

NEXTDC Limited

Sunshine Coast 2

Civil Engineering Report

Reference: 299953-SC2-AR-DA-REP-C-001

04 | 27 August 2026

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Job number 299953

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			Prepared by	Checked by	Approved by
		Name	Martin Head	Doug Walton	Doug Walton
		Signature			
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		Name	Martin Head	Doug Walton	Doug Walton
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		Description	Development Application Issue – Update of Appendix C Stormwater Management Plan		
			Prepared by	Checked by	Approved by
		Name	Charlie Wang	Martin Head	Doug Walton
		Signature			

Issue Document Verification with Document



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1. Introduction

This document has been prepared by Arup as part of a Development Application to Sunshine Coast Council (SCC) for the proposed development located at Lot 10 South Sea Islander Way, Maroochydore, QLD.

The purpose of this report is to address the services infrastructure and bulk earthworks considerations that will be required for the proposed development.

The assessment of electrical supply, telecommunications, and diesel fuel infrastructure is outside the scope of this report. For further details, refer to the relevant project documentation.

1.1 Project Overview

NEXTDC is an established and growing data centre developer and operator. Since its inception thirteen years ago, NEXTDC has developed multiple premium quality data centres nationally, all certified to the industry's highest standards. NEXTDC continue to grow their pipeline of world-class, next-generation data centres in Australian cities, with the latest expansion being the SC2 facility at Lot 10, South Sea Islander Way, Maroochydore, QLD 4558, Australia, directly adjacent to the existing SC1 facility. The SC2 facility is to comprise a multi-level data centre with a total capacity of 6MW IT, as well as collaboration and mission critical (MCX) office space.

1.2 Location

The project site is located within Maroochydore City Centre, bounded to the north by Future Way, to the east by Red Bill Lane, to the south by Sunshine Coast Parade, and to the west by South Sea Islander Way.

The proposed development is positioned on Lot 10 SP305311, South Sea Islander Way, Maroochydore, QLD, as shown in Figure 1. The site is currently utilised as an informal off-street parking area.

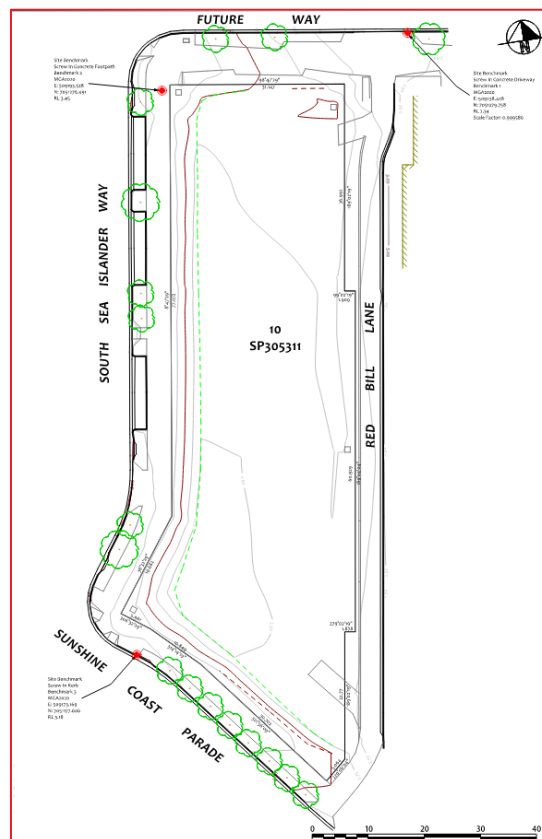


Figure 1: Proposed site location at Lot 10 South Sea Islander Way, Maroochydore, QLD, 4558.

1.3 Background Information

This report was prepared using information obtained from the following sources:

- Detail and level survey for Lot 10 SP305311, prepared by ONF Surveyors, surveyed 05/03/2024, reference 12125_D1.
- Architectural drawings of the proposed development prepared by Architectus.
- SCC MyMaps (online).
- Before You Dig Australia (BYDA) services.

1.4 Abbreviations

Acronyms used within the report are outlined in Table 1 below.

Table 1: Abbreviations

Abbreviations	Description
BYDA	Before You Dig Australia
PMF	Probable Maximum Flood
SCC	Sunshine Coast Council
SWMP	Stormwater Management Plan

2. Water Supply

2.1 Existing Infrastructure

There is a single Ø150 mm water main located adjacent to the South Sea Islander Way site boundary. A desktop study of the existing water main network suggests that this Ø150 mm main is supplied from multiple directions ensuring a resilient flow path from the utility network. The potable water main also has isolation valves along the length and at all branch-off points, allowing maintainable pipe sections without losing flow through the pipework.

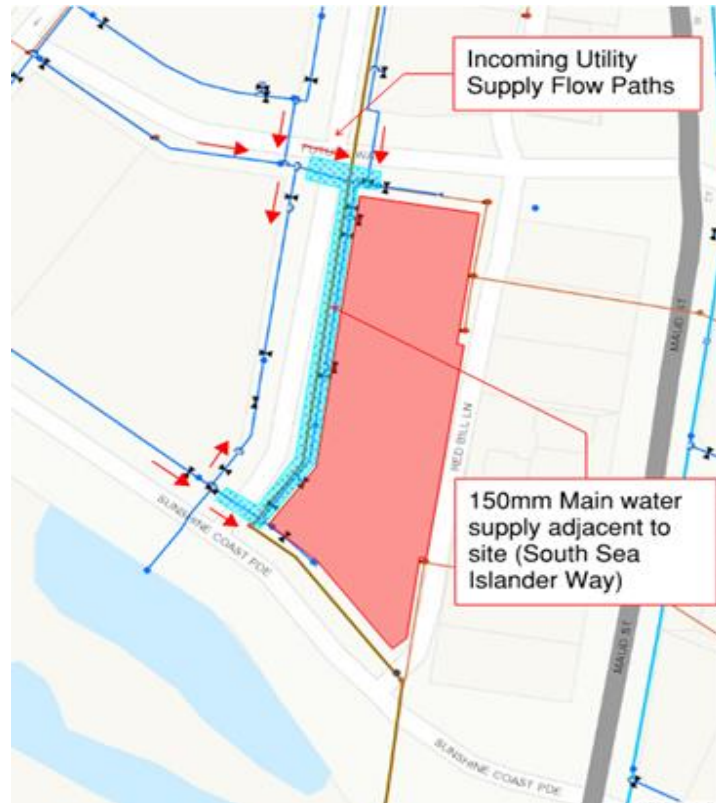


Figure 2: Existing water supply infrastructure

2.2 Water Demand

The required peak diversified flow rate for potable water services, supplying both domestic hot and cold-water services is 6.0 l/s during normal usage, i.e. non fire event.

The peak flow during a fire event is calculated as 10 l/s prior to connection of the QFES fire tender using fire hydrant pumps and 20 l/s once the fire tender is connected.

The building is not sprinklered, hence no additional allowance is required.

2.3 Point of Connection

Based on available network maps from Unity Water, there are three existing Ø150mm valved water connections from South Sea islander Way and one existing Ø150mm valved water connection from Future Way to the proposed site location, as shown in Figure 3. The existing connections are sufficient in size to accommodate the required flow rate to the site and provide redundant water supplies to meet the requirements of Uptime Institute Tier 4 certification. Two of these connections (valve refs 5253691 and 5253686) are proposed to serve the development; a concept design for the proposed water connection has been developed and is shown on sketch 299953-SC2-AR-DA-SKT-C-004 in Appendix B.

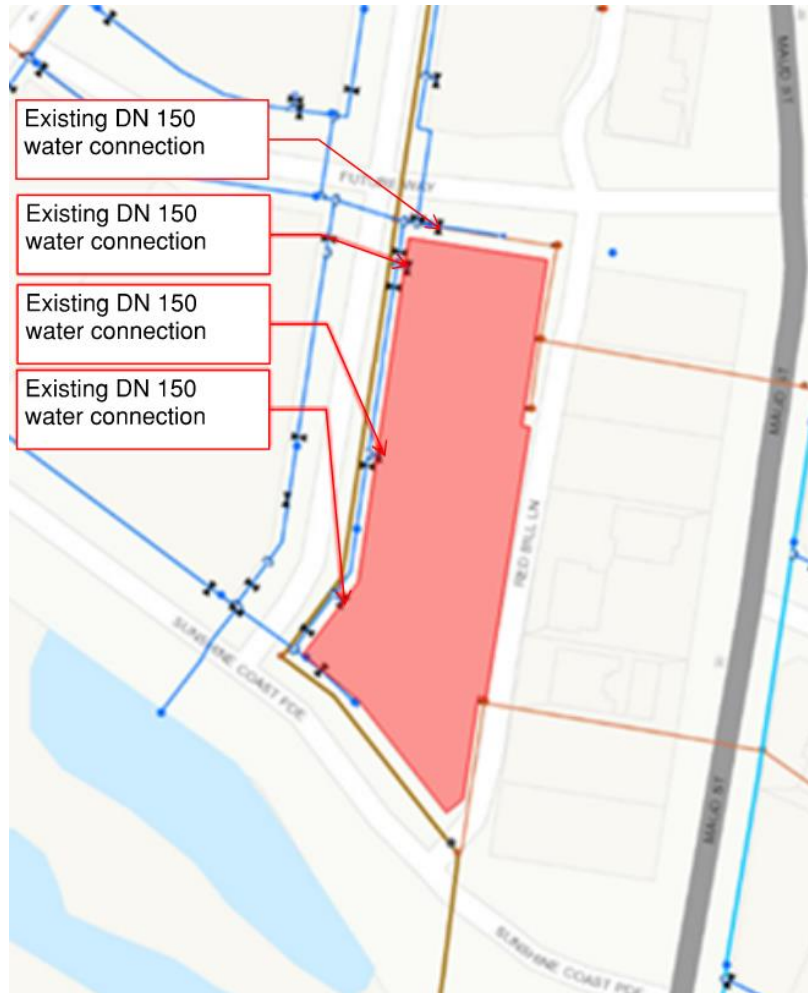


Figure 3: Existing water supply connections

2.4 Preliminary Assessment of Existing Water Network Capacity

The available water supply flow rate and pressure at the site has been tested by HTC Group on 12 April 2024 to support the required water supply to the site; the results of this are presented in Appendix D.

Three hydrants adjacent to the site were tested, as shown in Figure 4, to determine the available flow and pressure.

The results of the water flow and pressure tests indicated that the water main running adjacent to the site has good water supply and pressure; at least 50 l/s was achieved from two hydrants simultaneously with a residual pressure of 494 Pa in the system, and 42.3 l/s from a single hydrant with a residual pressure of 517 Pa in the system.

Based on the results of this testing and a desktop assessment of the site's water infrastructure, it is deemed a low risk that there would not be adequate water supply to accommodate the site requirements.



Figure 4: Site water flow and pressure test hydrant locations.

3. Sewerage

3.1 Existing Infrastructure

There are two Ø225 mm gravity sewer lines and manholes along Red Bill Lane which tie into a single Ø450 mm gravity sewer main located along the South Sea Islander Way site boundary before flowing into the wider network.



Figure 5: Existing sewer infrastructure

3.2 Sewerage Load

The preliminary peak sewerage discharge flow rate has been calculated at 5.8 l/s under normal circumstances. Of this peak sewerage discharge flow rate, it is currently anticipated that 1.8 l/s is serviced by the 450mm sewer main on South Sea Islander Way. Of the remaining 4.0 l/s, 1.5 l/s is serviced by the northbound 225mm sewer main on Red Bill Lane, and 2.5 l/s is serviced by the southbound 225mm sewer main on Red Bill Lane.

3.3 Point of Connection

Two new Ø100 mm sewer connections are proposed to the existing sewer manholes (MH ref 5262479 and MH ref 5262478) on Red Bill Lane. A concept design for the proposed sewer connection has been developed and is shown on sketch 299953-SC2-AR-DA-SKT-C-004 in Appendix B.

3.4 Preliminary Assessment of Existing Sewer Network Capacity

Based on an initial desktop study of the existing infrastructure and the anticipated discharge volumes, the pipe sizes are sufficient to accommodate the estimated sewage discharge.

4. Stormwater

A stormwater management strategy has been developed to support this Development Application. The key elements of this are as follows:

- Stormwater detention is not proposed for the development due to the proximity to a waterway outfall via piped trunk stormwater infrastructure and demonstration that the stormwater infrastructure can accommodate the unattenuated flows.
- Water Quality Objectives have been achieved through provision of bioretention raingardens with ~142m² filter area, greater than the required 1.5% of the development site area. Where the layout constraints of the site prevent catchments from utilising the proposed bioretention raingardens across the site, proprietary treatment devices are proposed and MUSIC modelling has been undertaken to demonstrate that this achieves the Water Quality Objectives for the site.
- Installation of erosion and sediment control measures during the construction phase shall be undertaken to minimise soil erosion and control sediment discharge from the site.

The overarching stormwater strategy is described in further detail within the Stormwater Management Plan (SWMP) prepared for submission as part of the Development Application; refer to Appendix C for further information.

5. Flood Risk

As part of a due diligence study for the site a flood risk assessment was conducted. Consultation was undertaken with the Sunshine Coast Council, who shared flood levels at the proposed site from both the Maroochy River and Cornmeal Creek Flood Studies. This information has been utilised to inform the required minimum floor levels for the proposed data centre to minimise flood risk.

Note that no modelling has been undertaken specifically for this project as the representation of the site of interest within the masterplan for the Maroochy City Centre was adequate.

The outcome of the desktop assessment indicates that the on-site flood risk to the proposed data centre is minimal, with the ground floor level being above the Council's Probable Maximum Flood (PMF) level.

Further information is captured within the SWMP prepared for submission as part of the Development Application; refer to Appendix C for further information.

6. Bulk Earthworks and ESC

A concept design for bulk earthworks has been developed and is shown on sketch 299953-SC2-AR-DA-SKT-C-002 in Appendix B. The key elements of this are as follows:

- Bulk excavation is required for the construction of the proposed lower ground levels (varying lower ground RL between +0.81mAHD and +1.81mAHD).
- Several methods of excavation are likely to be adopted for the excavation. This will include retaining wall structures and battered excavations (dependent on the location, adjacent constraints and ground conditions).
- The structural methodology for the proposed retaining structures will be further developed during future design stages
- During lower ground construction, stormwater runoff will need to be graded to a sump/sediment basin and pumped to the existing stormwater network. Construction phase water quality objectives are defined within the Stormwater Management Plan and will need to be achieved prior to discharge.

7. Vehicle Crossovers

Two vehicle crossovers are proposed from Red Bill Lane to facilitate access into the basement car park and loading bay. The concept geometry and pavement areas have been developed and is shown indicatively on sketch 299953-SC2-AR-DA-SKT-C-004 in Appendix B. It is assumed that the existing pavement build-up on Red Bill Lane is structurally sufficient to accommodate the traffic for the development.

Appendix A

Site Background Information

A.1 GIS Information

Unitywater Map



8/29/2024, 12:26:08 PM

1:1,128

- Water System Valve

Tee

End Cap

Reducer

Tapping Device
- Hydrant

Water Trunk Main

Trunk Main

Reticulation Main

Sewer Maintenance Hole

Maintenance Shaft
- Maintenance Hole

Sewer Gravity Main

Trunk Main

Reticulation Main

Approved Development Applications

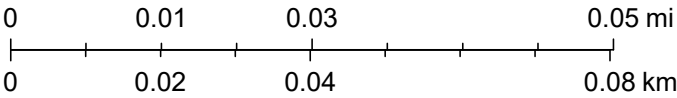
Unapproved Development Applications
- Base

Easement

Strata (Lot)

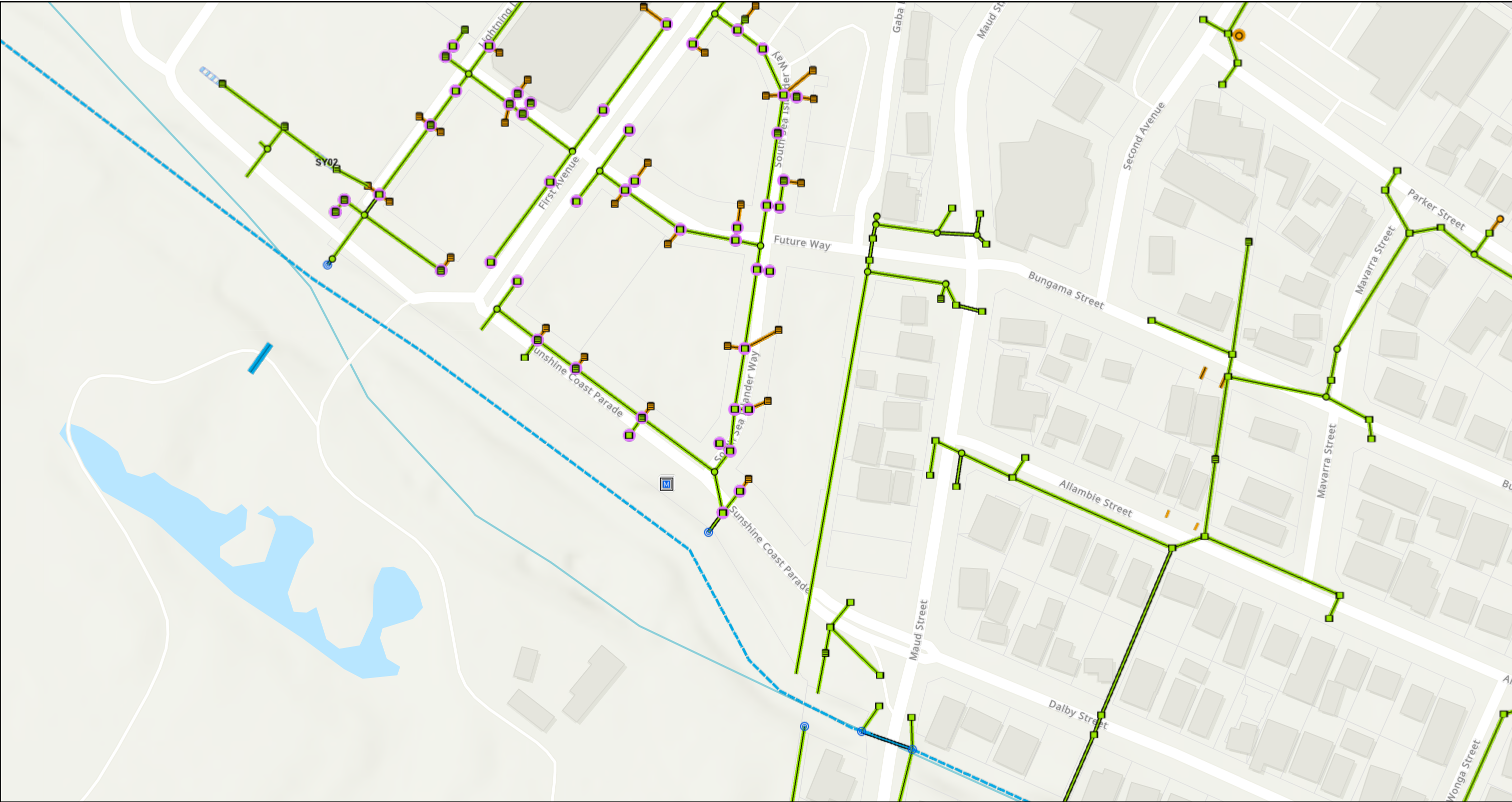
Volumetric

Unitywater Operational Area



NPSR, Esri, © OpenStreetMap contributors, HERE, Garmin, USGS

Sunshine Coast Council Map



8/29/2024

1:1,932

Stormwater Pit (Council)

- CatchPit
- FieldInlet
- Manhole

Stormwater Quality Device (Council)

- Box
- Pipe

Stormwater End Structure (Council)

- Stormwater Open Drain (Council)

Stormwater Culvert (Council)

- Box Culvert

Stormwater Pit (Non Council)

- FieldInlet
- Manhole
- Stormwater Quality Device (Non Council)

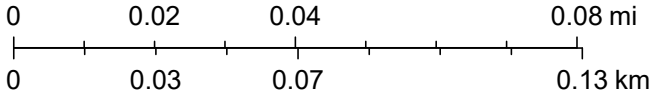
Pipe Culvert

- Stormwater Water Quality Area (Council)

Stormwater Pipe (Non Council)

- Allotment
- Pipe
- Water Meters
- Backflow Prevention Devices

World Hillshade



Esri Community Maps Contributors, Department of Resources, DESI, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS, Sunshine Coast Regional Council, Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS,

A.2 BYDA Information

A.2.1 Energex

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX BYDA map, then ENERGEX shall be contacted immediately.

For Emergency Situations
please call 13 19 62



BYDA

Sequence: 234849372

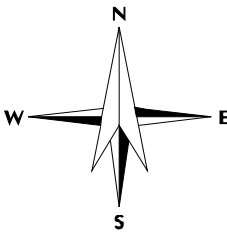
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Scale: 1:4579

OVERVIEW

For a full list of Map
Symbols, please
refer to the supplied
BYDA Symbology
Legend page

AS5488 Category "D" Plan



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This output provides details of the ENERGEX electrical network. As variations map exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX BYDA map, then ENERGEX shall be contacted immediately.

For Emergency Situations
please call 13 19 62

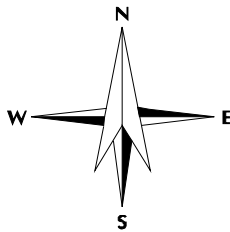


BYDA

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Scale: 1:500
Tile No: 5

For a full list of Map
Symbols, please
refer to the supplied
BYDA Symbology
Legend page

AS5488 Category “D” Plan



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please call 13 19 62

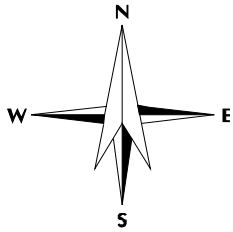


BYDA

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Tile No: 8

For a full list of Map
Symbols, please
refer to the supplied
BYDA Symbology
Legend page

AS5488 Category “D” Plan



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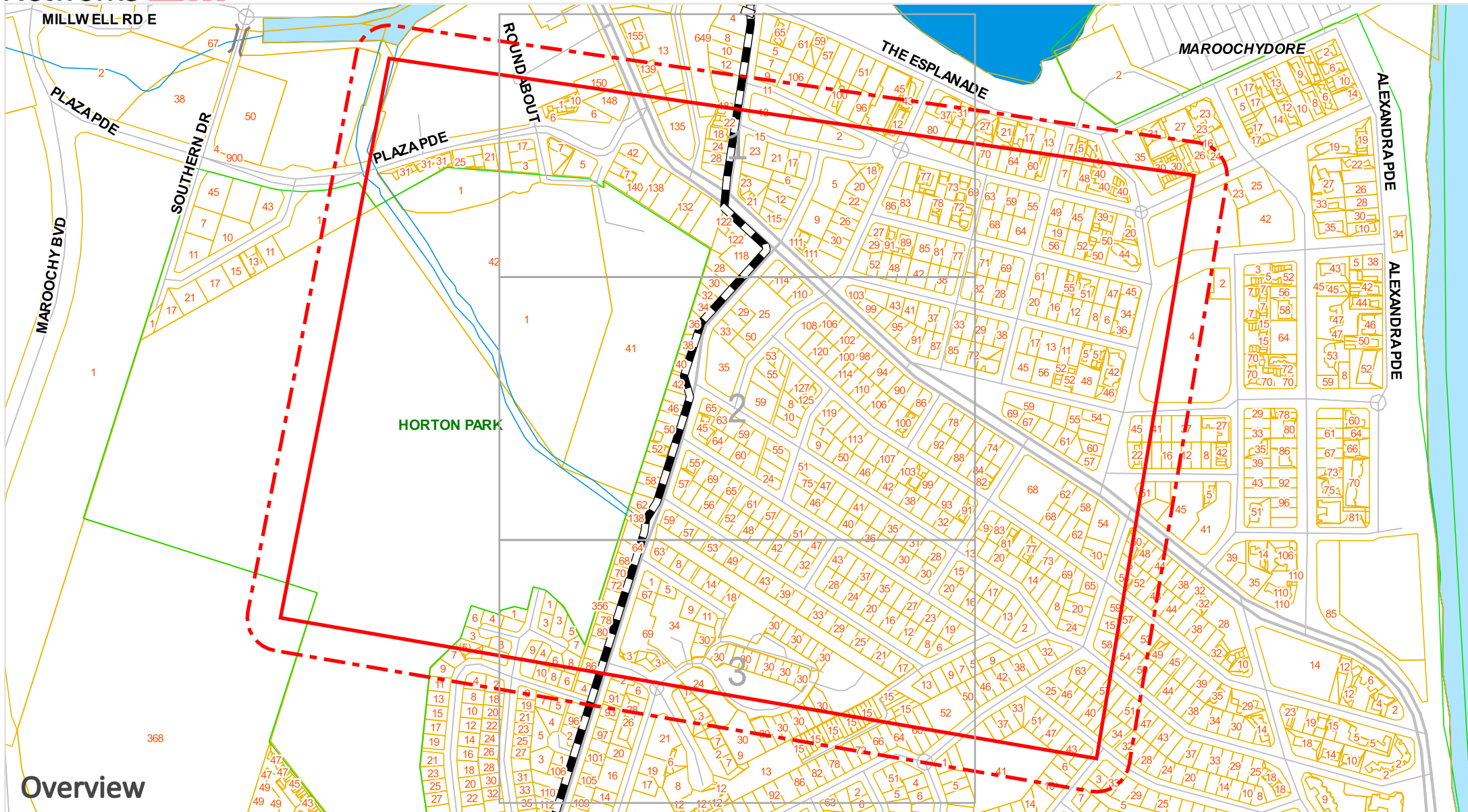
This output provides details of the ENERGEX electrical network. As variations map exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.



