

COMMERCIAL DEVELOPMENT AT 7 - 21 CHALMERS CRESCENT, MASCOT, NSW STORMWATER MANAGEMENT REPORT

OCTOBER 2025



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Commercial Development at 7 - 21 Chalmers Street, Mascot NSW Stormwater Management Report

Prepared For

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EXECUTIVE SUMMARY

WSP has been appointed to produce a Stormwater Management report to detail the stormwater management considerations to support a Masterplan application for a proposed commercial development at 7 – 21 Chalmers Crescent, Mascot. This report describes the stormwater engineering requirements and proposed engineering solutions for the proposed commercial development that is compliant with Bayside Council’s Development Control Plans (DCP), and Bayside Technical Specification – Stormwater Management. This report mainly details stormwater management design and considerations, specifically on:

- Flood impact assessment,
- Stormwater Management Strategy
- On-site Stormwater Detention (OSD), and
- Water sensitive urban design.

1 INTRODUCTION

1.1 PROJECT UNDERSTANDING & SITE LOCATION

WSP have been appointed to provide master plan level design of civil infrastructures to support the construction and operation of the proposed new commercial development (5 multistorey towers) on the combined site of **7-9, 14-18, and 19-21 Chalmers Crescent, Mascot NSW**. The development site is to the north, east and south of the Chalmers Crescent cul-de-sac as shown in Figure 1. The development site covers an area of approximately 12,603m².

The proposed site currently houses several industrial buildings.



Figure 1 - Site Location

Post Masterplan and Development Application approval, the development will result in the decommissioning and demolition of the existing industrial buildings, site preparatory works and construction of new commercial towers each with 7 levels above a parking podium to a height RL 51m AHD.

This report will describe existing flooding information, outline civil and stormwater requirements that apply to service the new commercial development, and propose solutions to achieve compliance with Bayside Council Development Control Plans (DCP), Bayside Technical Specification – Stormwater Management and relevant Australian Standards.

1.2 OBJECTIVES OF THE REPORT

The objective of this report is to confirm the viability of the proposed development by demonstrating that the necessary stormwater management requirements as outlined in Bayside Council's DCP can be satisfied by the implementation of provisions as described in this report. In the following sections, details of stormwater quantity and quality analysis are described, and include provisions that will guide future concept and schematic designs.

The specific stormwater requirements in the Bayside Council Development Control Plan (DCP) particularly Parts 3.9, 3.10 and 9.5 and Bayside Technical Specification – Stormwater Management particularly sections 6 and 7.

- To provide a preliminary stormwater management strategy for the site,
- To evaluate the on-site detention system requirements needed to service the site (in accordance with Council requirements),
- To evaluate the on-site retention requirements for the site (in accordance with Council requirements),
- To provide a water quality strategy to control the water quality of stormwater leaving the site (in accordance with Councils requirements), and
- To interpret Council's flooding advice and apply it to the proposed development.

2 SITE EXISTING CONDITION

2.1 EXISTING TOPOGRAPHY AND OVERLAND FLOW PATHS

The development site is located within the greater Mascot–Rosebery–Eastlakes (MRE) catchment, which generally drains to the Botany Wetlands and ultimately to Botany Bay. Key features of the MRE catchment include the Stormwater System of Sydney Ocean Outfall Sewer (SWSOOS), which divides the Mascot catchment and separates overland flows between the eastern and western sections, and the Goods Railway Line (GRL) to the south, which obstructs overland flow at Baxter Road.

The project site occupies an area of approximately 12,603 m² within the MRE catchment, situated north of the GRL. The site gently slopes from east to west and is currently 90% impervious. Existing lots drain via outlets to kerb and gutter to Chalmers Crescent and eventually to Council existing pits. The site topography, site extent and existing pits are illustrated in Figure 2.

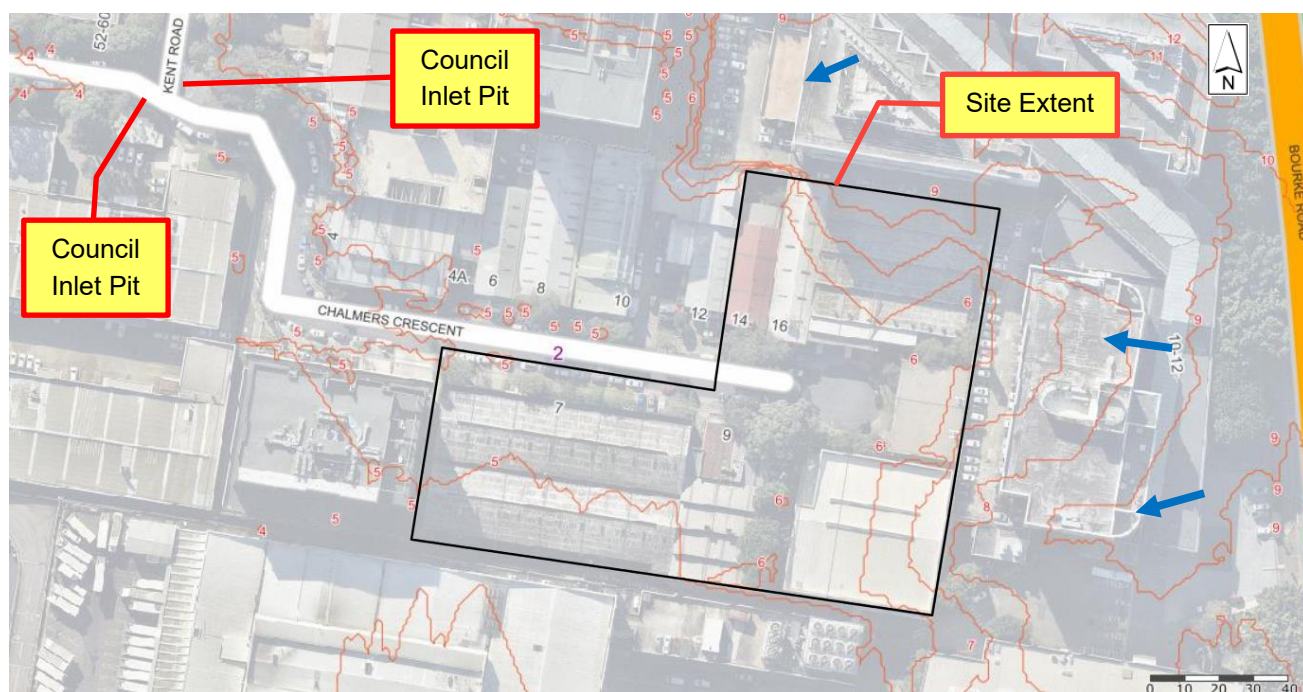


Figure 2 – Topography Map (Source: Bayside Council IntraMaps)

2.2 EXISTING STORMWATER INFRASTRUCTURE

An updated level survey of the site was undertaken in October 2025 by Harrison Friedmann & Associates Pty Ltd, which identified the presence of three kerb lintel pits and one junction stormwater pit on Kent Road — one at the intersection with Chalmers Crescent and others further along Kent Road. The survey data was cross-referenced with the Council’s online stormwater drainage map and the “Before You Dig Australia” (BYDA) plans obtained from Sydney Water to develop a more comprehensive understanding of the existing drainage infrastructure and its connectivity.

According to the survey information, the nearest council pit with sufficient depth for a direct connection is approximately 250 m away from the site. Therefore, an upgrade to the existing system is required to enable connection of the pits and pipes.

Stormwater runoff from all existing properties within the site area is currently discharged to the existing kerb and gutter via private stormwater pipes. Based on Google Street View imagery, at least ten existing kerb outlets were identified along the frontage of the site’s building footprint. Figures 3 to 11 illustrate the location of these existing kerb outlets.



Figure 3: Reference site plan for the existing kerb outlets in front of the building footprint (source: Six Map)



Figure 4: Kerb Outlets 1 & 2 (source: Google street view)



Figure 5: Kerb Outlet 3 (source: Google street view)



Figure 6: Kerb Outlet 4 (source: Google street view)



Figure 7: Kerb Outlet 5 (source: Google street view)



Figure 8: Kerb Outlet 6 (source: Google street view)



Figure 9: Kerb Outlet 7 (source: Google street view)



Figure 10: Kerb Outlet 8 (source: Google street view)



Figure 11: Kerb Outlets 9 & 10 (source: Google street view)

3 DESIGN INPUTS

3.1 APPLICABLE STANDARDS, CODES AND GUIDELINES

Bayside Council DCP has been adopted to protect the community (including existing and future residents and users) by ensuring new developments do not adversely impact on existing public infrastructure and align the “Level of Service” with the land use. The flood impact on the site, the stormwater quantity requirements and the stormwater quality requirements are addressed in the following sections.

This Stormwater Management Report has been undertaken in accordance with the following design standards and planning controls:

- AS3500.3 – 2021 ‘Plumbing and Drainage – Part 3: Stormwater Drainage’,
 - Australian Rainfall and Runoff, 2019,
 - National Construction Code – Volume 3 Plumbing Code of Australia, NCC Volume 3: 2019
 - Bayside Council – Development Control Plan, 2022
 - Bayside Technical Specification – Stormwater Management, 2023, and
 - Bayside Local Environment Plan, 2021.
-

3.2 REFERENCE INFORMATION

The following existing documentation has been referenced for the design:

- Architectural drawings by Crone Architects, Project No. CA.4096A.00 Revision D, Issued on 01 August 2025
- Initial soil permeability assessment by EI Australia, Ref No. E26875.G07 Issued on 18 August 2025
- Landscape design report by TaylorBrammer dated on 14 February 2024
- Survey Plan prepared by Harrison Friedmann & Associates PTY LTD, Reference No. 24950DT-v8 Issued on 01 October 2025
- Previously approved stormwater concept design prepared by S&G Consultants Pty Limited, Revision C, issued on 14 August 2015
- Bayside Council RFI, Reference No. DA-2024/56, Issued on 31 July 2024
- Bayside Council RFI, Reference No. DA-2024/56, Issued on 8 May 2025
- Council correspondences with WSP and the clients (refer to Appendix B)

4 FLOOD IMPACT ASSESSMENT

Bayside Council provides online mapping to identify whether local sites are flood affected. The mapping system shows all Lots making up 7 – 21 Chalmers Crescent, the proposed amalgamated development Lot to not be burdened by flood controls, for the 1% AEP (Annual Exceedance Probability) nor the Probable Maximum Flood (PMF) event. Refer to Figure 12 – 14 for existing available flood information.

