51	23.50	23.50	23.46	23.40	23.42
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

CH 320.000



DATUM RL 21.25

PROPOSED LEVEL	26.162	26.134	26.089	26.015	26.015	25.902	25.954	26.054	25.954	25.902	25.865	26.015	26.089	26.151	26.191
EXISTING LEVEL	23.63	23.64	23.66	23.60	23.60	23.60	23.63	23.65	23.59	23.54	23.53	23.53	23.57	23.49	23.49
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

CH 380.000

Issue	Description	DR	CH	VE	Date
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 5 10 15 20m

1 : 200

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: ROAD 1 CROSS SECTIONS SHEET 2

ARCADIS
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Level 35, 111 Eagle Street
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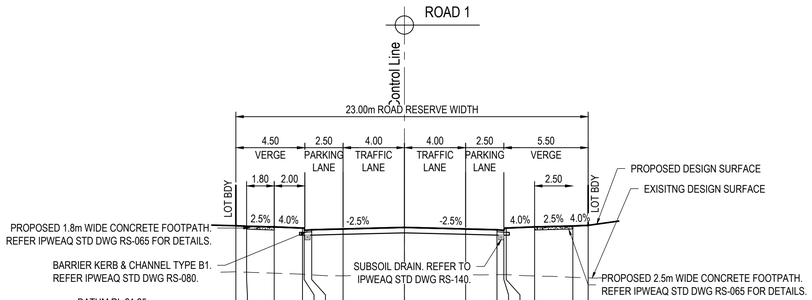
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0282

Issue: A

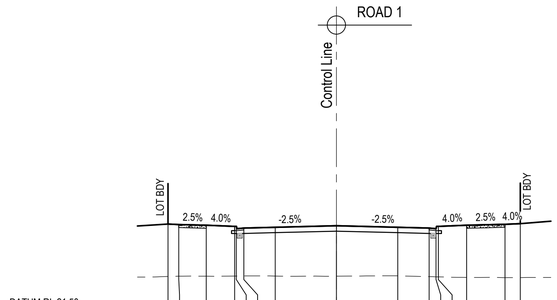
Date Plotted: 13 Mar 2025 - 09:49AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0281-XS.dwg



DATUM RL 21.25

PROPOSED LEVEL	26.762	26.734	26.689	26.615	26.615	26.502	26.554	26.654	26.554	26.502	26.495	26.515	26.689	26.751	26.791									
EXISTING LEVEL	23.76	23.73	23.67	23.60	23.59	23.56	23.50	23.60	23.58	23.57	23.57	23.57	23.49	23.40	23.36									
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000									

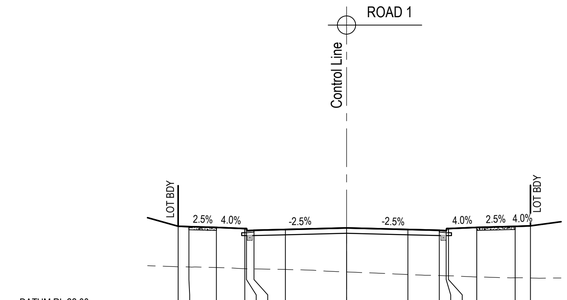
CH 480.000



DATUM RL 21.50

PROPOSED LEVEL	27.122	27.094	27.049	26.975	26.975	26.862	26.914	27.014	26.914	26.862	26.825	26.975	27.049	27.111	27.151									
EXISTING LEVEL	23.70	23.72	23.72	23.73	23.73	23.74	23.73	23.72	23.75	23.69	23.68	23.68	23.64	23.63	23.63									
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000									

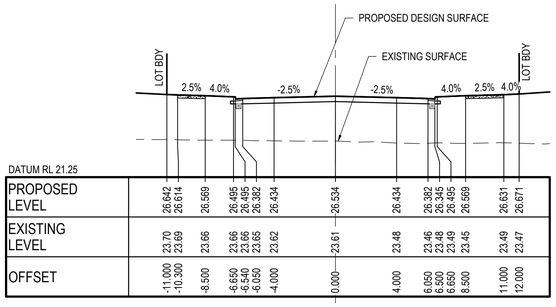
CH 540.000



DATUM RL 22.00

PROPOSED LEVEL	27.482	27.454	27.409	27.335	27.335	27.222	27.274	27.374	27.274	27.222	27.185	27.335	27.409	27.471	27.511									
EXISTING LEVEL	24.84	24.83	24.79	24.71	24.71	24.69	24.66	24.50	24.33	24.27	24.25	24.25	24.17	24.12	24.11									
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000									

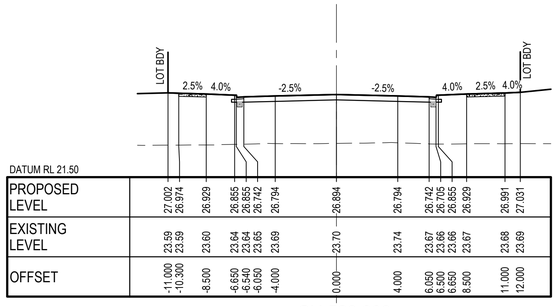
CH 600.000



DATUM RL 21.25

PROPOSED LEVEL	26.642	26.614	26.569	26.495	26.495	26.382	26.434	26.534	26.434	26.382	26.345	26.495	26.569	26.631	26.671									
EXISTING LEVEL	23.70	23.69	23.66	23.66	23.66	23.65	23.62	23.61	23.48	23.46	23.48	23.48	23.45	23.49	23.47									
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000									

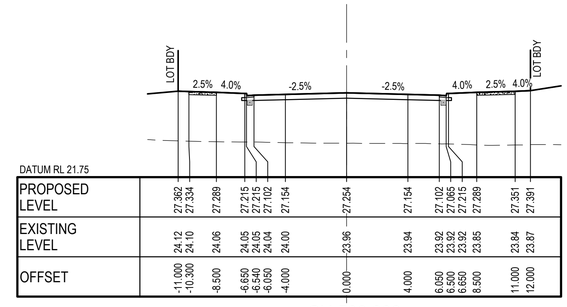
CH 460.000



DATUM RL 21.50

PROPOSED LEVEL	27.002	26.974	26.929	26.855	26.855	26.742	26.794	26.894	26.794	26.742	26.705	26.855	26.929	26.991	27.031									
EXISTING LEVEL	23.59	23.59	23.60	23.64	23.64	23.65	23.69	23.70	23.74	23.67	23.66	23.66	23.67	23.68	23.69									
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000									

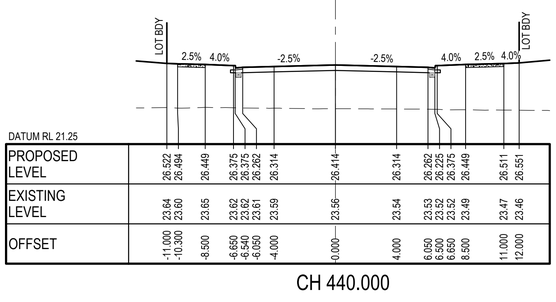
CH 520.000



DATUM RL 21.75

PROPOSED LEVEL	27.362	27.334	27.289	27.215	27.215	27.102	27.154	27.254	27.154	27.102	27.065	27.215	27.289	27.351	27.391									
EXISTING LEVEL	24.12	24.10	24.06	24.05	24.05	24.04	24.00	23.96	23.94	23.92	23.92	23.92	23.85	23.84	23.87									
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000									

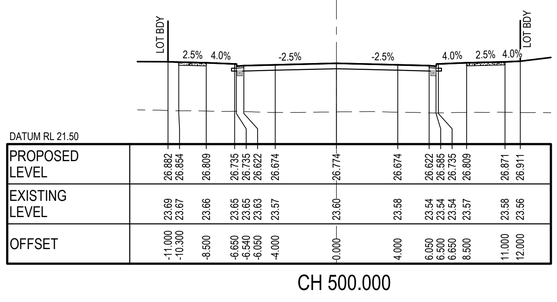
CH 580.000



DATUM RL 21.25

PROPOSED LEVEL	26.522	26.494	26.449	26.375	26.375	26.262	26.314	26.414	26.314	26.262	26.225	26.375	26.449	26.511	26.551									
EXISTING LEVEL	23.64	23.60	23.65	23.62	23.62	23.61	23.59	23.56	23.54	23.53	23.52	23.52	23.49	23.47	23.46									
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000									

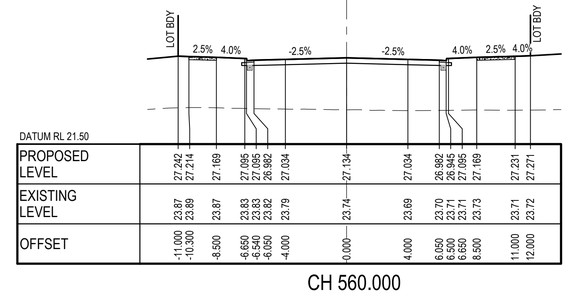
CH 440.000



DATUM RL 21.50

PROPOSED LEVEL	26.882	26.854	26.809	26.735	26.735	26.622	26.674	26.774	26.674	26.622	26.585	26.735	26.809	26.871	26.911									
EXISTING LEVEL	23.69	23.67	23.66	23.65	23.65	23.63	23.57	23.60	23.58	23.54	23.54	23.54	23.57	23.58	23.56									
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000									

CH 500.000



DATUM RL 21.50

PROPOSED LEVEL	27.242	27.214	27.169	27.095	27.095	26.982	27.034	27.134	27.034	26.982	26.945	27.095	27.169	27.231	27.271									
EXISTING LEVEL	23.87	23.89	23.87	23.83	23.83	23.82	23.79	23.74	23.69	23.70	23.71	23.71	23.73	23.71	23.72									
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000									

CH 560.000

Issue	Description	DR	CH	VE	Date
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 5 10 15 20m

1 : 200

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: ROAD 1 CROSS SECTIONS SHEET 3

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BRISBANE QLD 4000
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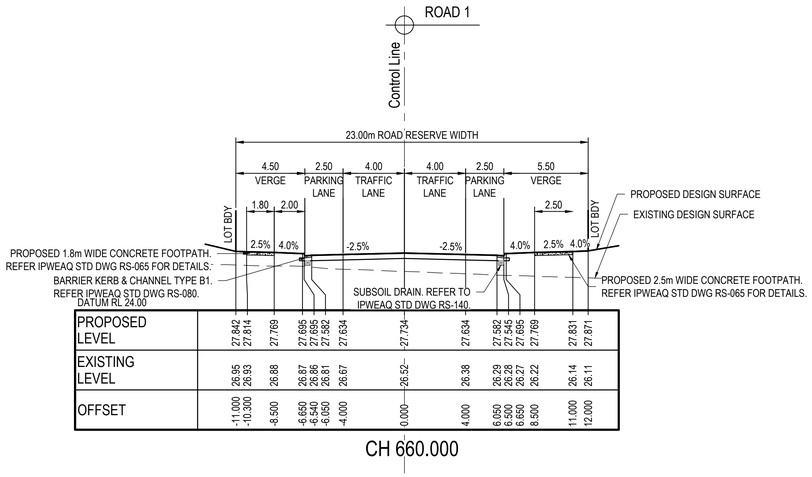
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0283

Issue: A

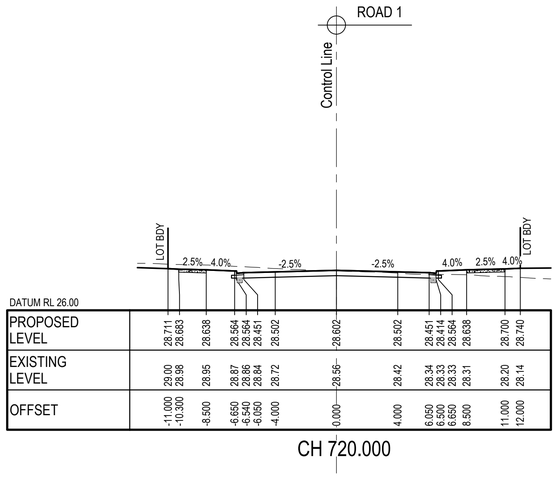
Date Plotted: 13 Mar 2025 - 09:49AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0281-XS.dwg



DATUM RL 24.00

PROPOSED LEVEL	27.842	27.814	27.769	27.695	27.695	27.582	27.634	27.734	27.634	27.582	27.545	27.769	27.831	27.871
EXISTING LEVEL	26.95	26.93	26.88	26.87	26.86	26.81	26.67	26.52	26.38	26.29	26.28	26.22	26.14	26.11
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	8.500	11.000	12.000

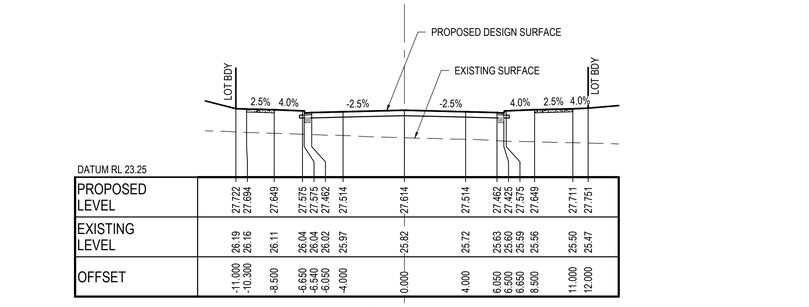
CH 660.000



DATUM RL 26.00

PROPOSED LEVEL	28.711	28.683	28.638	28.564	28.564	28.451	28.502	28.602	28.502	28.451	28.414	28.564	28.658	28.700	28.740
EXISTING LEVEL	29.00	28.98	28.95	28.87	28.86	28.84	28.72	28.56	28.42	28.34	28.33	28.33	28.31	28.20	28.14
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

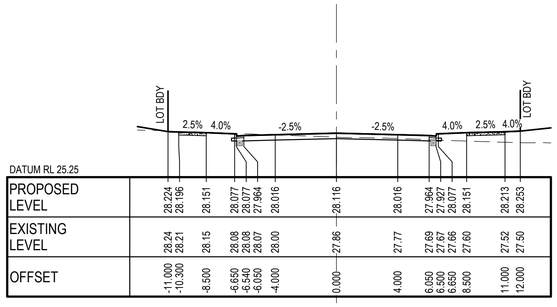
CH 720.000



DATUM RL 23.25

PROPOSED LEVEL	27.722	27.694	27.649	27.575	27.575	27.462	27.514	27.614	27.514	27.462	27.425	27.649	27.711	27.751
EXISTING LEVEL	26.19	26.16	26.11	26.04	26.04	26.02	25.97	25.82	25.72	25.63	25.59	25.56	25.50	25.47
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

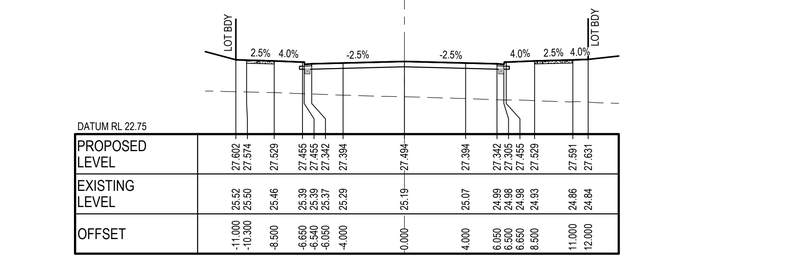
CH 640.000



DATUM RL 25.25

PROPOSED LEVEL	28.224	28.196	28.151	28.077	28.077	27.964	28.016	28.116	28.016	27.864	27.927	28.077	28.151	28.213	28.253
EXISTING LEVEL	28.24	28.21	28.15	28.08	28.08	28.07	28.00	27.86	27.77	27.69	27.67	27.66	27.60	27.52	27.50
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

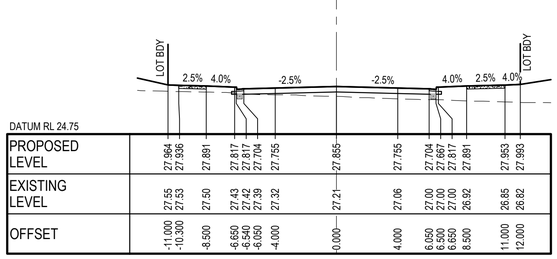
CH 700.000



DATUM RL 22.75

PROPOSED LEVEL	27.602	27.574	27.529	27.455	27.455	27.342	27.394	27.494	27.394	27.342	27.455	27.529	27.591	27.631
EXISTING LEVEL	25.52	25.50	25.46	25.39	25.39	25.37	25.29	25.19	25.07	24.99	24.98	24.93	24.86	24.84
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

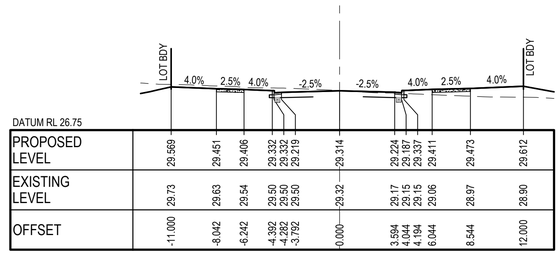
CH 620.000



DATUM RL 24.75

PROPOSED LEVEL	27.964	27.936	27.891	27.817	27.817	27.704	27.755	27.855	27.755	27.704	27.667	27.817	27.891	27.953	27.993
EXISTING LEVEL	27.55	27.53	27.50	27.43	27.42	27.39	27.32	27.21	27.06	27.00	27.00	27.00	26.92	26.85	26.82
OFFSET	-11.000	-10.300	-8.500	-6.650	-6.540	-6.050	-4.000	0.000	4.000	6.050	6.500	6.650	8.500	11.000	12.000

CH 680.000



DATUM RL 26.75

PROPOSED LEVEL	29.569	29.451	29.406	29.332	29.332	29.219	29.314	29.224	29.187	29.337	29.411	29.473	29.612
EXISTING LEVEL	29.73	29.63	29.54	29.50	29.50	29.50	29.32	29.17	29.15	29.15	29.06	28.97	28.90
OFFSET	-11.000	-8.042	-6.242	-4.392	-4.292	-3.792	0.000	3.594	4.044	4.194	6.044	8.544	12.000

CH 740.000

Issue	Description	DR	CH	VE	Date
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 15 20m

1 : 200

100mm on Original

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

ROAD 1 CROSS SECTIONS SHEET 4

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Level 35, 111 Eagle Street
BRISBANE QLD 4000
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www.arcadis.com/au

Project Number: 30109334

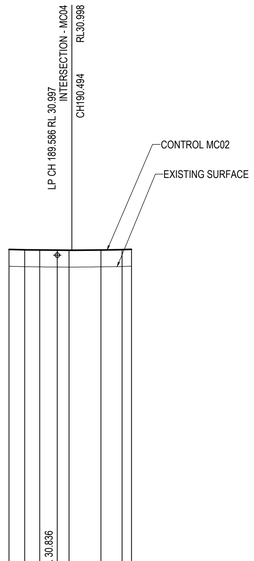
Drawing No.: 30109334-AAP-P301OP-CV-DRG-0284

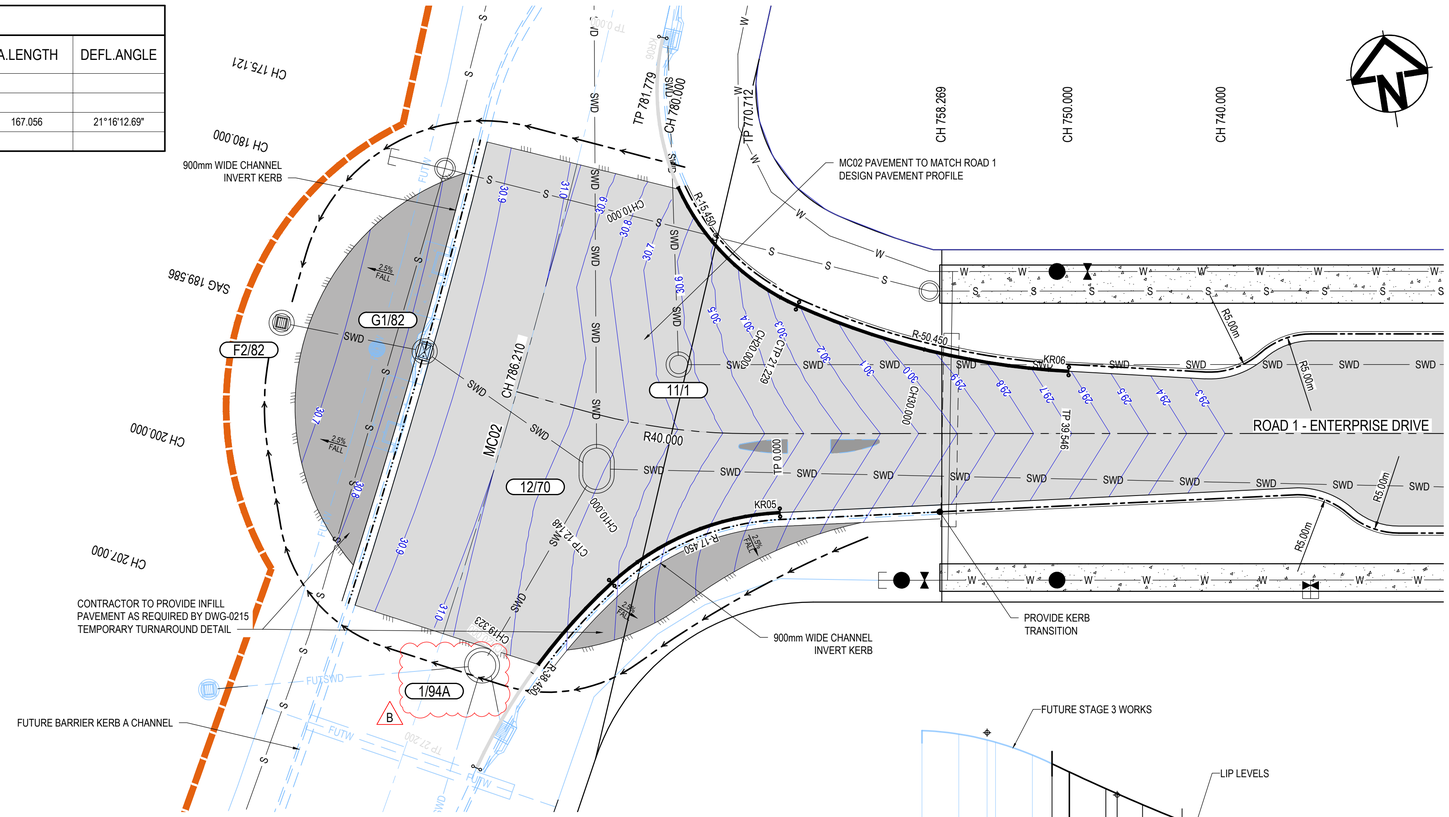
Issue: A

Date Plotted: 13 Mar 2025 - 09:49AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0281-XS.dwg

CONTROL LINE SETOUT - MC02

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	501298.545	6929807.621	32.522	188°47'02.28"			
TC	66.066	501288.456	6929742.330	31.674	188°47'02.28"			
IP 2	149.593	501275.552	6929658.821	31.101		R = 450.000	167.056	21°16'12.69"
CT	233.121	501233.233	6929585.681	31.121	210°03'14.97"			



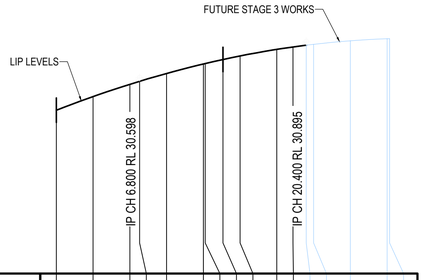


LEGEND

- DESIGN SURFACE CONTOUR (5.0)
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BARRIER KERB & CHANNEL
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- PROPOSED EDGE OF BITUMEN
- INDICATIVE DRIVE WAY LOCATION
- CHAINAGE AND CONTROL LINE (CH 0.000)
- ROAD PAVEMENT
- CONCRETE FOOTPATH
- HEAVY DUTY CONCRETE CROSSOVER (225mmDEPTH)
- TEMPORARY TURNAROUND INFILL PAVEMENT
- PROPOSED STORMWATER DRAINAGE RETICULATION (SWD)
- PROPOSED STORMWATER DRAINAGE STRUCTURE
- PROPOSED SEWER RETICULATION (S)
- PROPOSED WATER RETICULATION (W)
- FUTURE STORMWATER DRAINAGE RETICULATION (FUTSWD)
- FUTURE STORMWATER DRAINAGE STRUCTURE
- FUTURE SEWER RETICULATION (FUTS)
- FUTURE WATER RETICULATION (FUTW)

DATUM RL 15.0

CUT (-) / FILL	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550
LHS LIP LEVEL	30.853	30.641	30.177			30.652	30.807	30.848		
RHS LIP LEVEL	30.840	30.822	30.815	30.810	30.809	30.816	30.828	30.836		
DESIGN SURFACE	31.022	31.011	31.003	30.998	30.997	31.005	31.017	31.025		
EXISTING SURFACE	30.472	30.461	30.453	30.448	30.447	30.455	30.467	30.475		
CHAINAGES	170.000	175.121	180.000	185.739	189.586	200.000	206.874	210.000		
HORIZONTAL CURVES	R450.000									



DATUM RL 29.0

LIP LEVEL	30.333	30.444	30.544	30.569	30.633	30.710	30.714	30.747	30.776	30.829
NORTHING	6929613.111	6929613.170	6929612.715	6929612.508	6929611.760	6929610.334	6929610.252	6929609.421	6929608.577	6929606.637
EASTING	501268.587	501265.592	501262.630	501261.857	501259.790	501257.155	501257.031	501255.841	501254.724	501252.437
CHAINAGES	0.000	3.000	6.000	6.800	9.000	12.000	12.148	13.600	15.000	18.000
HORIZONTAL CURVES	R-17.450									

LIP LEVEL	30.849	30.864	30.871	30.900	30.917					
NORTHING	6929606.466	6929604.959	6929604.523	6929602.251	6929599.832	6929599.667				
EASTING	501252.253	501250.721	501250.309	501248.352	501246.578	501246.466				
CHAINAGES	19.323	20.400	21.000	24.000	27.000	27.200				
HORIZONTAL CURVES	R-38.450									

DATUM RL 28.0

LIP LEVEL	30.945	30.917	30.870	30.851	30.747	30.675	30.609	30.607	30.472	30.431
NORTHING	6929644.928	6929642.048	6929639.756	6929639.063	6929636.086	6929634.526	6929633.229	6929633.183	6929630.598	6929629.851
EASTING	501265.767	501264.945	501264.701	501264.694	501265.024	501265.439	501265.923	501265.942	501267.356	501267.895
CHAINAGES	0.000	3.000	5.307	6.000	9.000	10.000	12.000	12.048	15.000	15.922
HORIZONTAL CURVES	R-15.450									

LIP LEVEL	30.341	30.217	30.208	30.103	30.041	30.003	29.918	29.908	29.835	29.774
NORTHING	6929628.294	6929626.402	6929626.276	6929624.842	6929623.977	6929623.438	6929622.194	6929622.045	6929621.115	6929620.498
EASTING	501269.269	501271.591	501271.783	501274.153	501275.741	501276.804	501279.533	501279.891	501282.332	501284.200
CHAINAGES	18.000	21.000	21.229	24.000	25.808	27.000	30.000	30.388	33.000	34.967
HORIZONTAL CURVES	R-50.450									

LIP LEVEL	29.739	29.628	29.607							
NORTHING	6929620.203	6929619.463	6929619.347							
EASTING	501285.190	501288.097	501288.630							
CHAINAGES	36.000	39.000	39.346							
HORIZONTAL CURVES	R-50.450									

Issue	Description	DR	CH	VE	Date
B	SWD STRUCTURE TO BE CONSTRUCTED	A.O.	S.S.	G.E.	03.09.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales
1 : 1000 (0 10 20 40 60 80 100m)
1 : 100 (0 1 2 4 6 8 10m)
1 : 200 (0 5 10 15 20m)
1 : 25 (0 0.5 1 1.5 2 2.5m)

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: INTERSECTION LAYOUT PLAN

ARCADIS
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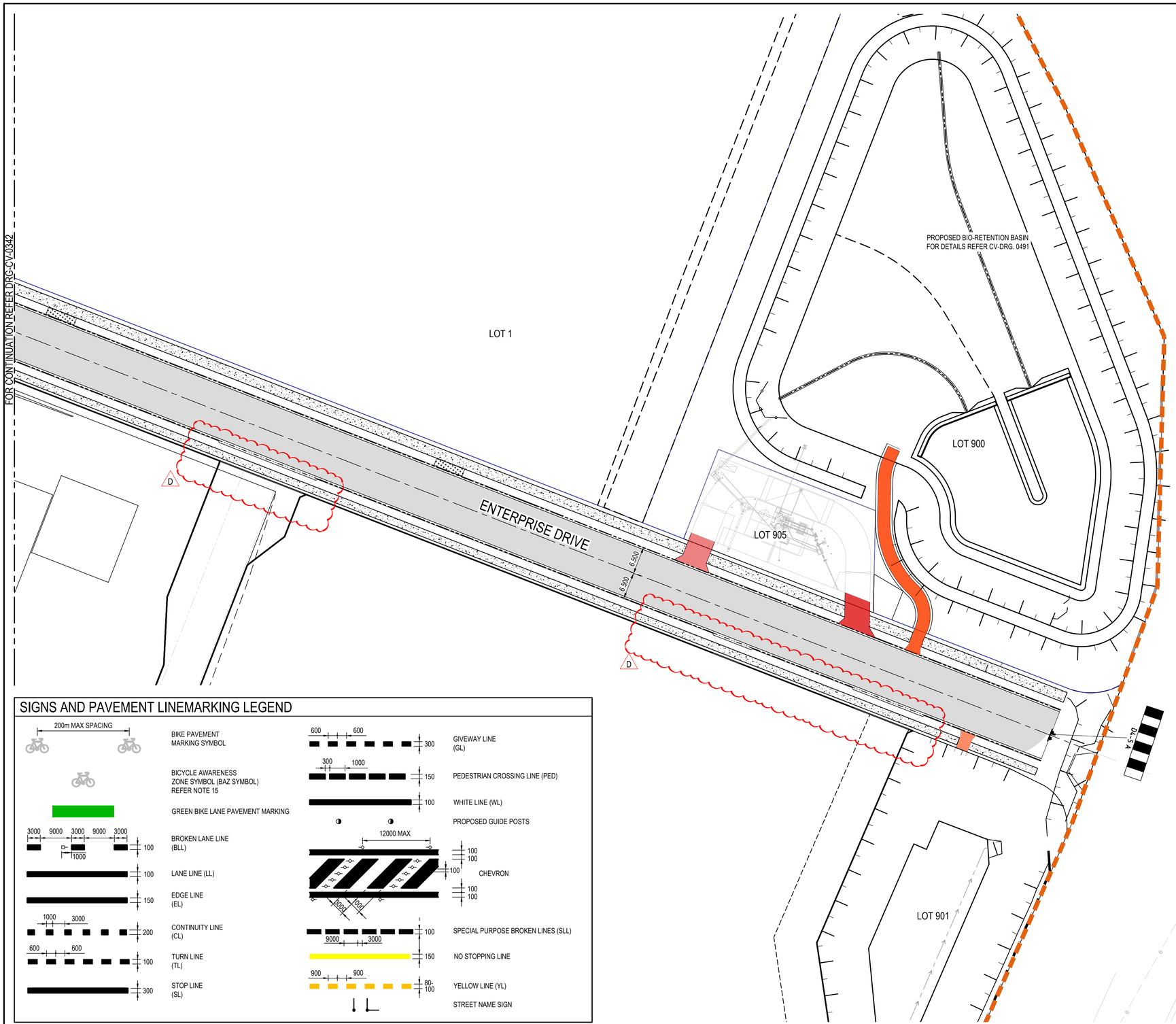
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0311

Issue: B

Date Plotted: 13 Mar 2025 - 09:55AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0311-IntersectionLayoutPlan.dwg



ESTATE ROAD NAMING:

ROAD 1 - ENTERPRISE DRIVE
ROAD 2 - LOGISTICS ROAD
ROAD 3 - CONNECT WAY

LEGEND

- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1"
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2"
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- FUTURE ELEMENTS
- PROPOSED EDGE OF BITUMEN
- INDUSTRIAL COLLECTOR ROAD (340mm PAVEMENT DEPTH AGA1)
- CONCRETE FOOTPATH
- HEAVY DUTY CONCRETE CROSSOVER (225mm PAVEMENT DEPTH)
- FULL DEPTH PAVEMENT TMR SPEC (1215mm PAVEMENT DEPTH)
- LOCAL ACCESS STREET (285mm PAVEMENT DEPTH)
- ULTIMATE TRANSITION (570mm PAVEMENT DEPTH)
- HEAVY DUTY CONCRETE CROSSOVER / TRACK (175mm DEPTH)

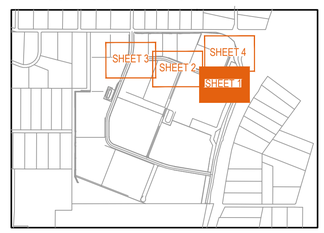
NOTE
ALL VEHICULAR CROSSOVERS TO BE CONSTRUCTED IN ACCORDANCE WITH IPWEA STAD DWG RS-051. MINIMUM CONCRETE THICKNESS IS 175mm UNLESS OTHERWISE SPECIFIED.

LINEMARKING NOTES

1. ALL LINEMARKING TO BE REFLECTORISED WHITE.
2. FINAL SIGN LOCATIONS TO BE DETERMINED ON SITE BY THE SUPERINTENDENT.
3. EXISTING LINEMARKING SUPERSEDED BY NEW LINEMARKING IS TO BE REMOVED BY ROUTING OR OTHER METHOD APPROVED BY QUEENSLAND TRANSPORT.
4. ALL TRAFFIC SIGNS TO BE SIZE 'B' UNLESS NOTED OTHERWISE.
5. FOR TRAFFIC SIGN SUPPORT DETAILS, REFER QUEENSLAND TRANSPORT STANDARD DRAWING No.'s 1360 & 1362.
6. ALL ROUTE NAMES ON NEW GUIDE SIGNS TO BE BLACK LETTERING ON WHITE BACKGROUND U.N.O.
7. ALL SIGN MATERIAL TO BE CLASS 1.
8. DIRECTION SIGNS ARE SHOWN INDICATIVE ONLY. DETAILED DESIGNS ARE TO BE USED FOR ORDERING.
9. ALL SIGNAGE, LINEMARKING & RRPMs ARE TO BE PREPARED IN ACCORDANCE WITH THE CURRENT QUEENSLAND TRANSPORT 'MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES' (M.U.T.C.D).
10. ALL TURN SIGNAL PAVEMENT MARKINGS TO BE PREPARED IN ACCORDANCE WITH THE CURRENT QUEENSLAND TRANSPORT 'MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES' (M.U.T.C.D).
11. RRPMs TO BE INSTALLED EVERY SECOND GAP IN THE MEDIAN.
12. THE NOSE OF ALL ISLANDS ARE TO BE PAINTED WITH WHITE REFLECTORISED PAINT.
13. INSTALL TGSI's ON RAMPED CROSSINGS AND CUT THROUGH TREATMENTS. REFER IPWEAQ STD DWG's RS-091 AND RS-092 FOR DETAILS.

NOTES

1. ALL EXISTING TMR SIGNS IN THE VICINITY TO BE UPDATE INTO INCLUDE PROPOSED SERVICE ROAD.



KEY PLAN

SIGNS AND PAVEMENT LINEMARKING LEGEND

Issue	Description	DR	CH	VE	Date
D	UPDATED DRIVEWAYS	A.O.	S.S.	B.K.	10.03.25
C	NOTE ADDED	A.O.	S.S.	B.K.	01.08.24
B	TEMPORARY ACCESS ROAD REMOVED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor

WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 1

ARCADIS
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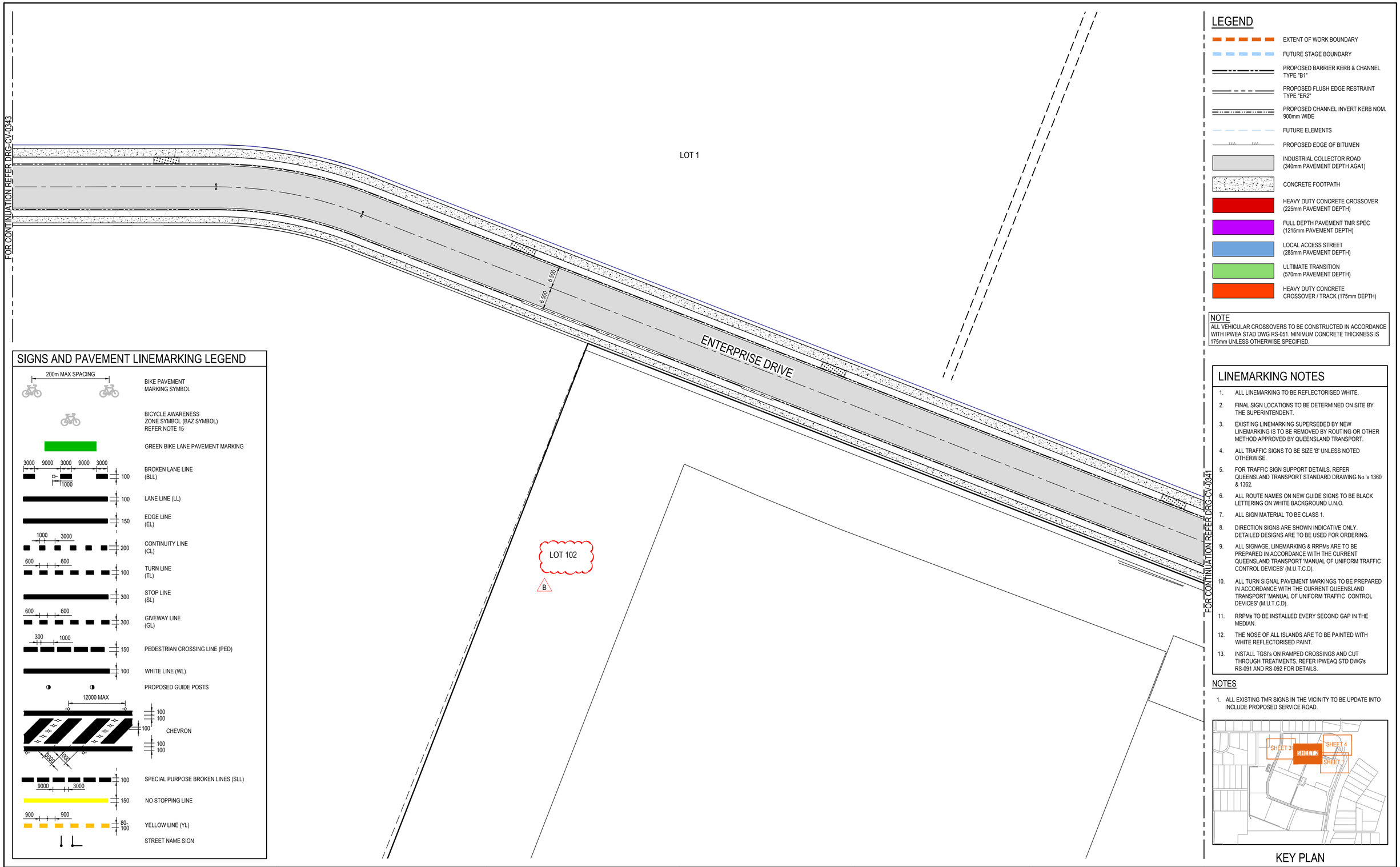
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0341

Issue: D

Date Plotted: 13 Mar 2025 - 11:01AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0341-PavementSignageandLinemarkingPlan.dwg



LEGEND

- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1"
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2"
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- FUTURE ELEMENTS
- PROPOSED EDGE OF BITUMEN
- INDUSTRIAL COLLECTOR ROAD (340mm PAVEMENT DEPTH AGA1)
- CONCRETE FOOTPATH
- HEAVY DUTY CONCRETE CROSSOVER (225mm PAVEMENT DEPTH)
- FULL DEPTH PAVEMENT TMR SPEC (1215mm PAVEMENT DEPTH)
- LOCAL ACCESS STREET (285mm PAVEMENT DEPTH)
- ULTIMATE TRANSITION (570mm PAVEMENT DEPTH)
- HEAVY DUTY CONCRETE CROSSOVER / TRACK (175mm DEPTH)

NOTE
ALL VEHICULAR CROSSOVERS TO BE CONSTRUCTED IN ACCORDANCE WITH IPWEA STAD DWG RS-051. MINIMUM CONCRETE THICKNESS IS 175mm UNLESS OTHERWISE SPECIFIED.

SIGNS AND PAVEMENT LINEMARKING LEGEND

LINEMARKING NOTES

1. ALL LINEMARKING TO BE REFLECTORISED WHITE.
2. FINAL SIGN LOCATIONS TO BE DETERMINED ON SITE BY THE SUPERINTENDENT.
3. EXISTING LINEMARKING SUPERSEDED BY NEW LINEMARKING IS TO BE REMOVED BY ROUTING OR OTHER METHOD APPROVED BY QUEENSLAND TRANSPORT.
4. ALL TRAFFIC SIGNS TO BE SIZE 'B' UNLESS NOTED OTHERWISE.
5. FOR TRAFFIC SIGN SUPPORT DETAILS, REFER QUEENSLAND TRANSPORT STANDARD DRAWING No.'s 1360 & 1362.
6. ALL ROUTE NAMES ON NEW GUIDE SIGNS TO BE BLACK LETTERING ON WHITE BACKGROUND U.N.O.
7. ALL SIGN MATERIAL TO BE CLASS 1.
8. DIRECTION SIGNS ARE SHOWN INDICATIVE ONLY. DETAILED DESIGNS ARE TO BE USED FOR ORDERING.
9. ALL SIGNAGE, LINEMARKING & RRPMs ARE TO BE PREPARED IN ACCORDANCE WITH THE CURRENT QUEENSLAND TRANSPORT 'MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES' (M.U.T.C.D).
10. ALL TURN SIGNAL PAVEMENT MARKINGS TO BE PREPARED IN ACCORDANCE WITH THE CURRENT QUEENSLAND TRANSPORT 'MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES' (M.U.T.C.D).
11. RRPMs TO BE INSTALLED EVERY SECOND GAP IN THE MEDIAN.
12. THE NOSE OF ALL ISLANDS ARE TO BE PAINTED WITH WHITE REFLECTORISED PAINT.
13. INSTALL TGSI's ON RAMPED CROSSINGS AND CUT THROUGH TREATMENTS. REFER IPWEAQ STD DWG's RS-091 AND RS-092 FOR DETAILS.

NOTES

1. ALL EXISTING TMR SIGNS IN THE VICINITY TO BE UPDATE INTO INCLUDE PROPOSED SERVICE ROAD.

KEY PLAN

Issue	Description	DR	CH	VE	Date
B	UPDATED DRIVEWAYS, BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 2

ARCADIS
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www.arcadis.com/au

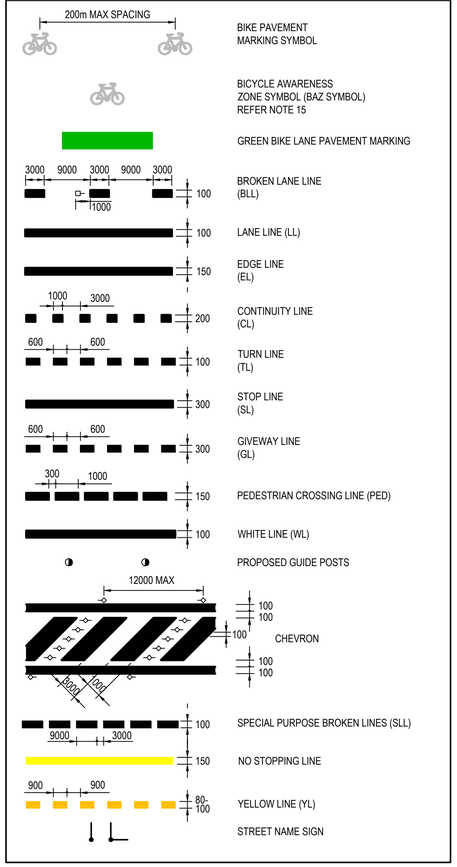
Project Number: 30109334

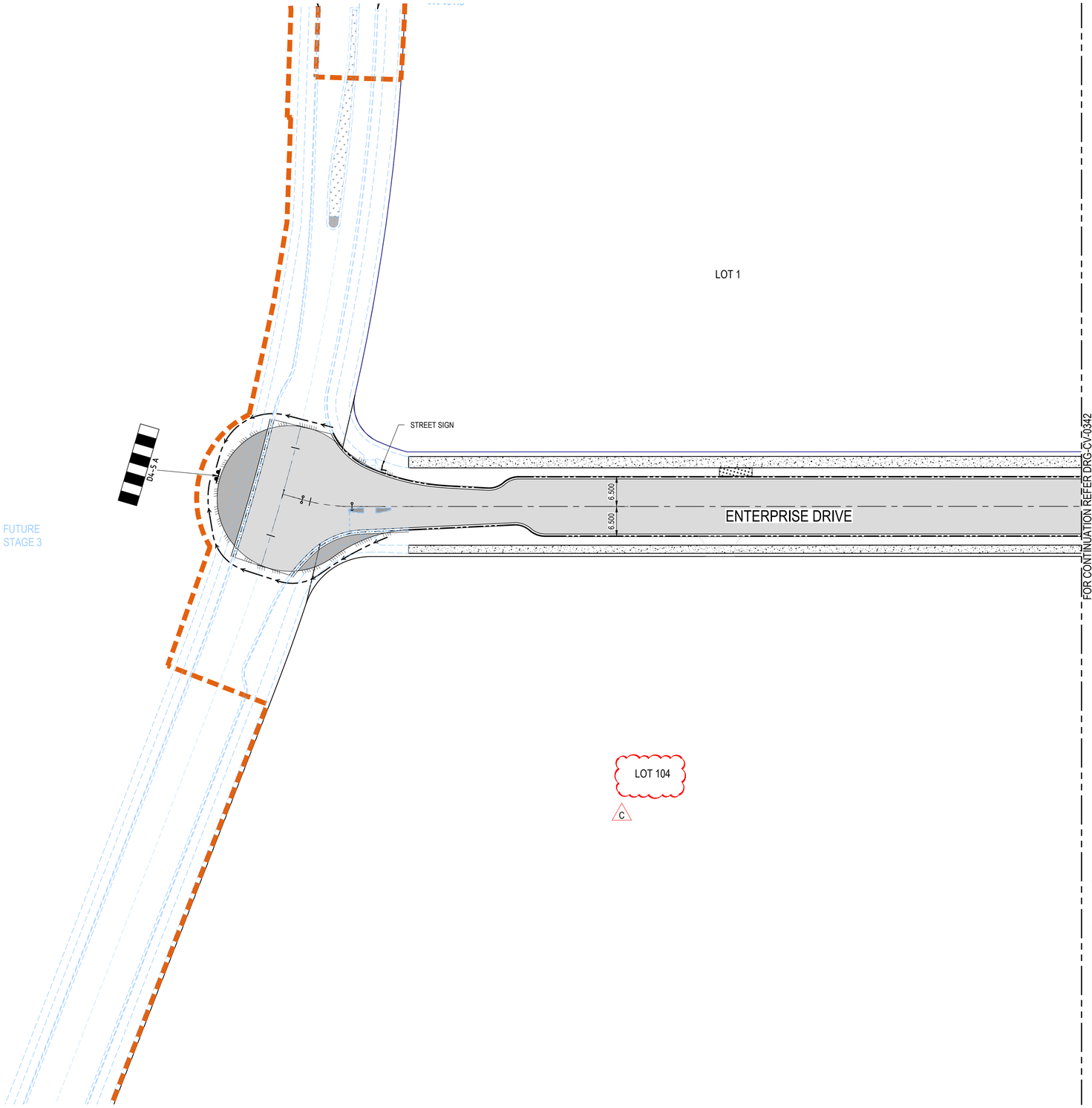
Drawing No.: 30109334-AAP-P301OP-CV-DRG-0342

Issue: B

Date Plotted: 13 Mar 2025 - 09:56AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0341-PavementSignageandLinemarkingPlan.dwg

SIGNS AND PAVEMENT LINEMARKING LEGEND





LEGEND

- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1"
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2"
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- FUTURE ELEMENTS
- PROPOSED EDGE OF BITUMEN
- INDUSTRIAL COLLECTOR ROAD (340mm PAVEMENT DEPTH AGA1)
- CONCRETE FOOTPATH
- HEAVY DUTY CONCRETE CROSSOVER (225mm PAVEMENT DEPTH)
- FULL DEPTH PAVEMENT TMR SPEC (1215mm PAVEMENT DEPTH)
- LOCAL ACCESS STREET (285mm PAVEMENT DEPTH)
- ULTIMATE TRANSITION (570mm PAVEMENT DEPTH)
- HEAVY DUTY CONCRETE CROSSOVER / TRACK (175mm DEPTH)

NOTE
ALL VEHICULAR CROSSOVERS TO BE CONSTRUCTED IN ACCORDANCE WITH IPWEA STAD DWG RS-051. MINIMUM CONCRETE THICKNESS IS 175mm UNLESS OTHERWISE SPECIFIED.

FOR CONTINUATION REFER DRG-CV-0342

LINEMARKING NOTES

1. ALL LINEMARKING TO BE REFLECTORISED WHITE.
2. FINAL SIGN LOCATIONS TO BE DETERMINED ON SITE BY THE SUPERINTENDENT.
3. EXISTING LINEMARKING SUPERSEDED BY NEW LINEMARKING IS TO BE REMOVED BY ROUTING OR OTHER METHOD APPROVED BY QUEENSLAND TRANSPORT.
4. ALL TRAFFIC SIGNS TO BE SIZE 'B' UNLESS NOTED OTHERWISE.
5. FOR TRAFFIC SIGN SUPPORT DETAILS, REFER QUEENSLAND TRANSPORT STANDARD DRAWING No.'s 1360 & 1362.
6. ALL ROUTE NAMES ON NEW GUIDE SIGNS TO BE BLACK LETTERING ON WHITE BACKGROUND U.N.O.
7. ALL SIGN MATERIAL TO BE CLASS 1.
8. DIRECTION SIGNS ARE SHOWN INDICATIVE ONLY. DETAILED DESIGNS ARE TO BE USED FOR ORDERING.
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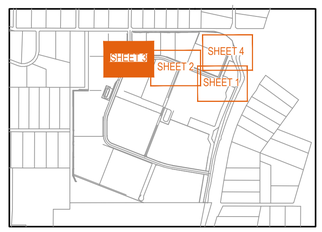
11. RRPMs TO BE INSTALLED EVERY SECOND GAP IN THE MEDIAN.
12. THE NOSE OF ALL ISLANDS ARE TO BE PAINTED WITH WHITE REFLECTORISED PAINT.
13. INSTALL TGSI's ON RAMPED CROSSINGS AND CUT THROUGH TREATMENTS. REFER IPWEAQ STD DWG's RS-091 AND RS-092 FOR DETAILS.

NOTES

1. ALL EXISTING TMR SIGNS IN THE VICINITY TO BE UPDATE INTO INCLUDE PROPOSED SERVICE ROAD.



KEY PLAN

Issue	Description	DR	CH	VE	Date
C	UPDATED DRIVEWAYS, BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
B	SIGN ADDED	A.O.	S.S.	B.K.	01.08.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor

WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 3

ARCADIS
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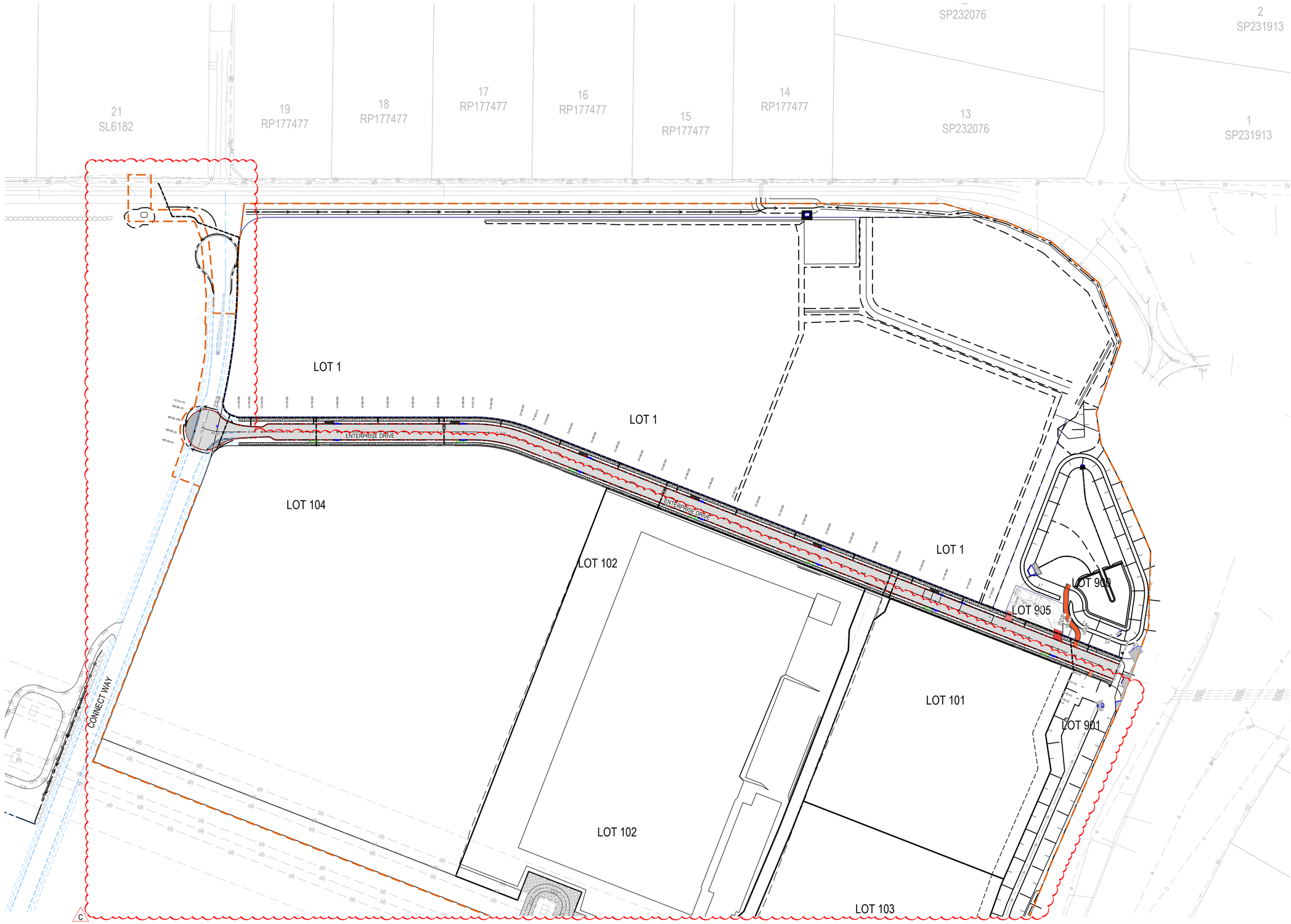
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0343

Issue: C

100mm on Original

Date Plotted: 13 Mar 2025 - 09:56AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0341-PavementSignageandLinemarkingPlan.dwg



LEGEND

- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BARRIER KERB & CHANNEL TYPE "B1"
- PROPOSED FLUSH EDGE RESTRAINT TYPE "ER2"
- PROPOSED CHANNEL INVERT KERB NOM. 900mm WIDE
- FUTURE ELEMENTS
- PROPOSED EDGE OF BITUMEN
- INDUSTRIAL COLLECTOR ROAD (340mm PAVEMENT DEPTH AGA1)
- CONCRETE FOOTPATH
- PAVEMENT EDGE (SUBSOIL) DRAIN
- PAVEMENT INTERFACE DRAIN
- SUBSOIL DRAIN CLEANOUT
- SUBSOIL DRAIN OUTLET
- KERB INLET

NOTE:

1. REFER DRG 30109334-AAP-P301OP-CV-DRG-0348 FOR PAVEMENT NOTES.
2. PAVEMENT EDGE DRAINS, SETOUT, LOCATIONS AND EXTENTS SHALL BE CONFIRMED ON-SITE FOLLOWING CONFIRMATION OF ACTUAL SUBGRADE CONDITIONS AND IT IS TO THE ADMINISTRATOR'S DISCRETION WHETHER ADDITIONAL DRAINS ARE REQUIRED IF UNEXPECTED SOURCES OF MOISTURE ARE ENCOUNTERED DURING CONSTRUCTION.
3. FOR DETAILS OF PAVEMENT EDGE DRAINS, OUTLETS AND CLEANOUT, REFER TO IPWEA STD. DRG. RS-140 AND RS-142-SUBSOIL DRAIN TYPE B/C.
4. FOR DETAILS OF PAVEMENT INTERFACE DRAINS, REFER TO MRTS38. FOR DETAILS OF PAVEMENT INTERFACE DRAIN OUTLETS AND CLEANOUTS, REFER TO IPWEA STANDARD DRAWINGS RS-140 AND RS-142.

NOTE:

APPLIES TO ALL EMBANKMENT FILL

- CLASS B MATERIAL IN ACCORDANCE WITH MRTS04
- SHRINK/SWELL FACTOR 2%

WHERE LOCATED WITHIN 1.5m BELOW SUBGRADE (IE BOTTOM OF PAVEMENT) LEVEL;

- 4-DAY SOAKED - CBR VALUE MIN 7%
- CBR SWELL <2.5%

ENSURE THE ENTIRE EMBANKMENT CROSS SECTION (IE INCLUDING OUTER ZONE) IS COMPACTED IN ACCORDANCE WITH MRTS04

Issue	Description	DR	CH	VE	Date
C	UPDATED DRIVEWAYS, BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	A.N.	10.03.25
B	CROSS DRAIN REMOVED	A.O.	S.S.	A.N.	21.11.24
A	ORIGINAL ISSUE	A.O.	S.S.	A.N.	18.10.24

100mm on Original

Scales

0 20 40 60 80 100 125 150m

1 : 1500

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	A.NANOO	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	A. NANOO	R.P.E.Q. No: 18539 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: PAVEMENT DESIGN LAYOUT PLAN

ARCADIS
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www.arcadis.com/au

Project Number: 30109334

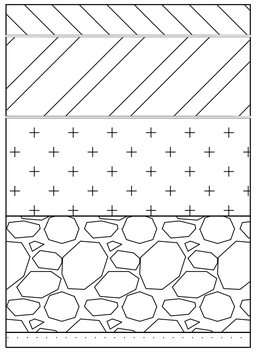
Drawing No.: 30109334-AAP-P301OP-CV-DRG-0346

Issue: C

Date Plotted: 13 Mar 2025 - 09:28AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0346-Pavement Design Notes And Details.dwg

AGA1: ASPHALT OVER GRANULAR; ENTERPRISE DRIVE CH. 25.653- CH.786.210 CONNECT WAY CH. 175.121- CH.207.000

NORTH MACLEAN STAGE 1 ASPHALT, OVER GRANULAR, SUBGRADE DESIGN CBR 15%



50 mm Surfacing: AC14H (A15E) (MRTS30)
WPA Seal S25E @ 1.5 l/m2, 6 mm @ 160 m2/m3 (Provisional) (MRTS11)

130 mm Base: EME2 (MRTS32)

Single Seal C170 @ 1.6 l/m2, 6 mm @ 140 m2/m3 (MRTS11)
Prime AMC00 @ 0.9 l/m2 (MRTS11)

160 mm Lightly Bound Improved (MRTS10)

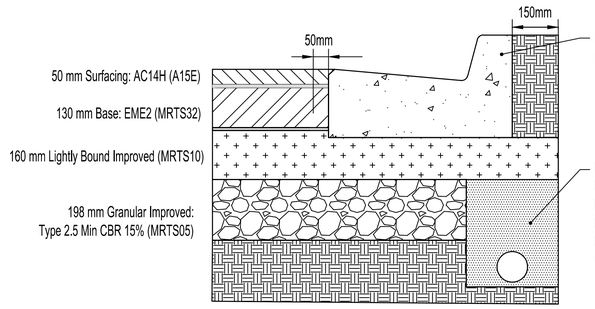
198 mm Granular Improved: Type 2.5 Min CBR 15% (MRTS05)

Design Subgrade CBR 15
Design Subgrade CBR-Swell < 2.5%

Ndt = 2.02E+07 HVAG; 3.60E+07 ESA

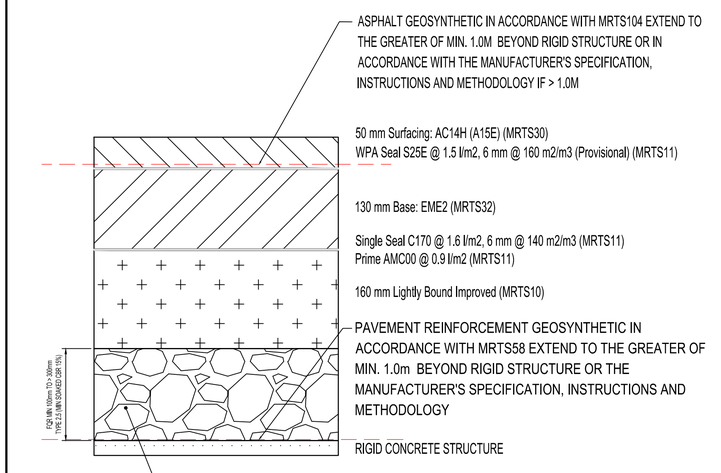
TOTAL PAVEMENT DEPTH 550 mm (Including Seals)

Binder spray and aggregate spread rates are indicative /for estimation purposes only. The Contractor shall undertake spray seal design and get Approval from the Administrator prior to application/construction in accordance with MRTS11



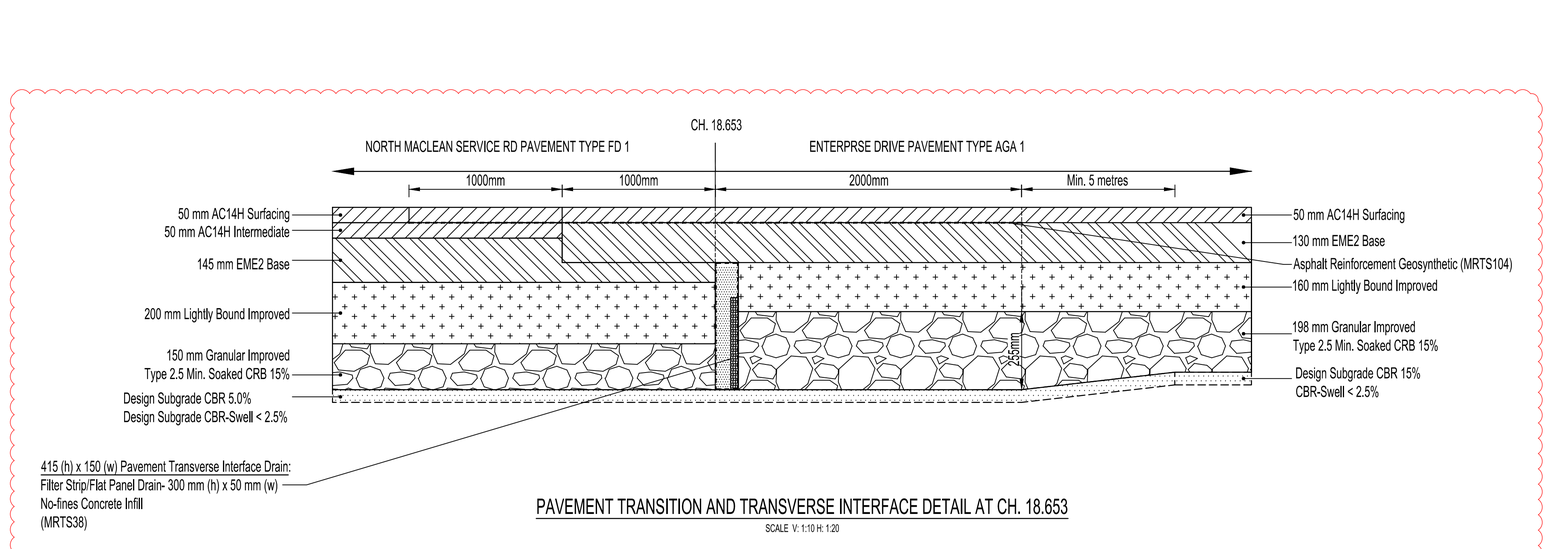
EDGE DETAIL AGA1 (ASPHALT OVER GRANULAR 1: ENTERPRISE DRIVE CH. 25.653 - CH.786.210 CONNECT WAY CH. 175.121- CH.207.000)

SCALE 1:10



RIGID STRUCTURE BRIDGING DETAIL

SCALE 1:5



PAVEMENT TRANSITION AND TRANSVERSE INTERFACE DETAIL AT CH. 18.653

SCALE V: 1:10 H: 1:20

D

Issue	Description	DR	CH	VE	Date
D	UPDATED PAVEMENT TRANSITION DETAIL	A.O.	S.S.	A.N.	21.11.24
C	UPDATED ISSUE	A.O.	S.S.	A.N.	06.11.24
B	UPDATED ISSUE	A.O.	S.S.	A.N.	23.10.24
A	ORIGINAL ISSUE	A.O.	S.S.	A.N.	18.10.24

100mm on Original

Scales

0 50 100 200 300 400 500mm
1 : 5

0 100 200 400 600 800 1000mm
1 : 10

0 0.5 1 1.5 2m
1 : 20

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	A. NANOO	R.P.E.Q. No: 18539 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: PAVEMENT DETAILS

ARCADIS
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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0347

Issue: D

Date Plotted: 13 Mar 2025 - 09:28AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0346-Pavement Design Notes And Details.dwg

GENERAL

1. These pavement drawings shall be read in conjunction with the relevant current MRTS Specifications and Specification Annexures. This includes all other engineering/other consultants drawings and specifications and written instructions as may be issued by the Administrator.
2. Unless drawings are identified as "For Construction", they shall not be used for construction purposes.
3. All locations, orientations and levels shall be verified on site prior to commencing any asphalt profiling and pavement boxout and discrepancies shall be referred to the Administrator.
4. Nomination of a proprietary item does not indicate exclusive preference but indicates the required properties of the item. Similar alternatives having the required properties may be offered for approval by the Administrator.
5. Do not obtain dimensions by scaling from the drawings unless stated otherwise.
6. The Contractor shall verify setting out dimensions shown on the drawings before any construction or fabrication commences.
7. During construction, the Contractor shall ensure that the pavements are maintained in a stable condition and no part shall be overstressed. Provide temporary bracing as required to keep the works and excavations stable at all times.
8. Adequate drainage shall be provided at all times during construction.
9. Pavement profiles are not to scale.