BYDA SYMBOLOLOGY LEGEND

	Cross Bonding Link Box - Critical		Planned Cross Bonding Link Box - New/Updated
	Disconnect Box - Critical		Planned Cross Bonding Link Box - Remove
	Ring Main Unit		Planned Disconnect Box - New/Updated
	Distribution Pad Substation		Planned Disconnect Box - Remove
	Earth		Planned Distribution Pad Substation - New/Updated
	Remote Earth		Planned Distribution Pad Substation - Remove
	Cable Marker		Planned Distribution Ground Substation - New/Updated
	Handhole		Planned Distribution Ground Substation - Remove
	Manhole		Planned Ring Main Unit - New/Updated
	Commercial Industrial Pillar		Planned Ring Main Unit - Remove
	Distribution Cabinet		Planned Earth - New/Updated
	Link Pillar		Planned Earth - Remove
	Service Pillar		Planned Cable Marker - New/Updated
	Feeder Pillar		Planned Cable Marker - Remove
	Pole		Planned Remote Earth - New/Updated
	Streetlight Column		Planned Remote Earth - Remove
	Communication Junction Pillar		Planned Underground Warning Post - New/Updated
	Communication Pit		Planned Underground Warning Post - Remove
	Fibre Patch Panel		Planned Pilot Cubicle - New/Updated
	Pilot Cubicle		Planned Pilot Cubicle - Remove
	Underground Asset 33kV and above		Planned Fibre Patch Panel - New/Updated
	Underground Asset below 33kV		Planned Fibre Patch Panel - Remove
	Underground Conduit with or without cable		Planned Commercial Industrial Pillar - New/Updated
	Pit		Planned Commercial Industrial Pillar - Remove
	Communication Boundary		Planned Distribution Cabinet - New/Updated
	Reserve (RE)		Planned Distribution Cabinet - Remove
	Water Resource (WR)		Planned Link Pillar - New/Updated
	Cadastral Parcels		Planned Link Pillar - Remove
	Planned Jointing Pit - New/Updated		Planned Service Pillar - New/Updated
	Planned Jointing Pit - Remove		Planned Service Pillar - Remove
	Planned Communication Boundary - New/Updated		Planned Pole - New/Updated
	Planned Communication Boundary - Remove		Planned Pole - Remove
	Planned Tunnel/Trench/Bore - New/Updated		Planned Manhole - New/Updated
	Planned Tunnel/Trench/Bore - Remove		Planned Manhole - Remove
			Planned Streetlight Column - New/Updated
			Planned Streetlight Column - Remove
			Planned Handhole - New/Updated
			Planned Handhole - Remove
			Planned Communication Junction Pillar - New/Updated
			Planned Communication Junction Pillar - Remove

A.2.2 Reef Networks



Overview

Legend | Scale: 1:7687



Cable

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Legend | Scale: 1:2500



Cable

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A.2.3 Torus



Legend

-  Pit
-  Fibre Optic Cable / Conduit
-  Fibre Optic Cable / Telstra Conduit

Where Fibre Optic Cable is denoted as being in Telstra conduit, it is critical that no works commence within the area until you have received and appraised the applicable Telstra Duct Plans



© State of Queensland (Department of Natural Resources, Mines and Energy) 2023

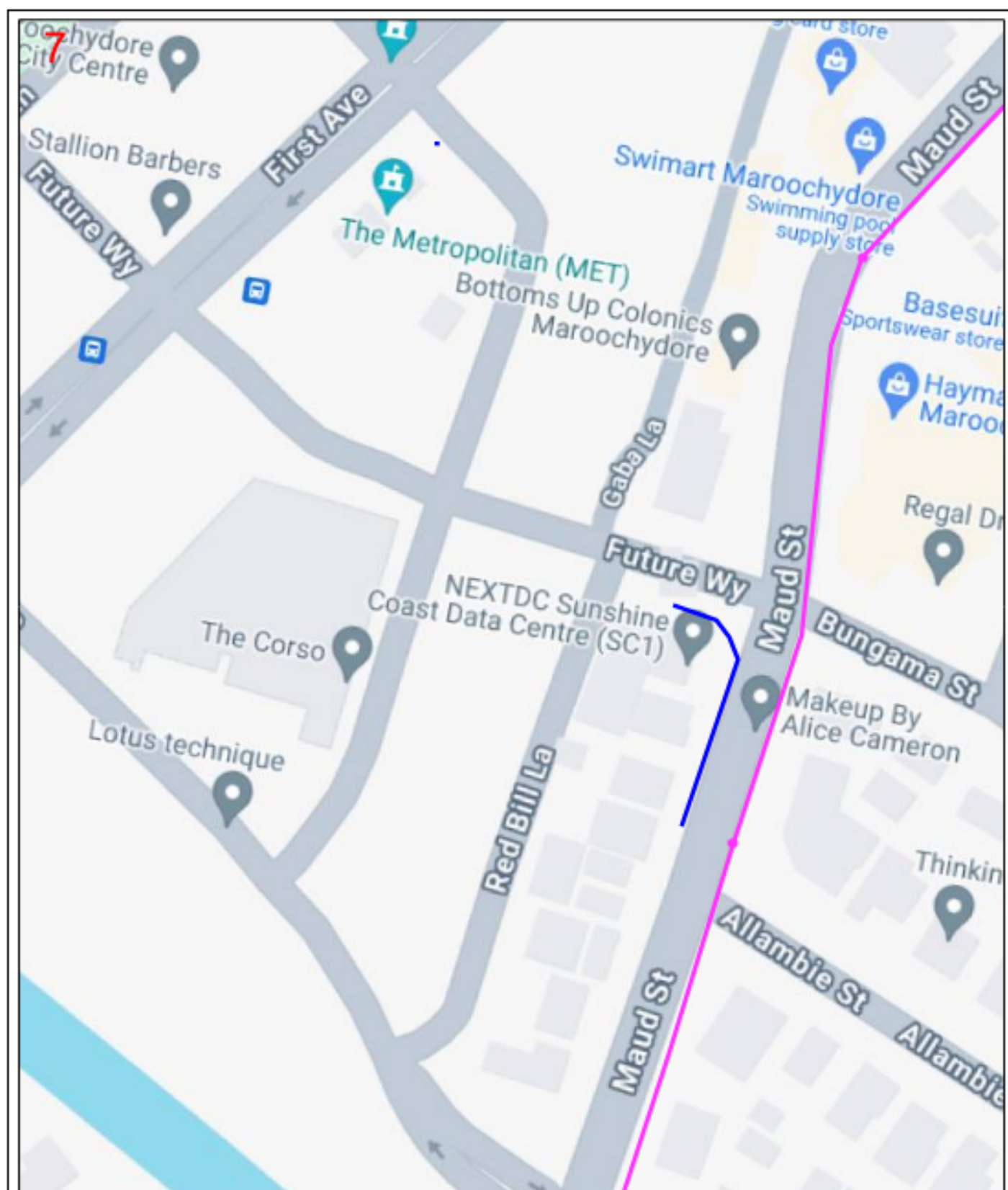


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Tile No: 1



LEGEND

BYDA Work Area



AAPT/PowerTel Pit



TransACT Pit



AAPT/PowerTel Duct



TransACT Duct



DDA Pit



SOUL Pattinson Telecoms Pit



DDA Duct



SOUL Pattinson Telecoms Duct



Agile/Adam Pit



PIPE Networks Pit



Agile/Adam Duct



PIPE Networks Duct



Enquiry Number: 234849371

Map Sheet: 7

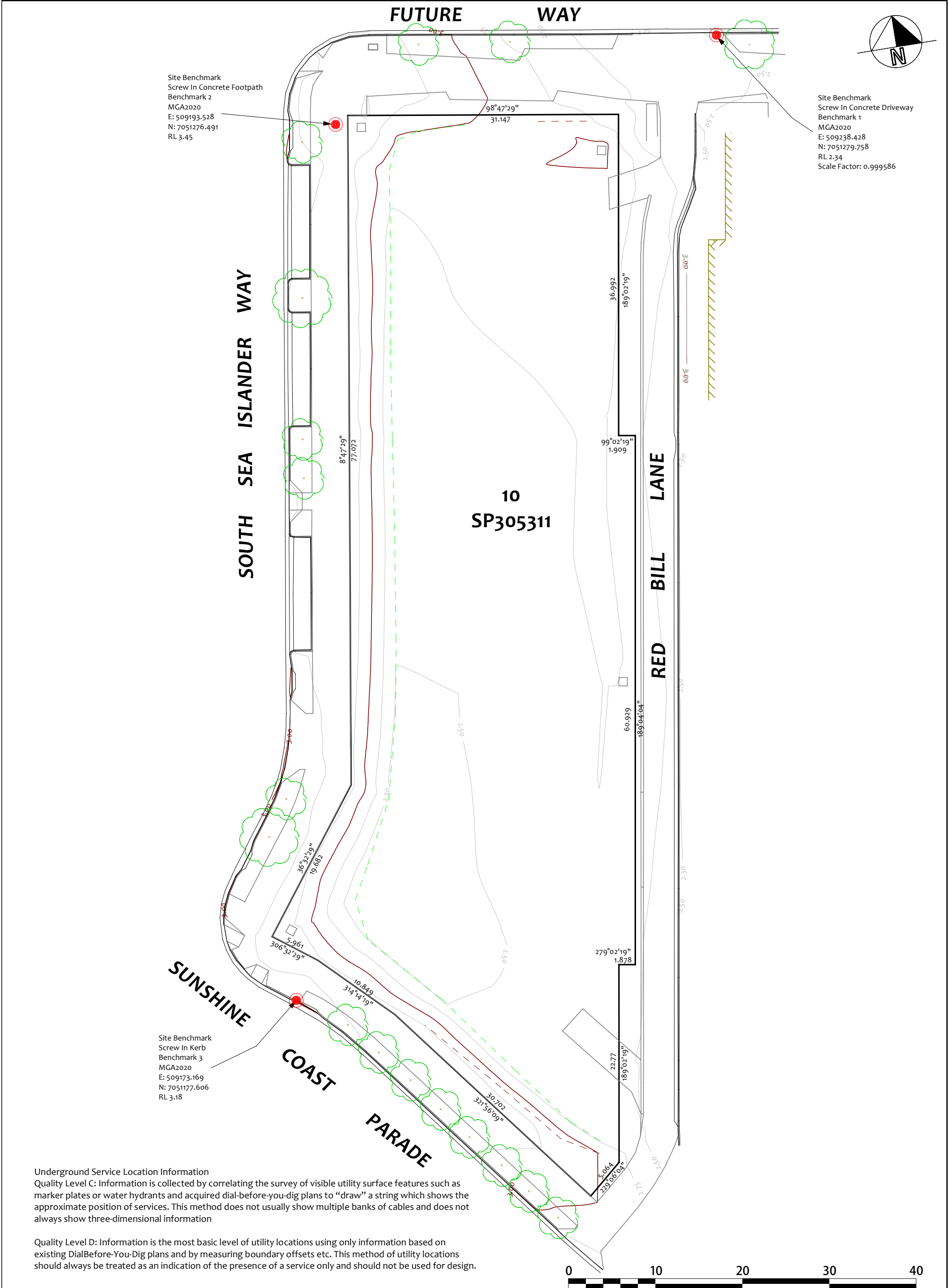
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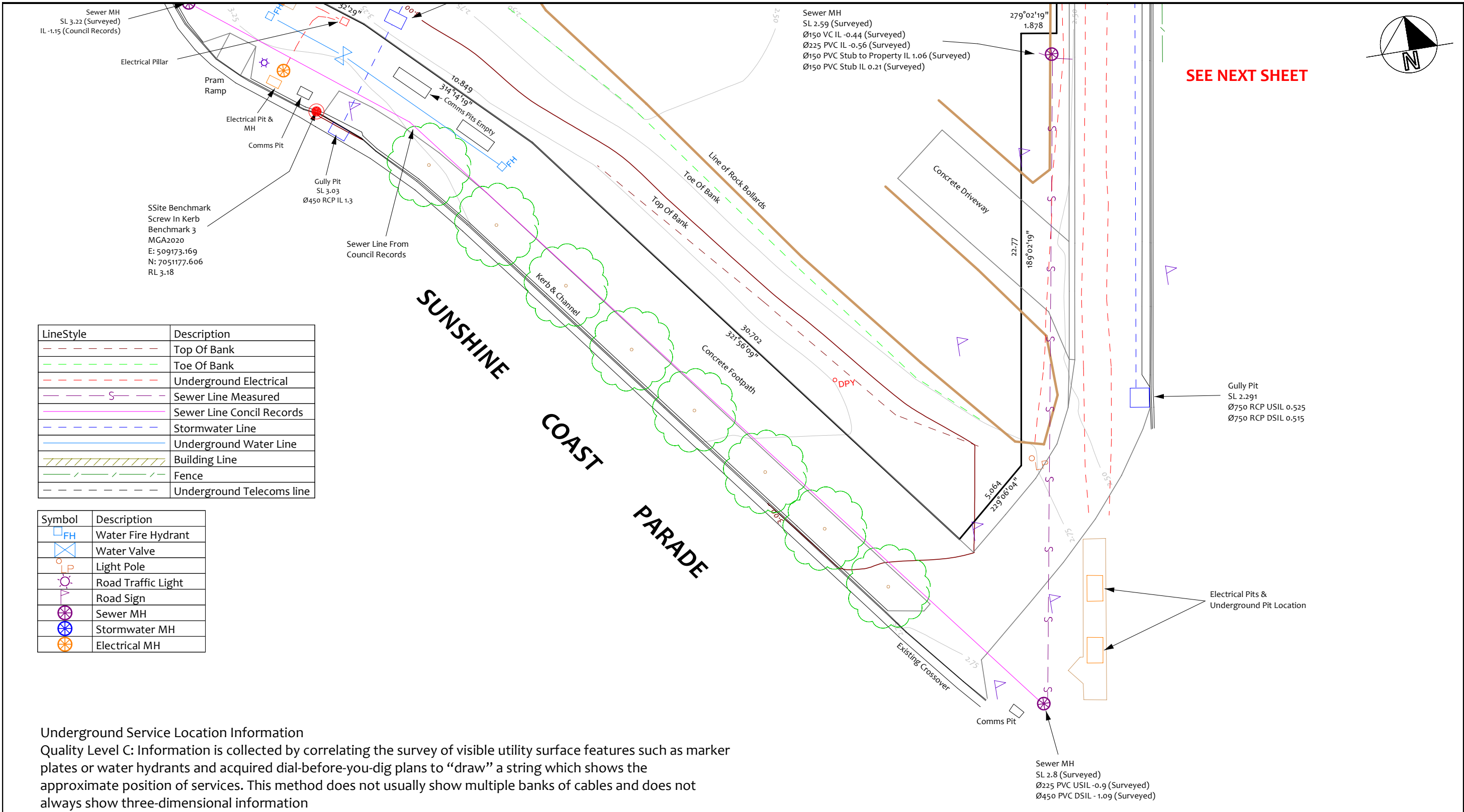
A.3 Topographic Survey



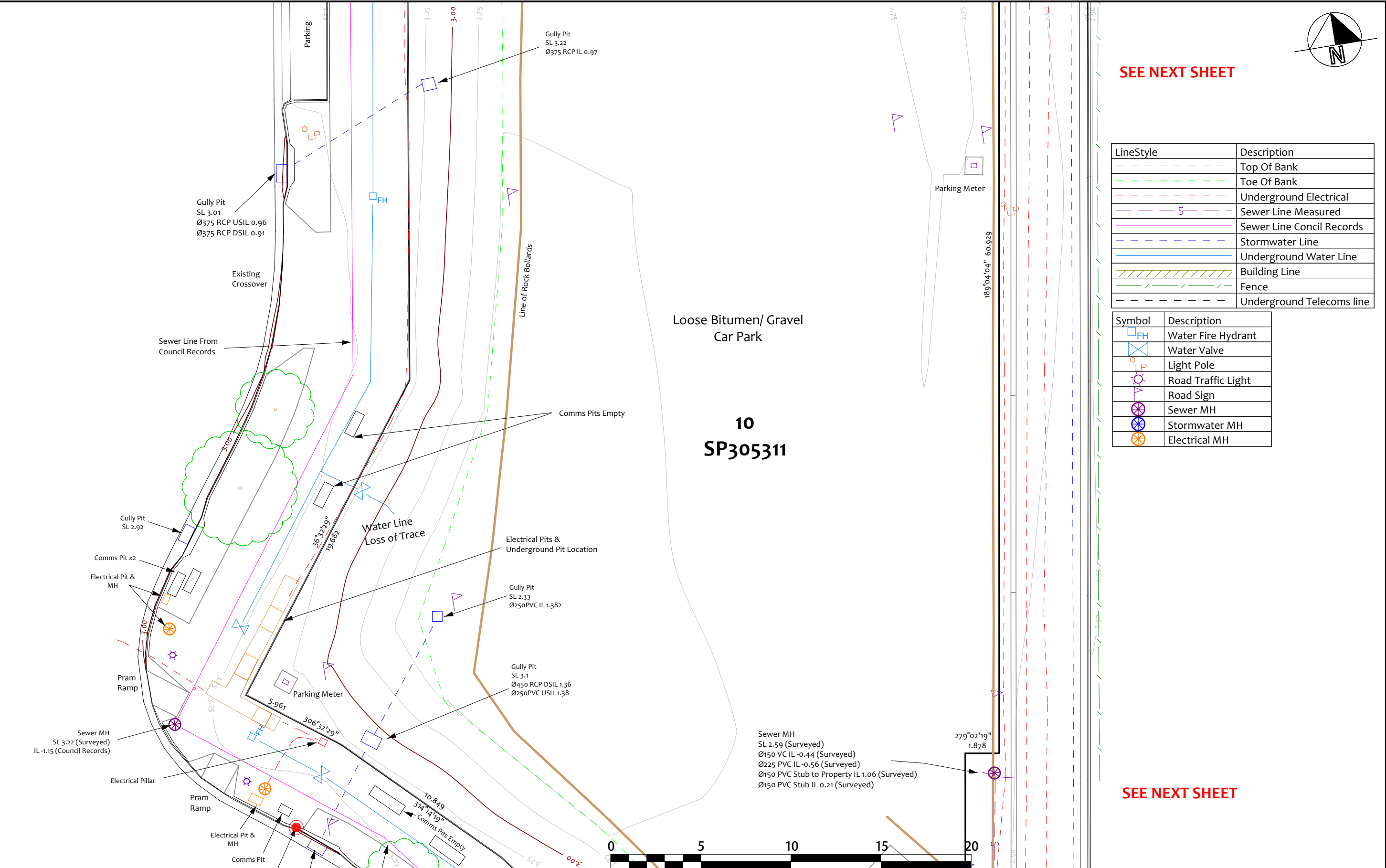
Underground Service Location Information
Quality Level C: Information is collected by correlating the survey of visible utility surface features such as marker plates or water hydrants and acquired dial-before-you-dig plans to “draw” a string which shows the approximate position of services. This method does not usually show multiple banks of cables and does not always show three-dimensional information

Quality Level D: Information is the most basic level of utility locations using only information based on existing DialBefore-You-Dig plans and by measuring boundary offsets etc. This method of utility locations should always be treated as an indication of the presence of a service only and should not be used for design.