From publicly available data, the flood levels to the west of the development Lot are:

- 1% AEP Flood Level: RL 3.93m AHD
- PMF Flood Level: RL 4.30m AHD

In cases where a site is identified by Bayside Council as not flood affected, specific flood controls in Council's Development Control Plans, being section 3.10 and 9.5 do not apply to this development.

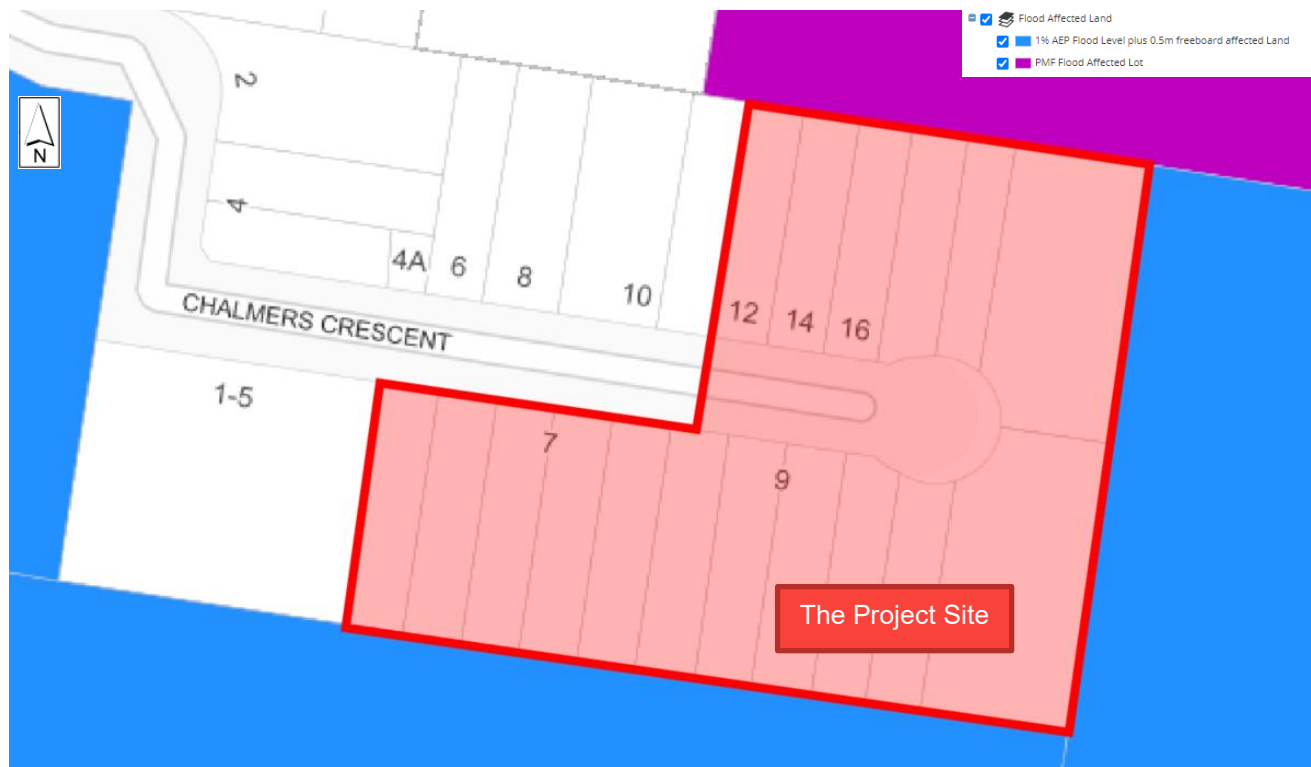


Figure 12: Flood Affected Land Map (Source: Bayside Council Mapping)



Figure 13: PMF Flood Map (Source: Mascot, Rosebery and Eastlakes Flood Study)



Figure 14: 1% AEP Flood Map (Source: Mascot, Rosebery and Eastlakes Flood Study)

5 STORMWATER DRAINAGE

5.1 STORMWATER QUANTITY STRATEGY

Bayside Council requires on-site stormwater absorption as the primary disposal strategy where feasible. The geotechnical investigation indicates a low absorption rate of 0.002–0.005 L/s/m², which, according to Section 5.1.a of the Stormwater Management Technical Specification (SMTS), is inadequate. As a result, an absorption system is not practical, and on-site detention with controlled discharge has been adopted as the preferred stormwater management strategy.

A high-level preliminary assessment of the on-site detention (OSD) requirements has been undertaken at this stage of the project. It is currently proposed to install a single underground OSD tank within the ground floor level car park. This proposal is based on the assumptions permitted under Section 6.4 of the Stormwater Management Technical Specification, as outlined below:

- Total site area: 12,600 m²
- Total area discharging to the OSD system: 10,710 m² (85% of the site area)
- Total area bypassing the OSD system: 1,890 m² (15% of the site area)

5.1.1 HYDROLOGY AND HYDRAULICS

The proposed development consists of five towers. At this preliminary stage, a high-level hydraulic assessment has been undertaken. All roof areas, planter boxes, and selected landscaped zones are proposed to discharge into a single, large on-site detention (OSD) tank located at ground level. This configuration has been adopted for the purpose of initial sizing and modelling of the stormwater management system.

To optimise the required OSD volume during the detailed design phase, it is intended to integrate additional landscape-based stormwater management solutions. These may include permeable landscaped areas and integrated planter boxes designed to provide supplementary detention and retention capacity.

The OSD tank will discharge to an existing Council stormwater pit located on Kent Street. Given the approximate 250-metre distance between the kerb inlet pit at the front of the property and the proposed point of connection, a new network of stormwater pits and pipes along with upgrading part of the existing Council pit and pipe network is proposed to facilitate this connection.

The post-development discharge from the site has been restricted to the pre-development runoff in the “state of nature” condition for the 20%, 10%, 5%, 2% and 1% AEP storm events, in accordance with Council requirements (Section 6.1.g. SMTS). An interim Climate Change Factor of 19.7%, based on RCP 8.5 projections for the year 2090, is adopted at this stage to post-development storm events. The latest Australian Rainfall and Runoff (ARR) climate change guidance will be implemented during the detailed design stage.

High level hydrology and hydraulic analysis for the site was determined using a DRAINS (computer program for hydrological and hydraulic assessment) model. The hydrological parameters used in DRAINS are in accordance with Section 6.2 of Bayside Council Stormwater Management Technical Specification.

The intensity-frequency-duration (IFD) data for the site was extracted from the Australian Bureau of Meteorology and the ARR Data Hub.

The DRAINS model has been calibrated to ensure that the permissible site discharge does not exceed the pre-development flow rate for a fully grassed site, in accordance with Council requirements. The proposed on-site detention (OSD) volumes have been designed to account for future climate change impacts, incorporating the Representative Concentration Pathway (RCP) 8.5 scenario as recommended in Australian Rainfall and Runoff 2019 (ARR2019). Additionally, the design considers a high tailwater condition at the discharge point, with the tailwater level assumed to be equal to the grate level of the pit.

The proposed On-Site Detention (OSD) to collect runoff from following components:

- Roof areas, planters, and portions of landscaped areas will be connected to the OSD system and are assumed to be fully impervious for design purposes.
- Driveways and a portion of the landscaped area will bypass the OSD system and discharge directly to the downstream network. This bypassed area represents approximately 15% of the total site, in accordance with Council Guidelines.
- A total of 50 kL rainwater tank (comprising 10 kL per tower) is incorporated within a 600m³ OSD tank to support water reuse and detention objectives.
- A water quality chamber is considered within the OSD tank to ensure treatment of stormwater prior to discharge. The
- The proposed stormwater system, including the On-Site Detention (OSD) tank and the associated pit and pipe network connecting to the feasible Council pit, is illustrated in Figure 15 below.

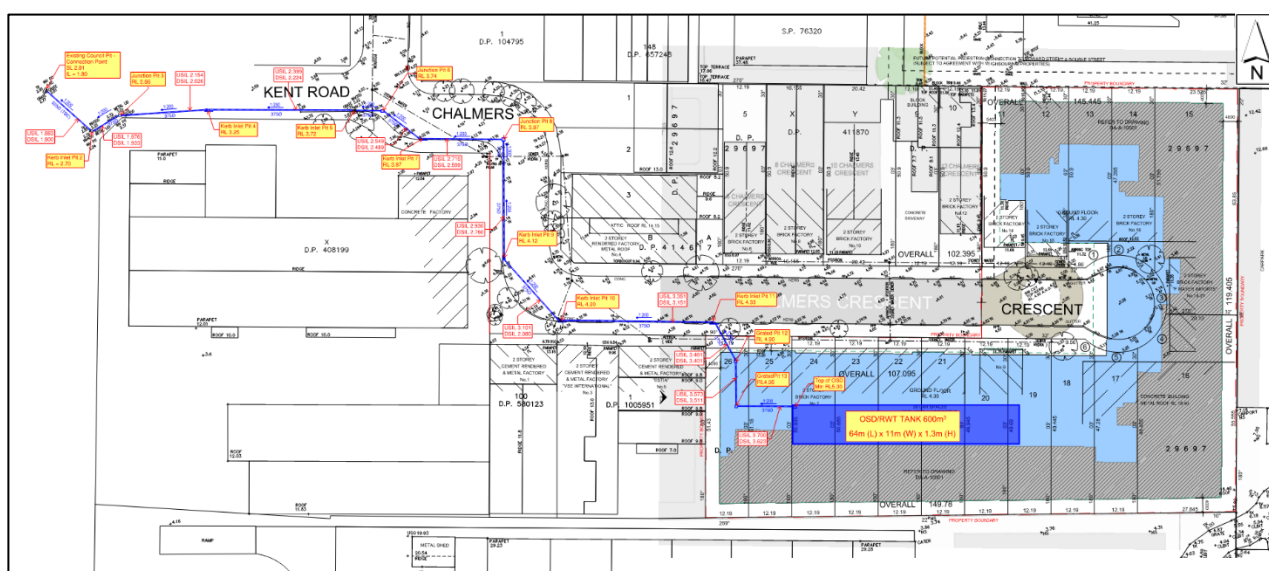


Figure 15: Proposed Stormwater plan

5.1.2 STORMWATER ANALYSIS AND DESIGN

The stormwater drainage system has been designed to connect 85% of the total site to the OSD system as mentioned before. The table below shows a high level modelling of the pre-development stormwater discharge rate in the state of nature (100% pervious) versus the post development discharge rates including OSD discharge rate and the bypass discharge rate for the 20%, 10%, 5%, 2% and 1% AEP storm events.

