ARUP

PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL

Approval no: DEV2025/1604

Date: 30 June 2025

Queensland Government

NEXTDC Limited

Sunshine Coast 2

Stormwater Management Plan

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

04 | 28 May 2025

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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**
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		Signature			
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			

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.

The latest issue 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.

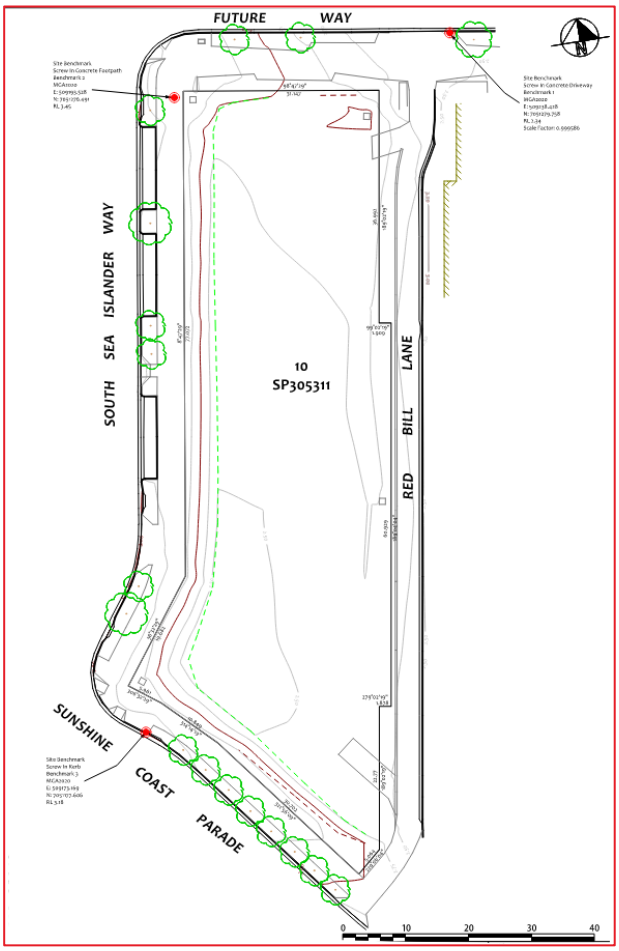


Figure 1 - Proposed site location at Lot 10 South Sea Islander Way, Maroochydore, QLD, 4558.

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 Maroochydore 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 Maroochydore 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 Maroochydore priority development area (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