Horizontal Co-Ord Datum		Vide CORS Network		Contour Interval 0.25m		Level Datum AHD-D		 Brisbane & Sunshine Coast - Ph. 5422 0200 South Burnett & Western Downs - Ph. 4162 2647 Email: admin@onfsurveyors.com.au	Client			Project CONTOUR & DETAIL SURVEY AND UNDERGROUND SERVICE LOCATION OVER LOT 10 ON SP305311 SOUTH SEA ISLANDER WAY				
Horizontal Co-Ord Origin		Benchmark 1		Level Origin PM446		Value 3.406m										
Easting 509238.428		Northing 7051279.758		Surveyed CW		Date 5/03/2024			Computer File M:\...SCC\12125.....	Scale (A3) 1:400	Job No. 12125	Locality MAROOCHYDORE	Drawing Number 12125_D1	Rev B	Sheet 1 OF 5	
Azimuth MGA2020		Field Book TSC5		Drawn CW		Date 22/03/2024										



NOTE :-	Horizontal Co-Ord Datum Vide CORS Network		Contour Interval 0.25m		Level Datum AHD-D						
	Horizontal Co-Ord Origin Benchmark 1		Level Origin PM446		Value 3.406m						
	Easting 509238.428	Northing 7051279.758	Surveyed CW		Date 5/03/2024						
	Azimuth MGA2020	Field Book TSC5	Drawn CW		Date 22/03/2024						
 ONF SURVEYORS Brisbane & Sunshine Coast - Ph. 5422 0200 South Burnett & Western Downs - Ph.4162 2647 Email: admin@onfsurveyors.com.au						Client NEXTDC LIMITED		Project CONTOUR & DETAIL SURVEY AND UNDERGROUND SERVICE LOCATION OVER LOT 10 ON SP305311 SOUTH SEA ISLANDER WAY			
Computer File M:\...SCC\12125....			Scale (A3) 1:200			Job No. 12125	Locality MAROOCHYDORE	Drawing Number 12125_D1	Rev B	Sheet 2 OF 5	



NOTE :-	Horizontal Co-Ord Datum Vide CORS Network		Contour Interval 0.25m		Level Datum AHD-D		 ONF SURVEYORS Brisbane & Sunshine Coast - Ph. 5422 0200 South Burnett & Western Downs - Ph.4162 2647 Email: admin@onfsurveyors.com.au	Client NEXTDC LIMITED		Project CONTOUR & DETAIL SURVEY AND UNDERGROUND SERVICE LOCATION OVER LOT 10 ON SP305311 SOUTH SEA ISLANDER WAY								
	Horizontal Co-Ord Origin Benchmark 1		Level Origin PM446		Value 3.406m													
	Easting 509238.428		Northing 7051279.758		Surveyed CW			Date 5/03/2024		Computer File		Scale (A3)		Job No.	Locality	Drawing Number	Rev	Sheet
	Azimuth MGA2020		Field Book TSC5		Drawn CW			Date 22/03/2024		M:\...SCC\12125....		1:200		12125	MAROOCHYDORE	12125_D1	B	3 OF 5

Symbol	Description
	Water Fire Hydrant
	Water Valve
	Light Pole
	Road Traffic Light
	Road Sign
	Sewer MH
	Stormwater MH
	Electrical MH

LineStyle	Description
	Top Of Bank
	Toe Of Bank
	Underground Electrical
	Sewer Line Measured
	Sewer Line Concil Records
	Stormwater Line
	Underground Water Line
	Building Line
	Fence
	Underground Telecoms line

SOUTH SEA ISLANDER WAY

Gully Pit
SL 3.11
Ø375 RCP IL 1.361

Pram
Ramp

Parking
Bays

Parking
Bays

Electrical Pillar

Gully Pit
SL 3.26
Ø375 RCP IL 1.47

Comms Pit x2

Water Line
Loss of Trace

Gully Pit
SL 3.22
Ø375 RCP IL 0.97

Loose Bitumen/ Gravel
Car Park

10
SP305311

SL 2.57 (Surveyed)
Ø225 PVC USIL -0.13
Ø225 PVC DSIL -0.15
Ø150 VC IL -0.09

Sewer MH
SL 2.57 (Surveyed)
Ø225 PVC IL 0.01

99°02'19"
1.909

36.992
189°02'19"

Adjacent Building

SEE NEXT SHEET

Raised Loading Dock
RL 3.75

Gully Pit
SL 2.39
Ø750 RCP USIL 0.965
Ø750 RCP DSIL 0.95

Kerb & Channel

SEE NEXT SHEET

NOTE :-

Horizontal Co-Ord Datum	Vide CORS Network	Contour Interval	0.25m	Level Datum	AHD-D
Horizontal Co-Ord Origin	Benchmark 1	Level Origin	PM446	Value	3.406m
Easting	509238.428	Northing	7051279.758	Surveyed	CW
				Date	5/03/2024
Azimuth	MGA2020	Field Book	TSC5	Drawn	CW
				Date	22/03/2024



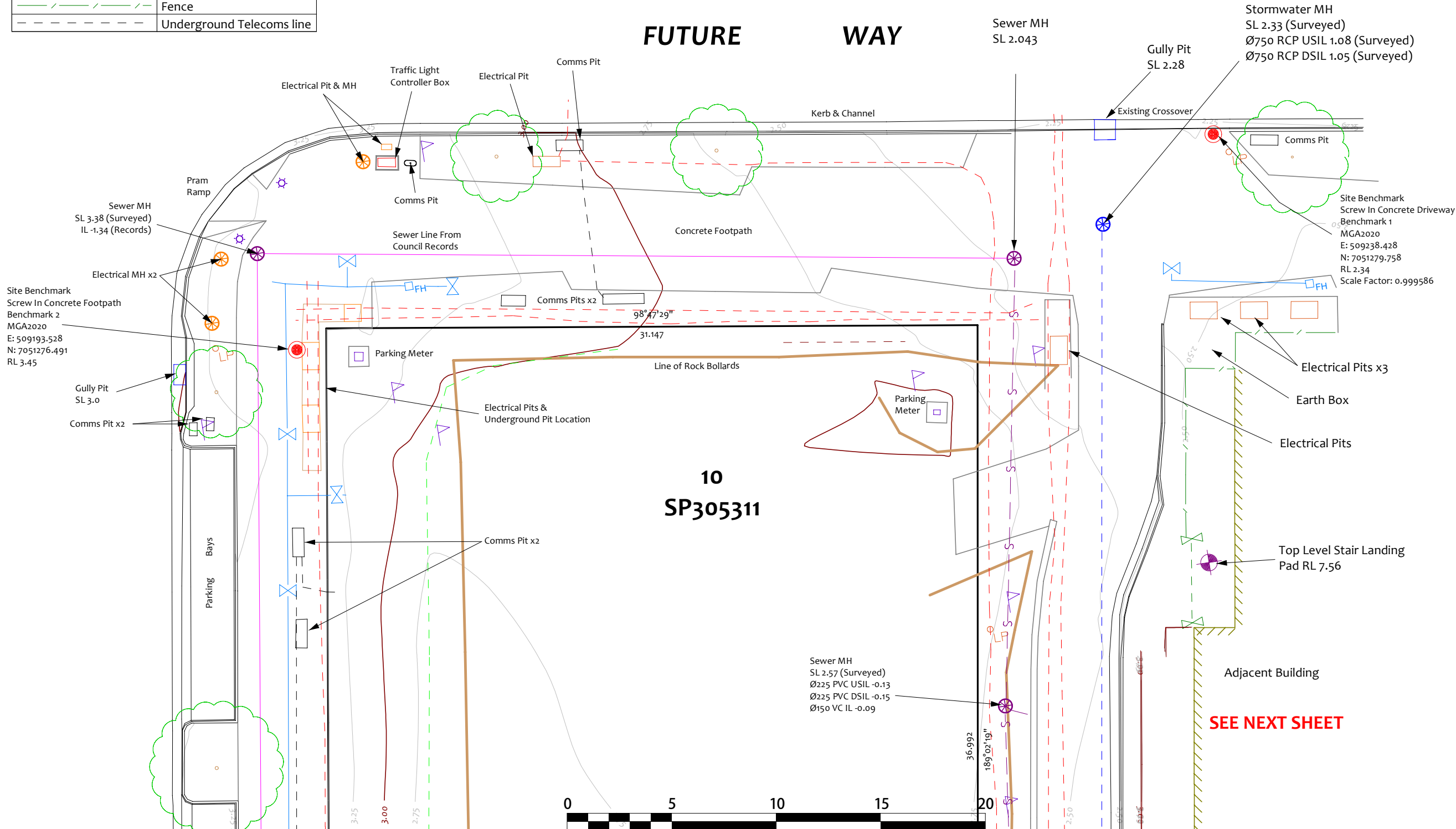
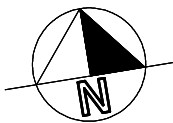
ONF
SURVEYORS

Brisbane & Sunshine Coast - Ph. 5422 0200
South Burnett & Western Downs - Ph.4162 2647
Email: admin@onfsurveyors.com.au

Client		Project	
NEXTDC LIMITED		CONTOUR & DETAIL SURVEY AND UNDERGROUND SERVICE LOCATION OVER LOT 10 ON SP305311 SOUTH SEA ISLANDER WAY	
Computer File	Scale (A3)	Job No.	Locality
M:\...\SCC\12125....	1:200	12125	MAROOCHYDORE
		Drawing Number	Rev
		12125_D1	B
		Sheet	4 OF 5

LineStyle	Description
---	Top Of Bank
---	Toe Of Bank
---	Underground Electrical
---	Sewer Line Measured
---	Sewer Line Concil Records
---	Stormwater Line
---	Underground Water Line
---	Building Line
---	Fence
---	Underground Telecoms line

Symbol	Description
[Symbol]	Water Fire Hydrant
[Symbol]	Water Valve
[Symbol]	Light Pole
[Symbol]	Road Traffic Light
[Symbol]	Road Sign
[Symbol]	Sewer MH
[Symbol]	Stormwater MH
[Symbol]	Electrical MH



NOTE :-	Horizontal Co-Ord Datum Vide CORS Network		Contour Interval	0.25m	Level Datum	AHD-D
	Horizontal Co-Ord Origin Benchmark 1		Level Origin	PM446	Value	3.406m
	Easting	509238.428	Northing	7051279.758	Surveyed	CW Date 5/03/2024
	Azimuth	MGA2020	Field Book	TSC5	Drawn	CW Date 22/03/2024
 Brisbane & Sunshine Coast - Ph. 5422 0200 South Burnett & Western Downs - Ph.4162 2647 Email: admin@onfsurveyors.com.au						
Client			NEXTDC LIMITED			
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				Rev	Sheet	
				B	5 OF 5	

Appendix B

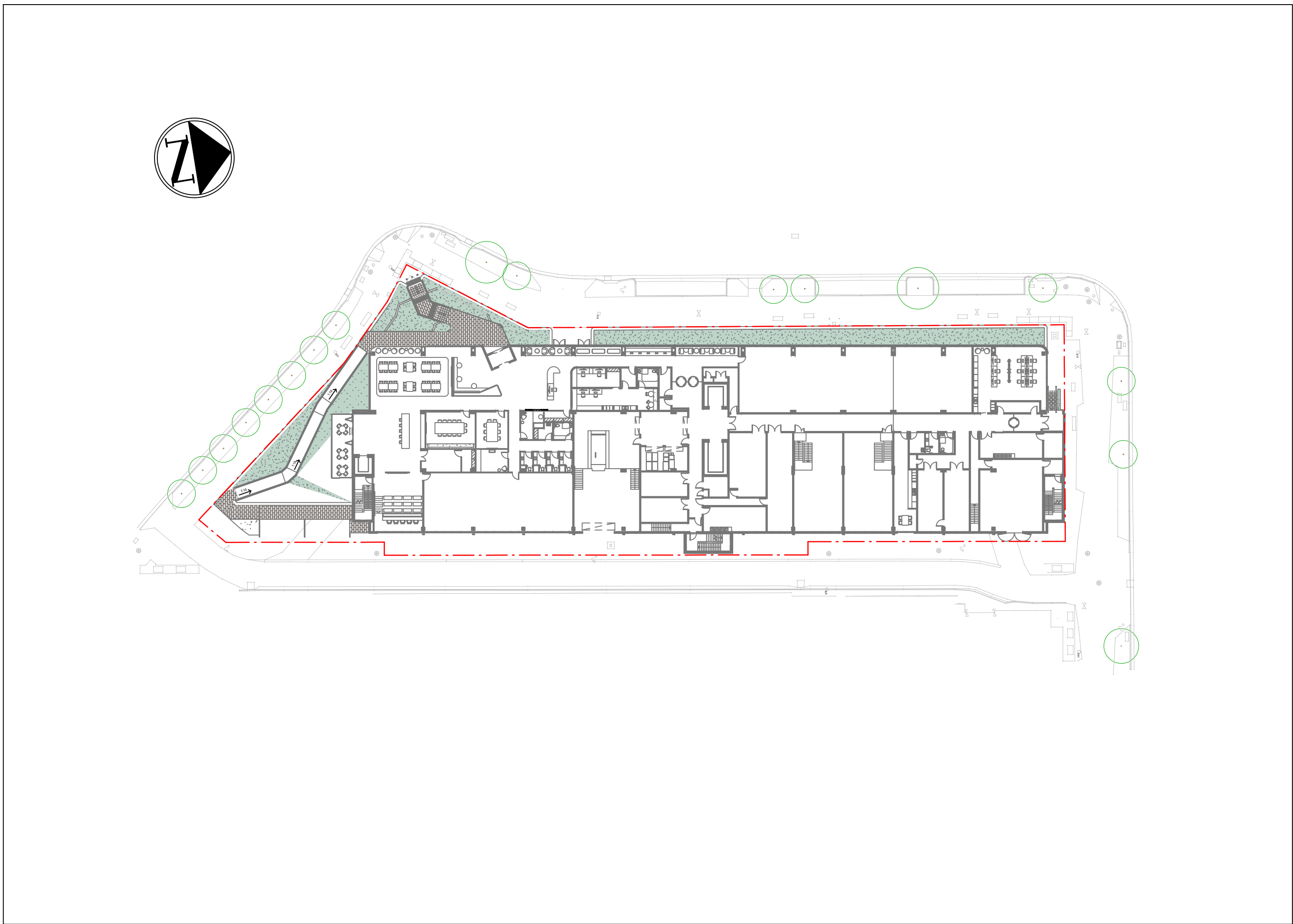
Civil Concept Sketches

NEXTDC SC2

Civil Engineering Plans

Development Application

Drawing Index	
Drawing Number	Sheet Name
299953-SC2-AR-DA-SKT-C-001	Cover Sheet and Drawing List
299953-SC2-AR-DA-SKT-C-002	Bulk Earthworks and Erosion and Sediment Control Plan
299953-SC2-CIV-ARU-DRG-400001	Stormwater Drainage General Arrangement
299953-SC2-AR-DA-SKT-C-004	Roadworks and Proposed Sewer and Water Connections



Key Plan
Scale 1:500

NOT FOR CONSTRUCTION

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

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

3	10/12/24	CW	MRH	DMW
Development Application Issue - Update				
2	16/10/24	CW	MRH	DMW
Development Application Issue				
1	29/08/24	CW	MRH	DMW
Development Application - Draft Issue				
Issue	Date	By	Chkd	Appd

Client
NEXTDC Limited


NEXTDC

Job Title
NEXTDC SC2

Scale at A1
1:500

Discipline
Civil

ARUP

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Member Firm
Arup Pty Ltd
ABN 76 625 912 665

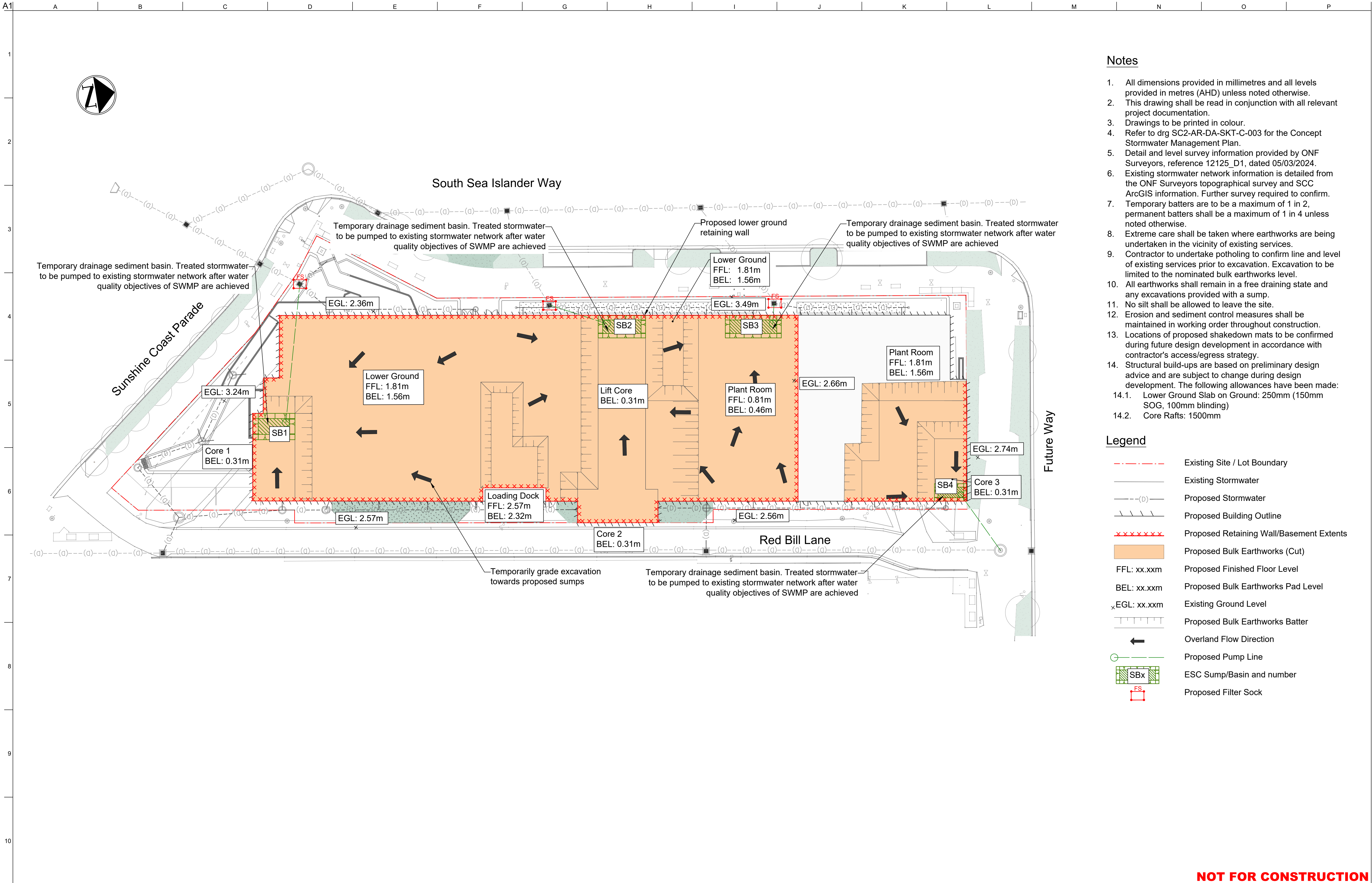
Drawing Title
Cover Sheet and Drawing List

Drawing Status
Development Application Issue

Job No
299953

Drawing No
SC2-AR-DA-SKT-C-001

Issue
3



Notes

1. All dimensions provided in millimetres and all levels provided in metres (AHD) unless noted otherwise.
2. This drawing shall be read in conjunction with all relevant project documentation.
3. Drawings to be printed in colour.
4. Refer to drg SC2-AR-DA-SKT-C-003 for the Concept Stormwater Management Plan.
5. Detail and level survey information provided by ONF Surveyors, reference 12125_D1, dated 05/03/2024.
6. Existing stormwater network information is detailed from the ONF Surveyors topographical survey and SCC ArcGIS information. Further survey required to confirm.
7. Temporary batters are to be a maximum of 1 in 2, permanent batters shall be a maximum of 1 in 4 unless noted otherwise.
8. Extreme care shall be taken where earthworks are being undertaken in the vicinity of existing services.
9. Contractor to undertake potholing to confirm line and level of existing services prior to excavation. Excavation to be limited to the nominated bulk earthworks level.
10. All earthworks shall remain in a free draining state and any excavations provided with a sump.
11. No silt shall be allowed to leave the site.
12. Erosion and sediment control measures shall be maintained in working order throughout construction.
13. Locations of proposed shakedown mats to be confirmed during future design development in accordance with contractor's access/egress strategy.
14. Structural build-ups are based on preliminary design advice and are subject to change during design development. The following allowances have been made:
 - 14.1. Lower Ground Slab on Ground: 250mm (150mm SOG, 100mm blinding)
 - 14.2. Core Rafts: 1500mm

Legend

- Existing Site / Lot Boundary
- Existing Stormwater
- Proposed Stormwater
- Proposed Building Outline
- Proposed Retaining Wall/Basement Extents
- Proposed Bulk Earthworks (Cut)
- FFL: xx.xxm Proposed Finished Floor Level
- BEL: xx.xxm Proposed Bulk Earthworks Pad Level
- ×EGL: xx.xxm Existing Ground Level
- Proposed Bulk Earthworks Batter
- Overland Flow Direction
- Proposed Pump Line
- ESC Sump/Basin and number
- Proposed Filter Sock

NOT FOR CONSTRUCTION

Scales
2.5 0 5 10m
1:250(A1)/1:500(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

3	10/12/24	CW	MRH	DMW
Development Application Issue				
2	16/10/24	CW	MRH	DMW
Development Application Issue				
1	29/08/24	CW	MRH	DMW
Development Application - Draft Issue				

Client
NEXTDC Limited

Job Title
NEXTDC SC2

Scale at A1
1:250

Discipline
Civil

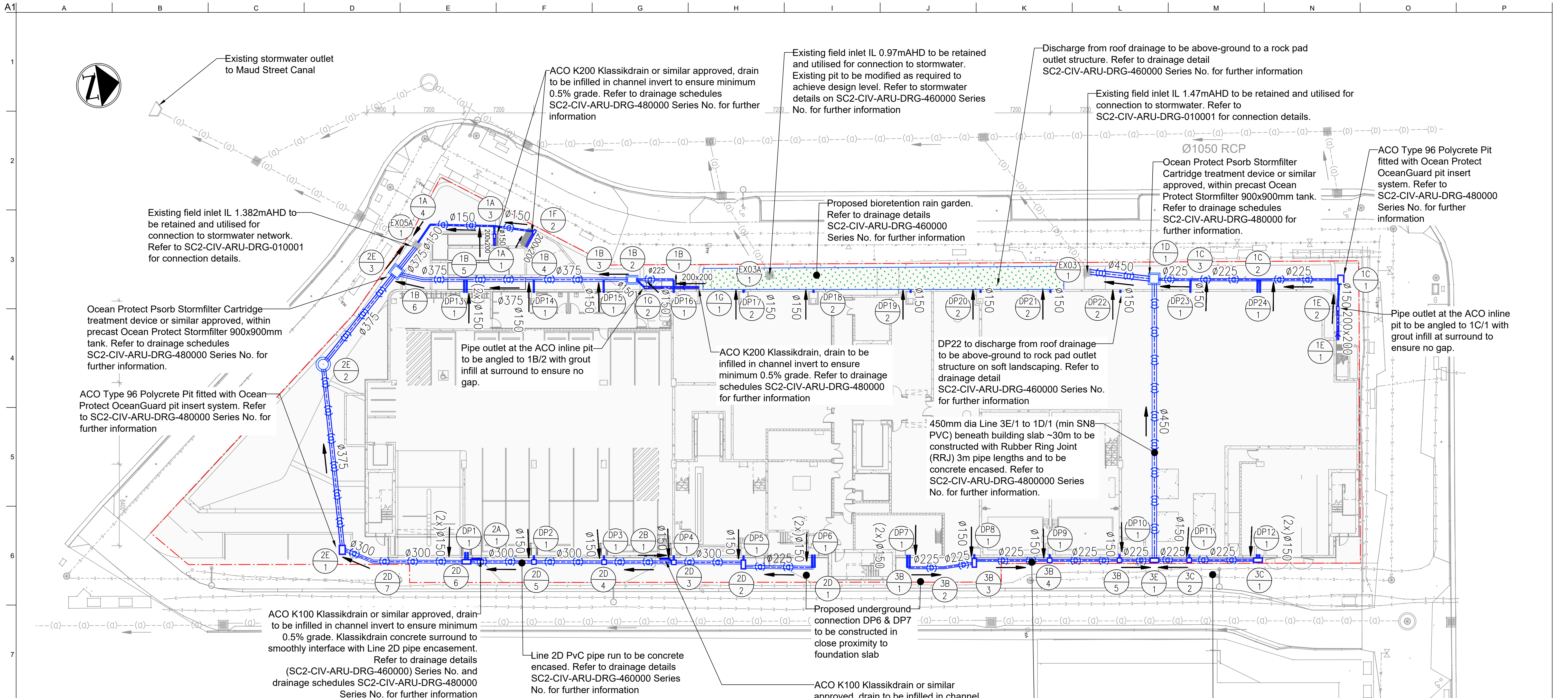
Arup, Level 4, 108 Wickham Street,
Fortitude Valley, QLD, 4006
Tel +61(0)7 3223 6000
www.arup.com

Member Firm
Arup Pty Ltd
ABN 76 623 912 665

Drawing Title
Bulk Earthworks and Erosion and Sediment Control Plan

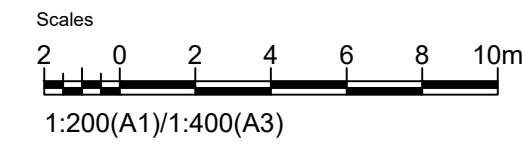
Drawing Status
Development Application Issue

Job No 299953	Drawing No SC2-AR-DA-SKT-C-002	Issue 2
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Notes

- 1. These drawings should be read in conjunction with all other structural, architectural and landscape architectural documentation.
- 2. Refer to drawing no. SC2-CIV-ARU-DRG-010001, SC2-CIV-ARU-DRG-010002 and SC2-CIV-ARU-DRG-010003 for general notes and legend.
- 3. Refer to drawing series no. SC2-CIV-ARU-DRG-460000 for stormwater drainage construction details, SC2-CIV-ARU-DRG-470000 for stormwater longsections and drawing series no. SC2-CIV-ARU-DRG-480000 for drainage schedules.
- 4. Drawings to be printed in colour.
- 5. All levels are shown in mAHD.
- 6. Detail and level survey information provided by ONF Surveyors, reference 12125_D1, dated 05/03/2024. Contractor to undertake potholing to confirm line and level of existing services where crossover with proposed drainage occurs, prior to commencement of works.
- 7. All proposed field inlets to be installed with gross pollutant traps.
- 8. All PVC pipes to have a minimum stiffness classification of SN8.
- 9. All ACO Polycrete pits to be installed with galvanised heelguard grates (2,760kg nominal wheel load). ACO Polycrete on Line 2D & 2E/1 to be installed with locking variants of the specified grates.
- 10. Refer to Architect documentation for design surface levels for proposed hardscape and softscape areas.
- 11. Contractor to confirm sizing, specification and installation requirements of proprietary products ACO linear trench drains, Ocean Protect Cartridge Stormfilter system and Ocean Protect OceanGuard with the supplier prior to procurement.
- 12. Existing stormwater network information is detailed from ONF Surveyors topographical survey and SCC ArcGIS information. Further survey required to confirm proposed connections to existing drainage network.
- 13. Downpipe labels DPXX | X only provide indicative locations of roof drainage outlets. Refer to Building Hydraulics documentation for further information.
- 14. Drainage design layout are based on the latest available design information at the time of issue.