Table 1 Site Discharge Rate Comparison

AEP Storm Event	Pre-Development -State of Nature (L/s)	Post-Development - OSD & Bypass (L/s)
20%	316	188
10%	385	209
5%	455	227
2%	541	248
1%	612	258

As demonstrated above, the proposed stormwater management system will result in a substantial reduction in peak discharge rates from the site. It should be noted that tail water level is assumed at the surface level of the connection point.

The longitudinal sections of the proposed stormwater network is extending from the on-site detention (OSD) tank to the existing Council pit and, have been modelled for both the 5% and 1% Annual Exceedance Probability (AEP) storm events. Stormwater pipes Longitudinal sections along with the HGL are illustrated in Figure 16 and Figure 17, respectively.

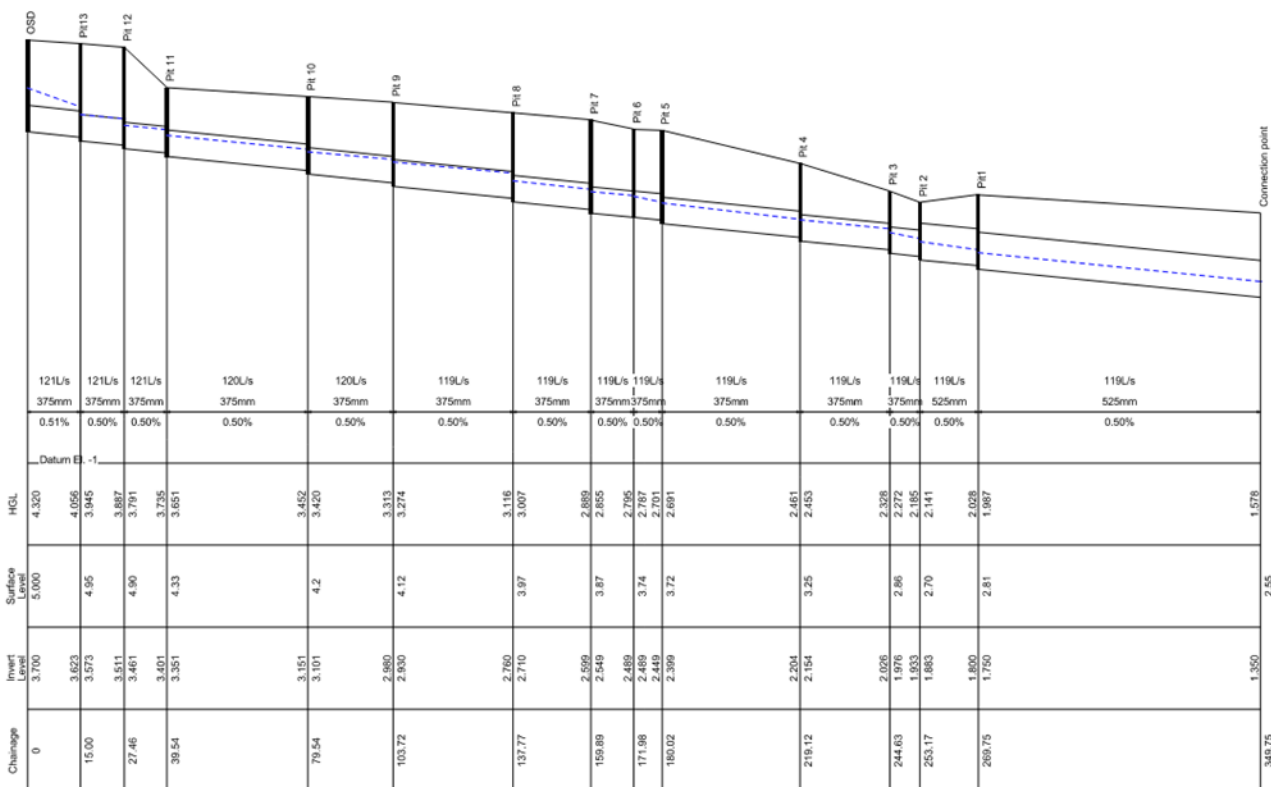


Figure 16: Longitudinal Section of Proposed Stormwater Pipeline – 5% AEP Event (Including Hydraulic Grade Line)

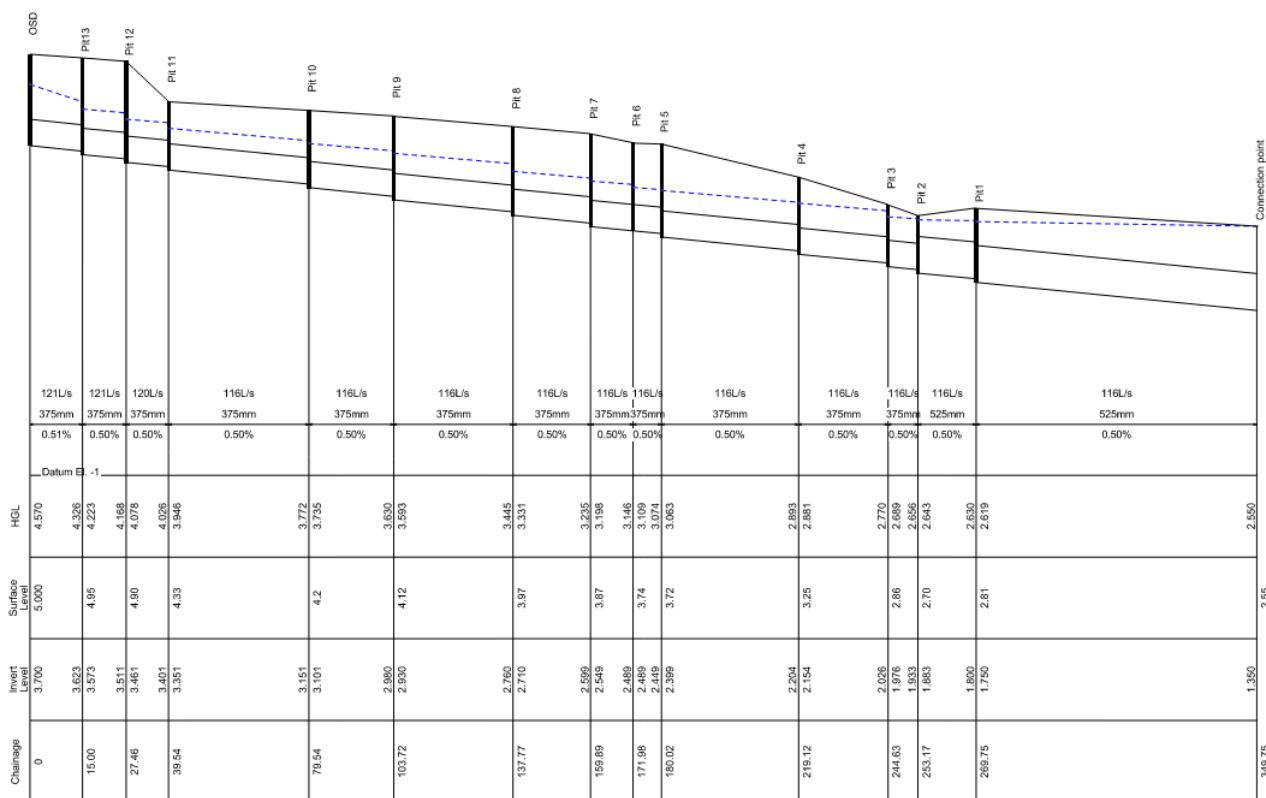


Figure 17: Longitudinal Section of Proposed Stormwater Pipeline – 1% AEP Event (Including Hydraulic Grade Line)

5.2 STORMWATER QUALITY REQUIREMENTS

Bayside Council Development Control Plans (DCP) requires all developments meet or exceed the requirements of the Botany Bay & Catchment Water Quality Improvement Plan. Further, Bayside DCP set targets for the reductions of water borne pollution being conveyed from the site to Council's stormwater drainage system and ultimately Botany Bay.

Stormwater pollution originates from several sources, atmospheric depositions, erosion, litter and debris, vehicle emissions and weathering of buildings. These pollutants can be categorised in a broadly as follows; gross pollutants (over 5mm in size), total suspended solids (1 to 5mm in size), phosphorous, nitrogen and oils, grease and hydrocarbons. For commercial developments (that do not involve the handling of oil, grease and hydrocarbons), the key pollutants that are measured and thus pollution reduction targets set are as follows:

- Reduction of Mean Annual Load of Gross Pollutants – 90% (greater than 5mm)
- Reduction of Mean Annual Load of Total Suspended Solids – 85%
- Reduction of Mean Annual Load of Total Phosphorous – 60%
- Reduction of Mean Annual Load of Total Nitrogen – 45%

The above reduction rates align with both Botany Bay & Catchment Water Quality Improvement Plan and Bayside Council DCP.

A preliminary water quality strategy for the site is described in Section below.

5.3 STORMWATER QUALITY STRATEGY

The preliminary water quality model for the site was established using Model for Urban Stormwater Improvement Conceptualisation or MUSIC for short (Version 6.3). Additional stormwater treatment devices have been incorporated into the design to improve the water quality to meet the council water quality targets. These devices include rainwater reuse tanks, 8 litter baskets and 30 (690mm High) Psorb stormfilters. The schematisation of the model is shown in Figure 18 below, and the results are shown in Figure 19 below.