ASPHALT

1. AC14H Wearing and Intermediate course: AC14H mix - dense graded asphalt - 14 mm nominal size aggregate - Class A15E binder - mix shall conform with MRTS30.
2. EME2 Base course: EME2 mix shall conform with MRTS32.
3. The longitudinal 'joint' between asphalt paver runs for the surfacing layer must coincide with traffic lane lines.
4. Unless noted otherwise longitudinal interface joints shall always be on lane lines, centrally located in trafficked lanes or anywhere in shoulders.
5. At all pavement joints the existing pavement shall be saw cut in accordance with the pavement cutback and interface detail
6. Any changes to the pavement joint details or locations are to be approved by the Administrator.
7. Asphalt corrector layers shall be placed if required to correct surface defects.

PRIME AND SPRAY SEALS

1. The Contractor shall undertake designs appropriate for the conditions at the time of placement and submit details in writing to the Administrator for approval prior to undertaking works.
2. Size 10 WPA single seal - waterproofing interlayer seal, provisional, if ordered - 10 mm precoated aggregates, class S25E binder - seal shall conform with MRTS18.
3. Prime: AMC00 conforming with MRTS20.
4. Size 10 single seal: 10 mm pre-coated aggregates, Class 170 binder - seal shall conform to MRTS11 and MRTS22.
5. The 'curing' time of AMC00 prime is to be a minimum of 3 days unless otherwise stated by the Administrator depending on prevailing weather conditions.
6. Gravel surfaces shall be primed prior to placement of asphalt and a single coat seal shall be applied where gravel surfaces are trafficked (including construction traffic) prior to placing asphalt, where shown on the plans and details.

SUBGRADE REPLACEMENT

1. Subgrade replacement under new full depth pavements: the Administrator shall direct additional testing of the subgrade prior to the excavation/boxout to subgrade level and prior to placement of any pavement layers. Once the subgrade has been inspected and subgrade test results are received by the Administrator, the need for any subgrade replacement and/or treatment and/or adjustment to the pavement thickness, types and extents will be confirmed by the Administrator in accordance with MRTS04.
2. Subgrade replacement material shall conform with the material and construction requirements of MRTS04, clause 18.2.2, with geotextile-wrapped Type 2.4 material for wet conditions and Type 2.3 material for all other locations, where subgrade CBR is < 2% The following treatment may be adopted: remove and replace material, to the depth specified in table 5.9 of the Queensland Department of Transport and Main Roads Pavement Design Supplement to AGPT02/17, below subgrade level with subgrade replacement material that conforms to the material and construction requirements of MRTS04, clause 18.2.2, Type 2.4/Type 2.3 subgrade replacement to be placed and compacted in layers no greater than 150 mm.

SUBGRADE AT TIME OF CONSTRUCTION (CBR%)	ADDITIONAL MINIMUM DEPTH OF SUBGRADE REPLACMENT/COVER (MRTS 04, CLAUSE 18.2.2.) (mm)
<3.0% ; ≥2.5%	150
<2.5% ; ≥2.0%	200
<2.0% ; ≥1.5%	300
<1.5% ; ≥1.0%	400
<1.0%	SPECIFIC GEOTECHNICAL ASSESSMENT REQUIRED

3. Where expansive subgrades are found (CBR-SWELL >2.5%), additional cover material will be required to satisfy the requirements of table 5.3.5 and figure 5.3.5 of the Queensland Department of Transport and Main Roads Pavement Design Supplement to AGPT02/17, below subgrade level with subgrade replacement material that conforms with the material and construction requirements of MRTS04, clause 18.2.2, Type 2.3 subgrade replacement to be placed and compacted in accordance with MRTS05.
4. For low strength subgrades where a subgrade treatment is used, the use of geofabric or geogrid to aid construction may be considered at the discretion of the Administrator.

PAVEMENT DRAINS

1. For details on pavement edge drains, outlets and cleanout points refer to IPWEA Std. Drg. RS-140 and RS-142 - subsoil drain type B/C.
2. For details on pavement interface drains refer to TMR Std Dwg SD1116 and MRTS 38 - Subsoil drain Type A.
3. Pavement edge and interface drains are to be graded at 1% nominal (desirable) and at 0.5% (absolute minimum).
4. Unless noted or otherwise shown, pavement edge and interface drainage cleanout points are to be placed at a maximum distance of 60 m.
5. Unless noted or otherwise shown, pavement drainage outlets shall be at 60 m maximum spacing.
6. Any existing pavement drains and drainage layers encountered during construction shall be connected to outlets as directed and approved by the Administrator.
7. Pavement drains along road edges and medians shall outlet to a kerb inlet or stormwater drainage chamber.
8. Pavement edge and interface drains have been shown on the drawings however, setout, locations and extents of the pavement drains shall be confirmed on-site following confirmation of actual subgrade conditions and it is to the Administrator's discretion whether additional drains are required if unexpected sources of moisture are encountered during construction.

GRANULAR MATERIAL

1. Unbound granular material shall conform with the material and construction requirements of MRTS05.

LIGHTLY BOUND MATERIAL

1. Lightly bound material shall conform with the material and construction requirements of MRTS10.

IN-SITU LIME STABILISED SUBGRADE

1. In-situ lime stabilised subgrade material shall conform with the material and construction requirements of MRTS07A.

CONCRETE:

1. Concrete elements shall conform with the material and construction requirments of MRTS70

REINFORCEMENT

1. Steel reinforcement shall conform with the material and construction requirements of MRTS71.

Issue	Description	DR	CH	VE	Date
A	ORIGINAL ISSUE	A.O.	S.S.	A.N.	18.10.24

Scales

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	A. NANOO	R.P.E.Q. No: 18539 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: PAVEMENT NOTES

ARCADIS
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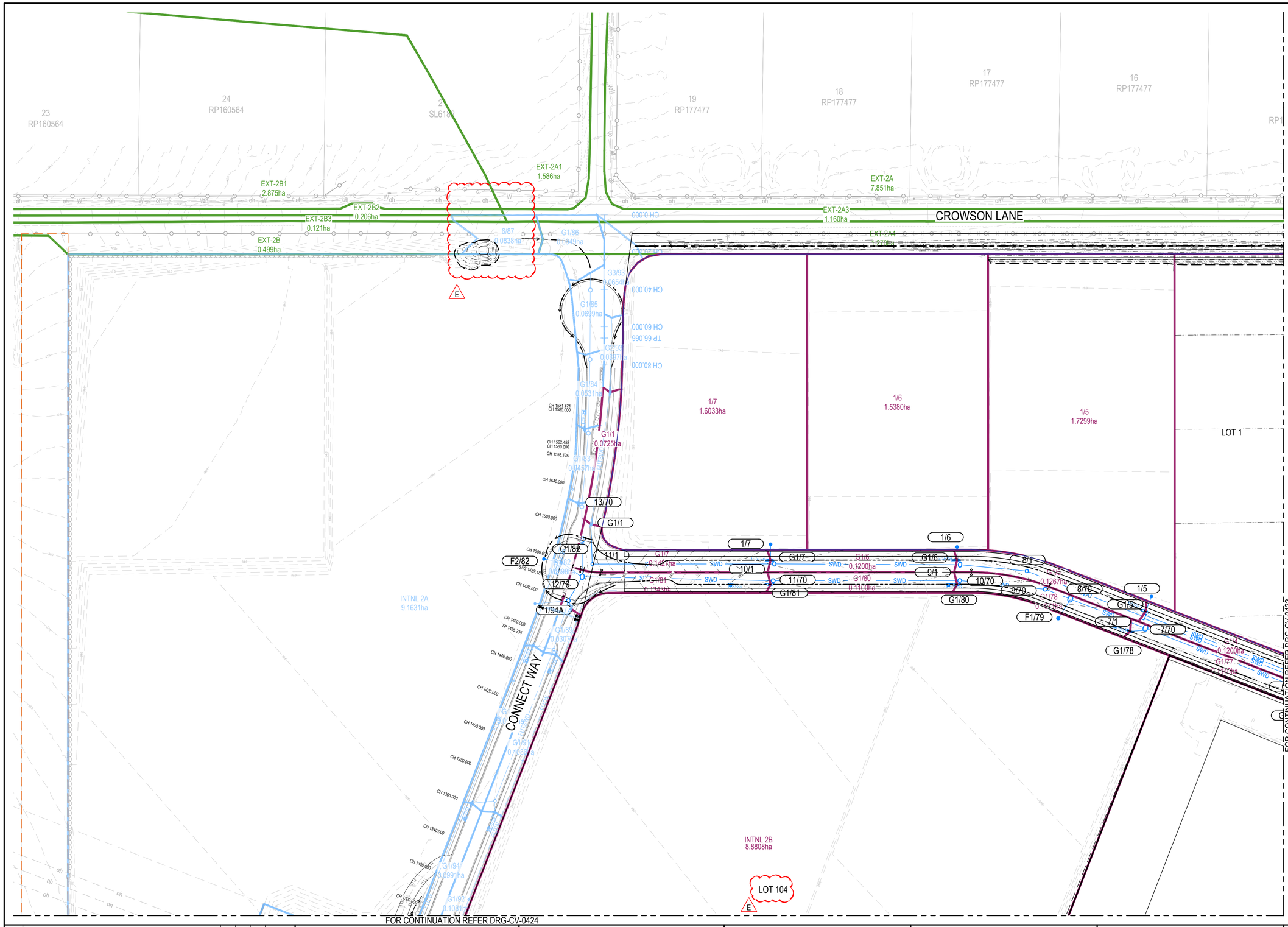
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0348

Issue: A

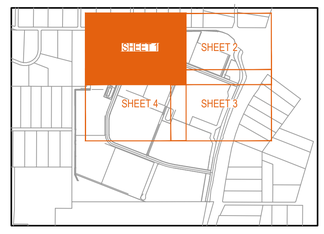
100mm on Original

Date Plotted: 13 Mar 2025 - 09:28AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0346-Pavement Design Notes And Details.dwg



LEGEND

- 5.0 — DESIGN SURFACE CONTOUR
- 5.0 — EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- NOMINAL KERB LINE
- PROPOSED EDGE OF BITUMEN
- 2/7 0.3113ha — PROPOSED STORMWATER DRAINAGE CATCHMENT BOUNDARY AND AREA
- 2/7 0.3113ha — EXISTING STORMWATER DRAINAGE CATCHMENT BOUNDARY AND AREA
- 2/7 0.3113ha — FUTURE STORMWATER DRAINAGE CATCHMENT BOUNDARY AND AREA
- 1/A1 — PROPOSED STORMWATER DRAINAGE STRUCTURE NAME
- SWD — PROPOSED STORMWATER DRAINAGE RETICULATION
- PROPOSED STORMWATER DRAINAGE STRUCTURE
- swd — EXISTING STORMWATER DRAINAGE RETICULATION
- EXISTING STORMWATER DRAINAGE STRUCTURE
- FUTSWD — FUTURE STORMWATER DRAINAGE RETICULATION
- FUTURE STORMWATER DRAINAGE STRUCTURE
- FUTS — FUTURE SEWER RETICULATION
- FUTW — FUTURE WATER RETICULATION



KEY PLAN

Issue	Description	DR	CH	VE	Date
E	UPDATED DESIGN	A.O.	S.S.	B.K.	10.03.25
D	CATCHMENTS UPDATED - G1/77, G1/78	A.O.	S.S.	B.K.	18.10.24
C	SWD STRUCTURE TO BE CONSTRUCTED	A.O.	S.S.	G.E.	03.09.24
B	STRUCTURE LABEL REVISED	A.O.	S.S.	B.K.	06.08.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 20 40 60 80 100m

1 : 1000

100mm on Original

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: STORMWATER CATCHMENT PLAN SHEET 1

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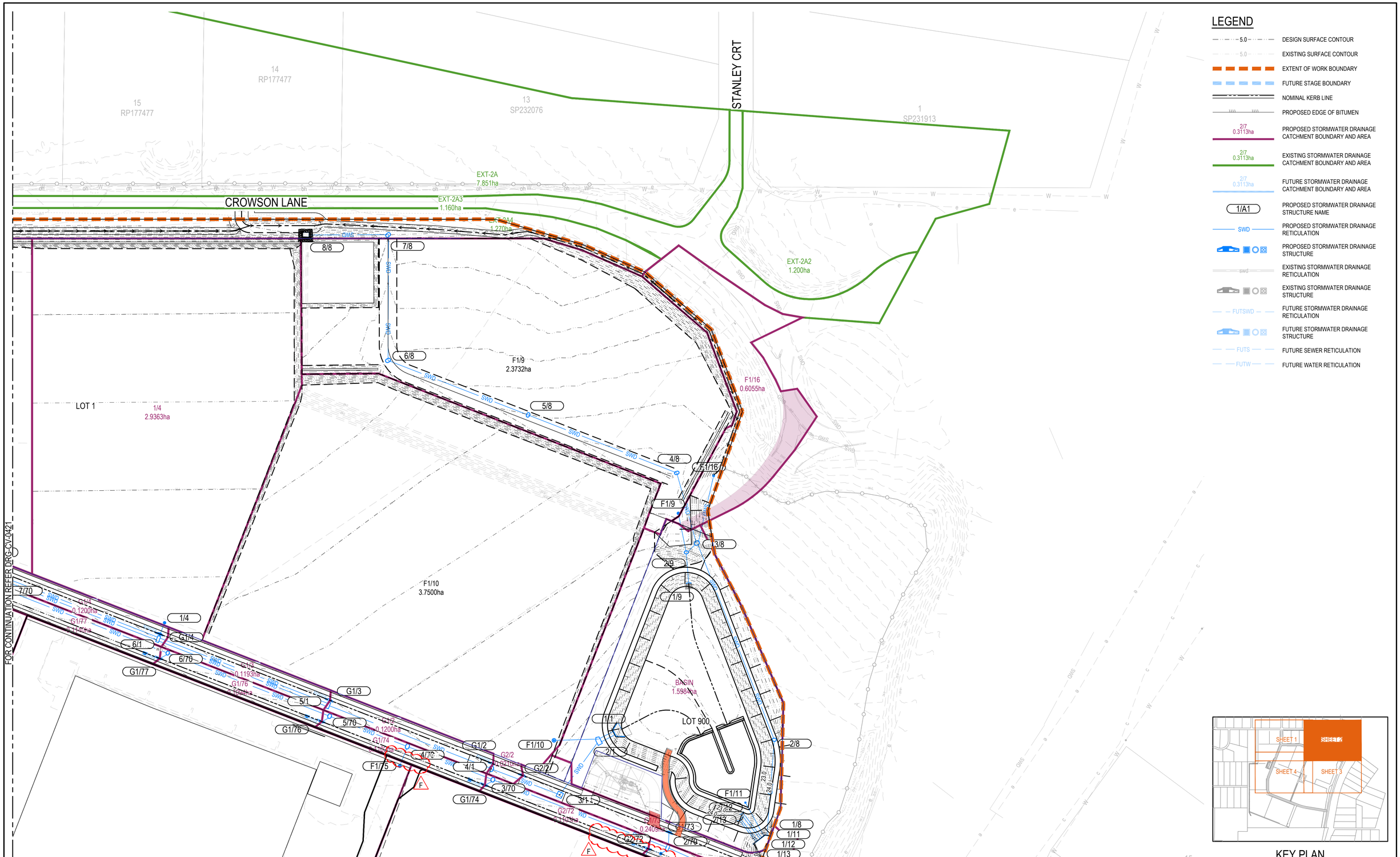
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0421

Issue: E

Date Plotted: 13 Mar 2025 - 10:02AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0421-CatchmentPlan.dwg



Issue	Description	DR	CH	VE	Date
F	UPDATED DRIVEWAYS, BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
E	CATCHMENTS UPDATED - G1/77, G1/78	A.O.	S.S.	B.K.	18.10.24
D	CATCHMENTS UPDATED	A.O.	S.S.	B.K.	03.09.24
C	STRUCTURE LABEL REVISED	A.O.	S.S.	B.K.	06.08.24
B	LAYOUT UPDATED TEMPORARY ACCESS ROAD REMOVED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 20 40 60 80 100m

1 : 1000

100mm on Original

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

STORMWATER CATCHMENT PLAN SHEET 2

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Project Number 30109334

Drawing No. 30109334-AAP-P301OP-CV-DRG-0422 Issue F

Date Plotted: 13 Mar 2025 - 10:02AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0421-CatchmentPlan.dwg

FOR CONTINUATION REFER DRG-CV-0422

FOR CONTINUATION REFER DRG-CV-0424

LOT 102

INTNL 2C WEST
7.5559ha

LOT 101

INTNL 2C EAST 1
2.9479ha

INTNL 2C EAST 2
2.1702ha

LOT 103

LOT 901

MT LINDESAY HWY

1/65
0.5098ha

2/60
0.9223ha

G2/72
0.1103ha

F1/72
0.0511ha

2/72
0.2405ha

F1/75
4/72
4/1
G2/2
0.1210ha
G2/7
3/70
G1/74
3/1
F1/11
2/73
2/13
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1/66
F1/60
4/60
3/65
3/60
2/65
2/60
F1/61
1/65
1/60
F1/64
E

SWD
FD
OH
W
S
G
T
C
24.0

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- NOMINAL KERB LINE
- PROPOSED EDGE OF BITUMEN
- 2/7 0.3113ha — PROPOSED STORMWATER DRAINAGE CATCHMENT BOUNDARY AND AREA
- 2/7 0.3113ha — EXISTING STORMWATER DRAINAGE CATCHMENT BOUNDARY AND AREA
- 2/7 0.3113ha — FUTURE STORMWATER DRAINAGE CATCHMENT BOUNDARY AND AREA
- 1/A1 — PROPOSED STORMWATER DRAINAGE STRUCTURE NAME
- SWD — PROPOSED STORMWATER DRAINAGE RETICULATION
- PROPOSED STORMWATER DRAINAGE STRUCTURE
- swd — EXISTING STORMWATER DRAINAGE RETICULATION
- EXISTING STORMWATER DRAINAGE STRUCTURE
- FUTSWD — FUTURE STORMWATER DRAINAGE RETICULATION
- FUTURE STORMWATER DRAINAGE STRUCTURE
- FUTS — FUTURE SEWER RETICULATION
- FUTW — FUTURE WATER RETICULATION

SHEET 1 | SHEET 2 | SHEET 4 | SHEET 3

KEY PLAN

Issue	Description	DR	CH	VE	Date
E	UPDATED SWD - NEW F1/61 SUMP LINE	A.O.	S.S.	B.K.	
D	UPDATED DRIVEWAYS, BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
C	STRUCTURE LABEL REVISED	A.O.	S.S.	B.K.	06.08.24
B	LAYOUT UPDATED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 20 40 60 80 100m

1 : 1000

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 28.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: STORMWATER CATCHMENT PLAN SHEET 3

ARCADIS
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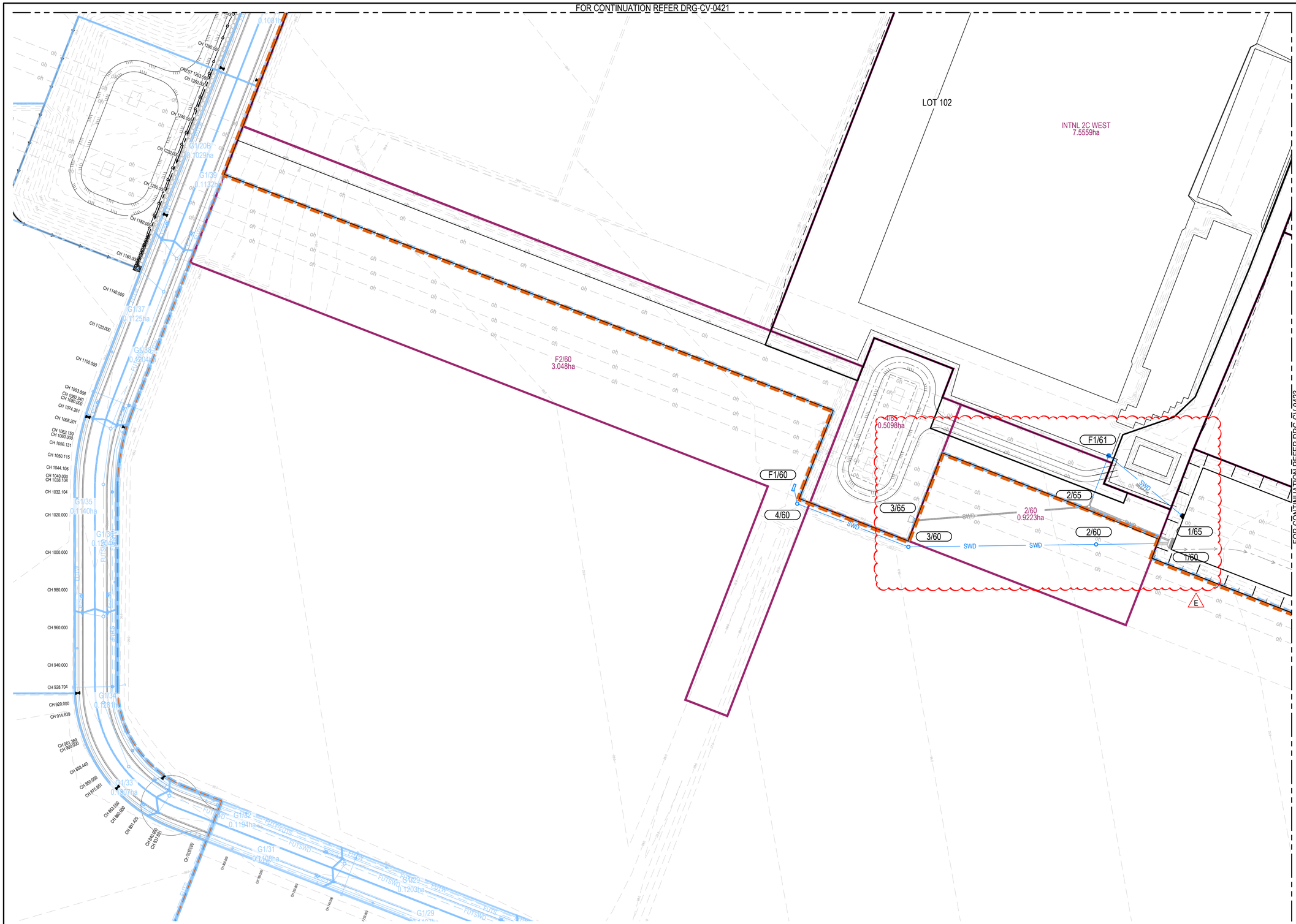
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0423

Issue: E

Date Plotted: 28 Mar 2025 - 05:11PM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0421-CatchmentPlan.dwg

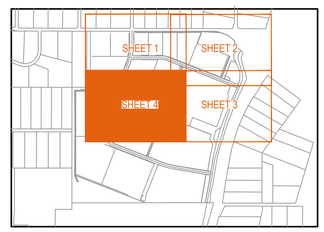
FOR CONTINUATION REFER DRG-CV-0421



LEGEND

- DESIGN SURFACE CONTOUR (5.0)
- EXISTING SURFACE CONTOUR (5.0)
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- NOMINAL KERB LINE
- PROPOSED EDGE OF BITUMEN
- PROPOSED STORMWATER DRAINAGE CATCHMENT BOUNDARY AND AREA (2/7 0.3113ha)
- EXISTING STORMWATER DRAINAGE CATCHMENT BOUNDARY AND AREA (2/7 0.3113ha)
- FUTURE STORMWATER DRAINAGE CATCHMENT BOUNDARY AND AREA (2/7 0.3113ha)
- PROPOSED STORMWATER DRAINAGE STRUCTURE NAME (1/A1)
- PROPOSED STORMWATER DRAINAGE RETICULATION (SWD)
- PROPOSED STORMWATER DRAINAGE STRUCTURE
- EXISTING STORMWATER DRAINAGE RETICULATION (swd)
- EXISTING STORMWATER DRAINAGE STRUCTURE
- FUTURE STORMWATER DRAINAGE RETICULATION (FUTSWD)
- FUTURE STORMWATER DRAINAGE STRUCTURE
- FUTURE SEWER RETICULATION (FUTS)
- FUTURE WATER RETICULATION (FUTW)

FOR CONTINUATION REFER DRG-CV-0423



KEY PLAN

Issue	Description	DR	CH	VE	Date
E	UPDATED SWD - NEW F1/61 SUMP LINE	A.O.	S.S.	B.K.	28.03.25
D	UPDATED BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
C	STRUCTURE LABEL REVISED	A.O.	S.S.	B.K.	06.08.24
B	LAYOUT UPDATED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 20 40 60 80 100m

1 : 1000

100mm on Original

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 28.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: STORMWATER CATCHMENT PLAN SHEET 4

ARCADIS
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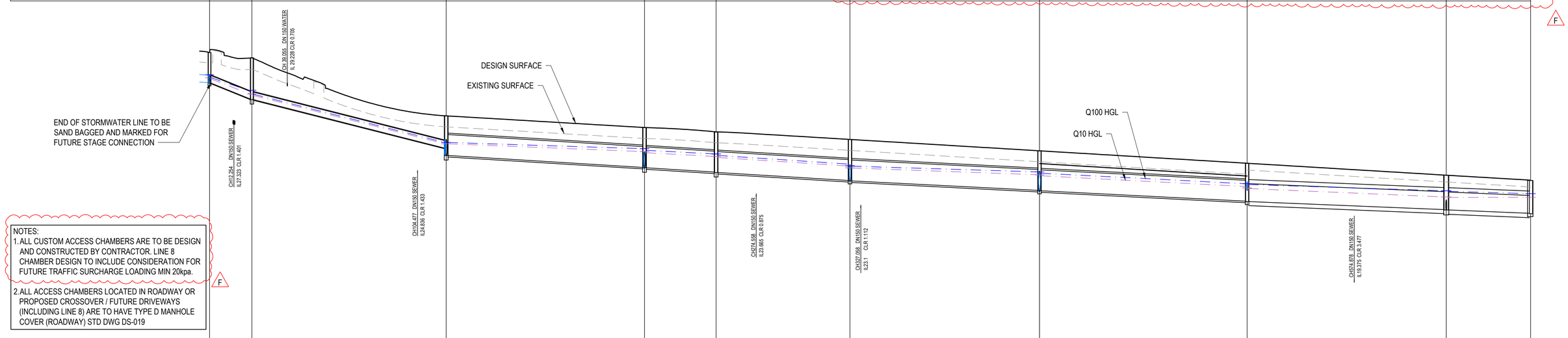
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0424

Issue: E

Date Plotted: 28 Mar 2025 - 05:11PM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0421-CatchmentPlan.dwg

CO-ORDINATES	501286.185E 6929644.763N	501263.522E 6929623.667N	501359.976E 6929608.778N	501458.310E 6929593.094N	501493.175E 6929584.245N	501551.366E 6929550.574N	501633.736E 6929502.912N	501723.991E 6929450.688N	501810.546E 6929400.605N	501846.972E 6929379.946N
STRUCTURE NAME	G1/1	11/1	10/1	9/1	8/1	7/1	6/1	5/1	4/1	3/1
STRUCTURE DESCRIPTION	FUTURE STAGE 3 STD TYPE A GULLY LIL: 2.4m LINTEL, TYPE S ON 1200Ø MH	STD MANHOLE 1200mm DIA	STD MANHOLE 1500mm DIA; EXT 600mm	STD MANHOLE 1500mm DIA; EXT 900mm	STD MANHOLE 1500mm DIA	RECTANGULAR MANHOLE CUSTOM STRUCTURE 3200mm X 1500mm	RECTANGULAR MANHOLE CUSTOM STRUCTURE 3500mm X 1500mm	RECTANGULAR MANHOLE CUSTOM STRUCTURE 3500mm X 1500mm	CUSTOM MANHOLE 2100mm DIA; EXT 900mm	MANHOLE CUSTOM STRUCTURE 3000mm X 3000mm



NOTES:
1. ALL CUSTOM ACCESS CHAMBERS ARE TO BE DESIGN AND CONSTRUCTED BY CONTRACTOR. LINE 8 CHAMBER DESIGN TO INCLUDE CONSIDERATION FOR FUTURE TRAFFIC SURCHARGE LOADING MIN 20kpa.
2. ALL ACCESS CHAMBERS LOCATED IN ROADWAY OR PROPOSED CROSSOVER / FUTURE DRIVEWAYS (INCLUDING LINE 8) ARE TO HAVE TYPE D MANHOLE COVER (ROADWAY) STD DWG DS-019

PIPE SIZE (mm)	375	375	1050	1050	1050	(2x)1050	(2x)1050	2100x900	2400x900	
PIPE CLASS	4	4	3	3	3	3	3	BC	BC	
PIPE GRADE (%)	3.82%	2.50%	0.60%	0.60%	0.60%	0.50%	0.50%	0.40%	0.40%	
PIPE SLOPE (1 in X)	26.2	40.0	166.7	166.7	166.7	200.0	200.0	250.0	250.0	
FULL PIPE FLOW VELOCITY (m/s)	0.73	0.72	1.26	2.04	2.02	1.51	1.93	1.84	1.74	
PART PIPE FLOW VELOCITY (m/s)	2.53	2.17	2.46	2.73	2.73	2.40	2.51	2.62	2.63	
DATUM RL	11.000									
HYDRAULIC GRADE LEVEL	29.638 / 29.587 / 28.809 / 28.823	28.754	26.327	25.934 / 25.877	25.691	25.639 / 25.210 / 25.116	25.110 / 24.770	24.720 / 24.181 / 24.108	24.078 / 23.656	23.633 / 23.642
PIPE FLOW (cumecs)	0.080	0.080	1.088	1.766	1.753	2.618	3.346	3.483	3.759	
PIPE CAPACITY AT GRADE (cumecs)	0.343	0.277	2.116	2.116	2.116	3.863	3.863	4.257	4.991	
DEPTH TO INVERT	1.527 / 2.075	2.095 / 1.619	1.990 / 2.002	2.022 / 2.019	2.039 / 2.064	2.084 / 1.988	2.008 / 1.904	1.924 / 1.724	1.744 / 1.653	
INVERT LEVEL OF DRAIN	29.380 / 28.568	28.548 / 26.108	25.737 / 25.140	25.120 / 24.904	24.884 / 24.480	24.460 / 23.985	23.965 / 23.443	23.423 / 23.023	23.003 / 22.834	
DESIGN (& EXISTING) SURFACE LEVEL	30.907	30.643	27.727	27.142	26.923	26.544	25.973	25.347	24.747	24.487
CHAINAGES	0.000	21.264 / 21.264	97.596 / 118.860	99.577 / 218.438	35.970 / 254.408	67.230 / 321.638	95.166 / 416.804	104.275 / 521.079	100.000 / 621.079	42.366 / 663.445
LINE					1					

Issue	Description	DR	CH	VE	Date
F	SWD LONG SECTIONS UPDATED	A.O.	S.S.	B.K.	05.09.24
E	SWD LONG SECTIONS UPDATED	A.O.	S.S.	B.K.	03.09.24
D	SWD LONG SECTIONS UPDATED	A.O.	S.S.	B.K.	01.08.24
C	SWD LONG SECTIONS UPDATED	A.O.	S.S.	B.K.	15.07.24
B	AMENDMENTS TO CHANNEL AND SWD DESIGN	A.O.	S.S.	G.E.	03.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales
HORZ 0 10 20 40 60 80 100m — 1:1000
VERT 0 1 2 4 6 8 10m — 1:100

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: STORMWATER DRAINAGE LONGITUDINAL SECTION SHEET 1

ARCADIS
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Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0441 | Issue: F

100mm on Original

Date Plotted: 13 Mar 2025 - 10:02AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0441-SWDLS.dwg

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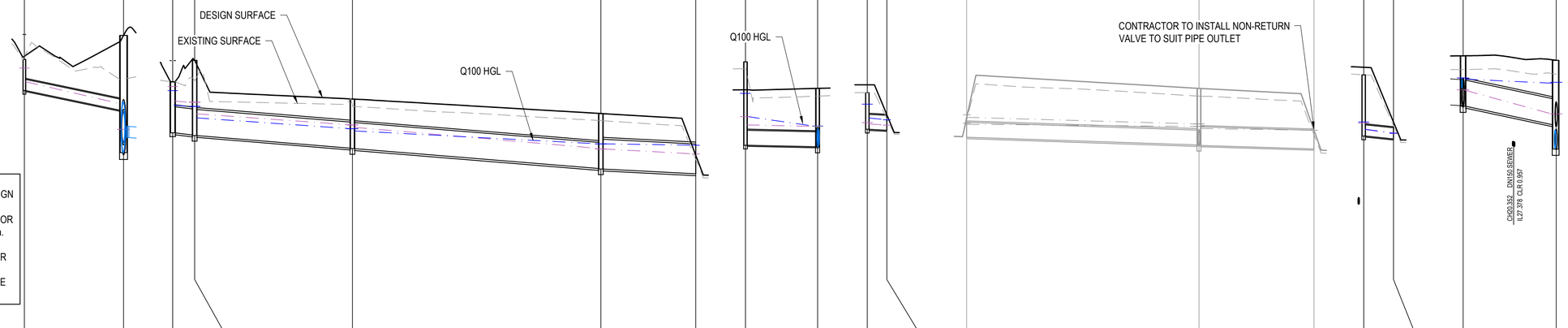
CO-ORDINATES	501961.781E 6929546.704N		501946.371E 6929510.100N	501399.504E 6929164.008N	501399.939E 6929155.198N		501454.882E 6929123.367N		501553.881E 6929109.257N	501591.702E 6929103.867N	501567.773E 6929154.884N	501553.226E 6929129.745N	501708.277E 6929098.898N	501704.337E 6929093.090N	501459.989E 6929136.742N		501553.226E 6929129.745N	501592.549E 6929105.344N	501883.352E 6929297.455N	501893.500E 6929291.050N	501262.716E 6929654.827N		501257.194E 6929617.761N
STRUCTURE NAME	F1/16		3/8	F1/60	4/60		3/60		2/60	1/60	F1/61	2/65	F1/64	1/64	3/65		2/65	1/65	F1/66	1/66	13/70		12/70
STRUCTURE DESCRIPTION	STD FIELD INLET TYPE 1 AND CONCRETE APRON		CUSTOM MANHOLE 2100mm DIA; EXT 600mm REFER DRG 0482 FOR Q3MONTH BYPASS WEIR DETAILS	GRATES WITH CONCRETE APRON OVER CUSTOM 1000mm X 3600mm CHAMBER 4 X 900x900 FIELD INLET TYPE 1	DTMR STD MANHOLE 1500mm DIA		STD MANHOLE 1500mm DIA		STD MANHOLE 1500mm DIA	OUTLET	STD FIELD INLET TYPE 2 900x600 ON A 18000 MH	STD MANHOLE 1200mm DIA	STD FIELD INLET TYPE 2 900x600 ON A 12000 MH	OUTLET	HEADWALL		STD MANHOLE 1200mm DIA	OUTLET	STD FIELD INLET TYPE 2 900x600 ON A 12000 MH	OUTLET	STD MANHOLE 1800mm DIA		CUSTOM MANHOLE 1800mm DIA; EXT 900mm
PIPE SIZE (mm)	450			1050	1050		1050		1050	1200	600		600		600		750		450		1050		
PIPE CLASS	4			3	3		3		3	3	3		3		4		3		4		3		
PIPE GRADE (%)	1.99%			1.00%	0.80%		0.80%		0.50%		0.21%		0.50%		0.33%		0.30%		1.00%		2.00%		
PIPE SLOPE (1 in X)	50.1			100.0	125.0		125.0		200.0		483.1		200.0		300.3		333.3		100.0		50.0		
FULL PIPE FLOW VELOCITY (m/s)	1.58			2.76	2.75		2.65		1.90		2.54		0.40		0.70		1.09		0.87		1.45		
PART PIPE FLOW VELOCITY (m/s)	2.67			3.56	3.21		3.21		2.70		2.54		1.29		1.29		1.53		1.78		3.99		
DATUM RL	10.000			12.000							11.000		10.000		11.000				9.000		15.000		
HYDRAULIC GRADE LEVEL	25.505	24.953	24.061 23.039 23.011	26.761	26.176 26.109 26.127	25.662		25.215 25.119	24.269	24.249 24.048	25.484	24.553 24.155 24.167 24.071	23.309	23.253 23.208	24.285	24.241 24.153 24.157 24.070 24.000			22.287	22.030 21.871	29.629	29.606 28.632 28.658	
PIPE FLOW (cumecs)		0.252			2.394		2.381		2.293	2.153		0.719		0.112		0.198		0.481		0.138		1.258	
PIPE CAPACITY AT GRADE (cumecs)		0.403			2.732		2.443		2.443	2.769		0.279		0.436		0.354		0.612		0.291		3.863	
DEPTH TO INVERT	1.250		3.011 4.715	2.052	3.006 3.026		1.977 1.997		2.213	2.233 1.200 1.200	3.351	2.344 2.364	1.473	0.600 0.600	0.600		2.275 2.295	0.750 0.750	2.462	0.449 0.449	2.023		2.595
INVERT LEVEL OF DRAIN	24.600		23.804 22.100	24.897	24.809 24.789		24.281 24.261		23.461	23.441 23.250 23.250	23.400	23.340 23.320	23.039	23.000 23.000	23.720		23.409 23.389	23.250 23.250	21.770	21.650 21.650	28.969		28.219
DESIGN (& EXISTING) SURFACE LEVEL	25.850		26.815	26.949	27.815		26.258		25.674	24.450	26.751	25.684	24.512	23.600	24.320		25.684	24.000	24.232	22.099	30.992		30.814
CHAINAGES	0.000	39.933	39.933	0.000	8.821 8.821	63.497		72.318	100.000	172.318 38.203	0.000	29.044 29.044	0.000	7.866 7.866	0.000	93.500	93.500	46.279	139.779	0.000 12.000 12.000	0.000	37.476	37.476
LINE	16			60							61		64		65				66		70		



NOTES:
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2. ALL ACCESS CHAMBERS LOCATED IN ROADWAY OR PROPOSED CROSSOVER / FUTURE DRIVEWAYS (INCLUDING LINE 8) ARE TO HAVE TYPE D MANHOLE COVER (ROADWAY) STD DWG DS-019

Issue	Description	DR	CH	VE	Date
J	SWD STRUCTURE F1/61 UPDATED	A.O.	S.S.	B.K.	28.03.25
I	SWD LONG SECTIONS UPDATED	A.O.	S.S.	B.K.	18.10.24
H	SWD LONG SECTIONS UPDATED	A.O.	S.S.	B.K.	05.09.24
G	SWD LONG SECTIONS UPDATED	A.O.	S.S.	B.K.	03.09.24
F	SWD LONG SECTIONS UPDATED	A.O.	S.S.	B.K.	09.08.24
E	SWD LONG SECTIONS UPDATED	A.O.	S.S.	B.K.	01.08.24
D	SWD LONG SECTIONS UPDATED	A.O.	S.S.	B.K.	15.07.24
C	AMENDMENTS TO CHANNEL AND SWD DESIGN	A.O.	S.S.	B.K.	03.07.24
B	PCN17 AMENDMENTS TO SWD LINES 60, 65 & 79	G.P.	T.F.	G.E.	25.06.24

100mm on Original

Scales

HORZ 0 10 20 40 60 80 100m — 1:1000

VERT 0 1 2 4 6 8 10m — 1:100

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 04.04.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: STORMWATER DRAINAGE LONGITUDINAL SECTION SHEET 4

ARCADIS
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www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0444

Issue: J

Date Plotted: 4 Apr 2025 - 03:10PM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0441-SWDLS.dwg

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LOCATION				TIME		SUB-CATCHMENT RUNOFF							INLET DESIGN							DRAIN DESIGN										HEADLOSSES						PART FULL PIPE			DESIGN LEVELS					
				tc	I	C	C10	C10	A	C*A	Q	Qa						Qi	Qb		Iv	I	A	Q					Vf			Ku	Kw		Hw	Sf	Hf	V/20g	D	Vp					
DESIGN EVENT (ARI)	STRUCTURE NAME	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY (mm/hr)	CO-EFFICIENT OF RUNOFF	10yr RUNOFF CO-EFFICIENT (IMPERVIOUS AREA)	10yr RUNOFF CO-EFFICIENT (PERVIOUS AREA)	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUB-CATCHMENT DISCHARGE	(FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW ROAD CAPACITY	MINOR FLOW WIDTH	INLET TYPE	INLET DESCRIPTION	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE NAME	CRITICAL TIME OF CONC.	CRITICAL RAINFALL INTENSITY	CRITICAL EFFECTIVE AREA	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPEBOX DIMENSIONS	PIPE TYPE (CLASS)	FLOW VELOCITY FULL (PIPE GRADE CAPACITY)	STRUCTURE Ku CHART	STRUCTURE Ku METHOD	STRUCTURE Ku	STRUCTURE Kw	STRUCTURE SUBMERGENCE RATIO	STRUCTURE GRATE FLOW RATIO	STRUCTURE W.S.E LOSS	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L x Sf)	PIPE VELOCITY HEAD	PART FULL FLOW DEPTH	PART FULL FLOW VELOCITY	PIPE UPSTREAM HGL	PIPE DOWNSTREAM HGL	UPSTREAM STRUCTURE HGL	STRUCTURE SETOUT LEVEL	FREEBOARD	STRUCTURE NAME
				(mins)	(mm/hr)				(ha)	(ha)	(m^3/s)	(m^3/s)	(%)	(m^3/s)	(m)			(m^3/s)	(m^3/s)		(mins)	(mm/hr)	(ha)	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)	(m^3)	(m)	(%)			(m/s)						(m)	(%)	(m)	(m/s)	(m)	(m AHD)	(m AHD)	(m AHD)	(m AHD)	(m)	
10 yr	G1/1	G1/1 to 11/1	G2/93 G1/93	5.0	187.000	0.900			0.90	0.073	0.065	0.034	0.034	0.631	0.105		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.034	0.000	G1/7	5.929	187.000	0.065					0.726	T1/12	Ku,Kw - Missouri/Hare Charts	1.868	1.870	1.134	0.411	0.050	3.662	0.804	0.027	0.123	2.532	29.587	28.809	29.638	30.907	1.269	G1/1
100 yr				5.0	286.000	1.000			1.00	0.073	0.073	0.058			0.105			0.058	0.000		5.929	286.000	0.073	0.135	1.602	0.058			1.220	T1/12		1.871	1.870	1.378	0.412	0.142	3.201	0.732	0.076	0.163	2.916	29.651	28.970	29.793			
10 yr	11/1	11/1 to 10/1	G2/93 G1/93 G1/1						0.90								STD MANHOLE	1200mm DIA				6.106						0.080	97.596	2.500	0.375	4	0.721	T8/T10	Ku,Kw - Missouri/Hare Charts	2.049	2.05(2.59)	1.183	0.000	0.069	2.490	2.439	0.027	0.138	2.168	28.754	26.324	28.823	30.643	1.820	11/1
100 yr									1.00												6.106			0.134			0.134			1.209	T8/T10		2.048	2.05(2.58)	1.513	0.000	0.193	2.499	2.440	0.075	0.183	2.487	28.818	26.379	29.010			
10 yr	10/1	10/1 to 9/1	1/7 G1/7 G2/93 G1/93 G1/1						0.90								STD MANHOLE	1500mm DIA; EXT 600mm				6.920						1.088	99.577	0.600	1.050	3	1.256	T2/T5	Ku,Kw - Missouri/Hare Charts	0.000	0.000	1.000	0.000	0.000	0.395	0.512	0.081	0.534	2.460	28.324	25.931	28.324	27.727	1.403	10/1
100 yr									1.00												6.920			1.289			1.289			1.488	T2/T5		0.000	0.000	1.000	0.000	0.000	0.313	0.455	0.113	0.592	2.582	28.379	26.067	28.379			
10 yr	9/1	9/1 to 8/1	1/8 G1/8 1/7 G1/7 G2/93 G1/93 G1/1						0.90								STD MANHOLE	1500mm DIA; EXT 900mm				10.084						1.766	35.970	0.600	1.050	3	2.040	T1/12	Ku,Kw - Missouri/Hare Charts	0.266	0.270	1.054	0.000	0.056	0.518	0.214	0.212	0.734	2.734	25.875	25.688	25.931	27.142	1.211	9/1
100 yr									1.00												10.084			2.114			2.114			2.442	T2		0.269	0.270	1.078	0.000	0.082	0.499	0.206	0.304	0.860	2.785	25.986	25.806	26.067			
10 yr	8/1	8/1 to 7/1	1/8 G1/8 1/7 G1/7 G2/93 G1/93 G1/1						0.90								STD MANHOLE	1500mm DIA				10.383						1.753	67.230	0.600	1.050	3	2.025	T1/12	Ku,Kw - Missouri/Hare Charts	0.249	0.250	1.050	0.000	0.052	0.638	0.402	0.209	0.729	2.731	25.636	25.207	25.688	26.923	1.235	8/1
100 yr									1.00												10.383			2.093			2.093			2.418	T1/12		0.249	0.250	1.071	0.000	0.074	0.641	0.405	0.298	0.851	2.785	25.732	25.301	25.806			
10 yr	7/1	7/1 to 6/1	1/5 G1/5 1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1						0.90								RECTANGULAR MANHOLE	CUSTOM STRUCTURE				10.944						2.818	95.166	0.500	1.050	3	1.512	T2/T5	Ku,Kw - Missouri/Hare Charts	0.048	0.050	1.005	0.000	0.006	0.357	0.435	0.117	0.634	2.396	25.107	24.767	25.113	26.544	1.431	7/1
100 yr									1.00												10.944			3.212			3.212			1.854	T2/T5		0.088	0.090	1.015	0.000	0.015	0.307	0.405	0.175	0.731	2.494	25.189	24.896	25.204			
10 yr	6/1	6/1 to 5/1	1/4 G1/4 1/5 G1/5 1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1						0.90								RECTANGULAR MANHOLE	CUSTOM STRUCTURE				11.737						3.346	104.275	0.500	1.050	3	1.932	T1/12	Ku,Kw - Missouri/Hare Charts	0.266	0.270	1.048	0.000	0.051	0.517	0.522	0.191	0.755	2.511	24.717	24.178	24.767	25.973	1.206	6/1
100 yr									1.00												11.737			3.880			3.880			2.241	T1/T2		0.256	0.260	1.062	0.000	0.066	0.451	0.501	0.256	0.865	2.542	24.831	24.360	24.896			
10 yr	5/1	5/1 to 4/1	G1/3 1/4 G1/4 1/5 G1/5 1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1						0.90								RECTANGULAR MANHOLE	CUSTOM STRUCTURE				12.606						3.483	100.000	0.400	0.900	BC	1.843	T1/12	Ku,Kw - Missouri/Hare Charts	0.175	0.180	1.034	0.000	0.030	0.402	0.400	0.173	0.633	2.619	24.075	23.673	24.105	25.347	1.242	5/1
100 yr									1.00												12.606			3.938			3.938			2.084	T1/T2		0.171	0.170	1.044	0.000	0.038	0.342	0.342	0.221	0.691	2.714	24.323	23.980	24.360			
10 yr	4/1	4/1 to 3/1	G2/2 G1/2 G1/3 1/4 G1/4 1/5 G1/5 1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1						0.90								STD MANHOLE	2100mm DIA; EXT 900mm			F	13.439						3.759	41.884	0.400	0.900	BC	1.740	T1/T2	Ku,Kw - Missouri/Hare Charts	0.148	0.150	1.025	0.000	0.023	-0.100	0.085	0.155	0.595	2.632	23.650	23.692	23.673	24.747	1.074	4/1
100 yr									1.00												13.439			4.084			4.084			1.891	T1/T2		0.137	0.140	1.089	0.000	0.025	0.288	0.112	0.182	0.630	2.699	23.955	23.843	23.980			
10 yr	3/1	3/1 to 2/1	C2/2 G1/2 G1/3 1/4 G1/4 1/5 G1/5 1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1						0.90								RECTANGULAR MANHOLE	CUSTOM STRUCTURE				13.788						3.723	37.696	0.400	0.900	BC	1.724		Direct	0.200	0.200			0.030	0.142	0.073	0.152	0.591	2.624	23.661	23.608	23.692	24.487	0.795	3/1
100 yr									1.00												13.788			4.026			4.026			1.864			0.200	0.200			0.035	0.260	0.098	0.177	0.624	2.688	23.808	23.709	23.843			
10 yr	2/1	2/1 to 1/1	F1/10 C2/2 G1/2 G1/3 1/4 G1/4 1/5 G1/5 1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1						0.90								RECTANGULAR MANHOLE	CUSTOM STRUCTURE				14.102						5.365	10.500	0.400	1.350	3	1.874	T2/T5	Ku,Kw - Missouri/Hare Charts	0.347	0.350	1.046	0.000	0.062	0.671	0.044	0.179	0.909	2.817	23.546	23.475	23.808	24.737	1.128	2/1
100 yr									1.00												14.102			6.150			6.150			2.148	T2/T5		0.347	0.350	1.061	0.000	0.082	0.849	0.046	0.235	1.012	2.673	23.628	23.539	23.709			
10 yr	1/1		F1/10 C2/2 G1/2 G1/3 1/4 G1/4 1/5 G1/5 1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1						0.90								OUTLET																												23.475	23.695	0.220	1/1
100 yr									1.00																																		23.539			
10 yr	G2/2	G2/2 to G1/2		5.0	187.000	0.900			0.90	0.021	0.019	0.010	0.302	0.600	0.505		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.106	0.196	G1/73	5.000	187.000	0.019				0.106	18.396	1.178	0.450	4	0.668	G1	Ku,Kw - Missouri/Hare Charts	3.579	3.580	2.642	1.000	0.081	0.138	0.025	0.023	0.182	1.764	24.455	24.429	24.536	24.536	0.000	G2/2
100 yr				5.0	286.000	1.000			1.00	0.021	0.021	0.017			0.505			0.042	1.015		5.000	286.000	0.021	1.058	1.563	1.058	0.042			0.266	G1		3.579	3.580	2.642	1.000	0.013	0.022	0.004	0.004	0.112	1.363	24.523	24.519	24.536			
10 yr	G1/2	G1/2 to 4/1	G2/2	5.0	187.000	0.900			0.90	0.120	0.108	0.056	0.562	0.600	0.505		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.270	0.292	G2/2	5.153	187.000	0.108				0.376	3.000	3.000	0.450	4	2.364	G2/T10	Ku,Kw - Missouri/Hare Charts	2.470	2.47(2.69)	3.070	0.718	0.767	1.737	0.052	0.285	0.294	3.418	23.725	23.673	24.492	24.646	0.154	G1/2
100 yr				5.0	286.000	1.000			1.00	0.120	0.120	0.095			0.505			0.270	1.041		5.153	286.000	0.120	1.353	1.563	1.311	0.312			1.961	G2/T10		3.043	3.04(3.14)	3.168	0.864	0.525	1.018	0.031	0.167	0.259	3.284	24.011	23.980	24.536			
10 yr	4/1		C2/2 G1/2 G1/3 1/4 G1/4 1/5 G1/5 1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1						0.90								STD MANHOLE	1800mm DIA; EXT 900mm																T1/T2	Ku,Kw - Missouri/Hare Charts	0.148	0.150	1.025	0.000	0.023								23.673	24.747	1.074	4/1
100 yr									1.00																																		23.980			
10 yr	G1/3	G1/3 to 5/1		5.0	187.000	0.900			0.90	0.119	0.107	0.058	0.742	0.600	0.505		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.236	0.506	G1/2	5.000	187.000	0.107				0.236	3.000	2.000	0.375	4	2.138	G2	Ku,Kw - Missouri/Hare Charts	3.565	3.570	3.217	1.000	0.831	3.692	0.031	0.233	0.292	2.555	24.415	24.304	25.246	25.246	0.000	G1/3
100 yr				5.0	286.000	1.000			1.00	0.119	0.119	0.095			0.505			0.221	1.216		5.000	286.000	0.119	1.437	1.563	1.437	0.221			2.004	G2		3.748	3.750	3.049	1.000	0.768	1.583	0.059	0.205	0.276	2.538	24.408	24.360	25.176			
10 yr	5/1		G1/3 1/4 G1/4 1/5 G1/5 1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1						0.90								RECTANGULAR MANHOLE	CUSTOM STRUCTURE																T1/T2	Ku,Kw - Missouri/Hare Charts	0.175	0.180	1.034	0.000	0.030								24.105	25.347	1.242	5/1
100 yr									1.00																																		24.360			
10 yr	1/4	1/4 to G1/4		10.0	155.000	0.900			0.90	2.936	2.643	1.138	1.452		0.552		FIELD INLET	1200x1200 RAISED GRATE	0.552	0.900	G1/4	10.000	155.000	2.643				0.552	7.000	1.000	0.900	3	0.867	G1	Ku,Kw - Missouri/Hare Charts	7.000	7.000	1.298	1.000	0.268	0.016	0.006	0.038	0.341	2.498	24.895	24.894	25.164	26.047	0.883	1/4
100 yr				10.0	231.000	1.000			1.00	2.936	2.936	1.884			0.552			0.552	1.333		10.000	231.000	2.936	1.884		1.884	0.552			0.867	G1		7.000	7.000	1.332	1.000	0.268	0.093	0.006	0.038	0.341	2.498	25.632	25.026	25.300			
10 yr	G1/4	G1/4 to 6/1	1/4	5.0	187.000	0.900			0.90	0.120	0.108	0.056	0.956	0.600	0.505		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.270	0.686	G1/3	10.058	187.000	0.108				0.810	3.000	1.000	0.900	3	1.273	T1	Ku,Kw - Missouri/Hare Charts	1.548	1.550	1.142	0.329	0.128	-0.039	0.006	0.083	0.422	2.766	24.766	24.767	24.894	25.872	0.978	G1/4
100 yr				5.0	286.000	1.000			1.00	0.120	0.120	0.095			0.505			0.270	1.342		10.058	286.000	0.120	2.142	1.563	1.612	0.800			1.257	T1		1.548	1.550	1.139	0.329	0.125	0.149	0.005	0.081	0.419	2.757	24.901	24.896	25.026			
10 yr	6/1		1/4 G1/4 1/5 G1/5 1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1						0.90								RECTANGULAR MANHOLE	CUSTOM STRUCTURE																T1/T2	Ku,Kw - Missouri/Hare Charts	0.266	0.270	1.048	0.000	0.051								24.767	25.973	1.206	6/1
100 yr									1.00																																		24.896			
10 yr	1/5	1/5 to G1/5		10.0	155.000	0.900			0.90	1.730	1.557	0.670	0.855		1.103		FIELD INLET	1200x1200 RAISED GRATE	0.855	0.000	G1/5	10.000	155.000	1.557				0.855	8.500	1.000	0.750	3	1.936	G1	Ku,Kw - Missouri/Hare Charts	4.494	4.490	2.146	1.000	0.859	-0.213	0.054	0.191	0.493	2.779	25.186	25.204	26.045	26.893	0.848	1/5
100 yr				10.0	231.000	1.000			1.00	1.730	1.730	1.110			0.961			0.961	0.149		10.000	231.000	1.730	1.110		1.110	0.961			2.176	G1		3.622	3.620	2.606	1.000	0.875	0.745	0.063	0.242	0.538	2.836	25.682	25.829	26.567			
10 yr	G1/5	G1/5 to 7/1	1/5	5.0	187.000	0.900			0.90	0.127	0.114	0.059	0.059	0.586	0.505		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.059	0.000	G1/4	10.071	187.000	0.114				0.903	3.000	1.000	0.750	3	2.044	T1	Ku,Kw - Missouri/Hare Charts	0.507	0.510	1.144	0.065	0.108	-0.579	0.023	0.213	0.513	2.808	25.098	25.113	25.204	26.443	1.239	G1/5
100 yr				5.0	286.000	1.000			1.00	0.127	0.127	0.101			0.505			0.243	0.184		10.071	286.000	0.127	1.367	1.545	0.427	1.182			2.877	T1		1.081	1.080	1.527	0.202	0.395	0.985	0.030	0.365	0.670	2.840	25.234	25.204	25.629			
10 yr	7/1		1/5 G1/5 1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1						0.90								RECTANGULAR MANHOLE	CUSTOM STRUCTURE																T2/T5	Ku,Kw - Missouri/Hare Charts	0.048	0.050	1.005	0.000	0.006								25.113	26.544	1.431	7/1
100 yr									1.00																																		25.204			
10 yr	1/6	1/6 to G1/6		10.0	155.000	0.900			0.90	1.538	1.384	0.596	0.761		1.103		FIELD INLET	1200x1200 RAISED GRATE	0.761	0.000	G1/6	10.000	155.000	1.384				0.761	7.000	1.000	0.750	3	1.722	G1	Ku,Kw - Missouri/Hare Charts	4.578	4.580	2.106	1.000	0.693	0.487	0.033	0.151	0.455	2.713	26.143	26.111	26.838	27.241	0.405	1/6
100 yr				10.0	231.000	1.000			1.00	1.538	1.538	0.987			0.859			0.859	0.128		10.000	231.000	2.936	0.987		0.987	0.859			1.944	G1		3.580	3.580	2.641	1.000	0.690	0.595	0.042	0.193	0.494	2.781	26.548	26.506	27.238			
10 yr	G1/6	G1/6 to 9/1	1/6	5.0	187.000	0.900			0.90	0.120	0.108	0.056	0.059	0.601	0.505		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.059	0.000	G1/5	10.058	187.000	0.108				0.809	3.026	1.000	0.750	3	1.831	T2/T5	Ku,Kw - Missouri/Hare Charts	0.958	0.960	1.258	0.072	0.164	0.527	0.016	0.171	0.474	2.748	25.947	25.931	26.111	27.063	0.952	G1/6
100 yr				5.0	286.000	1.000			1.00	0.120	0.120	0.095			0.505			0.239	0.178		10.058	286.000	0.120	1.256	1.584	0.417	1.078			2.440	T2/T5		1.352	1.350	1.786	0.218	0.410	0.936	0.028	0.304	0.594	2.871	26.096	26.067	26.506			
10 yr	9/1		1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1						0.90								STD MANHOLE	1500mm DIA; EXT 900mm																T1/T2	Ku,Kw - Missouri/Hare Charts	0.266	0.270	1.054	0.000	0.056								25.931	27.142	1.211	9/1
100 yr									1.00																																		26.067			
10 yr	1/7	1/7 to G1/7		5.0	187.000	0.900			0.90	1.603	1.443	0.750	0.967		1.103		FIELD INLET	1200x1200 RAISED GRATE	0.967	0.000	G1/7	5.000	187.000	1.443				0.967	8.500	1.000	0.750	3	2.188	G1	Ku,Kw - Missouri/Hare Charts	3.858	3.860	2.448	1.000	0.942	0.753	0.064	0.244	0.540	2.838	26.782	26.718	27.724	28.030	0.306	1/7
100 yr				5.0	286.000	1.000			1.00	1.603	1.603	1.274			0.971			0.971	0.303		5.000	286.000	1.603	1.274		1.274	0.971			2.198	G1		3.519	3.520	2.893	1.000	0.867	0.760	0.065	0.246	0.542	2.840	27.040	26.978	27.907			
10 yr	G1/7	G1/7 to 10/1	1/7	5.0	187.000	0.900			0.90	0.143	0.128	0.067	0.067	2.961	0.532		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.064	0.003	G1/6	5.071	187.000	0.128				1.029	2.863	1.000	0.750	3	2.328	T5/T8	Ku,Kw - Missouri/Hare Charts	1.126	1.13(1.16)	1.428	0.062	0.321	2.878	0.017	0.277	0.589	2.880	26.407	26.324	26.727	27.664	0.937	G1/7
100 yr				5.0	286.000	1.000			1.00	0.143	0.143	0.113			0.532			0.222	0.194		5.071	286.000	0.143	1.382	3.471	0.416	1.189			2.690	T5/T8		1.414	1.41(1.46)	1.719	0.186	0.540	1.351	0.029	0.369	0.678	2.829	26.454	26.415	26.993			
10 yr	10/1		1/7 G1/7 G2/93 G1/93 G1/1						0.90								STD MANHOLE	1500mm DIA; EXT 600mm																T2/T5	Ku,Kw - Missouri/Hare Charts	0.000	0.000	1.000	0.000	0.000								26.324	27.727	1.403	10/1
100 yr									1.00																																		26.379			
10 yr	8/8	8/8 to 7/8		5.0	0.000				0.90		0.000	0.000	3.222				OPEN CHANNEL		3.222	0.000		1.000	0.000	0.000				3.222	47.424	1.911	1.650	3	1.507		Direct	2.000	2.000			0.232	1.443	0.832	0.116	0.589	4.929	26.476	25.792	26.708	25.570	-1.138	8/8
100 yr				5.0	0.000				1.00		0.000	0.000						6.250	0.000		1.000	0.000	0.000	6.250		6.250	6.250			2.923			2.000	2.000			0.872	0.049	0.225	0.436	0.821	5.881	26.842	26.818	27.713			
10 yr	7/8	7/8 to 6/8							0.90								STD MANHOLE	1800mm DIA; EXT 900mm				1.395						3.222	74.104	1.000	1.650	3	1.507	T10	Ku,Kw - Missouri/Hare Charts	2.090	2.09(2.66)	1.187	0.000	0.308	0.902	0.731	0.116	0.678	3.895	25.550	24.881	25.858	28.474	2.616	7/8
100 yr									1.00												1.395			6.250			6.250			2.923	T10		2.072	2.07(2.59)	1.684	0.000	1.129	0.200	0.350	0.436	1.003	4.592	25.915	25.767	27.044			
10 yr	6/8	6/8 to 5/8							0.90								STD MANHOLE	1800mm DIA; EXT 900mm				2.013						3.222	85.892	0.438	1.650	3	1.507		Direct	0.800	0.800			0.093	0.434	0.376	0.116	0.858	2.867	24.789	24.416	24.881	28.191	3.310	6/8
100 yr									1.00												2.013			6.250			6.250			2.923			0.800	0.800			0.349	0.391	0.349	0.436	1.413	3.205	25.418	25.082	25.767			
10 yr	5/8	5/8 to 4/8							0.90								STD MANHOLE	1500mm DIA; EXT 900mm				2.729						3.222	91.195	0.428	1.650	3	1.507	T1	Ku,Kw - Missouri/Hare Charts	0.200	0.200	1.014	0.000	0.023	0.474	0.386	0.116	0.884	2.842	24.383	23.960	24.416	27.790	3.374	5/8
100 yr									1.00												2.729			6.250			6.250			2.923	T1		0.200	0.200	1.053	0.000	0.087	0.394	0.372	0.436	1.438	3.160	24.985	24.635	25.082			
10 yr	4/8	4/8 to 3/8							0.90								STD MANHOLE	1500mm DIA; EXT 900mm				3.488						3.222	41.755	1.000	1.650	3	1.507	T5/T8	Ku,Kw - Missouri/Hare Charts	1.023	1.02(1.06)	1.074	0.000	0.122	1.547	0.238	0.116	0.678	3.895	23.824	23.178	23.946	27.396	3.450	4/8
100 yr									1.00												3.488			6.250			6.250			2.923	T5/T8		1.023	1.02(1.06)	1.279	0.000	0.460	0.634	0.385	0.436	1.003	4.592	24.189	23.925	24.649			
10 yr	3/8	3/8 to 2/8	F1/16						0.90								STD MANHOLE	2100mm DIA; EXT 600mm				5.333						3.256	120.796	0.500	1.650	3	1.

