



**ptc.**

11 November 2025

**16-24 Lord St & 21-  
27 Roseville Ave**  
**Hyecorp**  
**Integrated Water  
Management Report**

For: **Hyecorp**

Site Address: **16-24 Lord St & 21-27 Roseville Ave**

Document reference number: **24-1045**

# document control;

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2	14/03/2025	SSDA Issue	CT	SN
3	28/03/2025	SSDA Issue	CT	SN
4	1/04/2025	SSDA Issue	CT	SN
5	17/10/2025	SSDA Response to Submission	AL	SN
6	11/11/2025	SSDA Response to Submission	AL	SN

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## List of Abbreviations

Abbreviation	Full form
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
ARR	Australian Rainfall and Runoff Guide
BOM	Bureau of Meteorology
CBD	Central Business District
DCP	Development Control Plan
DP	Deposited Plan
LGA	Local Government Area
LiDAR	Light Detection and Ranging
m	Metres
mm	Millimetre
OSD	On-site Detention
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
PSD	Permitted Site Discharge
PSD	Permitted Site Discharge
SEARS	Secretary's Environmental Assessment Requirements
SDDA	State Significant Development Application

# 1. Executive Summary

This report has been updated in response to feedback received from the State Design Review Panel (SDRP) and the Department of Planning, Housing and Infrastructure (DPHI). Public exhibition of the application occurred between 1 and 28 May 2025. The proposed stormwater management strategy has been refined to minimise impacts on existing trees based on additional information provided by the project arborist base on tree root mapping.

This report has been prepared by **ptc.** to accompany a detailed State Significant Development Application (SSDA) for a residential development including infill affordable housing at 16-24 Lord Street and 21-27 Roseville Avenue, Roseville.

The site consists of 9 detached dwellings and has been consolidated into an area of approximately 0.94ha. The legal description of the site is outlined in Table 1.

Table 1 Legal Description of Project

Property Address	Title Description
<b>16-24 Lord Street &amp; 21-27 Roseville Avenue, Roseville, NSW 2069</b>	21 Roseville Avenue – Lot 9 DP1046734
	23 Roseville Avenue – Lot 66 Section B DP3277
	25 Roseville Avenue – Lot 65 Section B DP3277
	27 Roseville Avenue – Lot 64 Section B DP3277
	16 Lord Street – Lot 14 Section B DP3277
	18 Lord Street – Lot 15 Section B DP3277
	20 Lord Street – Lot 16 Section B DP3277
	22 Lord Street – Lot 17 Section B DP3277 & Lot 1 DP104781
	24 Lord Street – Lot 18 DP1173328.
<b>Project Site Area</b>	0.94ha

This report has been prepared to address the Secretary’s Environmental Assessment Requirements (SEARs) issued for the project (SSD-78996460).

This report concludes that the proposed development is suitable and warrants approval subject to the implementation of the following mitigation measures:

- OSD Tank (minimum size of 178m<sup>3</sup>) to attenuate peak flow discharging from site.
- Water Quality Treatment Measures
  - OceanProtect’s Ocean Guard litter baskets
  - Stormfilter Cartridges

- Vegetated Swale

## 2. Introduction

### 2.1. Overview of Proposed Development

The application seeks consent for the demolition of existing buildings, structures and selected trees on the site and development of 252 residential apartments with affordable housing and basement parking.

Specifically, the SSDA seeks development consent for:

- Demolition of existing buildings, structures and trees.
- Excavation and construction of a three-level basement.
- Construction of a residential flat building up to 9-storeys in height (RL120.45m) to provide 252 apartments including affordable housing, residential amenities and services.
- Provision of car parking spaces at basement level and bicycle parking.
- Provision of hard and soft landscaping.
- Associated works for the provision of infrastructure and servicing.

#### 2.1.1. Brief Description

The proposal is for the construction of an in-fill affordable housing residential development within 200m of Roseville train station.

#### 2.1.2. Detailed Description

- Construction of 252 residential apartments in buildings up to 9-storeys in height.
- Provision of 30,247.6m<sup>2</sup> GFA
- Provision of:
  - 29 no. 1-bedroom apartments
  - 112 no. 2-bedroom apartments
  - 101 no. 3-bedroom apartments
  - 10 no. 4-bedroom apartments
- Provision of 344 basement car parking spaces and bicycle parking.
- Provision of 17% affordable housing in a mix of units.
- Retention of existing significant trees and provision of landscape planting.
- Provision of central courtyard.