Details of Stormwater Quality Improvement Devices (SQID) are described in detail in Section 5.3.1 below. The inclusion of a 10kL rainwater tank for each tower is based on council request on RFI letter DA-2024/56 dated on July 2024.

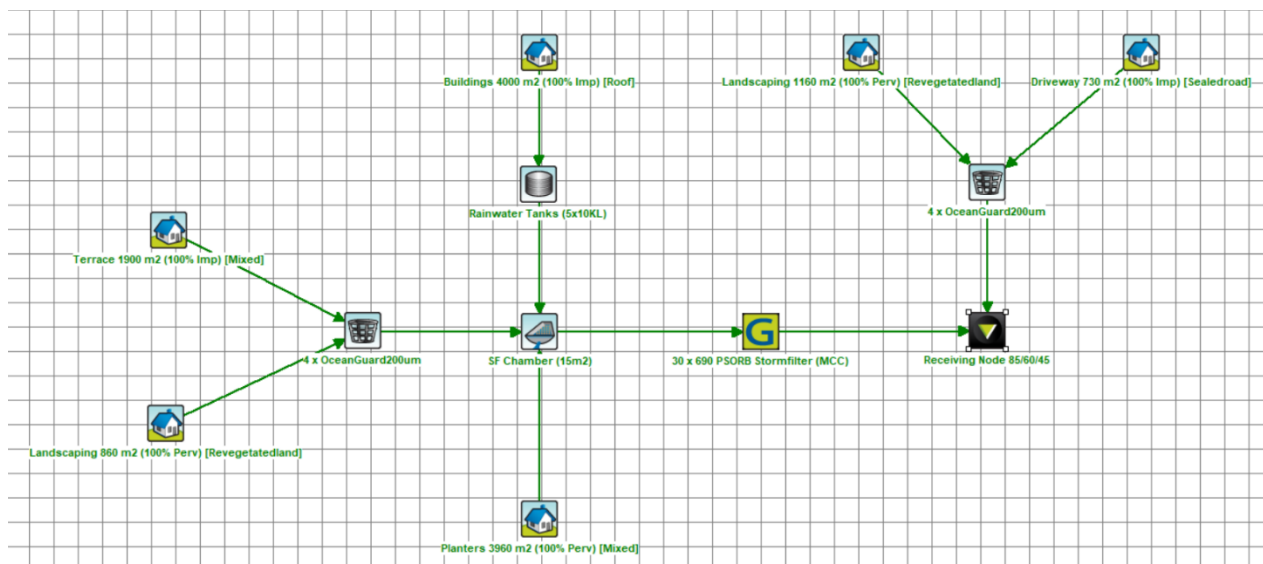


Figure 18 – MUSIC Model

Treatment Train Effectiveness - Receiving Node 85/60/45			
	Sources	Residual Load	% Reduction
Flow (ML/yr)	10.6	9.02	14.7
Total Suspended Solids (kg/yr)	1170	157	86.6
Total Phosphorus (kg/yr)	2.86	0.844	70.5
Total Nitrogen (kg/yr)	24.8	10.9	56.2
Gross Pollutants (kg/yr)	185	0	100

Figure 19 – MUSIC Model Results

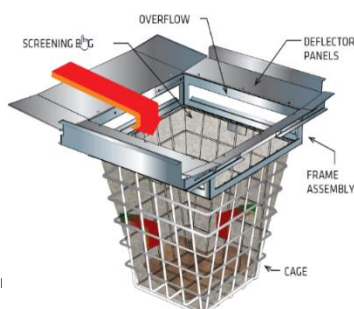
5.3.1 STORMWATER TREATMENT SYSTEMS

RAINWATER REUSE

Rainwater reuse as part of a treatment train is an effective and efficient way to reduce total pollutant runoff. The rainwater can be used for irrigation (nutrient absorption by vegetation), toilet flushing (drains to sewer) and other non-potable uses within the development.

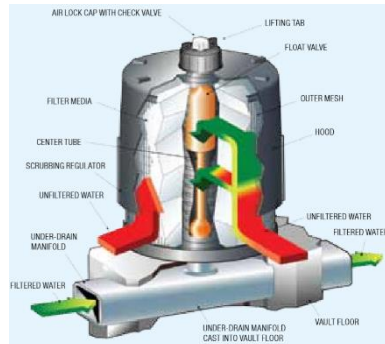
EnviroPods (inlet pit Litter baskets)

EnviroPods (or other similar approved equivalents) provide effective removal of TSS and gross pollutants. EnviroPods is a filter cage system which are inserted into inlet pits to filter and remove gross pollutants before the water enters the piped drainage system. It is proposed to place EnviroPod filters within every stormwater inlet pit on site. These are cheap to install and easy to maintain.



STORMFILTER

Stormfilter (or other similar approved equivalents) provide effective removal of TSS, Phosphorous and Nitrogen. Stormfilters are generally installed in specially filter water quality chambers generally within an on-site detention tank prior to discharge.



OIL/WATER SEPARATOR

In accordance with Section 3.6.1 of the Council's Stormwater Management Technical Specification, developments that propose 10 or more car parking spaces shall provide a minimum oil storage capacity of 20 litres per 10 car spaces. To comply with this requirement, the proposed stormwater treatment system will incorporate an oil baffle mechanism, as advised by the manufacturer (refer to Attachment C). The oil baffle will ensure effective separation and containment of oil residues within the treatment system. The required oil storage volume will be integrated into the total volume of the water quality treatment chamber, ensuring compliance with Council standards and maintaining system efficiency.

6 CONCLUSION

The stormwater strategy for the proposed masterplan development at Chalmers Crescent generally demonstrates compliance with the relevant requirements outlined in the Bayside Council Development Control Plans and Technical Specifications, including the Stormwater Management Technical Guidelines, Australian Rainfall and Runoff (2019), NSW Floodplain Development Manual (2023), and AS 3500.3: Plumbing and Drainage (2021).

The proposed stormwater management strategy provides a compliant solution that addresses both hydraulic performance and water quality objectives. The site discharge rate is limited to the pre-development state-of-nature condition. Due to the absence of a Council stormwater pit in close proximity to the site and the invert level constraints, a new network of pits and pipes has been designed to connect to the nearest feasible Council pit.

A high-level hydraulic and hydrologic assessment was undertaken using DRAINS, confirming that the proposed system satisfies the requirements of Section 6 of the Stormwater Management Technical Specification. The Hydraulic model is used to size the OSD tank with a total volume of 600m³ (including Rainwater Tank) considering the Council requirement to limit the discharge flow from the site to the State of the Nature for all storm event up to and including 1% AEP event.

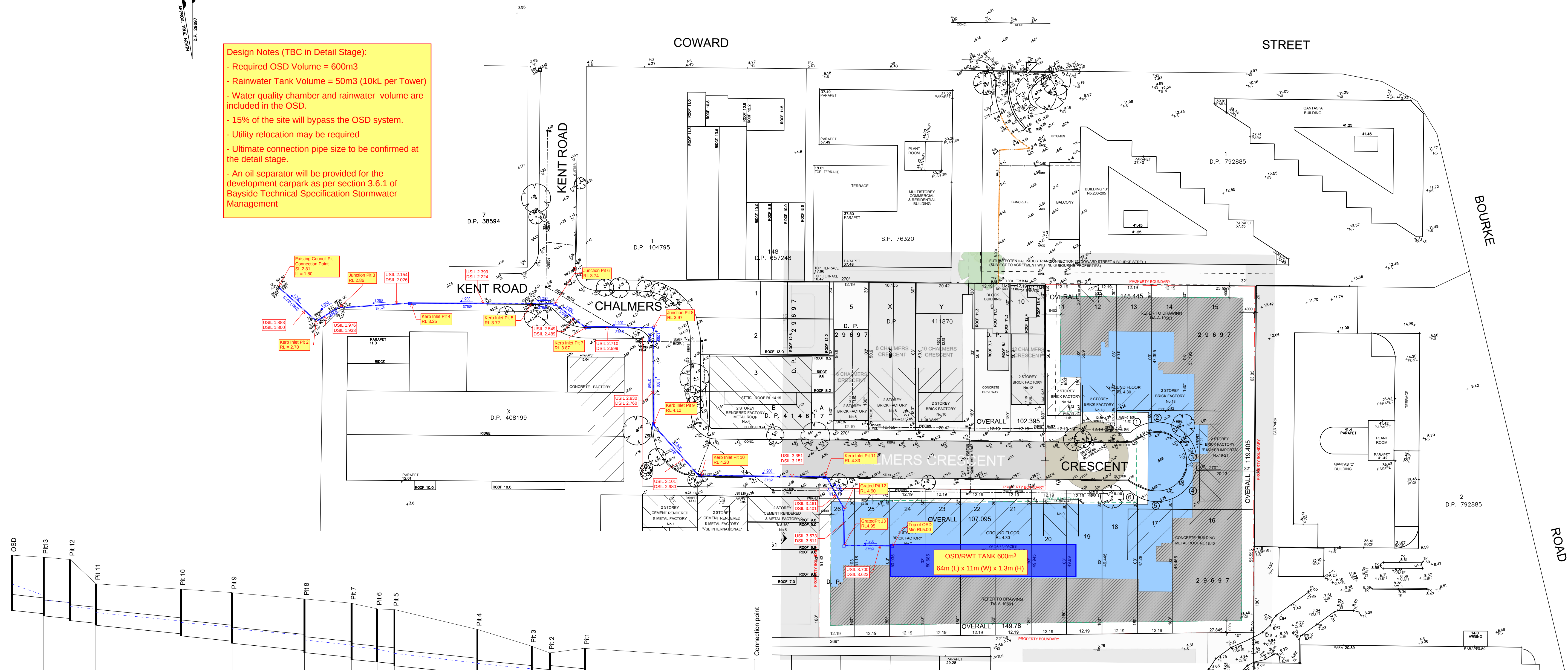
Water quality modelling was carried out using MUSIC (Version 6.3), incorporating a range of Stormwater Quality Improvement Devices (SQIDs), including rainwater reuse tanks (10 kL per tower), 8 litter baskets, and 30 (690mm high) Psorb Stormfilters. An oil separator will need to be considered for the development carpark as per section 3.6.1 of Bayside Technical Specification Stormwater Management. These devices have been selected to meet Council's water quality targets. The modelling results confirm that the proposed system effectively treats stormwater runoff prior to discharge, supporting both environmental performance and regulatory compliance.