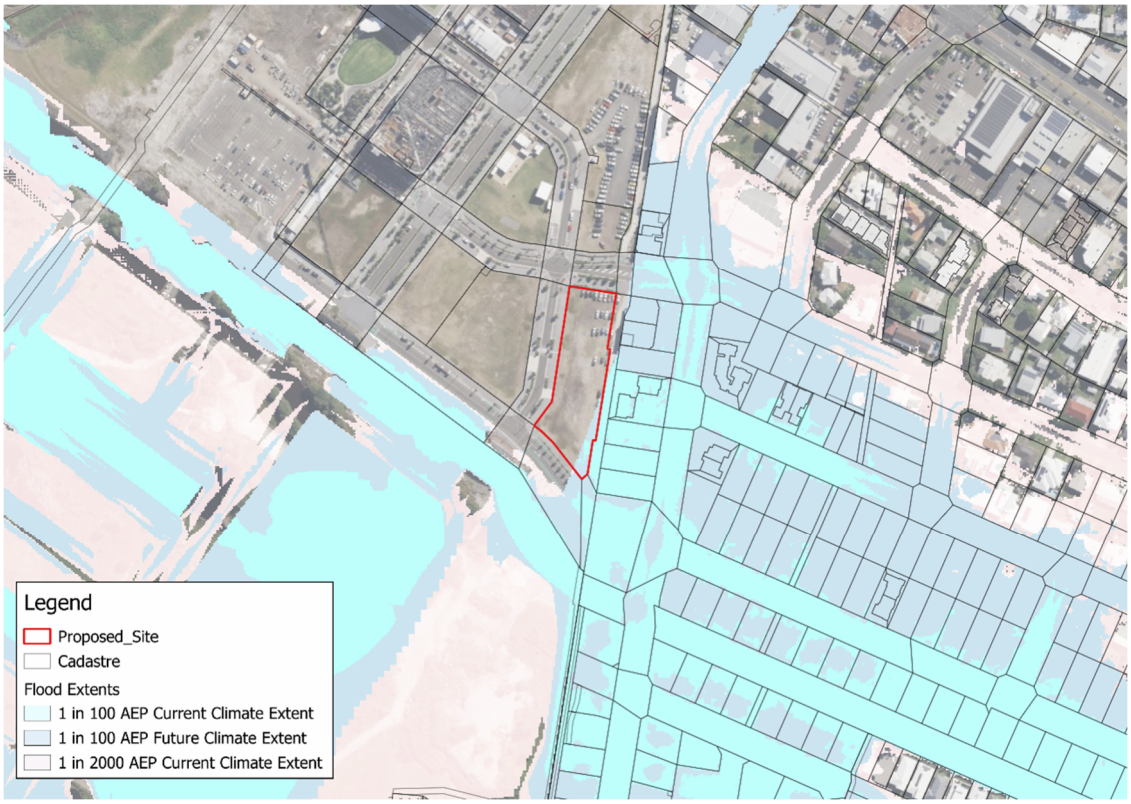


Figure 3: Ultimate Development Scenario Probable Maximum Flood Extents

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.

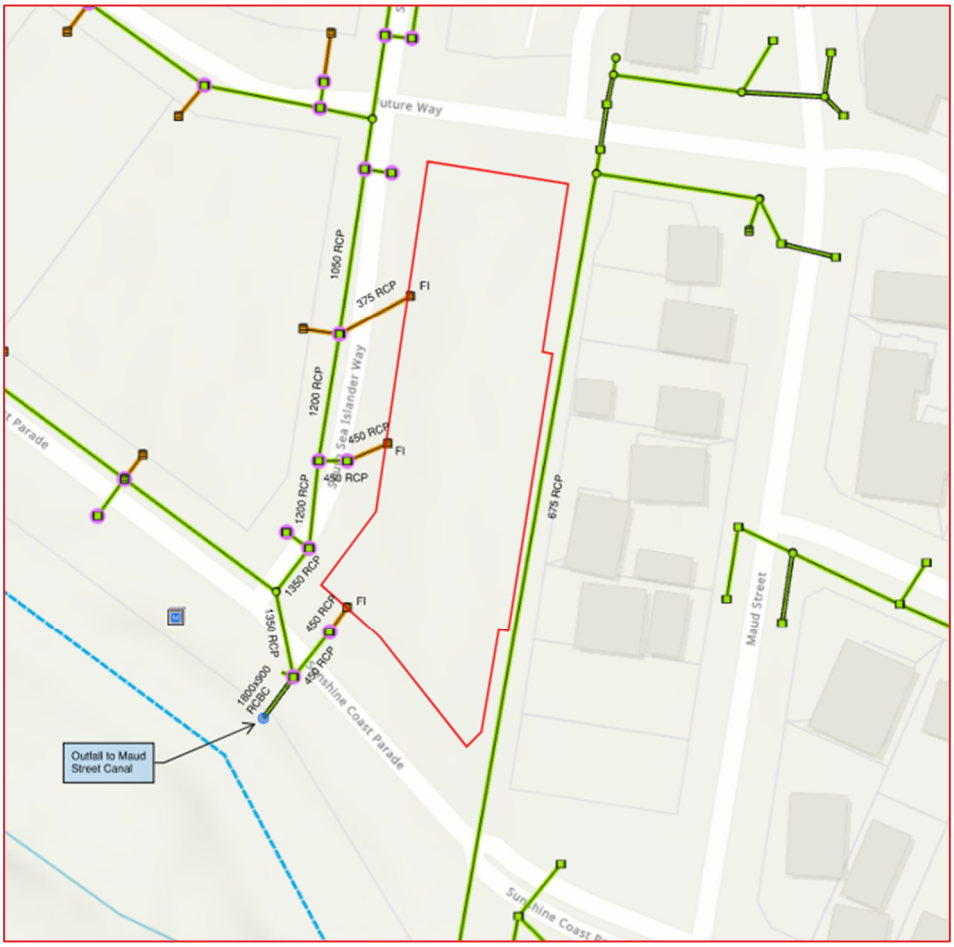


Figure 4: Existing stormwater network, as developed from the SCC ArcGIS service.

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 Appendix A.

The bioretention raingarden proposed totals a ~80m^2 filter area, greater than the required minimum 1.5% of the development site area (56 m^2), 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, hard landscaped footpaths, and vehicle parking adjacent to Red Bill Lane. Stormwater runoff will be collected from the site via surface level linear drainage features (e.g. gully pits, linear channels) and connected 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. Stormwater runoff will be collected from the site via surface level linear drainage features (e.g. gully pits, linear channels) and connected 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 0.392m^3/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 56m^2 filter area. The bioretention raingardens proposed across the site total a ~80m^2 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 ~80m^2 filter area, greater than the required minimum 1.5% of the development site area (56m^2).
- 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	1. 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 2. Design capacity excludes minimum 150mm freeboard. 3. Temporary culvert crossing – minimum 63.2% AEP hydraulic capacity
Erosion control	Erosion control measures	1. Minimise exposure of disturbed soils at any time 2. Divert water run-off from undisturbed areas around disturbed areas 3. Determine the erosion risk rating using local rainfall erosivity, rainfall depth, soil-loss rate or other acceptable methods 4. Implement erosion control methods corresponding to identified erosion risk rating
Sediment control	Sediment control measures Design storm for sediment control basins Sediment basin dewatering	1. Determine appropriate sediment control measures using: Potential soil loss rate, or Monthly erosivity, or Average monthly rainfall 2. 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 3. 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	1. Avoid wind-blow litter; remove gross pollutants 2. Ensure there is no visible oil or grease sheen on released waters 3. Dispose of waste containing contaminants at authorised facilities