The purpose of the project is to deliver high quality market and affordable housing within convenient walking distance of Roseville Station.

This report has been prepared in response to the requirements contained within the Secretary’s Environmental Assessment Requirements (**SEARs**) dated 14 January 2025 and issued for the SSDA (SSD- 78996460). Specifically, this report has been prepared to respond to the SEARs requirement issued below.

Item	Description of Requirement	Section Reference (this Report)
<b>11. Water Management</b>	<ul style="list-style-type: none"> <li>Detail the proposed drainage design and servicing infrastructure to be incorporated as part of the development (stormwater and wastewater).</li> </ul>	Section 4
	<ul style="list-style-type: none"> <li>Demonstrate how the development complies with Council’s drainage requirements and identify proposed stormwater treatment and water quality management measures to minimise adverse environmental impacts.</li> </ul>	Section 4.2

## 3. Existing Site Conditions

### 3.1. Location

The site is located at 16-24 Lord Street and 21-27 Roseville Avenue, Roseville within the Ku-ring-gai Local Government Area. The site has a site area of 0.94ha and is legally described as:

- Lot 9 DP1046734
- Lot 66 Section B DP3277
- Lot 65 Section B DP3277
- Lot 64 Section B DP3277
- Lot 14 Section B DP3277
- Lot 15 Section B DP3277
- Lot 16 Section B DP3277
- Lot 17 Section B DP3277 & Lot 1 DP104781
- Lot 18 DP1173328.

The urban context surrounding the site is characterised by low-density residential development. The surrounding locality is described as:

- To the north of the site are low-density residential uses, beyond which is Roseville Park.
- To the east of the site are low-density residential uses as well as Roseville Presbyterian Church, beyond which is Roseville Public School.
- To the south of the site are low-density residential uses, beyond which is Roseville College, Bancroft Park and Roseville Lawn Tennis Club.
- To the west of the site are low and medium residential uses including three storey walk up flat buildings, beyond which is Roseville Local Centre (Hill Street Precinct) which accommodates a mixture of local scale commercial, retail and health care facilities as well as Roseville train station.

The site is situated within convenient walk distance of Roseville Railway Station (200m), with existing pedestrian access to the station available from Roseville Avenue and Lord Street. Regular, train services are available to North Sydney, Chatswood and Sydney CBD to the south, and Hornsby to the north with a direct connection to the Sydney Metro available at Chatswood Station. Bus services are also available on Pacific Highway providing services to Chatswood and Sydney CBDs and the wider Kur-ring gai locality.

The existing development consists of 9 detached residential dwellings. There are several large trees and vegetation located throughout the site.