Engineering Certification (RPEQ)
Name: Doug Walton Area: Civil
Signature: Date: 11/07/2025
RPEQ No: 09543

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

C1	11/07/2025	SL	MRH	DMW
Contract Issue				
T1	30/05/2025	SL	MRH	DMW
Tender Issue				
1	20/05/2025	SL	MRH	DMW
Early Works Draft Issue				
Issue	Date	By	Chkd	Appd

Client
NEXTDC LIMITED

Job Title
SC2

Scale at A1
1:200

Discipline
Civil

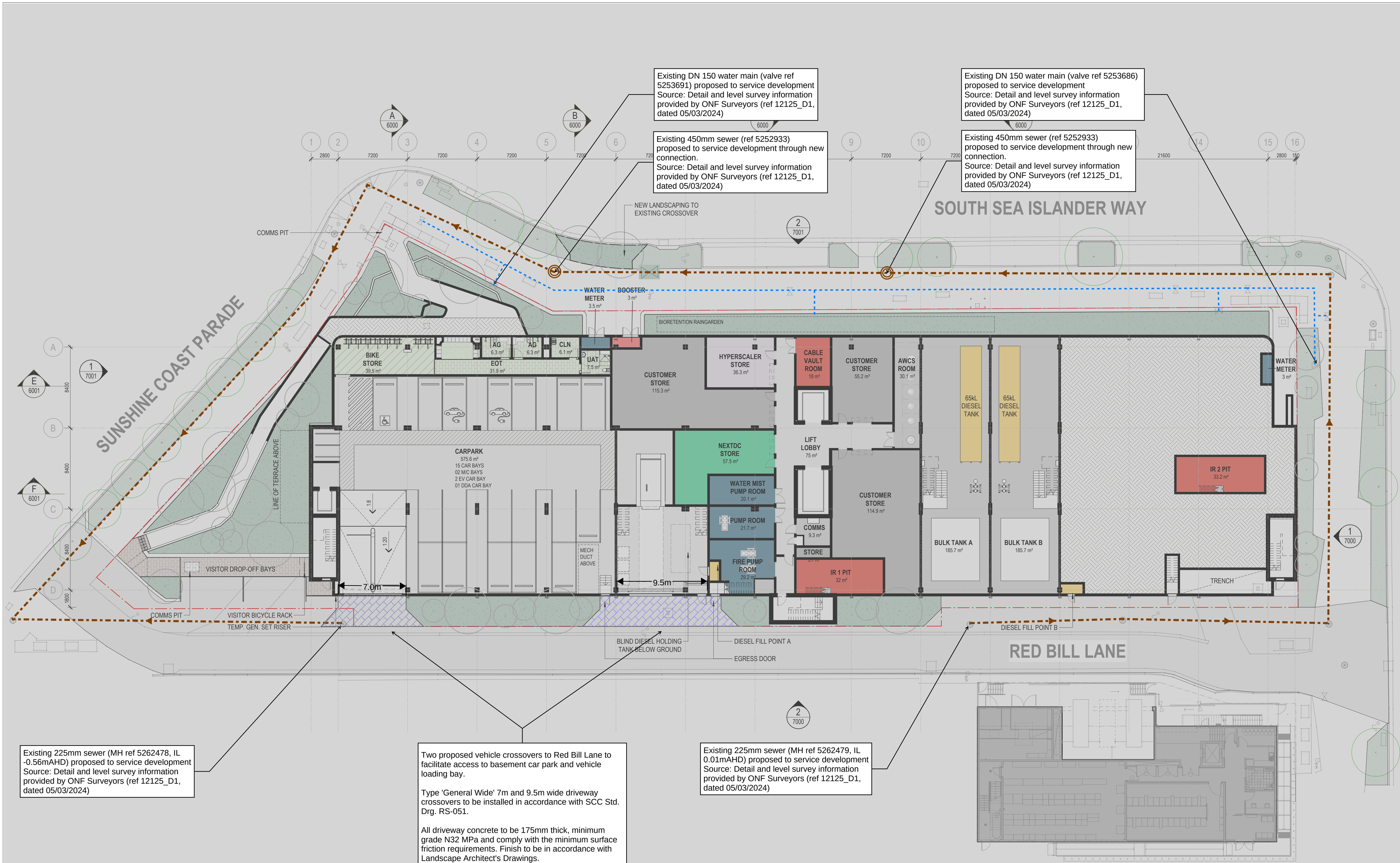
ARUP

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Tel +61(0)73023 6000
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Drawing Title
STORMWATER DRAINAGE
GENERAL ARRANGEMENT

Drawing Status
ISSUE FOR CONTRACT

Job No 299953	Drawing No SC2-CIV-ARU-DRG-400001	Issue C1
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Existing 225mm sewer (MH ref 5262478, IL -0.56mAHD) proposed to service development
Source: Detail and level survey information provided by ONF Surveyors (ref 12125_D1, dated 05/03/2024)

Two proposed vehicle crossovers to Red Bill Lane to facilitate access to basement car park and vehicle loading bay.

Type 'General Wide' 7m and 9.5m wide driveway crossovers to be installed in accordance with SCC Std. Drg. RS-051.

All driveway concrete to be 175mm thick, minimum grade N32 MPa and comply with the minimum surface friction requirements. Finish to be in accordance with Landscape Architect's Drawings.

Existing 225mm sewer (MH ref 5262479, IL 0.01mAHD) proposed to service development
Source: Detail and level survey information provided by ONF Surveyors (ref 12125_D1, dated 05/03/2024)

Existing DN 150 water main (valve ref 5253691) proposed to service development
Source: Detail and level survey information provided by ONF Surveyors (ref 12125_D1, dated 05/03/2024)

Existing 450mm sewer (ref 5252933) proposed to service development through new connection.
Source: Detail and level survey information provided by ONF Surveyors (ref 12125_D1, dated 05/03/2024)

Existing DN 150 water main (valve ref 5253686) proposed to service development
Source: Detail and level survey information provided by ONF Surveyors (ref 12125_D1, dated 05/03/2024)

Existing 450mm sewer (ref 5252933) proposed to service development through new connection.
Source: Detail and level survey information provided by ONF Surveyors (ref 12125_D1, dated 05/03/2024)

DATE	NO.	REVISION HISTORY	DRW	CHK	QA
15/11/2024	22	ISSUED FOR INFORMATION	RT	DS	
04/11/2024	21	ISSUED FOR INFORMATION	RT	DS	
28/10/2024	20	ISSUED FOR INFORMATION	RT	DS	
25/10/2024	19	REVISED BRIEF DRAWINGS	RT	DS	
27/09/2024	18	ISSUED FOR INFORMATION	RT	DS	
19/05/2024	17	ISSUED FOR INFORMATION	RT	DS	
27/08/2024	16	ISSUED FOR INFORMATION	RT	DS	
20/08/2024	15	ISSUED FOR INFORMATION	RT	DS	
06/08/2024	14	ISSUED FOR INFORMATION	RT	DS	
30/07/2024	13	ISSUED FOR INFORMATION	RT	DS	
22/07/2024	12	ISSUED FOR INFORMATION	RT	DS	
12/07/2024	11	ISSUED FOR INFORMATION	RT	DS	
18/06/2024	10	REVISED BRIEF DRAWINGS	RT	DS	
31/05/2024	9	REVISED BRIEF DRAWINGS	RT	DS	
24/05/2024	8	REVISED BRIEF DRAWINGS	RT	DS	
22/04/2024	7	ISSUED FOR INFORMATION	RT	DS	
27/03/2024	6	ISSUED FOR INFORMATION	RT	DS	
20/02/2024	5	ISSUED FOR INFORMATION	RT	DS	
18/03/2024	4	ISSUED FOR INFORMATION	RT	DS	
13/03/2024	3	ISSUED FOR INFORMATION	RT	DS	
06/02/2024	2	ISSUED FOR INFORMATION	RT	DS	
28/02/2024	1	ISSUED FOR INFORMATION	RT	DS	

GENERAL NOTES:

- Design drawings are based on 3rd party survey information. Prior to construction all set-out dimensions, site and property boundaries, existing levels, structure, services, building fabric and site features are to be verified on site by a registered Surveyor - information pertaining to existing building fabric and site features, indicated within the documentation is not guaranteed as complete or correct. Notify the superintendent/project administrator in writing of compliance to the drawings and of any discrepancies prior to the commencement of the works.
- Do not scale from the drawings, use only figured dimensions. If in doubt obtain written advice from the project administrator.
- All dimensions are in millimetres unless otherwise stated. All dimensions are minimum setting out requirements.
- The architectural documentation is to be read in conjunction with all relevant contracts, architectural drawings, schedules, reports and specifications and all structural, civil, mechanical, electrical, fire engineering, fire services, hydraulic, acoustic, landscape and other relevant consultant drawings, specifications and reports. Do not proceed to contractor design, fabrication, construction without written confirmation that all consultant documentation is issued.
- The architectural documentation is only allowed to be used for the purpose for which it was commissioned. Unauthorised use of the documentation is prohibited.
- Immediately report any discrepancies between architectural documentation and other consultant and/or project documentation to the project administrator for clarification prior to the commencement of the affected works.
- Comply with all current BCA, Australian Standards, design guidelines, Work Cover, Occupational Health and Safety, & any other legislations relevant to the works.
- Notify the project administrator prior to commencement of any works which may constitute a variation to the contract.
- Information pertaining to existing structures, planting, services, etc. indicated within the documentation are not guaranteed as complete or correct & has been generated from information supplied by authorities & third party consultants. The contractor is to verify all existing information prior to the commencement of works as per item 1.
- The contractor is to verify all dimensions, existing levels, existing structure, services, building fabric and site features on the site prior to the commencement of any works. Written confirmation of the compliance between the drawings and the site is to be provided to the contract administrator. Any discrepancies are to be reported to the contract administrator prior to the commencement of works.
- Installation of systems and proprietary products to be strictly in accordance with manufacturers recommendations.
- Reduced levels (RL) datum are to Australian Height Datum (AHD), coordinates are to Australian Map Grid (AMG).

PRINCIPAL CONSULTANTS

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CLIENT


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Document Author Project Number
230635.00

Key Plan



Site Stage NEXTDC Project Number
SC2 1 SC1.0007

Project Address
LOT 10, SOUTH SEA ISLANDER WAY, MAROOCHYDORE

Project Name
NEXTDC SC2

Drawing Title
ARCHITECTURE
LOWER GROUND
GENERAL ARRANGEMENT
PLANS

Drawing Status
ISSUED FOR INFORMATION

DRW	RT	DS	DATE
15/11/2024	RT	DS	15/11/2024
Scale	Sheet	File Name	Rev
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Dwg no:	SC2-ARC-ARC-DRG-A-0100-3000		22

ARUP

Sunshine Coast 2
Roadworks and Proposed Water & Sewer Connections

Job No.	299953	Date.	10/12/24
Dwg By	MH	Sht No.	1/1
Dwg No.	SC2-AR-DA-SKT-C-004	Rev.	3

PRELIMINARY

Appendix C

Stormwater Management Plan

NEXTDC Limited

Sunshine Coast 2

Stormwater Management Plan

Reference: 299953-SC2-AR-DA-REP-C-002

05 | 27 August 2026

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

Job number 299953

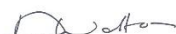
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Document Verification

Project title Sunshine Coast 2
Document title Stormwater Management Plan
Job number 299953
Document ref 299953-SC2-AR-DA-REP-C-002
File reference

Revision	Date	Filename	299953-SC2-AR-DA-REP-C-002[01] SC2 DA Stormwater Management Plan		
01	23/08/2024	Description	Development Application – Draft Issue for Comment		
			Prepared by	Checked by	Approved by
		Name	Martin Head	Doug Walton	Doug Walton
02	16/10/2024	Filename	299953-SC2-AR-DA-REP-C-002[02] SC2 DA Stormwater Management Plan		
		Description	Development Application Issue		
			Prepared by	Checked by	Approved by
		Name	Martin Head	Doug Walton	Doug Walton
		Signature			
03	10/12/2024	Filename	299953-SC2-AR-DA-REP-C-002[03] SC2 DA Stormwater Management Plan		
		Description	Development Application Issue – Update		
			Prepared by	Checked by	Approved by
		Name	Martin Head	Doug Walton	Doug Walton
		Signature			
04	28/05/2025	Filename	299953-SC2-AR-DA-REP-C-002[04] SC2 DA Stormwater Management Plan		
		Description	Development Application Issue – Update to EDQ Comments		
			Prepared by	Checked by	Approved by
		Name	Martin Head	Doug Walton	Doug Walton
		Signature			

05	27/08/2026	Filename	299953-SC2-AR-DA-REP-C-002[05] SC2 DA Stormwater Management Plan		
		Description	Development Application Issue – Update to Latest Stormwater Drainage Design		
			Prepared by	Checked by	Approved by
		Name	Charlie Wang	Martin Head	Doug Walton
		Signature			
Issue Document Verification with Document		☒			

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1. Introduction

This document has been prepared by Arup as part of a Development Application to Sunshine Coast Council (SCC) for the proposed development located at Lot 10 South Sea Islander Way, Maroochydore, QLD.

The purpose of this report is to address the stormwater quantity and quality issues at a conceptual level for the proposed development.

Revision 4 of this report has been updated to respond to comments from EDQ, as below:

“Submit an amended Stormwater Management Plan to split stormwater discharge between the existing on-site field inlet pits along the South Sea Islander Way frontage only as discharge to Red Bill Lane is not supported.”

1.1 Project Overview

NEXTDC is an established and growing data centre developer and operator. Since its inception thirteen years ago, NEXTDC has developed multiple premium quality data centres nationally, all certified to the industry’s highest standards. NEXTDC continues to grow their pipeline of world-class, next-generation data centres in Australian cities, with the latest expansion being the SC2 facility at Lot 10, South Sea Islander Way, Maroochydore, QLD 4558, Australia, directly adjacent to the existing SC1 facility. The SC2 facility is to comprise a multi-level data centre with a total capacity of 6MW IT, as well as collaboration and mission critical (MCX) office space.

1.2 Location

The project site is located within Maroochydore City Centre, bounded to the north by Future Way, to the east by Red Bill Lane, to the south by Sunshine Coast Parade, and to the west by South Sea Islander Way.

The proposed development is positioned on Lot 10 SP305311, South Sea Islander Way, Maroochydore, QLD, as shown in Figure 1.

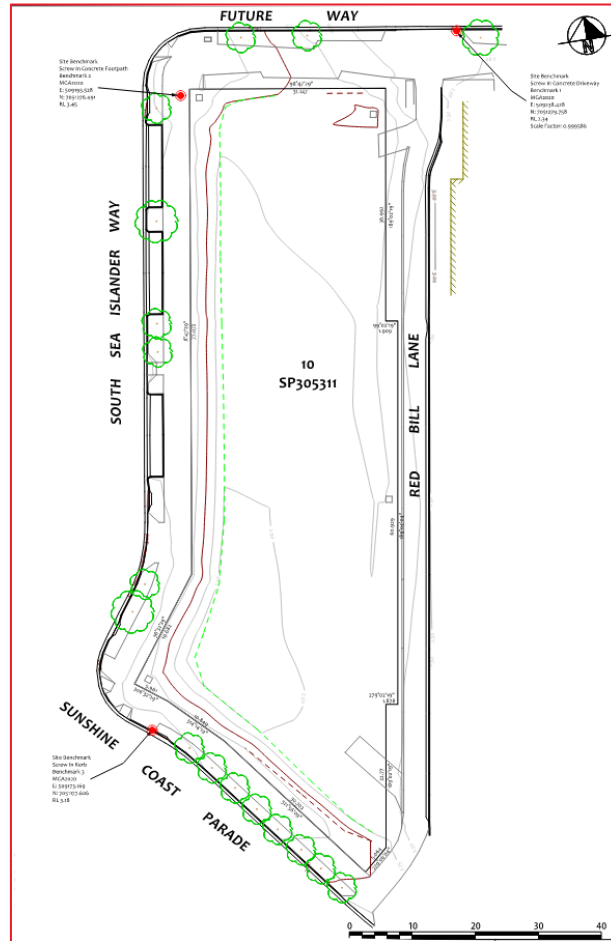


Figure 1 - Proposed site location at Lot 10 South Sea Islander Way, Maroochydore, QLD, 4558.

1.3 Background Information

This report was prepared using information obtained from the following sources:

- Detail and level survey for Lot 10 SP305311, prepared by ONF Surveyors, surveyed 5 March 2024, reference 12125_D1.
- Architectural drawings of the proposed development prepared by Architectus
- SCC MyMaps (online)
- Before You Dig Australia (BYDA) services

1.4 Abbreviations

Acronyms used within the report are outlined in Table 1 below.

Table 1: Abbreviations

Abbreviations	Description
AEP	Annual Exceedance Probability
DBYD	Dial Before You Dig
EV	Environmental Value

Abbreviations	Description
GP	Gross Pollutant
GPT	Gross Pollutant Trap
MCX	Mission critical
PDA	Priority Development Area
PMF	Probable Maximum Flood
QUDM	Queensland Urban Drainage Manual
RCBC	Reinforced Concrete Box Culvert
RCP	Reinforced Concrete Pipe
SCC	Sunshine Coast Council
SWMP	Stormwater Management Plan
TN	Total Nitrogen
TP	Total Phosphorous
TSS	Total Suspended Solids
WbD	Water by Design
WQO	Water Quality Objective

2. Existing Site and Drainage Characteristics

2.1 Existing Site

The proposed site consists of one allotment (10SP305311), with a total area of 3.711 ha. The existing site is currently undeveloped and grassed and is currently utilised as an informal off-street parking area.

2.2 Topography

A detail and level survey has been prepared by ONF Surveyors for NEXTDC (ref 12125_D1). This shows the existing site as generally flat, with levels varying between 2.4 and 3.4mAHD.

There is existing vehicular access to the site via Red Bill Lane. Existing services are located on site including water mains, electricity, stormwater drainage and sewerage.

2.3 Flood Risk from External Catchments

2.3.1 Summary

As part of a due diligence study for the site, a flood risk assessment was conducted. Consultation was undertaken with the Sunshine Coast Council who shared flood levels at the proposed site from both the Maroochy River and Cornmeal Creek Flood Studies. This information has been utilised to inform the required minimum floor levels for the proposed data centre to minimise flood risk.

Note that no modelling has been undertaken specifically for this project as the representation of the site of interest within the masterplan for the Maroochy City Centre was adequate.

The outcome of the desktop assessment indicates that the on-site flood risk to the proposed data centre is minimal, with the ground floor level being above the Council's Probable Maximum Flood (PMF) level.

2.3.2 Catchment Extents and Existing Flow Regime

The site is located adjacent to the Maud Street Canal, which runs into Cornmeal Creek. The contributing area into the Maud Street Canal, upstream of the proposed site is approximately 120 hectares. The upstream catchment land use consists predominantly of developed areas (i.e., buildings, residential and paved areas) with some open space.

The Maud Street Canal and broader Cornmeal Creek catchments dictate flood levels up to approximately the 1 in 2000 AEP event (present climate). For events of larger magnitude, including the 1 in 2000 annual exceedance probability (AEP) event (2100 Climate Scenario) and the PMF event, backflow from the Maroochy River dominates the peak flood level.

An overview of the site locality and existing watercourses surrounding the site is shown in Figure 2.



Figure 2: Site Locality and Proximal Watercourses

2.3.3 Existing Flood Studies

The two existing flood studies which were used to inform this site assessment are summarised below in Table 2.

Table 2 Available Existing Flood Studies

Study Name	Author	Year	Model Type	Events Modelled	Calibrated/Uncalibrated
Maroochy River Flood Study	BMT WBM	2017	TUFLOW FV	50% AEP through to PMF (utilising Duration independent Storm)	Calibrated to multiple events
Cornmeal Creek Flood Study	Cardno	2013 & 2017	TUFLOW	39% AEP through to 0.05% AEP including Design case modelling associated with Maroochy City Centre.	Calibrated to March 2012 event.

The Cornmeal Creek flood studies, including the 2023 Calibre study (not yet publicly available), have considered a fully developed Maroochy PDA. These studies have assessed flood impacts and demonstrated no flood worsening external to PDA. Therefore, it is deemed that all required mitigation provisions associated with the development has been considered by Council and no additional flood impact assessment is required.

For more information on these studies, refer to the Sunshine Coast Flood and Drainage Study database.

2.3.4 Flood Risk

As discussed in Section 2.3.2, local Cornmeal Creek catchment flooding dictates flood levels throughout the majority of AEP events at the proposed site. It is only in extreme events, such as the 1 in 2000 AEP (2100 Climate Scenario) and PMF event that the critical flood level at the site is dictated by the Maroochy River. This is due to the high levels in the Maroochy River causing backwater affects through Cornmeal Creek and Maud Street Canal.

Flood levels have been extracted from the available flood studies have been provided by Sunshine Coast Council, with levels being extracted from the southern end of the lot (or from Maud Street Canal in smaller events). Flood levels and the relevant dataset are summarised in Table 3. Flood extents have also been presented in Figure 3. Note that the PMF flood extent has not been included in this image, as it covers the entire extent shown, together with the majority of the Maroochydore CBD.