LOCATION				TIME		SUB-CATCHMENT RUNOFF						INLET DESIGN					DRAIN DESIGN										HEADLOSSES							PART FULL PIPE			DESIGN LEVELS			
				tc	I	C	C10	C10	A	C*A	Q	Qas				Qi	Qb		tv	I	A	Q			Qp	L				Vf													
DESIGN EVENT (ARI)	STRUCTURE NAME	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY (mm/hr)	CO-EFFICIENT OF RUNOFF	10yr RUNOFF CO-EFFICIENT (IMPERVIOUS AREA)	10yr RUNOFF CO-EFFICIENT (PERVIOUS AREA)	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW/ROAD CAPACITY	MINOR FLOW WIDTH	INLET TYPE	INLET DESCRIPTION	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE NAME	CRITICAL TIME OF CONC.	CRITICAL RAINFALL INTENSITY	CRITICAL EFFECTIVE AREA	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE/BOX DIMENSIONS	PIPE TYPE (CLASS)	FLOW VELOCITY FULL (PIPE GRADE CAPACITY)	STRUCTURE Ku CHART	STRUCTURE Ku METHOD	STRUCTURE Ku	STRUCTURE Kw	STRUCTURE SUBMERGENCE RATIO	STRUCTURE GRATE FLOW RATIO	STRUCTURE W.S.E LOSS	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L x Sf)	PIPE VELOCITY HEAD	PART FULL PIPE DEPTH	PART FULL PIPE VELOCITY	PIPE UPSTREAM HGL	PIPE DOWNSTREAM HGL	UPSTREAM STRUCTURE HGL	STRUCTURE SETOUT LEVEL	FREEBOARD	STRUCTURE NAME
10 yr	2/1		F1/10 G2/2 G1/2 G1/3 1/4 G1/4 1/5 G1/5 1/6 G1/6 1/7 G1/7 G2/93 G1/93 G1/1					0.90								RECTANGULAR MANHOLE	CUSTOM STRUCTURE													T2/T5	Ku,Kw - Missouri/Hare Charts	0.347	0.350	1.046	0.000	0.062							23.608	24.737	1.129	2/1
100 yr								1.00																					T2/T5		0.347	0.350	1.061	0.000	0.082							23.709			
10 yr	F1/11	F1/11 to 1/11		0.0	0.000			0.90		0.000	0.000	0.000				STD FIELD INLET TYPE 2	600x600	0.000	0.000		1.000	0.000	0.000		0.000	21.784	0.500	0.375	4	0.000		Direct	0.000	0.000			0.000	0.500	0.109	0.000	0.000	0.000	21.310	21.201	21.310	22.239	0.929	F1/11
100 yr				0.0	0.000			1.00		0.000	0.000							0.000	0.000		1.000	0.000	0.000	0.000	0.000					0.000			0.000	0.000			0.000	0.500	0.109	0.000	0.000	0.000	21.310	21.201	21.310			
10 yr	1/11							0.90								HEADWALL																										21.201	21.181	-0.020	1/11
100 yr								1.00																																	21.201			
10 yr	2/12	2/12 to 1/12		0.0	0.000			0.90		0.000	0.000	0.000				HEADWALL		0.000	0.000		1.000	0.000	0.000			0.960	17.732	1.718	0.300	4	6.791		Direct	2.000	2.000			0.096	1.179	0.253	0.048	0.157	12.803	22.744	22.535	22.840	22.540	-0.300	2/12
100 yr				0.0	0.000			1.00		0.000	0.000							0.000	0.000		1.000	0.000	0.000	0.960		0.000	0.960				6.791			2.000	2.000			0.096	1.179	0.253	0.048	0.157	12.803	22.744	22.535	22.840			
10 yr	1/12							0.90								HEADWALL																										22.535	22.235	-0.300	1/12
100 yr								1.00																																	22.535			
10 yr	2/13	2/13 to 1/13		0.0	0.000			0.90		0.000	0.000	0.000				HEADWALL		0.000	0.000		1.000	0.000	0.000			0.370	15.753	3.327	0.450	BC	0.458		Direct	2.000	2.000			0.021	3.820	0.385	0.011	0.085	2.417	23.563	22.961	23.584	23.400	-0.184	2/13
100 yr				0.0	0.000			1.00		0.000	0.000							0.000	0.000		1.000	0.000	0.000	0.370		0.000	0.370				0.458			2.000	2.000			0.021	3.820	0.385	0.011	0.085	2.417	23.563	22.961	23.584			
10 yr	1/13							0.90								HEADWALL																										22.961	22.875	-0.086	1/13
100 yr								1.00																																	22.961			
10 yr	3/15	3/15 to 2/15		0.0	0.000			0.90		0.000	0.000	0.000				HEADWALL		0.000	0.000		1.000	0.000	0.000			0.000	3.150	2.540	0.900	4	0.000	Outlet Control	Ku - 101 Pipe Culvert Inlet - Concrete; Square Edge with Headwall	0.000	0.000	1.422		0.000	0.000	0.000	0.000	0.000	0.000	22.830	22.830	22.830	21.550	-1.280	3/15
100 yr				0.0	0.000			1.00		0.000	0.000							0.000	0.000		1.000	0.000	0.000	0.000		0.000	0.000				0.000	Outlet Control		0.000	0.000	1.422		0.000	0.000	0.000	0.000	0.000	0.000	22.830	22.830	22.830			
10 yr	2/15	2/15 to 1/15						0.90								DETENTION TANK					1.026					7.300	10.342	1.185	1.200	BC	2.897		Direct	2.000	2.000			0.490	2.748	0.065	0.245	0.729	4.771	22.340	22.056	22.830	23.087	0.257	2/15
100 yr								1.00													1.026			7.300			7.300			2.897			2.000	2.000			0.490	2.748	0.065	0.245	0.729	4.771	22.340	22.056	22.830			
10 yr	1/15							0.90								HEADWALL																										22.056	21.327	-0.729	1/15
100 yr								1.00																																	22.056			
10 yr	F1/16	F1/16 to 3/8		5.0	187.000	0.800		0.80	0.606	0.484	0.252	0.252	2.894	0.810		STD FIELD INLET TYPE 1	AND CONCRETE APRON	0.252	0.000	2/BP7	5.000	187.000	0.484			0.252	39.933	1.994	0.450	4	1.582	G1	Ku,Kw - Missouri/Hare Charts	4.323	4.320	2.227	1.000	0.552	2.232	0.708	0.128	0.258	2.671	24.953	24.061	25.505	25.850	0.345	F1/16
100 yr				5.0	286.000	1.000		1.00	0.606	0.606	0.481			0.810				0.481	0.000		5.000	286.000	0.606	0.481	3.432	0.481	0.481				3.025	G1		2.378	2.380	4.207	1.000	1.110	2.868	1.135	0.467	0.450	3.025	25.383	24.238	26.493			
10 yr	3/8		F1/16					0.90								STD MANHOLE	2100mm DIA; EXT 600mm														T1/T2	Ku,Kw - Missouri/Hare Charts	0.234	0.230	1.017	0.000	0.028							23.039	26.815	3.776	3/8
100 yr								1.00																																	23.925			
10 yr	F1/60	F1/60 to 4/60		8.0	167.000	0.900		0.90	11.167	10.051	4.662	4.662	0.518	2.394		QUAD STD FIELD INLET TYPE 1	900x900 WITH CONCRETE APRON	2.394	2.269	2/BP8	8.000	167.000	10.051			2.394	8.821	1.000	1.050	3	2.764	Outlet Control	Ku - 101 Pipe Culvert Inlet - Concrete; Square Edge with Headwall	1.500	1.500	1.775		0.585	0.768	0.068	0.390	0.762	3.556	26.176	26.109	26.761	24.897	-1.864	F1/60
100 yr				8.0	250.000	1.000		1.00	11.167	11.167	7.755			2.394				2.394	5.362		8.000	250.000	11.167	7.755	1.452	7.755	2.394				2.764	Outlet Control		1.500	1.500	1.770		0.585	0.768	0.068	0.390	0.762	3.556	26.171	26.103	26.755			
10 yr	4/60	4/60 to 3/60	F1/60					0.90								STD MANHOLE	1500mm DIA				8.074						2.381	63.497	0.800	1.050	3	2.750	T5/T8	Ku,Kw - Missouri/Hare Charts	1.158	1.16(1.21)	1.443	0.000	0.466	0.703	0.499	0.386	0.838	3.215	25.662	25.215	26.127	27.815	1.688	4/60
100 yr								1.00													8.074			2.371			2.371			2.738	T5/T8		1.158	1.16(1.21)	1.439	0.000	0.461	0.735	0.504	0.382	0.834	3.214	25.660	25.194	26.121			
10 yr	3/60	3/60 to 2/60	F1/60					0.90								STD MANHOLE	1500mm DIA				8.603						2.293	100.000	0.800	1.050	3	2.648	T2	Ku,Kw - Missouri/Hare Charts	0.268	0.270	1.091	0.000	0.096	0.850	0.793	0.358	0.808	3.207	25.119	24.269	25.215	26.258	1.043	3/60
100 yr								1.00													8.603			2.207			2.207			2.548	T2		0.268	0.270	1.085	0.000	0.089	0.650	0.751	0.331	0.781	3.194	25.105	24.455	25.194			
10 yr	2/60	2/60 to 1/60	F1/60					0.90								STD MANHOLE	1500mm DIA				9.436						2.153	38.203	0.500	1.200	3	1.904	T1	Ku,Kw - Missouri/Hare Charts	0.000	0.000	1.000	0.000	0.000	0.528	0.191	0.185	0.798	2.696	24.249	24.048	24.249	25.674	1.425	2/60
100 yr								1.00													9.436			1.962			1.962			1.734	T1		0.000	0.000	1.000	0.000	0.000	0.144	0.086	0.153	0.748	2.647	24.455	24.400	24.455			
10 yr	1/60		F1/60					0.90								OUTLET																										24.048	23.993	-0.055	1/60
100 yr								1.00																																	24.400			
10 yr	F1/61	F1/61 to 2/65		5.0	0.000			0.90		0.000	0.000	0.288				STD FIELD INLET TYPE 2	900x600 ON A 1200Ø MH	0.288	0.000		1.000	0.000	0.000			0.288	29.044	0.500	0.600	3	1.019	G1	Ku,Kw - Missouri/Hare Charts	6.250	6.250	1.670	1.000	0.331	0.220	0.064	0.053	0.357	1.642	24.217	24.153	24.548	26.800	2.252	F1/61
100 yr				5.0	0.000			1.00		0.000	0.000							0.314	0.000		1.000	0.000	0.000	0.314		0.314	0.314				1.111	G1		5.368	5.370	1.871	1.000	0.338	0.261	0.076	0.063	0.378	1.673	24.330	24.254	24.668			
10 yr	2/65		3/65					0.90								STD MANHOLE	1200mm DIA														T5/T8	Ku,Kw - Missouri/Hare Charts	1.376	1.38(1.45)	1.117	0.000	0.088							24.157	25.684	1.527	2/65
100 yr								1.00																																	24.259			
10 yr	F1/64	F1/64 to 1/64		5.0	0.000			0.90		0.000	0.000	0.112				STD FIELD INLET TYPE 2	900x600 ON A 1200Ø MH	0.112	0.000		1.000	0.000	0.000			0.112	7.866	0.500	0.600	3	0.396	G1	Ku,Kw - Missouri/Hare Charts	7.000	7.000	1.093	1.000	0.056	0.573	0.039	0.008	0.208	1.288	23.253	23.208	23.309	24.512	1.203	F1/64
100 yr				5.0	0.000			1.00		0.000	0.000							0.413	0.000		1.000	0.000	0.000	0.413		0.413	0.413				1.461	G1		5.116	5.120	1.928	1.000	0.557	0.924	0.044	0.109	0.467	1.748	23.494	23.421	24.051			
10 yr	1/64							0.90								OUTLET																										23.208	23.622	0.414	1/64
100 yr								1.00																																	23.421			
10 yr	3/65	3/65 to 2/65		10.0	155.000	0.900		0.90	0.510	0.459	0.198	0.198				HEADWALL		0.198	0.000		10.000	155.000	0.459			0.198	93.500	0.333	0.600	4	0.699	Outlet Control	Ku - 101 Pipe Culvert Inlet - Concrete; Square Edge with Headwall	1.765	1.760	0.941		0.044	0.094	0.093	0.025	0.320	1.287	24.241	24.153	24.285	23.720	-0.565	3/65
100 yr				10.0	231.000	1.000		1.00	0.510	0.510	0.327							0.327	0.000		10.000	231.000	0.510	0.327		0.327	0.327				1.157	Outlet Control		1.500	1.500	1.502		0.102	0.284	0.265	0.068	0.455	1.422	24.519	24.254	24.622			
10 yr	2/65	2/65 to 1/65	3/65					0.90								STD MANHOLE	1200mm DIA				10.779						0.481	46.279	0.300	0.750	3	1.088	T5/T8	Ku,Kw - Missouri/Hare Charts	1.376	1.38(1.45)	1.117	0.000	0.088	0.151	0.076	0.060	0.502	1.529	24.070	24.000	24.157	25.684	1.527	2/65
100 yr								1.00													10.779			0.633			0.633			1.434	T5/T8		1.164	1.16(1.21)	1.160	0.000	0.119	0.302	0.140	0.098	0.645	1.568	24.140	24.000	24.259			
10 yr	1/65		3/65					0.90								OUTLET																										24.000	24.001	0.001	1/65
100 yr								1.00																																	24.000			
10 yr	F1/66	F1/66 to 1/66		5.0	0.000			0.90		0.000	0.000	0.138				STD FIELD INLET TYPE 2	900x600 ON A 1200Ø MH	0.138	0.000		1.000	0.000	0.000			0.138	12.000	1.000	0.450	4	0.868	G1	Ku,Kw - Missouri/Hare Charts	6.687	6.690	1.571	1.000	0.257	1.328	0.105	0.038	0.221	1.778	22.030	21.871	22.287	24.232	1.945	F1/66
100 yr				5.0	0.000			1.00		0.000	0.000							0.151	0.000		1.000	0.000	0.000	0.151		0.151	0.151				0.950	G1		6.346	6.350	1.649	1.000	0.292	1.331	0.106	0.046	0.233	1.818	22.043	21.883	22.335			
10 yr	1/66							0.90								OUTLET																										21.871	22.330	0.459	1/66
100 yr								1.00																																	21.883			
10 yr	13/70	13/70 to 12/70	G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA				6.042						1.258	37.476	2.000	1.050	3	1.453	T1/T2	Ku,Kw - Missouri/Hare Charts	0.218	0.220	1.022	0.000	0.024	2.599	0.430	0.108	0.412	3.987	29.606	28.632	29.629	30.992	1.363	13/70
100 yr								1.00													6.042			1.815			1.815			2.096	T1/T2		0.219	0.220	1.080	0.000	0.049	0.441	0.165	0.224	0.506	4.391	30.054	29.889	30.103			
10 yr	12/70	12/70 to 11/70	G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA; EXT 900mm				6.354						2.806	102.353	1.500	1.200	3	2.481	T8	Ku,Kw - Missouri/Hare Charts	1.480	1.48(1.57)	1.410	0.000	0.492	1.447	1.529	0.314	0.661	4.391	28.166	26.685	28.658	30.814	2.156	12/70
100 yr								1.00													6.354			4.353			4.353			3.849	T5/T8		1.257	1.26(1.31)	2.238	0.000	0.991	1.246	1.275	0.756	0.900	4.785	28.939	27.664	29.930			
10 yr	11/70	11/70 to 10/70	G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA				7.207						2.851	100.000	1.000	1.200	3	2.521	T1/T2	Ku,Kw - Missouri/Hare Charts	0.207	0.210	1.056	0.000	0.067	1.065	0.990	0.324	0.762	3.764	26.618	25.554	26.685	27.731	1.046	11/70
100 yr								1.00													7.207			4.322			4.322			3.822	T1/T2		0.204	0.200	1.646	0.000	0.137	1.109	1.109	0.673	1.200	3.822	27.527	26.418	27.664			
10 yr	10/70	10/70 to 9/70	G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA				8.040						2.887	46.084	0.600	1.500	3	1.633	T1/T2	Ku,Kw - Missouri/Hare Charts	0.000	0.000	1.000	0.000	0.000	0.572	0.276	0.136	0.774	3.139	25.554	25.290	25.554	27.131	1.577	10/70
100 yr								1.00													8.040			4.431			4.431			2.507	T1/T2		-0.521	-0.520	1.163	0.000	-0.167	0.393	0.181	0.321	1.023	3.450	26.585	26.404	26.418			
10 yr	9/70	9/70 to 8/70	G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA				8.424						2.881	14.405	0.700	1.500	3	1.630	T1/T2	Ku,Kw - Missouri/Hare Charts	0.248	0.250	1.022	0.000	0.034	-0.641	0.041	0.136	0.739	3.325	25.256	25.348	25.290	26.909	1.619	9/70
100 yr								1.00													8.424			4.420			4.420			2.501	T1/T2		0.248	0.250	1.352	0.000	0.079	0.391	0.056	0.319	0.967	3.670	26.325	26.269	26.404			
10 yr	8/70	8/70 to 7/70	G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA; EXT 900mm				8.544						3.889	43.224	0.700	1.500	3	2.201	T1/T2	Ku,Kw - Missouri/Hare Charts	0.264	0.260	1.043	0.000	0.065	0.799	0.299	0.247	0.887	3.572	25.283	24.938	25.348	26.822	1.474	8/70
100 yr								1.00													8.544			6.496			6.496			3.676	T2/T5		0.329	0.330	1.342	0.000	0.227	0.844	0.365	0.690	1.500	3.676	26.042	25.677	26.269			
10 yr	7/70	7/70 to 6/70	G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	2100mm DIA; EXT 900mm				8.905						3.929	100.000	0.700	1.650	3	1.838	T1	Ku,Kw - Missouri/Hare Charts	0.000	0.000	1.000	0.000	0.000	0.681	0.699	0.172	0.840	3.593	24.938	24.257	24.938	26.563	1.625	7/70
100 yr								1.00													8.905			6.586			6.586			3.080	T1/T2		-0.035	-0.030	1.057	0.000	-0.017	0.522	0.522	0.484	1.183	4.013	25.694	25.172	25.677			
10 yr	6/70	6/70 to 5/70	G1/77 G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA; EXT 900mm				9.738						3.958	99.335	0.600	1.650	3	1.851	T1	Ku,Kw - Missouri/Hare Charts	0.202	0.200	1.021	0.000	0.035	0.580	0.595	0.175	0.883	3.396	24.222	23.645	24.257	25.963	1.706	6/70
100 yr								1.00													9.738			6.642			6.642			3.106	T1		0.202	0.200	1.187	0.000	0.100	0.531	0.527	0.492	1.272	3.754	25.072	24.545	25.172			
10 yr	5/70	5/70 to 4/70	G1/76 G1/77 G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA; EXT 900mm				10.566						3.985	47.716	0.600	1.650	3	1.864	T1	Ku,Kw - Missouri/Hare Charts	0.202	0.200	1.022	0.000	0.036	0.563	0.286	0.177	0.887	3.401	23.609	23.341	23.645	25.367	1.722	5/70
100 yr								1.00													10.566			6.692			6.692			3.130	T1		0.202	0.200	1.181	0.000	0.101	0.539	0.257	0.500	1.281	3.757	24.444	24.187	24.545			
10 yr	4/70	4/70 to 3/70	G1/76 G1/77 G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA; EXT 900mm				10.963						4.000	52.391	0.600	1.650	3	1.870	T1	Ku,Kw - Missouri/Hare Charts	0.201	0.200	1.022	0.000	0.036	0.560	0.314	0.179	0.889	3.404	23.305	23.012	23.341	25.081	1.740	4/70
100 yr								1.00													10.963			7.724			7.724			3.612	T1/T2		0.238	0.240	1.150	0.000	0.158	0.718	0.376	0.666	1.650	3.612	24.029	23.653	24.187			
10 yr	3/70	3/70 to 2/70	G1/74 G1/76 G1/77 G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA; EXT 900mm				11.400						4.034	107.170	0.600	1.650	RCP	1.886	T1	Ku,Kw - Missouri/Hare Charts	0.202	0.200	1.022	0.000	0.037	0.475	0.615	0.182	0.894	3.411	22.975	22.466	23.012	24.766	1.754	3/70
100 yr								1.00													11.400			7.782			7.782			3.639	T1		0.202	0.200	1.083	0.000	0.136	0.722	0.682	0.676	1.650	3.639	23.517	22.743	23.653			

Issue	Description	DR	CH	VE	Date
E	SWD DESIGN UPDATED	A.O.	S.S.	B.K.	18.10.24
D	SWD DESIGN UPDATED	A.O.	S.S.	B.K.	03.09.24
C	SWD DESIGN UPDATED	A.O.	S.S.	B.K.	01.08.24
B	SWD DESIGN UPDATED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: STORMWATER DRAINAGE CALCULATION TABLE SHEET 2

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0462

Issue: E

100mm on Original

Date Plotted: 13 Mar 2025 - 10:31AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0461-SWDCalcs.dwg

LOCATION				TIME		SUB-CATCHMENT RUNOFF						INLET DESIGN					DRAIN DESIGN											HEADLOSSES							PART FULL PIPE			DESIGN LEVELS			
				tc	I	C	C10	C10	A	C*A	Q	Qa					Qi	Qb		tv	I	A	Q			Qp	L				Vf			Ku	Kw		Hw	Sf	Hf	V2/2g	D	Vp				
DESIGN EVENT (ARI)	STRUCTURE NAME	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY (mm/hr)	CO-EFFICIENT OF RUNOFF	10yr RUNOFF CO-EFFICIENT (IMPERVIOUS AREA)	10yr RUNOFF CO-EFFICIENT (PERVIOUS AREA)	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW/ROAD CAPACITY	MINOR FLOW WIDTH	INLET TYPE	INLET DESCRIPTION	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE NAME	CRITICAL TIME OF CONC.	CRITICAL RAINFALL INTENSITY	CRITICAL EFFECTIVE AREA	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE/BOX DIMENSIONS	PIPE TYPE (CLASS)	FLOW VELOCITY FULL (PIPE GRADE CAPACITY)	STRUCTURE Ku CHART	STRUCTURE Ku METHOD	STRUCTURE Ku	STRUCTURE Kw	STRUCTURE SUBMERGENCE RATIO	STRUCTURE GRATE FLOW RATIO	STRUCTURE W.S.E LOSS	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L x Sf)	PIPE VELOCITY HEAD	PART FULL FLOW DEPTH	PART FULL FLOW VELOCITY	PIPE UPSTREAM HGL	PIPE DOWNSTREAM HGL	UPSTREAM STRUCTURE HGL	STRUCTURE SETOUT LEVEL	FREEBOARD	STRUCTURE NAME
10 yr	2/70	2/70 to 1/70	G1/73 G2/72 F1/72 G1/74 G1/76 G1/77 G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								RECTANGULAR MANHOLE	CUSTOM STRUCTURE				12.293			4.371	48.264	0.400	1.200	BC	1.518	T1/72	Ku,Kw - Missouri/Hare Charts	0.152	0.150	1.015	0.000	0.018	0.099	0.057	0.118	0.661	2.755	22.448	22.400	22.466	24.193	1.727	2/70
100 yr								1.00												12.293			8.901			8.901			3.091	T1/72			0.161	0.160	1.208	0.000	0.078	0.548	0.264	0.487	1.103	3.363	22.664	22.400	22.743			
10 yr	1/70		G1/73 G2/72 F1/72 G1/74 G1/76 G1/77 G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								HEADWALL																													22.400	21.100	-1.300	1/70
100 yr								1.00																																			22.400			
10 yr	F3/72	F3/72 to G2/72		0.0	0.000			0.90		0.000	0.000	0.000				STD FIELD INLET TYPE 2	900x600 ON A 1200Ø MH	0.000	0.000		1.000	0.000	0.000			0.000	7.500	1.000	0.600	4	0.000		Direct	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	22.481	22.481	22.481	24.599	2.118	F3/72
100 yr				5.0	0.000			1.00		0.000	0.000							0.462	0.000		1.000	0.000	0.000	0.462	0.462					1.634	G1		2.608	2.610	3.774	1.000	0.355	0.566	0.042	0.135	0.389	2.385	23.467	23.424	23.822			
10 yr	G2/72	G2/72 to F1/72		5.0	187.000	0.900		0.90	0.110	0.099	0.052	0.052	0.579	0.357		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.052	0.000	F1/72	5.000	187.000	0.099			0.052	7.588	1.000	0.600	4	0.182	G1	Ku,Kw - Missouri/Hare Charts	6.134	6.130	1.697	1.000	0.010	0.007	0.001	0.002	0.118	1.319	22.471	22.470	22.481	24.086	1.585	G2/72
100 yr				5.0	286.000	1.000		1.00	0.110	0.110	0.088			0.357				0.088	0.012		5.000	286.000	0.110	0.582	1.534	0.100	0.550			1.946	T10		1.578	1.58(1.92)	3.378	0.160	0.370	0.802	0.061	0.193	0.443	2.458	23.120	23.059	23.490			
10 yr	F1/72	F1/72 to 2/70	G2/72	5.0	187.000	0.900		0.90	0.082	0.074	0.038	0.038	0.000	0.320		V-GRATE CLASS D	900x600 ON A 1200Ø MH	0.038	0.000	2/BP3	5.063	187.000	0.074			0.090	5.388	1.000	0.750	3	0.203	T5/T8	Ku,Kw - Missouri/Hare Charts	1.882	1.88(1.94)	1.471	0.426	0.004	0.008	0.000	0.002	0.144	1.512	22.468	22.468	22.470	24.053	1.583	F1/72
100 yr				5.0	286.000	1.000		1.00	0.082	0.082	0.065			0.320				0.320	0.606		5.063	286.000	0.082	1.476	0.006	0.926	0.870			1.968	T5/T8		1.433	1.43(1.47)	2.265	0.368	0.290	0.610	0.033	0.198	0.499	2.787	22.776	22.743	23.066			
10 yr	2/70		G1/73 G2/72 F1/72 G1/74 G1/76 G1/77 G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								RECTANGULAR MANHOLE	CUSTOM STRUCTURE															T1/72	Ku,Kw - Missouri/Hare Charts	0.152	0.150	1.015	0.000	0.018							22.466	24.193	1.727	2/70
100 yr								1.00																						T1/72		0.161	0.160	1.208	0.000	0.078							22.743			
10 yr	G1/73	G1/73 to 2/70		5.0	187.000	0.900		0.90	0.241	0.217	0.113	0.308	0.539	0.391		STD TYPE A GULLY (SAG)	LIL; 2.4m LINTEL; TYPE S	0.308	0.000	F1/72	5.000	187.000	0.217			0.308	8.810	2.000	0.450	4	1.939	G2	Ku,Kw - Missouri/Hare Charts	4.232	4.230	2.804	1.000	0.812	3.032	0.100	0.192	0.295	2.793	23.082	22.815	23.894	24.053	0.159	G1/73
100 yr				5.0	286.000	1.000		1.00	0.241	0.241	0.191			0.358				0.358	0.849		5.000	286.000	0.241	1.207	1.481	1.207	0.358			2.249	G2		3.681	3.680	3.110	1.000	0.950	2.875	0.120	0.258	0.330	2.864	23.103	22.850	24.053			
10 yr	2/70		G1/73 G2/72 F1/72 G1/74 G1/76 G1/77 G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								RECTANGULAR MANHOLE	CUSTOM STRUCTURE															T1/72	Ku,Kw - Missouri/Hare Charts	0.152	0.150	1.015	0.000	0.018							22.466	24.193	1.727	2/70
100 yr								1.00																						T1/72		0.161	0.160	1.208	0.000	0.078							22.743			
10 yr	G1/74	G1/74 to 3/70		5.0	187.000	0.900		0.90	0.110	0.099	0.052	0.052	0.600	0.505		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.052	0.000	G2/72	5.000	187.000	0.099			0.052	5.652	2.000	0.450	4	0.324	G2	Ku,Kw - Missouri/Hare Charts	9.700	9.700	1.115	1.000	0.052	2.830	0.062	0.005	0.109	1.741	23.543	23.383	23.595	24.646	1.051	G1/74
100 yr				5.0	286.000	1.000		1.00	0.110	0.110	0.088			0.505				0.089	0.013		5.000	286.000	0.110	0.101	1.563	0.101	0.089			0.559	G2		9.700	9.700	1.343	1.000	0.154	-0.442	0.009	0.016	0.144	2.034	23.628	23.653	23.783			
10 yr	3/70		G1/74 G1/76 G1/77 G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA; EXT 900mm															T1	Ku,Kw - Missouri/Hare Charts	0.202	0.200	1.022	0.000	0.037							23.012	24.766	1.754	3/70
100 yr								1.00																						T1		0.202	0.200	1.083	0.000	0.136							23.653			
10 yr	F1/75	F1/75 to 4/70		5.0	0.000			0.90		0.000	0.000	0.021				STD FIELD INLET TYPE 2	900x600 ON A 1500 Ø MH	0.021	0.000		1.000	0.000	0.000			0.021	12.001	0.600	1.200	3	0.019	G1	Ku,Kw - Missouri/Hare Charts	7.000	7.000	1.000	1.000	0.000	0.000	0.000	0.000	0.071	0.768	23.341	23.341	23.341	25.041	1.700	F1/75
100 yr				5.0	0.000			1.00		0.000	0.000							1.043	0.000		1.000	0.000	0.000	1.043	1.043					0.922	G1		5.996	6.000	1.728	1.000	0.260	0.072	0.009	0.043	0.487	2.425	24.198	24.187	24.456			
10 yr	4/70		G1/76 G1/77 G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA; EXT 900mm															T1	Ku,Kw - Missouri/Hare Charts	0.201	0.200	1.022	0.000	0.036							23.341	25.081	1.740	4/70
100 yr								1.00																						T1/72		0.238	0.240	1.150	0.000	0.158							24.187			
10 yr	G1/78	G1/78 to 5/70		5.0	187.000	0.900		0.90	0.109	0.098	0.051	0.051	0.600	0.505		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.051	0.000	G1/74	5.000	187.000	0.098			0.051	5.553	2.000	0.450	4	0.322	G2	Ku,Kw - Missouri/Hare Charts	9.700	9.700	1.114	1.000	0.051	2.841	0.060	0.005	0.108	1.737	23.942	23.784	23.993	25.246	1.253	G1/76
100 yr				5.0	286.000	1.000		1.00	0.109	0.109	0.087			0.505				0.091	0.014		5.000	286.000	0.109	0.105	1.563	0.105	0.091			0.571	G2		7.198	7.200	1.963	1.000	0.120	0.101	0.006	0.017	0.145	2.047	24.551	24.545	24.671			
10 yr	5/70		G1/76 G1/77 G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA; EXT 900mm															T1	Ku,Kw - Missouri/Hare Charts	0.202	0.200	1.022	0.000	0.036							23.645	25.367	1.722	5/70
100 yr								1.00																						T1		0.202	0.200	1.181	0.000	0.101							24.545			
10 yr	G1/77	G1/77 to 6/70		5.0	187.000	0.900		0.90	0.114	0.097	0.050	0.050	0.600	0.505		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.050	0.000	G1/76	5.000	187.000	0.097			0.050	5.643	2.000	0.450	4	0.317	G2	Ku,Kw - Missouri/Hare Charts	9.700	9.700	1.110	1.000	0.050	2.821	0.063	0.005	0.107	1.730	24.738	24.578	24.787	25.843	1.056	G1/77
100 yr				5.0	286.000	1.000		1.00	0.114	0.108	0.086			0.505				0.097	0.018		5.000	286.000	0.108	0.115	1.563	0.115	0.097			0.608	G2		8.696	8.700	1.686	1.000	0.164	0.115	0.006	0.019	0.150	2.083	25.178	25.172	25.343			
10 yr	6/70		G1/77 G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90	D							STD MANHOLE	1800mm DIA; EXT 900mm															T1	Ku,Kw - Missouri/Hare Charts	0.202	0.200	1.021	0.000	0.035							24.257	25.963	1.706	6/70
100 yr								1.00																						T1		0.202	0.200	1.187	0.000	0.100							25.172			
10 yr	G1/78	G1/78 to 7/70		5.0	187.000	0.900		0.90	0.107	0.102	0.053	0.053	0.614	0.505		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.053	0.000	G1/77	5.000	187.000	0.102			0.053	4.647	2.000	0.375	4	0.481	G2	Ku,Kw - Missouri/Hare Charts	9.700	9.700	1.305	1.000	0.115	3.056	0.043	0.012	0.118	1.787	25.468	25.326	25.582	26.430	0.848	G1/78
100 yr				5.0	286.000	1.000		1.00	0.107	0.114	0.090			0.505				0.113	0.029		5.000	286.000	0.114	0.142	1.581	0.142	0.113			1.024	G2		6.881	6.880	2.033	1.000	0.367	0.416	0.019	0.053	0.178	2.193	25.696	25.677	26.063			
10 yr	7/70		G1/78 G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90	D							STD MANHOLE	2100mm DIA; EXT 900mm															T1	Ku,Kw - Missouri/Hare Charts	0.000	0.000	1.000	0.000	0.000							24.938	26.563	1.625	7/70
100 yr								1.00																						T1/T2		-0.035	-0.030	1.057	0.000	-0.017							25.677			
10 yr	F1/79	F1/79 to 8/70		5.0	0.000			0.90		0.000	0.000	1.010				STD FIELD INLET TYPE 2	900x600 ON A 1500 Ø MH	1.010	0.000		1.000	0.000	0.000			1.010	12.209	0.800	1.200	3	0.893	G1	Ku,Kw - Missouri/Hare Charts	7.000	7.000	1.237	1.000	0.285	-0.002	0.008	0.041	0.442	2.669	25.348	25.348	25.633	26.928	1.295	F1/79
100 yr				5.0	0.000			1.00		0.000	0.000							2.080	0.000		1.000	0.000	0.000	2.080	2.080					1.839	G1		4.529	4.530	2.129	1.000	0.631	0.230	0.028	0.139	0.667	3.218	26.297	26.269	26.928			
10 yr	8/70		G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	2100mm DIA; EXT 900mm															T1/T2	Ku,Kw - Missouri/Hare Charts	0.264	0.260	1.043	0.000	0.085							25.348	26.822	1.474	8/70
100 yr								1.00																						T2/T5		0.329	0.330	1.342	0.000	0.227							26.269			
10 yr	G1/80	G1/80 to 10/70		5.0	187.000	0.900		0.90	0.110	0.099	0.051	0.052	0.601	0.505		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.052	0.000	G1/78	5.000	187.000	0.099			0.052	2.576	2.000	0.375	4	0.475	G2	Ku,Kw - Missouri/Hare Charts	9.700	9.700	1.298	1.000	0.112	3.892	0.002	0.012	0.117	1.781	26.051	25.950	26.162	27.063	0.901	G1/80
100 yr				5.0	286.000	1.000		1.00	0.110	0.110	0.087			0.505				0.141	0.052		5.000	286.000	0.110	0.193	1.564	0.193	0.141			1.276	G2		4.823	4.820	2.535	1.000	0.401	0.646	0.017	0.083	0.203	2.317	26.435	26.418	26.835			
10 yr	10/70		G1/80 G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA															T1/T2	Ku,Kw - Missouri/Hare Charts	0.000	0.000	1.000	0.000	0.000							25.554	27.131	1.577	10/70
100 yr								1.00																						T1/T2		-0.521	-0.520	1.163	0.000	-0.167							26.418			
10 yr	G1/81	G1/81 to 11/70		5.0	187.000	0.900		0.90	0.134	0.121	0.063	0.063	2.820	0.532		STD TYPE A GULLY	LIL; 2.4m LINTEL; TYPE S	0.062	0.001	G1/80	5.000	187.000	0.121			0.062	2.538	2.000	0.375	4	0.559	G2	Ku,Kw - Missouri/Hare Charts	9.700	9.700	1.412	1.000	0.155	-0.710	0.020	0.016	0.128	1.864	26.667	26.685	26.822	27.664	0.842	G1/81
100 yr				5.0	286.000	1.000		1.00	0.134	0.134	0.107			0.532				0.001	0.105		5.000	286.000	0.134	0.107	3.388	0.107	0.001			0.013	G2		3.649	3.650	3.140	1.000	0.000	0.000	0.000	0.000	0.020	0.504	27.664	27.664	27.664			
10 yr	11/70		G1/81 G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA															T1/T2	Ku,Kw - Missouri/Hare Charts	0.207	0.210	1.056	0.000	0.067							26.685	27.731	1.046	11/70
100 yr								1.00																						T1/T2		0.204	0.200	1.646	0.000	0.137							27.664			
10 yr	F2/82	F2/82 to G1/82		5.0	0.000			0.90		0.000	0.000	0.655		0.320		STD FIELD INLET TYPE 2	900x600 ON A 1200Ø MH	0.655	0.000		1.000	0.000	0.000			0.655	9.524	1.000	0.750	3	1.483	G1	Ku,Kw - Missouri/Hare Charts	4.626	4.630	2.083	1.000	0.519	0.346	0.033	0.112	0.414	2.622	28.788	28.756	29.307	31.900	2.593	F2/82
100 yr				5.0	0.000			1.00		0.000	0.000			0.320				1.070	0.000		1.000	0.000	0.000	1.070	1.070					2.422	G1		2.335	2.330	4.329	1.000	0.699	0.923	0.088	0.299	0.590	2.870	30.293	30.205	30.992			
10 yr	G1/82	G1/82 to 12/70		5.0	187.000	0.900		0.90	0.090	0.081	0.042	0.042	0.314	0.331		STD TYPE A GULLY (SAG)	LIL; 2.4m LINTEL; TYPE S	0.042	0.000	LOST	5.000	187.000	0.081			0.697	13.615	1.000	0.750	3	1.578	T2/T5	Ku,Kw - Missouri/Hare Charts	0.560	0.560	1.808	0.060	0.071	0.392	0.053	0.127	0.430	2.660	28.684	28.631	28.756	30.808	2.052	G1/82
100 yr				5.0	286.000	1.000		1.00	0.090	0.090	0.071			0.331				0.079	0.000		5.000	286.000	0.090	1.149	1.130	0.079	1.149			2.600	T2/T5		0.497	0.500	3.740	0.069	0.171	1.064	0.145	0.345	0.839	2.866	30.034	29.889	30.205			
10 yr	12/70		G1/91 G1/90 G1/92 G1/94 G1/89 G1/82 G1/84 G1/85 G1/86 G1/83					0.90								STD MANHOLE	1800mm DIA; EXT 900mm															T8	Ku,Kw - Missouri/Hare Charts	1.480	1.48(1.57)	1.410	0.000	0.492							28.658	30.814	2.156	12/70
100 yr								1.00																						T5/T8		1.257	1.26(1.31)	2.238	0.000	0.991							29.930			

Issue	Description	DR	CH	VE	Date
E	SWD DESIGN UPDATED	A.O.	S.S.	B.K.	18.10.24
D	SWD DESIGN UPDATED	A.O.	S.S.	B.K.	03.09.24
C	SWD DESIGN UPDATED	A.O.	S.S.	B.K.	01.08.24
B	SWD DESIGN UPDATED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: STORMWATER DRAINAGE CALCULATION TABLE SHEET 3

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

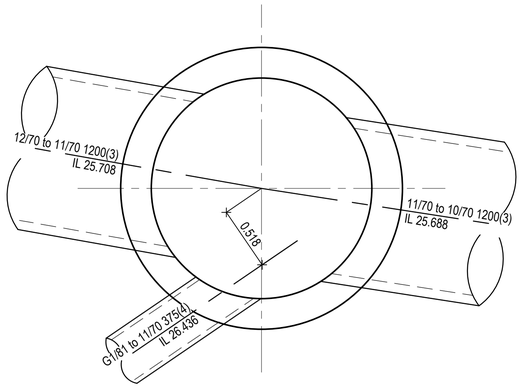
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0463

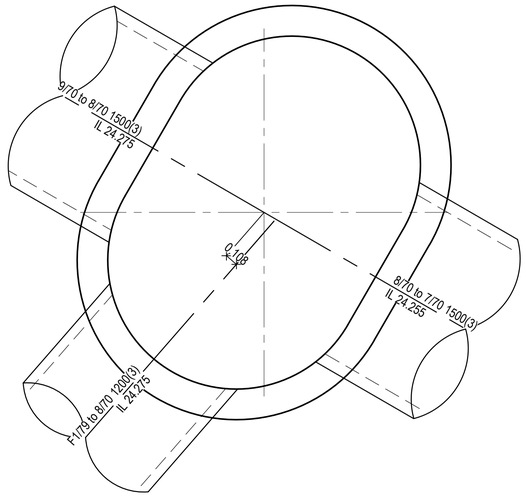
Issue: E

100mm on Original

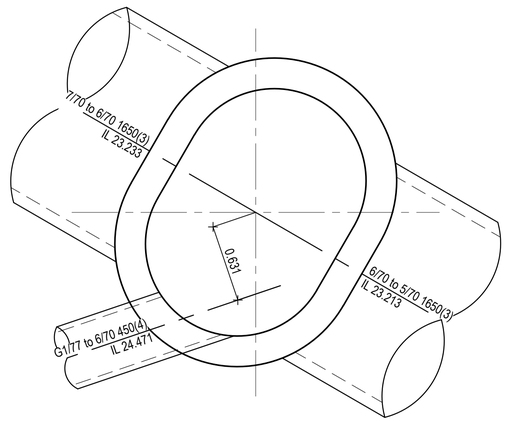
Date Plotted: 13 Mar 2025 - 10:31AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0461-SWDCalcs.dwg



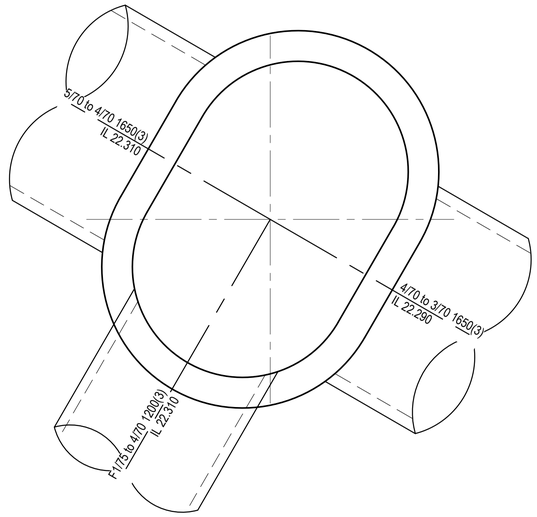
11/70 - 1800 DIA



8/70 - 2100 DIA EXTENDED 900



6/70 - 1500 DIA EXTENDED 600



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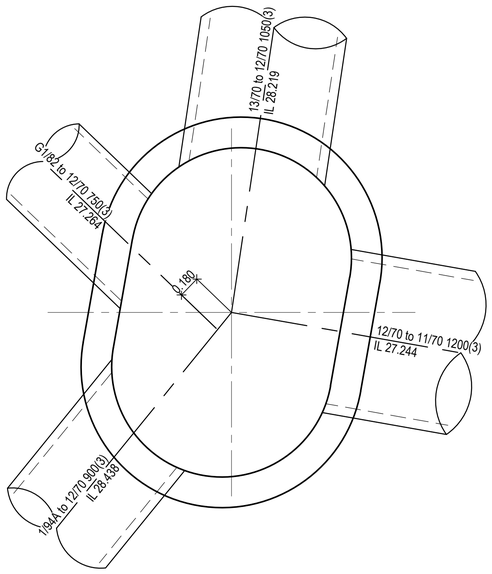
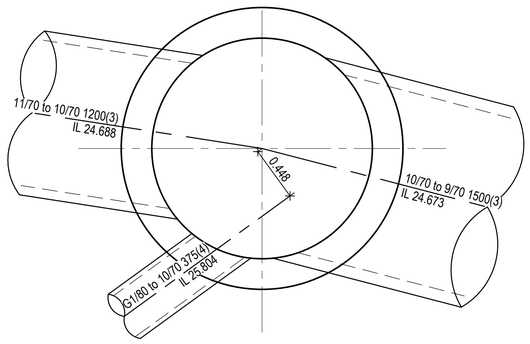
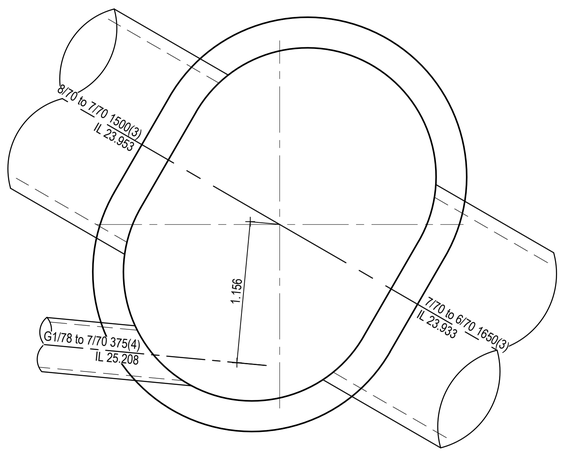


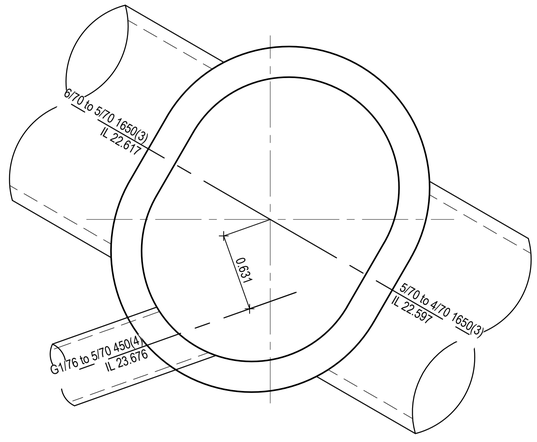
12/70 - 1800 DIA EXTENDED 900



10/70 - 1800 DIA



7/70 - 2100 DIA EXTENDED 900



5/70 - 1800 DIA EXTENDED 600

C

Issue	Description	DR	CH	VE	Date
C	SWD DETAILS UPDATED	A.O.	S.S.	B.K.	18.10.24
B	SWD DETAILS UPDATED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 0.5 1 1.5 2 2.5m

1 : 25

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: STORMWATER DRAINAGE DETAILS SHEET 1

ARCADIS

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Level 35, 111 Eagle Street
BRISBANE QLD 4000
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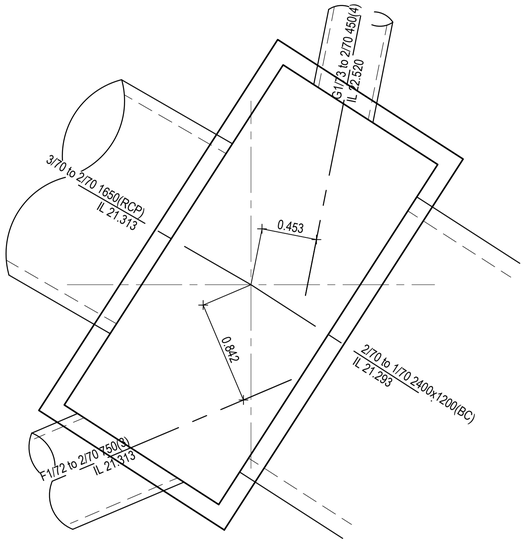
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

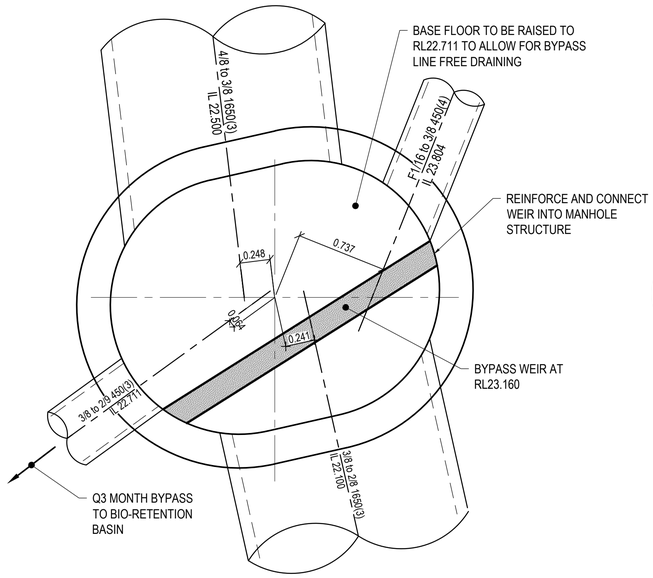
Drawing No.: 30109334-AAP-P301OP-CV-DRG-0481

Issue: C

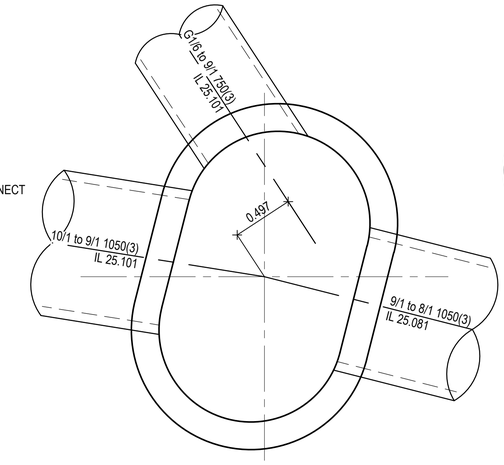
Date Plotted: 13 Mar 2025 - 10:06AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0481-SWDDetails.dwg



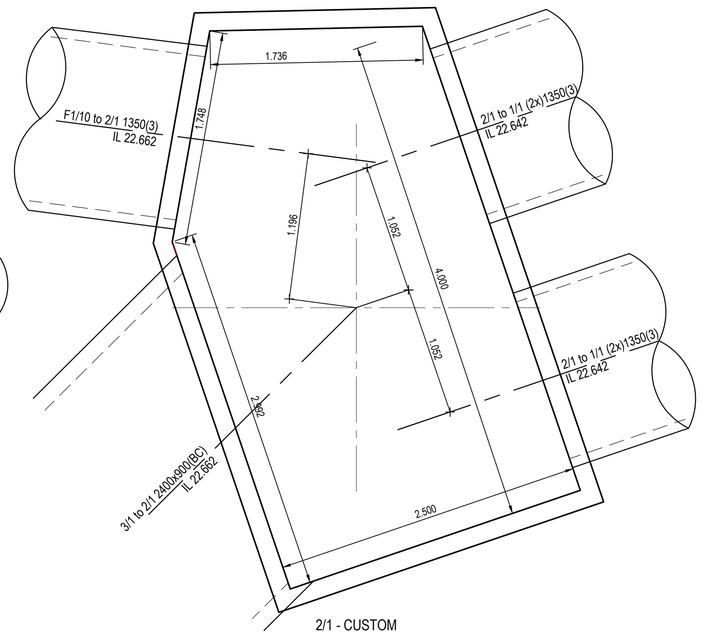
2/70 - 1500 x 3300



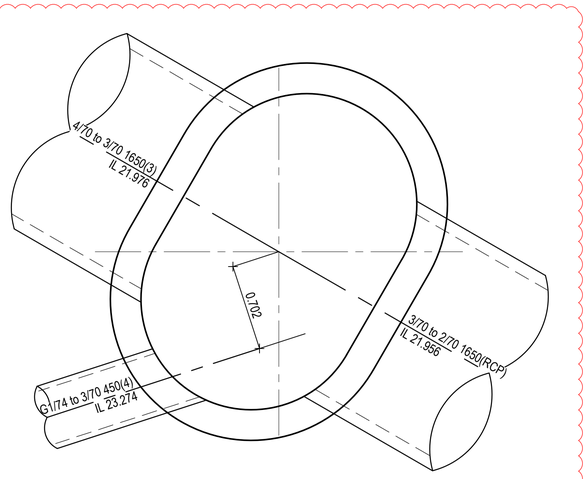
3/8 - 2100 DIA EXTENDED 600



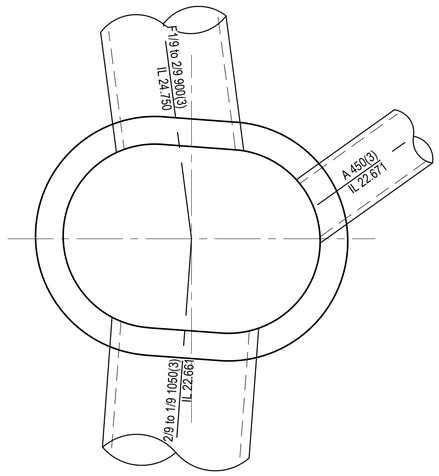
9/1 - 1500 DIA EXTENDED 900



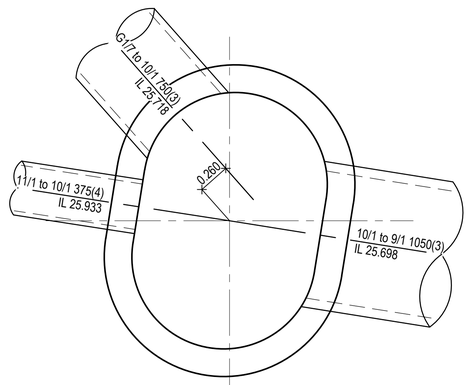
2/1 - CUSTOM



3/70 - 1800 DIA EXTENDED 900



2/9 - 1500 DIA EXTENDED 600



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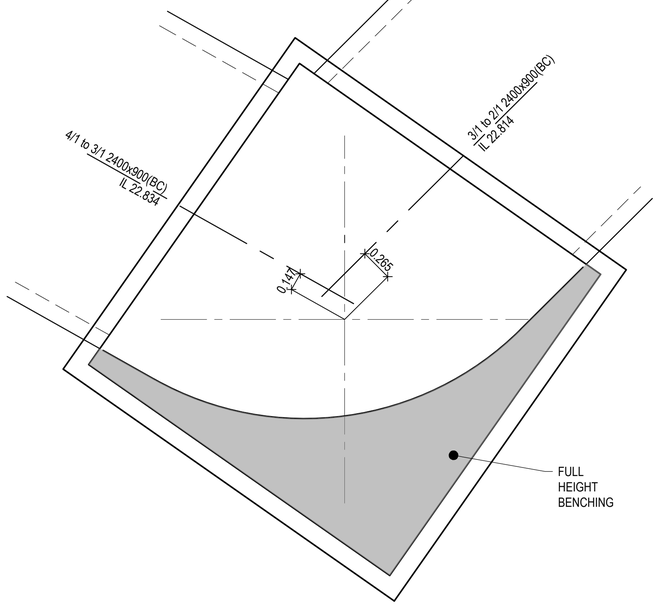

3/1 - 3000 x 3000

E

Issue	Description	DR	CH	VE	Date
E	SWD DETAILS UPDATED	A.O.	S.S.	B.K.	18.10.24
D	SWD DETAILS UPDATED	A.O.	S.S.	B.K.	03.09.24
C	DETAIL 3/8, 3/1 UPDATED	A.O.	S.S.	B.K.	01.08.24
B	SWD DETAILS UPDATED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 0.5 1 1.5 2 2.5m

1 : 25

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

STORMWATER DRAINAGE DETAILS SHEET 2

ARCADIS

Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289

Tel No: +61 7 3337 0000
www.arcadis.com/au

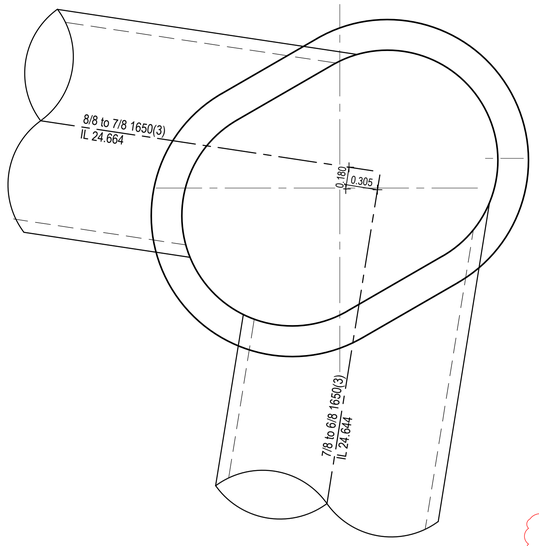
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0482

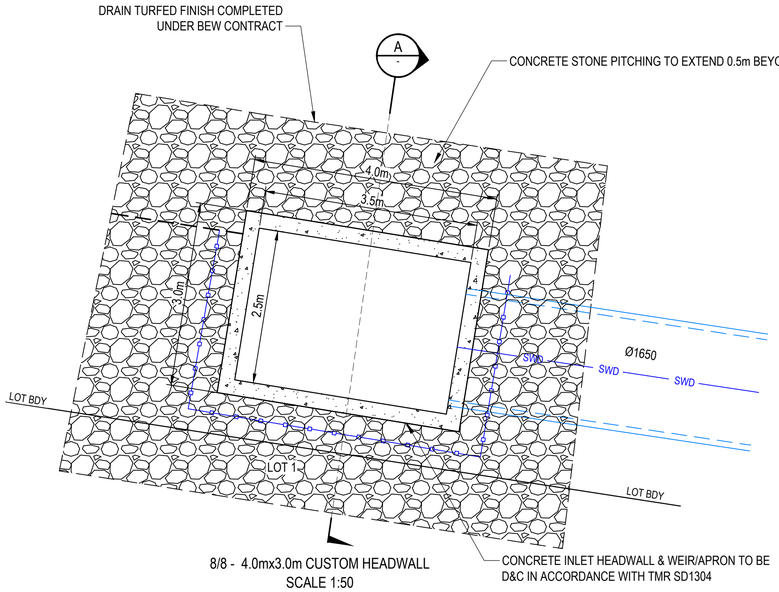
Issue: E

100mm on Original

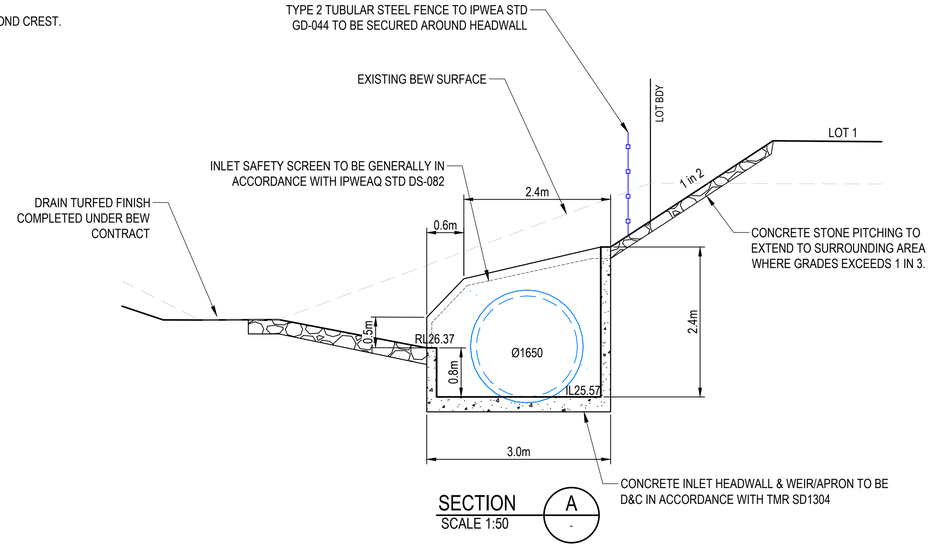
Date Plotted: 13 Mar 2025 - 10:07AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0481-SWDDetails.dwg



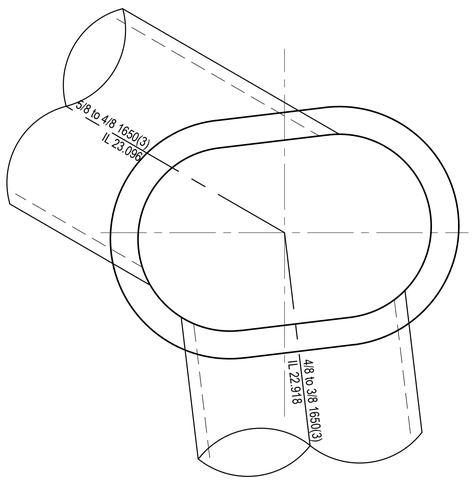
7/8 - 1800 DIA EXTENDED 900



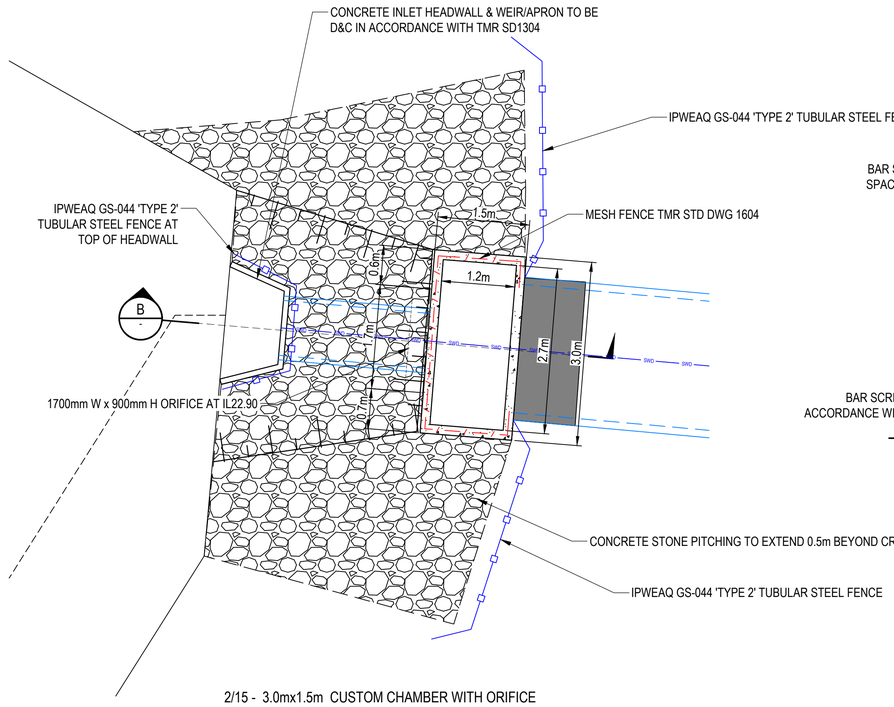
8/8 - 4.0mx3.0m CUSTOM HEADWALL
SCALE 1:50



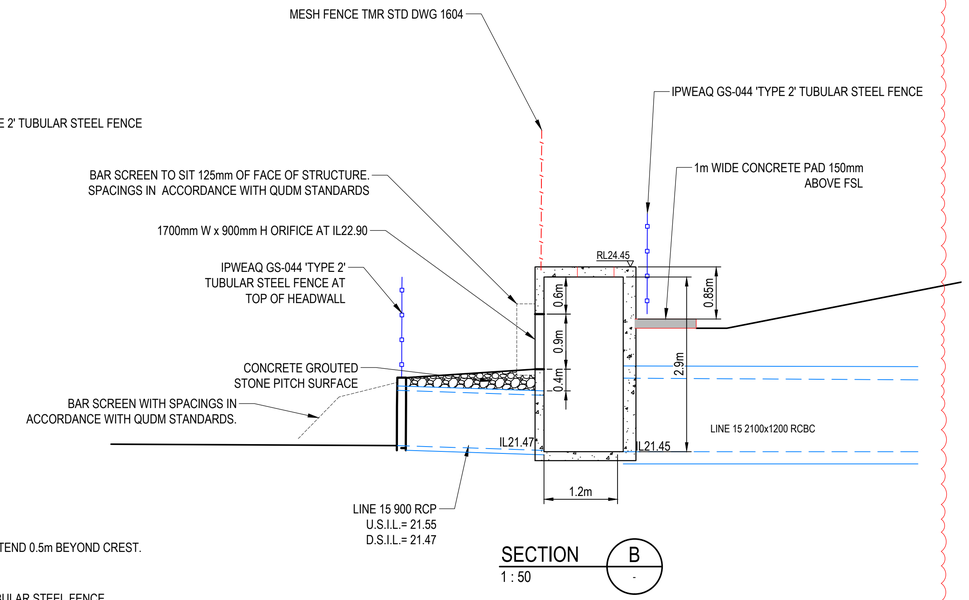
SECTION A
SCALE 1:50



4/8 - 1500 DIA EXTENDED 900



2/15 - 3.0mx1.5m CUSTOM CHAMBER WITH ORIFICE
SCALE 1:50



SECTION B
1 : 50

B

Issue	Description	DR	CH	VE	Date
B	UPDATED STRUCTURE 2/15	A.O.	S.S.	B.K.	18.10.24
A	ISSUED FOR CONSTRUCTION - DETAILS ADDED	A.O.	S.S.	B.K.	03.09.24

Scales
0 0.5 1 1.5 2 2.5m
1 : 25

Surveyor
WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client
Charter Hall

Status
FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project
FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title
STORMWATER DRAINAGE DETAILS SHEET 3

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number 30109334

Drawing No. 30109334-AAP-P301OP-CV-DRG-0483

Issue B

100mm on Original

Date Plotted: 13 Mar 2025 - 10:07AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0481-SWDDetails.dwg

BIO / DETENTION BASIN

DETENTION BASE LEVEL: RL 22.550
DETENTION BUND LEVEL: RL 24.664
FILTER LEVEL: RL 22.25
BIO-AREA: 1200m^2
Q100 W.L.: RL 24.48
Q100 DEPTH: 1.93m

BASIN SETOUT TABLE

POINT No.	EASTING	NORTHING
01	501944.730	6929478.701
02	501963.329	6929392.366
03	501962.670	6929377.210
04	501955.822	6929354.996
05	501950.724	6929352.998
06	501925.894	6929367.365
07	501921.355	6929376.825
08	501914.867	6929391.078
09	501892.710	6929403.901
10	501889.027	6929417.178
11	501907.158	6929448.524
12	501926.299	6929481.604
13	501952.945	6929478.556
14	501971.208	6929393.775
15	501970.315	6929374.853
16	501963.466	6929352.639
17	501946.718	6929346.074
18	501921.704	6929360.546
19	501913.477	6929378.215
20	501912.266	6929383.115
21	501904.975	6929387.560
22	501890.087	6929396.174
23	501882.273	6929421.491
24	501919.375	6929485.610
26	501959.712	6929391.587
27	501959.135	6929378.300
28	501952.360	6929356.326
29	501927.564	6929370.673
30	501925.025	6929376.318
31	501919.283	6929392.537
32	501921.611	6929396.188
33	501925.976	6929399.223
34	501938.363	6929401.891
35	501943.378	6929378.614
36	501947.582	6929379.519
37	501942.567	6929402.797
38	501956.644	6929405.830
40	501930.325	6929425.288
41	501913.130	6929444.994
42	501947.771	6929404.941
43	501937.651	6929451.917
44	501936.665	6929466.123
45	501938.023	6929484.539
46	501931.759	6929401.492
47	501905.478	6929417.579
48	501892.744	6929413.251

LOT 905
PROPOSED SEWER PUMP STATION BY LOGAN WATER

PMT

DETENTION BASIN

IPWEAQ GS-044 'TYPE 2' TUBULAR STEEL FENCE AT TOP OF HEADWALL

IPWEAQ 0.60m WIDE CHANNEL TYPE KERB INVERT AT 0.5% FALL.

3.0m CONCRETE ACCESS TRACK - MAX 1 IN 6 GRADE.

FOR PLANTING DETAILS REFER TO LANDSCAPE ARCHITECT DETAILS

0.6m WIDE INVERT CHANNEL TO IPWEAQ STD RS-080 - 0.35% MIN FALL REQUIRED.

FOR PLANTING DETAILS REFER TO LANDSCAPE ARCHITECT DETAILS

300mm HIGH LEVEL SPREADER WITH 50mm SLOTS AT 2m CRS. REFER DWG 492 FOR TYPICAL DETAILS.