APPENDIX A

STORMWATER MANAGEMENT SKETCHES



- Design Notes (TBC in Detail Stage):
- Required OSD Volume = 600m³
 - Rainwater Tank Volume = 50m³ (10kL per Tower)
 - Water quality chamber and rainwater volume are included in the OSD.
 - 15% of the site bypass the OSD system.
 - Utility relocation may be required
 - Ultimate connection pipe size to be confirmed at the detail stage.
 - An oil separator will be provided for the development carpark as per section 3.6.1 of Bayside Technical Specification Stormwater Management



OSD TO COUNCIL PIT LONG SECTION _ 5% AEP STORM EVENT

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SCALE	NTS	CHECKED	SD	
SHEET SIZE	A1	APPROVED	EB	
PROJECT	PS210815_Masterplan_Stage 1_ 7-9, 14-18 and 19-21 Chalmers Crescent, Mascot			TITLE
CLIENT				CIVIL SKETCH - CONNECTION TO THE COUNCIL NETWORK
PROJECT NO.		DRAWING NO.		REVISION
				02

APPENDIX B

COUNCIL CORRESPONDENCE

Doroudi, Shima

From: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Sent: Monday, 13 October 2025 11:52 AM
To: Bahram, Ehsan
Cc: Novak, Steve; Marta Gonzalez-Valdes; Michael Neustein; Atef Syed
Subject: RE: RE: PS210815_Chalmers Crescent_Stormwater_Connection to Council Pits [Filed 15 Oct 2025 19:44]
Attachments: PS210815_Masterplan_Connection to The Council Network_Rev. 01_20251009.pdf

Hi Ehsan,

Please include this assessment along with a preliminary longitudinal section/HGL of the pipeline in the amended stormwater report.

The amended stormwater report needs to also include preliminary DRAINS and MUSIC modelling demonstrating that the requirements of section 6 and section 7 of Bayside Technical Specification Stormwater Management will be met by the development with reference to the OSD and WSUD design. As an WSUD ESD measure, each tower should have a 10,000L rainwater tank connected for re-use.

Please also provide preliminary drainage design details schematic (indicating indicative volume and location of OSD tanks) and ensure the tanks do not conflict with landscape tree planting.



Christopher Thompson
Development Engineer
444-446 Princes Highway, Rockdale NSW 2216
T 9562 1645
E Christopher.Thompson@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

Bayside Council acknowledges the Bidjigal Clan, the traditional owners of the land on which we meet and work, and acknowledges the Gadigal people of the Eora Nation. Bayside Council pays respects to Elders past and present.



Project Planet

Saturday 18 October 2025
11am – 6:30pm
Cahill Park, Wolli Creek



From: Bahram, Ehsan <Ehsan.Bahram@wsp.com>
Sent: Monday, 13 October 2025 9:06 AM
To: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Cc: Novak, Steve <Steve.Novak@wsp.com>; Marta Gonzalez-Valdes <Marta.Gonzalez-Valdes@bayside.nsw.gov.au>; Michael Neustein <michaeln@cityplanningworks.com.au>; Atef Syed <Atef.Syed@bayside.nsw.gov.au>
Subject: CM: RE: PS210815_Chalmers Crescent_Stormwater_Connection to Council Pits

Some people who received this message don't often get email from ehsan.bahram@wsp.com. [Learn why this is important](#)

Hi Chris,

No problem. Michael has kindly organised the survey and we have mark it up as per the attached.

There needs to be almost 240m of pipe replacement and 11 new (including existing pits upgrade) as per the sketch attached. Please advise if you require additional information

Please let me know if you agree with this in principle so I can update and resubmit the stormwater report.

I will call you to discuss.

Thank you.

Cheers,

Ehsan

Ehsan Bahram

Associate - Civil

T +61 2 8925 6747

M +61 406 335 219

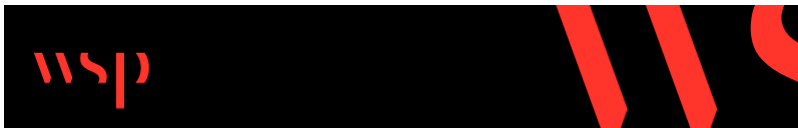
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From: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>

Sent: Wednesday, 1 October 2025 9:44 AM

To: Bahram, Ehsan <Ehsan.Bahram@wsp.com>

Cc: Novak, Steve <Steve.Novak@wsp.com>; Marta Gonzalez-Valdes <Marta.Gonzalez-Valdes@bayside.nsw.gov.au>; Michael Neustein <michaeln@cityplanningworks.com.au>; Atef Syed <Atef.Syed@bayside.nsw.gov.au>

Subject: RE: PS210815_Chalmers Crescent_Stormwater_Connection to Council Pits

Hi Ehsan,

We don't have those invert levels on our system; you will need to engage a registered surveyor to determine the levels.



Christopher Thompson

Development Engineer

444-446 Princes Highway, Rockdale NSW 2216

T 9562 1645

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From: Bahram, Ehsan <Ehsan.Bahram@wsp.com>

Sent: Tuesday, 30 September 2025 8:05 PM

To: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>

Cc: Novak, Steve <Steve.Novak@wsp.com>; Marta Gonzalez-Valdes <Marta.Gonzalez-Valdes@bayside.nsw.gov.au>; Michael Neustein <michaeln@cityplanningworks.com.au>; Atef Syed <Atef.Syed@bayside.nsw.gov.au>
Subject: RE: PS210815_Chalmers Crescent_Stormwater_Connection to Council Pits

Hi Chris,

We need the existing pit invert as per the snap shot below and the sketch attached, could Council please provide us with the invert levels of these existing pits if this information is available to Council.

Thank you.

Ehsan

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From: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Sent: Wednesday, 17 September 2025 1:41 PM
To: Bahram, Ehsan <Ehsan.Bahram@wsp.com>
Cc: Marta Gonzalez-Valdes <Marta.Gonzalez-Valdes@bayside.nsw.gov.au>; Michael Neustein <michaeln@cityplanningworks.com.au>; Novak, Steve <Steve.Novak@wsp.com>; Harvey, Ross <Ross.Harvey@wsp.com>; Babaee, Mahdi <Mahdi.Babaee@wsp.com>; Atef Syed <Atef.Syed@bayside.nsw.gov.au>
Subject: RE: PS210815_Chalmers Crescent_Stormwater

Hi Ehsan,

See my response in **red** below.



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Development Engineer
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From: Bahram, Ehsan <Ehsan.Bahram@wsp.com>
Sent: Wednesday, 17 September 2025 1:31 PM
To: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Cc: Marta Gonzalez-Valdes <Marta.Gonzalez-Valdes@bayside.nsw.gov.au>; Michael Neustein <michaeln@cityplanningworks.com.au>; Novak, Steve <Steve.Novak@wsp.com>; Harvey, Ross <Ross.Harvey@wsp.com>; Babaee, Mahdi <Mahdi.Babaee@wsp.com>; Atef Syed <Atef.Syed@bayside.nsw.gov.au>
Subject: RE: PS210815_Chalmers Crescent_Stormwater

You don't often get email from ehsan.bahram@wsp.com. [Learn why this is important](#)

Hi Chris,

Thanks for the prompt response.

Please note this is a consolidation of a number of lots with an area of 1.2ha. It is neither practical nor reasonable to have only one discharge outlet for the whole development.

It was never advised that it needs to be one outlet for the whole development. I said the technical specification requires the combined discharge of all outlets to be less than 50l/s, which isn't complied with. Your proposal as a combined discharge of all outlets of 250 l/s, so a kerb connection is not supported.

We have identified at least 10 existing kerb outlets (please see attached PDF) for the existing properties. While we are reducing the outlets to 5, we have kept a controlled flow of less than 50 l/s for each kerb outlet for all storm events up to and including 1%AEP.

Please see below table of the result of the high level modelling for reduction in flows for the pre and post development scenario.

AEP Storm Event	Pre-Development (State of Nature) (L/s)	Total Post-Development (With OSD Tank) (L/s)	Discharge Per Each K Outlet (L/s)
20%	315	170	34
10%	385	200	40
5%	455	210	42
2%	540	230	46
1%	610	250	50

If Council please considers above.

With respect to the direct connection to Councils pits and pipe network with upgraded pit and pipe system (in line with previously approved plans), Council advised us this would not be an acceptable option in mid 2024. **This was never advised, however due to the flat topography of the area there would need to be downstream investigations of existing levels to understand what is required to extend the drainage line to the site frontage.** If it is an acceptable option, it is an alternative that can be investigated at the next stage DA. **The matter needs to be resolved prior to determination.**

Thanks in advance and happy to discuss further.

Cheers,

Ehsan

Ehsan Bahram

Associate - Civil

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From: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Sent: Tuesday, 16 September 2025 1:39 PM
To: Bahram, Ehsan <Ehsan.Bahram@wsp.com>
Cc: Marta Gonzalez-Valdes <Marta.Gonzalez-Valdes@bayside.nsw.gov.au>; Michael Neustein <michaeln@cityplanningworks.com.au>; Novak, Steve <Steve.Novak@wsp.com>; Harvey, Ross <Ross.Harvey@wsp.com>; Babaee, Mahdi <Mahdi.Babaee@wsp.com>; Atef Syed <Atef.Syed@bayside.nsw.gov.au>
Subject: RE: PS210815_Chalmers Crescent_Stormwater [Filed 17 Sep 2025 12:31]

Hi Ehsan,

For a connection to the kerb and gutter to be permitted, the combined discharge of all outlets needs to be less than 50 l/s in the 1% AEP storm event, not 50l/s for each outlet.

See below extract from the technical specification:

Bayside Te
Storr

3.2.3 Kerb and Gutter Connections

Connection to the kerb and gutter must be within 15 m of the property boundary and the discharge less than 50 l/s for the combined discharge of the entire development site for the 1% AEP storm event. If discharges greater than 50 l/s, the connection must be made to an underground stormwater system. If multiple conduits are required across the footpath, the conduits shall be separated by a minimum of 150 mm from the kerb and provide a 150 mm gap at each end to ensure an integral concrete unit. The ne

In this instance an underground connection is required which requires a drainage extension from the existing drainage in Kent Road to the site frontage.