Table 3: Flood Levels from External Catchments at the site

Event	WSL @ Proposed Site	Data Source
39% AEP	1.55	Cornmeal Creek Flood Study
10% AEP	1.87	Cornmeal Creek Flood Study
10% AEP in 2100	2.67	Cornmeal Creek Flood Study
1% AEP	2.54	Cornmeal Creek Flood Study
1% AEP in 2100	3.12	Cornmeal Creek Flood Study
0.5% AEP in 2100	3.28	Cornmeal Creek Flood Study
0.05% AEP	3.38	Cornmeal Creek Flood Study
0.05% AEP in 2100	3.60	Maroochy River Flood Study
PMF	4.96	Maroochy River Flood Study

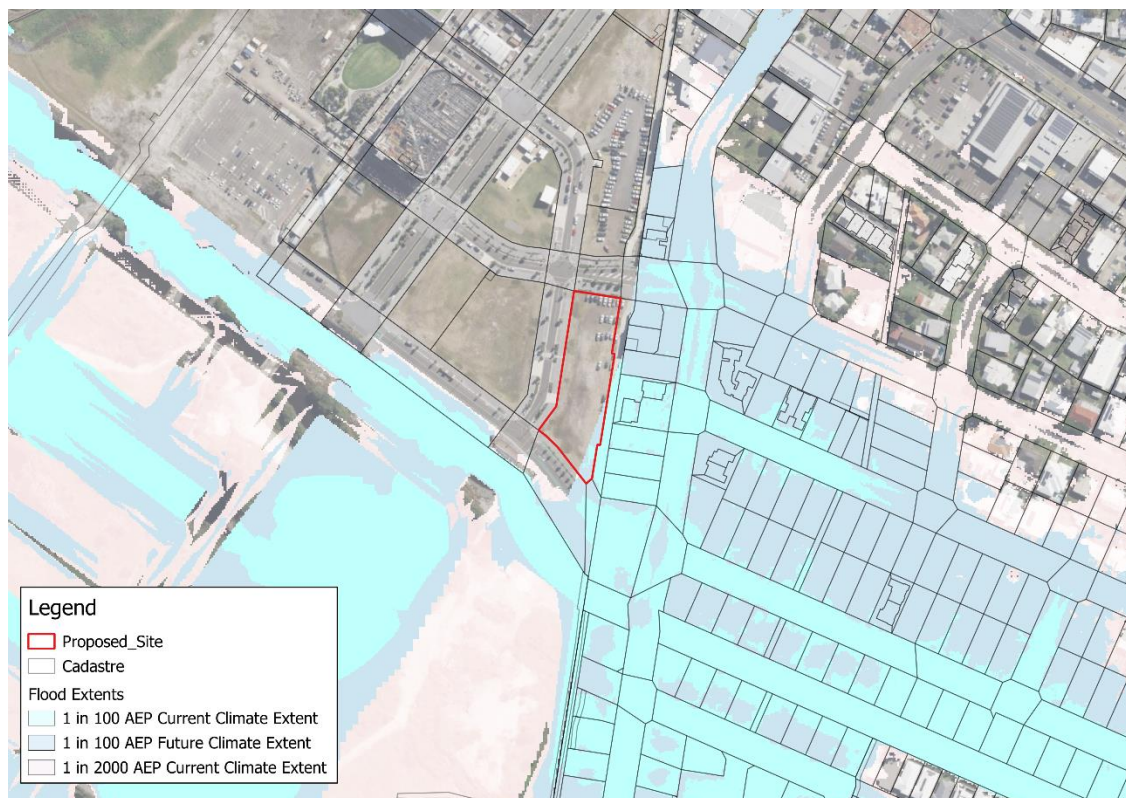


Figure 3: Ultimate Development Scenario Probable Maximum Flood Extents

As per Table 3, the PMF level at the site would reach 4.96mAHD. Consequently, the ground floor level of the proposed data centre has been set to the PMF level. Given the rarity and extremity of this event, an additional allowance for freeboard is deemed not appropriate, as would be typical when setting ground floor levels to 1% AEP events. In the ultimate development scenario, the proposed data centre would host all critical infrastructure above the PMF flood level.

However, in a PMF event, the building would not be accessible as surrounding streets are typically at elevations of 2.5mAHD to 3.5mAHD and, therefore, would be inundated by 1.5m to 2.5m of flood depth. The resulting isolation of the building is likely to persist for a number of hours (not days).

Flood free access in the 1% AEP is provided for the main entrance facing South Sea Islander Way. The basement carpark entrance, located along Red Bill Lane, is set to a level of 2.57mAHD, providing 1% AEP flood immunity to the basement carpark.

2.4 Existing Drainage and Lawful Point of Discharge

The existing drainage network is presented in Figure 4 and is based on the existing stormwater network information obtained from the SCC MyMap service.

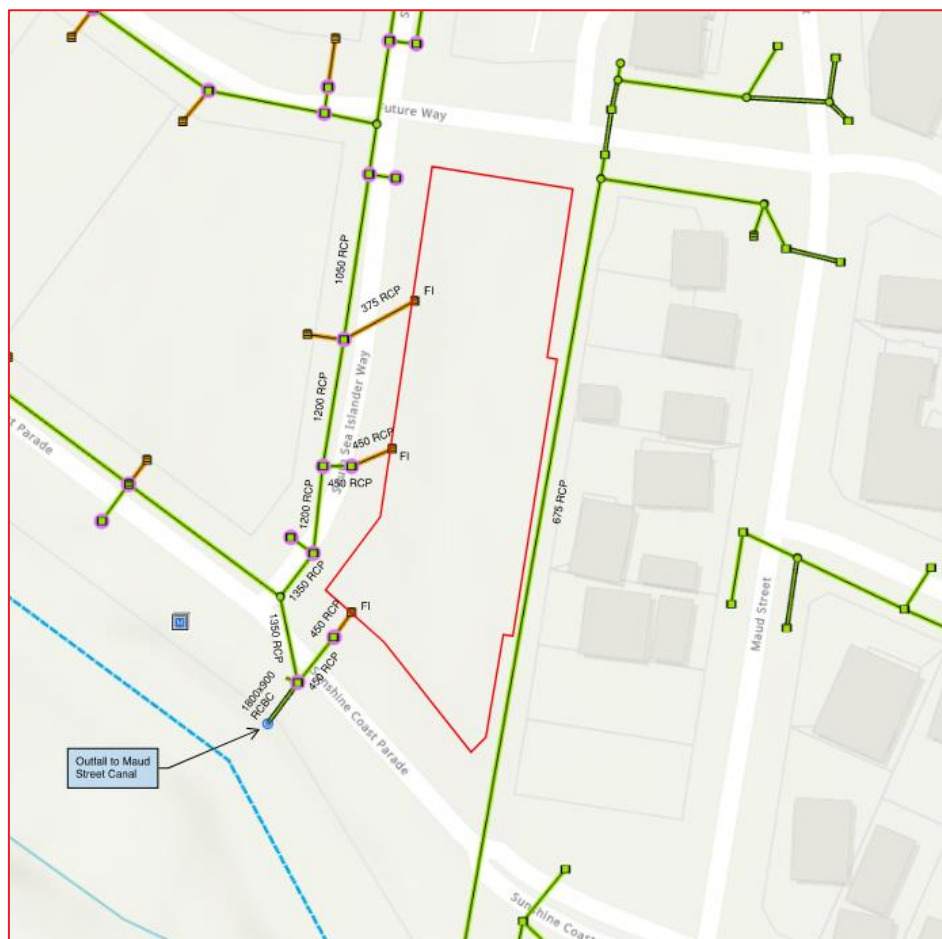


Figure 4: Existing stormwater network, as developed from the SCC ArcGIS service.

2.4.1 Network west of site

Relevant to the site, there is an existing 1050mm dia. steel reinforced concrete pipe (RCP) running south along South Sea Islander Way, in increasing diameter up to 1350mm. This discharges into a 1.8m x 0.9m reinforced concrete box culvert (RCBC) on the south side of Sunshine Coast Parade, which in turn outfalls into the Maud Street Canal.

There are three field inlets within the site itself, two connecting into the South Sea Islander Way pipe run with 375mm dia. and 450mm dia. connections respectively, and one 450mm connection on the southern boundary of the site connecting into an external 450mm dia. pipe which in turn connects into the RCBC.

2.4.2 Network east of site

A 675mm dia. RCP runs under Red Bill Lane, discharging directly into Maud Street Canal. No connectivity is currently provided to the site. The detail and level survey for Lot 10 SP305311 prepared by ONF Surveyors identified two gully pits along Red Bill Lane serviced by this RCP.

2.4.3 Existing stormwater outfalls

There are effectively three legal points of discharge, as summarised in Table 4. Further detail on the proposed stormwater drainage strategy can be found in Section 4.1.

Table 4: Existing stormwater outfalls

Outfall	Size (mm)	Description
Outfall 1	375mm dia. RCP	Field inlet connecting into the South Sea Islander Way RCP run.
Outfall 2	450mm dia. RCP	Field inlet connecting into the South Sea Islander Way RCP run.
Outfall 3	450mm dia. RCP	Field inlet connecting into the Sunshine Coast Parad RCP run, which in turn connects into the 1.8m x 0.9m RCBC.

3. Design Criteria

The primary aim of a stormwater management plan (SWMP) is to ensure stormwater generated from the developed catchment or site causes minimal nuisance, danger and damage to people, adjacent properties and the surrounding environment.

To control stormwater quantity and quality, the proposed development should meet the key design criteria outlined in Table 5 below.

Table 5: Design Criteria

Design Criteria	Description
Sunshine Coast Planning Scheme 2014	The Planning Scheme outlines the required performance outcomes that apply to the design, construction, operation and maintenance of stormwater infrastructure
Queensland Urban Drainage Manual (QUDM) Fourth Edition 2017	Stormwater Management Plans define the proposed management of stormwater quantity and quality, and the protection of receiving water features, such as the protection of existing waterways. Stormwater Management Plans should include consideration of issues such as protection from flooding, measures to reduce changes to the volume and velocity of stormwater runoff, measures to minimise harm to receiving waters by stormwater, opportunities to prevent the initial contamination of stormwater and to remove introduced contaminants, and water conservation and recycling.
State Planning Policy 2017	Maximum concentration-based water quality objectives and minimum reduction targets in mean annual pollutant loads.
Environmental Protection Policy 2009	Specific local Environmental Values (EVs) and/or Water Quality Objectives (QWOs) for Queensland catchments.

4. Proposed Stormwater Drainage Strategy

4.1 Proposed Stormwater Drainage Strategy

The proposed site catchment constitutes building roof area, soft and hard landscaping, and vehicle crossovers. Stormwater runoff is collected from the site and directed as follows:

- To a proprietary treatment device to the west of the site, before discharging into the Council stormwater via the existing field inlet along South Sea Islander Way.
- To the bioretention raingarden to the west of the site, before discharging into the Council stormwater network via the existing field inlet along South Sea Islander Way.
- To a proprietary treatment device to the south of the site, before discharging into the Council Stormwater network via the existing field inlet along Sunshine Coast Parade.

For the full extent of the proposed catchments, refer to A.1. Note that the catchment plan shown in A.1 refers to an outdated stormwater layout, though the catchments remain applicable to the current design; for the latest Stormwater Drainage Design, refer to Appendix A.2.

The bioretention raingarden proposed totals a ~80m² filter area, greater than the required minimum 1.5% of the development site area (56 m²), and acts to achieve the Water Quality Objectives in line with the deemed to comply solution presented in Section 6.1.2.

Where the constraints of the site mean that all stormwater catchments cannot utilise the bioretention raingarden, a connection is proposed direct to the Council stormwater network along South Sea Islander Way and Sunshine Coast Parade, and the installation of a proprietary treatment device is proposed to achieve the Water Quality Objectives.

Gross pollutant traps (GPTs) are proposed on all surface level linear drainage features, and hydraulic connections are to be fitted with non-return valves to mitigate surcharging of the stormwater network.

Existing field inlets are to be retained as connections where soft landscaping is proposed. Pipe networks shall be designed to convey the 10-year AEP minor storm event. For larger storm events than the minor storm where flow exceeds pipe capacity, the development topography will be designed such that stormwater will leave the site via overland flow paths into the Maud Street Canal, as per existing conditions.

4.1.1 Catchment C1

Stormwater runoff from this catchment primarily consists of soft landscaping and vehicle parking adjacent to Red Bill Lane. Stormwater runoff will be collected from the site via surface level linear drainage features and subsoil drains before connecting into the site stormwater network, before discharging into the Council stormwater network on Sunshine Coast Parade via the existing field inlet. The treatment of this catchment to achieve the Water Quality Objectives is proposed via a proprietary treatment device.

4.1.2 Catchment C2

Stormwater runoff from this catchment primarily consists of soft landscaping, hard landscaped footpaths, and a pedestrian ramp. Stormwater runoff will be collected from the site via surface level linear drainage features (e.g. gully pits, linear channels) and subsoil drains before connecting into the site stormwater network, before discharging into the Council stormwater network on Sunshine Coast Parade via the existing field inlet. The treatment of this catchment to achieve the Water Quality Objectives is proposed via a proprietary treatment device.

4.1.3 Catchment C3

Stormwater runoff from this catchment primarily consists of soft landscaping and minor hard landscaped footpaths along a corridor to the face of the building along South Sea Islander Way. Stormwater runoff will be collected and discharged into the Council stormwater network along South Sea Islander Way via the existing field inlet.

4.1.4 Catchment C4

Stormwater runoff from this catchment primarily consists of soft landscaping and minor hard landscaped footpaths along a corridor to the face of the building along South Sea Islander Way. Stormwater runoff will be collected and discharged into the Council stormwater network along South Sea Islander Way via the existing field inlet. The treatment of this catchment to achieve the Water Quality Objectives is proposed via a proprietary treatment device.

4.1.5 Catchment C5

Catchment C5 consists of a corridor of soft and hard landscaping to the face of the building along Red Bill Lane and crossovers into the building; the corridor is as narrow as 0.2m wide in places. Due to its extremely small catchment area and limited contribution to overall site flows, it is proposed that stormwater will discharge to Red Bill Lane as sheet flow and be collected via the 675mm dia. RCP main along Red Bill Lane, before discharging into Maud Street Canal.

4.1.6 Catchment C6

Catchment C6 consists of a corridor of soft and hard landscaping to the face of the building along Red Bill Lane; the corridor is as narrow as 0.2m wide in places. Due to its extremely small catchment area and limited contribution to overall site flows, it is proposed that stormwater will discharge to Red Bill Lane as sheet flow and be picked up via the 675mm dia. RCP main along Red Bill Lane, before discharging into Maud Street Canal.

4.1.7 Catchment C7

Stormwater runoff collected from the roof of the building will be connected into the site stormwater network serving Catchment C2, before discharging into the Council stormwater network on Sunshine Coast Parade via the existing field inlet.

4.1.8 Catchment C8

Stormwater runoff collected from the roof of the building will be connected into the bioretention raingarden to the west of the building, before discharging into the Council stormwater network along South Sea Islander Way via the existing field inlet.

4.1.9 Catchment C9

Stormwater runoff collected from the roof of the building will be connected into the site stormwater network serving Catchment C4 to the west of the building, before discharging into the Council stormwater network along South Sea Islander Way via the existing field inlet. The treatment of this catchment to achieve the Water Quality Objectives is proposed via a proprietary treatment device.

4.1.10 Catchment C10

Stormwater runoff collected from the roof of the building will be connected into the site stormwater network to the east of the building, before discharging into the Council stormwater network on Sunshine Coast Parade via the existing field inlet. The treatment of this catchment to achieve the Water Quality Objectives is proposed via a proprietary treatment device.

4.1.11 Catchment C11

Stormwater runoff collected from the roof of the building will be connected into the site stormwater network to the east of the building, before running under the building and discharging into the Council stormwater network on South Sea Islander Way via the existing field inlet. The treatment of this catchment to achieve the Water Quality Objectives is proposed via a proprietary treatment device.

4.2 Lawful Point of Discharge

The lawful point of discharge for the minor and major storm events for the proposed development will be as follows:

- Minor Storm: Maud Street Canal, via Council's RCP stormwater mains along South Sea Islander Way and Sunshine Coast Parade.
- Major Storm: Maud Street Canal

5. Stormwater Quantity

5.1 Site Catchment Assessment

Based on an analysis of the ground floor plan, the post-development site will be 89% impervious. Refer to Table 6 for a summary of pre-development and post-development impervious areas for the site.

Table 6: Pre-development and post-development catchment areas

Area	Pre-Development		Post-Development	
	Area (sqm)	Area (%)	Area (sqm)	Area (%)
Pervious	3,711	100%	376	11%
Impervious	Nil	0	3,335	89%
Total	3,711	-	3,711	-

5.2 Peak Flows

5.2.1 Council Requirements

The proposed site is located within the greater catchment of Caloundra.

According to the SCC Stormwater Management Code, the acceptable outcomes AO2.2 and AO2.3 under Performance Outcome PO2 are as follows:

- AO2.2: Stormwater flows discharged from the development are either within the capacity of the downstream drainage system such that non-worsening occurs or are mitigated to pre-development characteristics.
- AO2.3 Development provides for the management of stormwater to incorporate appropriate allowance for climate change impacts (including rainfall intensity and sea level rise), in accordance with the Planning scheme policy for development works.

5.2.2 Detention

It is considered that detention is not required for the following reasons:

- The site is located in the greater catchment area.
- Stormwater runoff will be discharged directly to piped trunk stormwater infrastructure.
- The western and southern boundaries of the site are effectively all at the same elevation. i.e. for stormwater connection purposes, it could be assumed that these have been sized for 100% increase in pre-development flows.
- Installing a detention system may hold discharge to a point where the upstream catchment starts to contribute flow at the discharge point. Ideally, the site should discharge all runoff prior to the rising limb of the discharge hydrograph of wider catchment arriving at the site; and
- Demonstration that the Council stormwater infrastructure can accommodate the unattenuated flows.

5.2.3 Accommodation of Unattenuated Flows

Peak flows for the site were estimated using the Rational Method and the following input parameters:

- Intensity frequency duration data for the proposed site (source: BOM ARR 2016 data);
- 15-minute time of concentration for pre-development; and

- 5-minute time of concentration for post-development noting the existing piped network.

The estimated pre-development and post-development discharges are shown in Table 7 below. The 1% AEP with climate change suggest a maximum flow of 0.392m³/s. The three available connections have capacity to convey this flow.

Table 7: Estimated peak flows for pre- and post-development conditions, including climate change allowance

AEP (%)	Pre-development (l/s)	Post-development (l/s)	Increase (l/s)	Increase (%)
1%	231	392	161	69.5%
2%	206	344	138	67.1%
5%	170	281	111	65.2%
10%	146	239	93	63.9%
20%	123	199	76	61.6%
50%	86	139	53	62.1%
63.2%	75	121	46	60.8%

6. Stormwater Quality

6.1 Operational Phase Stormwater Quality Management

6.1.1 Performance Criteria

According to the SCC's Flooding and Stormwater Management Guidelines, all stormwater leaving the site must be compliant with the minimum pollutant reduction targets to comply with the Queensland State Planning Policy for Water Quality, as summarised in Table 8.

Table 8: Operational Phase Water Quality Design Objectives

Pollutants	Design Objective (%)
Total Suspended Solids (TSS)	80%
Total Phosphorous (TP)	60%
Total Nitrogen (TN)	45%
Gross Pollutants (GP)	90%

6.1.2 Deemed to comply solution

For the majority of the site, the following deemed to comply solution is proposed to achieve the water quality design objectives outlined in Table 8:

- Provision of a bioretention device with filter area equivalent to 1.5% of the development site area, where the minimum filter media depth is 0.5m and the minimum extended detention depth is 0.1m (at-source) or 0.3m (end-of-line).

For this site, this equates to a 56m² filter area. The bioretention raingardens proposed across the site total a ~80m² filter area, greater than the required minimum.

6.1.3 Stormwater Quality Modelling

Where the layout constraints of the site prevent catchments from utilising the proposed bioretention raingarden to the west of the site, mathematical modelling has been undertaken to assess the stormwater treatment strategy during the operational phase. Modelling was undertaken using MUSIC version 6 software, which has the capability to simulate discharge loads and concentrations of GP, TN, TP, and TSS.

Beyond bioretention raingardens, the proposed stormwater quality treatment train utilises proprietary devices to achieve the required water quality objectives. The stormwater quality devices listed in Table 9 have been proposed to suit the characteristics of the proposed development.

Table 9: Proposed Stormwater Quality Treatment Devices

SQID	Description
Ocean Protect OceanGuard	Ocean Protect OceanGuard is a gully pit insert designed for the capture of gross pollutants, sediment, litter, oil and grease.
Ocean Protect Stormfilter	Ocean Protect Stormfilter improves stormwater quality of runoff by absorbing and retaining pollutants including total suspended solids, hydrocarbons, nutrients, soluble heavy metals, and other pollutants.

6.1.3.1 Input Data

Model Assumptions

- Source nodes and treatment nodes have been specified to represent the generation and treatment of stormwater underdeveloped conditions only.

- The six minute rainfall data extending for 1997-2006 recorded in Caloundra was used to set up the meteorological template in the model.
- The time step selected for the modelling was six minutes.

Rainfall Run-off Parameters

MUSIC modelling rainfall run-off parameters used for the proposed development are as documented in Table 10 below. These rainfall run-off parameters are as documented in Water by Design (WbD) and MUSIC Modelling Guidelines (2018).

Table 10: MUSIC model runoff generation parameters (WbD, 2018)

MUSIC Model Parameter	Value (Commercial)
Rainfall threshold (mm)	1
Soil storage capacity (mm)	18
Initial storage (% capacity)	10
Field capacity (mm)	80
Infiltration capacity coefficient (a)	243
Infiltration capacity coefficient (b)	0.60
Initial depth (mm)	50
Daily recharge rate (%)	0
Daily baseflow rate (%)	31
Daily deep seepage rate (%)	0

Pollutant Export Parameters

The MUSIC model was set up using the catchment nodes as outlined in Table 11. The pollutant export parameters utilised within the models are based on the recommendations of WbD MUSIC Modelling Guidelines Version 1.0 (2010).

Pollutant Source Nodes and Proposed Treatment Train

Table 11 identifies the catchment and pollutant surface type modelled in MUSIC for initial treatment device sizing.

Table 11: Catchment and Pollutant Sources

Catchment ID	Area (ha)	Surface Type	Fraction Impervious (%)
C1	0.0357	Urban – Commercial	54
C2	0.0189	Urban – Commercial	60
C3	0.0107	Urban – Commercial	0
C4	0.0110	Urban – Commercial	38
C5	0.0160	Urban – Commercial	54
C6	0.0082	Urban – Commercial	61
C7	0.0393	Commercial Roof	100
C8	0.0620	Commercial Roof	100

Catchment ID	Area (ha)	Surface Type	Fraction Impervious (%)
C9	0.0295	Commercial Roof	100
C10	0.0699	Commercial Roof	100
C11	0.0699	Commercial Roof	100

A conceptual layout of the treatment train modelled in MUSIC is presented in Appendix C

6.1.3.2 Music Modelling Results

The results of the MUSIC modelling predict that the water treatment measures incorporated achieve the water quality objectives outlined in Section 6.1.1 across the whole site. It is therefore proposed that these measures are incorporated to service this catchment. The MUSIC modelling results for the post-development scenario are summarised in Table 12.

Table 12: Expected Pollutant Concentrations

Pollutants	Design Objective (%)	Objective Achieved (%)	Objective Achieved (Y/N)
Total Suspended Solids (TSS)	80%	87%	Y
Total Phosphorous (TP)	60%	79%	Y
Total Nitrogen (TN)	45%	67%	Y
Gross Pollutants (GP)	90%	97%	Y

6.1.4 Treatment measures

In line with the above, the proposed treatment measures are:

- Bioretention raingarden proposed to the west of the site across a ~80m² filter area, greater than the required minimum 1.5% of the development site area (56m²).
- Ocean Protect OceanGuard and Stormfilter treatment train to catchments that are unable to utilise the bioretention raingarden.

6.2 Construction Phase Water Quality Management

6.2.1 Construction Phase Performance Criteria

The construction phase performance criteria listed in Table 13 is limited to parameters that are directly linked to construction site management practices. These criteria form the discharge standards and are therefore applicable to runoff events or pumped discharges from development sites as identified in Table A of the State Planning Policy July 2017.