TYPICAL FLUSHING POINT

2.50m WIDE GRAVEL ACCESS TRACK TYPE 2.3

Ø225mm uPVC COLLECTOR PIPE AT 0.5% FALL

CLEAN OUT POINTS MAXIMUM SPACING 20m

Ø100mm uPVC SUBSOIL SLOTTED PIPE AT 0.5% FALL AT TYP. 2.5m SPACING

INSTALL CULVERT INLET SCREEN TO IPWEAQ STD DS-083

PRECAST HEADWALL TO SUIT 2x900x450 RCBC. INSTALL CULVERT INLET SCREEN TO IPWEAQ STD DS-083

EMBANKMENT CREST WEIR FSL RL 24.564m

LINE 11
LINE 12
LINE 13

Q3 MONTH BYPASS LINE 9B TO HAVE A NO-RETURN VALVE INSTALLED.

EXTERNAL SERVICE ROAD DESIGN UNDER SEPARATE APPLICATION

STONE PITCHING TO TIE INTO TOP OF CULVERTS AT 1 IN 2 MAX

RL23.24
RL23.40
RL22.54
1 IN 4
TRANSITION INTO 1:4 BATTER AT MAX 1:1
1:4
TIE INTO SURROUNDING BATTERS AND INLET HEADWALLS WITH CONCRETE GROUTED STONE PITCHING D50 100-150mm (300mm THICK)

SECTION 4 - 1 : 100

NOTES

1. FILTER MEDIA LAYER SHALL CONFORM WITH THE SPECIFICATIONS OF FAWB GUIDELINES FOR BIOFILTRATION MEDIA (VERSION 3.01) & WATER BY DESIGN SPECIFICATIONS "BIO RETENTION TECHNICAL DESIGN GUIDELINES VERSION 1". THE MINIMUM ORGANIC CONTENT OF THE FILTER MEDIA SHALL BE 3%.
1. TRANSITION & DRAINAGE MEDIA LAYER SHALL CONFORM WITH THE SPECIFICATIONS OF FAWB GUIDELINES FOR BIOFILTRATION MEDIA (VERSION 3.01) & WATER BY DESIGN SPECIFICATIONS "BIO RETENTION TECHNICAL DESIGN GUIDELINES VERSION 1".
2. THE CONTRACTOR IS RESPONSIBLE FOR UNDERTAKING DETAILED SURVEY OF EACH LAYER OF THE MEDIA INSTALLED INCLUDING THE SUBGRADE & FINISHED LEVEL SURVEYS. THE DIGITAL SURVEY DATA FOR EACH LAYER IS TO BE ISSUED TO THE SUPERINTENDENT FOR REVIEW PRIOR TO THE SUBSEQUENT LAYER BEING INSTALLED. THE REQUIRED TOLERANCES FOR CONSTRUCTION OF THE MEDIA LAYERS IS INCLUDED IN THE WATER BY DESIGN CONSTRUCTION & ESTABLISHMENT SIGN OFF FORMS – BIORETENTION SYSTEMS (VERSION 1.1). ALL COSTS ASSOCIATED WITH THE DETAILED SURVEY OF THE BIORETENTION SYSTEMS, THE STAGED CONSTRUCTION APPROACH DUE TO THE SURVEY REVIEW PROCESS, & ANY REWORKS REQUIRED AS A RESULT OF THE SURVEY REVIEWS ARE DEEMED INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR THE PROJECT.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CO-SIGNING THE WATER BY DESIGN CONSTRUCTION & ESTABLISHMENT SIGN OFF FORMS – BIORETENTION SYSTEMS (VERSION 1.1) AT THE TIME OF CONSTRUCTION OF THE BIORETENTION SYSTEMS AS WELL AS MANAGING & COMPLYING WITH THE RELEVANT HOLD & WITNESS POINTS SPECIFIED IN THESE FORMS.
4. THE MINIMUM HYDRAULIC CONDUCTIVITY OF ANY LAYER OF BIO BASIN MEDIA SHALL BE 200mm/h.
5. OUTLET AND OVERLAND FLOW PATH ARE TO BE MONITORED FOR ANY ADVERSE IMPACT INCLUDING EROSION, SCOURING TREE HEALTH ETC. DURING CONSTRUCTION AND MAINTENANCE PERIOD. RECTIFICATION MUST BE CARRIED OUT IF WARRANTED.

LEGEND

- EXISTING SURFACE CONTOUR (5.0)
- EARTHWORKS BATTER
- REINFORCED CONCRETE ACCESS DRIVEWAY
- BIO-BASIN FILTER MEDIA
- PROPOSED 2.50m WIDE GRAVEL ACCESS TRACK TYPE 2.3
- PROPOSED STORMWATER DRAINAGE RETICULATION (SWD)
- PROPOSED STORMWATER DRAINAGE STRUCTURE NAME (1/A1)
- SETOUT POINT LABEL (13)
- WARNING SIGN (X)

Issue	Description	DR	CH	VE	Date
D	SWD DESIGN UPDATED	A.O.	S.S.	B.K.	03.09.24
C	NOTES AND EMBANKMENT CREST UPDATED	A.O.	S.S.	B.K.	01.08.24
B	CROSSOVER UPDATED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales: 0 5 10 15 20 25m — 1 : 250

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: COMBINED DETENTION BIO-RETENTION BASIN LAYOUT PLAN AND SECTION SHEET 1

ARCADIS
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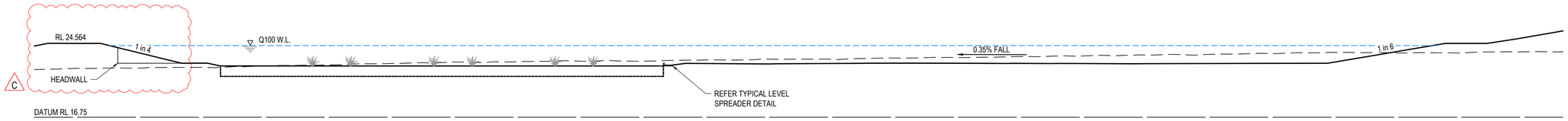
www.arcadis.com/au

Project Number: 30109334

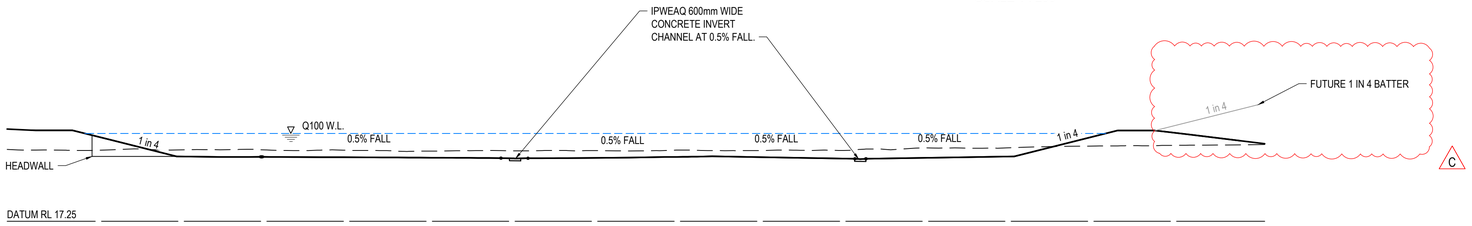
Drawing No.: 30109334-AAP-P301OP-CV-DRG-0491 | Issue: D

100mm on Original

Date Plotted: 13 Mar 2025 - 10:07AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0491-BioPodDetails.dwg



SECTION 3
SCALE 1 : 250



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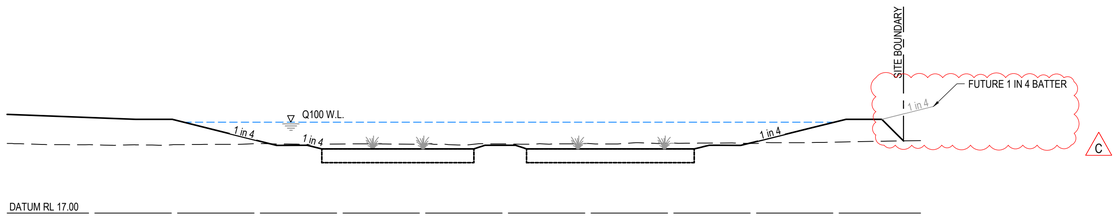
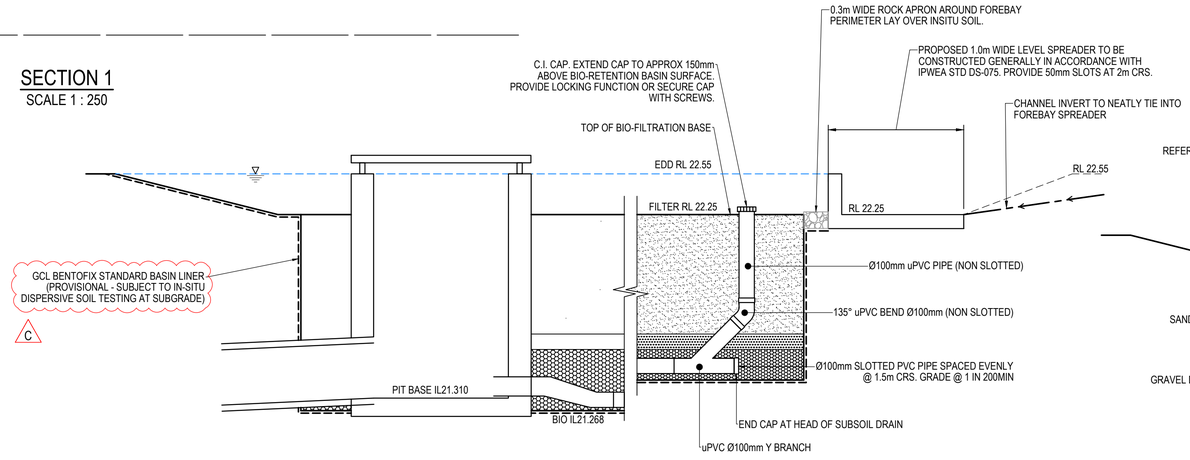


SECTION 1
SCALE 1 : 250

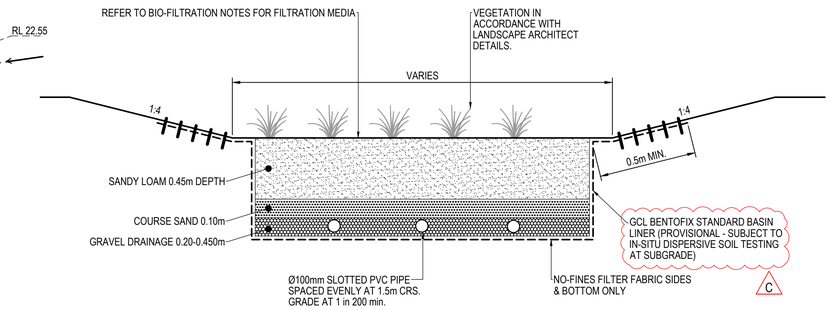
BIO-FILTRATION NOTES

BIO BASIN IS TO CONSIST OF THE FOLLOWING MEDIA (ALSO REFER TO NOTES):

- 450mm OF LOAMY SANDY MATERIAL WITH A HYDRAULIC CONDUCTIVITY OF 200mm/h AND A PARTICLE SIZE OF 0.45-0.50mm AT 90% COMPACTION 1.0m
- 100mm TRANSITION LAYER - COARSE SAND, CONSTENT DEPTH, NOM. SIZE 0.5-2.0
- 200-450mm DRAINAGE LAYER - FINE AGGREGATE, CONSTENT DEPTH, NOM. SIZE 2-5
- CONTRACTOR TO ERECT SIGNAGE IDENTIFYING THE PURPOSE OF THE BIO-RETENTION BASIN AS PER COUNCIL REQUIREMENTS.



TYPICAL FLUSHING END AND TYPICAL LEVEL SPREADER DETAIL
NTS



TYPICAL BIO-RETENTION/DETENTION BASIN SECTION
NTS

Issue	Description	DR	CH	VE	Date
C	UPDATED NOTES AND DETAILS	A.O.	S.S.	B.K.	01.08.24
B	DETAILS UPDATED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales
0 5 10 15 20 25m
1 : 250

Surveyor
WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client
Charter Hall

Status
FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project
FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title
COMBINED DETENTION BIO-RETENTION BASIN LAYOUT PLAN AND SECTION SHEET 2

ARCADIS
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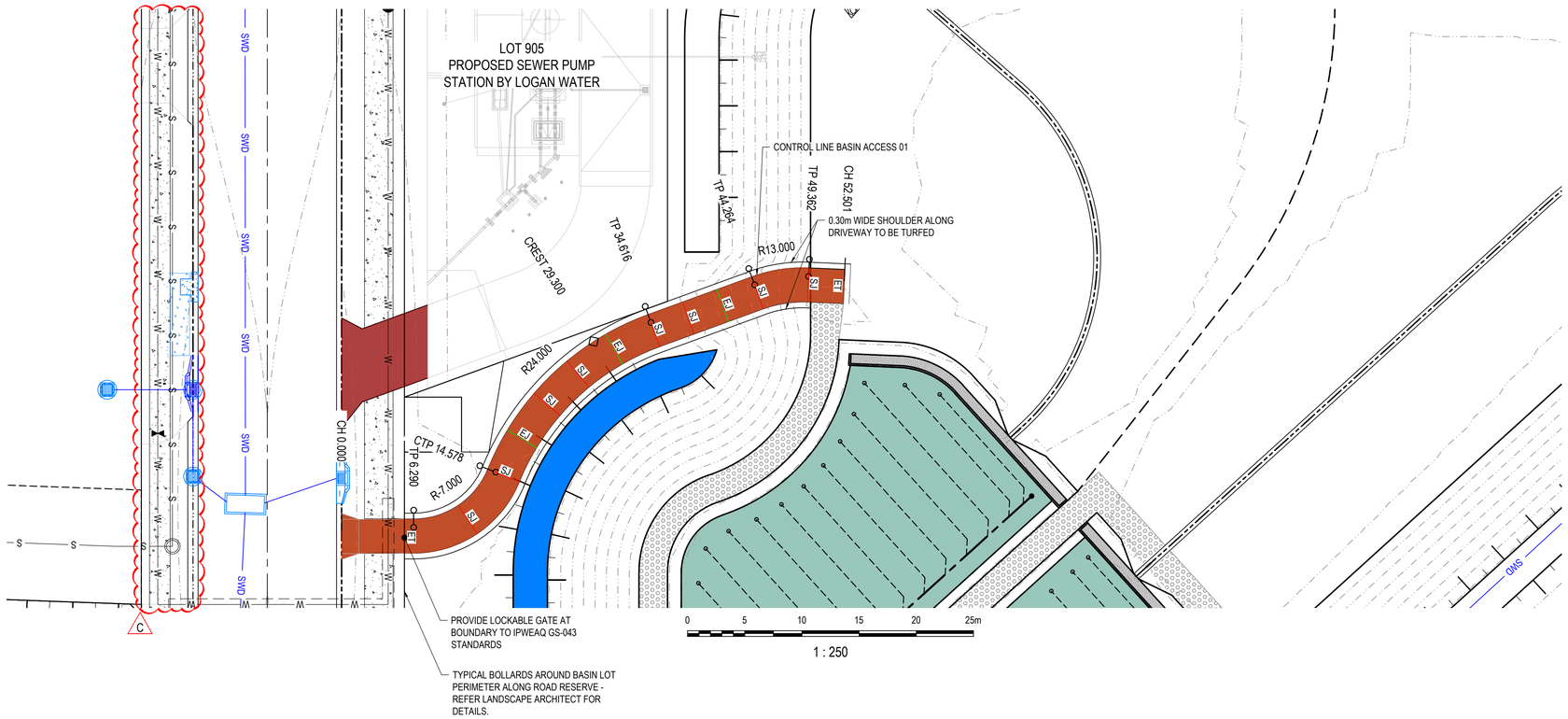
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0492

Issue: C

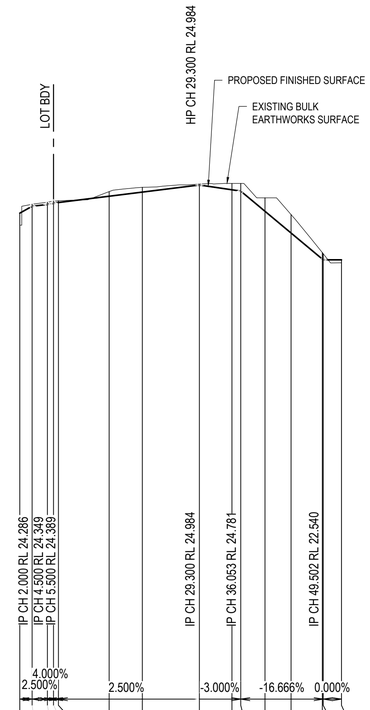
100mm on Original

Date Plotted: 13 Mar 2025 - 10:07AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0491-BioPodDetails.dwg



LEGEND

- 5.0 — EXISTING SURFACE CONTOUR
- EARTHWORKS BATTER
- REINFORCED CONCRETE ACCESS DRIVEWAY
- BIO-BASIN FILTER MEDIA
- PROPOSED 2.50m WIDE GRAVEL ACCESS TRACK TYPE 2.3
- SWD — PROPOSED STORMWATER DRAINAGE
- S — PROPOSED SEWER
- W — PROPOSED WATER

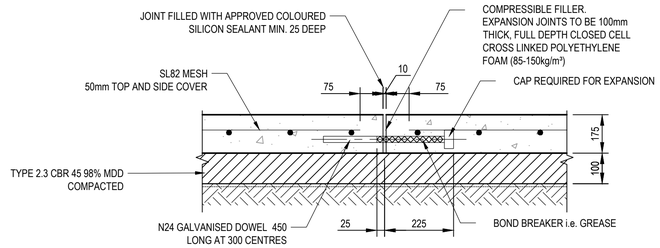


DATUM RL 7.0

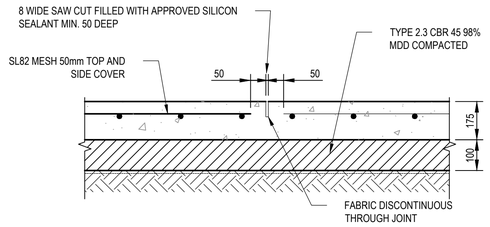
CUT (-) / FILL			-0.069	-0.069	-0.069	-0.057	-0.150	-0.154	-0.030	-0.210	-0.254	-0.441	-0.605	-0.212	-0.201	0.098									
LHS LIP LEVEL					24.314	24.334	24.541	24.676	24.909	24.749	24.706	24.049	23.338	22.488	22.465	22.540									
RHS LIP LEVEL					24.389	24.409	24.616	24.751	24.984	24.824	24.781	24.124	23.413	22.563	22.540	22.540									
DESIGN SURFACE	24.062	24.286	24.349	24.389	24.409	24.616	24.751	24.984	24.824	24.781	24.124	23.413	22.563	22.540	22.540										
EXISTING SURFACE		24.355	24.418	24.458	24.465	24.765	24.906	25.014	25.035	25.035	24.564	24.018	22.775	22.741	22.442										
CHAINAGES	0.000	2.000	4.500	5.500	6.290	14.578	20.000	29.300	34.616	36.053	40.000	44.264	49.362	49.502	52.501										
HORIZONTAL CURVES					R-7.000		R24.000						R13.000												

HORIZ SCALE: 500
VERTICAL SCALE: 100

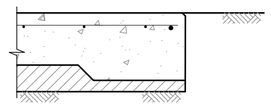
BASIN ACCESS 01



EXPANSION JOINT (EJ)
SCALE 1 : 10



SAW CUT (SJ)
SCALE 1 : 10



SLAB EDGE THICKENING (ET)
SCALE 1 : 10

0 100 200 400 600 800 1000mm
1 : 10

Issue	Description	DR	CH	VE	Date
C	UPDATED DRIVEWAYS	A.O.	S.S.	B.K.	10.03.25
B	DETAILS UPDATED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales
0 5 10 20 30 40 50m
1 : 500
0 1 2 4 6 8 10m
1 : 100

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: COMBINED DETENTION BIO-RETENTION BASIN LAYOUT PLAN AND SECTION SHEET 3

ARCADIS
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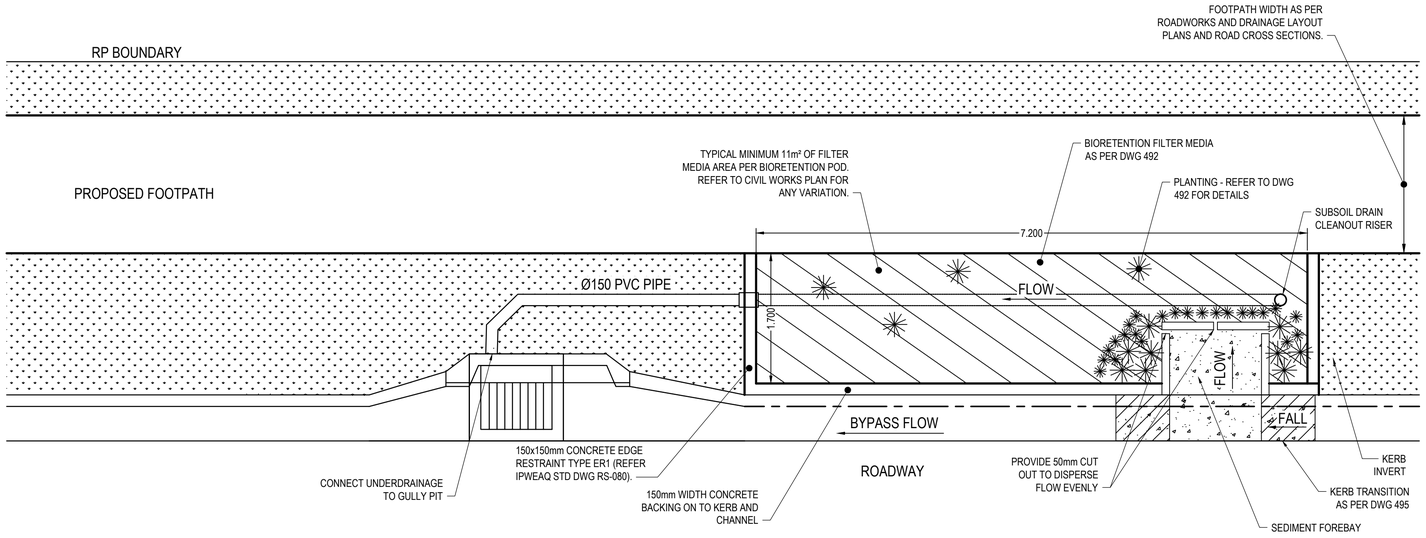
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0493 Issue: C

100mm on Original

Date Plotted: 13 Mar 2025 - 10:07AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0491-BioPodDetails.dwg



STREETSCAPE BIORETENTION POD (ON GRADE PIT) - TYPICAL LAYOUT

NTS

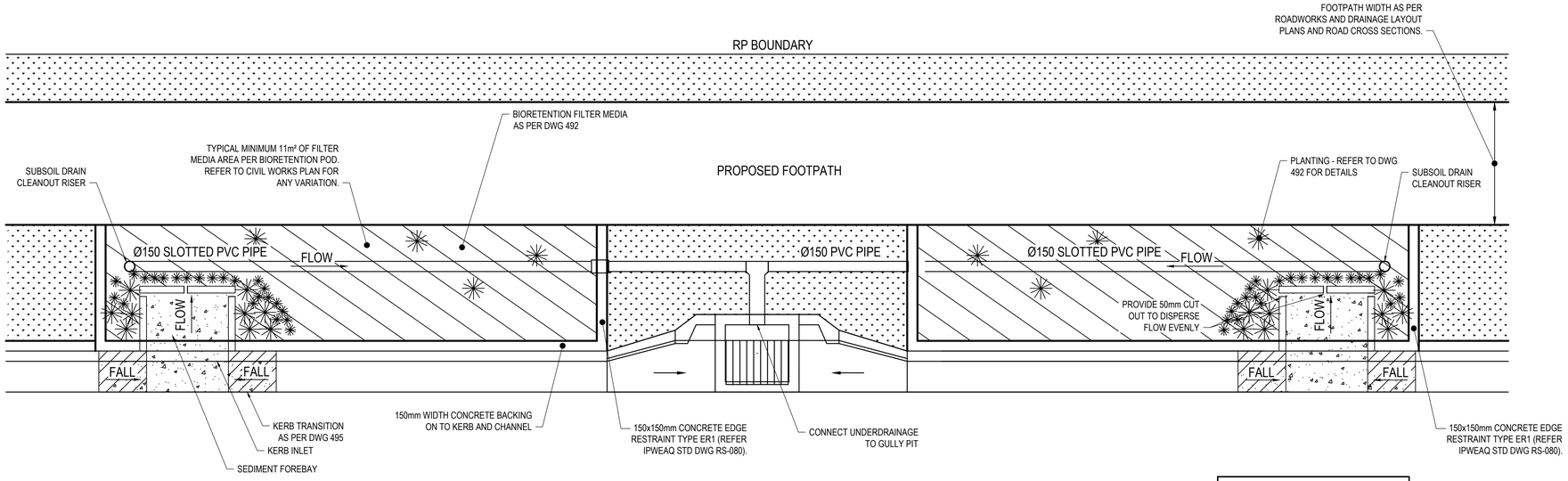
SOIL FILTER MEDIA NOTES

PARAMETER	TEST METHOD IN ACCORDANCE WITH	REQUIREMENT
SATURATED HYDRAULIC CONDUCTIVITY	ASTM f1815-11	50 - 500 mm/hr (200 PREFERRED)
pH	AS 4419	5.5 - 7.5
ELECTRICAL CONDUCTIVITY	AS 4419	<1.2 dS/m
NITROGEN CONTENT	AS 4419	<800 mg/kg
PHOSPHORUS CONTENT	AS 4419	<40 mg/kg
ORGANIC CONTENT	AS 4419	3% - 10%, WHERE ORGANIC CONTENT IS BELOW THIS THRESHOLD, THE FILTER MEDIA MAY BE AMELIORATED BY ADDING 50mm OF COMPOST AND TIINING IT INTO THE TOP 150mm OF FILTER MEDIA.
PARTICLE SIZE DISTRIBUTION	AS 1289.3.6.1 - 1995	CLAY & SILT 3 - 6% (<0.05mm) VERY FINE SAND 5 - 30% (0.05 - 0.15mm) FINE SAND 10 - 30% (0.15 - 0.25mm) MEDIUM TO COARSE SAND 40 - 60% (0.25 - 1.0mm) COARSE SAND 7 - 10% (1.0 - 2.0mm) FINE GRAVEL <3% (2.0 - 3.4mm)

BIO-FILTRATION NOTES

MINIMUM FILTER DEPTH IS TO BE 0.8m AND IS TO CONSIST OF THE FOLLOWING MEDIA:

1. 0.45m OF SANDY LOAM MATERIAL WITH A HYDRAULIC CONDUCTIVITY OF 50-500mm/h (200 PREFERRED).
2. TRANSITION LAYER - MINIMUM 100mm COARSE SAND TYPICALLY 1mm PARTICLE SIZE DIAMETER WITH <2% FINES.
3. DRAINAGE LAYER - FINE GRAVEL (NOMINAL 2-5mm) WITH <2% FINES.
4. ALL UNDERDRAINAGE PIPES TO BE COVERED BY A MINIMUM 50mm DRAINAGE LAYER MATERIAL.
5. CONTRACTOR TO ERECT SIGNAGE IDENTIFYING THE PURPOSE OF THE BIO-RETENTION BASIN AS PER COUNCIL REQUIREMENTS.
6. CONTRACTOR TO INSTALL GEOFABRIC, LAY TOPSOIL AND TURF AFTER BASIN INTERNAL DRAINAGE AND FILTER MEDIA IS INSTALLED TO PROTECT FILTER MEDIA. TURF AND GEOFABRIC TO BE REMOVED AFTER 80% OF BUILDINGS AND CONSTRUCTION IS COMPLETE.



STREETSCAPE BIORETENTION POD (SAG PIT)

NTS

VERIFY LOCATION OF SERVICES PRIOR TO EXCAVATION.

Issue	Description	DR	CH	VE	Date
B	NOTE UPDATED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales: NOT TO SCALE

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: COMBINED DETENTION BIO-RETENTION BASIN LAYOUT PLAN AND SECTION SHEET 4

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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0494

Issue: B

100mm on Original

Date Plotted: 13 Mar 2025 - 10:07AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0491-BioPodDetails.dwg

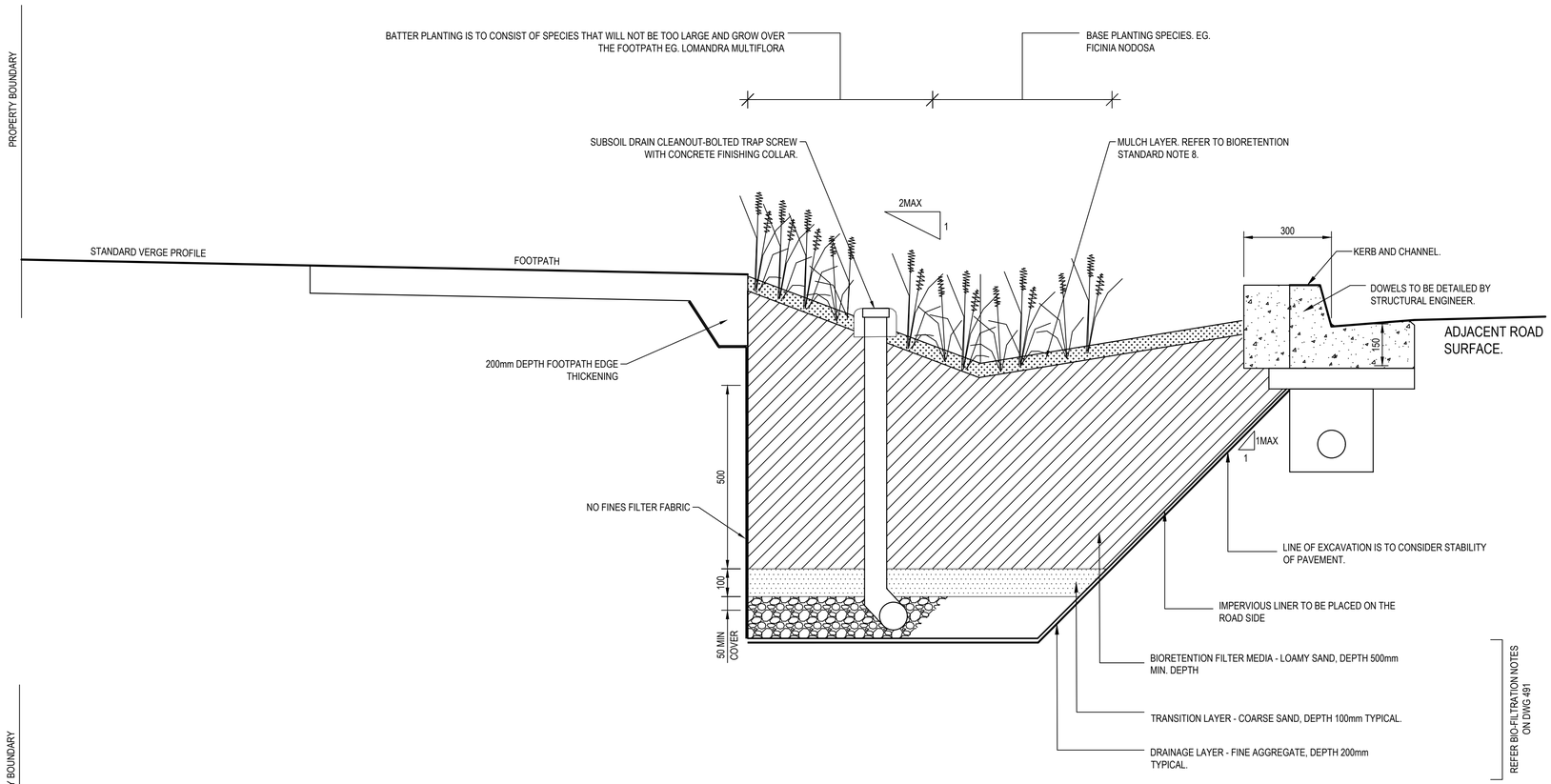
NOTES

BIORETENTION STANDARD NOTES:

1. GENERAL DESIGN: BIORETENTION SYSTEM TO BE DESIGNED IN ACCORDANCE WITH "BIORETENTION TECHNICAL DESIGN GUIDELINES" (WATER BY DESIGN).
2. SYSTEM IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE WATER BY DESIGN 'CONSTRUCTION AND ESTABLISHMENT GUIDELINES.'
3. STORMWATER KERB OPENING IS TO BE TEMPORARILY BLOCKED DURING CONSTRUCTION.
4. BIORETENTION FILTER MEDIA, TRANSITION LAYER AND DRAINAGE LAYER IS TO BE IN ACCORDANCE WITH THE "GUIDELINES FOR SOIL MEDIA IN BIO-RETENTION SYSTEMS", FACILITY FOR ADVANCING WATER BIO-FILTRATION (FAWB).
5. UNDER-DRAIN, SLOTTED RIGID PIPE UPVC / HDPE OR SIMILAR TO AS 2439.1 OR APPROVED EQUIVALENT, 0.5% MINIMUM GRADE. DIAMETER TYPICALLY 100. PIPE JOINS SHALL BE GLUED WITH PLUMBING CEMENT. PIPE SHALL NOT BE INSTALLED WITH A FILTER SOCK SURROUNDING PIPE. UNDER-DRAINAGE PIPES SHALL BE SEALED INTO PITS USING GROUTS OR OTHER APPROVED WATERTIGHT SEAL. MINIMUM 50MM DRAINAGE LAYER OVER UNDERDRAINAGE PIPE.
6. FLITER CLOTH - NON-WOVEN GEOTEXTILE. FILTER CLOTH NOT TO BE PLACED BETWEEN ANY FILTER LAYERS. IMPERVIOUS LINER MAY BE REQUIRED ADJACENT TO ROADS AND MAY ALSO BE REQUIRED ELSEWHERE SUBJECT TO SOIL TESTING REQUIREMENTS IN ACCORDANCE WITH THE 'BIORETENTION TECHNICAL DESIGN GUIDELINES' (WATER BY DESIGN).
7. VEGETATION: PLANT SPECIES AND LAYOUT TO BE DETERMINED ON A PROJECT BY PROJECT BASIS. PLANT SPECIFICATION AND DENSITY SHALL BE IN ACCORDANCE WITH "BIORETENTION TECHNICAL DESIGN GUIDELINES" (WATER BY DESIGN) AND LOGAN CITY COUNCIL'S PLANNING SCHEME POLICY. TREE SPECIES TO BE SELECTED AS PER THE DESIGN MANUAL AND ALSO CONSIDERING THEIR SUITABILITY FOR WET AND DRY CONDITIONS.
8. MULCH: 75MM MULCH LAYER TO BE ORGANIC AND FRIABLE, SUCH AS SUGARCANE MULCH. MULCH TO BE SECURED WITH JUTE MESH TO MANUFACTURER'S SPECIFICATIONS.

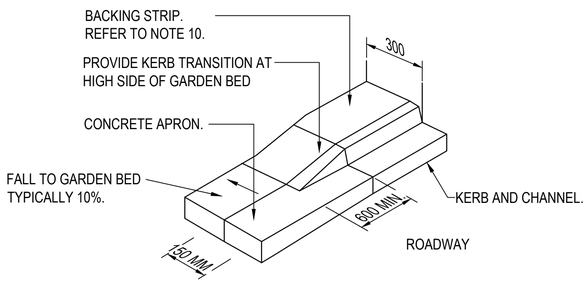
SECTION NOTES:

1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH DRAWING 0491.
2. VERTICAL DROPS FROM THE TOP OF KERB TO FINISH LEVEL OF THE BIORETENTION GARDEN MUST NOT EXCEED 250MM AND THE MAXIMUM DEPTH OF THE GARDEN MUST NOT EXCEED 300MM.
3. DROP FROM KERB BACKING STRIP TO FILTER SURFACE NOT TO EXCEED 250MM.
4. KERB ADAPTORS ARE NOT TO BE DIRECTLY PLUMBED INTO SYSTEM.

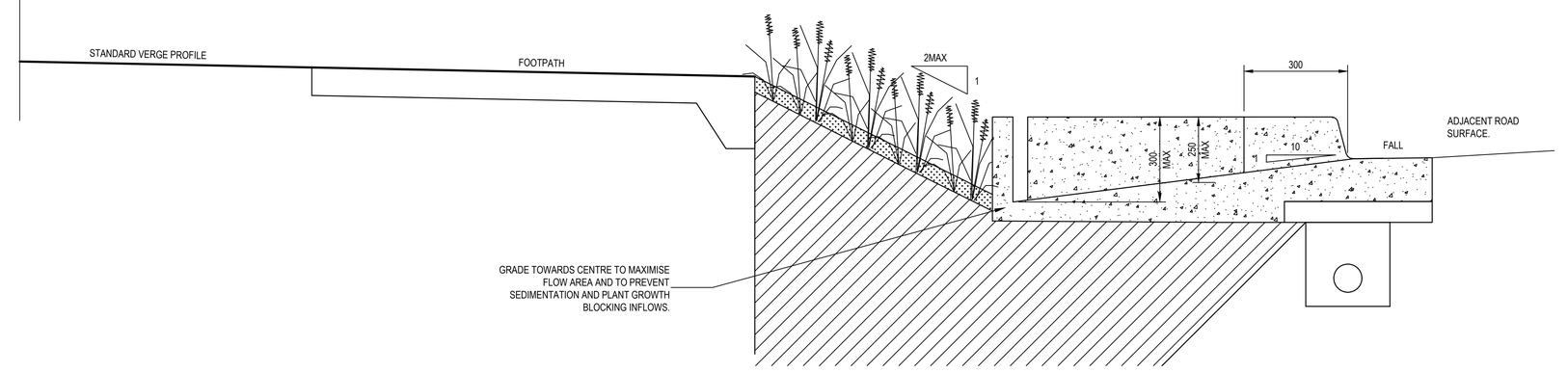


STREETSCAPE BIORETENTION (VERGE TYPE) - TYPICAL SECTION A 0494

NTS



KERB TRANSITION DETAIL



STREETSCAPE BIORETENTION (VERGE TYPE) - KERB INLET DETAILS B 0494

NTS

VERIFY LOCATION OF SERVICES PRIOR TO EXCAVATION.

Issue	Description	DR	CH	VE	Date
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales: 0 100 200 400 600 800 1000mm — 1 : 10

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: COMBINED DETENTION BIO-RETENTION BASIN LAYOUT PLAN AND SECTION SHEET 5

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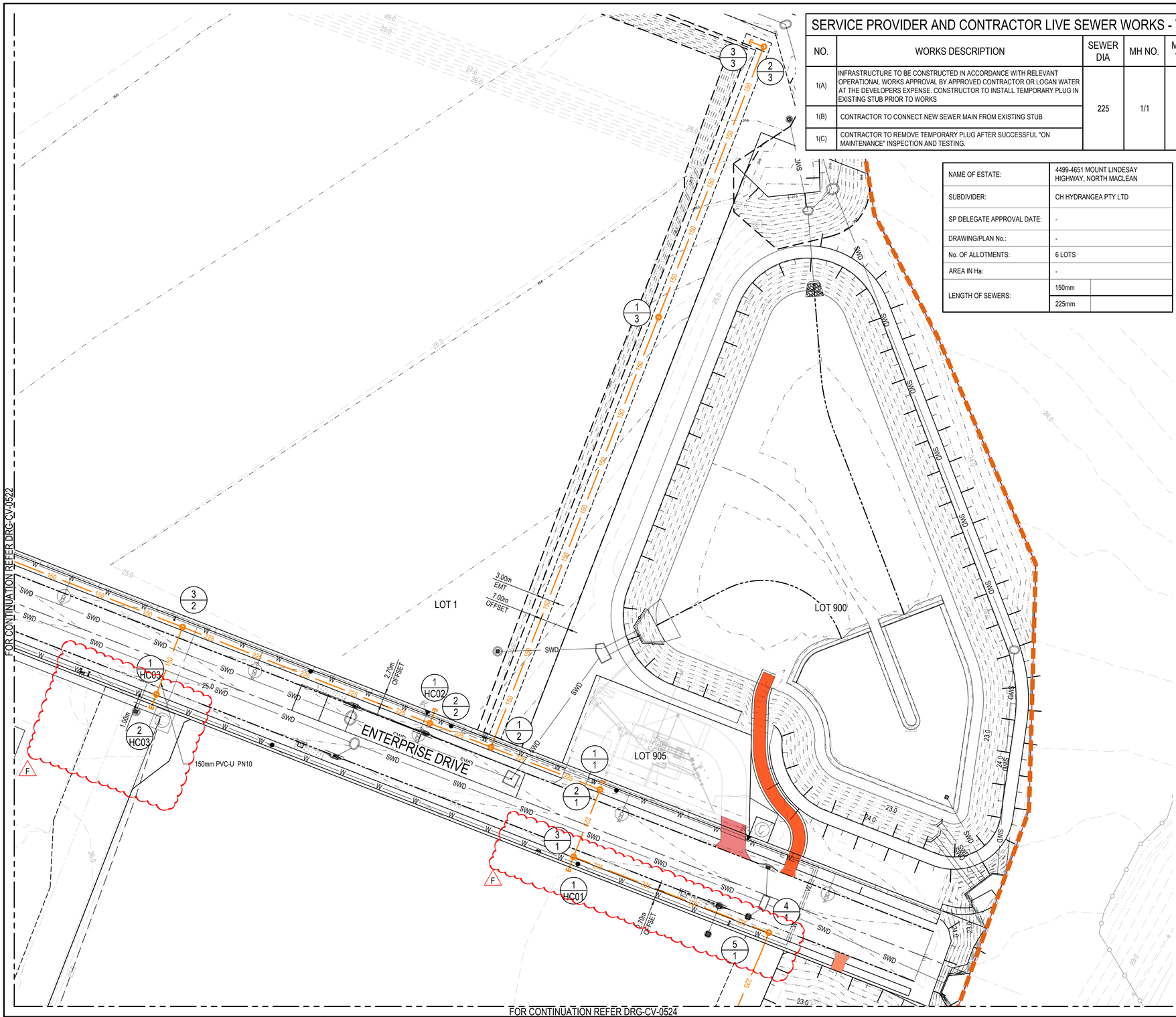
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0495

Issue: A

Date Plotted: 13 Mar 2025 - 10:07AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0491-BioPodDetails.dwg



SERVICE PROVIDER AND CONTRACTOR LIVE SEWER WORKS - TYPICAL SCHEDULE

NO.	WORKS DESCRIPTION	SEWER DIA	MH NO.	MH/MS TYPE	COVER TYPE	LOT No.	F.S.L.	I.L.	DEPTH TO INVERT
1(A)	INFRASTRUCTURE TO BE CONSTRUCTED IN ACCORDANCE WITH RELEVANT OPERATIONAL WORKS APPROVAL BY APPROVED CONTRACTOR OR LOGAN WATER AT THE DEVELOPERS EXPENSE. CONSTRUCTOR TO INSTALL TEMPORARY PLUG IN EXISTING STUB PRIOR TO WORKS	225	1/1	STUB	B	905	24.575	18.500	6.075
1(B)	CONTRACTOR TO CONNECT NEW SEWER MAIN FROM EXISTING STUB								
1(C)	CONTRACTOR TO REMOVE TEMPORARY PLUG AFTER SUCCESSFUL "ON MAINTENANCE" INSPECTION AND TESTING.								

NAME OF ESTATE:	4499-4651 MOUNT LINDESAY HIGHWAY, NORTH MACLEAN	
SUBDIVIDER:	CH HYDRANGEA PTY LTD	
SP DELEGATE APPROVAL DATE:	-	
DRAWING/PLAN No.:	-	
No. OF ALLOTMENTS:	6 LOTS	
AREA IN Ha:	-	
LENGTH OF SEWERS:	150mm	
	225mm	

SEWER NOTES

1. ALL WORK & MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND SEWERAGE CODE SPECIFICATIONS & STANDARDS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS & WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. THE CONSTRUCTION OF THE SEWERAGE WORK SHOWN ON THIS DRAWING SHALL BE INSPECTED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. SEWERAGE WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT INTO THE SEQ SERVICE PROVIDER SEWERAGE SYSTEM.
4. ALL WORK ASSOCIATED WITH LIVE SEWERS OR MAINTENANCE HOLES SHALL BE CARRIED OUT BY THE SEQ SERVICE PROVIDER AT THE DEVELOPER'S COST.
5. ALL PIPES & MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE "ACCEPTED PRODUCTS & MATERIALS" LIST.
6. WHERE PIPES ARE LAID IN FILL, THE FILLING SHALL BE CARRIED OUT IN LAYERS NOT EXCEEDING 300mm (LOOSE) IN DEPTH & SHALL BE COMPACTED UNTIL THE COMPACTION IS NOT LESS THAN 95% OF THE MATERIALS MAXIMUM COMPACTION WHEN TESTED IN ACCORDANCE WITH A.S. 1289 (MODIFIED COMPACTION). TESTING SHALL BE CARRIED OUT AFTER EACH ALTERNATE LAYER. IN ALL SUCH CASES APPROVAL OF CONSTRUCTED SEWERS WILL NOT BE ISSUED BY THE SEQ SERVICE PROVIDER UNLESS CERTIFICATES ARE PRODUCED CERTIFYING THAT THE REQUIRED COMPACTION HAS BEEN ACHIEVED.
7. WHERE SEWERS HAVE A GRADE OF 1 IN 20 OR STEEPER,BULKHEADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SEQ SEWER CODE.
8. THE CONTRACTOR SHALL VERIFY THE LOCATION & DEPTH OF EXISTING SERVICES WITH RELEVANT AUTHORITIES BEFORE COMMENCING WORKS.
9. SEWERS SHALL BE DISUSED /ABANDONED IN ACCORDANCE WITH PROCEDURES SET OUT IN THE SEQ SEWER CODE.
10. BENCH MARK & LEVELS TO AHD.
11. EXISTING ALLOTMENTS REQUIRING A PROPERTY CONNECTION FROM EXISTING SEWERS SHALL BE PROVIDED BY THE SEQ SERVICE PROVIDER AT THE DEVELOPERS COST.
12. ALL MANHOLES 1500mm DIAMETER AND LARGER AND/ OR MANHOLES GREATER THAN 4.0m IN DEPTH TO BE LINED AS PER SOUTH EAST QUEENSLAND SEWERAGE CODE. REFER SEQ-SPS-1407 FOR DETAILS.
13. ALL MAINTENANCE HOLES ARE TO BE CONSTRUCTED USING CONCRETE CONTAINING CALCAREOUS AGGREGATE. IF CALCAREOUS AGGREGATE CONCRETE IS NOT AVAILABLE FOR MAINTENANCE HOLES POURED AFTER 1 AUGUST 2016, AN APPROVED INTERNAL PE LINER CAST IN PLACE IS TO BE CONSTRUCTED. MAINTENANCE HOLES POURED PRIOR TO THIS DATE WITHOUT USING CALCAREOUS AGGREGATE CONCRETE WILL ONLY BE ACCEPTED WITH SUFFICIENT (AS DETERMINED BY THE SUPERINTENDENT) PROOF THAT ALL REASONABLE EFFORTS WERE MADE TO SOURCE CALCAREOUS AGGREGATE CONCRETE.

VEGETATION PROTECTION

A. TREES LOCATED ALONG THE FOOTPATH SHALL BE, TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.
B. WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHALL BE CONSTRUCTED WITH 1.8m BATTENS CLOSELY SPACED & ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES SHALL BE STRAPPED TO TREES PRIOR TO CONSTRUCTION & REMAIN UNTIL COMPLETION.
C. TREE ROOTS SHALL BE TUNNELLED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHALL BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT RELEVANT COUNCIL ARBORIST FOR FURTHER ADVICE.
D. ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY AN APPROVED ARBORIST.

SOIL

A. TOPSOIL & SUBSOIL SHALL BE STOCKPILED SEPARATELY.
B. CARE SHALL BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORMWATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.

CREEK CROSSINGS

A. SILTATION CONTROL MEASURES SHALL BE PLACED DOWNSTREAM OF ANY EXCAVATION WORK.
B. APPROPRIATE SEDIMENT CONTROLS SHALL BE USED TO PREVENT SEDIMENT FROM ENTERING THE CREEK.
C. NO SOIL SHALL BE STOCKPILED WITHIN 5m OF THE CREEK.

REHABILITATION

A. PREDISTURBANCE SOIL PROFILES & COMPACTION LEVELS SHALL BE REINSTATED.
B. PREDISTURBANCE VEGETATION PATTERNS SHALL BE RESTORED.

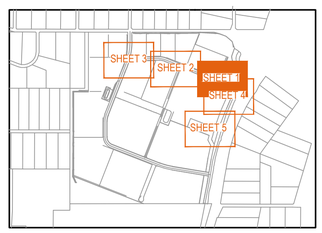
SAFETY

A. THE DESIGN & CONSTRUCTION OF THE WORKS SHALL COMPLY WITH ALL QUEENSLAND LEGISLATION.

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- PROPOSED ROCK GABION RETAINING WALL
- NOMINAL KERB LINE
- PROPOSED EDGE OF BITUMEN
- SEWER EASEMENT LINE
- PROPOSED SEWER STRUCTURE NAME
- PROPOSED DN150 SEWER RETICULATION AND MANHOLE STRUCTURE
- PROPOSED DN225 SEWER RETICULATION AND MANHOLE STRUCTURE
- PROPOSED STORMWATER DRAINAGE RETICULATION
- PROPOSED WATER RETICULATION
- EXISTING SEWER STRUCTURE NAME
- EXISTING SEWER RETICULATION
- EXISTING STORMWATER DRAINAGE RETICULATION
- EXISTING WATER RETICULATION
- EXISTING UNDERGROUND ELECTRICAL RETICULATION
- EXISTING OVERHEAD ELECTRICAL RETICULATION
- EXISTING EARTHWORKS INTERFACE (EXTERNAL WORKS)
- FUTURE SEWER RETICULATION
- FUTURE STORMWATER DRAINAGE RETICULATION
- FUTURE WATER RETICULATION

ALL ENVIRONMENT PROTECTION MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING, COMMENCING.



KEY PLAN

Issue	Description	DR	CH	VE	Date
F	UPDATED DRIVEWAYS, WATER CONNECTIONS	A.O.	S.S	B.K.	10.03.25
E	REMOVED NOTE	A.O.	S.S.	B.K.	05.09.24
D	SEWER LINE 3 UPDATED	A.O.	S.S.	B.K.	03.09.24
C	SEWER LINE 1/1 TO 3/2 UPDATED TO SIZE 225	A.O.	S.S.	B.K.	01.08.24
B	TEMPORARY ACCESS ROAD REMOVED	J.B.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: SEWER RETICULATION LAYOUT PLAN SHEET 1

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
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Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0521 | Issue: F

100mm on Original

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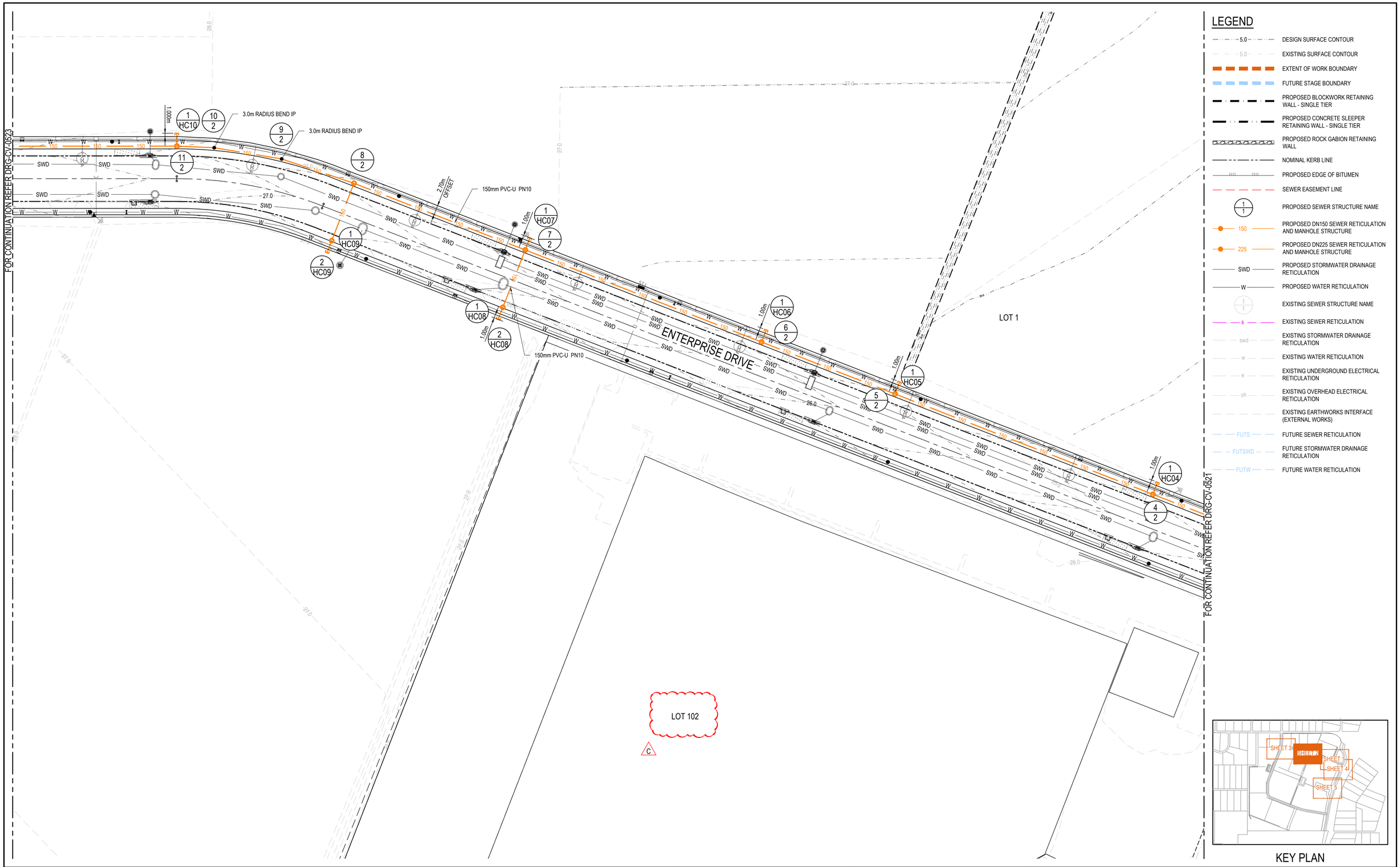
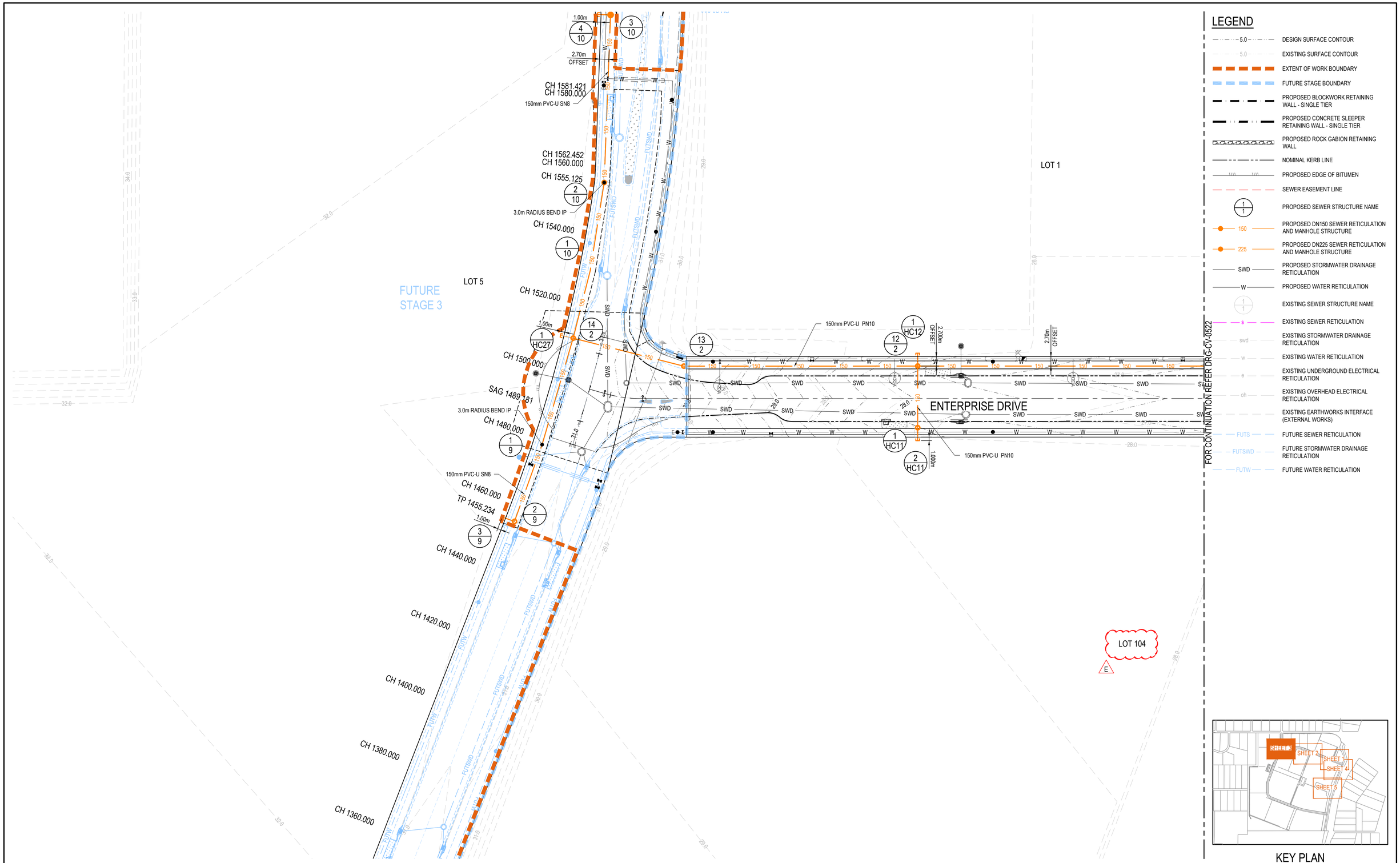

FOR CONTINUATION REFER DRG-CV-0523
FOR CONTINUATION REFER DRG-CV-0521
ENTERPRISE DRIVE
LOT 1
LOT 102
3.0m RADIUS BEND IP
3.0m RADIUS BEND IP
150mm PVC-U PN10
150mm PVC-U PN10
2.70m OFFSET
1.00m
1.00m
1.00m



Issue	Description	DR	CH	VE	Date
E	UPDATED BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
D	UPDATED LAYOUT	A.O.	S.S.	B.K.	18.10.24
C	SEWER MH ADDED	A.O.	S.S.	B.K.	03.09.24
B	SEWER LINE 9 AND 10 ADDED	A.O.	S.S.	B.K.	01.08.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

SEWER RETICULATION LAYOUT PLAN SHEET 3

ARCADIS

Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
BRISBANE QLD 4000
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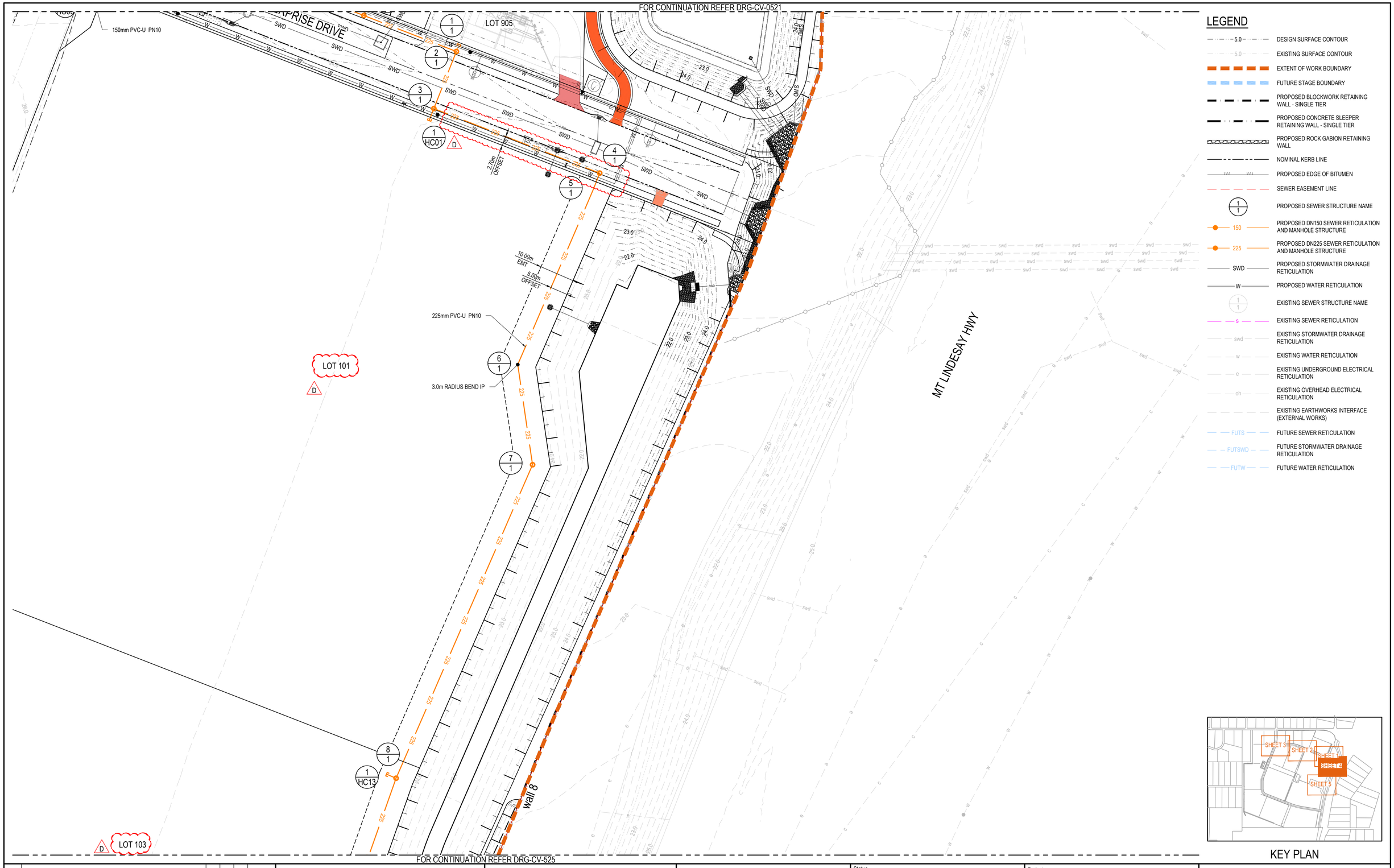
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number	30109334

Drawing No.	Issue
30109334-AAP-P301OP-CV-DRG-0523	E

Date Plotted: 13 Mar 2025 - 10:13AM File Name: C:\Users\ao67297\DCIACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0521-Sewer.dwg



LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- PROPOSED ROCK GABION RETAINING WALL
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- PROPOSED WATER RETICULATION
- EXISTING SEWER STRUCTURE NAME
- EXISTING SEWER RETICULATION
- EXISTING STORMWATER DRAINAGE RETICULATION
- EXISTING WATER RETICULATION
- EXISTING UNDERGROUND ELECTRICAL RETICULATION
- EXISTING OVERHEAD ELECTRICAL RETICULATION
- EXISTING EARTHWORKS INTERFACE (EXTERNAL WORKS)
- FUTURE SEWER RETICULATION
- FUTURE STORMWATER DRAINAGE RETICULATION
- FUTURE WATER RETICULATION

KEY PLAN

Issue	Description	DR	CH	VE	Date
D	UPDATED DRIVEWAYS, WATER CONNECTIONS AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
C	REMOVED NOTE	A.O.	S.S.	B.K.	05.09.24
B	UPDATED ISSUE	A.O.	S.S.	B.K.	03.09.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: SEWER RETICULATION LAYOUT PLAN SHEET 4

ARCADIS
Arcadis Australia Pacific Pty Limited
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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0524

Issue: D

Date Plotted: 13 Mar 2025 - 11:34AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0521-Sewer.dwg

FOR CONTINUATION REFER DRG-CV-0524

LOT 103

C

225mm PVC-U PN10

10.00m EMT

5.00m OFFSET

3.0m RADIUS BEND IP

11/1

9/1

10/1

LOT 901

SWD

12/1

13/1

3.00m OFFSET

6.00m EMT

1/4

2/4

FUTURE STAGE 2

FOR CONTINUATION REFER INSET A

Wall 8

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- PROPOSED ROCK GABION RETAINING WALL
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- SEWER EASEMENT LINE
- PROPOSED SEWER STRUCTURE NAME
- PROPOSED DN150 SEWER RETICULATION AND MANHOLE STRUCTURE
- PROPOSED DN225 SEWER RETICULATION AND MANHOLE STRUCTURE
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- PROPOSED WATER RETICULATION
- EXISTING SEWER STRUCTURE NAME
- EXISTING SEWER RETICULATION
- EXISTING STORMWATER DRAINAGE RETICULATION
- EXISTING WATER RETICULATION
- EXISTING UNDERGROUND ELECTRICAL RETICULATION
- EXISTING OVERHEAD ELECTRICAL RETICULATION
- EXISTING EARTHWORKS INTERFACE (EXTERNAL WORKS)
- FUTURE SEWER RETICULATION
- FUTURE STORMWATER DRAINAGE RETICULATION
- FUTURE WATER RETICULATION

3.00m OFFSET

6.00m EMT

LOT 904

1.00m

3.0m RADIUS BEND IP

2.10m OFFSET

INSET A
1:1000

SHEET 3

SHEET 2

SHEET 1

SHEET 4

SHEET A

KEY PLAN

Issue	Description	DR	CH	VE	Date
C	UPDATED BOUNDARIES AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
B	SEWER LINE 4 AND 5 ADDED	A.O.	S.S.	B.K.	03.09.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor

WOLTER consulting group

Planning Urban Design Landscape Environment Surveying

Client

Charter Hall

Status

FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project

FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title

SEWER RETICULATION LAYOUT PLAN SHEET 5

ARCADIS

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Tel No: +61 7 3337 0000
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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0525

Issue: C

Date Plotted: 13 Mar 2025 - 10:13AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0521-Sewer.dwg

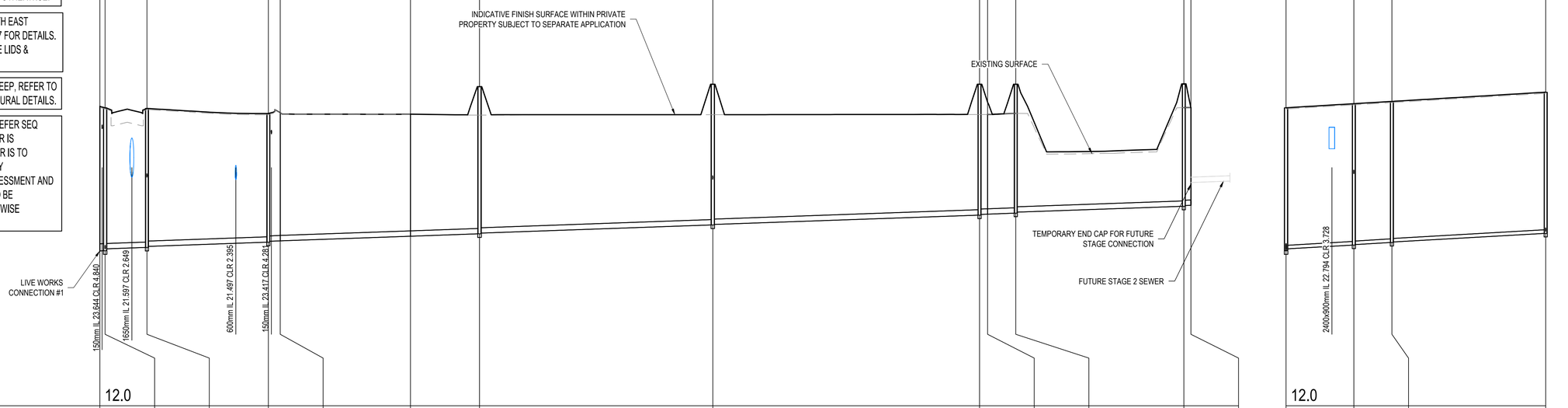
STRUC/ BEND/ END NAME	1/1	2/1	3/1	4/1	5/1	6/1	7/1	8/1	9/1	10/1	11/1	12/1	13/1	2/1	1/2	2/2	3/2
STRUCTURE TYPE	REFER SPS DESIGN	X PE LINED	P2 PE LINED	P2 PE LINED	P2 PE LINED	IP	HTP 3.0m RADIUS	X PE LINED	X PE LINED	P2 PE LINED	HTP 3.0m RADIUS	P2 PE LINED	P2 PE LINED	END	X PE LINED	P2 PE LINED	P2 PE LINED	P2 PE LINED
STRUCTURE LID TYPE		B	B	D	D			D	D	D	D	D	D		B	D	B	B
STRUCTURE DROP TYPE		V	V	V	V			V	V	V	V	V	V C		V	V	V	V
JUNCTION LINE		LINE 2	LINE HC01					LINE HC13					LINE 4	LINE 2	LINE 3		LINE HC03
DEPTH TO HC																	
HC INVERT LEVEL																	
HC TYPE																	
HC LOT No																	
CH. FROM D/S STRUC/ BEND																	

ALL PRECAST MANHOLES TO HAVE CONVERSION SLAB COVERINGS. REFER MANHOLE TYPE P2 SEQ-SEW-1300-1 FOR FURTHER DETAILS. ALL TYPE P2 MANHOLES TO BE 1050Ø, UNLESS NOTED OTHERWISE.