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 civil concept stormwater management sketch (Appendix A) for the proposed location of treatment measures.

Should the location of the bioretention rain garden change through design development, 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

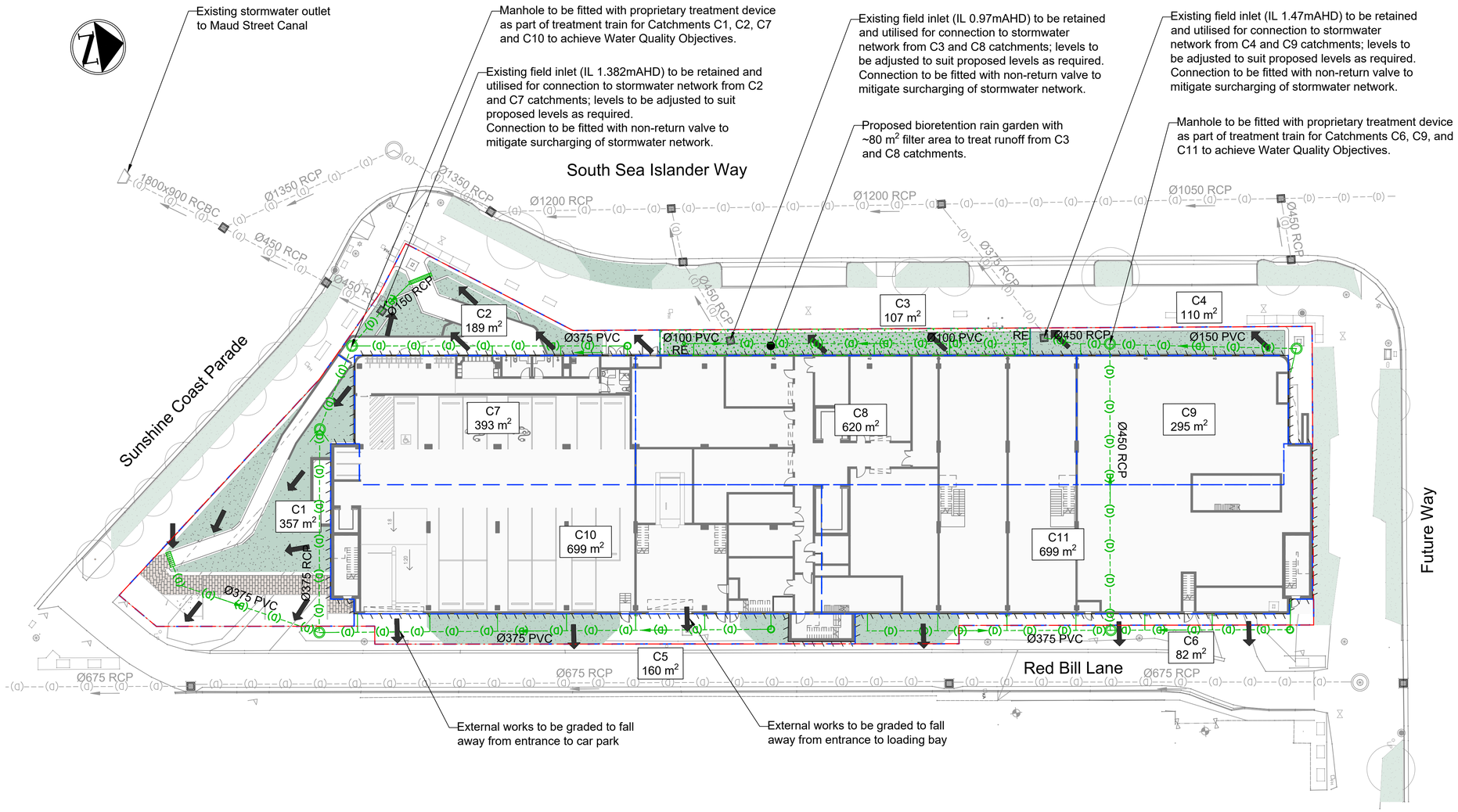
This Stormwater Management Plan has been developed in accordance with the design guidelines and codes listed in Table 5 to manage the potential impacts of the proposed development. This plan has the following key outcomes:

- 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 ~80m^2 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

Concept Stormwater Management Sketch



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. Detail and level survey information provided by ONF Surveyors, reference 12125_D1, dated 05/03/2024.
5. Existing stormwater network information is detailed from the ONF Surveyors topographical survey and SCC ArcGIS information. Further survey required to confirm.
6. 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
- RE Rodding Eye

NOT FOR CONSTRUCTION

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

Issue	Date	By	Chkd	Appd
4	28/05/25	MRH	DMW	DMW
Update to EDQ Comments				

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				

Client
NEXTDC Limited
NEXTDC

Job Title
NEXTDC SC2

Scale at A1 1:250
Discipline Civil

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www.arup.com

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Member Firm
Arup Pty Ltd
ABN 76 625 912 665

Drawing Title
Concept Stormwater Management Plan

Drawing Status
Development Application Issue

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

Do not scale

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Appendix B

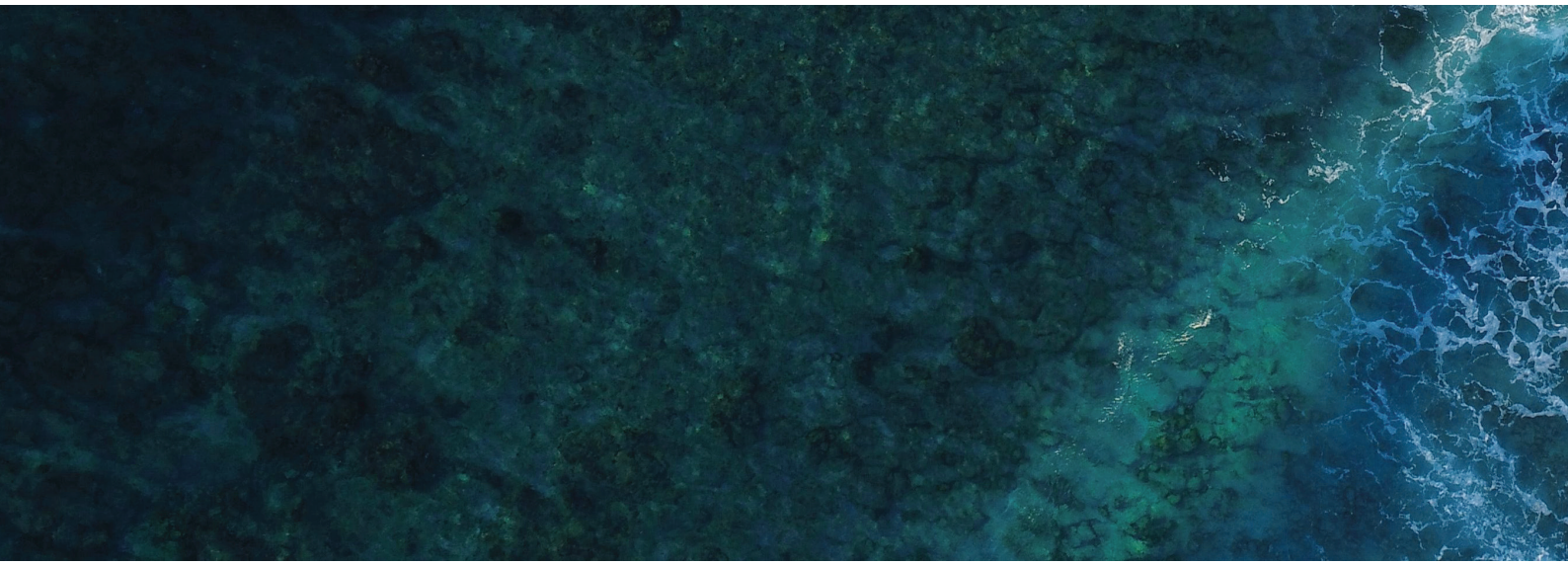
Maintenance Guidelines for Proprietary Treatment Devices

StormFilter®

Operations & Maintenance Manual

Stopping Pollution Entering Waterways

11/24



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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 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.