Table 13: Construction Phase Water Quality Design Objectives

Issue		Design Objectives
Drainage control	Temporary drainage works	- Design life and design storm for temporary drainage works: - Disturbed area open for <12 month – 2EY event - Disturbed area open for 12-24 months – 5EY event - Disturbed area open for > 24 months – 10% AEP event - Design capacity excludes minimum 150mm freeboard. - Temporary culvert crossing – minimum 63.2% AEP hydraulic capacity
Erosion control	Erosion control measures	- Minimise exposure of disturbed soils at any time - Divert water run-off from undisturbed areas around disturbed areas - Determine the erosion risk rating using local rainfall erosivity, rainfall depth, soil-loss rate or other acceptable methods - Implement erosion control methods corresponding to identified erosion risk rating
Sediment control	Sediment control measures Design storm for sediment control basins Sediment basin dewatering	- Determine appropriate sediment control measures using: - Potential soil loss rate, or - Monthly erosivity, or - Average monthly rainfall - Collect and drain stormwater from disturbed soils to sediment basin for design storm event: - Design storm for sediment basin sizing is 80th % five-day event or similar - Site discharge during sediment basin dewatering: - TSS < 50mg/l TSS, and - Turbidity not > 10% receiving water turbidity, and - pH between 6.5 and 8.5
Water quality	Litter and other water, hydrocarbons and other contaminants	- Avoid wind-blow litter; remove gross pollutants - Ensure there is no visible oil or grease sheen on released waters - Dispose of waste containing contaminants at authorised facilities

6.2.2 Pre-Construction

The following measures shall be implemented prior to works commencing to ensure minimum water quality disturbance and adverse impacts. The measures below can be adopted in a staged approach and may be implemented prior to commencing works in any one area of the site:

- Sediment fences constructed to the perimeter of the construction area as required
- Drainage structure protection devices installed on existing stormwater inlet structures within the site and roadways adjacent to the site
- Diversion of upstream stormwater runoff away from proposed works areas
- Monitoring of stormwater quality discharging from the development

- Implementation of additional measures/modification of existing measures if the quality of stormwater discharging from the site is negatively impacted
- Designation of:
 - Areas of plant and construction material storage
 - Transport routes across the site to minimise dust disturbance
- Stabilisation of disturbed areas
- Implementation of sediment basins prior to discharge stormwater
- Regular inspection of erosion control measures

7. Stormwater Quality Monitoring Program

Stormwater will discharge into the existing stormwater network, before eventually reaching the Maud Street Canal, which runs into Cornmeal Creek.

Stormwater quality best management practices are proposed and therefore no further stormwater quality monitoring is proposed. The proposed mitigation measures and treatment devices are well established with a proven history of usage across sites within the region.

8. Maintenance Requirements

8.1 General

During the operational life of the development, the treatment train will require ongoing maintenance to ensure its long-term effectiveness and to minimise whole-life cost. This maintenance regime is likely to comprise of the following as necessary:

- Routine inspection cleaning and maintenance
- Replacement of filter media and cartridges within bioretention/proprietary systems
- Removal of litter and debris
- Sediment removal
- Unblocking inlets and outlets (system flushing)
- Any other items in accordance with the manufacturer's recommendations/owner's manual. Refer to Appendix B for details.

8.2 Inspection Frequency

Inspection frequency will depend on the manufacturer's recommendations for each of the proprietary treatment devices specified. It is generally recommended that two inspections should be scheduled per year following the installation of a new unit. These may consist of minor maintenance activities (route inspection, debris removal) or major maintenance activities (sediment sampling). Refer to Appendix B for details.

8.3 Access Requirements for Maintenance

The location of the bioretention rain garden and proprietary treatment devices will enable maintenance vehicle access directly from Red Bill Lane; refer to the Latest Stormwater Design General Arrangement (Appendix A.2) for the proposed location of treatment measures.

Should the location of the bioretention rain garden change, the site is sufficiently accessible from South Sea Islander Way, Sunshine Coast Parade, and Red Bill Lane to facilitate maintenance activities.

8.4 Asset Handover

It is intended that stormwater controls detailed in this document remain under private ownership and will not be handed over as Council assets.

9. Conclusion

This Stormwater Management Plan has been developed in accordance with the design guidelines and codes listed in Table 5 to manage the potential impacts of the proposed development. This plan has the following key outcomes:

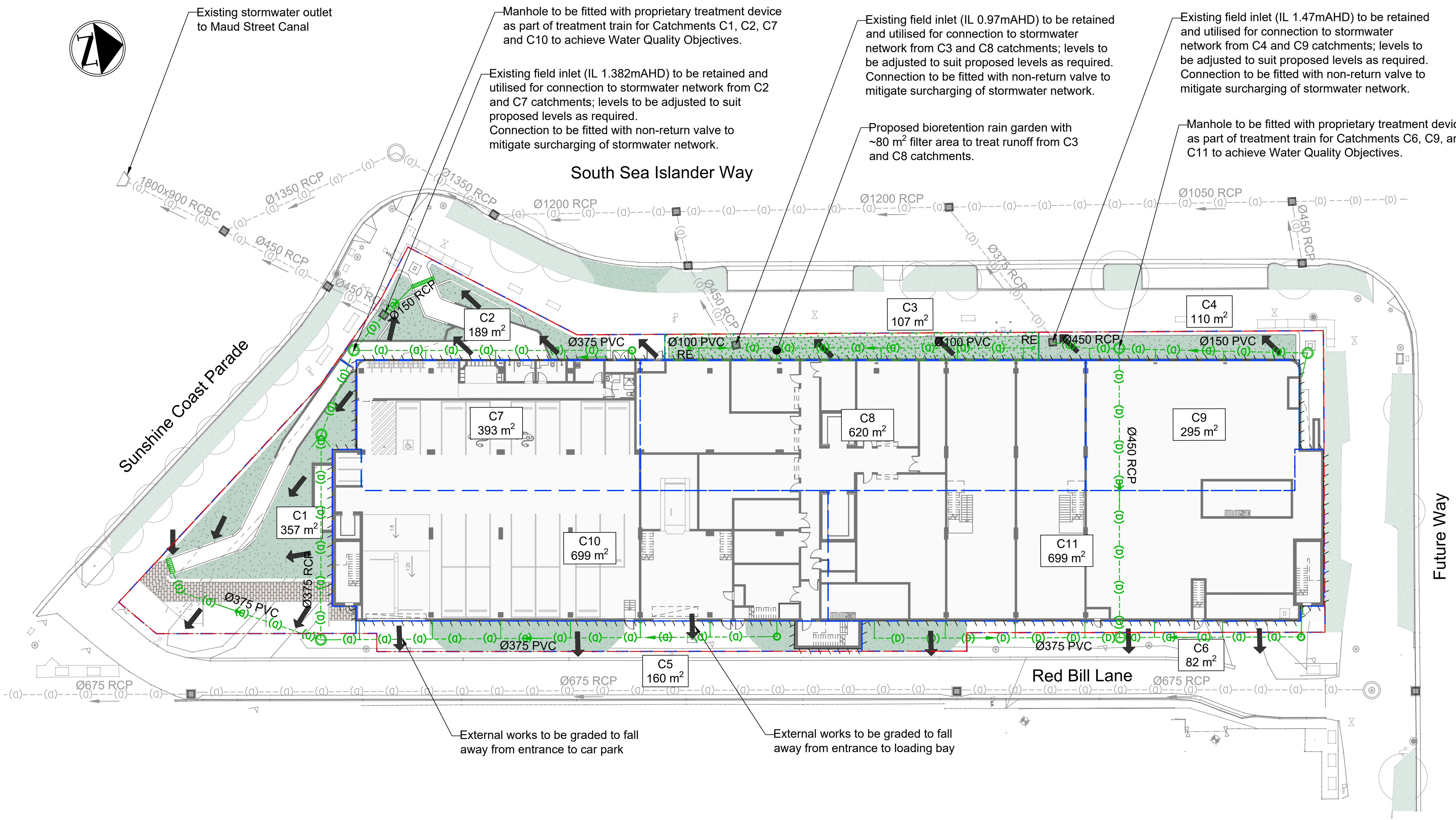
- Stormwater detention is not proposed for the development due to proximity to outfall to waterway via piped trunk stormwater infrastructure and demonstrating that the stormwater infrastructure can accommodate the unattenuated flows.
- Water Quality Objectives have been achieved through provision of bioretention raingardens with ~80m² filter area, greater than the required 1.5% of the development site area. Where the layout constraints of the site prevent catchments from utilising the proposed bioretention raingardens across the site, proprietary treatment devices are proposed and MUSIC modelling has been undertaken to demonstrate that this achieves the Water Quality Objectives for the site.
- Installation of erosion and sediment control measures during the construction phase shall be undertaken to minimise soil erosion and control sediment discharge from the site.

The implementation of the measures outlined above for the development at Lot 10 SP305311 demonstrates the suitability of the proposed development with regards to stormwater quantity and quality.

Appendix A

A.1 Stormwater Management Catchment Plan

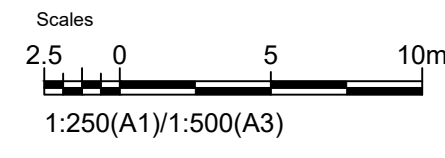
Note: Refer to drawing SC2-CIV-ARU-DRG-400001 & SC2-CIV-ARU-DRG-410001 for latest stormwater drainage layout (Appendix A.2). Catchment boundaries are as per SC2-AR-DA-SKT-C-003[4] (this Appendix).



- Notes**
1. All dimensions provided in millimetres and all levels provided in metres (AHD) unless noted otherwise. This drawing shall be read in conjunction with all relevant project documentation.
 2. Drawings to be printed in colour.
 3. Detail and level survey information provided by ONF Surveyors, reference 12125_D1, dated 05/03/2024.
 4. Existing stormwater network information is detailed from the ONF Surveyors topographical survey and SCC ArcGIS information. Further survey required to confirm.
 5. Number and location of bioretention rain gardens indicative and subject to change during design development while satisfying minimum filter area requirements.

- Legend**
- Existing Site / Lot Boundary
 - Existing Stormwater Pipe
 - Existing Stormwater Manhole
 - Existing Stormwater Catch Pit/Field Inlet
 - Existing Stormwater Outlet
 - Proposed Stormwater Pipe
 - Proposed Stormwater Manhole
 - Proposed Stormwater Linear Channel
 - Proposed Bioretention Rain Garden
 - Stormwater Catchment
 - Proposed Overland Flow Path
 - Building Outline
 - Proposed Soft Landscaping
 - Rodding Eye

NOT FOR CONSTRUCTION



Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

3	10/12/24	CW	MRH	DMW
Development Application Issue - Update				
2	16/10/24	CW	MRH	DMW
Development Application Issue				
1	23/08/24	MRH	DMW	DMW
Development Application - Draft Issue				
Issue	Date	By	Chkd	Appd

Client
NEXTDC Limited

Job Title
NEXTDC SC2

Scale at A1
1:250

Discipline
Civil

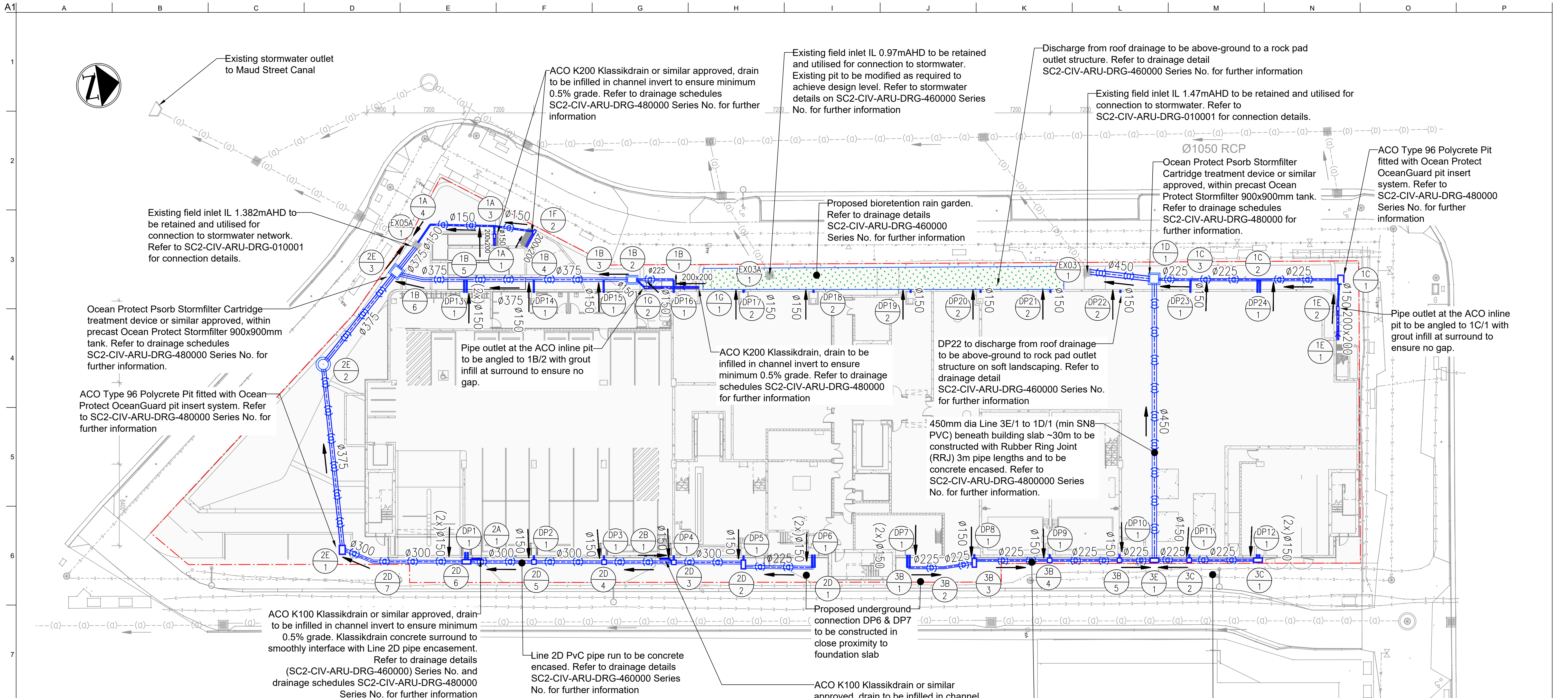
Arup, Level 4, 108 Wickham Street,
Fortitude Valley, QLD, 4006
Tel +61(0)73023 6000
www.arup.com

Drawing Title
Concept Stormwater
Management Plan

Drawing Status
Development Application Issue

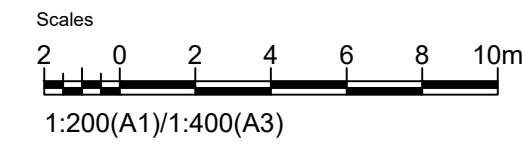
Job No 299953	Drawing No SC2-AR-DA-SKT-C-003	Issue 4
-------------------------	--	-------------------

A.2 Latest Stormwater Drainage General Arrangement



Notes

- 1. These drawings should be read in conjunction with all other structural, architectural and landscape architectural documentation.
- 2. Refer to drawing no. SC2-CIV-ARU-DRG-010001, SC2-CIV-ARU-DRG-010002 and SC2-CIV-ARU-DRG-010003 for general notes and legend.
- 3. Refer to drawing series no. SC2-CIV-ARU-DRG-460000 for stormwater drainage construction details, SC2-CIV-ARU-DRG-470000 for stormwater longsections and drawing series no. SC2-CIV-ARU-DRG-480000 for drainage schedules.
- 4. Drawings to be printed in colour.
- 5. All levels are shown in mAHD.
- 6. Detail and level survey information provided by ONF Surveyors, reference 12125_D1, dated 05/03/2024. Contractor to undertake potholing to confirm line and level of existing services where crossover with proposed drainage occurs, prior to commencement of works.
- 7. All proposed field inlets to be installed with gross pollutant traps.
- 8. All PVC pipes to have a minimum stiffness classification of SN8.
- 9. All ACO Polycrete pits to be installed with galvanised heelguard grates (2,760kg nominal wheel load). ACO Polycrete on Line 2D & 2E/1 to be installed with locking variants of the specified grates.
- 10. Refer to Architect documentation for design surface levels for proposed hardscape and softscape areas.
- 11. Contractor to confirm sizing, specification and installation requirements of proprietary products ACO linear trench drains, Ocean Protect Cartridge Stormfilter system and Ocean Protect OceanGuard with the supplier prior to procurement.
- 12. Existing stormwater network information is detailed from ONF Surveyors topographical survey and SCC ArcGIS information. Further survey required to confirm proposed connections to existing drainage network.
- 13. Downpipe labels DPXX | X only provide indicative locations of roof drainage outlets. Refer to Building Hydraulics documentation for further information.
- 14. Drainage design layout are based on the latest available design information at the time of issue.



Engineering Certification (RPEQ)
Name: Doug Walton Area: Civil
Signature: [Signature] Date: 11/07/2025
RPEQ No: 09543

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

C1	11/07/2025	SL	MRH	DMW
Contract Issue				
T1	30/05/2025	SL	MRH	DMW
Tender Issue				
1	20/05/2025	SL	MRH	DMW
Early Works Draft Issue				

Client
NEXTDC LIMITED

Job Title
SC2

Scale at A1
1:200

Discipline
Civil

ARUP

Anup, Level 26, 123 Albert Street,
Brisbane, QLD, Australia
Tel +61(0)73023 6000
www.arup.com

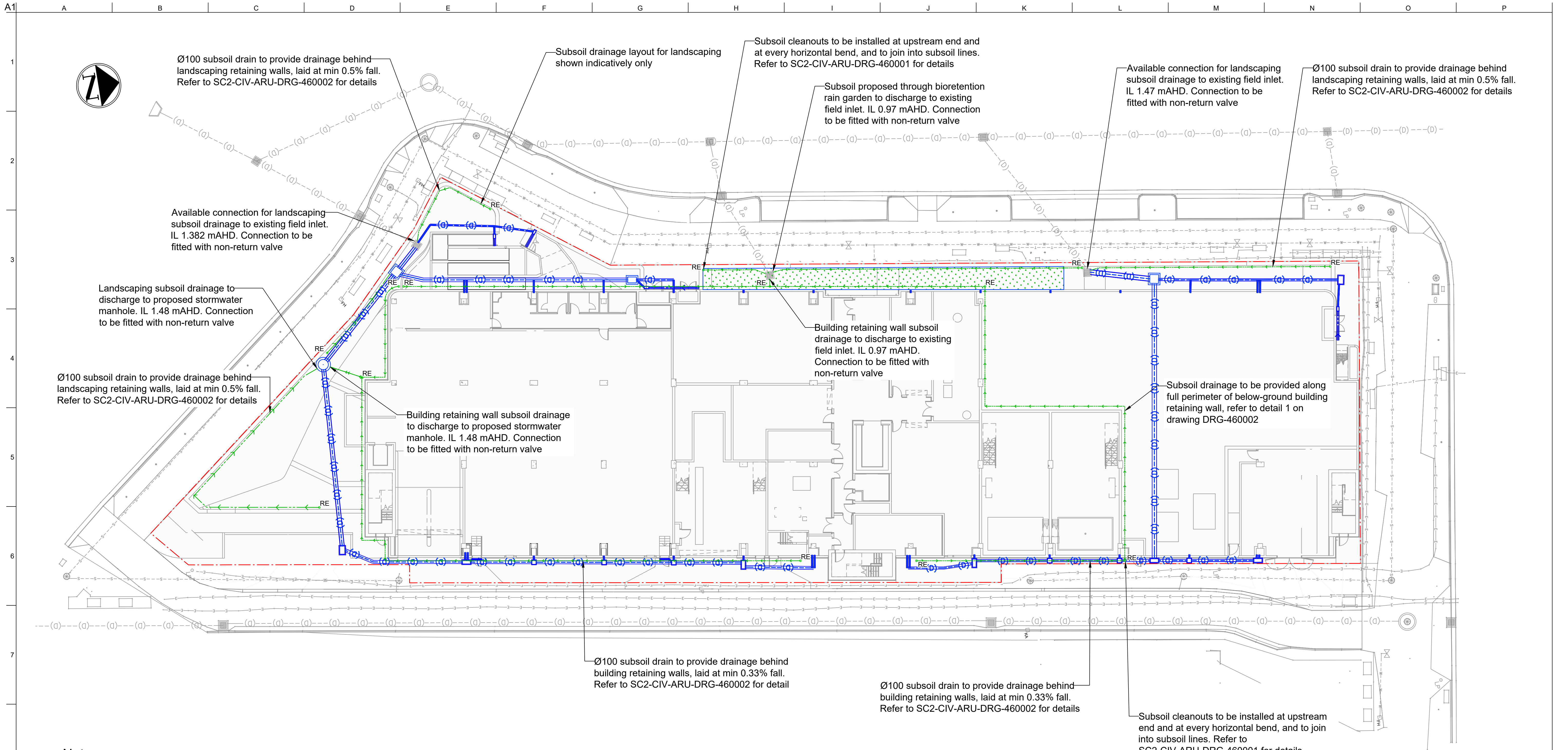
Drawing Title
STORMWATER DRAINAGE
GENERAL ARRANGEMENT

Drawing Status
ISSUE FOR CONTRACT

Job No
299953

Drawing No
SC2-CIV-ARU-DRG-400001

Issue
C1



Notes

1. These drawings should be read in conjunction with all other structural, architectural and landscape architectural documentation.
2. Refer to drawing no. SC2-CIV-ARU-DRG-010001, SC2-CIV-ARU-DRG-010002 and SC2-CIV-ARU-DRG-010003 for general notes and legend.
3. Refer to drawing no. SC2-CIV-ARU-DRG-400001 for stormwater drainage general arrangement.
4. Refer to drawing series no. SC2-CIV-ARU-DRG-460000 for stormwater drainage construction details and drawing series no. SC2-CIV-ARU-DRG-480000 for stormwater drainage schedules.
5. Drawings to be printed in colour.
6. All levels are shown in mAHD.
7. Detail and level survey information provided by ONF Surveyors, reference 12125_D1, dated 05/03/2024. Contractor to undertake potholing to confirm line and level of existing services where crossover with proposed drainage occurs, prior to commencement of works.
8. Existing stormwater and sewer network information is detailed from ONF Surveyors topographical survey and SCC ArcGIS information. Further survey required to confirm proposed connections to existing drainage network.