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From: Bahram, Ehsan <Ehsan.Bahram@wsp.com>
Sent: Tuesday, 16 September 2025 12:42 PM
To: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Cc: Marta Gonzalez-Valdes <Marta.Gonzalez-Valdes@bayside.nsw.gov.au>; Michael Neustein

<michaeln@cityplanningworks.com.au>; Novak, Steve <Steve.Novak@wsp.com>; Harvey, Ross <Ross.Harvey@wsp.com>; Babaee, Mahdi <Mahdi.Babaee@wsp.com>

Subject: PS210815_Chalmers Crescent_Stormwater

Some people who received this message don't often get email from ehsan.bahram@wsp.com. [Learn why this is important](#)

Hi Chris,

Thanks for the call and thanks for your time over the phone.

As discussed, Please find the stormwater sketch for your review.

We are intending to attenuate the flow in accordance with Bayside Council DCP incorporating below:

- 5 OSD Tanks (10KL RWT also included)
- Planter Box acting as onsite detention with maximum 300mm ponding
- On ground Landscape strip area acting as onsite detention with maximum 300mm ponding

Discharge points are limited to 5 kerb outlets for now and we have limited the discharge rate to less than 50l/s per outlet.

Please let me know if you have any comments or require any further details or if you want to discuss this further.

Thanks in advance

Cheers,

Ehsan

Ehsan Bahram

Associate - Civil

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M +61 406 335 219

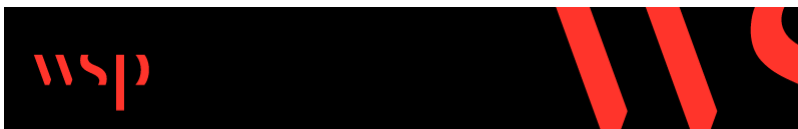
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-LAEmHhHzdJzBITWfa4Hgs7pbKI

Doroudi, Shima

From: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Sent: Friday, 17 October 2025 12:05 PM
To: Michael Neustein
Cc: Marta Gonzalez-Valdes; Felicity Eberhart; Bahram, Ehsan; Novak, Steve; Eleni Danias | City Planning Works; Tony Staveley (tony@balancegroup.com.au)
Subject: RE: 7-21 Chalmers Cres, Mascot concept DA - Stormwater report
Attachments: CM: RE: RE: PS210815_Chalmers Crescent_Stormwater_Connection to Council Pits; Stormwater Management Report - 7-9 & 14-18 Chalmers Crescent and R 8040 Chalmers Crescent, Mascot - The Trustee for F Mayer Imports Superannuation Plan.PDF

Hi Michael,

I have provided you with clear advice on what is required and held your application to the same standard as other Concept DA's. I don't see why this development should be treated any differently.

In my opinion this is a simple task to prepare a final amended stormwater management report for the Concept DA addressing the method of discharge (OSD draining into a new underground stormwater system in the road) and the requirements of Bayside Technical Specification Stormwater management.

The items I have requested were already provided in the original stormwater management report however, as an infiltration system has been ruled out this report is now entirely incorrect. This report needs to be revised to remove reference to the infiltration system, entirely re-do the MUSIC modelling and provide indicative DRAINS modelling of the OSD volume including an indicative location. Sections 2.3 and section 2.5 and Appendix A of the attached report need to be updated. A diagram of the underground drainage extension is also required to be submitted with the report along with the results of the geotechnical testing.

Please note I'm not asking for a full detailed design however the proponent needs to put in the required work demonstrating how they will comply with the legislative requirements. Please also note that the documents approved in the Concept DA will set the parameters for the future detailed design DA.

By undertaking the requested changes, this will allow me to be satisfied that section 6.3 of the Bayside LEP has been addressed by the Concept DA which I have copied out below for you.

6.3 Stormwater and water sensitive urban design

- (1) The objective of this clause is to avoid or minimise the adverse impacts of urban stormwater on the land on which development is to be carried out, native bushland, waterways, receiving waters and groundwater systems.
- (2) Before granting development consent to development on any land to which this Plan applies, the consent authority must be satisfied that:
 - (a) water sensitive urban design principles are incorporated into the design of the development, and
 - (b) riparian, stormwater and flooding measures are integrated as part of the development, and
 - (c) the stormwater management system includes all reasonable management actions to avoid adverse impacts on the land to which the development relates, adjoining properties, native bushland, waterways, receiving waters and groundwater systems, and
 - (d) if a potential adverse environmental impact cannot be feasibly avoided, the development minimises and mitigates the adverse impacts on adjoining properties, native bushland, waterways receiving waters and groundwater systems, and
 - (e) the development is designed to maximise the use of water permeable surfaces on the site having regard to the soil characteristics and the water.
- (3) For the purposes of subclause (2)(a), the *water sensitive urban design principles* are—
 - (a) protection and enhancement of water quality, by improving the quality of stormwater runoff from urban catchments,
 - (b) minimisation of harmful impacts of urban development on water balance and on surface and groundwater flow regimes,
 - (c) integration of stormwater management systems into the landscape in a manner that provides multiple benefits, including water quality improvement, retention and detention, public open space and recreational and visual amenity,
 - (d) retention, where practical, of on-site stormwater for use as an alternative supply to mains water, groundwater or river water.



Christopher Thompson
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Project Planet

Saturday 18 October 2025
11am – 6:30pm
Cahill Park, Wolli Creek



From: Michael Neustein <michaeln@cityplanningworks.com.au>

Sent: Friday, 17 October 2025 11:03 AM

To: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>

Cc: Marta Gonzalez-Valdes <Marta.Gonzalez-Valdes@bayside.nsw.gov.au>; Felicity Eberhart <Felicity.Eberhart@bayside.nsw.gov.au>; Bahram, Ehsan <Ehsan.Bahram@wsp.com>; Novak, Steve <steve.novak@wsp.com>; Eleni Danias | City Planning Works <elenid@cityplanningworks.com.au>; Tony Staveley (tony@balancegroup.com.au) <tony@balancegroup.com.au>

Subject: 7-21 Chalmers Cres, Mascot concept DA - Stormwater report

Good afternoon Chris

We reply to your email of Monday, 13 October which responded to a preliminary report on the connection stormwater coming from the subject site to Council's stormwater system.

May we remind you that this is a concept DA and that details such as those you required in your email are more appropriately to be provided as part of the next stage DA.

In order to approve the project, the regional panel only needs to know that stormwater disposal from the site is feasible. No details are required and no plans, eg longitudinal section of pipe, will be part of the approval package. As you are aware, the site, which is roofed to 90% of its area, drains to the street gutter at various points along Chalmers Crescent. The proposal has a reduced roof area of about 85%. We have found that absorption is not an option and you have ruled out drainage to the kerb in earlier discussions. Accordingly, our civil engineering experts have proposed a piped system discharging to a rebuilt pit about 240m west of the site.

Is it your position that such a solution is not capable of being designed to meet Council's technical guidelines? If so, could you assist us by identifying what you see as the problems. If a system is feasible, surely all that needs to be done is for Council to impose a condition of consent requiring compliance of the stormwater concept with Council's technical guidelines.

May we also direct you to comments made by the chairman at the last regional panel meeting in which he recommended Council endeavour to meet the applicant part way and not require levels of detail design more appropriate to the full DA which will be required before the project can proceed.

M

Michael Neustein

BArch MCom LFRAIA HonFAIUS RPIA(Fellow) FAPI FIML ARB Reg No 3358

Director, CITY PLANNING WORKS

Chairman, AUSTRALIAN INSTITUTE OF URBAN STUDIES (NSW DIVISION)

Co-author, Proposed NSW Better Places Act

Please note that I am not available on Fridays



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Chalmers Crescent Mascot

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APPENDIX C

OIL-WATER SEPARATOR MANUFACTURER CORRESPONDENCE

Doroudi, Shima

From: Amna Arif <amnaa@oceanprotect.com.au>
Sent: Wednesday, 22 October 2025 12:44 PM
To: Doroudi, Shima
Cc: Daniel Page
Subject: RE: 26779 - 18-21 Chalmers Crescent, Mascot - Confidential: Mascot Masterplaning_MUSIC Model
Attachments: BAYSIDE-SF-OSD-SD.dwg; BAYSIDE-SF-OSD-SD.pdf; 18-21 Chalmers Crescent Mascot.sqz; 24754-2C-SF-DET-TANK-460-1A.dwg; 24754-2C-SF-DET-TANK-460-1A.pdf

Hi Shima,

Thank you for your call earlier this morning.

As discussed, Bayside Council has approved the implementation of an oil baffle in the stormwater design in lieu of an oil separator in the basement.

For the volume calculation of hydrocarbons, you may calculate the volume from the top of the TWL to the base of the oil baffle, as this represents the total hydrocarbons captured by the baffle wall. I assume this will exceed the required volume in any case. Additionally, all hydrocarbons retained by the baffle wall are subsequently treated through the StormFilter cartridges. Unlike other oil and sediment removal devices, which only detain hydrocarbons; the StormFilter cartridges provides treatment to a certain extent too, hence why volume calculation for hydrocarbons would be unnecessary in this case.

Generally, Council does not require submission of detailed calculations, so you may submit the specification drawings instead. However, if you prefer, you can refer to Section 11.16 – **Hydrocarbons and Oils** in the **WSUD Developer Handbook for Blacktown** to guide your calculation of the oil baffle dimensions. Since the Bayside Council DCP does not specify a method, you are free to adopt whichever approach you find most suitable.

Also, I am attaching project specific drawings where oil baffle was provided within Bayside council. If you have any questions, feel free to ring me.

Is this the same project that Daniel was assisting with? (I have attached the model for reference.) Please let me know if you have any questions or concerns regarding the model he proposed last week, or if you need any further assistance from me to support you with this project.

Kind Regards,

Amna Arif
Specification Sales Engineer



IMPORTANT NOTICE:

Our Sydney Office has moved to Condell Park. Click [here](#) for more information.