ALL PROPOSED MANHOLES TO BE LINED AS PER SOUTH EAST QUEENSLAND SEWERAGE CODE. REFER SEQ-SPS-1407 FOR DETAILS. MANHOLES ARE ALSO REQUIRED TO HAVE COMPOSITE LIDS & FRAMES.

FOR CUSTOM (X TYPE) MANHOLE STRUCTURE >6.0m DEEP, REFER TO DRG 0585-0586 FOR RPEQ CERTIFIED TYPICAL STRUCTURAL DETAILS.

FOR SEWER EMBEDMENT SUPPORT TYPE 3 DETAILS REFER SEQ WATER DWG SEQ-SEW-1201-1. WHERE GROUND WATER IS DISCOVERED DURING EXCAVATIONS THE CONTRACTOR IS TO IMMEDIATELY CEASE ASSOCIATED WORKS AND NOTIFY SUPERINTENDENT WHO IS TO PROVIDE FURTHER ASSESSMENT AND INSTRUCTION ON THE EMBEDMENT SUPPORT TYPE TO BE CONSTRUCTED WITHIN THESE AREAS. UNLESS OTHERWISE DIRECTED ON SITE.

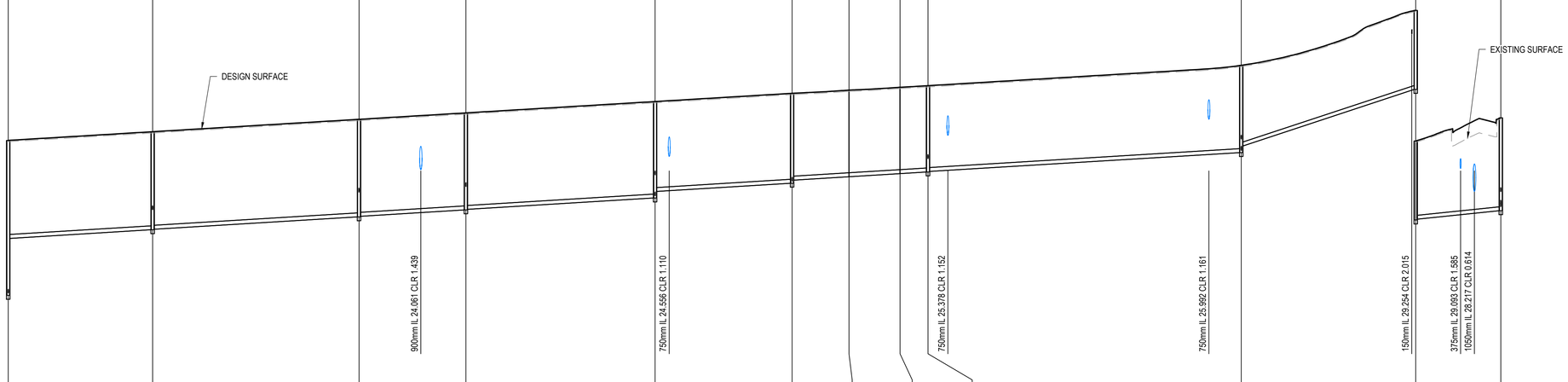


LEGEND:

OP - OPEN SPACE
FP - FOOTPATH/VERGE
PP - PRIVATE PROPERTY
RD - ROAD

| | | | | | | | | | | | | | | | | |

STRUC/ BEND/ END NAME		3/2		4/2		5/2		6/2		7/2		8/2	9/2	10/2	11/2	12/2		13/2	14/2	
STRUCTURE TYPE	P2	PE LINED	P2	PE LINED	P2	PE LINED	P2	PE LINED	P2	PE LINED	P2	PE LINED	HTP 3.0m RADIUS	HTP 3.0m RADIUS	PE LINED	P2	PE LINED	P2	PE LINED	P2	PE LINED
STRUCTURE LID TYPE	B		B		B		B		B		B					B		B		B	
STRUCTURE DROP TYPE		X		V		V		V		V		V			V		V		V		V
JUNCTION LINE		LINE HC03		LINE HC04		LINE HC05		LINE HC06		LINE HC07		LINE HC09			LINE HC10		LINE HC11				LINE 9
DEPTH TO HC																					
HC INVERT LEVEL																					
HC TYPE																					
HC LOT No																					
CH. FROM D/S STRUC/ BEND																					
DESIGN SURFACE LEVEL		25.168		25.500		25.974		26.220		26.655		26.970		27.094	27.202		27.262		28.041	30.146	31.034
DATUM R.L.		14.0																		19.0	
LAND USE										FP										RD	
DIAMETER										150Ø PVC-U SN8											
GRADE		1 in 167		1 in 167		1 in 167		1 in 167		1 in 167		1 in 167	1 in 167	1 in 167	1 in 167		1 in 30.80		1 in 100.00		
EMBEDMENT TYPE										TYPE 3 *											
DEPTH TO INVERT	5.929	3.751	3.751	3.731	3.731	3.711	3.711	3.691	3.691	3.441	3.441	3.321	3.314	3.314	3.305	3.305	3.301	3.281	3.340	3.090	3.025	2.995	3.557	
JUNCTION INVERT LEVEL		19.319		22.516		23.190		23.402		23.849		23.609						24.474		24.791				27.727
SEWER INVERT LEVEL	19.239	21.417	21.749	21.769	22.243	22.263	22.509	22.529	22.964	23.214	23.529	23.649	23.779	23.779	23.897	23.897	23.961	23.981	24.701	24.951	27.121	27.151	27.477	
SETOUT	E501773.461 N6929428.764		E501725.579 N6929456.470		E501657.135 N6929496.074		E501621.714 N6929516.570		E501558.963 N6929552.879		E501513.520 N6929579.173		E501494.161 N6929589.204		E501475.588 N6929595.320		E501465.089 N6929597.410		E501346.493 N6929615.716		E501280.440 N6929625.912		E501260.399 N6929638.648	
RUNNING CHAINAGE		109.191	55.320	164.512	79.076	243.588	40.924	284.512	72.499	357.010	52.501	409.511	21.804	431.315	19.554	450.869	10.705	461.575	120.000	581.575	66.836	648.410	32.629	681.039



ALL PRECAST MANHOLES TO HAVE CONVERSION SLAB COVERINGS. REFER MANHOLE TYPE P2 SEQ-SEW-1300-1 FOR FURTHER DETAILS. ALL TYPE P2 MANHOLES TO BE 1050Ø, UNLESS NOTED OTHERWISE.

ALL PROPOSED MANHOLES TO BE LINED AS PER SOUTH EAST QUEENSLAND SEWERAGE CODE. REFER SEQ-SPS-1407 FOR DETAILS. MANHOLES ARE ALSO REQUIRED TO HAVE COMPOSITE LIDS & FRAMES.

FOR CUSTOM (X TYPE) MANHOLE STRUCTURE >6.0m DEEP, REFER TO DRG 0585-0586 FOR RPEQ CERTIFIED TYPICAL STRUCTURAL DETAILS.

FOR SEWER EMBEDMENT SUPPORT TYPE 3 DETAILS REFER SEQ WATER DWG SEQ-SEW-1201-1. WHERE GROUND WATER IS DISCOVERED DURING EXCAVATIONS THE CONTRACTOR IS TO IMMEDIATELY CEASE ASSOCIATED WORKS AND NOTIFY SUPERINTENDENT WHO IS TO PROVIDE FURTHER ASSESSMENT AND INSTRUCTION ON THE EMBEDMENT SUPPORT TYPE TO BE CONSTRUCTED WITHIN THESE AREAS. UNLESS OTHERWISE DIRECTED ON SITE.

LEGEND:

OP - OPEN SPACE
FP - FOOTPATH/VERGE
PP - PRIVATE PROPERTY
RD - ROAD

C

Issue	Description	DR	CH	VE	Date
C	SEWER LINE 3 REVISED	A.O.	S.S.	B.K.	03.09.24
B	LINE 3 REVISED	A.O.	S.S.	B.K.	01.08.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

HORZ 0 10 20 40 60 80 100m
1:1000

VERT 0 1 2 4 6 8 10m
1:100

Surveyor: WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: SEWER LONGITUDINAL SECTION SHEET 2

ARCADIS
Arcadis Australia Pacific Pty Limited
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www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0582

Issue: C

Date Plotted: 13 Mar 2025 - 10:14AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0581-SewerLX.dwg

STRUC/ BEND/ END NAME	1/2				1/3				2/3	3/3	13/1	1/4	2/4	3/4	4/4	5/4	6/4	7/4	4/4	1/5
									-90°			-43°	-40°	-4°		-88°	-31°			
STRUCTURE TYPE	P2	PE LINED			P2	PE LINED			P2	PE LINED END	END	P2	PE LINED HTP	3.0m RADIUS	P2	PE LINED P2	PE LINED HTP	3.0m RADIUS HTP	P2	PE LINED P2	12000Ø PE LINED
STRUCTURE LID TYPE	D				D				D		D			D	D	D			D	D
STRUCTURE DROP TYPE		X			V				V			V		V	V	V			V	V
JUNCTION LINE		LINE 3									LINE 4				LINE 5	LINE HC14		LINE 100	LINE 5	LINE HC15
DEPTH TO HC																				
HC INVERT LEVEL																				
HC TYPE																				
HC LOT No																				
CH. FROM D/S STRUC/ BEND																				

ALL PRECAST MANHOLES TO HAVE CONVERSION SLAB COVERINGS. REFER MANHOLE TYPE P2 SEQ-SEW-1300-1 FOR FURTHER DETAILS. ALL TYPE P2 MANHOLES TO BE 1050Ø, UNLESS NOTED OTHERWISE.

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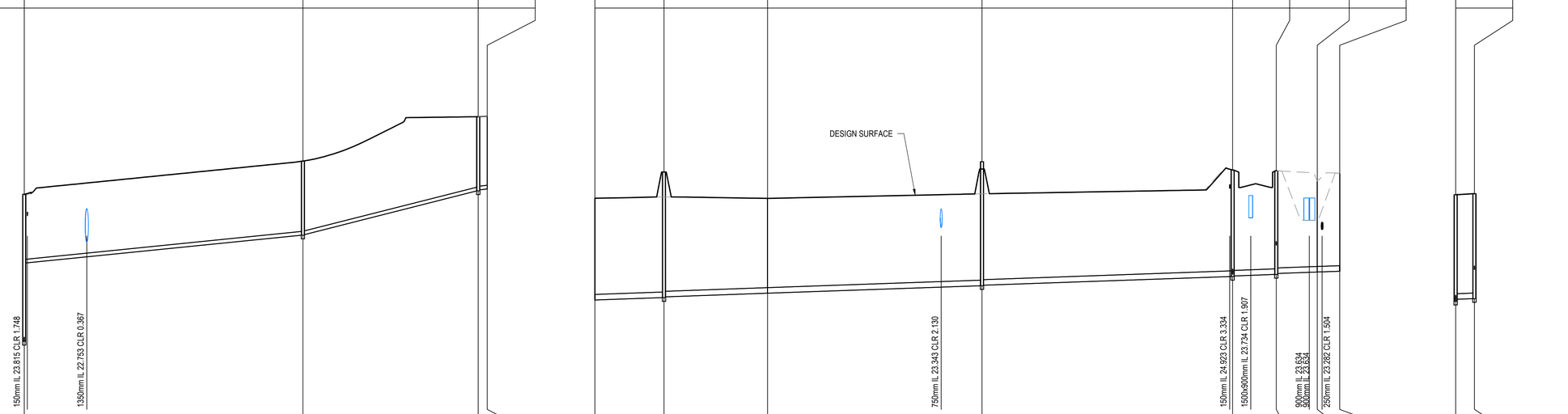
FOR CUSTOM (X TYPE) MANHOLE STRUCTURE >6.0m DEEP, REFER TO DRG 0585-0586 FOR RPEQ CERTIFIED TYPICAL STRUCTURAL DETAILS.

FOR SEWER EMBEDMENT SUPPORT TYPE 3 DETAILS REFER SEQ WATER DWG SEQ-SEW-1201-1. WHERE GROUND WATER IS DISCOVERED DURING EXCAVATIONS THE CONTRACTOR IS TO IMMEDIATELY CEASE ASSOCIATED WORKS AND NOTIFY SUPERINTENDENT WHO IS TO PROVIDE FURTHER ASSESSMENT AND INSTRUCTION ON THE EMBEDMENT SUPPORT TYPE TO BE CONSTRUCTED WITHIN THESE AREAS. UNLESS OTHERWISE DIRECTED ON SITE.



LEGEND:

OP - OPEN SPACE
FP - FOOTPATH/VERGE
PP - PRIVATE PROPERTY
RD - ROAD

DATUM R.L.	13.0										13.0								14.0	
LAND USE	FP										PP				FP				FP	
DIAMETER	150Ø PVC-U SN8										225Ø PVC-U SN8								225Ø PVC-U SN8	
GRADE	1 in 100				1 in 40.00				1 in 100.00		1 in 286	1 in 286	1 in 286	1 in 286	1 in 286	1 in 286	1 in 286		1 in 286	
EMBEDMENT TYPE	TYPE 3 *										TYPE 3 *								TYPE 3 *	
DEPTH TO INVERT	5.936	2.774		2.989	2.969		2.993	2.953	2.935		4.107	4.107	5.086	5.056	3.828	3.828	5.007	4.987	4.299	4.279	4.188	4.148	3.668	3.668	3.953	4.299	4.219	4.238	4.163
JUNCTION INVERT LEVEL		21.910										20.416								21.447		22.628					21.447		22.644	21.578
SEWER INVERT LEVEL	18.747	21.910		23.034	23.054		24.823	24.863	24.899		20.416	20.416	20.514	20.544	20.690	20.690	20.993	21.013	21.367	21.387	21.448	21.488	21.546	21.546	21.578	21.367	21.447	21.473	21.548	21.531
DESIGN SURFACE LEVEL		24.684			26.024			27.816		27.834		24.524		25.600		24.518		26.000		25.666		25.637		25.215			25.666		25.711	25.531
SETOUT	E501843.299	N6929388.353		E501899.621	N6929485.694		E501935.072	N6929546.905	E501931.935	N6929548.720	E501715.883	N6929012.697	E501704.449	N6928987.276	E501718.001	N6928947.744	E501686.208	N6928867.253	E501655.708	N6928770.829	E501650.400	N6928754.047	E501666.140	N6928748.878	E501671.989	N6928742.009	E501655.708	N6928770.829	E501648.539	N6928773.183	
RUNNING CHAINAGE	0.000		112.462		112.462	70.735		183.196	3.624	186.821	0.000	27.874		27.874	41.790	69.665	86.542	156.207	101.133	257.340	17.601	274.941	16.567	291.508	9.022	300.530	0.000	7.546		7.546	

3 4 5

Issue	Description	DR	CH	VE	Date
E	SEWER STRUCTURES REVISED	A.O.	S.S.	B.K.	05.09.24
D	SEWER LINE 3, 4, 5 ADDED	A.O.	S.S.	B.K.	03.09.24
C	SEWER LINE 9 AND 10 ADDED	A.O.	S.S.	B.K.	01.08.24
B	SEWER LINE 3 REMOVED	J.B.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales
HORZ 0 10 20 40 60 80 100m
1:1000
VERT 0 1 2 4 6 8 10m
1:100

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: SEWER LONGITUDINAL SECTION SHEET 3

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
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ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0583

Issue: E

Date Plotted: 13 Mar 2025 - 10:14AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0581-SewerLX.dwg

STRUC/ BEND/ END NAME	14/2		1/9		2/9		3/9	14/2		1/10		2/10		3/10	4/10	3/1	1/HC01	2/2	1/HC02	3/2	1/HC03	2/HC03	4/2	1/HC04	5/2	1/HC05	6/2	1/HC06	7/2	1/HC07	7/2	1/HC08	2/HC08
			45°		90°					45°		7°		90°																		
STRUCTURE TYPE	P2	PE LINED	HTP	3.0m RADIUS	P2	PE LINED	END	P2	PE LINED	HTP	3.0m RADIUS	P2	PE LINED	P2	PE LINED	END	P2	PE LINED	END	P2	PE LINED	P2	PE LINED	END	P2	PE LINED	END	P2	PE LINED	END	P2	PE LINED	END	P2	PE LINED	END
STRUCTURE LID TYPE	B				B			B				B		B			B			B	D									B	D		
STRUCTURE DROP TYPE		V				V			V				V		V			X		X	V	D	X		X		X		X		V	D	W
JUNCTION LINE		LINE 9							LINE 9									LINE HC01		LINE HC02		LINE HC03			LINE HC04		LINE HC05		LINE HC06		LINE HC07			
DEPTH TO HC																																		
HC INVERT LEVEL																																		
HC TYPE																																		
HC LOT No																																		
CH. FROM D/S STRUC/ BEND																																		

ALL PRECAST MANHOLES TO HAVE CONVERSION SLAB COVERINGS. REFER MANHOLE TYPE P2 SEQ-SEW-1300-1 FOR FURTHER DETAILS. ALL TYPE P2 MANHOLES TO BE 1050Ø, UNLESS NOTED OTHERWISE.

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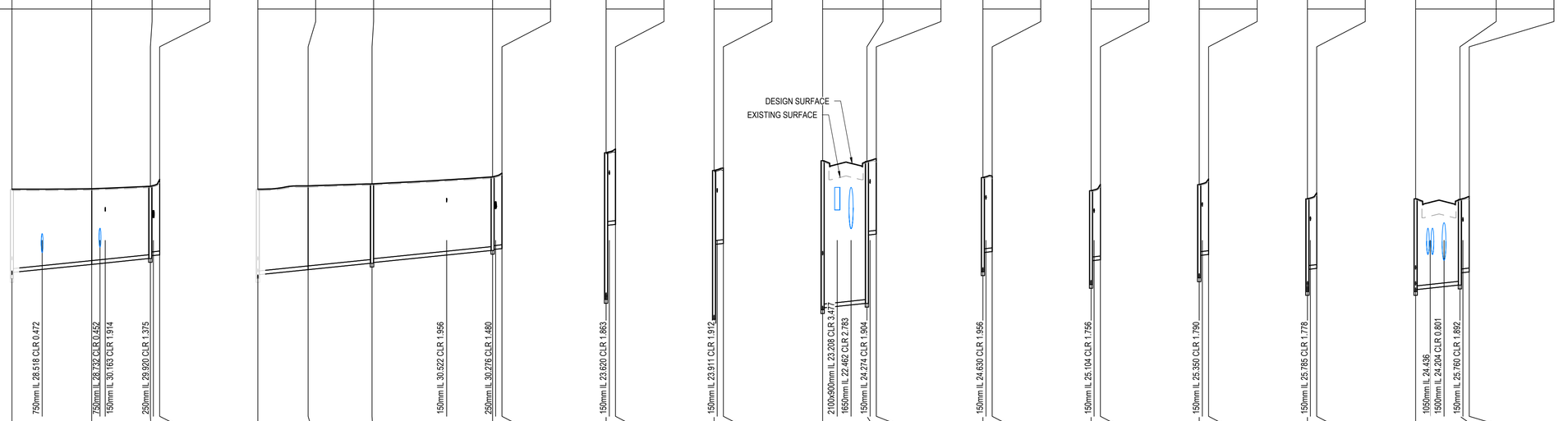
FOR SEWER EMBEDMENT SUPPORT TYPE 3 DETAILS REFER SEQ WATER DWG SEQ-SEW-1201-1. WHERE GROUND WATER IS DISCOVERED DURING EXCAVATIONS THE CONTRACTOR IS TO IMMEDIATELY CEASE ASSOCIATED WORKS AND NOTIFY SUPERINTENDENT WHO IS TO PROVIDE FURTHER ASSESSMENT AND INSTRUCTION ON THE EMBEDMENT SUPPORT TYPE TO BE CONSTRUCTED WITHIN THESE AREAS. UNLESS OTHERWISE DIRECTED ON SITE.



LEGEND:

OP - OPEN SPACE
FP - FOOTPATH/VERGE
PP - PRIVATE PROPERTY
RD - ROAD

DATUM R.L.	19.0							19.0								11.0		12.0		12.0			13.0		14.0		14.0		15.0		15.0		
LAND USE			RD/FP							RD/FP						FP		FP		RD			FP		FP		FP		FP		RD		
DIAMETER			150Ø PVC-U SN8							150Ø PVC-U SN8						150Ø PVC-U SN8		150Ø PVC-U SN8		150Ø PVC-U SN8			150Ø PVC-U SN8		150Ø PVC-U SN8		150Ø PVC-U SN8		150Ø PVC-U SN8		150Ø PVC-U SN8		
GRADE			1 in 100.00		1 in 100.00		1 in 100.00			1 in 100.00	1 in 100.00		1 in 100.00		1 in 100.00	1 in 100		1 in 100.00		1 in 100.00	1 in 100.00		1 in 100		1 in 100		1 in 100.00		1 in 100.00		1 in 100.00	1 in 100	
EMBEDMENT TYPE			TYPE 3 *							TYPE 3 *						TYPE 3 *		TYPE 3 *		TYPE 3 *			TYPE 3 *		TYPE 3 *		TYPE 3 *		TYPE 3 *		TYPE 3 *		
DEPTH TO INVERT	3.557	3.307		3.007		2.873	2.763	3.557	3.399	3.333	3.333	3.156	3.126		2.926	2.886	3.000	5.836	2.887	3.000	5.923	2.939	3.000	5.929	5.849	5.645	2.928	3.000	3.751	2.984	3.000	3.731	2.784	3.000
JUNCTION INVERT LEVEL		27.727							27.727										21.599		21.841				19.319				22.516			23.190	
SEWER INVERT LEVEL	27.477	27.727		28.044		28.277	28.424	27.477	27.635	27.835	27.835	28.089	28.119		28.598	28.638	28.675	18.649	21.599	21.636	18.857	21.841	21.878	19.239	19.319	19.495	22.212	22.249	21.749	22.516	22.553	22.243	23.190	23.227
DESIGN SURFACE LEVEL		31.034		31.051		31.150	31.424		31.034		31.168		31.245		31.524		31.675		24.465	24.636		24.780	24.878		25.168		25.140	25.249		25.500	25.553		25.974	26.227
SETOUT	E501250.399	N6929638.648	E501236.991	N6929609.933	E501225.827	N6929589.454	E501222.573	N6929591.215	E501250.399	N6929638.648	E501258.205	N6929657.061	E501265.961	N6929681.233	E501275.067	N6929728.295	E501271.435	N6929728.998	E501859.085	N6929358.885	E501857.232	N6929355.682	E501829.444	N6929396.370	E501831.298	N6929399.572	E501773.461	N6929428.764	E501764.647	N6929413.530	E501762.794	N6929410.327	E501725.579	N6929456.470	E501727.433	N6929459.672	E501657.135	N6929496.074	E501658.989	N6929499.276
RUNNING CHAINAGE	0.000	31.691		31.691	23.324	55.016	3.700	58.716	0.000	19.999		19.999	25.386	45.385	47.935	93.320	3.700	97.020	0.000	3.700	3.700	0.000	3.700	3.700	0.000	17.600		17.600	3.700	21.301	0.000	3.700	3.700	0.000	3.700	3.700	0.000	3.700	3.700	0.000

	9	10	HC01	HC02	HC03	HC04	HC05	HC06	HC07	HC08
14/2										
1/9										
2/9										
3/9										
14/2										
1/10										
2/10										
3/10										
4/10										
3/1										
1/HC01										
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1/HC03										
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4/2										
1/HC04										
5/2										
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6/2										
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1/HC07										
7/2										
1/HC08										
2/HC08										

Issue	Description	DR	CH	VE	Date
D	UPDATED SEWER LID TYPE	A.O.	S.S.	B.K.	18.10.24
C	SEWER STRUCTURES REVISED	A.O.	S.S.	B.K.	05.09.24
B	SEWER LINE 9 AND 10 REVISED	A.O.	S.S.	B.K.	03.09.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

HORZ 0 10 20 40 60 80 100m
1:1000

VERT 0 1 2 4 6 8 10m
1:100

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: SEWER LONGITUDINAL SECTION SHEET 4

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 35, 111 Eagle Street
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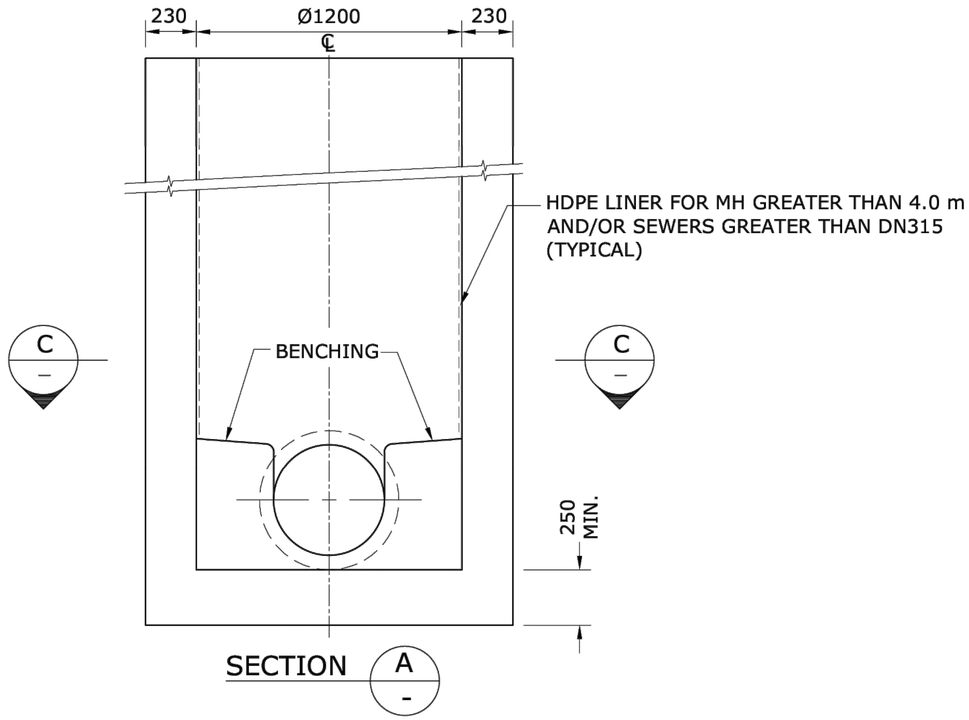
ABN 76 104 485 289
Tel No: +61 7 3337 0000
www.arcadis.com/au

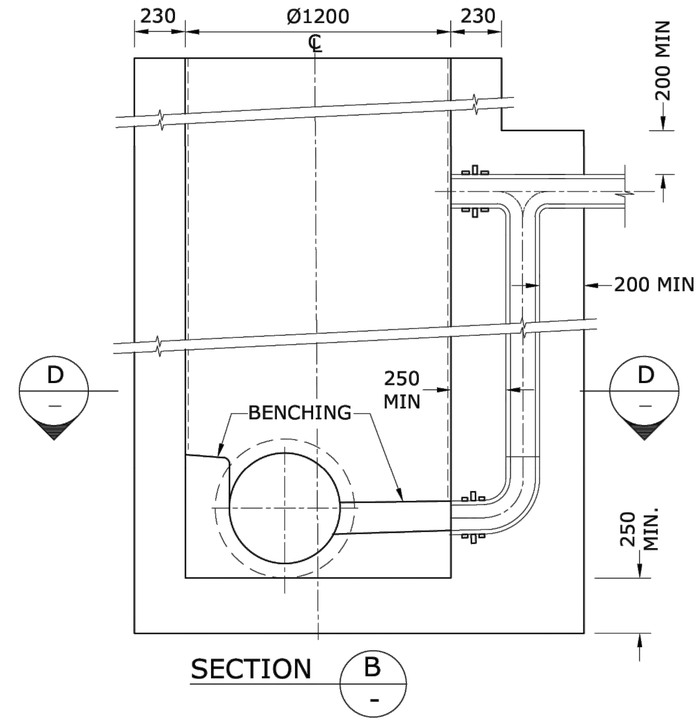
Project Number: 30109334

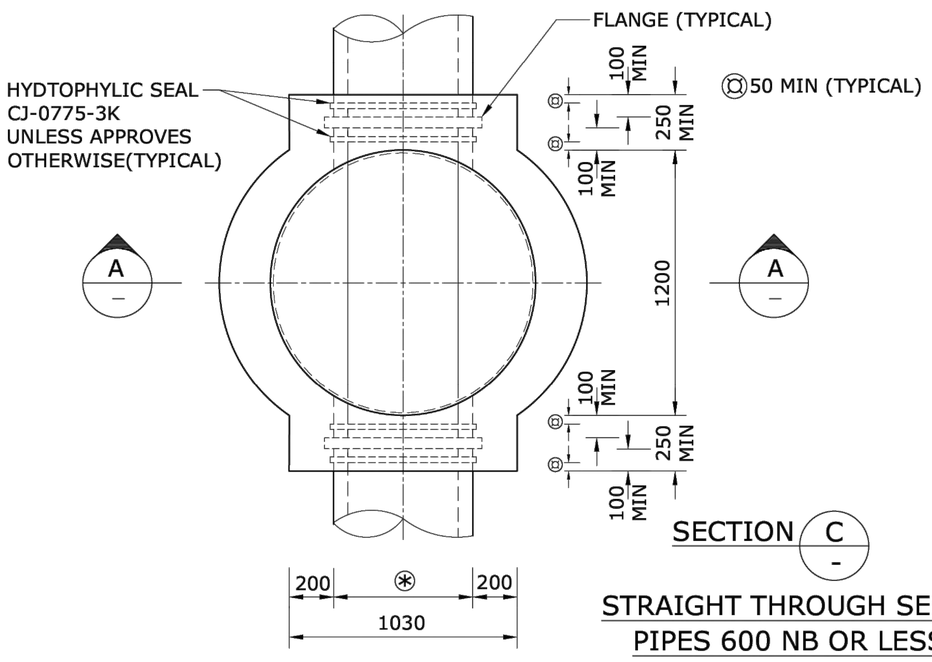
Drawing No.: 30109334-AAP-P301OP-CV-DRG-0584

Issue: D

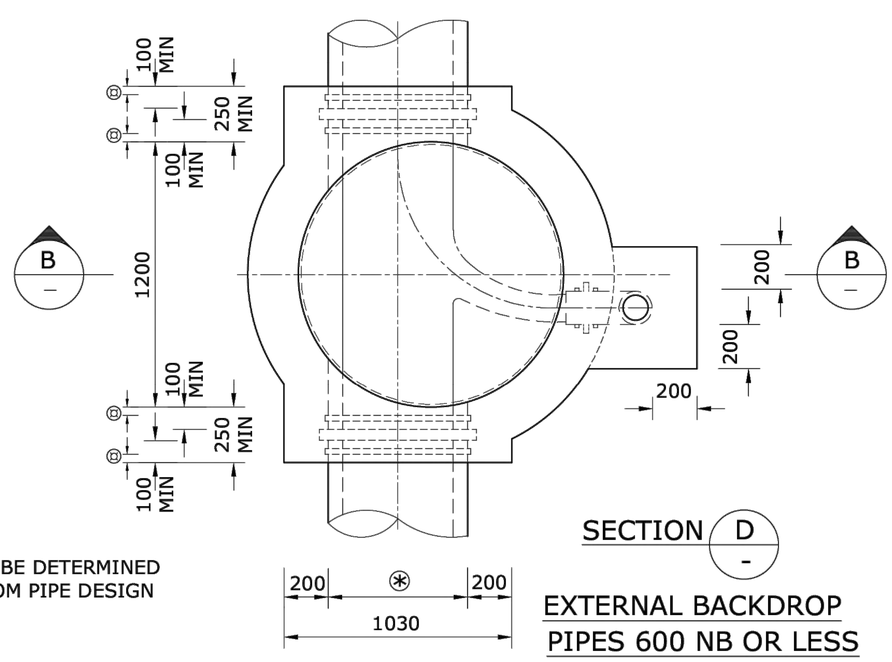
Date Plotted: 13 Mar 2025 - 10:14AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0581-SewerLX.dwg







STRAIGHT THROUGH SEWER
PIPES 600 NB OR LESS



EXTERNAL BACKDROP
PIPES 600 NB OR LESS

Issue	Description	DR	CH	VE	Date
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales: NOT TO SCALE

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: CUSTOM X TYPE MANHOLE STRUCTURE DETAILS SHEET 1

ARCADIS
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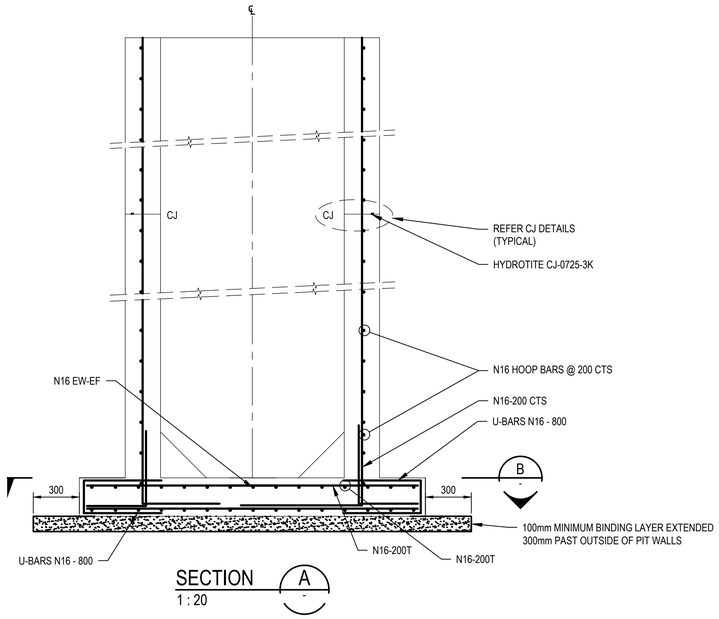
Tel No: +61 7 3337 0000
www.arcadis.com/au

Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0585

Issue: A

Date Plotted: 13 Mar 2025 - 10:14AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0581-SewerLX.dwg



SECTION A
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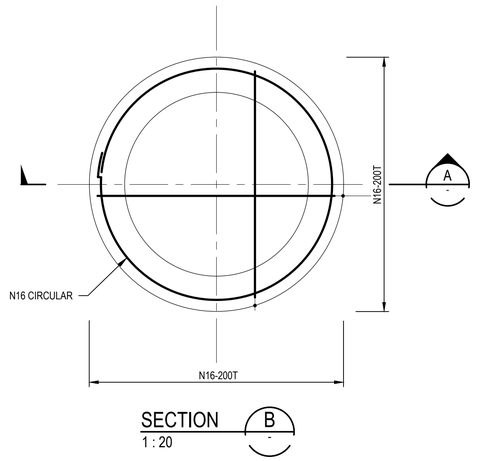
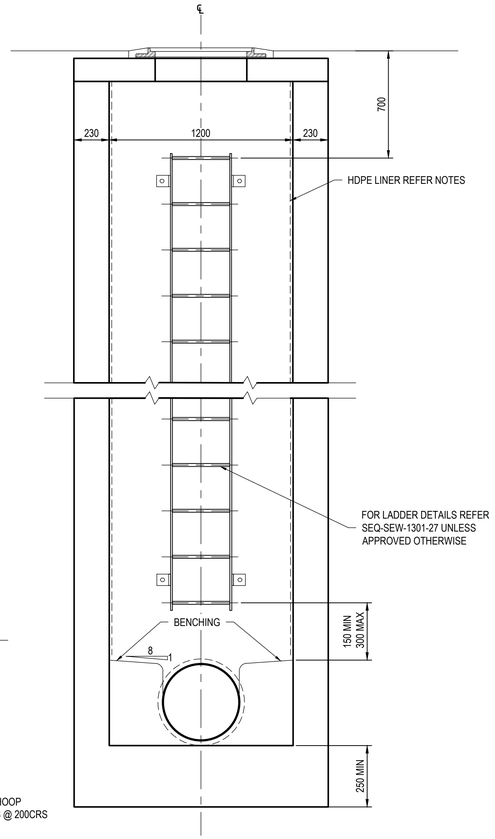
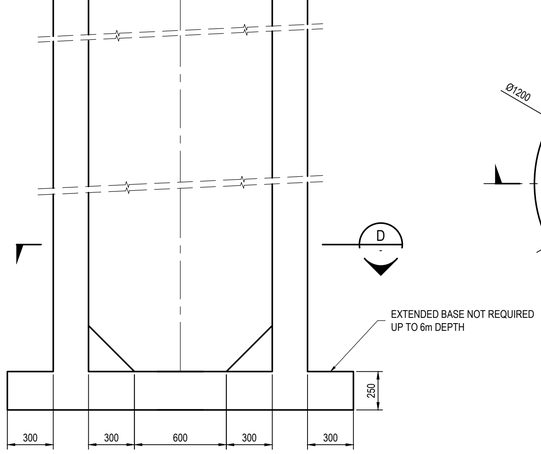


SECTION B
1 : 20

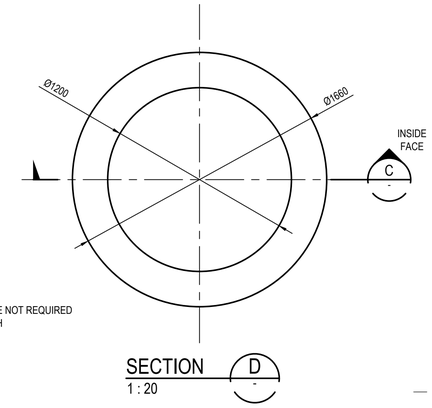


SECTIONAL ELEVATION
SEWERS 600NB OR LESS

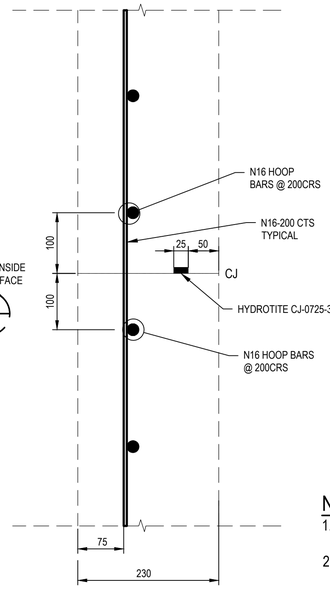
TYPICAL SECTION X-TYPE MAINTENANCE HOLE



SECTION C
1 : 20



SECTION D
1 : 20



TYPICAL CJ DETAIL
1 : 5

X-TYPE
MAINTENANCE HOLE

NOTES:

1. REFER SEQ-SEW-1101-4, SEQ-SEW-1101-5 AND SEQ-SEW-1101-6 FOR NOTES.
2. REFER SEQ-SEW-1301-26 FOR TOP SLAB REINFORCEMENT DETAILS.
3. HDPE INTERNAL LINER REQUIRED.
4. LADDERS TO STANDARD DRAWING SEQ-SEW-1301-27 SHALL BE PLACED OVER THE DOWNSTREAM OUTLET.

CONCRETE NOTES

1. ALL MATERIALS AND WORKMANSHIP MUST BE IN ACCORDANCE WITH AS 3600.
2. CONCRETE QUALITY:
   ADMIXTURES MUST NOT BE USED WITHOUT THE WRITTEN APPROVAL OF THE DESIGN ENGINEER.
   MAXIMUM SIZE OF COARSE AGGREGATE MUST BE 20 mm.

ELEMENT	CHARACTERISTIC CONCRETE STRENGTH (f'c)AT 28 DAYS	SPECIAL REQUIREMENTS
VARIOUS MH's	32	CALCAREOUS_AGGREGATE
BLINDING CONCRETE	N20	NIL

   ELEMENT CHARACTERISTIC CONCRETE STRENGTH (f'c) AT 28 DAYS MUST BE VERIFIED BY PROJECT ASSESSMENT TESTING, WITH SITE CURED SAMPLES TAKEN TO VERIFY STRENGTH AT EARLY LOADING IF REQUIRED PRIOR TO 28 DAYS.
3. COMPACTION OF CONCRETE MUST BE BY MEANS OF HIGH FREQUENCY VIBRATORS.
4. CONCRETE SIZES SHOWN ARE MINIMUM AND NO REDUCTIONS BY DUCTS, PIPES, ETC. MUST BE MADE WITHOUT THE APPROVAL OF THE DESIGN ENGINEER. SIZES DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
5. PIPES OR CONDUITS MUST NOT BE PLACED WITHIN THE CONCRETE COVER TO REINFORCEMENT WITHOUT THE APPROVAL OF THE DESIGN ENGINEER.
6. NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS MUST BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR APPROVAL OF THE DESIGN ENGINEER.
7. CONSTRUCTION JOINTS, WHERE NOT SHOWN, MUST BE LOCATED TO THE APPROVAL OF THE DESIGN ENGINEER.
8 CURING OF ALL CONCRETE SURFACES MUST COMMENCE IMMEDIATELY AFTER SURFACES ARE FINISHED AS SPECIFIED AND MUST CONTINUE FOR A MINIMUM OF 7 DAYS. CLEAN FULLY WRAPPING ON PLASTIC SHEETING IS PREFERRED AND RECOMMENDED.

REINFORCEMENT NOTES

1. REINFORCEMENT SYMBOLS:
   "N" DENOTES GRADE 500N HOT ROLLED DEFORMED BAR T0 AS/NZS 4671.
   "RL" DENOTES GRADE 500L RECTANGULAR MESH T0 AS/NZS 4671.
   "SL" DENOTES GRADE 500L SQUARE MESH T0 AS/NZS 4671.
   BAR NOTATION
   THE NUMBER PRECEDING A BAR SYMBOL DENOTES THE NUMBER OF BARS IN THE GROUP AND THE NUMBER FOLLOWING THE BAR SYMBOL DENOTES THE BAR DIAMETER i.e. 4-N16. ALTERNATIVELY, THE NUMBER FOLLOWING THE BAR DIAMETER DENOTES THE MAXIMUM CENTRE TO CENTRE SPACING i.e. N16-200.
2. SPLICES IN REINFORCEMENT MUST BE MADE ONLY IN THE POSITIONS SHOWN. THE WRITTEN APPROVAL OF THE DESIGN ENGINEER MUST BE OBTAINED FOR ANY OTHER SPLICES. WHERE THE LAP LENGTH IS NOT SHOWN, IT WILL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT TO AS3600 REQUIREMENTS OR IN ACCORDANCE WITH THE FOLLOWING LAP SCHEDULE :

BAR SIZE	LAP LENGTH
N16	800

3. WELDING OF REINFORCEMENT WILL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.
5. CLEAR CONCRETE COVER TO REINFORCEMENT INCLUDING TIES MUST BE TO AS 3600 REQUIREMENTS OR AS STATED BELOW OR OTHERWISE NOTED ON STRUCTURAL DRAWINGS. COVER TO REINFORCEMENT MUST BE OBTAINED BY THE USE OF APPROVED METAL, CONCRETE OR PLASTIC BAR CHAIRS FOR REINFORCEMENT. CHAIRS TO BE SPACED AT 1500 MAXIMUM CENTRES FOR BARS, 1000 MAXIMUM CENTRES FOR FABRIC.

ELEMENT	COVER TO REINFORCEMENT (mm)	
	INSIDE FACE	OUTSIDE FACE
INSITU BASE	70	75
INSITU WALLS	70	75

6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
7. INSTALL CIRCULAR TRIMMER BAR AND HORIZONTAL AND VERTICAL MAKE-UP EQUIVALENT STEEL ALL PIPE PENETRATIONS AS PER TYPICAL PIPE PENETRATION TRIMMER BAR REINFORCEMENT DETAIL.
8. EXTRA DIAGONAL TRIMMER BARS TO BE INSTALLED TO EACH SIDE FACE OF PIPE OPENING. BAR EXTENSION TO BE MIN. 300 PAST PIPE IN EACH DIRECTION

GENERAL NOTES

1. APPLY HEAVY GREASE TO FRAME SEAT PRIOR TO INSTALLING COVER.
2. DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED.
3. SEWER MANHOLE TO BE CAST IN-SITU
4. MANHOLE TO BE PE LINED WITH COMPOSITE LID AS PER SEQ CODE REQUIREMENTS.

STRUCTURAL DESIGN CERTIFICATE

WE HEREBY CERTIFY THAT ARCADIS PTY LTD IS RESPONSIBLE FOR THE STRUCTURAL DESIGN AND THAT THE DESIGN HAS BEEN CARRIED OUT IN ACCORDANCE WITH ALL RELEVANT PROVISIONS OF THE AUSTRALIAN STANDARDS. WHEN ERECTED IN ACCORDANCE WITH THIS DESIGN, THE STRUCTURE WILL BE ADEQUATE TO SUSTAIN THE WORST COMBINATION OF LOADS TO WHICH IT WILL BE SUBJECTED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS. THE BASIC DESIGN CODE USED IN THIS DESIGN WAS AS1170 FOR LOADS AND GENERALLY ACCEPTED ENGINEERING PRINCIPLES.

NAME: RICHARD MULLIGAN RPEQ: 7850

SIGNATURE: ..... DATE: 16.07.24

SEWER MAINTENANCE HOLE STRUCTURE AND REINFORCEMENT DETAIL FOR DN150, DN225 AND DN300 SEWER LINE

B

Issue	Description	DR	CH	VE	Date
B	DETAILS UPDATED	A.O.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 50 100 200 300 400 500mm
1 : 5

0 0.5 1 1.5 2m
1 : 20

100mm on Original

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: CUSTOM X TYPE MANHOLE STRUCTURE DETAILS SHEET 2

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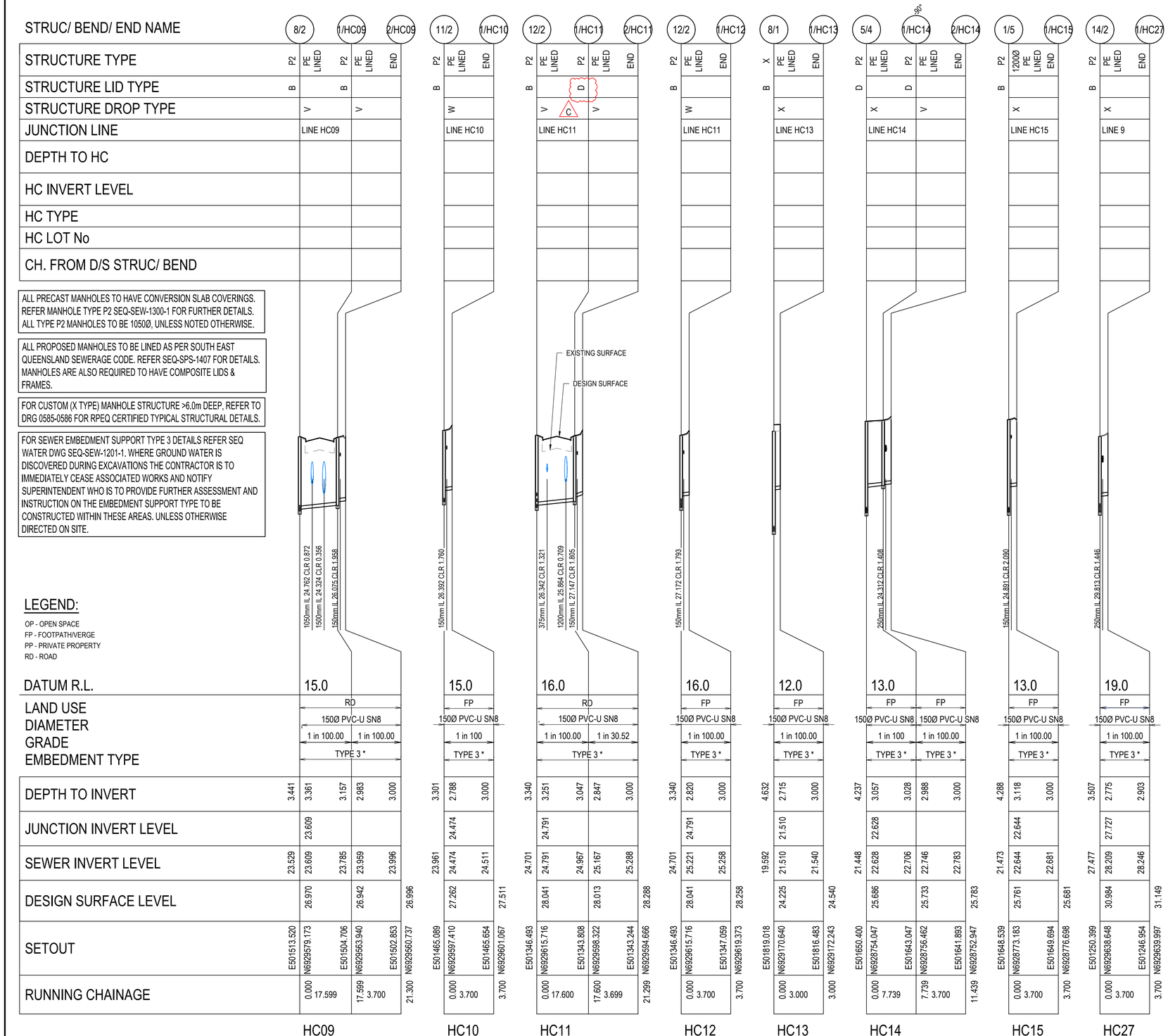
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0586 Issue: B

Date Plotted: 13 Mar 2025 - 10:14AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0581-SewerLX.dwg



Issue	Description	DR	CH	VE	Date
C	UPDATED SEWER LID TYPE	A.O.	S.S.	B.K.	18.10.24
B	SEWER STRUCTURES REVISED	A.O.	S.S.	B.K.	05.09.24
A	ISSUED FOR CONSTRUCTION - SEWER HC 14 AND 15 ADDED	A.O.	S.S	B.K	03.09.24

100mm on Original

Scales
HORZ 0 10 20 40 60 80 100m
1:1000
VERT 0 1 2 4 6 8 10m
1:100

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: SEWER LONGITUDINAL SECTION SHEET 5

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Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0587

Issue: C

Date Plotted: 13 Mar 2025 - 10:14AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0581-SewerLX.dwg

SEQ CODE WATER NOTES

GENERAL NOTES

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND WATER SUPPLY CODE SPECIFICATIONS AND STANDARDS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. ADOPT LIP OF KERB OR SHOULDER OF ROAD AS PERMANENT LEVEL.
4. COVER ON MAINS FROM PERMANENT LEVEL TO BE AS SHOWN IN SEQ-WAT-1200-2.
5. CONDUITS TO BE INSTALLED IN ACCORDANCE WITH THE STANDARD DRAWINGS.
6. ALL MATERIALS USED IN THE WORKS SHALL COMPLY WITH THE QUU's ACCEPTED PRODUCTS AND MATERIALS LIST OR BE APPROPRIATELY SHOWN, LISTED AND DEFINED IN THE ENGINEERING SUBMISSION SO THAT THE ALTERNATIVE PRODUCT OR MATERIAL CAN BE ASSESSED AND IF APPROPRIATE, APPROVED BY QUU.
7. TEST/CHLORINATION POINTS TO BE INSTALLED IN ACCORDANCE WITH STANDARD DRAWING NO.SEQ-WAT-1410-1.
8. THE CONSTRUCTION OF THE WATER RETICULATION WORK SHOWN ON THIS DRAWING MUST BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT TO THE RETICULATION SYSTEM.

ALL ENVIRONMENT PROTECTION MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING, COMMENCING.

VEGETATION PROTECTION

A. TREES LOCATED ALONG THE FOOTPATH SHALL BE, TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.
B. WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHALL BE CONSTRUCTED WITH 1.8m BATTENS CLOSELY SPACED AND ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES SHALL BE STRAPPED TO TREES PRIOR TO CONSTRUCTION AND REMAIN UNTIL COMPLETION.
C. TREE ROOTS SHALL BE TUNNELLED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHALL BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT RELEVANT COUNCIL ARBORIST FOR FURTHER ADVICE.
D. ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY AN APPROVED ARBORIST.

SOIL

A. TOPSOIL AND SUBSOIL SHALL BE STOCKPILED SEPARATELY.
B. CARE SHALL BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORMWATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.
C. ACID SULPHATE SOILS EXIST IN THE WORKS AREA. THE OUTPUTS FROM THE RISK ASSESSMENT BASED ON THE QUEENSLAND ACID SULPHATE SOIL TECHNICAL MANUAL REQUIRES THAT ACID SULPHATE SOILS BE MANAGED AS FOLLOWS: (DELETE IF NO ACID SULPHATE SOILS)

REHABILITATION

A. PREDISTURBANCE SOIL PROFILES AND COMPACTION LEVELS SHALL BE REINSTATED.
B. PREDISTURBANCE VEGETATION PATTERNS SHALL BE RESTORED.

SAFETY

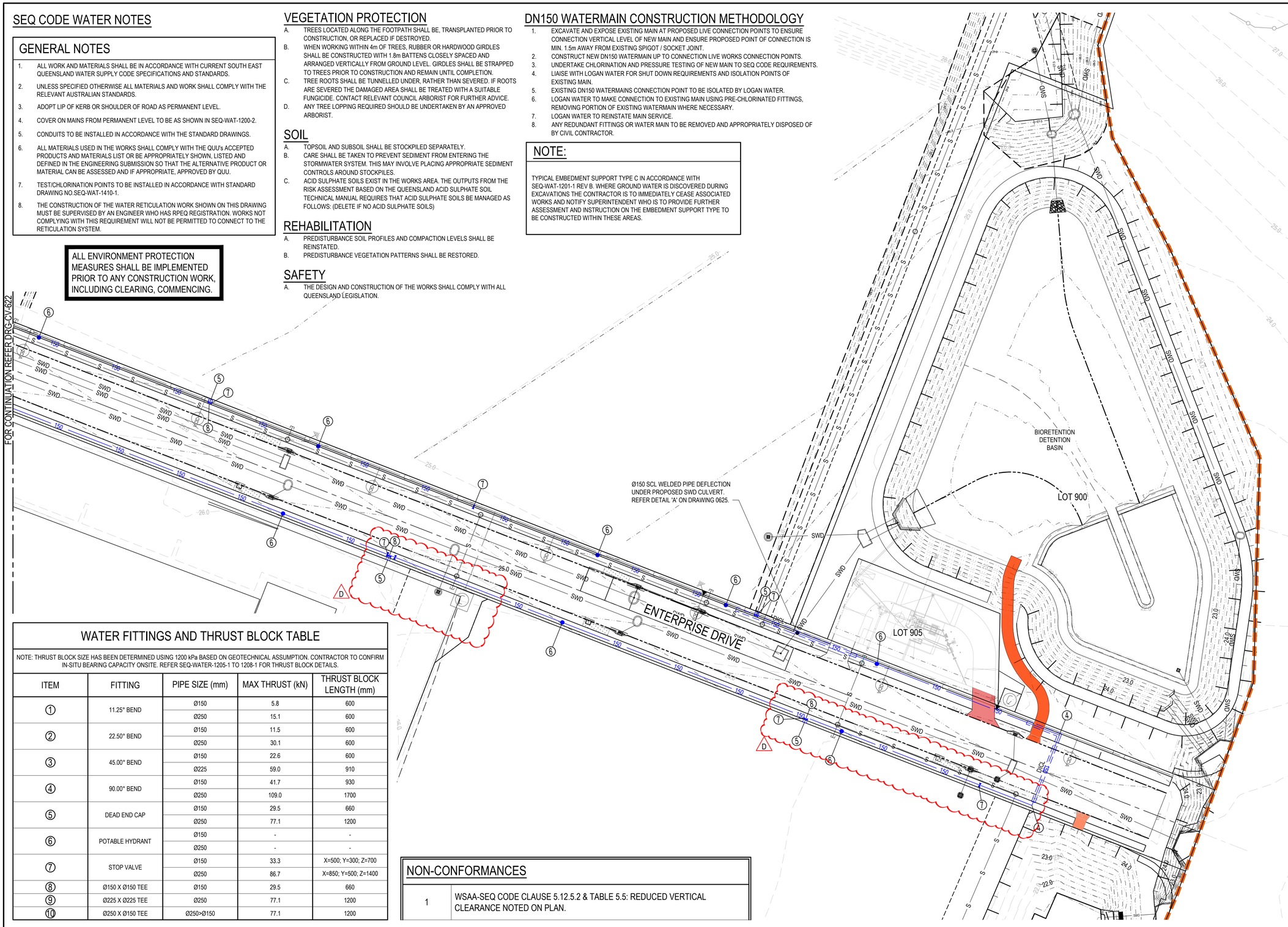
A. THE DESIGN AND CONSTRUCTION OF THE WORKS SHALL COMPLY WITH ALL QUEENSLAND LEGISLATION.

DN150 WATERMAIN CONSTRUCTION METHODOLOGY

1. EXCAVATE AND EXPOSE EXISTING MAIN AT PROPOSED LIVE CONNECTION POINTS TO ENSURE CONNECTION VERTICAL LEVEL OF NEW MAIN AND ENSURE PROPOSED POINT OF CONNECTION IS MIN. 1.5m AWAY FROM EXISTING SPIGOT / SOCKET JOINT.
2. CONSTRUCT NEW DN150 WATERMAIN UP TO CONNECTION LIVE WORKS CONNECTION POINTS.
3. UNDERTAKE CHLORINATION AND PRESSURE TESTING OF NEW MAIN TO SEQ CODE REQUIREMENTS.
4. LIAISE WITH LOGAN WATER FOR SHUT DOWN REQUIREMENTS AND ISOLATION POINTS OF EXISTING MAIN.
5. EXISTING DN150 WATERMAINS CONNECTION POINT TO BE ISOLATED BY LOGAN WATER.
6. LOGAN WATER TO MAKE CONNECTION TO EXISTING MAIN USING PRE-CHLORINATED FITTINGS, REMOVING PORTION OF EXISTING WATERMAIN WHERE NECESSARY.
7. LOGAN WATER TO REINSTATE MAIN SERVICE.
8. ANY REDUNDANT FITTINGS OR WATER MAIN TO BE REMOVED AND APPROPRIATELY DISPOSED OF BY CIVIL CONTRACTOR.

NOTE:

TYPICAL EMBEDMENT SUPPORT TYPE C IN ACCORDANCE WITH SEQ-WAT-1201-1 REV B. WHERE GROUND WATER IS DISCOVERED DURING EXCAVATIONS THE CONTRACTOR IS TO IMMEDIATELY CEASE ASSOCIATED WORKS AND NOTIFY SUPERINTENDENT WHO IS TO PROVIDE FURTHER ASSESSMENT AND INSTRUCTION ON THE EMBEDMENT SUPPORT TYPE TO BE CONSTRUCTED WITHIN THESE AREAS.



WATER FITTINGS AND THRUST BLOCK TABLE

NOTE: THRUST BLOCK SIZE HAS BEEN DETERMINED USING 1200 kPa BASED ON GEOTECHNICAL ASSUMPTION. CONTRACTOR TO CONFIRM IN-SITU BEARING CAPACITY ONSITE. REFER SEQ-WATER-1205-1 TO 1208-1 FOR THRUST BLOCK DETAILS.