NOT FOR CONSTRUCTION

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

Engineering Certification (RPEQ)
Name: Doug Walton Area: Civil
Signature: Date: 11/07/2025
RPEQ No: 09543

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

C2	11/08/2025	SL	MRH	DMW
Contract Issue				
C1	11/07/2025	SL	MRH	DMW
Contract Issue				
T1	30/05/2025	SL	MRH	DMW
Tender Issue				
Issue	Date	By	Chkd	Appd

Client
NEXTDC LIMITED

Job Title
SC2

Scale at A1
1:200

Discipline
Civil

ARUP

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CONSULT AUSTRALIA
Member Firm
Anup Pty Ltd
ABN 76 625 912 885

Drawing Title
SUBSOIL DRAINAGE
GENERAL ARRANGEMENT

Drawing Status
ISSUE FOR CONTRACT

Job No	Drawing No	Issue
299953	SC2-CIV-ARU-DRG-410001	C2

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

Appendix B

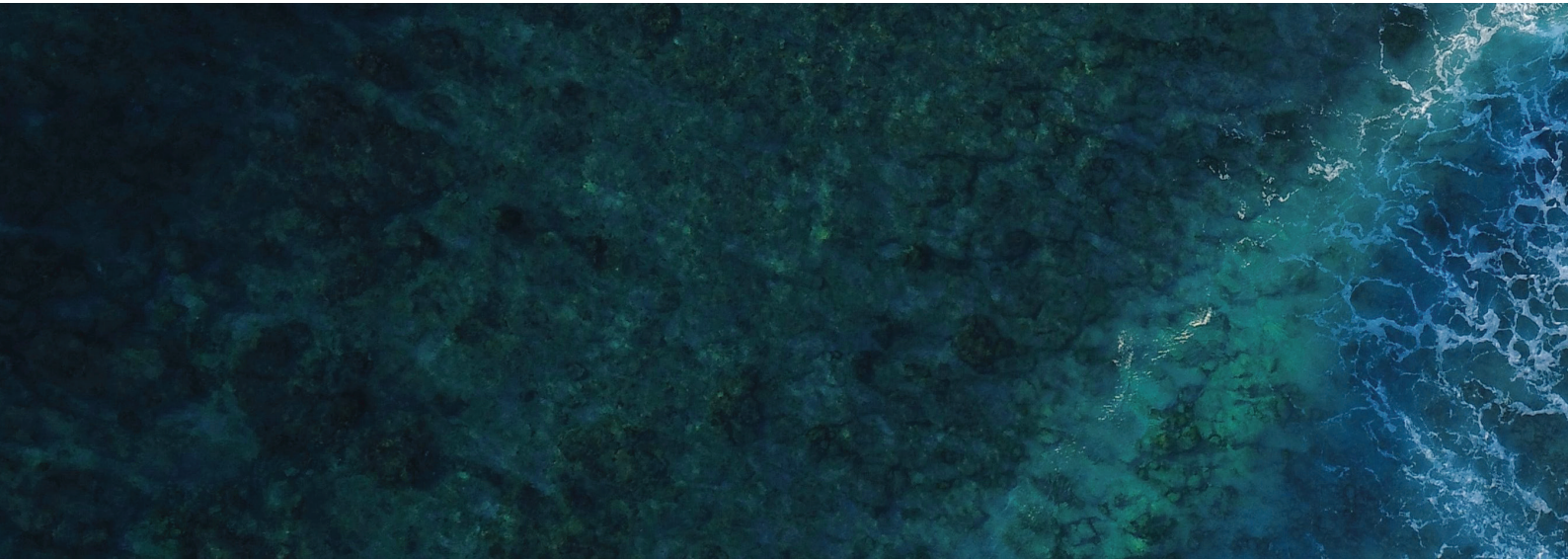
Maintenance Guidelines for Proprietary Treatment Devices

StormFilter®

Operations & Maintenance Manual



Stopping Pollution Entering Waterways



www.oceanprotect.com.au

Introduction	3
Health and Safety	4
How does it work?	5
Maintenance Procedures	6
Maintenance Services	8



Introduction

The primary purpose of stormwater treatment devices is to capture and prevent pollutants from entering waterways, maintenance is a critical component of ensuring the ongoing effectiveness of this process. The specific requirements and frequency for maintenance depends on the treatment device and pollutant load characteristics of each site. This manual has been designed to provide details on the cleaning and maintenance processes for the StormFilter®, as recommended by us.

The StormFilter® is designed and sized to meet stringent regulatory requirements. It removes the most challenging target pollutants (including total suspended solids, soluble heavy metals, oil, particulate and soluble nutrients) using a variety of media. For more than two decades, StormFilter® has helped clients meet their regulatory needs and, through ongoing product enhancements, the design continues to be refined for ease of use and improved performance.

Why do I need to perform maintenance?

Adhering to the inspection and maintenance schedule of any stormwater treatment device is essential to ensuring that it functions properly throughout its design life.

During each inspection and clean, details of the mass, volume and type of material that has been collected by the device should be recorded. This data will assist with the revision of future management plans and help determine maintenance interval frequency. It is also essential that qualified and experienced personnel carry out all maintenance (including inspections, recording and reporting) in a systematic manner.

Maintenance of your stormwater management system is essential to ensuring ongoing at-source control of stormwater pollution. Maintenance also helps prevent structural failures (e.g. prevents blocked outlets) and aesthetic failures (e.g. debris build up), but most of all ensures the long term effective operation of the StormFilter®.

Health and Safety

Access to a StormFilter® system requires removing access covers/grates, and it is necessary to enter a confined space. Pollutants collected by the StormFilter® will vary depending on the nature of your site. There is potential for these materials to be harmful. For example, sediments may contain heavy metals, carcinogenic substances or objects such as broken glass and syringes. For these reasons, all aspects of maintaining and cleaning your StormFilter® require careful adherence to Occupational Health and Safety (OH&S) guidelines.

It is important to note that the same level of care needs to be taken to ensure the safety of non-work personnel. As a result, it may be necessary to employ traffic/pedestrian control measures when the device is situated in, or near areas with high vehicular/pedestrian activity.

Personnel health and safety

Whilst performing maintenance on the StormFilter®, precautions should be taken in order to minimise (or, if possible, prevent) contact with sediment and other captured pollutants by maintenance personnel. The following personal protective equipment (PPE) is subsequently recommended (but not limited to):

- Puncture resistant gloves
- Steel capped safety boots
- Long sleeve clothing, overalls or similar skin protection
- Eye protection
- High visibility clothing or vest

During maintenance activities, it may be necessary to implement traffic control measures. Ocean Protect recommend that a separate site-specific traffic control plan is implemented as required to meet the relevant governing authority guidelines.

Whilst some aspects of StormFilter® maintenance can be performed from surface level, there will be a need to enter the StormFilter® system (confined space) during a major service. It is recommended that all maintenance personnel evaluate their own needs for confined space entry and compliance with relevant industry regulations and guidelines. Ocean Protect maintenance personnel are fully trained and carry certification for confined space entry applications.

How does it work?

During a storm, runoff percolates through the filtration media and starts filling the cartridge central tube. The air inside the hood is purged through a one-way check valve as the water rises. When water reaches the top of the float, buoyant forces pull the float free and allow filtered water to exit the cartridge.

A siphon is established within each cartridge that draws water uniformly across the full height of the media profile ensuring even distribution of pollutants and prolonged media longevity.

As the storm subsides and the water level in the structure starts falling, a hanging water column remains under the cartridge hood until the water level reaches the scrubbing regulators at the bottom of the hood. Air then rushes through the regulators breaking the siphon and creating air bubbles that agitate the surface of the filter media causing accumulated sediment to settle on the treatment chamber floor. This unique surface-cleaning mechanism helps prevent surface blinding and further extends cartridge life.

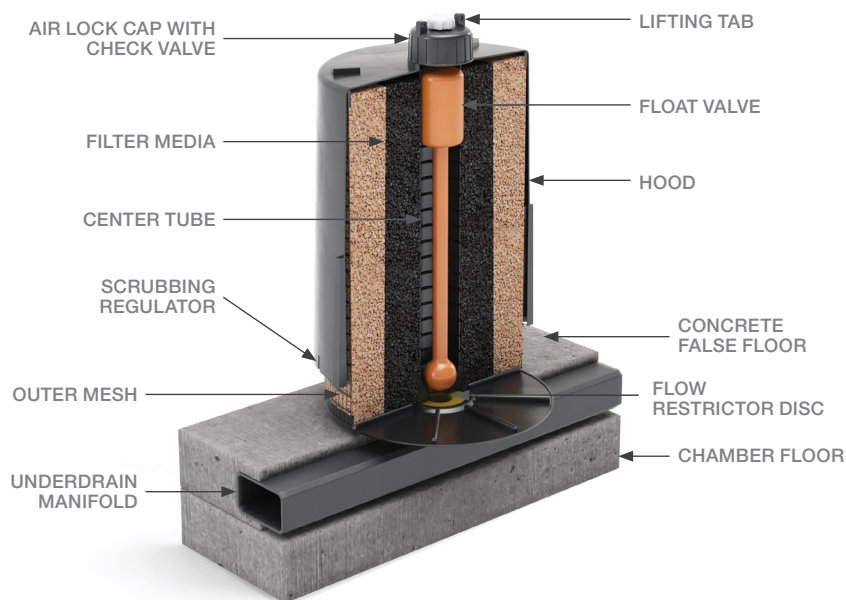


Figure 1: StormFilter® components

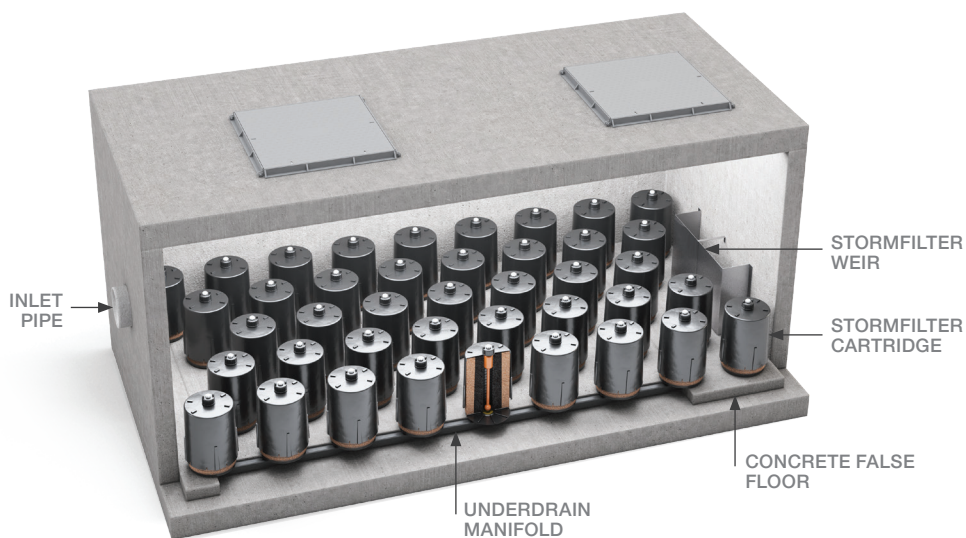


Figure 2: Example conceptual diagram of a StormFilter® system

Maintenance Procedures

To ensure optimal performance, it is advisable that regular maintenance is performed. Typically, the StormFilter® requires an inspection every 6 months with a minor service at 12 months. Additionally, as the StormFilter® cartridges capture pollutants the media will eventually become occluded and require replacement (expected media life is 1-3 years).

Primary types of maintenance

The table below outlines the primary types of maintenance activities that typically take place as part of an ongoing maintenance schedule for the StormFilter®.

Service Type	Description of Typical Activities	Frequency
Inspection	Visual Inspection of cartridges & chamber Remove larger gross pollutants Perform minimal rectification works (if required)	Every 6 Months
Minor Service	Evaluation of cartridges and media Removal of accumulated sediment (if required) Wash-down of StormFilter® chamber (if required)	Every 12 Months
Major Service	Replacement of StormFilter® cartridge media	As required

Maintenance requirements and frequencies are dependent on the pollutant load characteristics of each site. The frequencies provided in this document represent what the manufacturer considers to be best practice to ensure the continuing operation of the device is in line with the original design specification.

Inspection

The purpose of the inspecting the StormFilter® system is to assess the condition of the StormFilter® chamber and cartridges. When inspecting the chamber, particular attention should be taken to ensure all cartridges are firmly connected to the connectors. It is also an optimal opportunity to remove larger gross pollutants and inspect the outlet side of the StormFilter® weir.

Minor Service

This service is designed to ensure the ongoing operational effectiveness of the StormFilter® system, whilst assessing the condition of the cartridge media.

- 1 Establish a safe working area around the access point(s)
- 2 Remove access cover(s)
- 3 Evaluate StormFilter® cartridge media (if exhausted schedule major service within 6 months)
- 4 Measure and record the level of accumulated sediment in the chamber (if sediment depth is less than 100 mm skip to step 9)
- 5 Remove StormFilter® cartridges from the chamber
- 6 Use vacuum unit to removed accumulated sediment and pollutants in the chamber
- 7 Use high pressure water to clean StormFilter® chamber
- 8 Re-install StormFilter® cartridges
- 9 Replace access cover(s)

Major Service (Filter Cartridge Replacement)

For the StormFilter® system a major service is reactionary process based on the outcomes from the minor service, specifically the evaluation of the cartridge media.

Trigger Event	Maintenance Action
Cartridge media is exhausted ^[1]	Replace StormFilter® cartridge media ^[2]

^[1] Multiple assessment methods are available, contact Ocean Protect for assistance

^[2] Replacement filter media and components are available for purchase from Ocean Protect

This service is designed to return the StormFilter® device back to optimal operating performance.

- 1 Establish a safe working area around the access point(s)
- 2 Remove access cover(s)
- 3 By first removing the head cap, remove each individual cartridge hood to allow access to the exhausted media
- 4 Utilise a vacuum unit to remove exhausted media from each cartridge
- 5 Use vacuum unit to remove accumulated sediment and pollutants in the chamber
- 6 Use high pressure water to clean StormFilter® chamber
- 7 Inspect each empty StormFilter® cartridges for any damage, rectify damage as required
- 8 Re-fill each cartridge with media in line with project specifications
- 9 Re-install replenished StormFilter® cartridges
- 10 Replace access cover(s)

Additional Types of Maintenance

Occasionally, events on site can make it necessary to perform additional maintenance to ensure the continuing performance of the device.

Hazardous Material Spill

If there is a spill event on site, the StormFilter® unit should be inspected and cleaned. Specifically, all captured pollutants and liquids from within the unit should be removed and disposed in accordance with any additional requirements that may relate to the type of spill event. Additionally, it will be necessary to inspect the filter cartridges and assess them for contamination – and, depending on the type of spill event, it may be necessary to replace the filtration media.

Blockages

In the unlikely event that flooding occurs upstream of the StormFilter® system, the following steps should be undertaken to assist in diagnosing the issue and determining the appropriate response.

- 1 Inspect the upstream diversion structure (if applicable) ensuring that it is free of debris and pollutants
- 2 Inspect the StormFilter® unit checking the underdrain manifold as well as both the inlet and outlet pipes for obstructions (e.g. pollutant build-up, blockage), which if present, should be removed

Major Storms and Flooding

In addition to the scheduled activities, it is important to inspect the condition of the StormFilter® after a major storm event. The focus is to inspect for damage and abnormally high sediment accumulation that may result from localised erosion. Where necessary damaged components should be replaced and accumulated pollutants should be removed and disposed

Disposal of Waste Materials

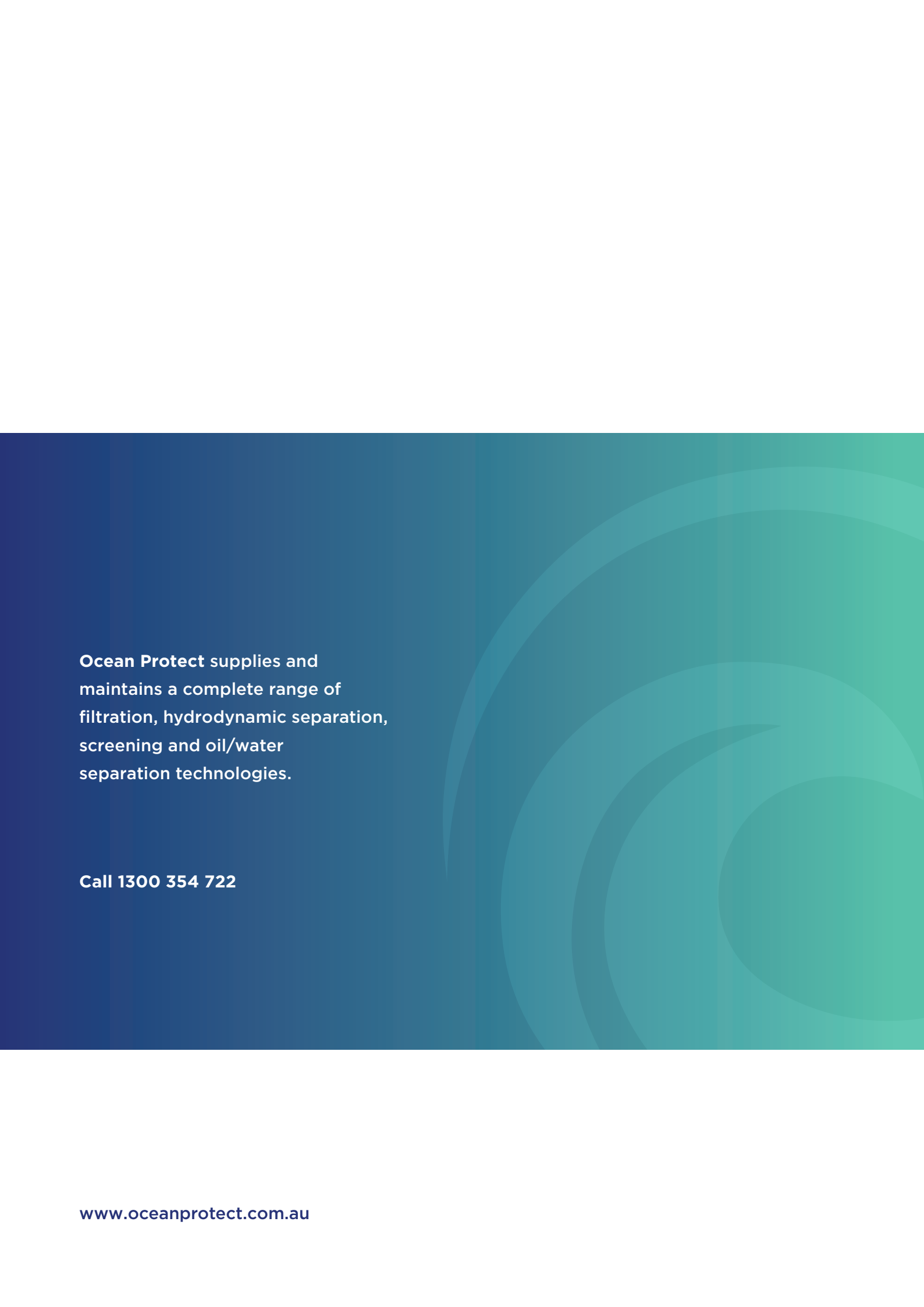
The accumulated pollutants found in the StormFilter® must be handled and disposed of in a manner that is in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. If the filter media has been contaminated with any unusual substance, there may be additional special handling and disposal methods required to comply with relevant government/authority/industry regulations.

Maintenance Services

With over a decade and a half of maintenance experience, Ocean Protect has developed a systematic approach to inspecting, cleaning and maintaining a wide variety of stormwater treatment devices. Our fully trained and professional staff are familiar with the characteristics of each type of system, and the processes required to ensure its optimal performance.

Ocean Protect has several stormwater maintenance service options available to help ensure that your stormwater device functions properly throughout its design life. In the case of StormFilter®, we offer long term pay-as-you-go contracts, pre-paid once off servicing and replacement media for cartridges.

**For more information please visit
www.oceanprotect.com.au**



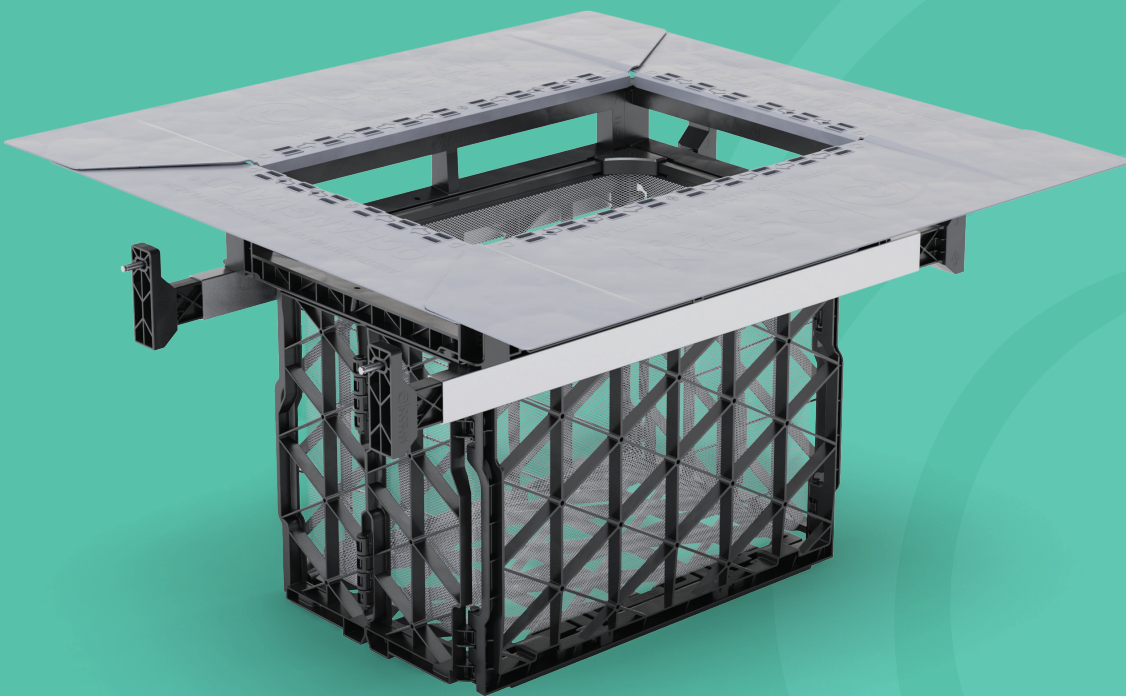
Ocean Protect supplies and maintains a complete range of filtration, hydrodynamic separation, screening and oil/water separation technologies.

Call 1300 354 722

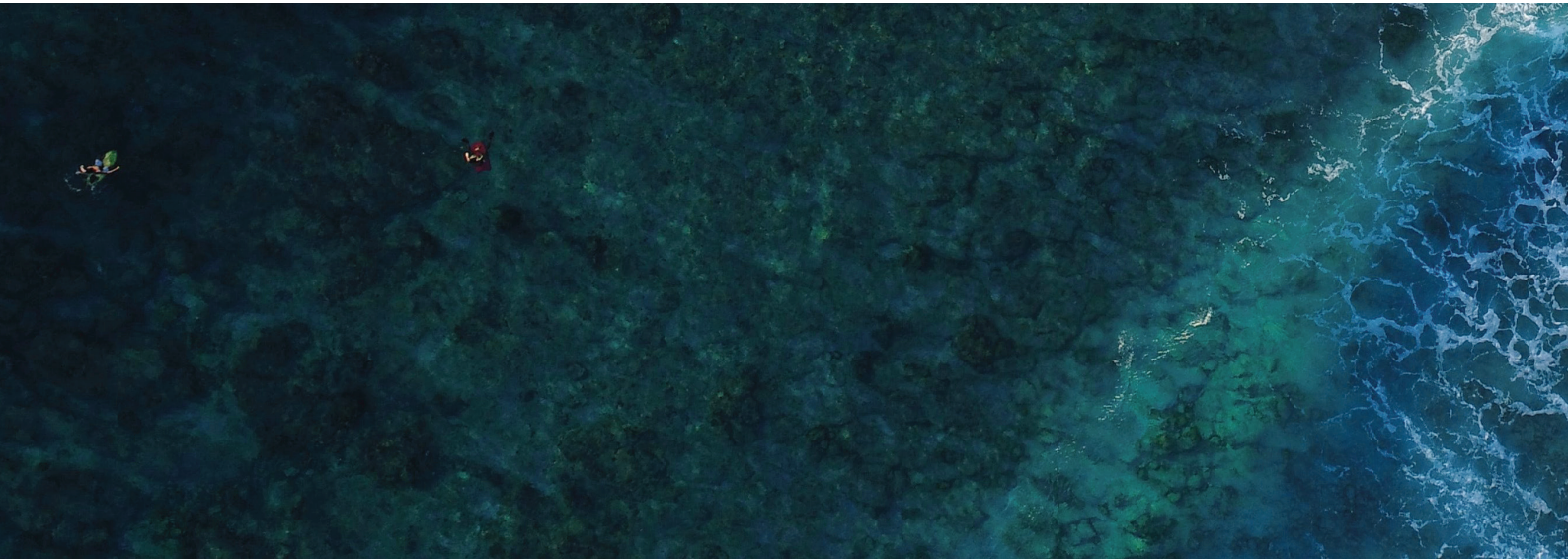
www.oceanprotect.com.au

OceanGuard®

Operations & Maintenance Manual



Stopping Pollution Entering Waterways



www.oceanprotect.com.au

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Introduction

The primary purpose of stormwater treatment devices is to capture and prevent pollutants from entering waterways, maintenance is a critical component of ensuring the ongoing effectiveness of this process. The specific requirements and frequency for maintenance depends on the treatment device and pollutant load characteristics of each site. This manual has been designed to provide details on the cleaning and maintenance processes for the OceanGuard® as recommended by the manufacturer (Ocean Protect).