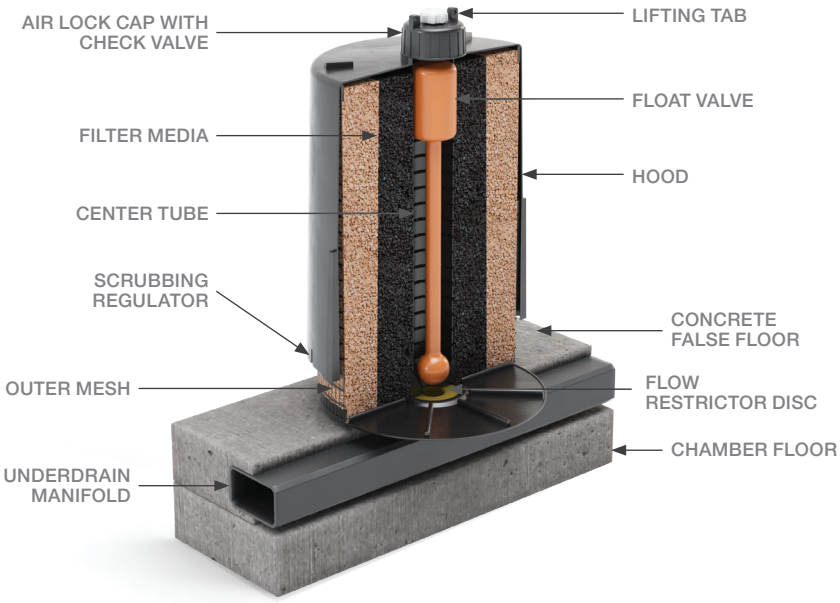

Figure 1: StormFilter® components

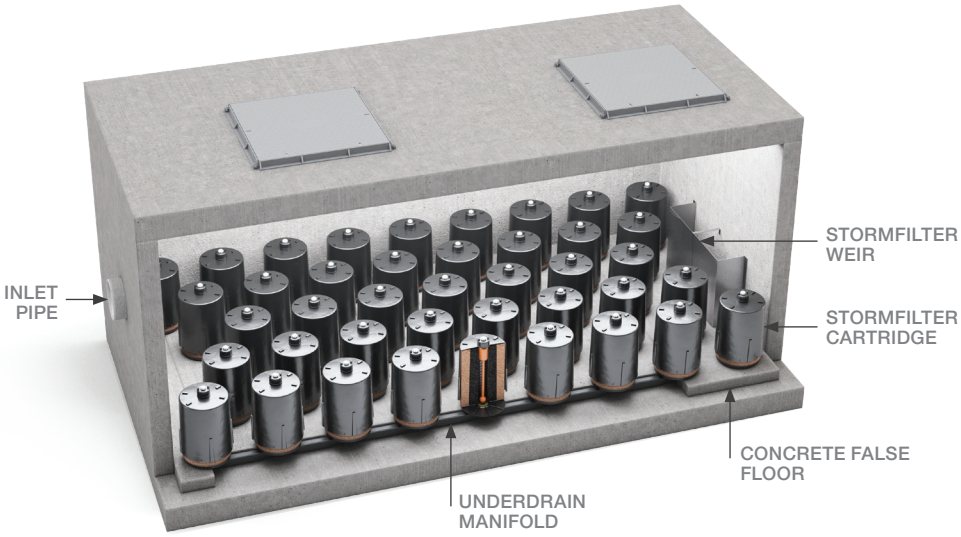

Figure 2: Example conceptual diagram of a StormFilter® system

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

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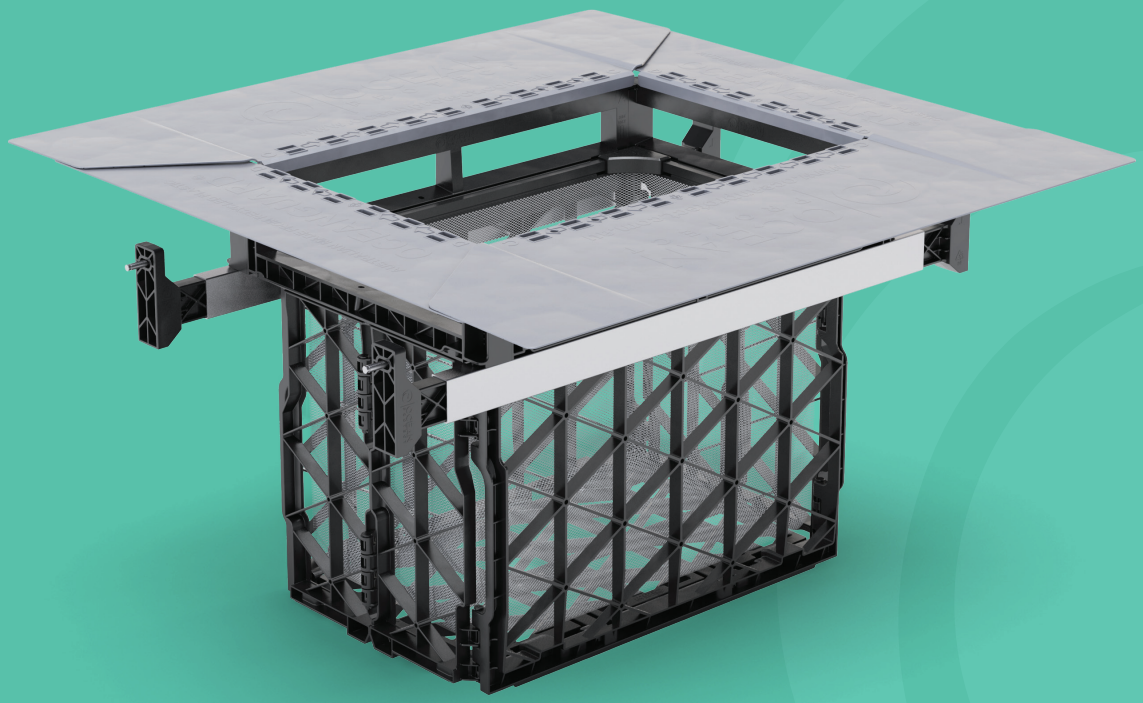