Figure 1 Site Aerial  
Source: Urbis, 2025

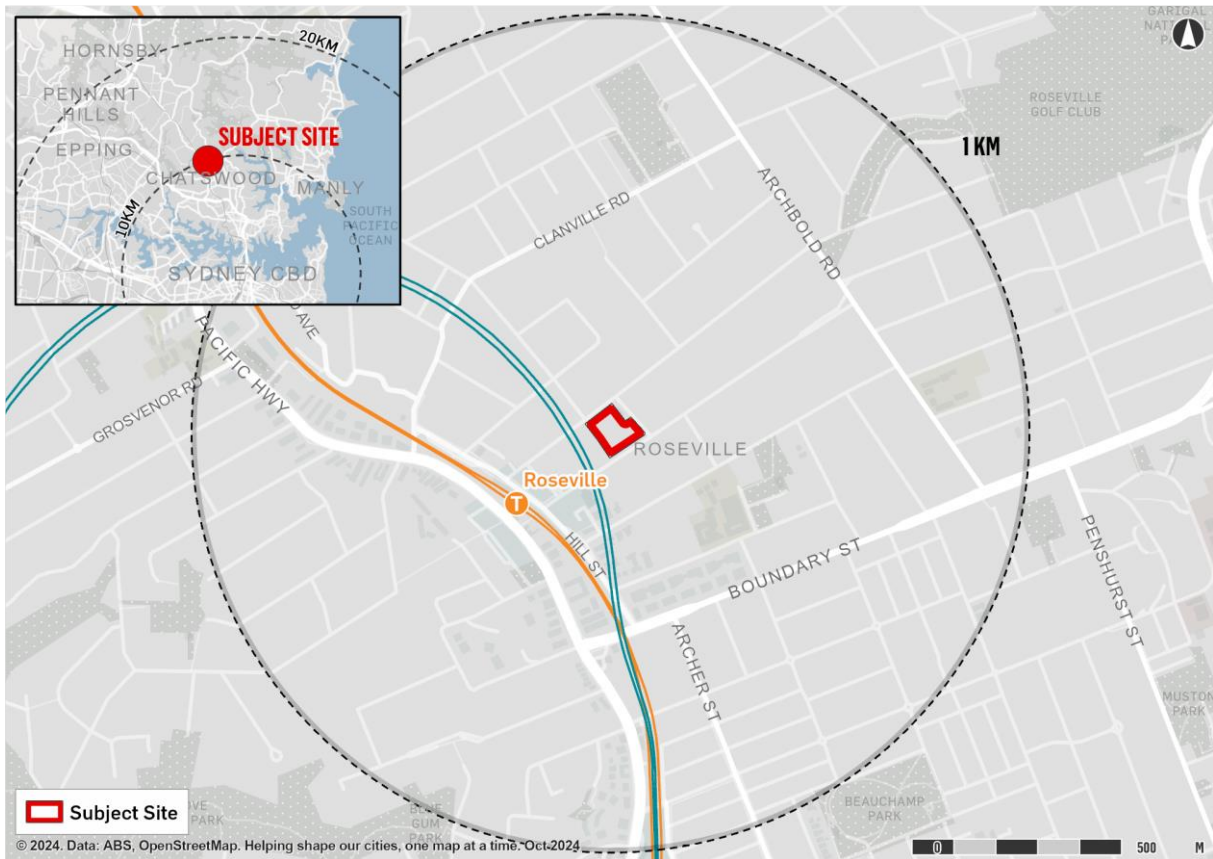


Figure 2 Local Context

### 3.2. Existing Stormwater System and Water Courses

The existing structures on the 10 lots do not have any formal stormwater easements or connection to the Council drainage network shown on survey. There are existing overland flow paths through the site (flowing west to east) which eventually flows to Moores Creek. The site is sitting beside a floodway on Martin Lane and is flood affected along the outskirts of the existing site.

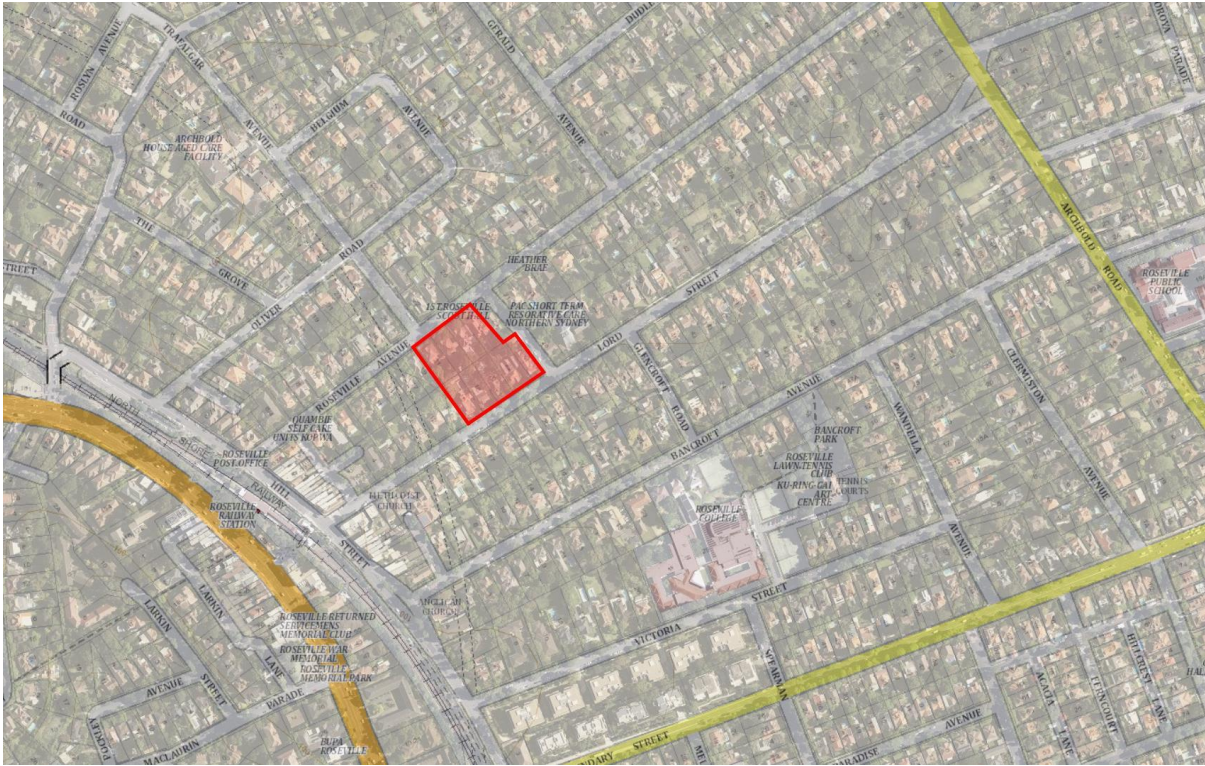


Figure 3 Site Plan with Topographic Basemap and Aerial Photo Superimposed (SixMaps NSW).