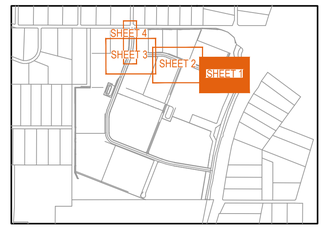
ITEM	FITTING	PIPE SIZE (mm)	MAX THRUST (kN)	THRUST BLOCK LENGTH (mm)
①	11.25° BEND	Ø150	5.8	600
		Ø250	15.1	600
②	22.50° BEND	Ø150	11.5	600
		Ø250	30.1	600
③	45.00° BEND	Ø150	22.6	600
		Ø225	59.0	910
④	90.00° BEND	Ø150	41.7	930
		Ø250	109.0	1700
⑤	DEAD END CAP	Ø150	29.5	660
		Ø250	77.1	1200
⑥	POTABLE HYDRANT	Ø150	-	-
		Ø250	-	-
⑦	STOP VALVE	Ø150	33.3	X=500; Y=300; Z=700
		Ø250	86.7	X=850; Y=500; Z=1400
⑧	Ø150 X Ø150 TEE	Ø150	29.5	660
⑨	Ø225 X Ø225 TEE	Ø250	77.1	1200
⑩	Ø250 X Ø150 TEE	Ø250>Ø150	77.1	1200

NON-CONFORMANCES

1	WSAA-SEQ CODE CLAUSE 5.12.5.2 & TABLE 5.5: REDUCED VERTICAL CLEARANCE NOTED ON PLAN.

LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- PROPOSED ROCK GABION RETAINING WALL
- NOMINAL KERB LINE
- PROPOSED EDGE OF BITUMEN
- DICL 150 — PROPSOED Ø150 DICL PN35 ROAD CROSSING WATER RETICULATION
- 150 — PROPOSED Ø150 PVC-M PN20 SERIES 2 WATER RETICULATION
- 250 — PROPOSED Ø250 PVC-M PN20 SERIES 2 TRUNK WATER MAIN
- DICL 250 — PROPOSED Ø250 DICL PN35 TRUNK WATER MAIN
- SWD — PROPOSED STORMWATER DRAINAGE RETICULATION
- S — PROPOSED SEWER RETICULATION
- s — EXISTING SEWER RETICULATION
- swd — EXISTING STORMWATER DRAINAGE RETICULATION
- w — EXISTING WATER RETICULATION
- e — EXISTING UNDERGROUND ELECTRICAL RETICULATION
- oh — EXISTING OVERHEAD ELECTRICAL RETICULATION
- FUTS — FUTURE SEWER RETICULATION
- FUTURE STORMWATER DRAINAGE



KEY PLAN

Issue	Description	DR	CH	VE	Date
E	UPDATED WATER CONNECTIONS, DRIVEWAYS	A.O.	S.S.	B.K.	10.03.25
D	UPDATED ISSUE	A.O.	S.S.	B.K.	18.10.24
C	UPDATED NOTE	A.O.	S.S.	B.K.	03.09.24
B	TEMPORARY ACCESS ROAD REMOVED	J.B.	S.S.	B.K.	15.07.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales: 0 5 10 20 30 40 50m — 1 : 500

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: WATER RETICULATION LAYOUT PLAN SHEET 1

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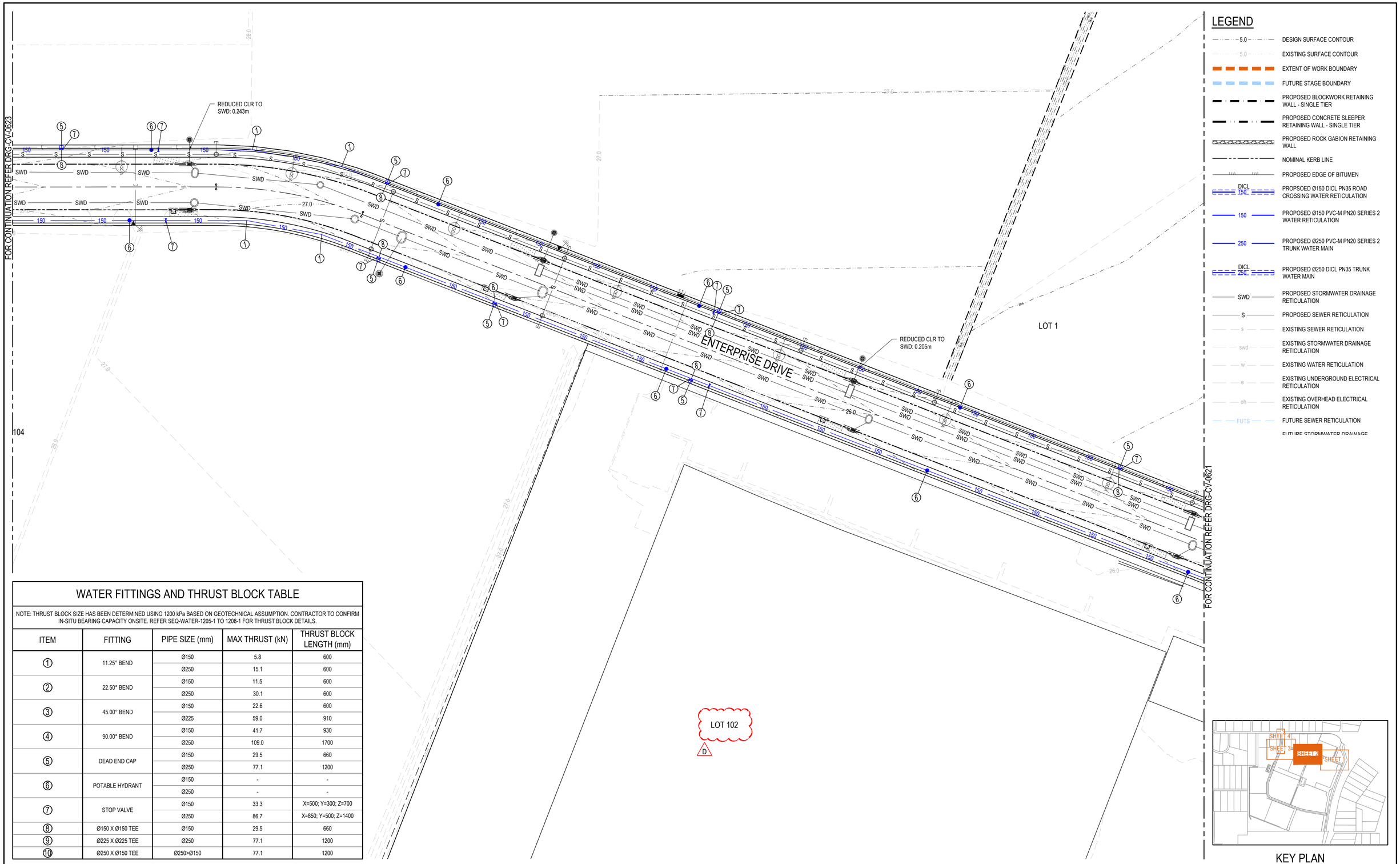
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0621

Issue: E

Date Plotted: 13 Mar 2025 - 10:18AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0621-Water.dwg



LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
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- PROPOSED ROCK GABION RETAINING WALL
- NOMINAL KERB LINE
- PROPOSED EDGE OF BITUMEN
- PROPSOED Ø150 DICL PN35 ROAD CROSSING WATER RETICULATION
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- PROPOSED Ø250 PVC-M PN20 SERIES 2 TRUNK WATER MAIN
- PROPOSED Ø250 DICL PN35 TRUNK WATER MAIN
- PROPOSED STORMWATER DRAINAGE RETICULATION
- PROPOSED SEWER RETICULATION
- EXISTING SEWER RETICULATION
- EXISTING STORMWATER DRAINAGE RETICULATION
- EXISTING WATER RETICULATION
- EXISTING UNDERGROUND ELECTRICAL RETICULATION
- EXISTING OVERHEAD ELECTRICAL RETICULATION
- FUTURE SEWER RETICULATION
- FUTURE STORMWATER DRAINAGE

WATER FITTINGS AND THRUST BLOCK TABLE

NOTE: THRUST BLOCK SIZE HAS BEEN DETERMINED USING 1200 kPa BASED ON GEOTECHNICAL ASSUMPTION. CONTRACTOR TO CONFIRM IN-SITU BEARING CAPACITY ONSITE. REFER SEQ-WATER-1205-1 TO 1208-1 FOR THRUST BLOCK DETAILS.

ITEM	FITTING	PIPE SIZE (mm)	MAX THRUST (kN)	THRUST BLOCK LENGTH (mm)
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		Ø250	15.1	600
②	22.50° BEND	Ø150	11.5	600
		Ø250	30.1	600
③	45.00° BEND	Ø150	22.6	600
		Ø225	59.0	910
④	90.00° BEND	Ø150	41.7	930
		Ø250	109.0	1700
⑤	DEAD END CAP	Ø150	29.5	660
		Ø250	77.1	1200
⑥	POTABLE HYDRANT	Ø150	-	-
		Ø250	-	-
⑦	STOP VALVE	Ø150	33.3	X=500; Y=300; Z=700
		Ø250	86.7	X=850; Y=500; Z=1400
⑧	Ø150 X Ø150 TEE	Ø150	29.5	660
⑨	Ø225 X Ø225 TEE	Ø250	77.1	1200
⑩	Ø250 X Ø150 TEE	Ø250>Ø150	77.1	1200

KEY PLAN

Issue	Description	DR	CH	VE	Date
D	UPDATED WATER CONNECTIONS AND LOT NUMBERS	A.O.	S.S.	B.K.	10.03.25
C	UPDATED ISSUE	A.O.	S.S.	B.K.	18.10.24
B	UPDATED ISSUE	A.O.	S.S.	B.K.	03.09.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 20 30 40 50m

1 : 500

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: WATER RETICULATION LAYOUT PLAN SHEET 2

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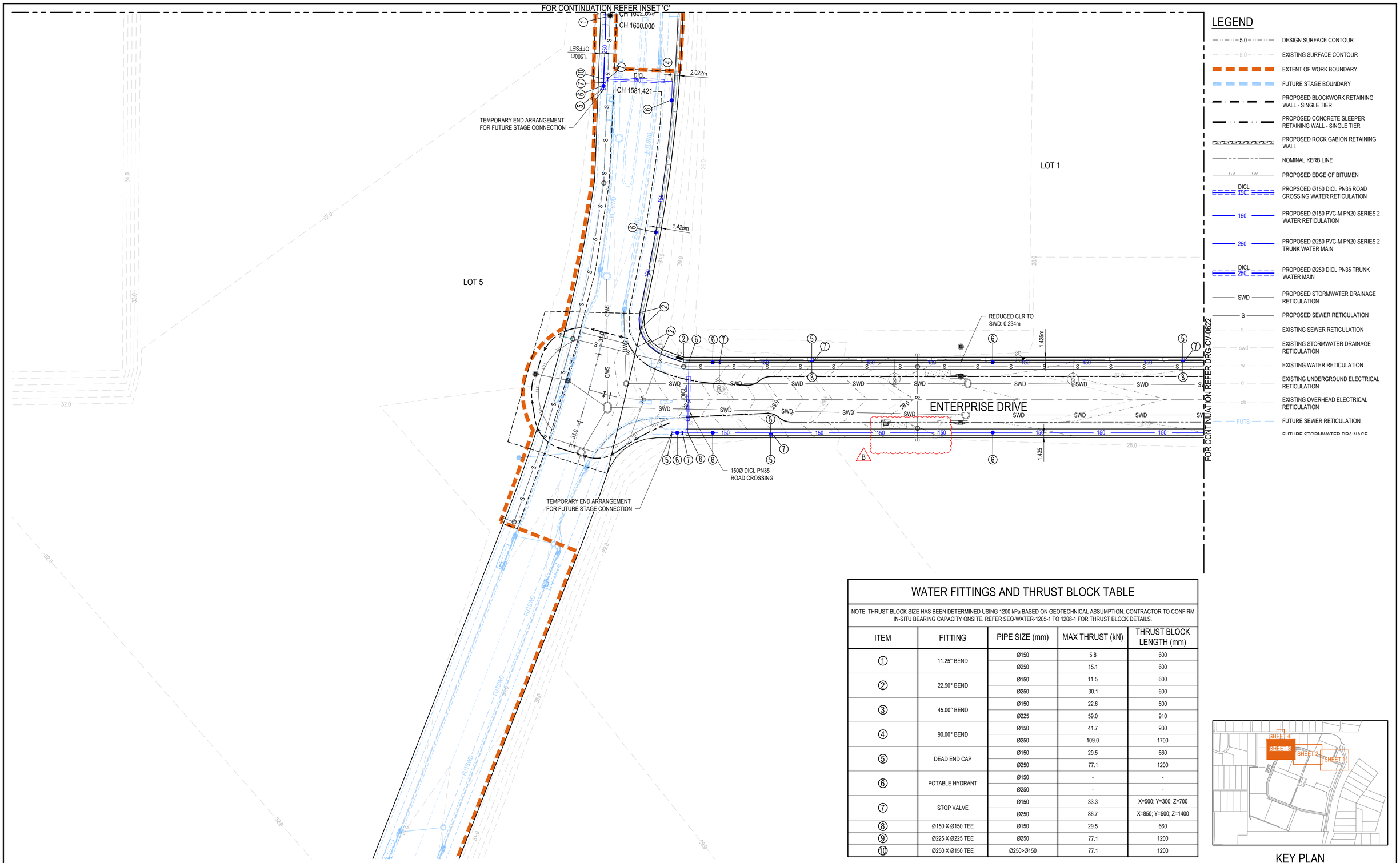
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0622

Issue: D

100mm on Original

Date Plotted: 13 Mar 2025 - 10:18AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0621-Water.dwg



WATER FITTINGS AND THRUST BLOCK TABLE

NOTE: THRUST BLOCK SIZE HAS BEEN DETERMINED USING 1200 kPa BASED ON GEOTECHNICAL ASSUMPTION. CONTRACTOR TO CONFIRM IN-SITU BEARING CAPACITY ONSITE. REFER SEQ-WATER-1205-1 TO 1208-1 FOR THRUST BLOCK DETAILS.

ITEM	FITTING	PIPE SIZE (mm)	MAX THRUST (kN)	THRUST BLOCK LENGTH (mm)
①	11.25° BEND	Ø150	5.8	600
		Ø250	15.1	600
②	22.50° BEND	Ø150	11.5	600
		Ø250	30.1	600
③	45.00° BEND	Ø150	22.6	600
		Ø225	59.0	910
④	90.00° BEND	Ø150	41.7	930
		Ø250	109.0	1700
⑤	DEAD END CAP	Ø150	29.5	660
		Ø250	77.1	1200
⑥	POTABLE HYDRANT	Ø150	-	-
		Ø250	-	-
⑦	STOP VALVE	Ø150	33.3	X=500; Y=300; Z=700
		Ø250	86.7	X=850; Y=500; Z=1400
⑧	Ø150 X Ø150 TEE	Ø150	29.5	660
⑨	Ø225 X Ø225 TEE	Ø250	77.1	1200
⑩	Ø250 X Ø150 TEE	Ø250>Ø150	77.1	1200

KEY PLAN

Issue	Description	DR	CH	VE	Date
B	UPDATED ISSUE	A.O.	S.S.	B.K.	18.10.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

Scales

0 5 10 20 30 40 50m

1 : 500

100mm on Original

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures			
Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: WATER RETICULATION LAYOUT PLAN SHEET 3

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BRISBANE QLD 4000
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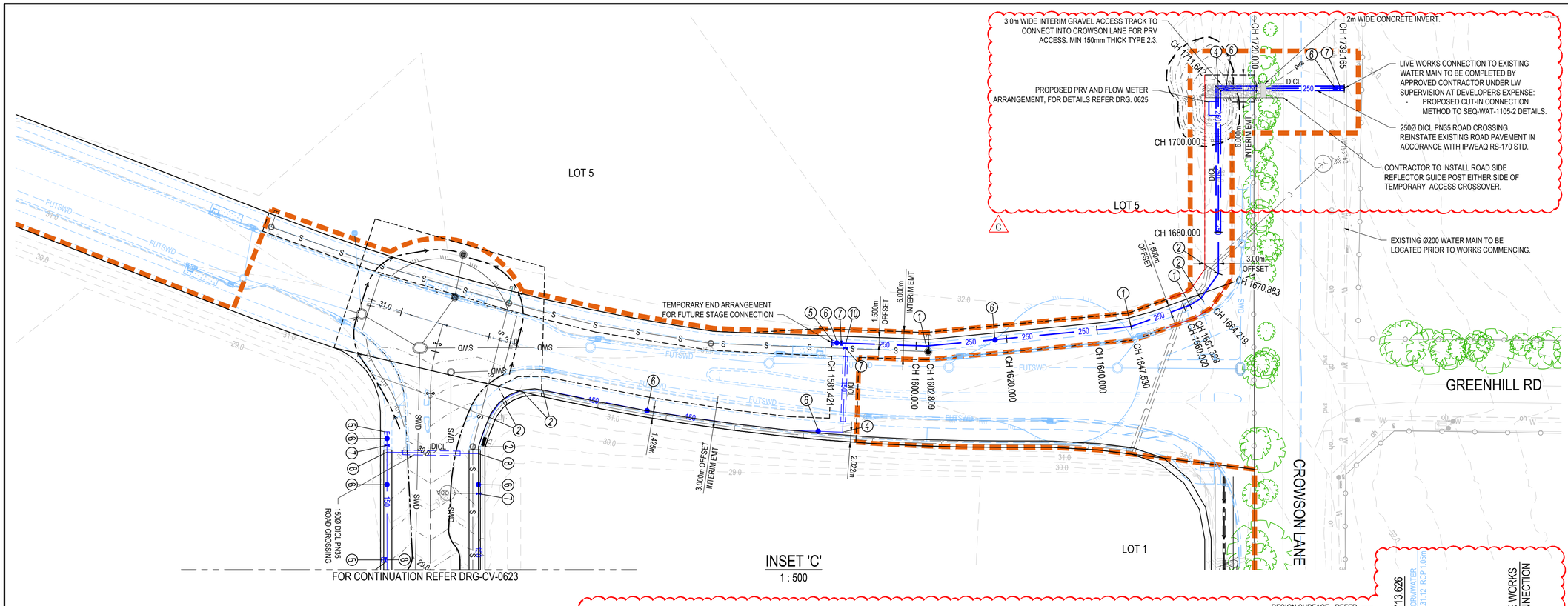
Tel No: +61 7 3337 0000
www.arcadis.com/au

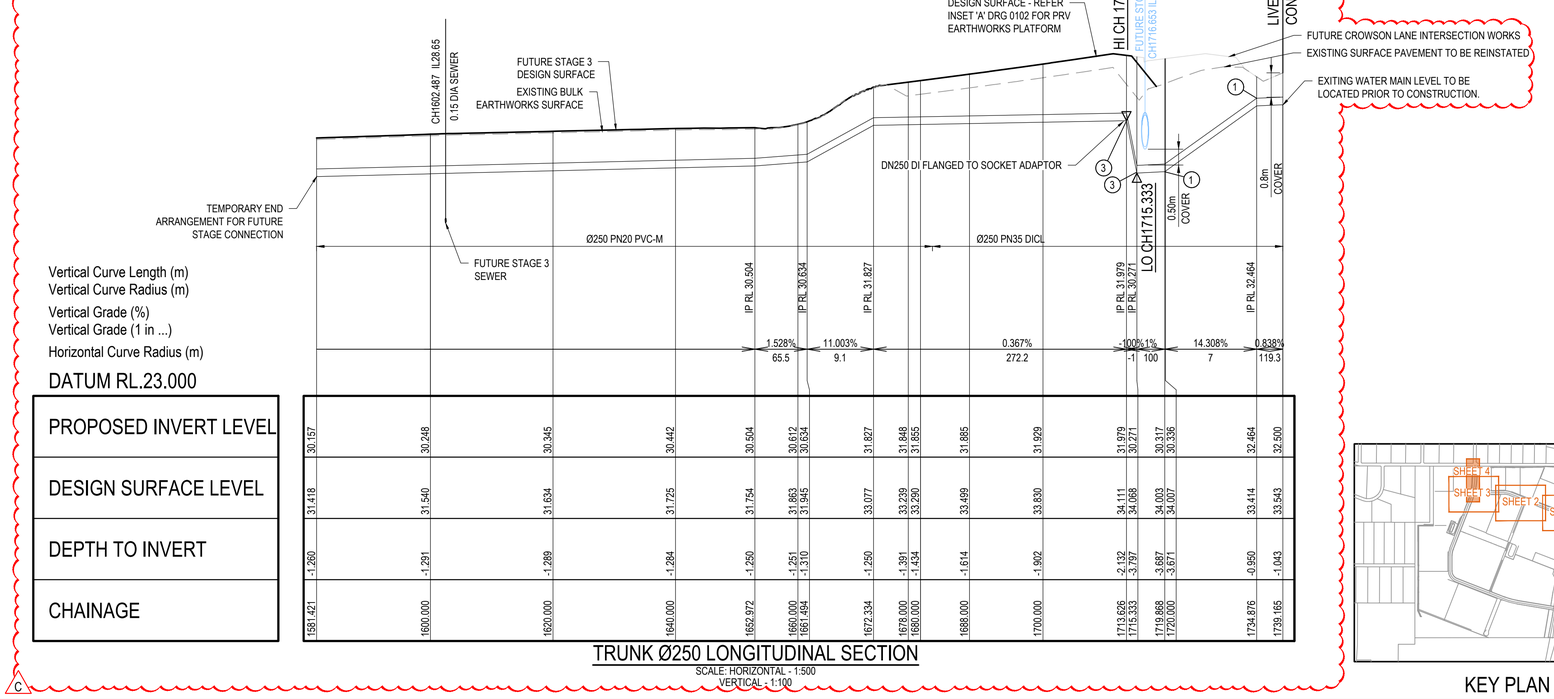
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0623

Issue: B

Date Plotted: 13 Mar 2025 - 10:18AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0621-Water.dwg





LEGEND

- DESIGN SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- EXTENT OF WORK BOUNDARY
- FUTURE STAGE BOUNDARY
- PROPOSED BLOCKWORK RETAINING WALL - SINGLE TIER
- PROPOSED CONCRETE SLEEPER RETAINING WALL - SINGLE TIER
- PROPOSED ROCK GABION RETAINING WALL
- NOMINAL KERB LINE
- PROPOSED EDGE OF BITUMEN
- DICL 150 — PROPSOED Ø150 DICL PN35 ROAD CROSSING WATER RETICULATION
- 150 — PROPOSED Ø150 PVC-M PN20 SERIES 2 WATER RETICULATION
- 250 — PROPOSED Ø250 PVC-M PN20 SERIES 2 TRUNK WATER MAIN
- DICL 250 — PROPOSED Ø250 DICL PN35 TRUNK WATER MAIN
- SWD — PROPOSED STORMWATER DRAINAGE RETICULATION
- S — PROPOSED SEWER RETICULATION
- s — EXISTING SEWER RETICULATION
- swd — EXISTING STORMWATER DRAINAGE RETICULATION
- w — EXISTING WATER RETICULATION
- e — EXISTING UNDERGROUND ELECTRICAL RETICULATION
- oh — EXISTING OVERHEAD ELECTRICAL RETICULATION
- FUTS — FUTURE SEWER RETICULATION
- FUTSWD — FUTURE STORMWATER DRAINAGE RETICULATION
- FUTW — FUTURE WATER RETICULATION

WATER FITTINGS AND THRUST BLOCK TABLE

NOTE: THRUST BLOCK SIZE HAS BEEN DETERMINED USING 1200 kPa BASED ON GEOTECHNICAL ASSUMPTION. CONTRACTOR TO CONFIRM IN-SITU BEARING CAPACITY ONSITE. REFER SEQ-WATER-1205-1 TO 1208-1 FOR THRUST BLOCK DETAILS.

ITEM	FITTING	PIPE SIZE (mm)	MAX THRUST (kN)	THRUST BLOCK LENGTH (mm)
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⑧	Ø150 X Ø150 TEE	Ø150	29.5	660
⑨	Ø225 X Ø225 TEE	Ø250	77.1	1200
⑩	Ø250 X Ø150 TEE	Ø250>Ø150	77.1	1200

KEY PLAN

Issue	Description	DR	CH	VE	Date
C	UPDATED WATER CONNECTION	A.O.	S.S.	B.K.	10.03.25
B	DICL MAIN EXTENTS AMENDED	L.S.	L.S.	B.K.	11.09.24
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales

0 5 10 20 30 40 50m
1 : 500
0 1 2 4 6 8 10m
1 : 100

Surveyor: WOLTER consulting group — Planning, Urban Design, Landscape, Environment, Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Original Issue Signatures

Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 12.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: WATER RETICULATION LAYOUT PLAN SHEET 4

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Project Number: 30109334

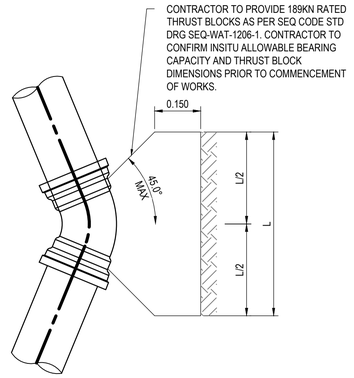
Drawing No.: 30109334-AAP-P301OP-CV-DRG-0624

Issue: C

Date Plotted: 13 Mar 2025 - 10:18AM File Name: C:\Users\ao67297\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0621-Water.dwg

THRUST BLOCK DIMENSION - 1200kPa

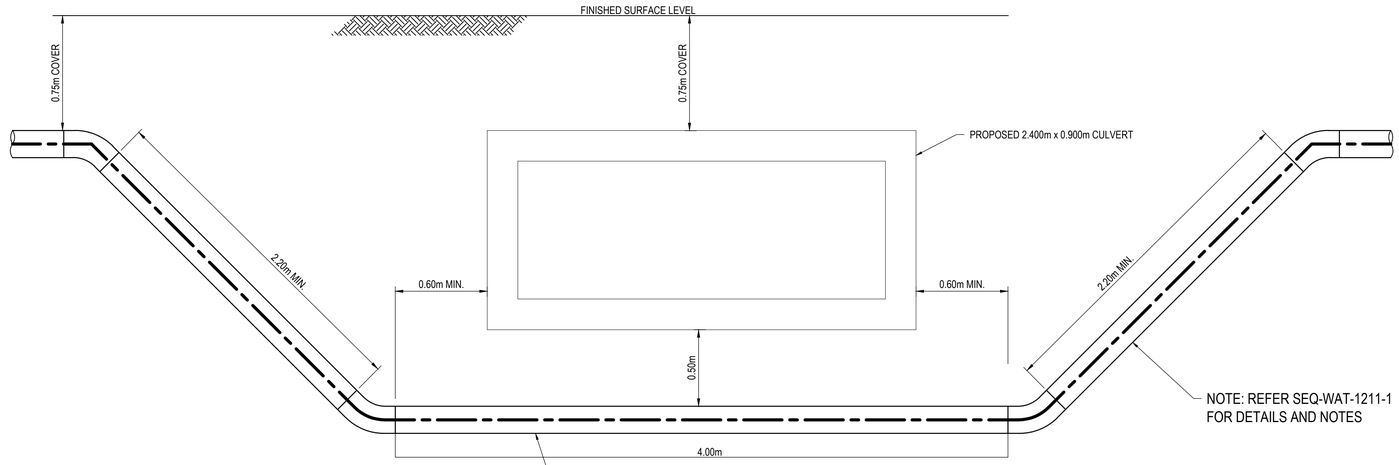
*INDICATES BLOCK LENGTH OF 600
*SPECIAL DESIGN



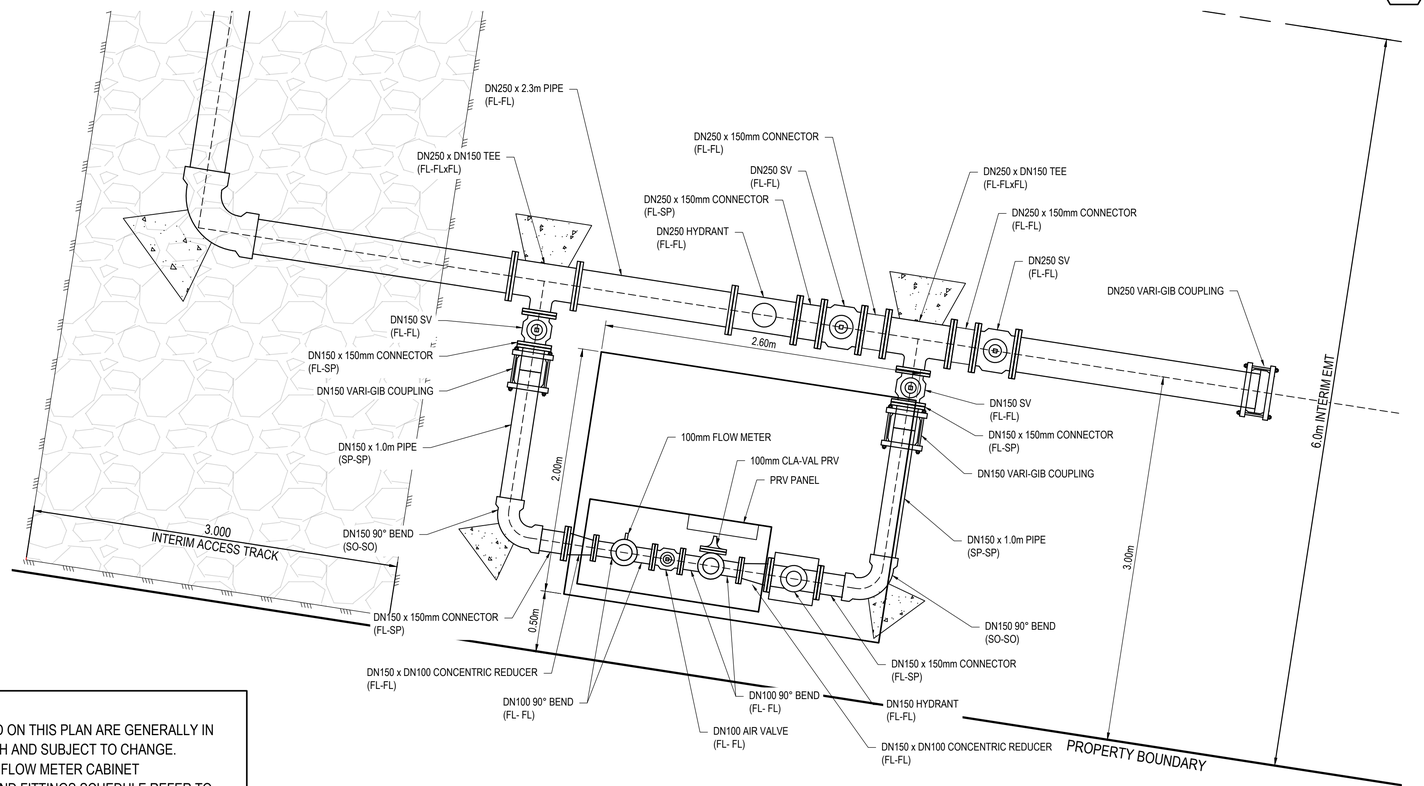
TYPICAL THRUST BLOCK DETAIL FOR NON-RESTRAINED PIPEWORK

11.25°, 22.5°, 45° AND 90° BEND

NTS

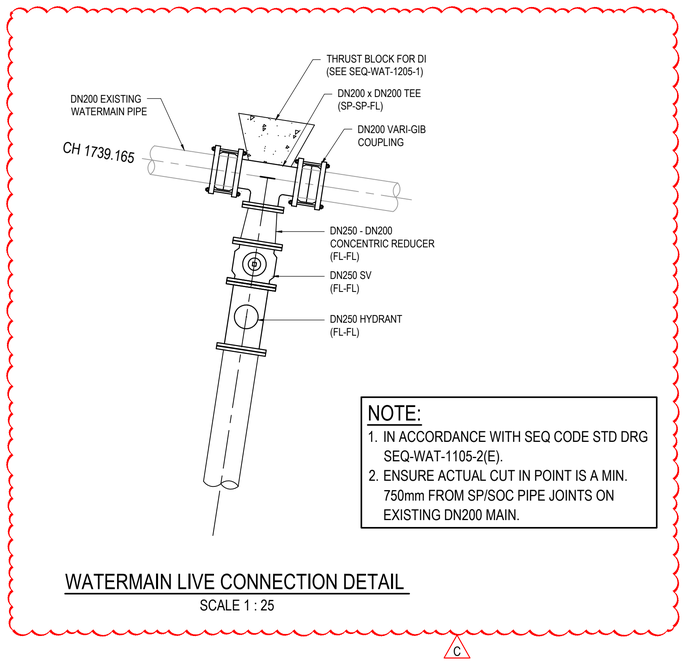


DETAIL A
1 : 20
0621



CROWSON LANE PRV DETAIL

SCALE 1 : 25



NOTE:
1. IN ACCORDANCE WITH SEQ CODE STD DRG SEQ-WAT-1105-2(E).
2. ENSURE ACTUAL CUT IN POINT IS A MIN. 750mm FROM SP/SOC PIPE JOINTS ON EXISTING DN200 MAIN.

WATERMAIN LIVE CONNECTION DETAIL

SCALE 1 : 25

C

NOTES:
1. DETAILS PROVIDED ON THIS PLAN ARE GENERALLY IN ACCORDANCE WITH AND SUBJECT TO CHANGE.
2. FOR PRV DETAILS, FLOW METER CABINET SPECIFICATIONS AND FITTINGS SCHEDULE REFER TO SEQ-WAT-1310-5, 1310-6, 1310-7, 1310-8, 1310-9, 1310-10.
3. ALL SPECIFICATIONS AND STANDARD DRAWINGS TO BE APPROVED BY EDQ AND LW PRIOR TO INSTALLATION.

Issue	Description	DR	CH	VE	Date
C	WATERMAIN LIVE CONNECTION DETAIL ADDED	J.U.	S.S.	B.K.	27.03.25
B	UPDATED WATER CONNECTION	A.O.	S.S.	B.K.	10.03.25
A	ISSUED FOR CONSTRUCTION	J.B.	T.F.	G.E.	16.02.24

100mm on Original

Scales
0 0.5 1 1.5 2m
1 : 20
0 0.5 1 1.5 2 2.5m
1 : 25

Surveyor: WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Client: Charter Hall

Status: FOR CONSTRUCTION

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Drawn	P.LAGANAO	Original Size	A1
Designed	G.PUMNUT	Height Datum	AHD
Project Manager	B.KITSON	Grid	LOCAL
Verified	B.KITSON	R.P.E.Q. No: 07884 Date 24.03.25	

Project: FLAGSTONE LOGISTICS ESTATE - STAGE 1

Title: WATER RETICULATION DETAILS

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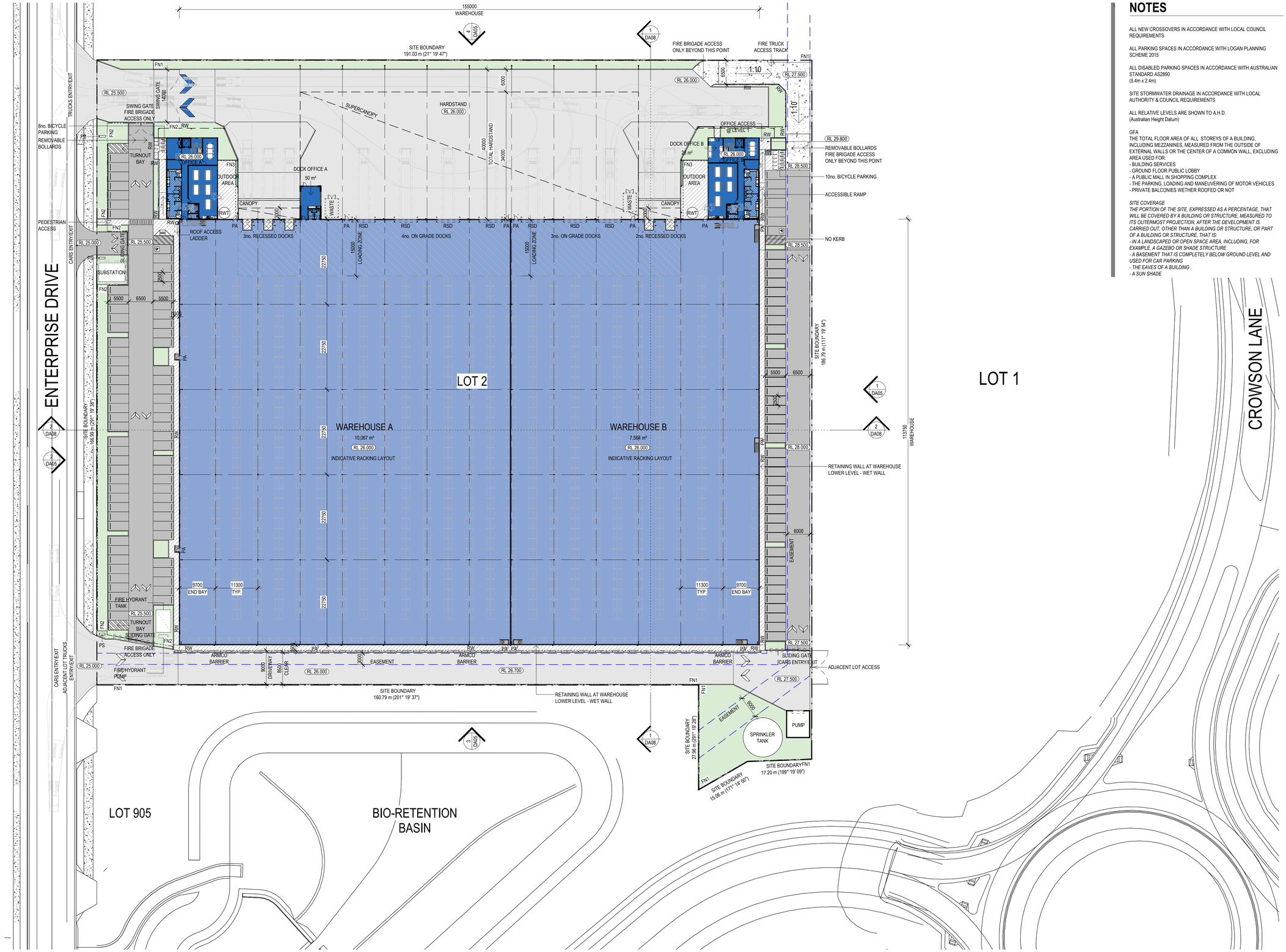
Project Number: 30109334

Drawing No.: 30109334-AAP-P301OP-CV-DRG-0625

Issue: C

Date Plotted: 27 Mar 2025 - 03:04pm File Name: C:\Users\umipigj3186\DC\ACCDocs\Arcadis\AAU-30109334-4499-4651 Mount Lindesay Highway\Project Files\01_WIP\01_Stage-01_Internal Works\DRG\30109334-AAP-P301OP-CV-DRG-0621-Water.dwg

Appendix C – Architectural Drawings



NOTES

ALL NEW CROSSOVERS IN ACCORDANCE WITH LOCAL COUNCIL REQUIREMENTS

ALL PARKING SPACES IN ACCORDANCE WITH LOGAN PLANNING SCHEME 2015

ALL DISABLED PARKING SPACES IN ACCORDANCE WITH AUSTRALIAN STANDARD AS2890
(5.4m x 2.4m)

SITE STORMWATER DRAINAGE IN ACCORDANCE WITH LOCAL AUTHORITY & COUNCIL REQUIREMENTS

ALL RELATIVE LEVELS ARE SHOWN TO A.H.D.
(Australian Height Datum)

GFA
THE TOTAL FLOOR AREA OF ALL STOREYS OF A BUILDING, INCLUDING MEZZANINES, MEASURED FROM THE OUTSIDE OF EXTERNAL WALLS OR THE CENTER OF A COMMON WALL, EXCLUDING AREA USED FOR:
- BUILDING SERVICES
- GROUND FLOOR PUBLIC LOBBY
- A PUBLIC MALL IN SHOPPING COMPLEX
- THE PARKING, LOADING AND MANEUVERING OF MOTOR VEHICLES
- PRIVATE BALCONIES WETHER ROOFED OR NOT

SITE COVERAGE
THE PORTION OF THE SITE, EXPRESSED AS A PERCENTAGE, THAT WILL BE COVERED BY A BUILDING OR STRUCTURE, MEASURED TO ITS OUTERMOST PROJECTION. AFTER THE DEVELOPMENT IS CARRIED OUT, OTHER THAN A BUILDING OR STRUCTURE, OR PART OF A BUILDING OR STRUCTURE, THAT IS:
- IN A LANDSCAPED OR OPEN SPACE AREA, INCLUDING, FOR EXAMPLE, A GAZEBO OR SHADE STRUCTURE
- A BASEMENT THAT IS COMPLETELY BELOW GROUND LEVEL AND USED FOR CAR PARKING
- THE EAVES OF A BUILDING
- A SUN SHADE

DEVELOPMENT ANALYSIS

BUILDING	GFA (EXCL. LOADING ZONE)
TENANCY A	
WAREHOUSE A	8,964 m²
OFFICE A	579 m²
DOCK OFFICE A	50 m²
	9,593 m²
TENANCY B	
WAREHOUSE B	6,875 m²
OFFICE B	551 m²
DOCK OFFICE B	28 m²
	7,454 m²
TOTAL AREA	17,047 m²

EXTERNAL AREAS (APPROX)	
CRUSHED ROCK	344 m²
HARDSTAND	7,570 m²
LANDSCAPING	1,657 m²
LIGHT DUTY	3,570 m²
PAVING	946 m²

PARKING	
TENANCY A	75
TENANCY B	47
TOTAL BAYS PROVIDED	122

SITE COVERAGE	
TOTAL SITE AREA	32,559 m²
BUILDING FOOTPRINT (INCL. PUMP HOUSE)	18,345 m²
SITE COVERAGE	56.34%
LANDSCAPE COVERAGE	5.09%

LEGEND

- INDICATES EXTENT OF HEAVY DUTY HARDSTAND TO CIVIL ENGINEERS DETAILS
- INDICATES EXTENT OF LIGHT DUTY PAVEMENT TO CIVIL ENGINEERS DETAILS
- CONCRETE PAVING WITH EXPOSED AGGREGATE FINISH OR SIMILAR
- SEALED FIRE TRUCK ACCESS TRACK TO BRIGADE APPROVAL
- AREA OF GRASS / LANDSCAPING. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR LANDSCAPE LAYOUT AND DETAILS
- SITE BOUNDARY
- EASEMENT
- **FN1** 2100mm HIGH BLACK VINYL COATED CYCLONE WIRE FENCE, 3 BARB WIRES TO 2400mm HIGH
- **FN2** 2400mm HIGH BLACK PAINTED METAL PICKET (DIPLOMAT / PALISADE STYLE) FENCING
- **FN3** 2100mm HIGH OUTDOOR AREA FEATURE SCREEN
- **RWT** 10,000L CAPACITY RAINWATER TANK NOTE: TANKS WILL BE USED FOR TOILETS, LANDSCAPE IRRIGATION AND WASH DOWN WHERE SUITABLE. REFER TO SUSTAINABLE MANAGEMENT PLAN (SMP) FOR FURTHER INFORMATION
- **RW** RETAINING WALL - DESIGN AND LOCATION TO BE CONFIRMED BY CIVIL ENG.
- **PA** PERSONNEL ACCESS DOOR
- **RSD** ROLLER SHUTTER DOOR
- **PS** PYLON SIGN

PRELIMINARY
NOT FOR CONSTRUCTION

No.	DATE:	REVISION:	BY:	CHK:
P1	27.03.2026	PRELIMINARY ISSUE	JGM	KA
P2	31.03.2026	PRELIMINARY ISSUE	JGM	KA
P3	14.04.2026	PRELIMINARY ISSUE	JGM	KA
A	16.04.2026	FOR DA LODGEMENT	JGM	KA

All areas indicated are indicative for design and planning purposes only and should not be used for any contractual reasons without verification by a licensed surveyor or further design development being completed.

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Head Office: 8 Grattan Street Prahran VIC 3181 | ph: 03 9516 8555 | e: info@watsonyoung.com.au
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PROJECT:
FLAGSTONE LOGISTICS PROPOSED LOT 105
ENTERPRISE DRIVE, NORTH MACLEAN, QLD 4280

TITLE:
SITE & GROUND FLOOR PLAN

NORTH

CLIENT:
Charter Hall

DATE: FEBRUARY, 2025
DRAWN BY: JGM
SCALE: 1 : 500 @ A1
SCALE: 1 : 1000 @ A3

JOB NO: 26036
DRAWING NO: DA02
REVISION: A

watson young

Appendix D – Arcadis SBSMP

ARCADIS Design & Consultancy for natural and built assets

COMPLIANCE APPROVAL
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2018/961/13

Condition no: 21

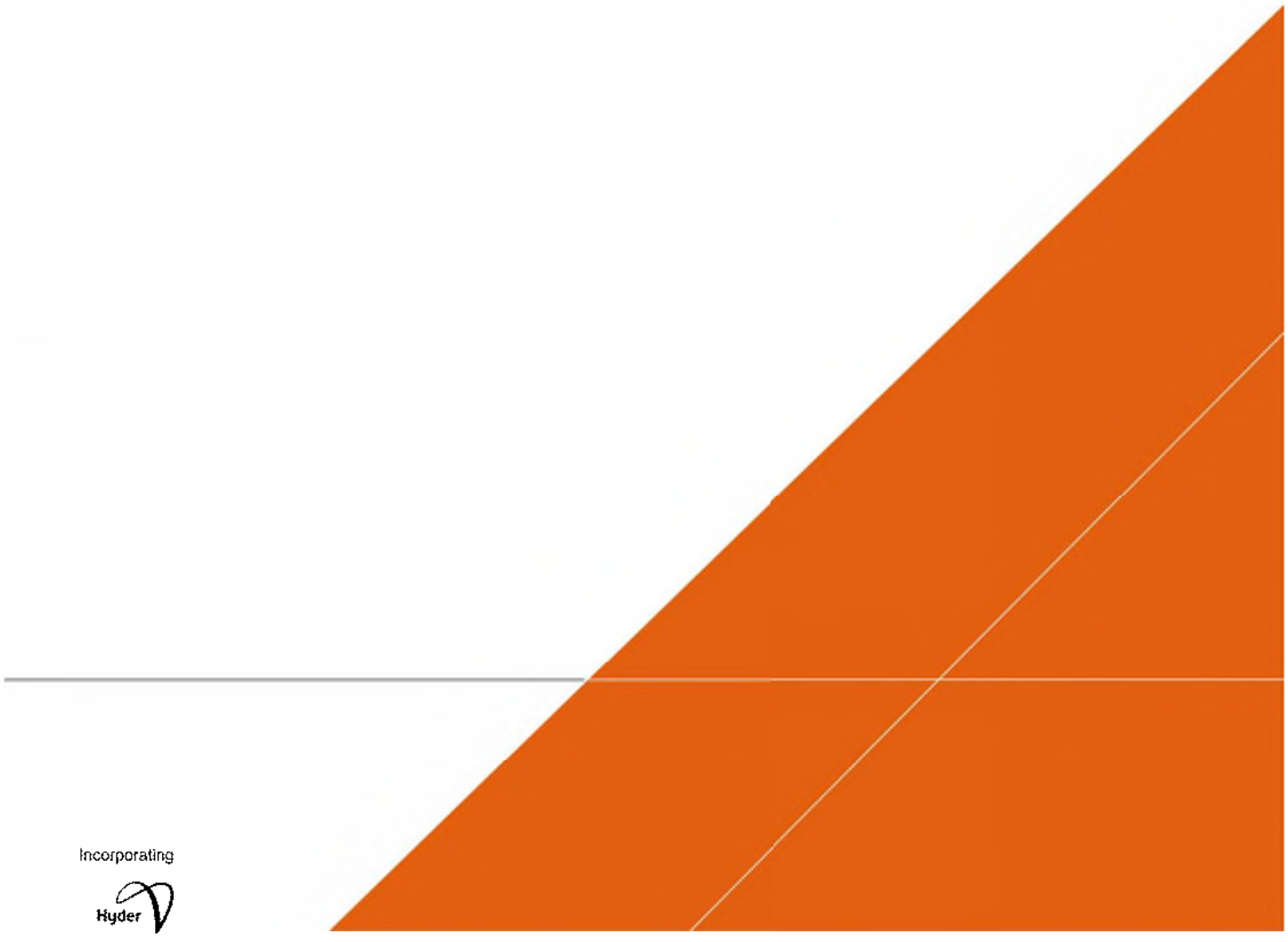
Date: 24/07/2024

Queensland Government

4499 – 4651 MOUNT LINDESAY HIGHWAY, NORTH MACLEAN

Site Based Stormwater Management Plan (Quantity)

19 JUNE 2024



Incorporating Hyder

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Arcadis
Level 35, 111 Eagle Street
Brisbane City, QLD 4000

CHARTER HALL PRIME INDUSTRIAL FUND 4499-4651 MOUNT LINDESAY HIGHWAY, NORTH MACLEAN

Site Based Stormwater Management Plan (Quantity)

Author	Thea Fanning	
Checker	Brook Kitson	
Approver	Darlan Castro RPEQ 19918	
Report No	EAG001-30109334-AAR	
Date	19/06/2024	
Revision Text	12	

COMPLIANCE APPROVAL
referred to in the PDA
DEVELOPMENT APPROVAL
Approval no: DEV2018/961/13
Condition no: 21
Date: 24/07/2024

Queensland Government

This report has been prepared for Charter Hall Prime Industrial Fund in accordance with the terms and conditions of appointment for 4499-4651 Mount Lindesay Highway – North Maclean – Civil Engineering dated 18/10/2021. Arcadis Australia Pacific Pty Limited (ABN 76 104 485 289) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

REVISIONS

Revision	Date	Description	Prepared by	Approved by
01	30/09/2022	DRAFT Issue	TF	DC
02	14/10/2022	Issue for Approval	TF	DC
03	06/02/2023	Response to RFI	TF	DC
04	22/02/2023	Amended Southern Basin Outlet	EP	DC
05	23/06/2023	Response to Peer Review Comments	TF/DC	DC
06	04/07/2023	Table 5-9 Updated	TF	DC
07	06/07/2023	Weir Width Updated and Inundation Curve Added	TF	DC
08	03/08/2023	Overall Site Layout Updated	TF	DC
09	15/08/2023	ROL Update	TF	DC
10	16/02/2024	ROL Update	TF	DC
11	27/02/2024	Fixed Appendix D Missing Flood Maps	TF	DC
12	19/06/2024	Updated Eastern Channel Drainage Strategy	TF	DC

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[redacted]

Site Layout Plan

[redacted]

Engineering Drawings and Site Topography

[redacted]

Existing Decision Notice Approval

[redacted]

TUFLOW Mapping

[redacted]

Stormwater Drainage Safety Audit

1 EXECUTIVE SUMMARY

Arcadis has been engaged by Charter Hall Prime Industrial Fund to prepare a Site Based Stormwater Management Plan (Quantity) (SBSMPQ) for the proposed industrial development, situated at 4499-4651 Mount Lindesay Highway, North Maclean. The site is located in the Greater Flagstone Priority Development Area located within the Logan City Council local government area. On 21 September 2021, the Minister for Economic Development Queensland (EDQ) granted approval for a PDA development application over the site for a Development Permit for Reconfiguring a Lot – 1 into 4 lots, plus roads and open space. On 27 September EDQ granted approval for an amendment to the previous Reconfiguring a Lot application (DEV2018/961/8). The new approval was for reconfiguring a lot - one (1) lot into eleven (11) lots and new roads and open space.

This report demonstrates the proposed development will be constructed and operated in accordance with the requirements of Council, the South-East Queensland State Planning Policy (SPP), the Queensland Development Code, the Queensland Urban Drainage Manual (QUDM) Economic Development Queensland (EDQ) PDA guidelines and the Environmental Protection (Water) Policy (2009). This report also demonstrates the proposed amendment will not result in substantially different development to the existing approval.

The primary objective of this SBSMPQ is to ensure that:

1. Suitable measures are incorporated into the development to ensure that there are no adverse impacts to downstream receiving waterways, property or infrastructure resulting from any increase to stormwater runoff peak flow rates.

This report therefore includes hydraulic and hydrological modelling which demonstrate, that due to change in stormwater catchment parameters, there is an increase in peak flow rate during the post development scenario. Subsequently, three regional detention structures have been proposed and designed in conjunction with numerous on-site detention systems for Lots 2 - 5 such that flow rates discharged from the development site are no greater than the corresponding catchment existing peak flow rates at the proposed points of interest, from 50% to 1% Average Exceedance Probability (AEP) storm events.

The impact of the proposed development against the existing condition at the areas immediately downstream and upstream of the site have been assessed using TUFLOW. The assessment considers the changes and if they would cause corresponding changes to the existing flood behaviour and thereby would cause any actionable nuisance.

In assessing the area constraints and the flood characteristics surrounding the site, Arcadis assigned a 2m grid size to the TUFLOW model, with resulting increased accuracy of the results in flood sensitive areas compared to larger grid sizes. Results from the model were assessed for peak water surface level afflux between the existing and developed scenarios.

This report presents the methodology and results of a flood modelling assessment which has included the analysis of the impacts of the proposed development in comparison to the existing scenario. In particular, this assessment has focused on the impact immediately upstream and downstream of the site where complex flood behaviour, with flows currently draining through private properties, is present.

Results indicate that the proposed development will generally improve flood conditions downstream of the site by applying the reduction of site stormwater discharge via the proposed detention systems and augmenting the proposed earthworks to allow adequate flood storage and conveyance through the site.

Note: The proposed operational stormwater quality treatment train is detailed in the Site Based Stormwater Quality Management Plan (SBSQMP) (EAG003-30109334-AAR-01).

1.1 Revision 03

Revision 03 of this report was prepared in response to the Information Request received from EDQ via email on 22 November 2022, related to the Compliance Assessment for Condition 21 of the Decision Notice received for the PDA Development Permit for reconfiguring a lot – 1 lot into 4 lots, plus roads and open space. Specifically includes changes to the Western Swale configuration to reduce clearing impacts within the 25m buffer.

1.2 Revision 05

Revision 05 of this report has been prepared in response to the comments received from Water Tech following their peer review of this report, as well as the Further Clarification Request received from EDQ on 31 March 2023 related to the Compliance Assessment for Condition 21 of the Decision Notice received for the PDA Development Permit for reconfiguring a lot – 1 lot into 4 lots, plus roads and open space.

1.3 Revision 08

The Overall Site Layout in Appendix A has been updated for Revision 08 of this report. The Overall Site Layout has been updated to reflect the adjustment to the northern site boundary which has been realigned to reflect the minimum 11m clear zone required by Council for safety purposes pertaining to the proposed upgrade of Crowson Lane. This has adjusted the size of Lots 1 and 4.

The above change results in a minor reallocation of land from the allotment catchments to the Crowson Lane catchments. No changes have been made to the modelling undertaken as part of this report as the change is considered negligible in relation to the catchment as a whole and the modelling undertaken is more conservative.

Revision 08 of this report was submitted to EDQ as part of the Compliance Assessment for Condition 21 of the Decision Notice received for the PDA Development Permit for reconfiguring a lot – 1 lot into 4 lots, plus roads and open space.

1.4 Revision 09

Revision 09 of this report has been prepared to support the amended ROL application, increasing the number of proposed allotments from four (4) to eleven (11) and new roads, consisting of five super lots and six auxiliary lots, comprising drainage, open space and a sewer pumpstation. The proposed amendments to the existing ROL development approval do not result in substantially different development from either a stormwater management or a flooding perspective. No changes were made to the DRAINS or TUFLOW models as a result of this amendment.

1.5 Revision 10

Revision 10 of this report has been prepared in response to detailed design of the allotments, adjusting the stormwater catchments referred to as INTNL-2R, INTNL-2B, INTNL-2C and INTNL-3C with respect to size and direction of flow. INTNL-2B and INTNL-2R was reduced in size. INTNL-3C changed configuration. INTNL-2C increased in size and was divided into three sub-catchments with minor flows directed to the channel. The major and minor flows were divided for these three catchments to direct the minor flows through a longer travel path (passes through two weir structures within the channel), in order to create a non-worsening effect on the downstream properties, east of Mount Lindesay Highway during the 0.5EY storm event. DRAINS and TUFLOW modelling and reporting have been updated accordingly.

1.6 Revision 11

Revision 11 of this report has been prepared to include the missing Flood Maps from Appendix D.

1.7 Revision 12

Revision 12 of this report reflects the changes to the Eastern Channel drainage strategy. The weirs (Weir 01 and 02) and bund previously proposed for the Eastern Channel have been removed to allow the channel to drain in a timely manner. This results in a minor increase in flows downstream of the development site during the 0.5EY storm event; however, it has been demonstrated that such afflux is minor and corresponds to an inundation reduction where viewed in the context of historical earthworks which were undertaken south of the development site.

Minor changes have been made to the internal sub-catchments and allotment detention as details of the final land use and topography have emerged.

2 INTRODUCTION

Arcadis has been engaged by Charter Hall Prime Industrial Fund to prepare a Site Based Stormwater Management Plan (Quantity) (SBSMPQ) for the proposed industrial development, situated at 4499 - 4651 Mount Lindesay Highway, North Maclean. The site is situated within the Greater Flagstone Priority Development Area (PDA) located within the Logan City Council (LCC) local government area.

On 21 September 2021, the Minister for Economic Development Queensland (EDQ) granted approval for a PDA development application over the site for a Development Permit for Reconfiguring a Lot – 1 into 4 lots, plus roads and open space. On 27 September EDQ granted approval for an amendment to the previous Reconfiguring a Lot application (DEV2018/961/8). The new approval was for reconfiguring a lot - one (1) lot into eleven (11) lots and new roads and open space. The proposed amended ROL layout is shown in Figure 2-1, below.

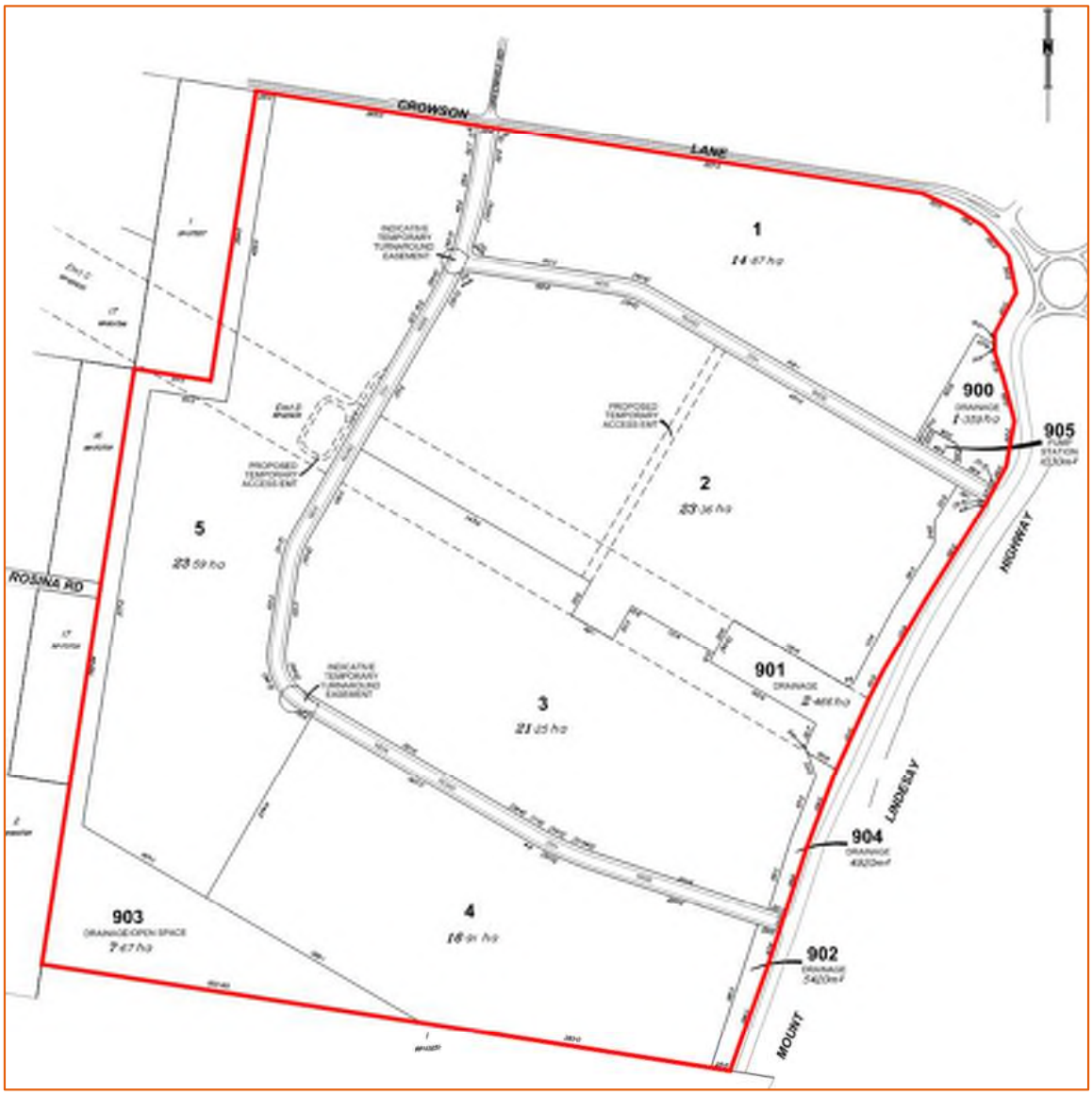

Figure 2-1 – Approved Amended ROL Layout (Source: Wolters, August 2023)

The following report demonstrates the proposed development will be constructed and operated in accordance with the Queensland State Planning Policy (SPP 2017), the Queensland Development Code, the Queensland Urban Drainage Manual (QUDM), Economic Development Queensland (EDQ) PDA guidelines and the Environmental Protection (Water) Policy (2009) with respect to the attenuation of stormwater runoff. This report also demonstrates the proposed amendment will not result in substantially different development to the existing approval.

3 SITE CHARACTERISTICS

3.1 Site Description

The subject site is located within Logan, South-East Queensland, Australia on the following lot:

- Lot 39 on SP258739 (4499-4651 Mount Lindesay Highway, North Maclean)

The site in generally bounded by the following co-ordinates (GDA94 / MGA zone 56)

- South-West: 500708, 6928700
- North-East: 501974, 6929628

The proposed area for the development is approximately 117.9ha.

3.2 Existing Land Usage

The site is predominantly vegetated with cleared areas relating to the existing residential dwelling and associated land use and High Voltage Electrical Power transmission lines and towers.

The site currently has direct property frontage to Mount Lindesay Highway to the east, predominantly trees and vegetation to the south and rural residential developments to the north and west. A MEDQ Approved context plan published 10 September 2021 includes the subject site. The site is approved for specific land use "*Industry and Business Zone*" with overlay for indicative future bio-diversity corridor. An existing high voltage easement running through the site from the south into the existing rural residential dwelling to the north. A further high voltage (275kV) easement runs through the site within the cleared area.

A site locality plan is provided in Figure 3-1 below:

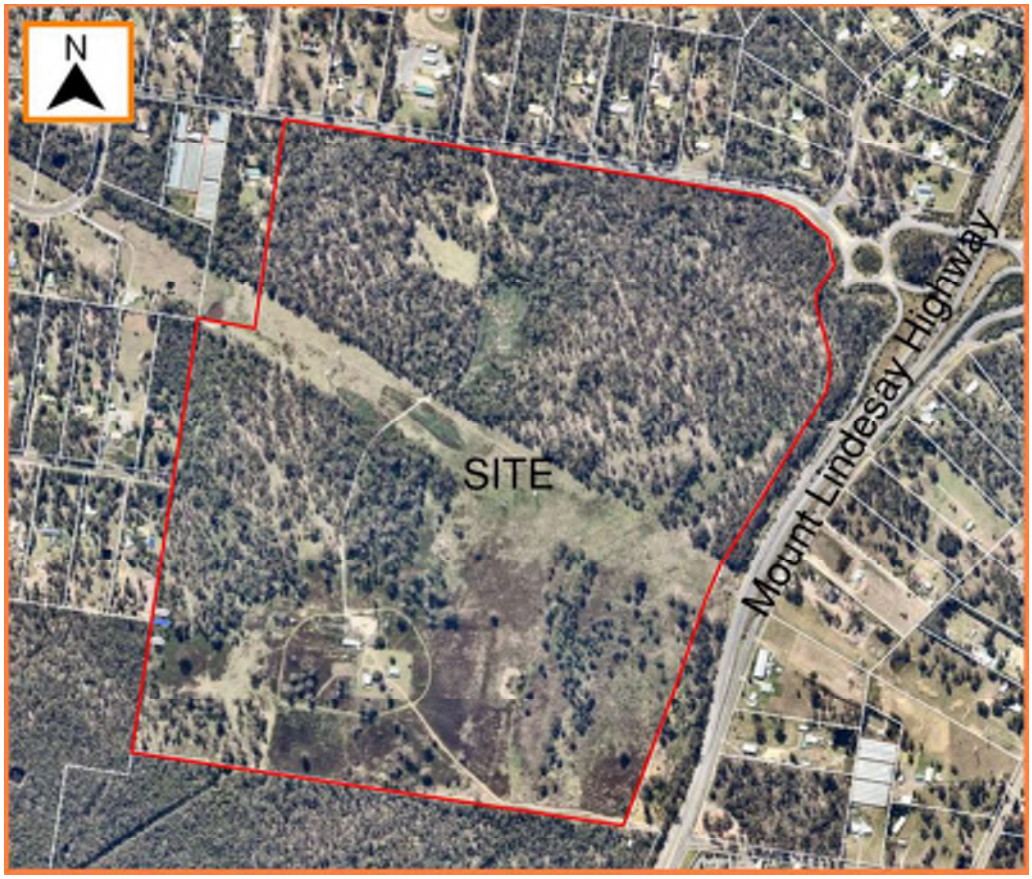

Figure 3-1- Development Locality Plan (Source: NearMap, June 2022)

3.3 Existing Topography and Site Drainage

In its current state, a ridge traverses the development site from the north-western corner to the southern site boundary, with further undulations dividing the site into three sub-catchments, as shown in Figure 3-2. The northern catchment slopes east at an average of 2% from RL44.0 to a culvert with a minimum invert level of RL20.90 which allows flows to pass beneath Mount Lindesay Highway to the opposite side. From here, water is ultimately discharged east of Mount Lindesay Highway towards the Logan River located approximately 1.1km east of the site.

The western portion of the site slopes south from RL44.0 to RL26.5 at an average grade of 1.6%. An overland flow path commences in this portion of the site, exiting the site across the southern boundary before re-entering the site in the east through the third catchment area. The overland flow path flows north-east to the abovementioned culverts. The third catchment area site also slopes to this culvert at an average grade of 1.2%.

Figure 3-2- Internal Catchment Plan (Source: NearMap, June 2022)

Stormwater runoff from upstream external catchments enter the site from the north, south and west. The extent of the external catchments is shown in Figure 3-3.