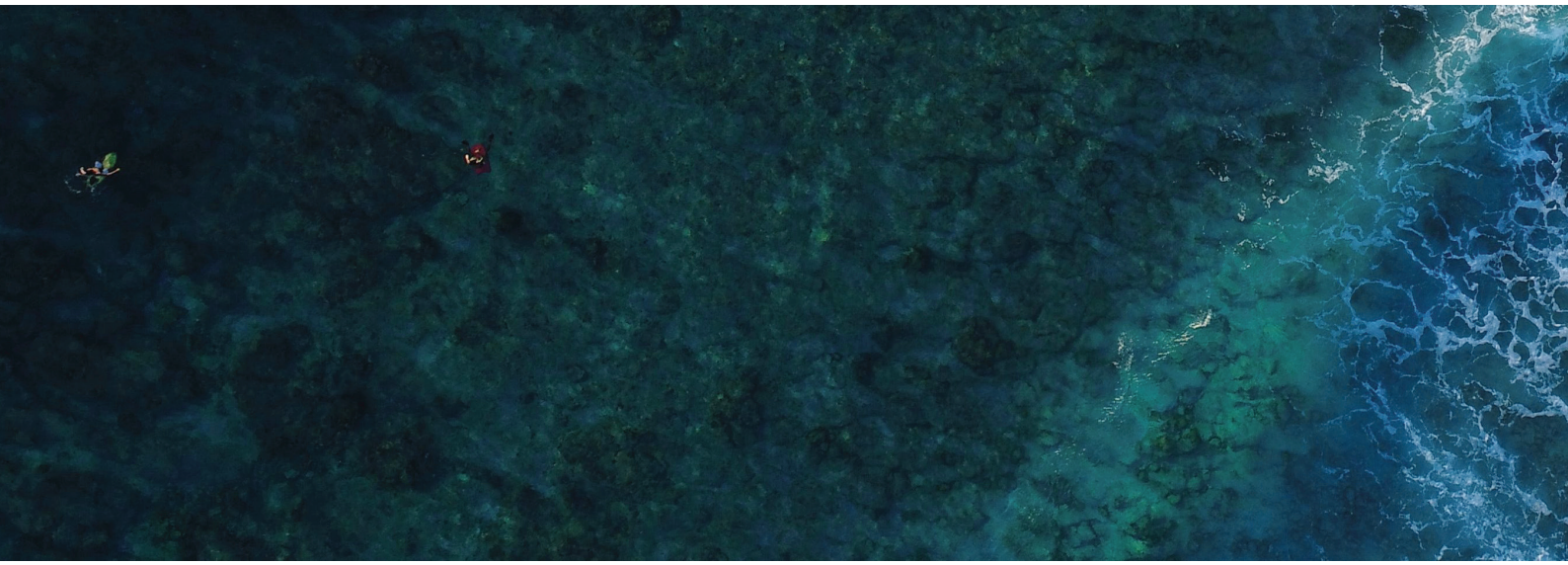
OceanGuard®

Operations & Maintenance Manual



Stopping Pollution Entering Waterways

09/22



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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.