The OceanGuard® technology is a gully pit basket designed to fit within new and existing gully pits to remove pollution from stormwater runoff. The system has a choice of filtration liners, designed to remove gross pollutants, solids, and other attached pollutants as either a standalone technology or as part of a 'treatment train' (e.g. with StormFilter®, Jellyfish® or biofiltration). OceanGuards are highly effective, easy to install and simple to maintain.

Stormwater professionals should note that Ocean Protect is not permitted to supply OceanGuard® technologies to provide pre-treatment to proprietary stormwater treatment assets that are not provided by Ocean Protect.

Why do I need to perform maintenance?

Adhering to the inspection and maintenance schedule of any stormwater treatment device is essential to ensuring that it functions properly throughout its design life.

During each inspection and clean, details of the mass, volume and type of material that has been collected by the device should be recorded. This data will assist with the revision of future management plans and help determine maintenance interval frequency. It is also essential that qualified and experienced personnel carry out all maintenance (including inspections, recording and reporting) in a systematic manner.

Maintenance of your stormwater management system is essential to ensuring ongoing at-source control of stormwater pollution. Maintenance also helps prevent structural failures (e.g. prevents blocked outlets) and aesthetic failures (e.g. debris build up), but most importantly ensures the long term effective operation of the OceanGuard®.

Health and Safety

Access to pits containing an OceanGuard® typically requires removing (heavy) access covers/grates, but typically it is not necessary to enter into a confined space. Pollutants collected by the OceanGuard® will vary depending on the nature of your site. There is potential for these materials to be harmful. For example, sediments may contain heavy metals, carcinogenic substances or sharp objects such as broken glass and syringes. For these reasons, there should be no primary contact with the waste collect and all aspects of maintaining and cleaning your OceanGuard® require careful adherence to Occupational Health and Safety (OH&S) guidelines.

It is important to note that the same level of care needs to be taken to ensure the safety of non-work personnel, as a result it may be necessary to employ traffic/pedestrian control measures when the device is situated in, or near areas with high vehicular/pedestrian activity.

Personnel health and safety

Whilst performing maintenance on the OceanGuard®, precautions should be taken in order to minimise (or when possible prevent) contact with sediment and other captured pollutants by maintenance personnel. In order to achieve this the following personal protective equipment (PPE) is recommended:

- Puncture resistant gloves
- Steel capped safety boots
- Long sleeve clothing, overalls or similar skin protection
- Eye protection
- High visibility clothing or vest

During maintenance activities it may be necessary to implement traffic control measures. Ocean Protect recommend that a separate site specific traffic control plan is implemented as required to meet the relevant governing authority guidelines.

The OceanGuard® is designed to be maintained from surface level, without the need to enter the pit. However depending on the installation configuration, location and site specific maintenance requirements it may be necessary to enter a confined space occasionally. It is recommended that all maintenance personnel evaluate their own needs for confined space entry and compliance with relevant industry regulations and guidelines. Ocean Protect maintenance personnel are fully trained and carry certification for confined space entry.

How does it work?

OceanGuard® is designed to intercept stormwater as it enters the stormwater pits throughout a site. The OceanGuard® has diversion panels that sit flush with the pit walls, this ensures that as stormwater enters at the top of the pit it is directed to the middle of the insert where the Filtration bag is situated. The filtration bag allows for screening to occur removing 100% of pollutants greater than the opening of the filtration material (200micron, 1600micron bags available).

During larger rain events the large flows overflow slots in the flow diverter of the OceanGuard® ensure that the conveyance of stormwater is not impeded thus eliminating the potential for surface flooding. As the flow subsides, the captured pollutants are held in the OceanGuard® filtration bag. The waste then starts to dry which reduces the magnitude of organic material decomposition transitioning between maintenance intervals.

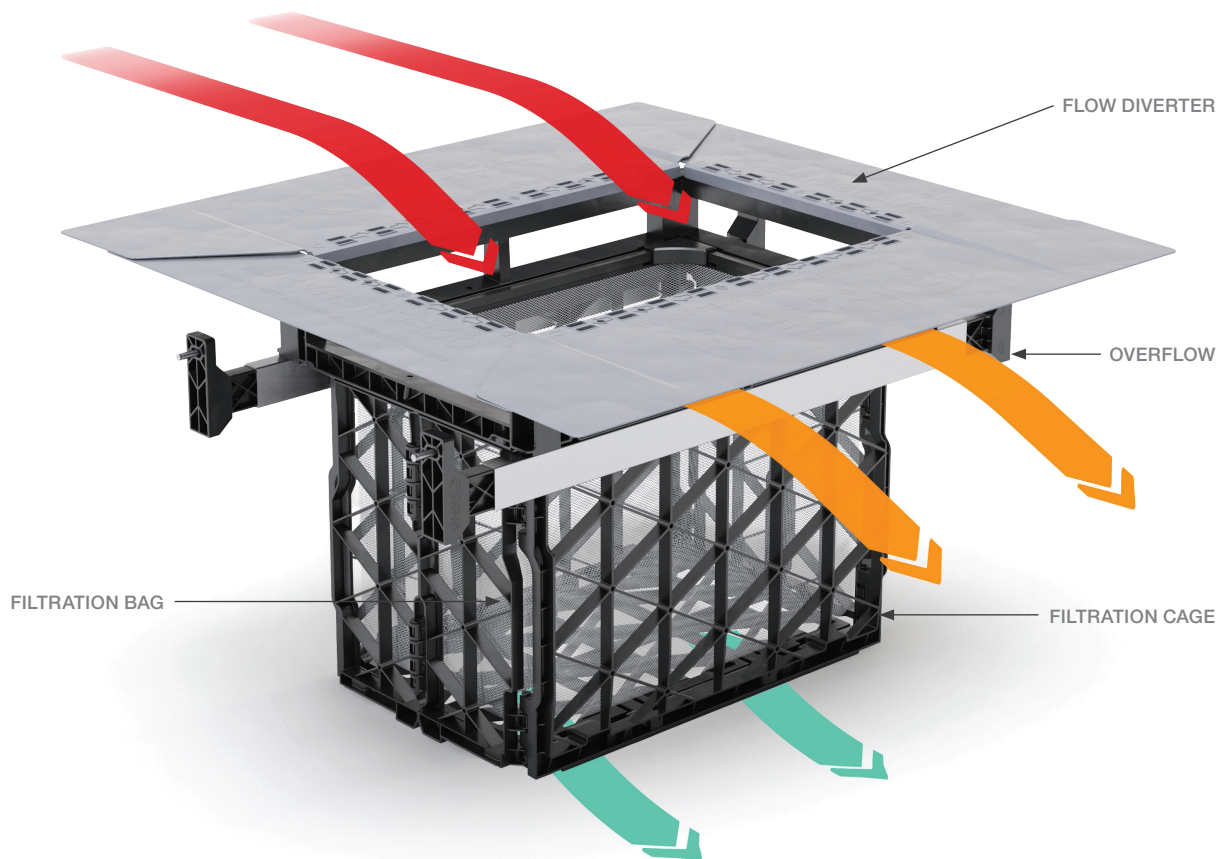


Figure 1: OceanGuard® components

Maintenance Procedures

To ensure that each OceanGuard® achieves optimal performance, it is advisable that regular maintenance is performed. The OceanGuard® requires 1-6 minor services annually (3 to 4 typical). Pending the outcome of these inspections, additional maintenance servicing may be required.

Primary types of maintenance

The table below outlines the primary types of maintenance activities that typically take place as part of an ongoing maintenance schedule for the OceanGuard®.

Service Type	Description of Typical Activities	Frequency
Minor Service	Filter bag inspection and evaluation Removal of capture pollutants Disposal of material	1-6 Times Annually
Major Service	Filter Bag Replacement Support frame rectification	As required

Maintenance requirements and frequencies are dependent on the pollutant load characteristics of each site. The frequencies provided in this document represent what the manufacturer considers to be best practice to ensure the continuing operation of the device is in line with the original design specification.

Minor Service

This service is designed to return the OceanGuard® back to optimal operating performance. This type of service can be undertaken either by hand or with the assistance of a Vacuum unit.

Hand Maintenance

- 1 Establish a safe working area around the OceanGuard®
- 2 Remove access cover/grate
- 3 Use two lifting hooks to remove the filtration bag
- 4 Empty the contents of the filtration bag into a disposal container
- 5 Inspect and evaluate the filtration bag
- 6 Inspect and evaluate remaining OceanGuard® components (i.e. flow diverter, filtration cage and supporting frame)
- 7 Rejuvenate filtration bag by removing pollutant build up with a stiff brush, additionally the filtration bag can be washed using high pressure water
- 8 Re-install filtration bag and replace access cover/grate

Vacuum Maintenance

- 1 Establish a safe working area around the OceanGuard®
- 2 Remove access cover/grate
- 3 Vacuum captured pollutants from the filtration bag
- 4 Remove filtration bag
- 5 Inspect and evaluate the filtration bag
- 6 Inspect and evaluate remaining OceanGuard® components (i.e. flow diverter, filtration cage and supporting frame)
- 7 Rejuvenate filtration bag by removing pollutant build up with a stiff brush, additionally the filtration bag can be washed using high pressure water
- 8 Re-install filtration bag and replace access cover/grate

Major Service (Filter Bag Replacement)

For the OceanGuard®, a major service is a reactionary process based on the outcomes from the minor service.

Trigger Event from Minor Service	Maintenance Action
Filtration bag inspection reveals damage	Replace the filtration bag ^[1]
Component inspection reveals damage	Perform rectification works and if necessary replace components ^[1]

^[1] Replacement filtration bags and components are available for purchase from Ocean Protect

Additional Types of Maintenance

Occasionally, events on site can make it necessary to perform additional maintenance to ensure the continuing performance of the device.

Hazardous Material Spill

If there is a spill event on site, all OceanGuard® pits that potentially received flow should be inspected and cleaned. Specifically, all captured pollutants from within the filtration bag should be removed and disposed in accordance with any additional requirements that may relate to the type of spill event. All filtration bags should be rejuvenated (replaced if required) and re-installed.

Blockages

The OceanGuard's internal high flow bypass functionality is designed to minimise the potential of blockages/flooding and this configuration has been field proven for over twenty years. Flooding caused by an OceanGuard® style of pit basket is extremely rare and in the unlikely event that flooding occurs around the stormwater pit the following steps should be undertaken to assist in diagnosing the issue and implementing the appropriate response.

- 1 Inspect the OceanGuard® flow diverter, ensuring that they are free of debris and pollutants
- 2 Perform a minor service on the OceanGuard®
- 3 Remove the OceanGuard® to access the pit and inspect both the inlet and outlet pipes, ensuring they are free of debris and pollutants

Major Storms and Flooding

In addition to the scheduled activities, it is important to inspect the condition of the OceanGuard® after a major storm event. The inspection should focus on checking for damage and higher than normal sediment accumulation that may result from localised erosion. Where necessary damaged components should be replaced and accumulated pollutants disposed.

Disposal of Waste Materials

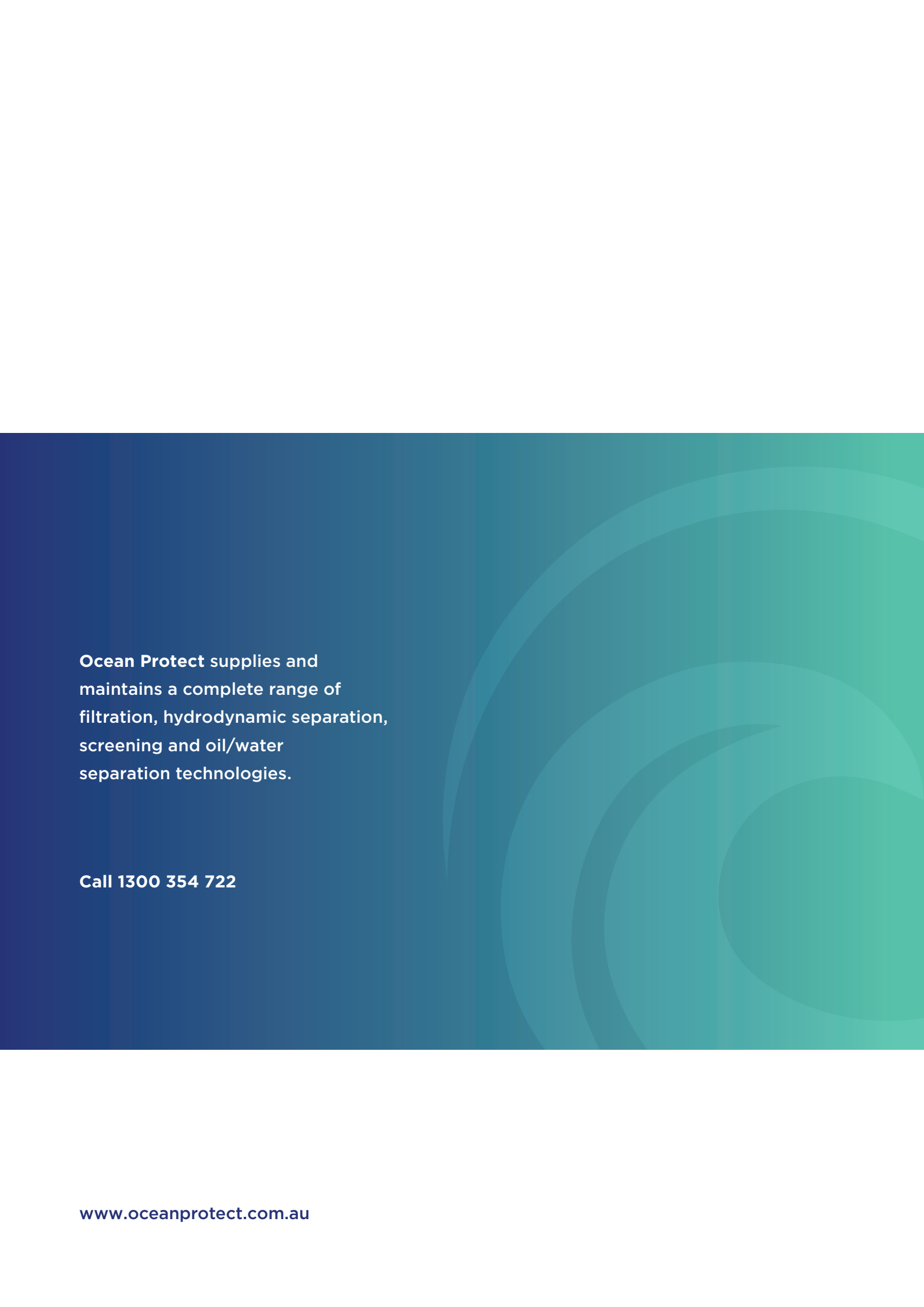
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Maintenance Services

With over a decade and a half of maintenance experience Ocean Protect has developed a systematic approach to inspecting, cleaning and maintaining a wide variety of stormwater treatment devices. Our fully trained and professional staff are familiar with the characteristics of each type of system, and the processes required to ensure its optimal performance.

Ocean Protect has several stormwater maintenance service options available to help ensure that your stormwater device functions properly throughout its design life. In the case of our OceanGuard®, we offer long term pay-as-you-go contracts, pre-paid once off servicing and replacement filter bags.

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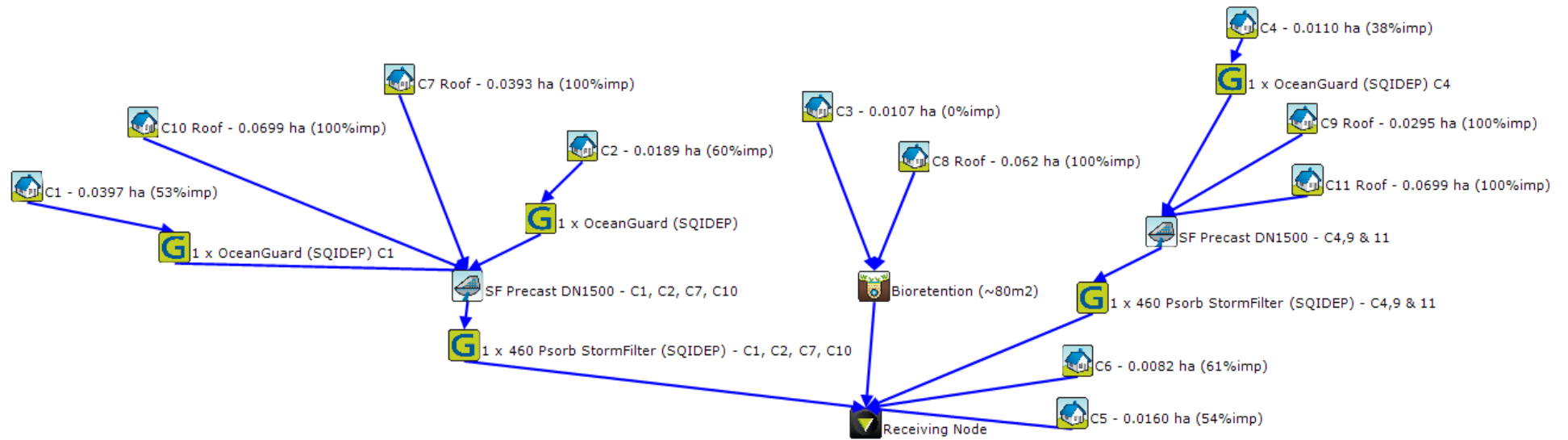


Ocean Protect supplies and maintains a complete range of filtration, hydrodynamic separation, screening and oil/water separation technologies.

Call 1300 354 722

Appendix C

MUSIC Model Conceptual Treatment Train



Appendix D

Water Supply and Flow Rate Pressure Test Results

Attention: **James Moore**

NEXTDC
james.moore@nextdc.com

HTC Reference: Q7267
Date: 12th of April, 2024

Flow and Pressure Test Report for Red Bill Lane & Future Way, Maroochydore



Field Test 1: H1 and H3 Combined Performance and Street Supply Test

Water was simultaneously drawn, at the flow rates below, from a single outlet of street spring hydrants H1 and H3. The pressure was recorded at the outlet of H1 and H3 to determine the hydrant performance. These pressures are used to determine if the hydrant meets the pressure requirements of AS2419.1. The residual pressure was recorded from the outlet of street spring hydrant H2.

H1 Flow (L/s)	H1 Hydrant Pressure (kPa)	H3 Flow (L/s)	H3 Hydrant Pressure (kPa)	Total Flow (L/s)	H2 Water Main Residual Pressure (kPa)
0	610	0	619	0	615
2.5	602	2.5	589	5	602
5	591	5	592	10	584
7.5	560	7.5	559	15	571
10	531	10	541	20	560
15	440	15	448	30	542
20	360	20	369	40	530
25	248	25	253	50	494

Field Test 1 Comments: Flow stopped at 50L/s due to water encroaching the trafficable roadway and pedestrian access.

Field Test 2: H2 Performance and Street Supply Test

Water was drawn, at the flow rates below, from both outlets of street spring hydrant, H2. The pressure was recorded at the outlet of H2 to determine the hydrant performance. This pressure used to determine if the hydrant meets the pressure requirements of AS2419.1. The residual pressure was recorded from the outlet of street spring hydrant's H1 and H3.

H2 Flow (L/s)	H2 Hydrant Pressure (kPa)	H1 Water Main Residual Pressure (kPa)	H3 Water Main Residual Pressure (kPa)
0	602	601	606
5	582	601	602
10	561	589	591
15	520	583	582
20	467	562	567
30	311	529	533
40	136	521	528
42.3	36	517	524

Hydrant Condition: H1, H2 and H3 were in good condition with a powder coat exterior.

General Notes:

- The field test results are correct at the time of the tests
- Flow meters and pressure gauges are calibrated annually
- It is the responsibility of the recipient to determine the effect of differences in RL and extra hydraulic losses between the hydrant and tie in locations
- Flows are accurate to $\pm 0.2\text{L/s}$. Pressures are accurate to $\pm 5\text{kPa}$

Approvals**Test Authority**

RPEQ 16239

QBCC 15018810

BLA PE12926

CPEng

ABN 96 610 617 055

0423 383 329

Dan@HTCGroup.com.auwww.HTCGroup.com.au**Test Leading Hand**

Michael Gough

08:46hrs, 10th of April, 2024

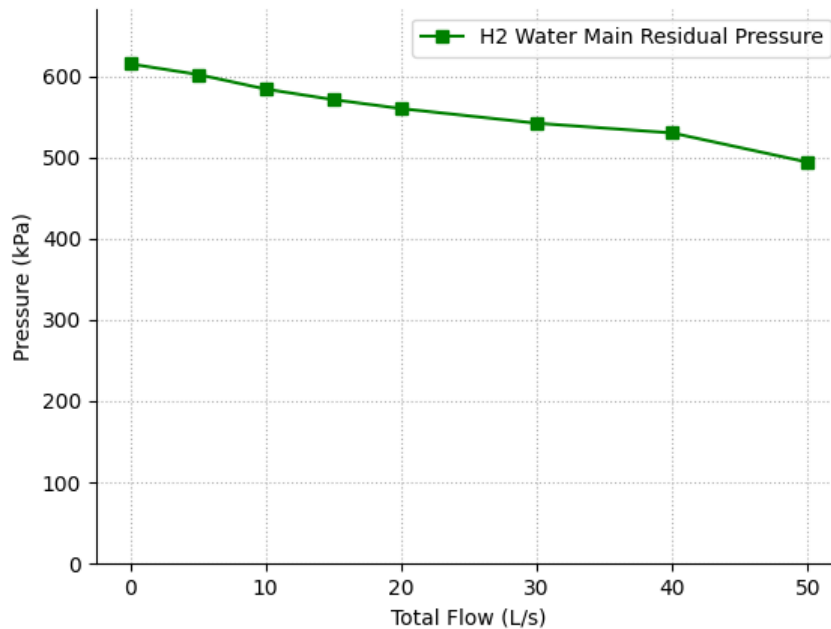
**Report Approval**

Daniel Barwick

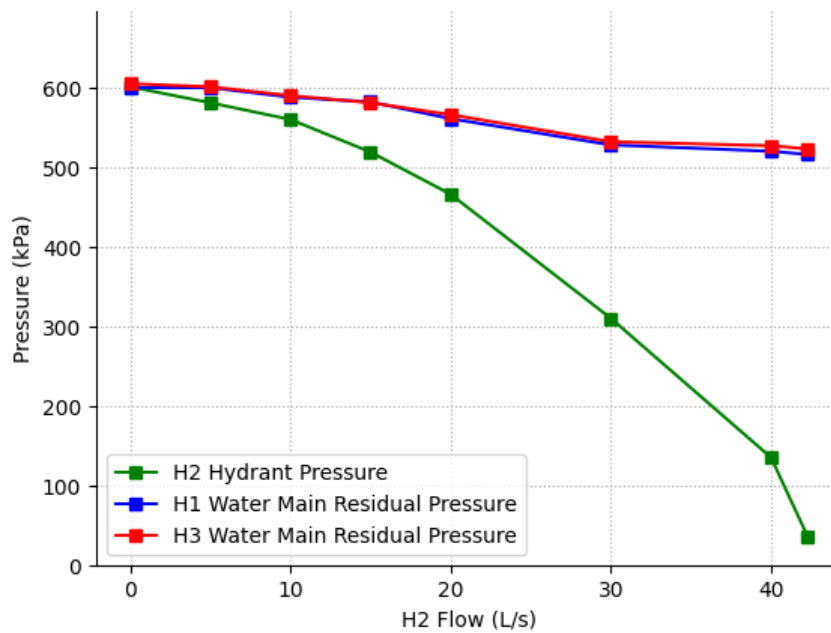
12th of April, 2024



Appendix 1: Test Result Graphs



Field Test 1: H1 and H3 Combined Performance and Street Supply Test



Field Test 2: H2 Performance and Street Supply Test