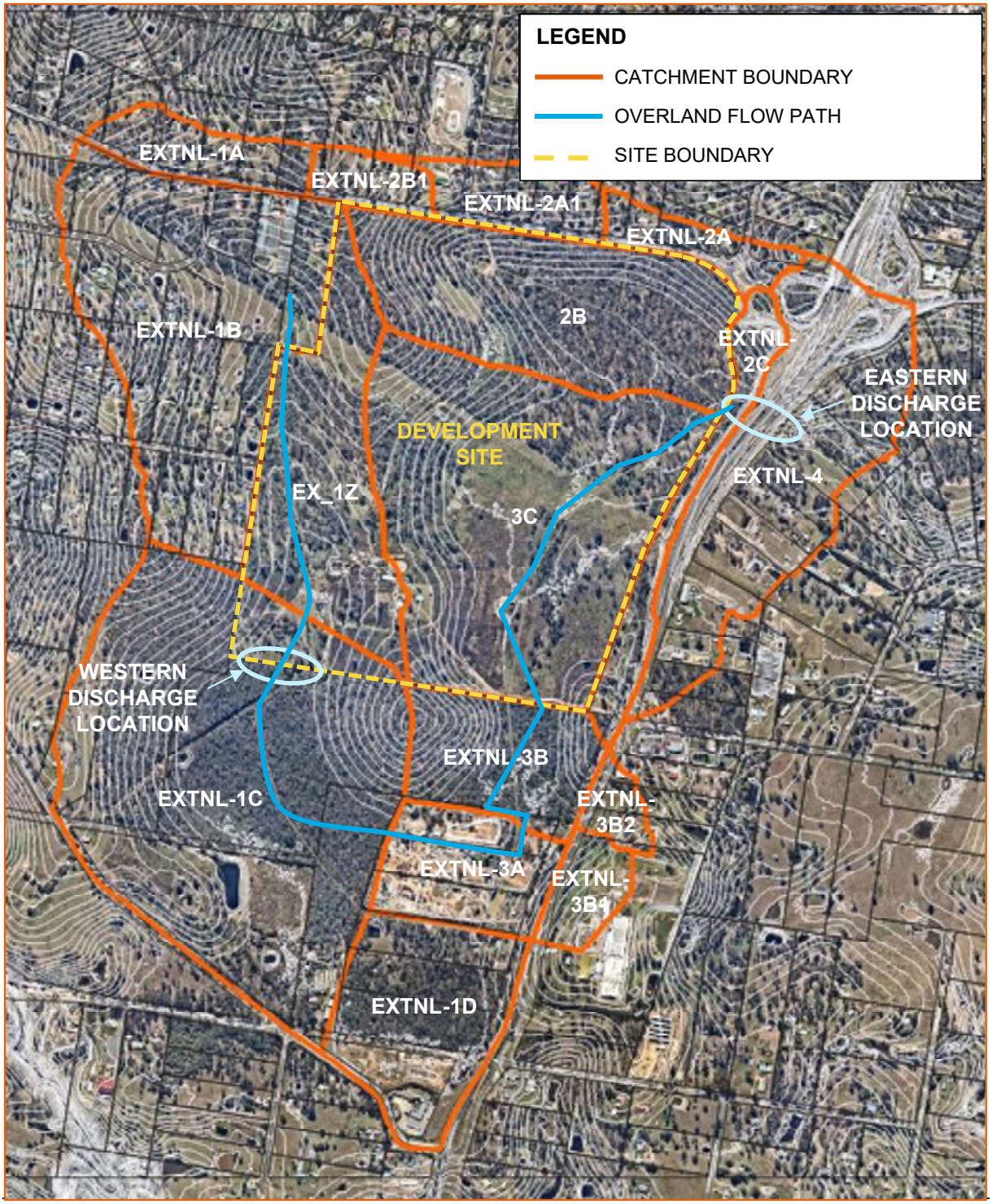

Figure 3-3: Existing Catchment Plan

3.4 Existing Approval

It is understood that the existing EDQ approval (DEV 2018/961/8) over the site is for a reconfiguring a lot – 1 lot into eleven (11) lots, plus roads and open space. As part of this approval key services to support the development were identified with associated works including:

- Construction of a service road along the western side of the Mount Lindesay Highway accessed via the existing Crowson Lane / Mount Lindesay Highway off ramp roundabout;

- Construction of a trunk rising sewer main running through the existing electrical main of the proposed development, ending at Greenbank Road.
- Connection to existing potable water mains along Crowson Lane and the Mount Lindesay Highway
- Proposed stormwater infrastructure;
- Construction of internal roads; and
- Proposed connection to existing underground electrical and telecommunication services along Crowson Lane and the Mount Lindesay Highway.

Further details on the works associated with the adjacent property approval can be found within the relevant Decision Notice attached within Appendix C. The approved EDQ Structure Plan is shown below in Figure 3-4 below.

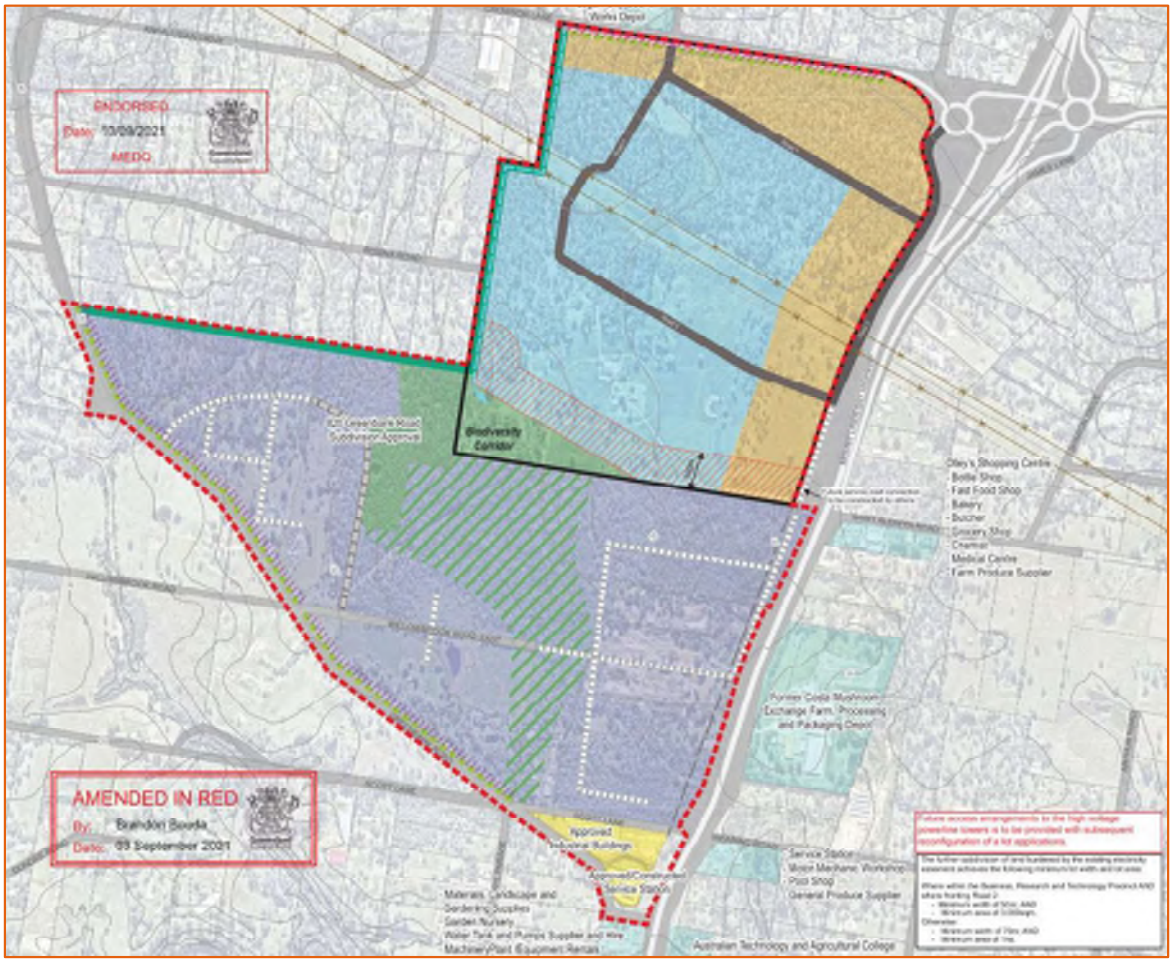

Figure 3-4- North Maclean Enterprise Context Plan (Source: Reel Planning, September 2021)

3.5 Geotechnical Investigation

A geotechnical investigation was completed separately by Protest Engineering in October 2021. Borehole testing revealed the ground profile generally comprises of silty sand (Emerson Class 6) up to 0.6m depth, overlaying silty/sandy clay up to 4m depth followed by low to high strength sandstone. Groundwater was not encountered during the investigation; however, Protest Engineering noted that groundwater levels can be seasonal and fluctuate during and after heavy rainfall events. Refer to Protest Engineering Report PTP/07651-0001-Rev3 for further details.

3.6 Flooding

A review of LCC's Flood Hazard Tigger Overlay Map (OM-05) revealed that the site is identified as a Flooding and inundation area with a large portion of the site being prone to flooding. Figure 3-5 below shows LCC's Flood Hazard Overlay for the site. Detailed flood modelling has been undertaken to ensure modifications to the overland flow path does not have adverse impacts on properties upstream or downstream of the development site. The overland flow path has also been modified to include adequate storage of flows from the eastern developed catchment to ensure flows discharged from the development site do not exceed pre-development flows.

It is noted that the Logan City Council riverine flood modelling and flood overlay mapping is reflective of the previous natural ground levels and not the current approved finish surface levels (bulk earthworks) across the subject land. Arcadis have prepared a supplementary memo titled *Flagstone Estate: LCC TLPI No 1/2023 Response – Flood Overlay Code* dated 1 March 2024, which includes updated flood risk mapping in accordance with the Logan City Council Planning Scheme Policy. Reference should be made to this document for details of the revised flood mapping applicable to the development.

Figure 3-5- Flood Hazard Overlay (Source: Logan City Council, June 2022)

3.7 Existing and Planned Stormwater Infrastructure

Limited stormwater drainage infrastructure is present within the vicinity of the development site. A set of culverts is situated near the eastern property boundary discharging stormwater under the Mount Lindsay Highway and ultimately towards the Logan River located approximately 1.1km east of the site. The culverts comprise two 1.75m high, 2.1m wide reinforced concrete box culverts at RL21.09m AHD, between which sit two 1.75m high, 2.1m wide reinforced concrete box culverts at RL20.90m AHD

Smaller culverts are present within Crowson Lane, directing stormwater runoff from the northern upstream catchments beneath the road and discharging into the subject site. The pipes vary in size from approximately 375mm dia to 4 x 675mm dia.

Crowson Lane and the adjacent streets are to be upgraded by Logan City Council in the near future. The proposed stormwater drainage upgrades are shown in Figure 3-6 below and in Appendix B.

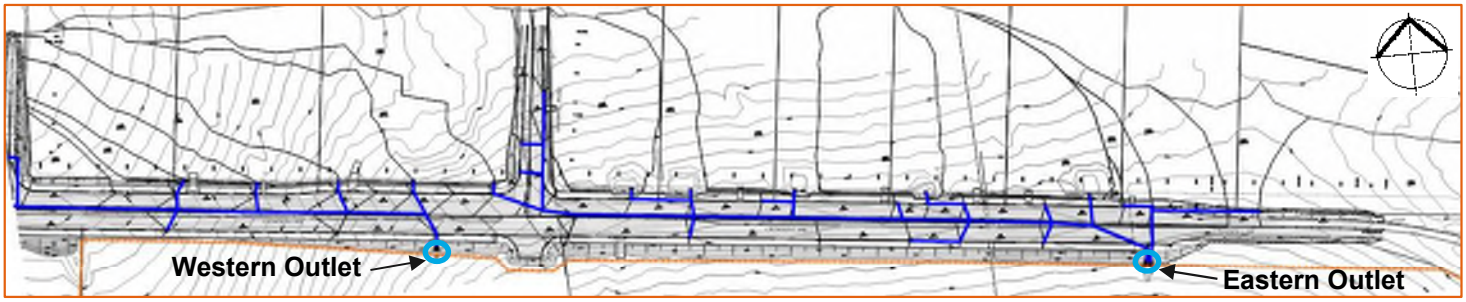

Figure 3-6- Proposed Crowson Lane Stormwater Drainage Upgrade (Source: Logan City Council, August 2022)

Following the proposed stormwater drainage upgrades, the Crowson Lane piped network will discharge flows into the development site at two locations, circled in the figure above. The western discharge pipe is 1050mm dia. The eastern outlet consists of two pipes – a 1350mm dia pipe and a 900mm dia pipe.

The proposed internal drainage network has been designed to convey the developed flows associated with Crowson Lane upgrade through the site to the legal point of discharge.

4 DISCHARGE LOCATIONS

4.1 Pre-Developed Discharge Characteristics

As previously outlined in this report, the site in its pre-developed state consists of multiple catchments, discharging via concentrated flows into either local flood plain area to the south (Catchment EX_1Z) (referred to as “Southern Discharge Location” in Figure 3-3) and/or ultimately to the highway infrastructure to the east (Catchments 2B and 3C) (referred to as “Eastern Discharge Location” in Figure 3-3).

4.2 Proposed Discharge Characteristics and Objectives

The proposed development will retain the existing discharge locations, as marked on Figure 3-3 and Figure 5-1. To comply with the requirements of Council, the Queensland State Planning Policy (SPP 2017), the Queensland Development Code, the Queensland Urban Drainage Manual (QUDM) and the Environmental Protection (Water) Policy (2009), the following primary objectives are to be achieved:

- Suitable measures are incorporated into the development to ensure that there are no adverse impacts to downstream receiving waterways, property or infrastructure resulting from any increase to stormwater runoff peak flow rates; and
- waterway flow management measures are implemented to ensure no adverse stability impacts to downstream receiving unlined waterways;

For all standard Average Exceedance Probability (AEP) design events attenuation is proposed for the 4499 - 4651 Mount Lindesay Highway, North Maclean development. The site assessment will demonstrate compliance with LCC Policy by discharging pre-detained 50%, 20%, 10%, 2% and 1% AEP flows to the points of interest.

5 HYDROLOGICAL ASSESSMENT

The hydrological assessment presented in this report has been undertaken in accordance with the methodology documented in the Australian Rainfall & Runoff 2019. This methodology replaces the Average Variability Method (AVM) temporal patterns of ARR1987 with a fundamentally changed ensemble approach (i.e. 10 temporal distributions per storm duration). This methodology also uses the updated design rainfall inputs sourced from the AR&R (2019) data hub.

5.1 Temporal Patterns

Rainfall Intensities Frequency Duration data were obtained from The Bureau of Meteorology (http://www.bom.gov.au/water/designRainfalls/revised-ifd/?year=2016). The Latitude and Longitude of used for the site is summarised in Table 5-1 below.

Table 5-1 Site Latitude & Longitude

Parameter	Value
Latitude	-27.761
Longitude	153.013

5.2 Preburst Data

Preburst depths and ratios were obtained from the Australian Rainfall and Runoff Data Hub for the coordinates shown in the table above. The preburst depths are listed in Table 5-2.

Table 5-2 Preburst Depths (mm)

Duration (hour)	% AEP					
	50	20	10	5	2	1
1	0.4	2.9	4.6	6.2	7.6	8.7
1.5	0.1	1.3	2.1	2.8	11.4	17.7
2	0.1	2.5	4.1	5.6	12.5	17.7
3	0.3	2.2	3.4	4.6	16.7	25.8
6	0	2.6	4.4	6	16.1	23.6
12	2.5	8.9	13.2	17.3	24	29.1
18	0.6	8.2	13.3	18.1	23.4	27.4
24	0	5.2	8.6	11.9	16.2	19.4
36	0	2.3	3.9	5.4	12.1	17.1
48	0	0.9	1.5	2.1	6.9	10.4
72	0	0	0	0	2	3.4

5.3 Catchment Analysis

As previously discussed, the development site drains to two points of interest (Western Discharge Location and Eastern Discharge Location). The development site has been assessed under the following two scenarios:

- **Pre-development Scenario –** Site and external catchment in their current state. The pre development scenario also includes the proposed upgrades to Crowson Lane and Eastern Trunk service road. As all the catchments modelled in this scenario have a rural/rural residential land use, the RAFTS method has been adopted as the most appropriate method to model the catchments.
- **Mitigated Scenario –** The proposed industrial development (divided into the catchments shown in Figure 5-1) with the calculated detention infrastructure in place and no changes to the external catchment areas. The RAFTS method has continued to be used to model the external catchments in the mitigated scenario. The ILSAX method has been used to model the industrialised internal catchments.

The scenarios listed above have been modelled in TUFLOW to assess the impact on the properties upstream and downstream of the site boundaries beyond identified points of interest. The catchments were first modelled in DRAINS with the hydrographs exported and imported into TUFLOW. This methodology ensures that peak flow concentrations from the catchments are assessed and mitigated appropriately.

Table 5-3 and Table 5-4, below, list the loss parameters adopted in DRAINS for the RAFTS and ILSAX models. The pervious initial and continuing losses were sourced from the AR&R Data Hub.

Table 5-3 RAFTS Initial and Continuing Losses

Parameter	Initial Loss (mm)	Continuing Loss (mm/h)
Impervious Area	1	0
Pervious Area	26	1.9

Table 5-4 ILSAX Depression Storage

Parameter	Depression Storage (mm)
Impervious Area	1
Pervious Area	5

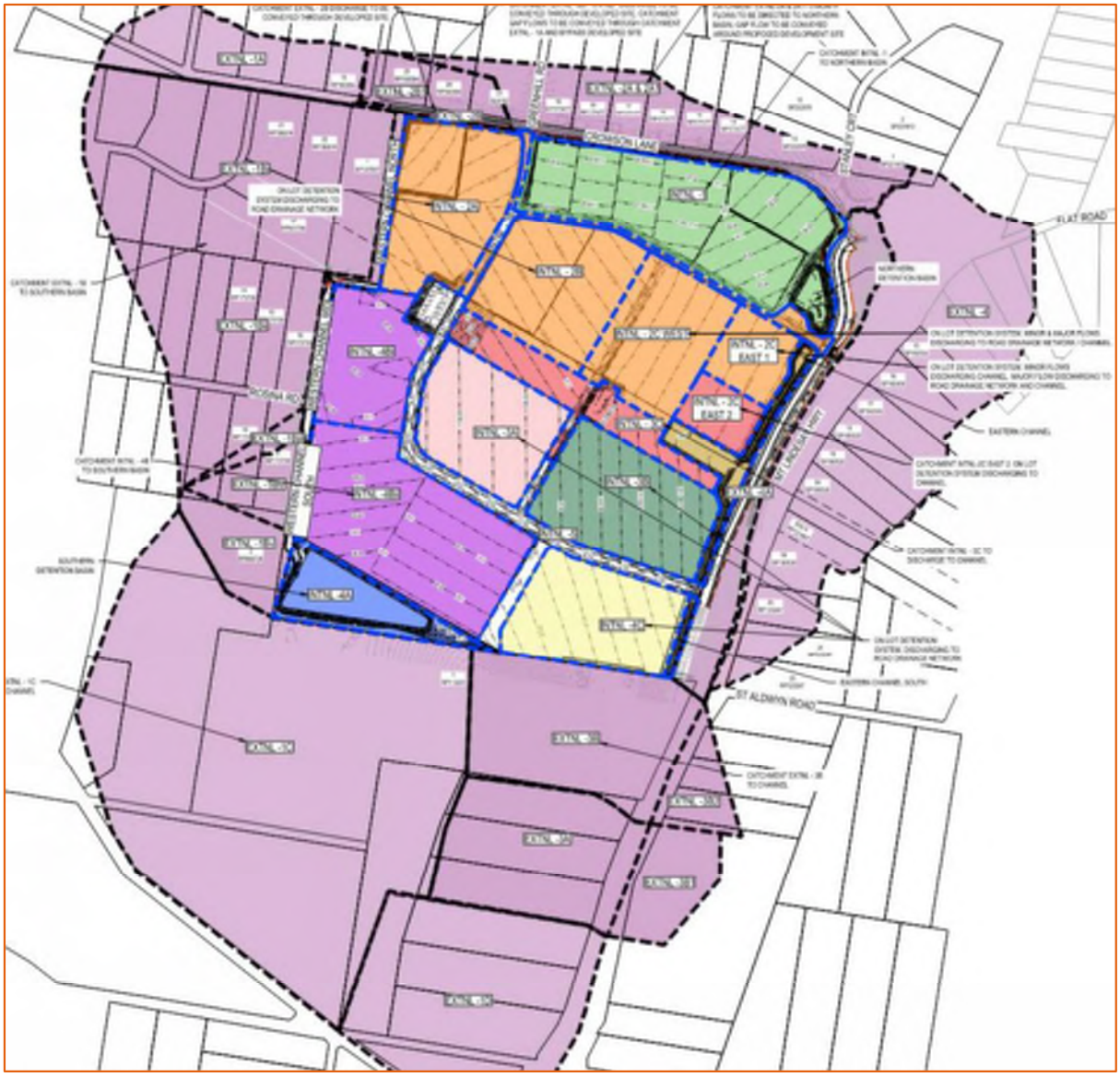

Figure 5-1: Developed Catchment Plan (refer to Appendix B)

Tables 5-5 and 5-6, below, summarise the catchment parameters used to assess the pre and post development flows.

Table 5-5 – Pre-development Catchment Parameters

Catchment	Area (ha)	Impervious (%)	Slope (%)	Mannings 'n'
EXTNL-1A	7.224	1	2.65	0.050
EXTNL-1Bi	23.636	10	2.49	0.050
EXTNL-1Bii	16.974	5	4.19	0.050
EXTNL-1Biii	0.9034	5	4.22	0.050
EXTNL-1Biv	3.3656	5	4.44	0.050
EXTNL-1C	74.256	0.5	1.26	0.100
EXTNL-1D	19.78	10	0.26	0.055
EX_1Z	25.142	0.5	0.98	0.055
EXTNL-2A	5.218	2	2.01	0.045
EXTNL-2A1	7.434	2	2.01	0.055
EXTNL-2B	32.26	0	2.05	0.060
EXTNL-2B1	4.077	2	3.71	0.045
EXTNL-2C	8.764	10	3.55	0.050
EXTNL-3A	12.15	0	1.64	0.055
EXTNL-3B	14.09	0	2.91	0.100
EXTNL-3B1	4.83	25	2.17	0.035
EXTNL-3B2	2.81	5	1.56	0.040
3C	55.53	1	1.62	0.050
EXTNL-4	34.632	25	3.76	0.040

Table 5-6 – Post-development Catchment Parameters

Catchment	Area (ha)	Impervious (%)	Slope (%)	Mannings 'n'
EXTNL-1A	7.224	1	2.65	0.050
EXTNL-1Bi	23.636	10	2.48	0.050
EXTNL-1Bii	16.974	5	4.19	0.050
EXTNL-1Biii	0.9034	5	4.22	0.050
EXTNL-1Biv	3.3656	5	4.44	0.050
EXTNL-1Bv	4.2025	5	4.02	0.050
EXTNL-1C	64.974	0.5	1.26	0.100
EXTNL-1D	19.780	10	0.26	0.055
EXTNL-2A	5.218	2	2.01	0.045
EXTNL-2A1	7.434	2	2.01	0.055
EXTNL-2B1	3.6801	2	3.71	0.045
EXTNL-2B (Crowson Lane)	0.3972	90	3.14	0.015
EXTNL-3A	12.15	0	1.64	0.055
EXTNL-3B	14.09	0.001	2.91	0.100
EXTNL-3B1	4.83	25	2.17	0.035
EXTNL-3B2	2.81	5	1.56	0.040
EXTNL-4A	8.764	10	3.55	0.050
EXTNL-4	34.632	25	3.76	0.040
Western Channel North	1.244	7.4	2.16	0.05
Western Channel Mid	0.960	36	0.66	0.037
Western Channel South	0.517	36	0.5	0.037

Catchment	Area (ha)	Impervious (%)	Impervious Time of Concentration (minutes)	Pervious Time of Concentration (minutes)
INTNL-1	17.052	85	15	15
INTNL-2A	8.918	90	10	10
INTNL-2B	8.8808	90	10	10

Catchment	Area (ha)	Impervious (%)	Slope (%)	Mannings 'n'
INTNL-2CW	7.5559	90	10	10
INTNL-2CE1	2.9479	90	10	10
INTNL-2CE2	2.1702	90	10	10
INTNL-2R	2.3818	75	20	20
INTNL-3A	7.740	90	10	10
INTNL-3B	9.165	90	10	10
INTNL-3C	5.1039	90	17	17
INTNL-4A	5.529	0	1	0.035
INTNL-4Bi	6.5529	75	15	24
INTNL-4Bii	13.9671	75	15	24
INTNL-4C	7.916	90	10	10
INTNL-5	5.958	75	20	20
Channel South	0.5458	0	0.5	0.035
Channel North	2.9041	0	0.5	0.035

5.4 Model Verification

Catchment EXTNL-1B was selected for a comparative exercise to validate the adoption of the RAFTS hydrological models for the rural/rural residential catchments. Catchment EXTNL-1B has been adopted as it does not contain large depression/storage areas which would distort the results. In addition to the RAFTS method, Catchment EXTNL-1B has been modelled using the Rational Method, ILSAX, Initial and Continuing Loss hydrological models.

A time of concentration of 31.7 minutes was applied to pervious and impervious portions of the catchment, alike, as the impervious areas traverse large tracks of pervious area before reaching the edge of the catchment boundary.

A 15mm grass depression storage was adopted for the ILSAX model. This is larger than the value listed in Table 5-4 as Catchment EXTNL-1B has a rural residential land use and is predominantly pervious with an uneven surface.

Refer to Table 5-7, below for the results.

Table 5-7 Catchment EXTNL-1B 1% AEP Hydrological Model Verification

Hydrological Model	1% AEP Flow (m^3/s)
RAFTS	9.95
ILSAX	11.8
Initial and Continuing Loss	13.7
Rational Method	11.2

As can be seen in Table 5-7, the RAFTS model produced the lowest 1% AEP flow and as such is considered the most conservative hydrological model with respect to detention volume calculations and is therefore appropriate for modelling the rural/rural residential catchments.

5.5 Drainage Strategy

As discussed in Section 4 of this report, the development site drains to two discharge locations (refer to Figure 3-3 and Figure 5-1). The proposed development will result in the redefinition of the catchment boundaries and characteristics draining to each discharge location, and as such, detention structures are required to attenuate flows to pre-development flow rates.

A regional detention basin is proposed to be constructed in the south-west corner of the development site to attenuate flows from Catchment INTNL-4B for all storm events, up to and including the 1% AEP storm event. Flows from external catchments EXTNL-1A, EXTNL-2B and EXTNL-1B are also conveyed through this detention basin. This detention basin was previously documented in Arcadis report *'4499-4651 Mount Lindesay Highway, North Maclean SBSMP (Southern Catchment Discharge Area)*' (11-0001-30101970-AAR-04); however, owing to changes to the contributing catchment, and proposed preservation measures to the southern wetland areas this basin has been remodelled. The proposed southern catchment management strategy and mitigation measures still comply with the general outcomes of the previous report (11-0001-30101970-AAR-04).

A second regional detention basin is proposed to be constructed in the north-eastern corner of the site to attenuate flows from Catchment INTNL-1. As such, the minor flows from the road network will by-pass the Northern Detention Basin.

A third regional detention system is proposed in the form of the conveyance channel situated along the eastern site boundary. The channel conveys flows from Catchments INTNL-2C WEST (minor flows only), INTNL-2C EAST 1 (minor flows only), INTNL-2C EAST 2, INTNL-3A, INTNL-3B, INTNL-3C, INTNL-4C, INTNL-5 and external catchments EXTNL-1C (including flows discharged from the southern detention basin), EXTNL-1D, EXTNL-3A, EXTNL-3B, EXTNL-3B1 and EXTNL-3B2. The proposed outlet configuration controls the flows discharging immediately upstream of the existing culverts situated beneath the Mount Lindesay Highway (eastern discharge location).

Catchments INTNL-2A – INTNL3B and INTNL-4C are to provide on-site allotment detention. For the purpose of sizing the three regional detention systems, an estimate of the detention volumes for the INTNL-2A – INTNL3B and INTNL-4C on-site detention systems has been calculated using the DRAINS software and is documented as part of this report; however, this is to be confirmed through a site specific SBSMP created for each individual lot. An allowance has been made for a portion of Lots 2, 3 and 4 to bypass the on-site allotment detention, discharging undetained to the drainage infrastructure in the road corridor. As such Catchments INTNL-2R and INTNL-5 extend slightly beyond the road corridor, and catchments INTNL-2B, INTNL-3A, INTNL-3B and INTNL-4C do not encompass the full allotment extents.

Catchment 2C has split into three catchments: INTNL_2C WEST, INTNL_2C EAST 1 and INTNL_2C EAST 2. Catchments INTNL_2C WEST and INTNL_2C EAST 1 discharge major and minor flow to separate points of discharge where minor flows discharge to the eastern conveyance channel on Lot 901 and major flows discharge to the proposed internal road drainage network. Catchment INTNL_2C EAST 2 discharges both major and minor flows to the eastern conveyance channel.

Note that internal catchment INTNL-3C does not require lot scale detention and is included in the regional mitigation system.

The proposed detention systems work in union to ensure the flows discharged from the development site do not cause adverse impacts upstream or downstream of the development site, for all storm events, up to and including the 1% AEP storm event.

Owing to the extensive external catchments conveyed through the regional detention systems, the complexity of the outlet structures, obstructions and drowned orifices, DRAINS was not considered the most appropriate software to model the regional detention systems. As such, the regional detention systems have been modelled in TUFLOW with input from DRAINS for the discharge flows from the allotment detention systems proposed for Catchments INTNL-2A – INTNL3B and INTNL-4C.

5.6 Detention Sizing

5.6.1 Allotment Detention

5.6.1.1 Methodology

The allotment detention systems proposed for Catchments INTNL-2A – INTNL3B and INTNL-4C were sized using DRAINS. The DRAINS models utilise a combination of the RAFTS and ILSAX methods to more accurately represent the different land use types. ILSAX was used to model the developed catchments with RAFTS used to model the relatively undeveloped existing and external catchments. The rainfall hydrographs generated for each catchment were exported from DRAINS and imported into the TUFLOW model.

The critical storm events were determined via an investigation of storm durations ranging from 10mins to 1080mins. The models were then used to route post-developed runoff from the eastern catchment through the proposed detention structure to determine the most efficient onsite detention system to comply with aforementioned objective.

Each catchment was modelled using a split catchment approach, with the first sub-catchment representing impervious areas and the second pervious. This allows for an accurate representation of Manning's roughness coefficients and applicable loss parameters.

5.6.1.2 Allotment Detention System Design Sizing

As stated in section 5.3, Catchments INTNL-2A – INTNL-3B and INTNL-4C are to provide individual on-site detention. Site specific SBSMPs will be required for each individual lot to determine the detention volumes and configurations required; however, for the purposes of sizing the northern and southern detention basins and the detentions storage in the conveyance channel, the detention volumes has been estimated and modelled in DRAINS. The discharge from each allotment detention system was extracted from DRAINS and imported into TUFLOW.

Table 5-8 provides a summary of the design parameters adopted for each individual allotment detention system. The allotment detention system design parameters were determined by modelling the pre and post development areas specific to Catchments INTNL-2A – INTNL-3B and INTNL-4C in DRAINS and ensuring the detention systems are adequately sized such that the post development flows do not exceed the pre-development flows.

Table 5-8 Allotment Detention System Design Parameters

Catchments	Internal Base Area	Maximum Water Depth	Detention Storage Volume	Control Outlets
INTNL-2A	2,400 m^2	1.99m (RL31.99m AHD)	4,151 m^3	• 375mm dia outlet @ RL30m AHD (base level); • 3m wide weir @ RL31.5m AHD
INTNL-2B	3,250 m^2	1.80m (RL27.80m AHD)	5,854m^3	• 300mm dia outlet @ RL26m AHD (base level); • 4.25m wide weir @RL27.4m AHD
INTNL-2CE1	2,600 m^2	0.8m (RL26.80m AHD)	2,074m^3	• 300mm dia outlet @ RL26m AHD (base level); • 8.9m wide weir @RL26.7m AHD
INTNL-2CE2	2,100 m^2	0.73m (RL26.73mAHD)	1,533 m^3	• 280mm dia outlet @ RL26m AHD (base level); • 7.5m wide weir @RL26.65m AHD
INTNL-2CW	3,350 m^2	1.71m (RL27.71mAHD)	4,883 m^3	• 2 x 225mm dia outlet @ RL26mAHD (base level) • 4.75m wide weir @RL27.45m AHD
INTNL-3A	4,800 m^2	0.86m (RL28.86m AHD)	4,132m^3	• 2x525mm dia outlet @ RL28m AHD (base level); • 4m wide weir @RL28.65m AHD
INTNL-3B	5,110 m^2	1.67m (RL25.67m AHD)	8,627m^3	• 375mm dia outlet @ RL24m AHD (base level); • 4m wide weir @RL25.5m AHD
INTNL-4C	1,800 m^2	1.86m (RL26.36m AHD)	3,495m^3	• 2x375mm dia outlet @ RL24.5m AHD (base level); • 4m wide weir @RL26m AHD

The peak water level estimated for each system is provided in Figure 5-2 below.

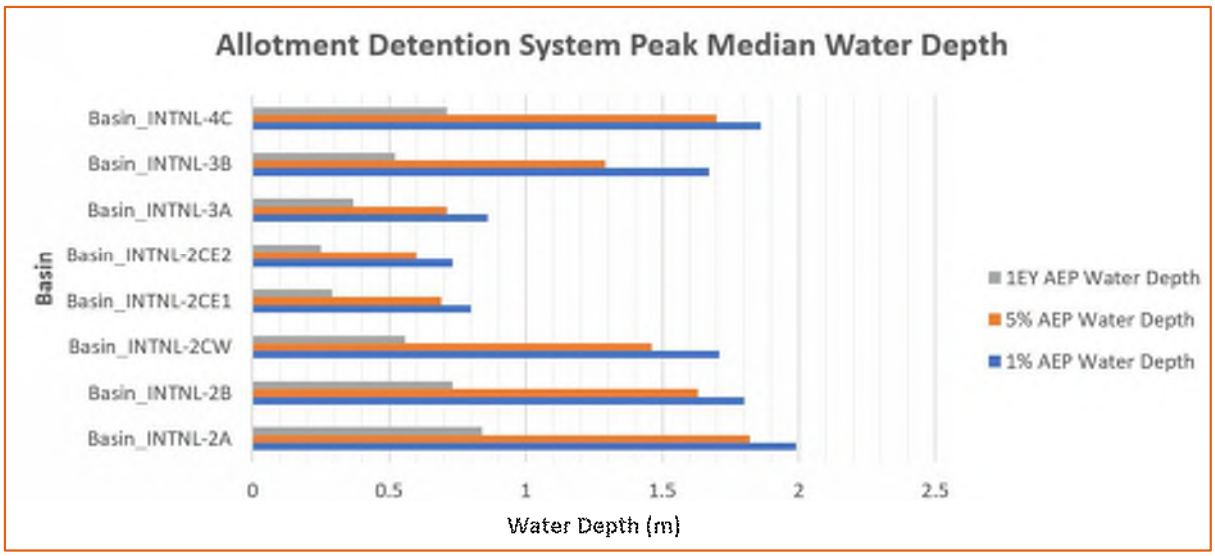

Figure 5-2: Allotment Detention System Peak Median Water Level

We note that should the individual lots adopt a different basin configuration other than what is specified in Table 5-8, the proposed basins shall be designed to ensure no increase in discharge rates up to the 540min duration for all the design events to ensure no impacts downstream.

5.6.2 Southern Detention Basin

Table 5-9 presents the parameters for the proposed southern on-site detention basin, as modelled in TUFLOW, which attenuates flows from Catchment INTNL-4B for all storm events, up to and including the 1% AEP storm event, prior to release to the southern discharge location. External catchments EXTNL-1A and EXTNL-1B are also conveyed through this basin.

This basin was previously documented in Arcadis report *'4499-4651 Mount Lindesay Highway, North Maclean SBSMP (Southern Catchment Discharge Area)'* (11-0001-30101970-AAR-04); however, owing to changes to the contributing catchment, this basin has been remodelled as part of this report, resulting in a larger and higher weir. This adjustment to the outlet configuration ensures that the flows discharged from the basin continue to be restricted to pre-development flows. The proposed southern catchment management strategy and mitigation measures still comply with the general outcomes of the previous report (11-0001-30101970-AAR-04).

Reference should be made to Engineering Drawings in Appendix B for a conceptual illustration of how the detention basin will operate.

Table 5-9 Southern Detention System Design Parameters

Contributing Catchments	Internal Base Area	Maximum Water Depth	Detention Storage Volume	Control Outlets
EXTNL-1A, EXTNL-1B & INTNL-4B	26,672 m^2	1.58 m (RL28.19m AHD)	32,706m^3	• 3 x 900mm dia pipe low flow outlets @ RL26.61m AHD (base level) with 800mm dia orifice fit to one of the 900mm dia low flow pipes • 64m wide weir @ RL28.0m AHD

5.6.3 Northern Detention Basin

The northern on-site detention basin is situated in the north-east corner of the proposed development and attenuates flows from INTNL-1 and the major flows from the northern portion of the internal road network, prior to discharge to the northernmost portion of the eastern conveyance channel. Bio-retention filter media is proposed to be included in the base of this basin to achieve the water quality objectives for Lot 1. The detention volume modelled was above the extended detention required for water quality (0.3 m).

Reference should be made to Figure 5-1 for the catchment plan and the Engineering Drawings in Appendix B for a conceptual illustration of how the detention basin will operate. Table 5-10 provides a summary of the design parameters adopted for the northern detention basin in TUFLOW.

Table 5-10 Northern Detention System Design Parameters (Depths and Areas include extended detention for water quality)

Contributing Catchments	Internal Base Area	Maximum Water Depth (including extended detention depth)	Detention Storage Volume	Control Outlets
INTNL-1	5,200 m^2	1.94m (RL24.48m AHD)	7,402m^3	• 2 x 300mm dia low flow pipe outlets @ RL22.54m AHD; • 2 x 900x450 RCBC @ RL23.40m AHD

5.6.4 Conveyance Channel

A conveyance channel (East) is proposed to be constructed along the eastern site boundary to convey flows from the following catchments to the eastern discharge location, being the four 1.75m high, 2.1m wide reinforced concrete box culverts which convey flows beneath Mount Lindesay Highway to the receiving waterway:

- INTNL-2C WEST (minor flow only)
- INTNL-2C EAST 1 (Minor Flow only)
- INTNL-2C EAST 2
- INTNL-3A
- INTNL-3B
- INTNL-3C
- INTNL-4C
- INTNL-5
- EXTNL-1D
- EXTNL-3A
- EXTNL-1C (including flows discharged from the Southern Detention Basin)
- EXTNL-3B
- EXTNL-3B1
- EXTNL-3B2

An outlet pit structure will be constructed upstream of the receiving stormwater drainage culverts, to control the flows released to the eastern discharge location, thus converting the conveyance channel into a combined conveyance and detention structure. This configuration was represented in the TUFLOW model to ensure flows are safely conveyed through the site and no adverse impacts occur upstream or downstream of the site.

Reference should be made to Figure 5-1 for the catchment plan and to the Engineering Drawings in Appendix B for catchment plans, channel dimensions, outlet details and a conceptual illustration of how the detention structure will operate.

6 HYDRAULIC ASSESSMENT

6.1 Methodology

The hydraulic assessment has been undertaken to evaluate how the proposed on-site detention basin and proposed development pad will manage flows being conveyed through the overland flow path.

The hydraulic assessment of the proposed overland flow path required a detailed understanding of the hydraulic and hydrological characteristics under a series of storm events.

To assess the complex flood behaviour around the site a TUFLOW two-dimensional flood model has been identified as the preferred method to accurately determine any impacts caused by the proposed development.

The hydraulic and hydrological impact assessment undertaken via a two-dimensional model presents more accurate results through utilising a grid to represent the catchment topography and complex existing flow distribution. The results are particularly relevant around the inflow and outflow locations of the site, determining peak flow rates, the extent of flood inundation as well as flow distribution.

6.2 Objectives

The primary objective of this assessment is to ensure the proposed stormwater management will not significantly change the flood behaviour against the existing condition at the areas immediately downstream and upstream of the site. The assessment considers the changes and if they would cause any actionable nuisance.

6.3 Model Set Up and Adopted Data

A TUFLOW 2D flood model has been created to assess any changes in flood behaviour caused by the proposed development as well as the conveyance of external flows through the site and flood impacts upstream and downstream of the site. The following sections provide discussion on the adopted inputs into the TUFLOW model.

6.3.1 Hydrology

Due to intrinsic complexity of 2D modelling and particularly modelling time, a DRAINS rainfall runoff model was used to determine the hydrograph for each Annual Exceedance Probability (AEP) event: 50%, 20%, 10%, 5%, 2% and 1% AEP. The results for this model were then used to give an indication of which duration would be critical at the assessment point (i.e. northern site boundary) however, the routing of flows through the catchment and determination of median temporal pattern has been undertaken in TUFLOW.

6.3.1.1 Determination of Critical Durations and Median Temporal Pattern

TUFLOW was run initially for the storm durations ranging from 60 minutes to 540 minutes using all 10 temporal patterns based on the results of the DRAINS modelling. Although the critical durations throughout the model were found to vary, at the downstream portion of the model, the critical durations would vary from 90min to 540min in the existing and developed case. As such, the model was then run for all these durations to determine potential impacts.

Once the critical durations were selected, the simulation output was processed as follows:

- For each storm duration, the median flood grid was extracted from the 10 temporal pattern flood grids using the TUFLOW utility asc_to_asc.exe, -statMedian switch.
- The median flood grids for each of the simulated durations were combined to form the maximum median flood grid for each AEP (max max).

6.3.1.2 Modelling Results

Modelling results have been assessed to compare the peak flow rates downstream of Mount Lindesay Highway and at the outlet of the Southern Detention Basin in the Existing Model Scenario and Developed Model Scenario, shown in Table 6-1.

Table 6-1 Peak Flow Rates Downstream

Scenario	Peak Flow Rate for Annual Exceedance Probability (m^3/s)					
	50%	20%	10%	5%	2%	1%
Downstream of Mount Lindesay Highway						
Existing	2.90	6.24	8.26	10.50	13.07	16.15 (16.16)
Developed	3.01	4.87	6.79	9.36	12.72	15.85 (14.99)
Difference	+0.11	-1.37	-1.47	-1.14	-0.35	-0.3
Outlet of Southern Detention Basin						
Existing	2.87	3.54	3.74	4.54	8.13	8.84 (9.41)
Developed	1.58	2.71	2.85	3.55	3.83	4.49 (6.68)
Difference	-1.29	-0.83	-0.89	-0.99	-4.3	-4.35

*Flow presented in this table are peak median values “Rank 6”
1% AEP Mean flows provided in ( )

Table 6-2 Critical Temporal Pattern

AEP	Scenario	Duration	Selected Temporal Pattern(s)
50%	Existing	540 min	TP06
	Developed	270 min	TP01
20%	Existing	540 min	TP05
	Developed	540 min	TP05
10%	Existing	180 min	TP08
	Developed	120 min	TP08
5%	Existing	180 min	TP08
	Developed	120 min	TP03
2%	Existing	270 min	TP09
	Developed	120 min	TP02
1%	Existing	90 min	TP03
	Developed	120 min	TP02

6.3.2 Boundary Conditions

The downstream boundary condition has been set approximately 1150m downstream of the Mount Lindesay Highway drainage crossing (west to east). This set up has allowed the system to be generally free discharging with the main hydraulic control being the culvert crossing beneath Mount Lindesay Highway. It is noted however that an existing access road adjacent to the site boundary acts like a ‘weir’ in the existing and developed case allowing additional ponding within the site.

Due to recent updates to the Logan River flood model, Arcadis has conducted a sensitivity assessment based on water level information extracted from this model and applied at the boundary. Further discussion is provided in section 6.5.5 below.

6.3.3 Grid Size

A 2m grid has been adopted in the model to accurately represent the hydraulic features of the existing and proposed overland flow path.

To accurately depict the proposed western channel, the QUADTREE option in TUFLOW has been employed. This function has reduced the grid to 0.5m around the channel, ensuring the accurate representation of channel dimensions. To maintain consistency in the final comparison, the same approach was applied to the modelling of the existing condition.

6.3.4 Manning's Values

The Manning's values adopted as part of this assessment are provided in Table 6-3.

Table 6-3 Manning's Values

Land use	Manning's n
Medium Scrub	0.055 – 0.06
Dense Vegetation	0.1
Scattered Scrub	0.05
Open Ground (sparce grass)	0.027
Road	0.018
Swales	0.06 / 0.02
Eastern Channel*	0.15

*Does not include Powerlink easement area

6.3.5 Existing Downstream Drainage Infrastructure

Mount Lindesay Highway drainage crossing (west to east)– 4 x 1.8 m high x 2.1m wide box culverts.

6.3.6 Planned Upstream Drainage Infrastructure

As discussed in section 3.5, Logan City Council will soon be upgrading the stormwater drainage infrastructure in Crowson Lane. As such the following planned and/or existing drainage infrastructure has been modelled in TUFLOW:

Mount Lindesay Highway drainage crossing (east to west)– 900mm dia RCP.

Crowson Lane West (north to south) – 1050mm dia RCP.

Crowson Lane East (north to south) – 1350mm dia RCP

Crowson Lane East (north to south) – 900mm dia RCP

6.3.7 Existing Model Scenario

The existing terrain has been represented based on LiDAR information for the area. Aerial photos as well as site visits have been used to determine the existing condition roughness.

6.3.8 Developed Model Scenario

The TUFLOW model has been modified to include the proposed industrial development including the proposed overland flow path.

6.4 Assumptions and Limitations

6.4.1 Key Limitations

6.4.1.1 LiDAR Ground Survey

The model topography has been based on LiDAR survey information (2018) provided in digital format with a 1m grid resolution. It is recommended this report be reviewed and amended as required in conjunction with the detailed design once detailed survey of the site and its boundaries is obtained.

6.4.1.2 Climate Change

Climate change has not been considered in this assessment.

6.4.1.3 Sensitivity

No sensitivity assessment for roughness has been considered in this assessment.

6.4.2 Key Assumptions

6.4.2.1 Proposed Development

This report has made assumptions on finished surface levels and roughness values of particular land use areas to show that a potential solution is available for the proposed development. In the event that the development proposal changes in any form or further applications are lodged with Council or EDQ, this report **must** be updated to reflect the changes made to the hydraulic conveyance capacity of the development site.

6.5 Model Results

The primary assessment of flood impacts has been undertaken using a comparison of the peak water surface levels resulting from the proposed development stormwater management and earthworks against the existing scenario terrain, under a variety of flood events. Appendix D of this report shows existing and developed scenario peak water depth ranges along with peak water surface level changes for a range of flood events (50%, 20%, 10%, 5%, 2% and 1% AEP). Additionally, the results section includes peak velocity maps for the existing and proposed scenarios.

6.5.1 Flood Depths

The project site hydraulic properties have been designed with the aim of minimising changes in flood behaviour both upstream and downstream of the site. Maximum depths in the existing case 1% AEP storm event are seen to reach approximately 1.1m adjacent to Mount Lindesay Highway.

Immediately downstream of the site flood depth in the 1% AEP reaches approximately 2.4m in both existing and developed cases. The proposed earthworks changes, creates and overland flow channel crossing the site from south to north. Depth within this channel is approximately 2.9m in the 1% AEP within the bounds of the site.

Figure 6-1 and Figure 6-2, below, provide the 1% AEP peak flood depths for both existing and developed cases respectively.

Figure 6-1 - Existing Peak Water Depth - 1% AEP

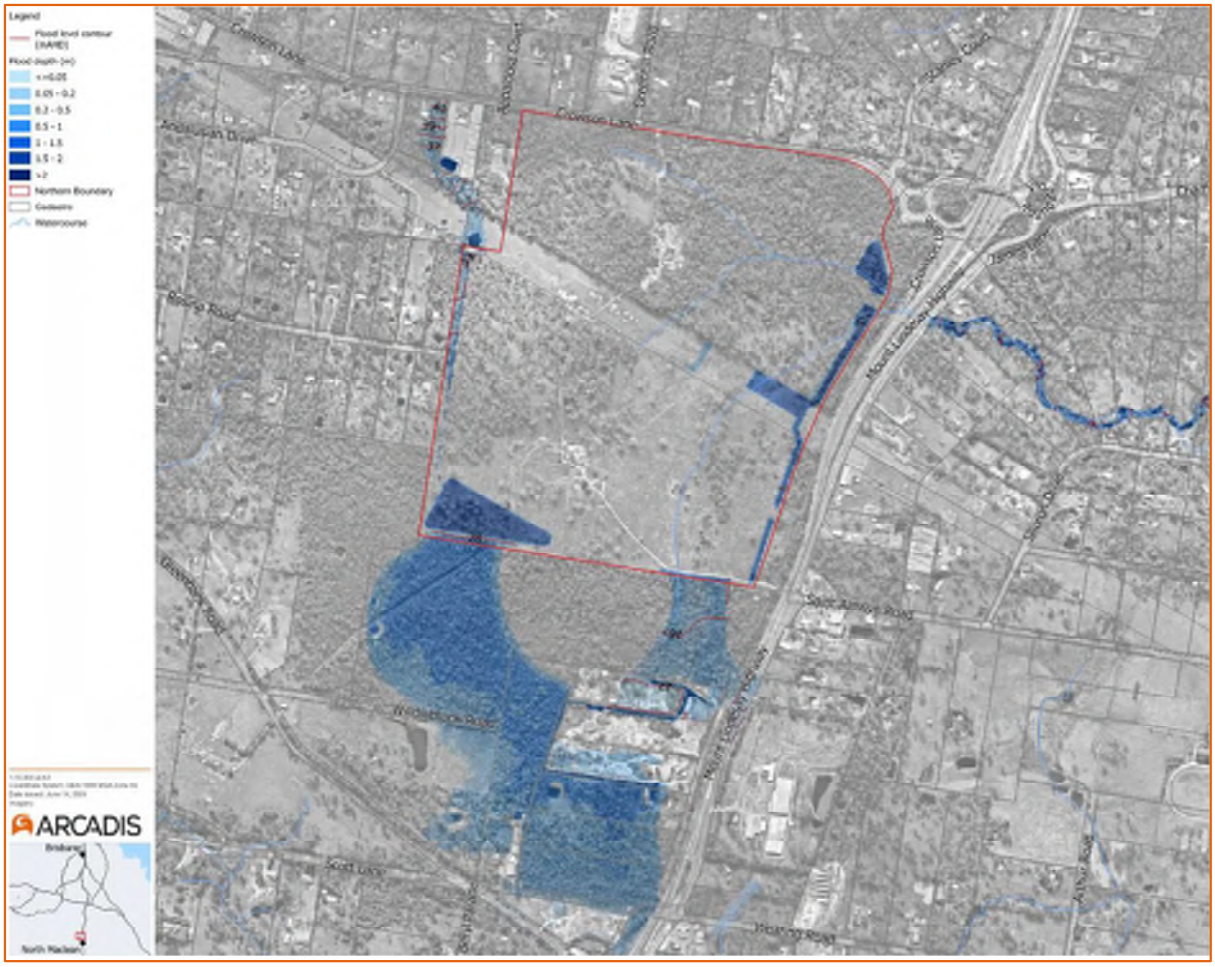

Figure 6-2 - Developed Peak Water Depth - 1% AEP

Table 6-4 1% AEP Channel Water Level

MD01		MD04	
Chainage	1% AEP Water Level	Chainage	1% AEP Water Level
0	25.10	0	25.64
100	24.84	40	25.50
200	24.63	80	25.43
300	24.57	120	25.37
400	24.51	180	25.33
500	24.47	-	-
600	24.46	-	-

Note: Refer to Appendix B DWG SKT011-06 for Chainage references concerning Channels MD01 and MD04. Refer to Arcadis supplementary memo titled Flagstone Estate: LCC TLPI No 1/2023 Response – Flood Overlay Code dated 1 March 2024 for details concerning 1% AEP at 2100 and larger events.

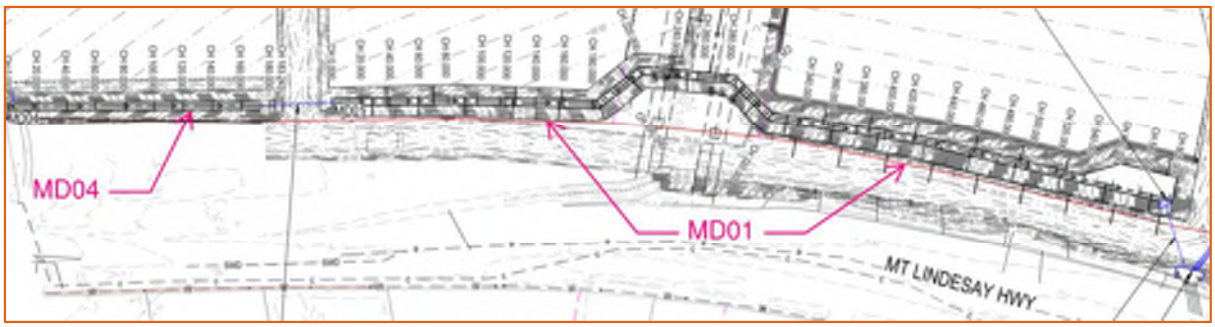

Figure 6-3 – Channels MD01 and MD04 Reference Chainages.

6.5.2 Peak Water Surface Level Change

Modelling results show that generally, the existing flood behaviour outside of the site is maintained as per the existing condition. Changes in the water surface levels are generally negative with a reduction in levels in the proposed case scenario. Increase in water surface levels are contained to the site boundary, where earthworks are proposed. A minor positive afflux is shown downstream of the site in the 50% AEP event however this is considered negligible (11mm) and localised. An additional sensitivity assessment is provided in Section 6.5.6 of this report showing that when compared to Historical events, no negative afflux is noticed.

Modelling results for all storm events up to the 1% AEP have been included in Appendix D.

Figure 6-4 - Developed Peak Water Surface Level Change - 50% AEP

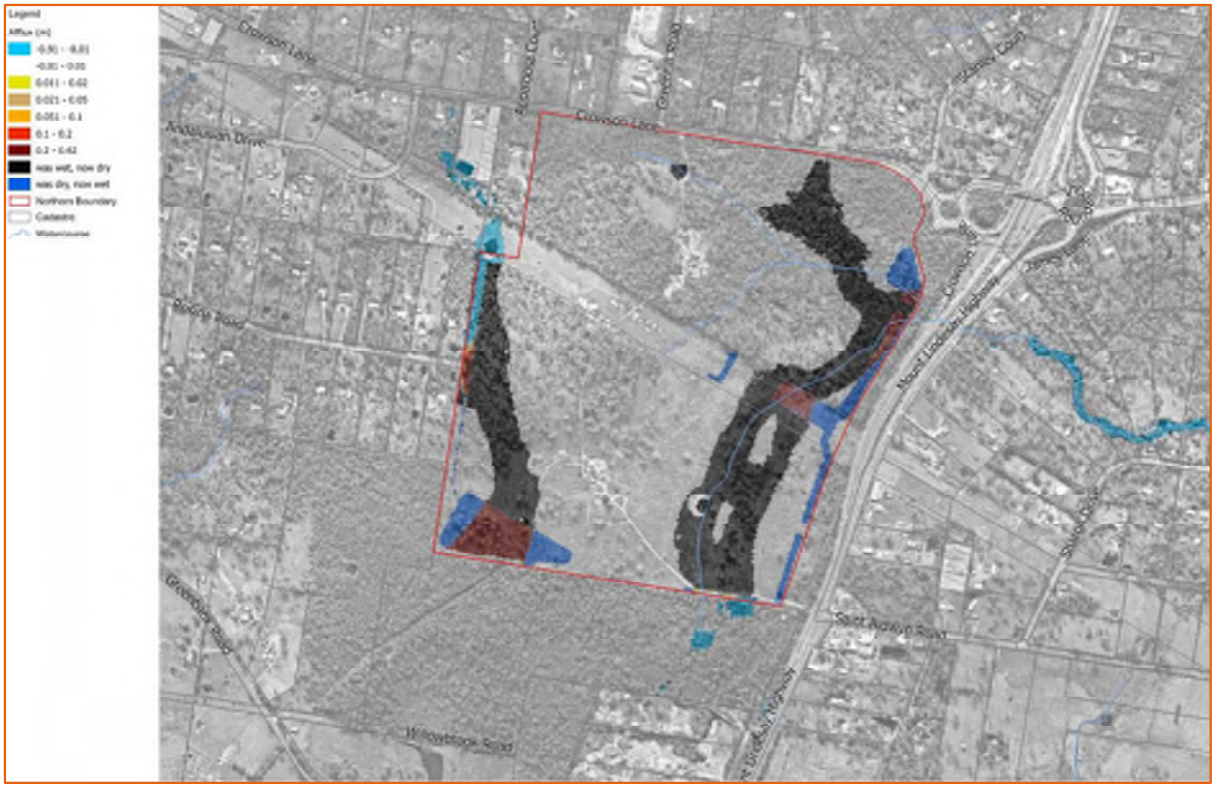

Figure 6-5 - Developed Peak Water Surface Level Change - 1% AEP

6.5.3 Peak Velocities

Modelling results are presented in Appendix D to show the peak velocities reached within the assessment area. Figure 6-6 and 6-7, show an extract of the 1% AEP flood event peak velocity, with the results indicating that velocities are generally below 1m/s and unchanged upstream and downstream of the site. Within the proposed overland flow channel created by the earthworks, velocities are higher than existing case reaching 1.5m/s.

Figure 6-6 - Existing Peak Water Velocity - 1% AEP

Figure 6-7 - Developed Peak Water Velocity - 1% AEP

No significant change in flow velocity is observed outside of the site. Modelling results are presented in Appendix D showing change in velocity for all events up to the 1% AEP.

Figure 6-8 – Change in Flow Velocity - 1% AEP

6.5.4 Blockage Sensitivity

A sensitivity assessment for pipe blockage has been conducted, modelling two scenarios: a 20% pipe blockage and a 50% pipe blockage. The results presented in Appendix D indicate that in the 20% blockage scenario, the flow is generally contained within the channel. In the 50% blockage scenario, minor spillage is observed at the downstream end of the eastern and western channels. However, it is worth noting that water levels are still below the finished floor level and the proposed sewer pump station.

Figure 6-9 demonstrates that the peak water level in the Southern Detention Basin increases slightly under the blocked scenario and the inundation time increases from approximately 6.5 hours to 9.5 hours during the 1% AEP event.

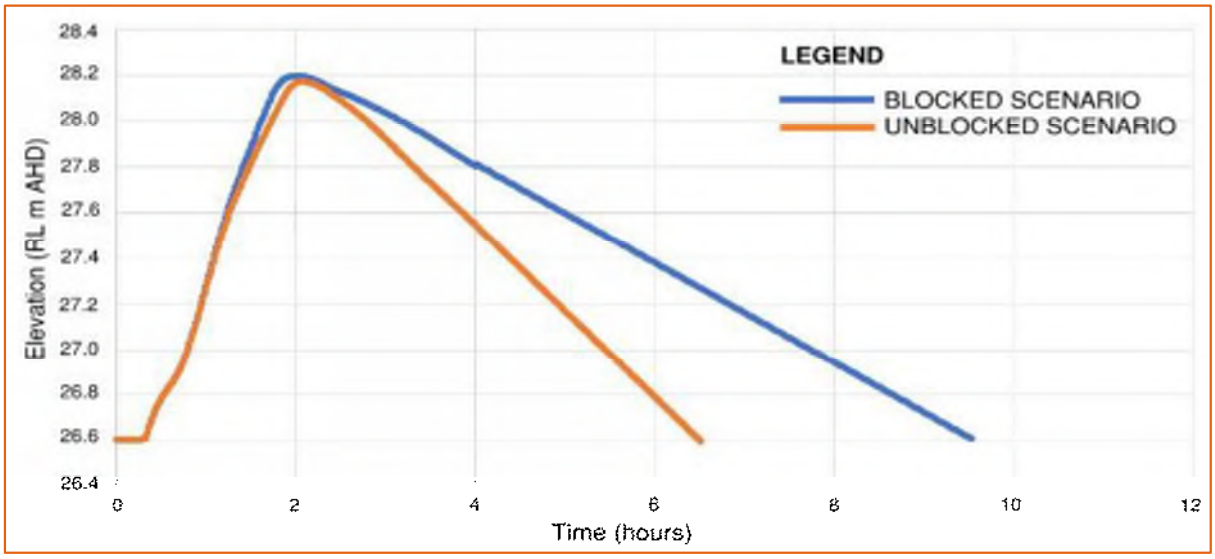

Figure 6-9 – Southern Basin Inundation Curves - 1% AEP

6.5.5 Regional Flood Sensitivity

A regional sensitivity has been undertaken based on the recently updated Logan River Flood Model. To undertake this assessment Arcadis has purchased the TUFLOW model and accompanying report. Based on this information Arcadis has determined that the peak water level for the site area occurs in the 72hr event.

Water levels for this event was then extracted and applied to the site-specific flood model as a boundary condition. Whilst the results indicated a higher water level downstream of the site, flood levels were generally below the peak water level for the site (540min). It is also noted that results indicated that the peak for the river occurs approximately 20hrs past the site peak which validates the assessment with a lower boundary.

Figure 6-10 - 1% AEP 72hr Regional Flood Depth and Extents

6.5.6 Historical Flood Sensitivity

A historical sensitivity has been undertaken based on the catchment configuration south of the site. Arcadis investigated the impact of existing earthworks to the south of the site as it currently causes some unintentional flow attenuation. This external catchment feature is not accounted for in Council's regional flood model. Two figures are provided to show catchment features.

Figure 6-.11 below shows the existing earthworks as represented in the site-specific assessment presented in this report. Figure 6-.12, from 1983, shows the catchment without the earthworks.

Figure 6-11 – Current Earthworks Extents South of the Site

Figure 6-12 – Catchment condition in 1983

Results indicate that compared to the historical results, the proposed development will significantly reduce flood levels. Afflux figures below show a reduction in water level of up to 200mm in the 1% AEP and 140mm in the 50% AEP for historical comparison.

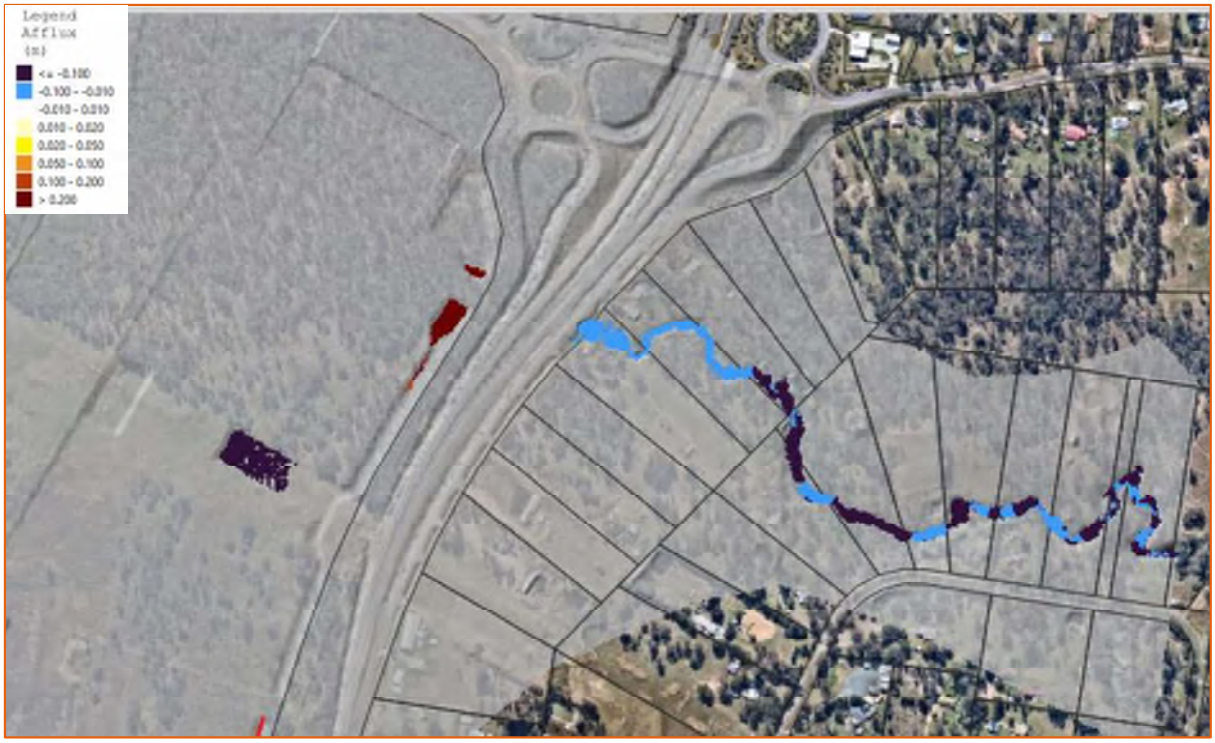

Figure 6-13 - Developed Peak Water Surface Level Change - 50% AEP

Figure 6-14 - Developed Peak Water Surface Level Change - 1% AEP

Arcadis also investigated the area where, when compared to the current existing condition, a minor afflux is shown. The cross-section below shows the levels for all three scenarios, and while an 11mm increase in water level is shown when compared to existing conditions, a 44mm reduction is shown when compared to the historical event.

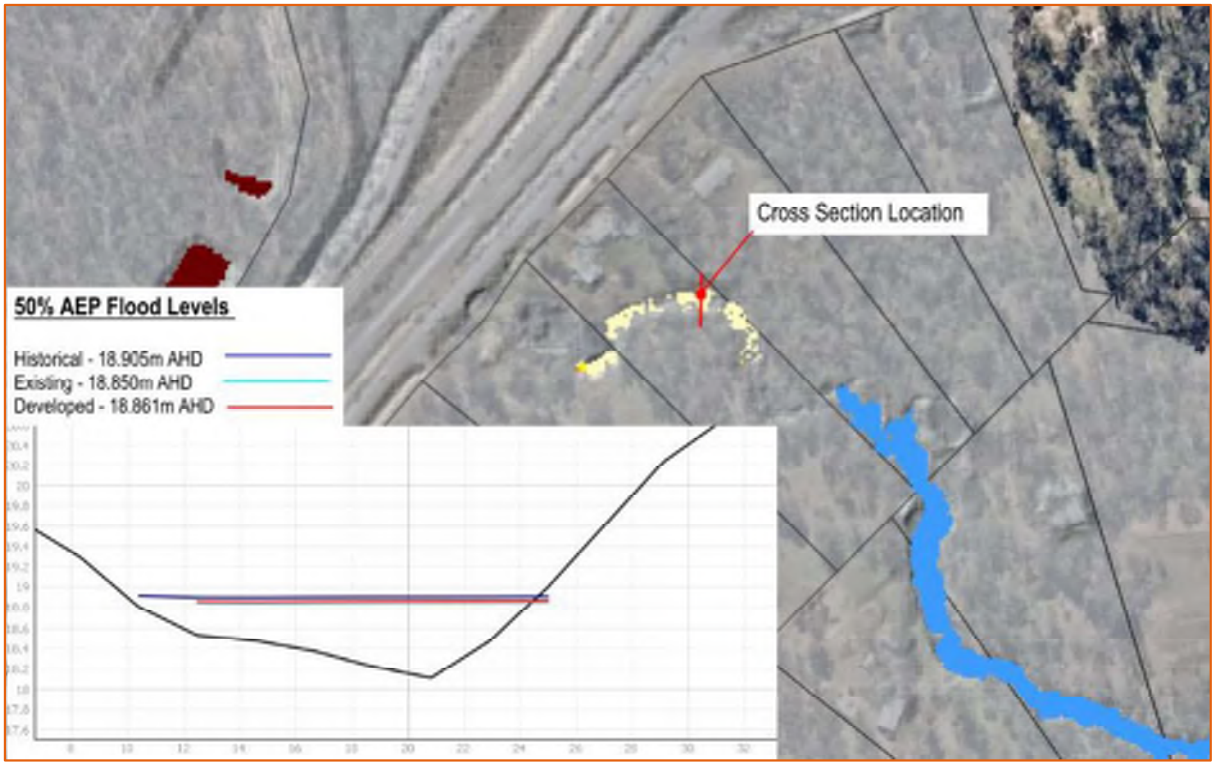

Figure 6-15 – 50 % AEP Flood Level Comparison

The subject minor 50% AEP afflux corresponds to no adverse or discernible velocity change for the associated 11mm WSL increase. Further, the maximum 50% AEP velocity is recorded along this reach as 1.4 m/s and is anticipated to cause no waterway instability issue. Figure 6-16 shows the velocity vector along the longitudinal section of this particular reach of the downstream waterway.