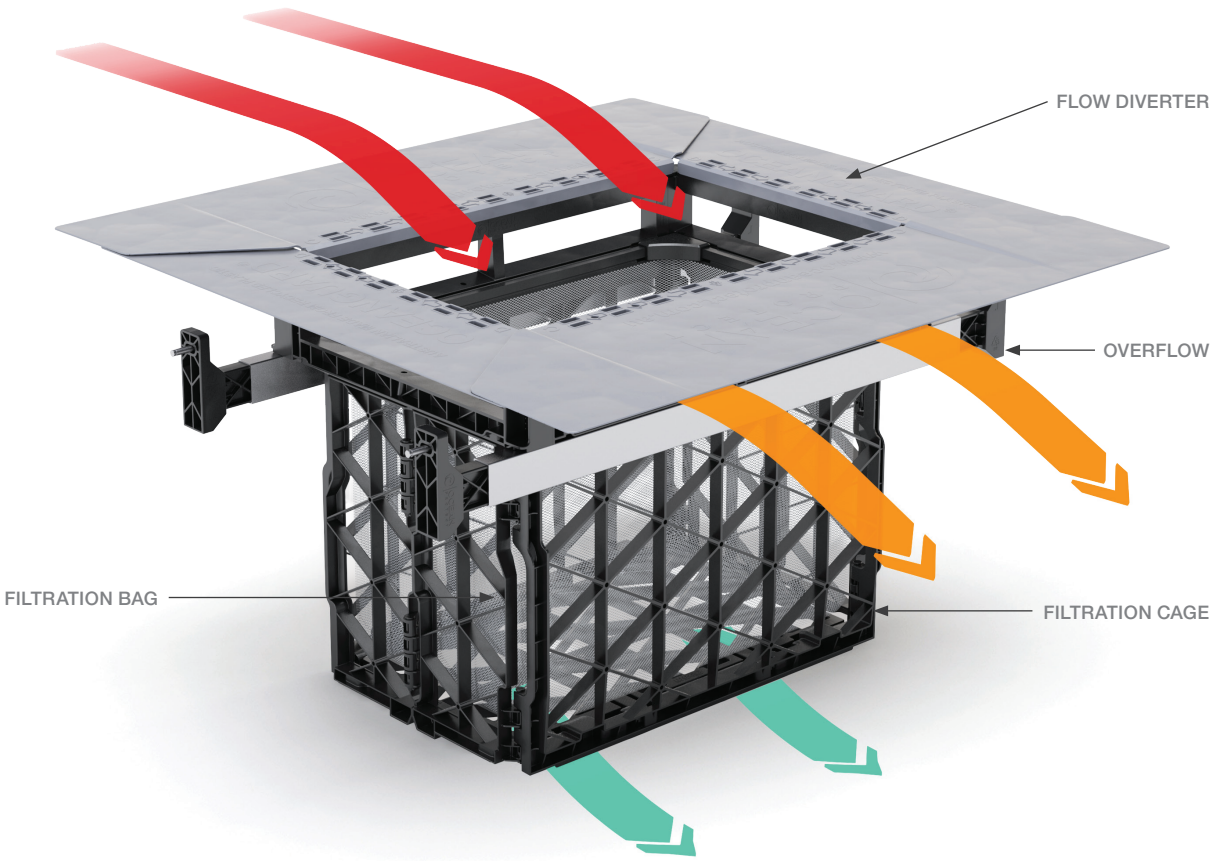

Figure 1: OceanGuard® components

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

The accumulated pollutants found in the OceanGuard® 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 filtration bag 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