Phone: 1300 354 722
Mobile: 0434 944 411
Email: amnaa@oceanprotect.com.au
Website: oceanprotect.com.au



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From: Doroudi, Shima <Shima.Doroudi@wsp.com>
Sent: Wednesday, 22 October 2025 10:39 AM
To: Amna Arif <amnaa@oceanprotect.com.au>
Subject: FW: Confidential: Mascot Masterplaning_MUSIC Model

You don't often get email from shima.doroudi@wsp.com. [Learn why this is important](#)

Hi Amna,

Thank you for your time on the phone. As discussed, please see the requirement from Bayside Council below.

Could you please advise on my response to the Council regarding this comment?

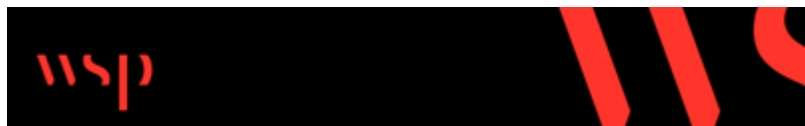
Regards,
Shima

Shima Doroudi
Project Engineer - Civil

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From: Doroudi, Shima
Sent: Wednesday, 13 August 2025 9:01 AM
To: Daniel Page <danielp@oceanprotect.com.au>
Subject: Mascot Masterplaning_Car park Oil/Water Separator [Filed 13 Aug 2025 09:01]

Hi Daniel,

We are proposing the installation of an oil/water separator to treat runoff from a multi-level car park (four levels) located within buildings. The total number of parking spaces and the associated catchment area are as follows:

Total number of parking spaces: 608

Total catchment area: 19,200 m²

Please refer to the below snapshot from Bayside Council detailing the car parking treatment requirements:

3.6.1 Oil/Sediment

Developments proposing 10 or more car parking spaces shall also incorporate into the drainage system a device capable of removing oil and sediment from the driveway and carpark stormwater run-off. The device shall be manufactured by a Quality Endorsed Company to the requirements of ISO 9001 and shall have a minimum oil storage capacity of 20 litres for every 10 car spaces proposed or part thereof. A cleaning and maintenance schedule is to be supplied with the Construction Certificate.

The Council mandates an oil retention capacity of 20 litres per 10 parking spaces. Accordingly, for 608 parking spaces, a minimum oil retention volume of 1,216 litres is required.

Could you please advise on the appropriate model and capacity of oil/water separator suitable for this project.

On another note, does OceanProtect offer any absorption or infiltration trench solutions?

Please let me know if further information is required.

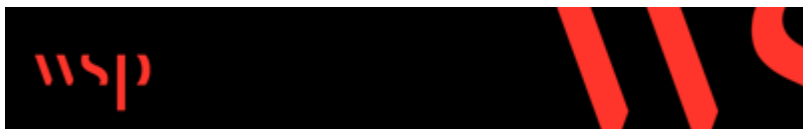
Regards,
Shima

Shima Doroudi
Project Engineer - Civil

T: +61289070983

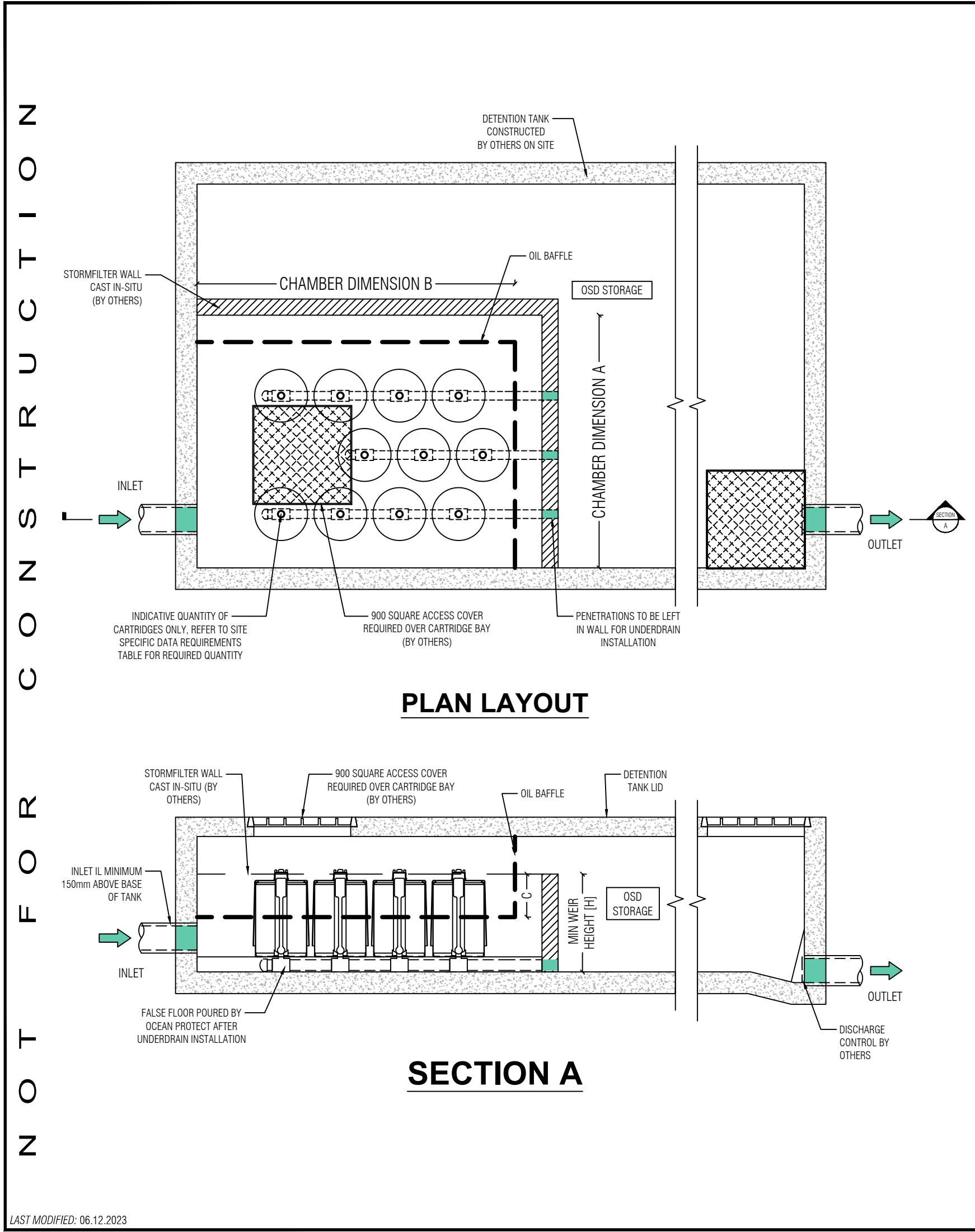
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STORMFILTER DESIGN TABLE

- STORMFILTER TREATMENT CAPACITY VARIES BY NUMBER OF FILTER CARTRIDGES INSTALLED.
- THE STANDARD CONFIGURATION IS SHOWN. ACTUAL CONFIGURATION OF THE SPECIFIED STRUCTURE(S) PER CERTIFYING ENGINEER WILL BE SHOWN ON SUBMITTAL DRAWING(S).
- FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF-CLEANING. RADIAL MEDIA DEPTH SHALL BE 178mm.
- OIL BAFFLE IS MANUFACTURED FROM ALUMINIUM. THE TOP OF BAFFLE MUST BE OVER THE TOP WATER LEVEL OR UP TO TANK CEILING.

CARTRIDGE NAME / SIPHON HEIGHT (mm)	690	460	310
CARTRIDGE PHYSICAL HEIGHT (mm)	840	600	600
MINIMUM WEIR HEIGHT* [H] (mm)	910	690	540
OIL BAFFLE OVERLAP DIMENSION [C] (mm)	400	300	200
CARTRIDGE FLOW RATE FOR ZPG MEDIA (L/s)	1.6	1.1	0.7
CARTRIDGE FLOW RATE FOR PSORB MEDIA (L/s)	0.9	0.46	0.39

* MINIMUM WEIR HEIGHT MAY BE REDUCED IN CERTAIN CIRCUMSTANCES. CONTACT OCEAN PROTECT FOR MORE INFORMATION.

The diagram shows a cross-section of a stormfilter cartridge. It is a cylindrical unit with a siphon tube extending from the bottom. Labels include: PHYSICAL HEIGHT, SIPHON HEIGHT, STORMFILTER CARTRIDGE FILTRATION UNIT, FALSE FLOOR, and PIT BASE.

STORMFILTER CARTRIDGE DETAIL

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	[]
NUMBER OF CARTRIDGES REQ'D	[]
SIPHON HEIGHT (310 / 460 / 690)	[]
MEDIA TYPE (ZPG / PSORB)	[]
WATER QUALITY FLOW RATE (L/S)	[]
DIMENSION A	[]
DIMENSION B	[]
TOTAL CARTRIDGE BAY AREA (A x B) TO MATCH AREA REQUIRED BY MUSIC MODELLING OR COUNCIL SPECIFIC REQUIREMENTS	

GENERAL NOTES

- INLET AND OUTLET PIPES TO BE IN ACCORDANCE WITH APPROVED PLANS.
- A HIGH FLOW BYPASS ARRANGEMENT OR DISSIPATION STRUCTURE MAY BE REQUIRED TO MINIMISE RE-SUSPENSION OF SOLIDS OR ANY SIGNIFICANT INERTIAL FORCES ON THE CARTRIDGES.
- ALL WATER QUALITY TREATMENT DEVICES REQUIRE PERIODIC MAINTENANCE. REFER TO OPERATION AND MAINTENANCE MANUAL FOR GUIDELINES AND ACCESS REQUIREMENTS.
- SITE SPECIFIC PRODUCTION DRAWING WILL BE PROVIDED ON PLACEMENT OF ORDER.
- THE INVERT LEVEL OF THE INLET PIPE MUST BE GREATER THAN THE RL OF THE FALSE FLOOR WITHIN THE CARTRIDGE CHAMBER.
- CONCRETE STRUCTURE AND ACCESS COVERS DESIGNED AND PROVIDED BY OTHERS. ACCESS COVERS TO BE A MINIMUM 900 X 900 ABOVE CARTRIDGES. OH&S REGARDING ACCESS COVERS AND TANK ACCESS TO BE ASSESSED BY OTHERS ON SITE.
- THE STRUCTURE THICKNESSES SHOWN ARE FOR REPRESENTATIONAL PURPOSES.
- DRAWINGS NOT TO SCALE.