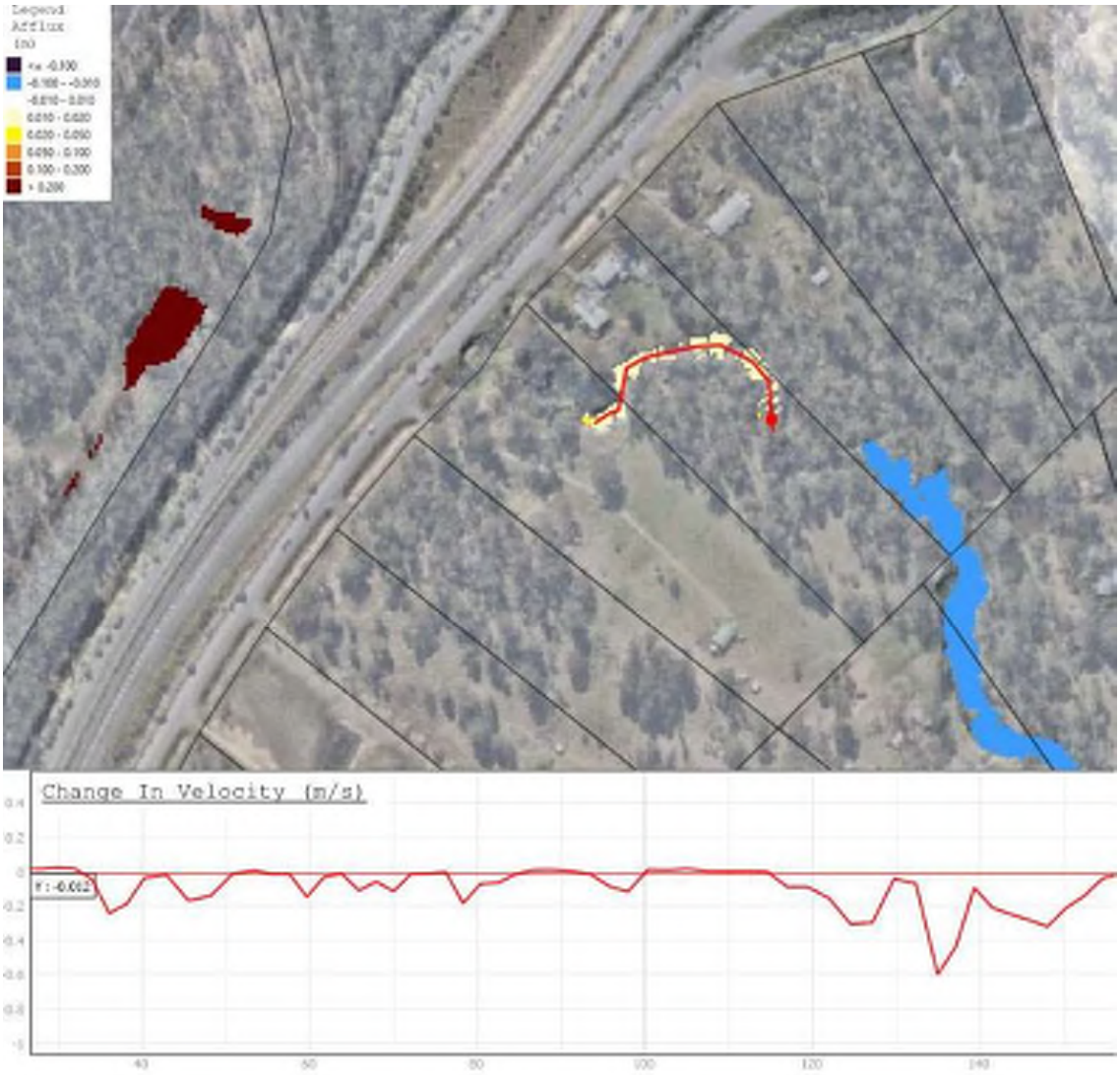

Figure 6-16 – 50 % AEP Velocity Change for afflux reach section.

6.6 Objective Discussion

The above hydraulic investigation has demonstrated that suitable measures can be included in the design of the proposed development, to ensure that there is no increase in peak 1% AEP discharge being directed off-site to existing downstream infrastructure and no actionable nuisance caused to neighbouring properties as a result of the development.

6.7 Drainage System Safety

Urban drainage systems can present a risk to community during storms and times of flood. The consequences of interaction with the proposed drainage system and treatment areas can lead to physical harm and trauma. Notwithstanding the safety risks associated with the proposed stormwater structures can be managed though design and management techniques. In this instance it is considered necessary to develop risk assessment profile and implement where required appropriate design and management techniques. Refer to supplied Bulk Earthworks Engineering Plans for associated risk analysis and proposed management actions.

7 CONCLUSION

This SBSMPQ has been prepared to provide a design proposal and guide to the stormwater quantity management techniques and strategies for the site.

The primary objective of this SBSMPQ has been to ensure that:

1. **Suitable measures are incorporated in the development to ensure that there are no adverse impacts to downstream receiving waterways, property or infrastructure resulting from any increase to peak discharging stormwater flow rates.**

This report has presented the methodology and results of a flood modelling assessment which has included the analysis of the impacts of the proposed development in comparison to the existing scenario. In particular this assessment has concentrated to the impact immediately upstream and downstream of the site where complex flood behaviour exists.

To undertake the assessment of the hydraulic conveyance changes as a result of the proposed development, Arcadis has created a TUFLOW model using results documented in the 4499 - 4651 Mount Lindesay Highway, North Maclean Site Based Stormwater Management Plan Report, EAG001-30139050-AAR-01. The assumptions and limitations associated with the modelling exercises undertaken are highlighted in this report and the subsequent results are summarised as follows.

Results indicate that the proposed development will generally improve flood conditions downstream of the site by applying the reduction of site stormwater discharge via the proposed detention systems.

Note: The proposed operational stormwater quality treatment train is detailed in the Site Based Stormwater Quality Management Plan (SBSQMP) (EAG003-30109334-AAR-05).

Appendix E – Arcadis Flood Impact Technical Memorandum

MEMO

ARCADIS Design & Consultancy for natural and built assets

Date	1/03/2024
To	Erin Dyer (Charter Hall)
From	Gary Ellis (Arcadis) and Darlan Castro (Arcadis)
Copy to	
Subject	Flagstone Estate: LCC TLPI No. 1/2023 Response – Flood Overlay Code

1 INTRODUCTION

This Technical Memo has been prepared for Charter Hall to provide for the Flagstone Logistics Estate an assessment of larger design storm events for and exceeding 1% AEP in 2100 and requirements to satisfy Logan City Council Planning Scheme 2015 Section 8.2.5 – Flood Overlay Code (October 2023). Moreover, analyse these larger events and determined minimum Flood Planning Levels for the site development areas for corresponding accepted land use compatibility. It is noted that purported flood planning levels relate to uniform development (i.e. minimum 0.5% AEP in 2100 immunity) for specific flood zonal areas as defined in Section 7.4. Uniform development is defined by all relevant individual lot pads elevated to or above the corresponding flood planning level for this specific storm event.

2 SITE DESCRIPTION & INDUSTRIAL LAND USE

The subject development is situated at 4499 - 4651 Mount Lindesay Highway, North Maclean. The site is situated within the Greater Flagstone Priority Development Area (PDA) located within the Logan City Council (LCC) local government area. The site is approved for specific land use "*Industry and Business Zone*" with overlay for indicative future bio-diversity corridor.

3 RELATED EXISTING APPROVALS

The proposed development is approved with a Development Permit for the reconfiguring a lot - one (1) lot into eleven (11) lots and new roads, consisting of five super lots and six auxiliary lots, comprising drainage, open space and a sewer pumpstation. Additionally, compliance assessment endorsements are noted as follows:

- Bulk Earthworks and Drainage (Condition 11A)
- Western Boundary Wall (Condition 13A)
- Updated SBSMP (Condition 21)

Refer to EDQ correspondence (Reference: DEV2018/961/4_D23/116559) dated 2 August 2023 for endorsement and approved plans and report. Figure 1 shows the approved overall bulk earthworks (and finish surface levels) and associated drainage and pipe infrastructure. Refer to Appendix A for copy of this endorsed drawing No 0100 Issue 07.

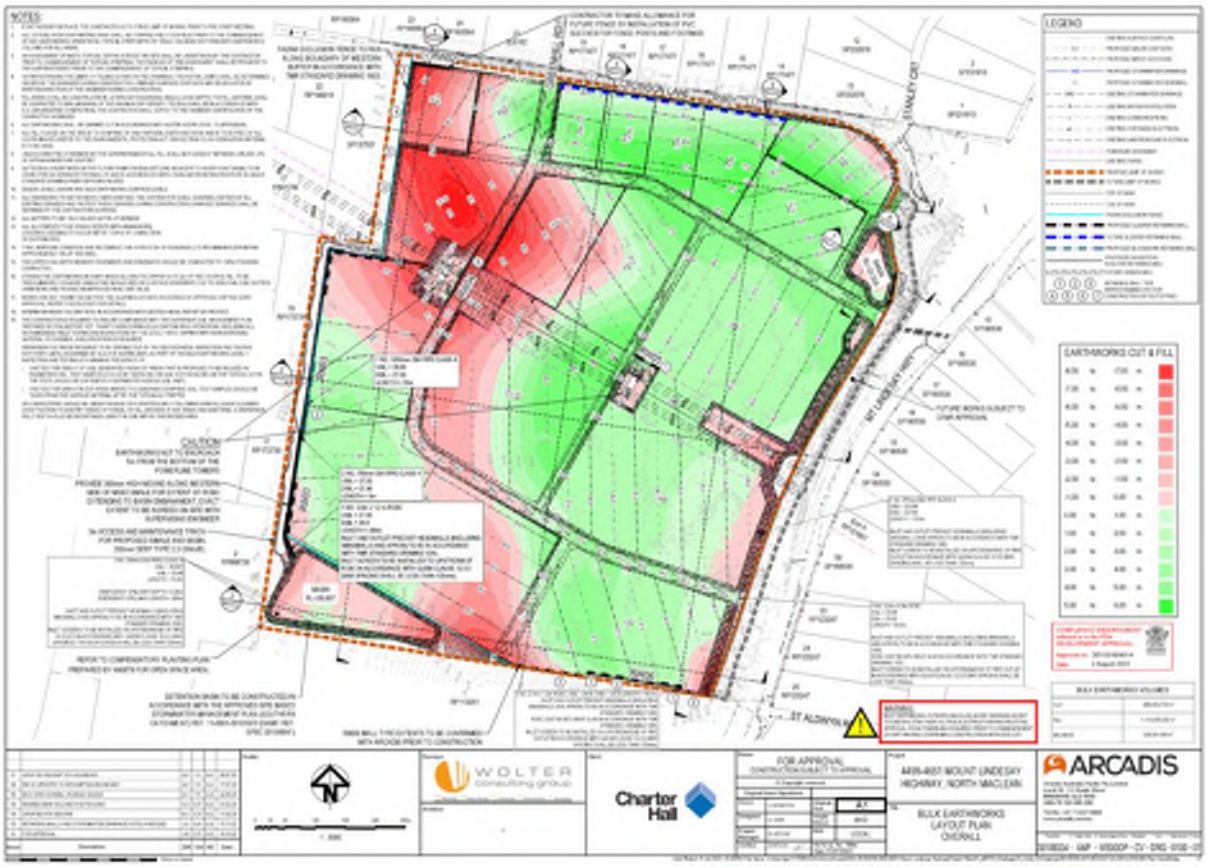

Figure 1 – Endorsed Bulk Earthworks Overall Plan

4 OM-05 FLOOD HAZARD OVERLAY

The Logan City Council Planning Scheme 2015 Part 8 is the specific reference document for this assessment concerning land use flood compatibility and associated assessment benchmarks for accepted development. Particularly, the subject site and surrounding PDA associated land parcels are to be considered subject to the recently introduced TLPI: No. 1/2023 (effective Date 30 Oct 2023) and associated OV-05 Flood Hazard Overlay.

Figure 2 below shows the present OV-05 Flood Hazard Overlay mapping for the Estate and surrounding land parcels. The subject site and surrounds include all flood risk type areas and High Flow Area, specially:

- High Flood Risk
- Moderate Flood Risk
- Low Flood Risk
- Very Low Flood Risk

It is noted that the High Flow Area is a minor encroachment to the development area and is limited to the drainage channel only and not considered any further for this assessment. The associated overlays trigger assessable code requirements as per Section 8.2.5 Flood Hazard Overlay Code. A full response to this code performance and acceptable outcomes are included to Appendix B based upon the

outcomes of updated Logan River flood model (see Section 6). Notably, the current Logan City riverine flood modelling and flood overlay mapping is reflective of previous natural ground levels and not current approved finish surface levels (bulk earthworks) and progressed works. Further, owing to existing approvals (refer Section 3, including hydraulic flood assessment) and works already undertaken, this benchmark assessment is:

- Based upon BEW finish surface levels (development and adjoining); and
- limited to those flood events equal to and larger than the DFE (1% AEP) and relevant to compatible land use concerning industrial development. Specifically, the 1%, 0.5% AEP and 0.2% AEP at 2100 events.

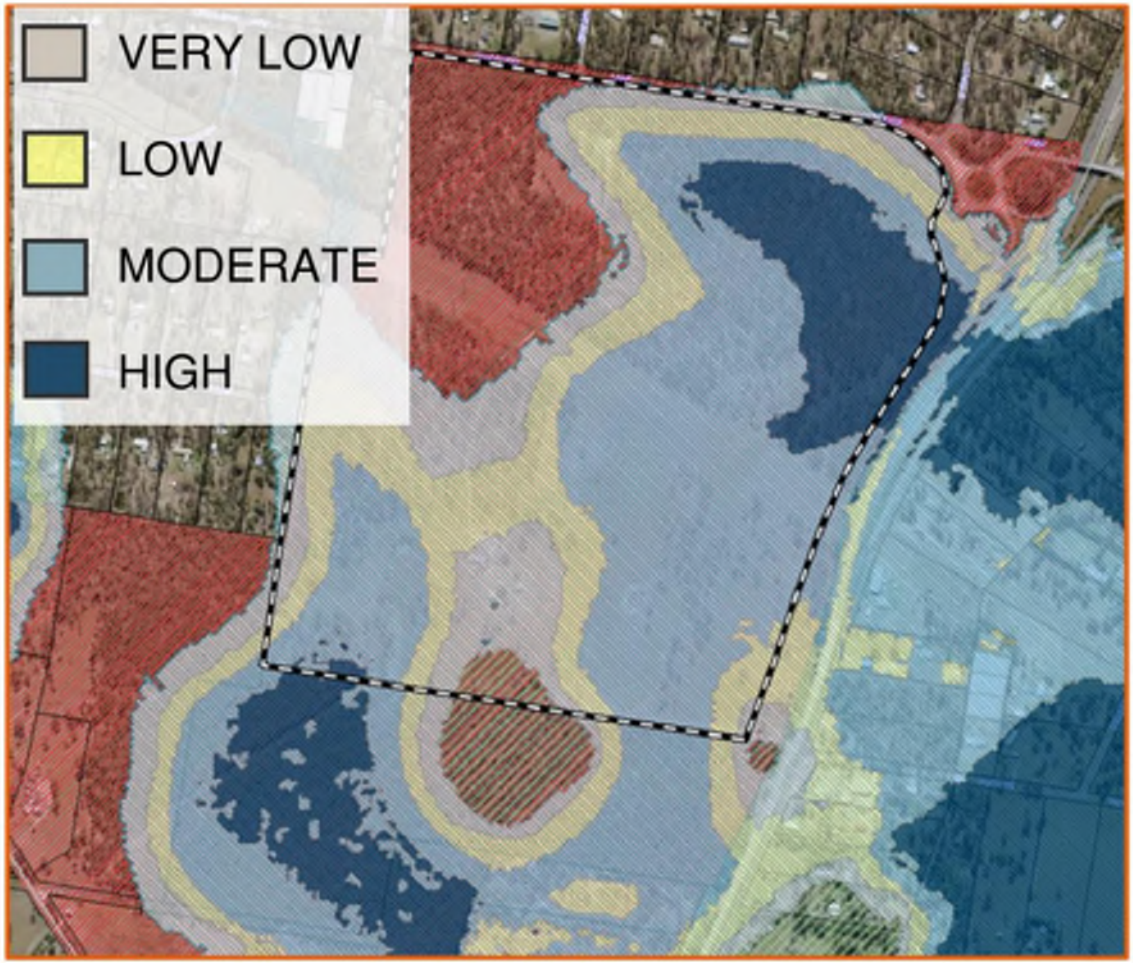

Figure 2 – LCC Flood Hazard Overlay Mapping

Importantly Flood Hazard mapping produced within this report uses LCC's flood risk hazard matrix for plotting hazards in context of relevant AEP events up to and including PMF. Refer Logan Planning Scheme 2015 SC6.2.10 Flood Figure 1.8.2 – Hydraulic risk matrix (included as a legend in Appendix C mapping).

The stock water surface level (WSL) results provided by Council (within the updated model package) have been compiled below to allow for comparison of inundation extents. Refer to Figure 3.

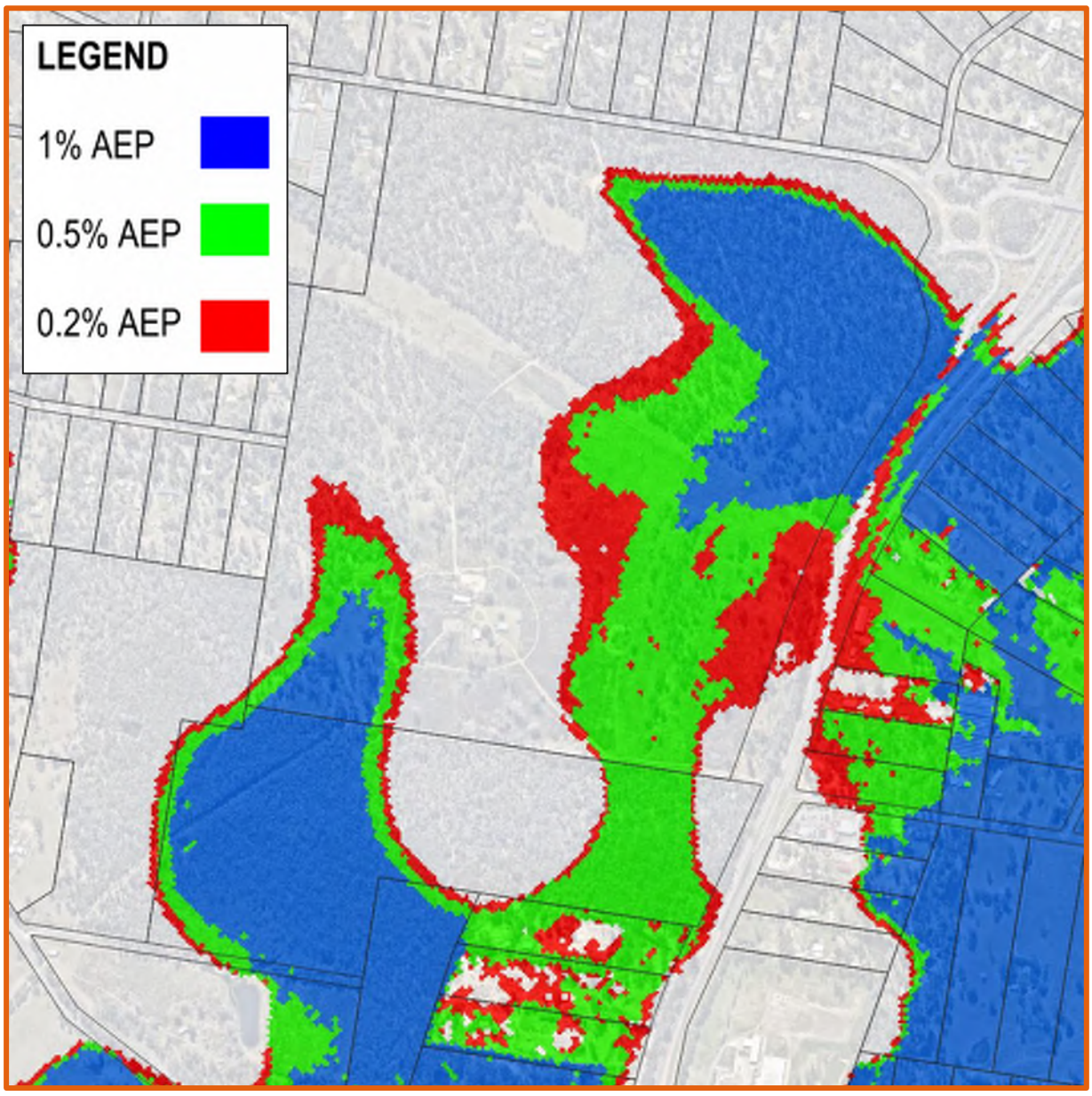

Figure 3 – LCC Stock Results Compiled for Inundation Extents (1% AEP – 0.2% AEP)

5 ADOPTED FLOOD MODEL

The adopted flood model for this assessment is the Logan and Albert rivers hydraulic model 2023, which was released by Council under a Data / Image Use agreement signed on the 1st of December 2023. This updated model incorporates changes to the previously provided Climate Change assessment, specifically in relation to the Representative Concentration Pathways (RCPs) for greenhouse gas and aerosol concentrations in the year 2100. The model now adopts the RCPs 4.5 as the Climate Change scenario. It should be noted however that hydrology was not made available for a climate change 0.05% AEP event and was therefore without climate change for the purposes of this assessment.

The critical duration for the site has been determined to be a 72-hour storm event for 1% AEP to 0.05% AEP (with climate change except 0.05% AEP, not available), and 36-hour storm event for the PMF (PMPDF). To determine the median Temporal Patterns (TP) for the site, all 10 distributions were run

using the 20m grid. These temporal patterns represent different flood scenarios and help in understanding the range of possible outcomes.

Once the critical duration and TP were determined, they were used as inputs for the assessments described in this memo. It is important to note that the assessment has been undertaken using a 10m grid, which is the level of resolution adopted in the regional assessment to capture the flood risk for the site.

It should be further noted that the critical TP for the 1% AEP climate change was found to differ in water surface levels / hazard classifications to Council's stock results for the wetland location southwest of the site. While "TP2" is supposedly used in Council's results according to the model report, it was determined that the critical TP is in fact TP6 for the subject site and immediate adjacent areas. This should be understood when reviewing updated flood hazard mapping provided within Appendix C of this report.

6 MODEL UPDATES

6.1 Base Case

The Logan River Flood model has been updated for the digital terrain as depicted within the approved endorsement plans (Refer to Section 3). This includes earthworks and major drainage mitigation systems.

Accordingly, refer to Figure 4, for pre and post update TUFLOW terrain images for the inclusion of endorsed earthworks finished surface levels (FSL). Areas internal to the site and west within the road were read into TUFLOW to inform the model topography.

Figure 4 – TUFLOW Digital Terrain Pre (existing model) and Post (approved FSLs) respectively.

6.2 Developed Case

The flood model DEM was updated to include "glass walls" to conservatively simulate floodplain blockages that may be created by future development within specific zonal areas. These "glass walls" are allocated to allotment pads as shown in Section 7.4 Figure 10, specifically zones A1-A3 and B1-B2, but zones C and D are excluded. This update allows for the establishment of flood planning levels and helps with compliance demonstration with OV-05 Flood Hazard Overlay Code, especially in cases where the land use may involve food storage or hazardous material storage/manufacturing (at a 0.5% and 0.2% AEP at 2100 respectively). Additionally, it provides relevant Design Flood Event (DFE) flood levels (at a 1% AEP at 2100) to ensure that development areas are above the DFE + 500mm freeboard requirement. For more information, please refer to Section 8.

6.3 Sensitivity Testing

Additionally, for purposes of sensitivity testing both the Base and Developed Case model has also been updated to reflect the approved development situated at 4563 - 4691 Mount Lindesay Highway, North Maclean (referred to in flood mapping as “NM2”) and associated endorsed earthworks and surface levels as shown in Figure 5 below. Importantly, this inclusion permits comprehensive and interconnected understanding of the associated floodplain behaviour and influences for both development areas.

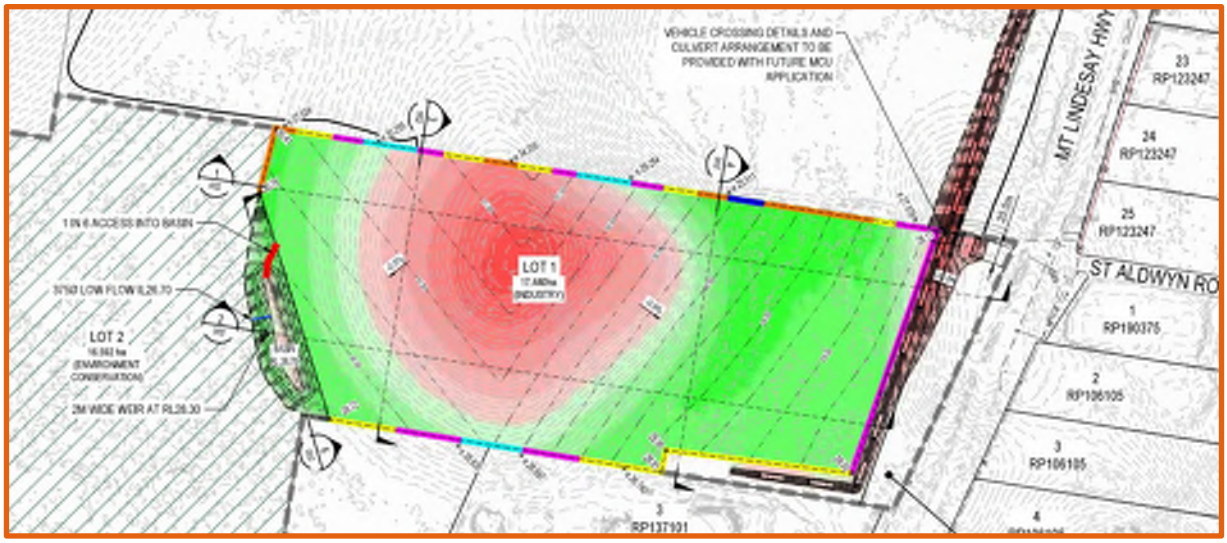

Figure 5 – Adjoining Development Bulk Earthworks.

7 RESULTS – BASE AND DEVELOPED CASES

7.1 Flood Inundation Mapping (1% AEP at 2100)

Concerning the approved BEW (FSL) works, the “Base Case” results demonstrate that the high hazard area is modified with the approved earthworks and is limited to the proposed drainage channel and detention basin infrastructure areas, i.e. development lot envelopes are situated above the DFE flood level. Refer to image below demonstrating the revised 1% AEP at 2100 inundation area. Accordingly, contrary to LCC Planning Scheme Flood Hazard Area mapping the development areas of the Flagstone Logistics Estate is now not subject to an inundation associated with this storm event. Refer to Appendix C for associated flood maps. Importantly, lot freeboard should be set based upon the higher of corresponding flood levels shown in Section 9 Table 1 for 1% AER at 2100 or 1% AEP local event flood levels (refer to the approved Arcadis SBSMP report).

Figure 6 – Base Case 1.0% AEP (100 year) at 2100 flood inundation.

7.2 Flood Inundation Mapping (Larger Events)

The larger events examination included those events associated with the Moderate Hazard Areas and compatible land use, specifically the 0.2% AEP and 0.5% AEP at 2100 in accordance with the TLPI provisions (31 October 2023) of the Logan City Council planning scheme.

7.2.1 Larger Event – 0.2% AEP at 2100

Concerning the approved BEW Finish Surface Levels works “Base Case”, the results demonstrate that the associated inundation area is subsequently modified from that shown in Section 4 – Figure 3. Refer to image (Figure 7) below demonstrating the revised 0.2% AEP at 2100 inundation area. Accordingly, the demonstrated flood inundation is considered to now be the revised flood inundation extent within current the Moderate Flood Hazard Area for the development area of the Flagstone Logistics Estate for approved BEW levels. Refer to Appendix C for associated flood maps.

It is noted that there is a variance in flood level comparing the base and developed cases for the 0.2% AEP at 2100 event which is attributed to the relative levels of floodplain blockage. Some downstream portions of the site experience greater flood planning levels in the Base Case due to increased flood conveyance (i.e.. less water being diverted to the east). Flood planning levels established within this document consider the maximum of the two to ensure the potential worst case flood level is captured.

Figure 7 – Base Case 0.2% AEP (500 year) at 2100 flood inundation.

7.2.2 Larger Event – 0.5% AEP at 2100

Concerning the approved BEW (constructed) works, the results demonstrate that the associated inundation area is reduced to that shown for 0.2% AEP event (Figure 7). Refer to image (Figure 8) below demonstrating the 0.5% AER at 2100 inundation area within the current Moderate Flood Risk zone. It is noted that for part of the estate, this larger event is limited to the southern portion of the drainage channel and future road network. Refer to Appendix C for associated flood maps.

It is noted that the Development Case results in a greater flood planning level than the Base Case for each impacted zone within the development.

Figure 8 – Base Case 0.5% AEP (200 year) at 2100 flood inundation.

The below Figure 9 overlays each of the assessed inundation extents at 2100 for Base Case approved BEW FSL, comparatively to Figure 3.

Formalised mapping for depth (including WSL contours) as well as collated flood hazard per LCC hazard matrix is provided within Appendix C.

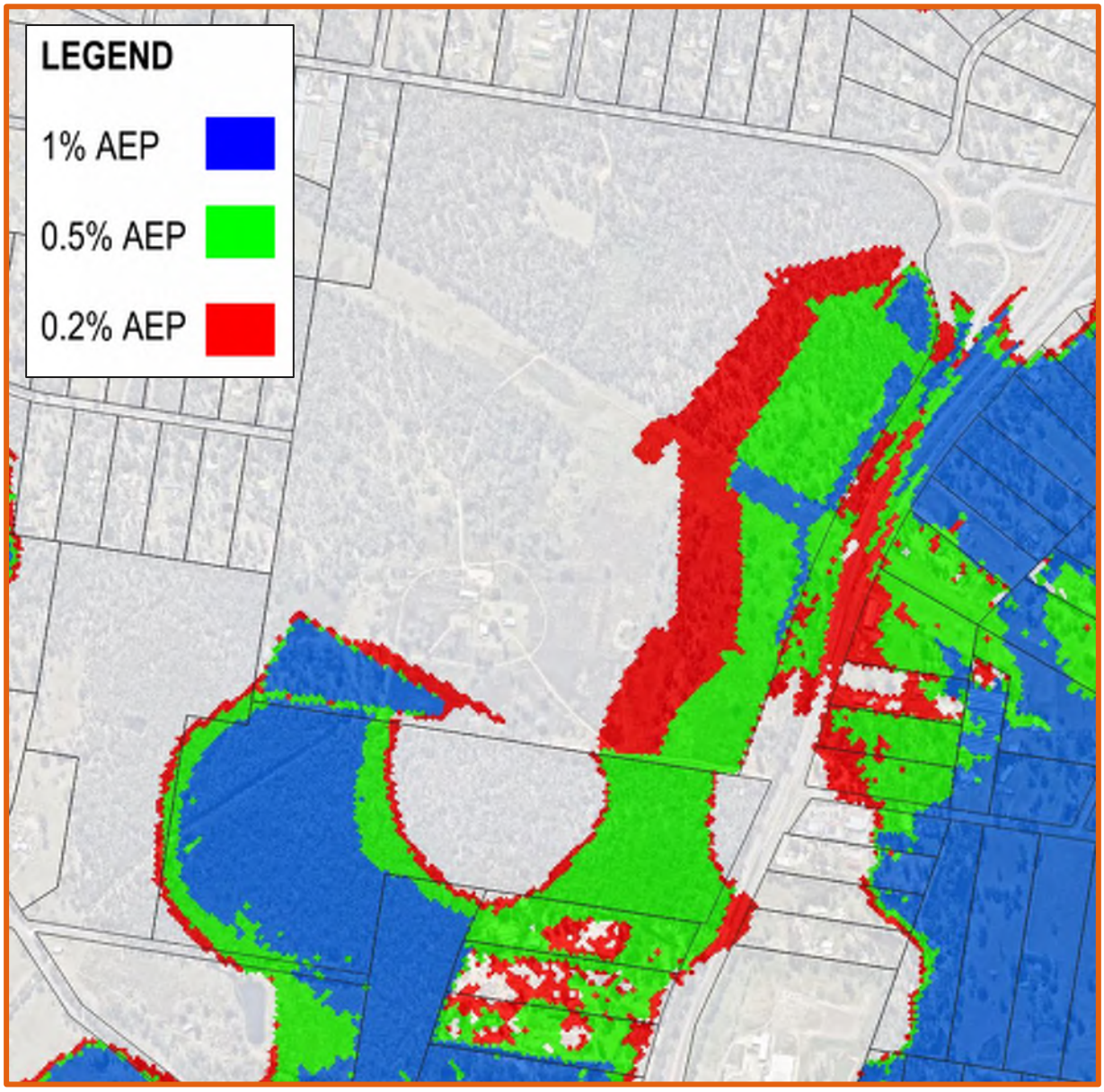

Figure 9 – Inundation extents for 1% AEP – 0.2% AEP under approved BEW FSL's.

7.3 Assessment of Events Larger than DFE (1% AEP)

In accordance with OM-05 – PO.25 (LCC Planning Scheme Policy 6.2.10), there is the requirement for an assessment of the impact of the development on flood response for events larger than the DFE (0.5%, 0.2%, 0.05% and PMF). This assessment should demonstrate no rapid or unexpected increase in safety risks or flood damage during a flood event larger than the DFE. This could include a significant or sudden change in distribution of the defined flood event flow, flood level or velocity which may result in:

i. the failure of a levee;
ii. blockage of infrastructure;
iii. concentration or diversion of flows;
iv. excessive scour;
v. realignment of the waterway;
vi. sedimentation;
vii. bank instability and collapse;
viii. a reduction in flood warning times;
ix. extension of the duration of inundation;
x. hindrance to emergency evacuation routes;
xi. disruption to critical infrastructure, services, or access routes.

Notably, this assessment assumes approved BEW surface levels plus any required future immunity works (represented via a “glass wall” scenario in the flood modelling undertaken) within the current LCC Moderate Flood Hazard area. The grid output for the flood hazard (per ARR classifications) has been compared to the benchmark scenario (i.e. approved BEW surface levels only) for the purposes of this assessment. Key locations have been focused upon to determine any impacts which the endorsed earthworks strategy has upon surrounding areas. It is determined that there is no demonstrable adverse impact concerning rapid or unexpected increase in safety risks or flood damage.

It is noted that with the revised larger event inundation extents that associated flood risk may alter and require further assessment to understand change to LCC flood risk categories for the ultimate completed site and adjoining properties developments.

Refer to Appendix C for comparative flood hazard maps per LCC hazard matrix. Also, refer to Appendix B, for detailed code response concerning the Items i) to xi). Flood velocities were found to be generally < 0.5m/s within the development pad areas, and therefore hazard is largely driven by the depth of flood waters. Slight variance in finished surface levels is therefore not anticipated to drastically alter hazard conditions internal or external to the site in view of the assessments conducted within this report.

It should be noted that the results presented for 0.05% AEP (2000y) are not considerate of 2100 climate conditions as the current LCC regional flood model (at the timing of this report) does not have hydrology for this particular event.

7.4 Flood Planning Level Zones

It is noted that the water surface levels for the large storm events has a gradient traversing through the site and flood Water Surface Levels (WSL) will vary for spatial variations. In order to provide appropriate Flood Planning levels (based upon worst case WSL scenario), it is determined to assign zones for each respective inundation area in conjunction with proposed development area lot configuration. It is proposed that these zones correspond to the revised large event inundation areas within the current Moderate Flood Hazard Area for the development based upon approved (constructed) bulk earthworks (refer Figure 10).

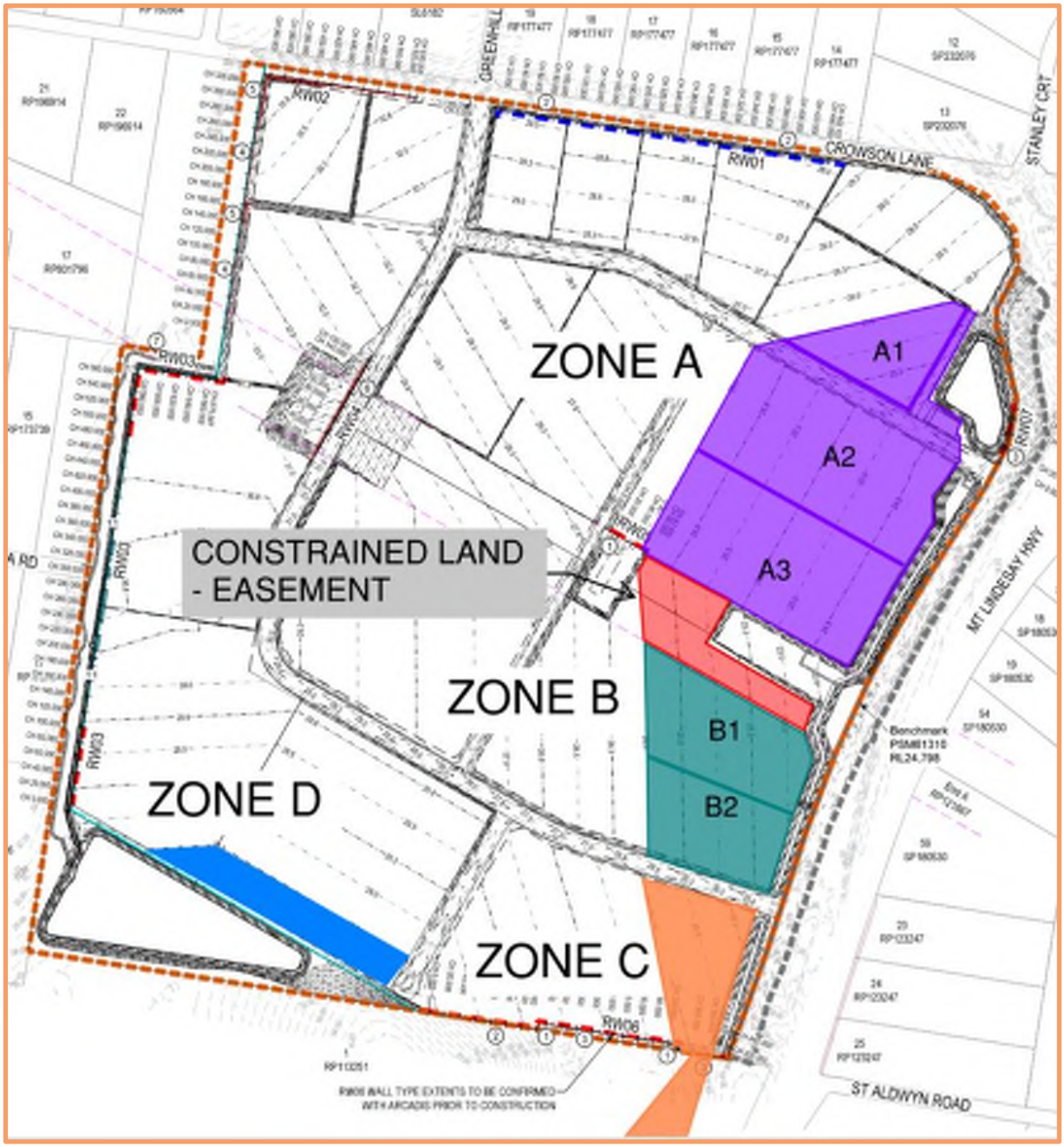

Figure 10 – Estate Flood Planning Level Zones (Revised Moderate Flood Hazard Areas)

7.4.1 Developed Zones

To establish flood planning levels, it is assumed that for each zone (excepting Zones C and D), it will be necessary to undertake future (building/civil) works to increase final FSL to above that required for flood immunity concerning both the 0.2% and 0.5% AEP event at 2100. It is assumed for the purposes of this exercise that each zone is modified accordingly, and this analysis was determined by creating a “glass wall” around pads internal to the subject site to simulate such outcome. Refer to Figure 11 for revised inundation extents under this scenario.

Flood hazard mapping produced in Appendix C also includes results for this scenario for the assessed AEP events.

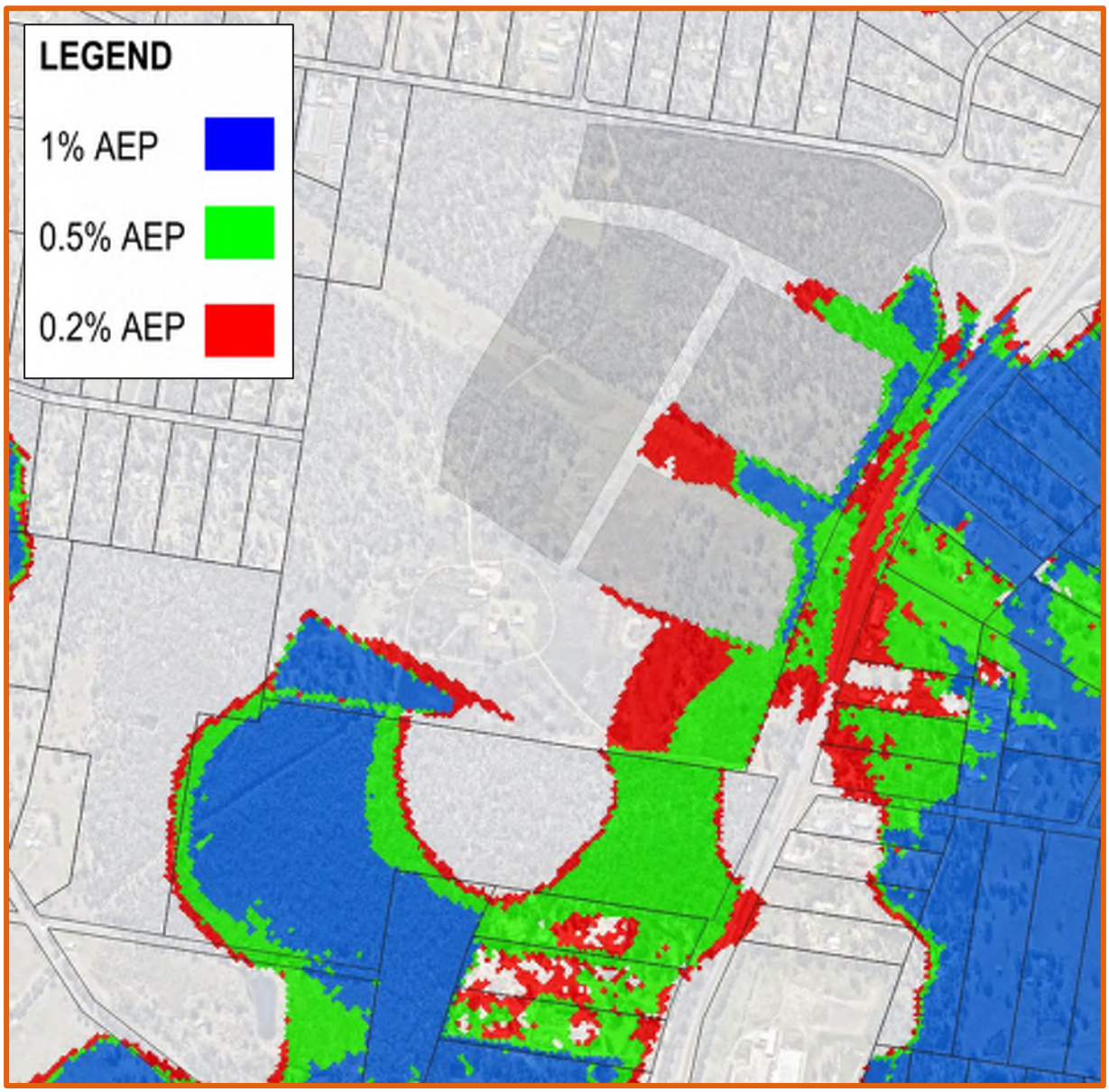

Figure 11 – Inundation extents for 1% AEP – 0.2% AEP under approved BEW, including "glass walls" for flood planning level determination.

8 SENSTIVITY TESTING

8.1 Adjoining Development

The inclusion of the approved BEW for the adjoining development as described in Section 6.3 alters the revised flood inundation footprint per the figure below.

Flood hazard mapping produced in Appendix C includes results for this scenario for the assessed AEP events. This was assessed as both with and without "glass walls" to determine potential variance in flood planning levels.

The below Figures 12 and 13 overlay each of the assessed inundation extents under context of both approved earthworks, as well as development / glass wall scenario.

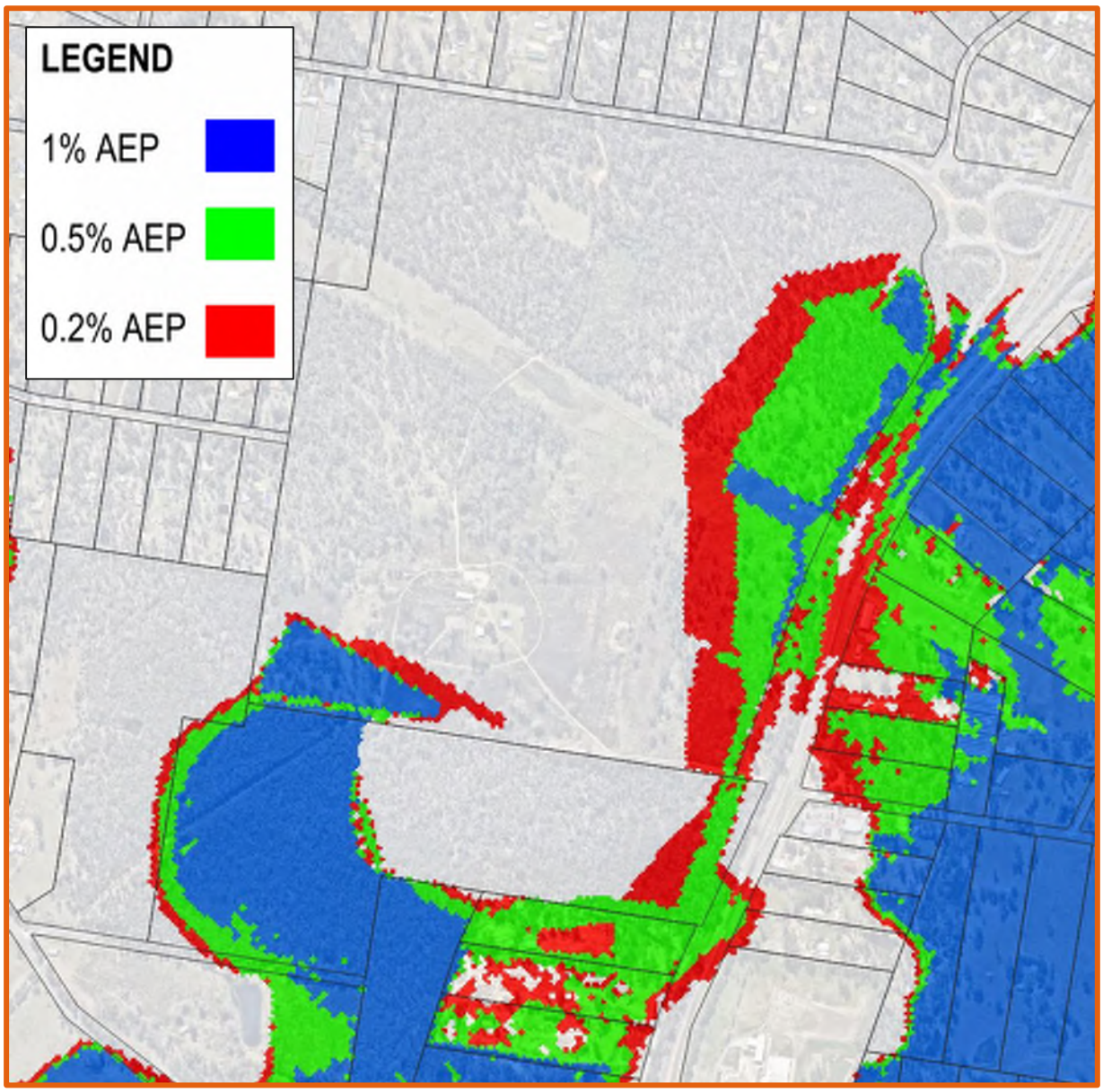

Figure 12 – Inundation extents for 1% AEP – 0.2% AEP under approved BEW for both sites.

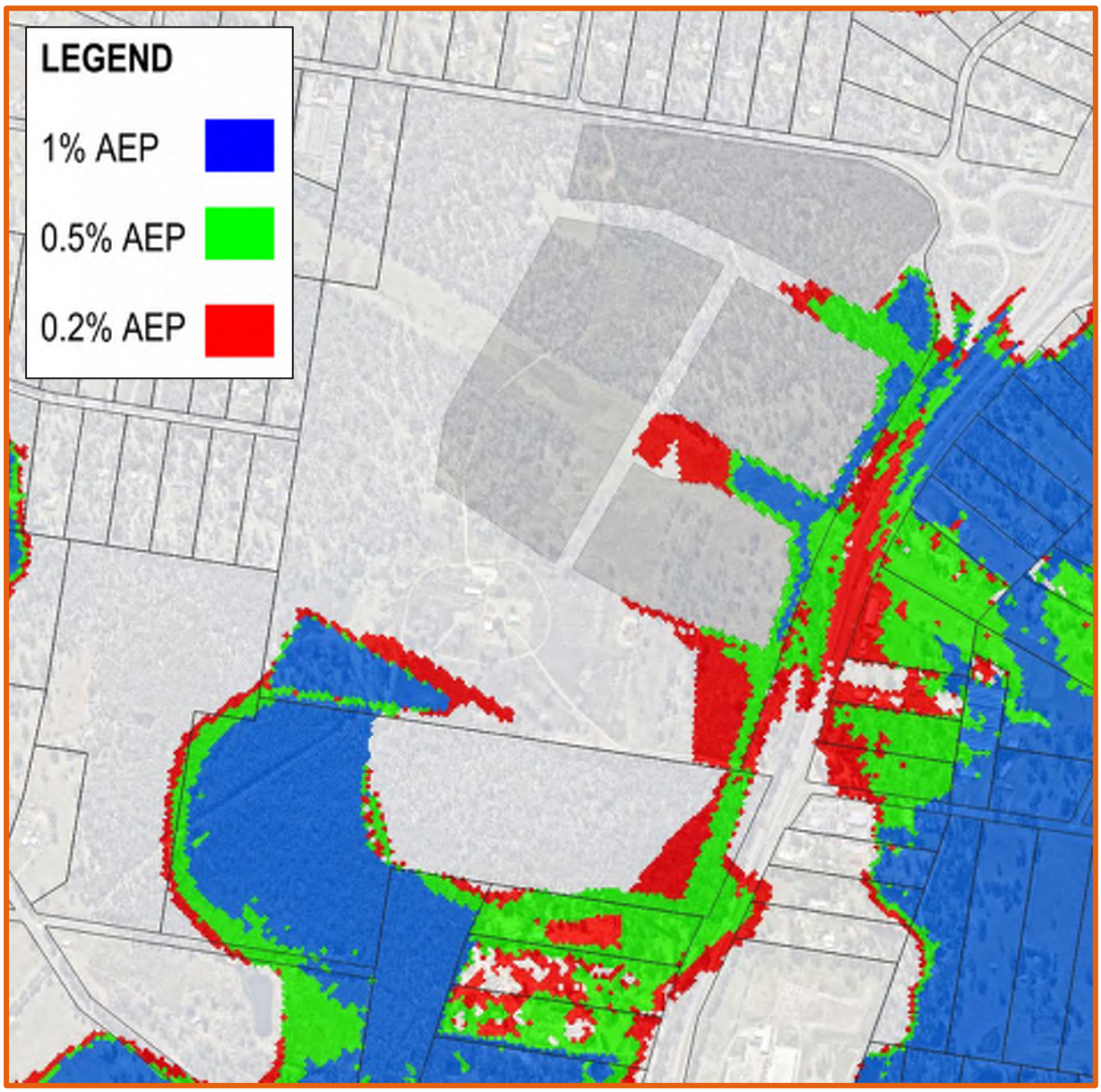

Figure 133 – Inundation extents for 1% AEP – 0.2% AEP under approved BEW for both sites and "glass walls" for flood planning level determination.

9 FLOOD RISK CATEGORY

Logan Planning Scheme 2015 SC6.2.10 Flood Figure 1.8.2 – Hydraulic risk matrix is shown in below table and is used to define areas of flood risk and corresponding flood hazard mapping. In conjunction with this investigation concerning specific large storm events and the change to surface levels, the assessment also applies this hydraulic risk matrix to determine revised flood risk areas for all scenarios. Refer to Appendix C for mapping.

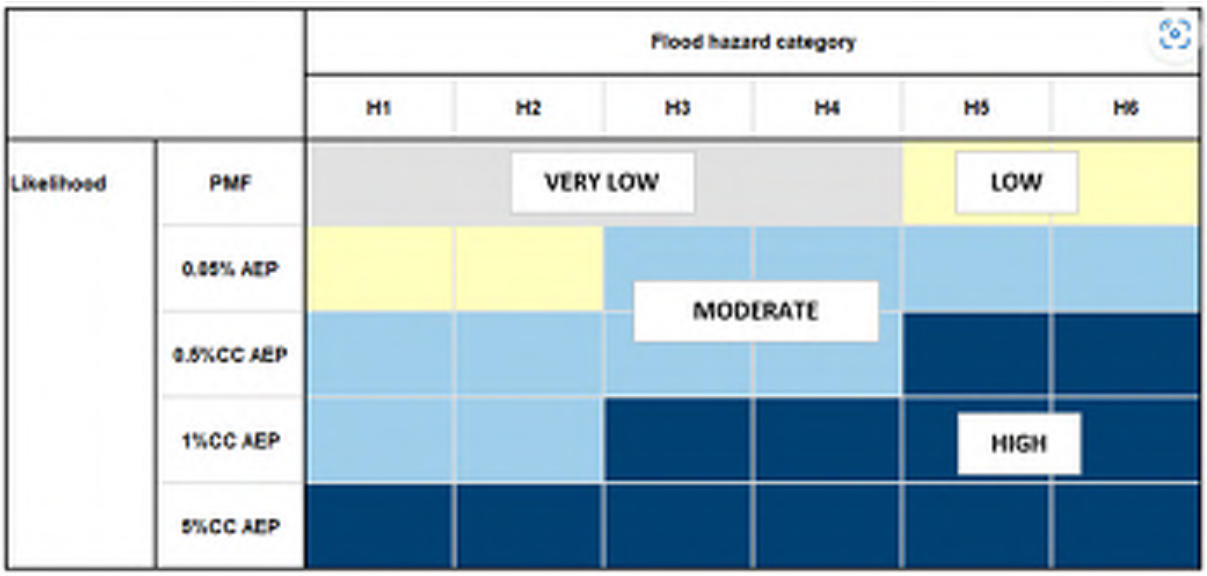

Figure 144 – Flood Hazard Category.

9.1 Base Case

The Base case revised flood risk mapping is as shown in Figure 15.

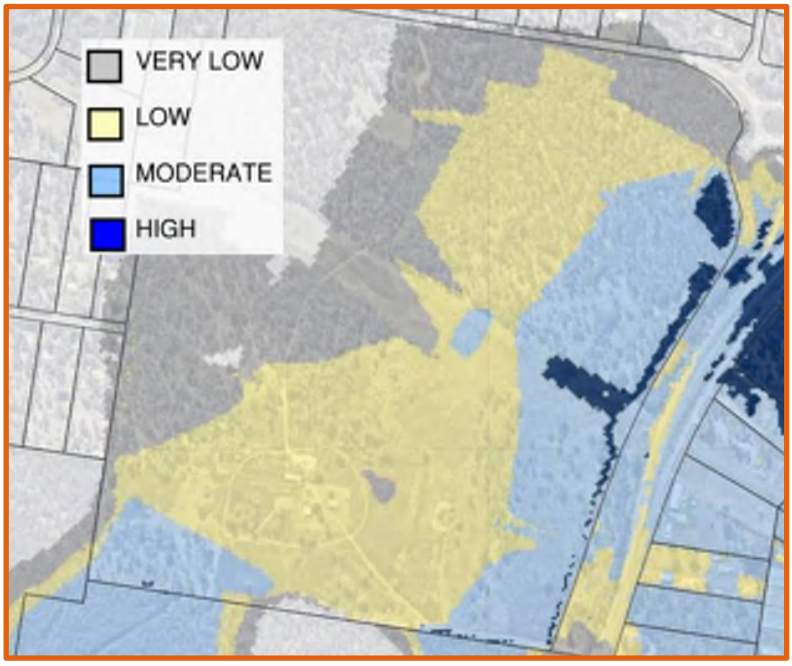

Figure 155 – Flood Risk Mapping – Base Case.

9.2 Sensitivity Case

The sensitivity case revised flood risk mapping is as shown in Figure 16.

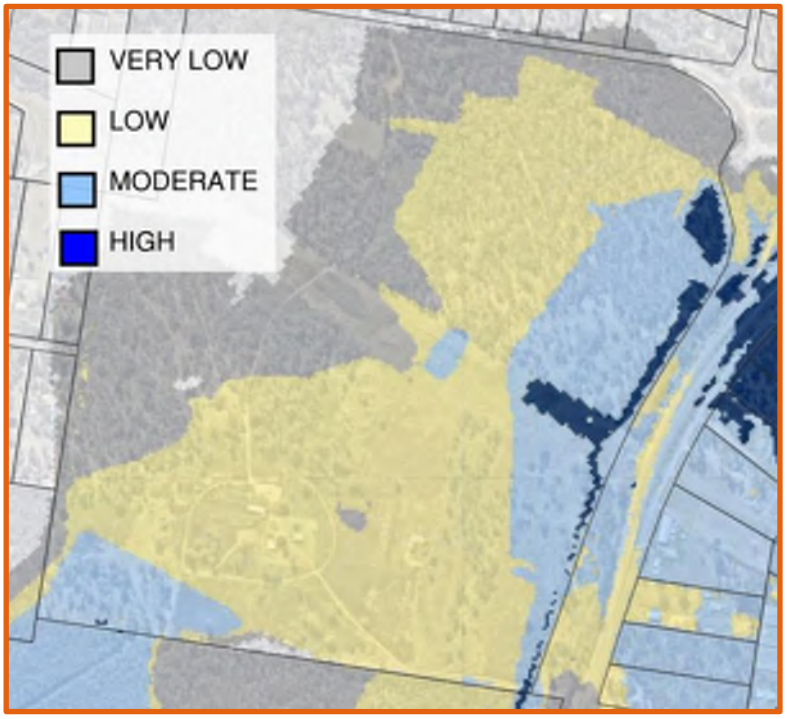

Figure 166 – Flood Risk Mapping – Sensitivity Case for approved FSL's.

10 FLOOD AND LAND USE COMPATIBILITY

10.1 TLPI No. 1/2023 OM-05 Response

Subsequent to Section 7.4.1, the following table presents the corresponding required minimum Flood Planning Levels for respective zones and sub-zones to satisfy relevant performance outcomes of the OM-05 Flood Hazard Overlay Code. Included to Appendix B is a full response to the overlay code performance and acceptable outcomes.

Table 1 – Estate Flood Planning Levels for Respective Zones

	Flood Planning Levels (Minimum) (RL m)		
Zone	1% AEP @ 2100*	0.5% AEP @ 2100*	0.2% AEP @ 2100*
A1	24.2	25.3	25.8^
A2	24.2	25.4	25.9^
A3	24.2	25.5	26.2
B1	NA	25.5	26.2
B2	NA	26.0	26.9
C	NA	**27.2**	27.7
D	27.0	28.1	28.6

^Level driven by base case. Unmarked levels are driven by the developed / glass wall case, or are equal in either scenario. Refer Section 7.2.1.

*It should be noted that these planning levels are based on:

- 1% AEP at 2100 – Base Case Approved BEW levels.
- 0.5% AEP at 2100 – Developed Case extracted from the zonal assessment (i.e. “glass wall”) conducted for the purposes of Section 7.4.1 and Zones A1 – A3 and B1 – B2.
- 0.2% AEP at 2100 – Worst scenario between Base Case and Developed Case (i.e. “Glass Wall”) for all Zones. In essence, these scenario levels assume that all pads with Zones A and B are elevated to above 0.5% AEP at 2100 and design incorporates storage system to elevate hazardous materials above the 0.2% AEP at 2100.

10.2 TLPI No. 1/2023 OM-05 Response – Sensitivity Case

Where the adjoining development occurs, then flood planning levels are revised as per Table 2. Importantly, all assumptions and notes remain relevant to this table. Notably, as per Figure 16 Zone C moderate risk area is reduced in area and predominantly limited to within the adjoining conveyance channel area. This can be seen in the 700mm reduction to the 0.5% AEP at 2100 flood planning level – reduced from RL 27.2m to 26.5m when comparing Developed Case and corresponding Sensitivity Case. Consequently, where the adjoining development earthworks are undertaken then Table 2 may be used for obtaining the prescribed flood planning level corresponding to the respective zone area.

Table 2 – Estate Flood Planning Levels for Respective Zones

	Flood Planning Levels (Minimum) (RL m)		
Zone	1% AEP @ 2100*	0.5% AEP @ 2100*	0.2% AEP @ 2100*
A1	24.2	25.3	25.7^
A2	24.2	25.4	25.8
A3	24.2	25.5	26.0
B1	NA	25.5	26.1
B2	NA	26.0	26.6
C	NA	**26.5**	27.0
D	27.0	28.1	28.6

^Level driven by base case. Unmarked levels are driven by the development / glass wall case, or are equal in either scenario. Refer Section 7.2.1.

*Refer Section 9 Table 1 notes.

11 SUMMARY

To achieve the required flood and land use compatibility in accordance with OM-05 Flood Hazard Overlay Code each respective development located within the current mapped flood hazard areas must produce development envelopes that are elevated as per Section 9 – Table 1. Notably, subject site flood hazard mapping is revised to that shown below, with all development pad areas excluded from the high hazard areas for the Base Case Scenario.

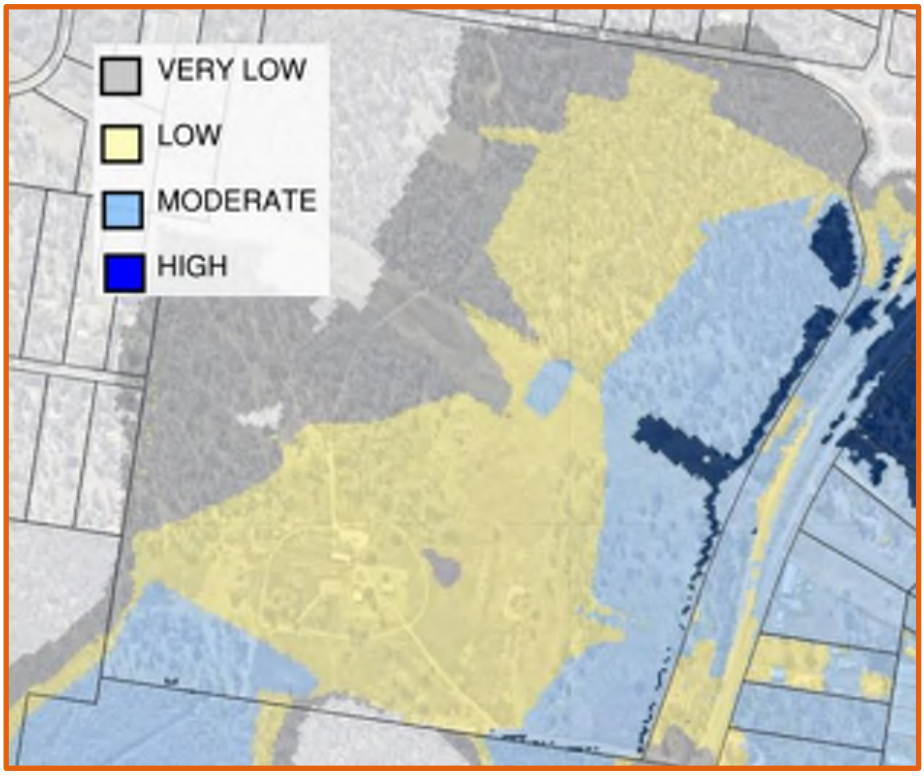

Figure 177 – Revised Hazard Mapping

This report is developed based upon Base Case approved BEW levels, (including adjoining development for sensitivity testing) and has made reasonable assumptions on future finished surface levels of particular land use development areas to allow compliance demonstration with provisions of OM-05 Flood Hazard Overlay Code. In the event that the estate and adjoining development or land use changes in any significant form which may modify the moderate flood risk area (for example lower development envelope finish surface level than purported zone flood planning level for the 0.5% AEP at 2100), this report **must** be updated to analyse and reflect the changes made.

Importantly, it is noted that with the revised large event inundation areas, completed development finish surface levels and purported associated revised flood risk mapping there remains a future requirement to undertake review and revision to LCC current flood risk categories for the site and adjoining areas.

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