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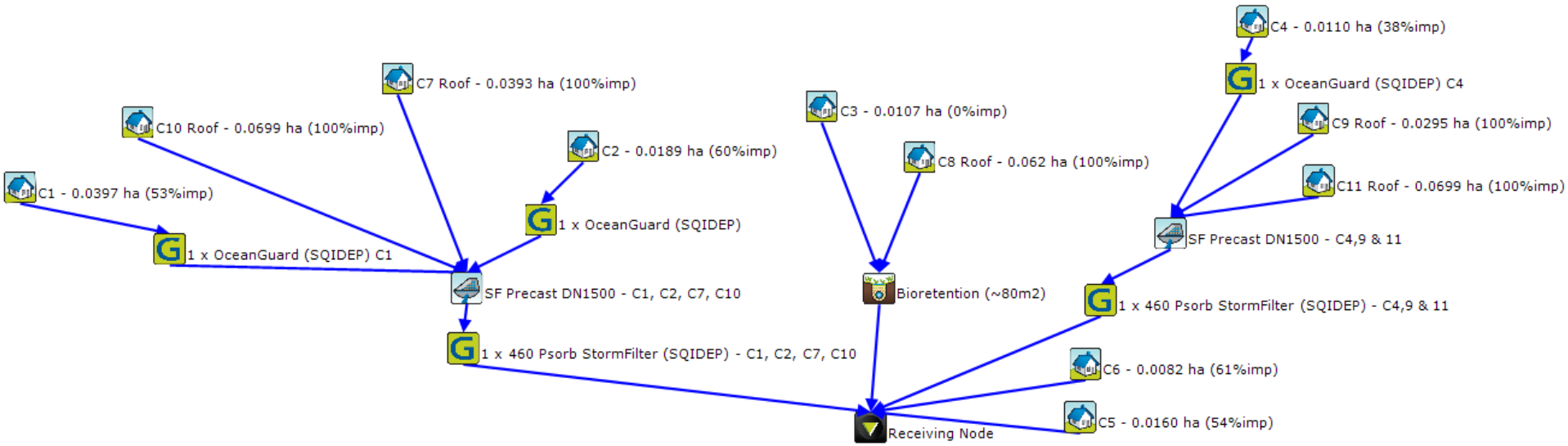
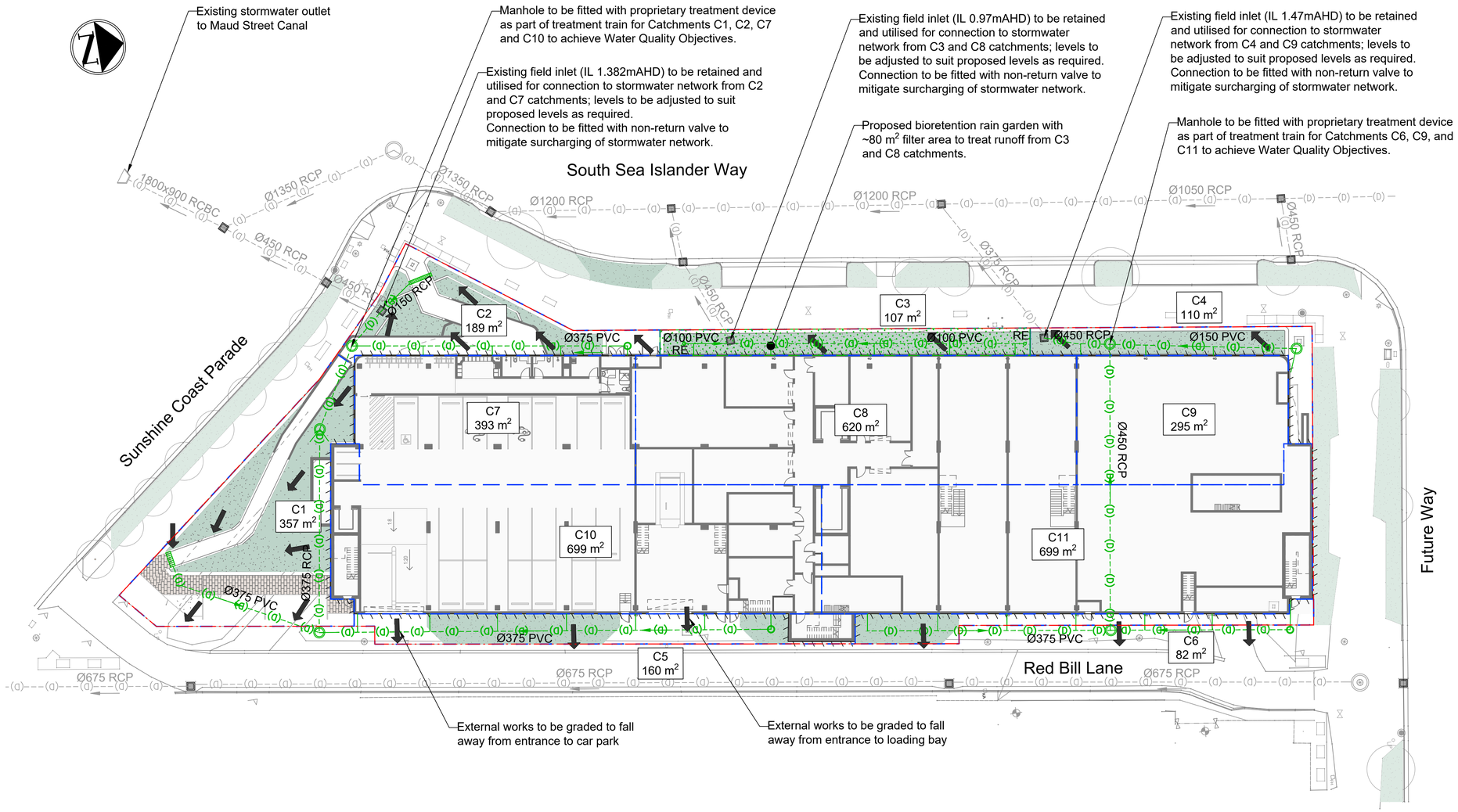
Appendix C

MUSIC Model Conceptual Treatment Train





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. Detail and level survey information provided by ONF Surveyors, reference 12125_D1, dated 05/03/2024.
5. Existing stormwater network information is detailed from the ONF Surveyors topographical survey and SCC ArcGIS information. Further survey required to confirm.
6. 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
- RE Rodding Eye

NOT FOR CONSTRUCTION

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

Issue	Date	By	Chkd	Appd
4	28/05/25	MRH	DMW	DMW
Update to EDQ Comments				

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				

Client
NEXTDC Limited
NEXTDC

Job Title
NEXTDC SC2

Scale at A1 1:250
Discipline Civil

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Arup Pty Ltd
ABN 76 625 912 665

Drawing Title
Concept Stormwater Management Plan

Drawing Status
Development Application Issue

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

Do not scale

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