INSTALLATION NOTES

- UNDERDRAIN AND FALSE FLOOR INSTALLED BY OCEAN PROTECT.

OCEAN PROTECT

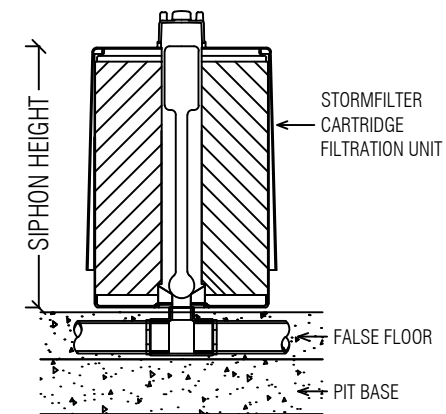
PHONE: 1300 354 722 www.oceanprotect.com.au

OCEAN PROTECT
STORMFILTER SYSTEM
DETENTION TANK ARRANGEMENT
BAYSIDE COUNCIL SPECIFICATION DRAWING

LAST MODIFIED: 06.12.2023

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	SF CHAMBER
NO. OF CARTRIDGES REQUIRED	2
SIPHON HEIGHT (mm)	460
MEDIA TYPE	PSORB
TREATMENT FLOW RATE (L/S)	0.92



**STORMFILTER
CARTRIDGE DETAIL**

GENERAL NOTES

1. INLET AND OUTLET PIPES TO BE IN ACCORDANCE WITH APPROVED PLANS.
2. ALL WATER QUALITY TREATMENT DEVICES REQUIRE PERIODIC MAINTENANCE. REFER TO OPERATION AND MAINTENANCE MANUAL FOR GUIDELINES AND ACCESS REQUIREMENTS.
3. ENTIRE STRUCTURE INCLUDING THE CARTRIDGE CHAMBER, ACCESS, AND SURROUNDING TANK TO BE DESIGNED AND CONSTRUCTED BY OTHERS. REFER TO CIVIL DRAWINGS.
4. THE INVERT LEVEL OF THE INLET PIPE MUST BE GREATER THAN THE RL OF THE FINISHED FALSE FLOOR WITHIN THE CARTRIDGE CHAMBER.
5. DRAWING NOT TO SCALE.



INSTALLATION NOTES

1. UNDERDRAIN AND FALSE FLOOR INSTALLED BY OCEAN PROTECT.

PRODUCTION DRAWING SIGN OFF

ALL DETAILS ON THIS PRODUCTION DRAWING HAVE BEEN REVIEWED AND MEET SITE SPECIFIC REQUIREMENTS. UPON RECEIPT OF SIGN-OFF, PRODUCTION WILL COMMENCE IN ACCORDANCE WITH THIS SITE SPECIFIC DRAWING. ALTERATIONS TO THE UNITS DESIGN AFTER RECEIPT OF SIGNED SITE SPECIFIC PRODUCTION DRAWING MAY INCUR ADDITIONAL CHARGES.

APPROVED BY	
SIGNATURE	
DATE	



PHONE: 1300 354 722

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24754 - 40 Fraser Dr BANORA POINT
2 CARTRIDGE STORMFILTER SYSTEM
STORMFILTER DETENTION TANK
SITE SPECIFIC PRODUCTION DRAWING

DATE: 28-02-2025

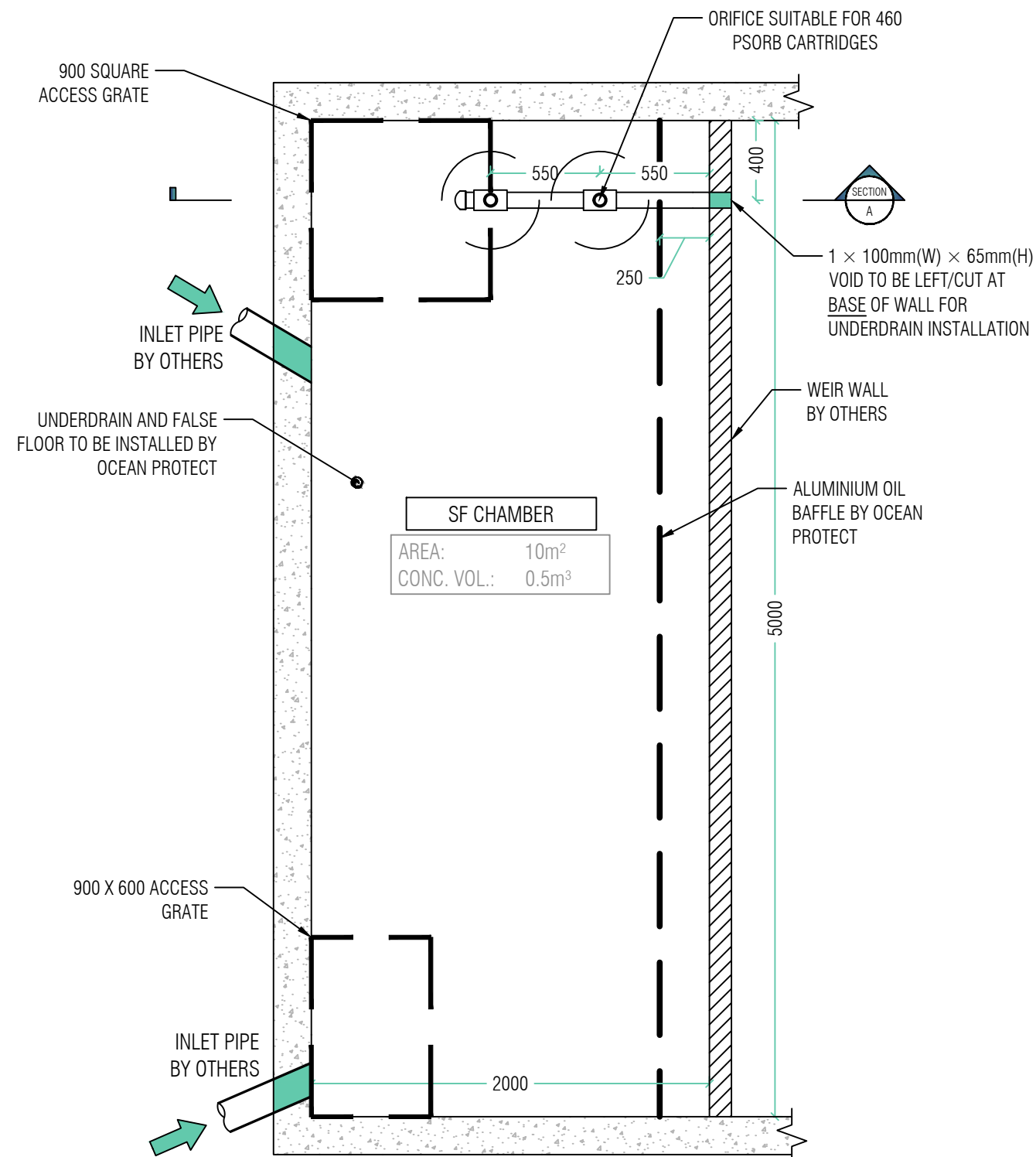
DRAWN: A.C.

CHECKED: J.G.

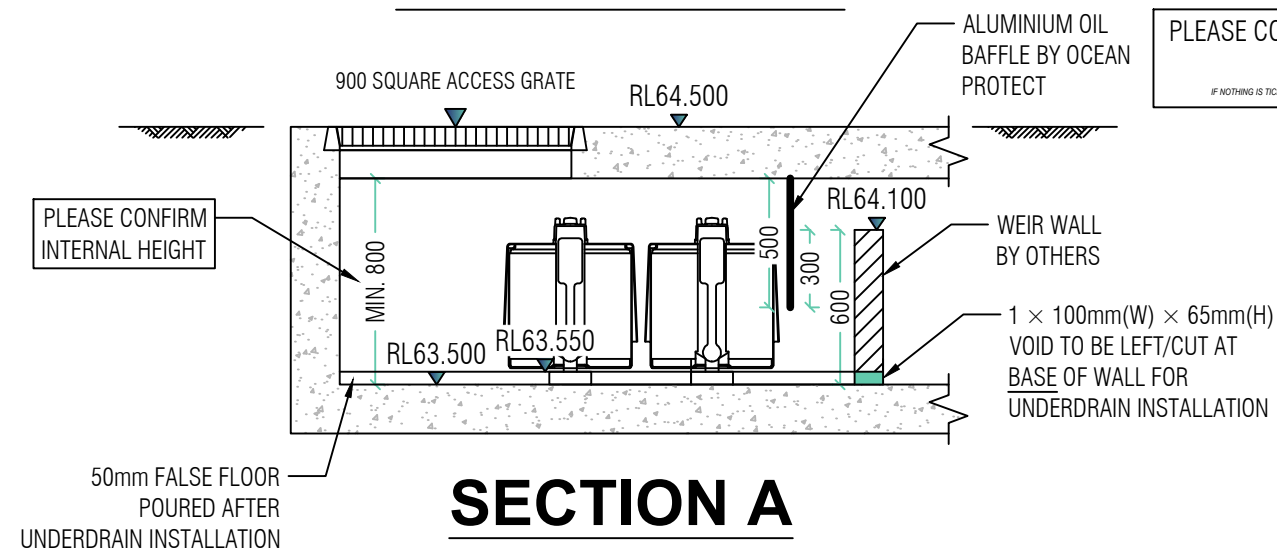
DRAWING

1

A



PLAN LAYOUT



SECTION A

PLEASE CONFIRM BAFFLE HEIGHT
☐ YES
IF NOTHING IS TICKED AND DRAWING IS SIGNED, YES WILL BE ASSUMED

PLEASE CONFIRM
INTERNAL HEIGHT