## 4. On-Site Stormwater Management

### 4.1. Proposed Development

The proposed development comprises of a new residential apartment building involving:

- Site establishment and preparation, including demolition of existing buildings and structures, bulk earthworks, tree removal, environmental clearing and cut and fill.
- Construction of a residential flat building up to 9-storeys in height (RL120.45m) to provide 252 apartments including affordable housing, residential amenities and services.
- Stormwater connection to Council or Sydney Water drainage network.

### 4.2. Stormwater Systems

Stormwater works proposed consist of:

- Roof drainage system for the proposed new building, draining to a rainwater reuse tank and on-site detention/treatment tank located in the basement car park level (for purposes of water quantity and quality treatment)
- Surface drainage systems for courtyards and external areas, in addition to the carpark area, which consists of a pit and pipe system discharging to on-site detention/treatment tank in the carpark area.
- Within the courtyard, allowance for runoff from impervious (paved) surfaces to grassed/landscaped zones has been incorporated. This will allow for infiltration opportunities and is considered a fundamental principle of the Water Management Plan.
- Overland flow paths are provided to ensure that flows exceeding the capacity of the pit and pipe system are safely conveyed
- Pit and pipe network along western edge of Site to capture external overland flow bypassing from adjacent properties and discharged onto street via kerb connection.

The proposed stormwater layout is shown in Appendix 1.

Assessment of existing and proposed pervious/impervious areas for the site has been undertaken. Peak flows from each catchment have been calculated using the DRAINS computer modelling software. Table 2 details the results for predevelopment and post development scenarios for a range of storm events.

#### 4.2.1. On-site Detention

A combined on-site detention/water treatment tank is to be constructed to reduce peak stormwater discharge from the proposed development and to comply with minimum storage volumes and Permitted Site Discharge (PSD) as outlined in Ku-ring-gai Development Control Plan (DCP). The site is located within MC1 Moores Creek catchment which informs the calculations of the Permitted Site Discharge (PSD) and OSD tank volume requirement.

Based on the OSD and PSD Calculation sheet, the site will require a minimum OSD tank volume of 178m<sup>3</sup> and a PSD of 195 l/sec. Refer to Appendix 2 for OSD and PSD calculations.

The OSD tank is to be located in the basement carpark on the Lower Ground floor (minimum volume of 178m<sup>3</sup> – nominated combined detention/rainwater tank volume of 210m<sup>3</sup>). The 20kL rainwater tank allows for 190m<sup>3</sup> of detention storage, which exceeds the Council storage requirements as detailed in the calculation sheet at Appendix 2. This will decrease the stormwater runoff from the developed site to a maximum peak flow of 140 l/sec to comply with the PSD requirement. Table 2 details the peak flows for the pre-development vs the post-development site layout.

STORM EVENT	PRE-DEVELOPMENT m <sup>3</sup> /s	POST-DEVELOPMENT m <sup>3</sup> /s
20% AEP (5YR)	0.215	0.073
5% AEP (20YR)	0.327	0.106
1% AEP (100YR)	0.444	0.140

Table 2 DRAINS Results

The site rainwater runoff will be connected to and discharged to an existing Council drainage pit on Lord Street. This pit has an existing 525mm concrete pipe that flows downstream along Lord Street to the north-east.

This discharge point was nominated as it is outside the flood affected area while the adjacent stormwater line on Martin Lane is flooded to a depth of ~300mm in a 1% AEP storm event shown by the Middle Harbour Southern Catchments Flood Study conducted by BMT (Smith, Nguyen,2023). This indicates that the Martin Lane stormwater pipe is at full capacity.

It is acknowledged that there is flood affectation in a 1% AEP storm event downstream of the site further along Lord Street. A tailwater level of RL85.4 has been adopted in the DRAINS model (which was the estimated flood Water Surface Elevation (WSE) of the nearest drainage pit at Martin Lane).

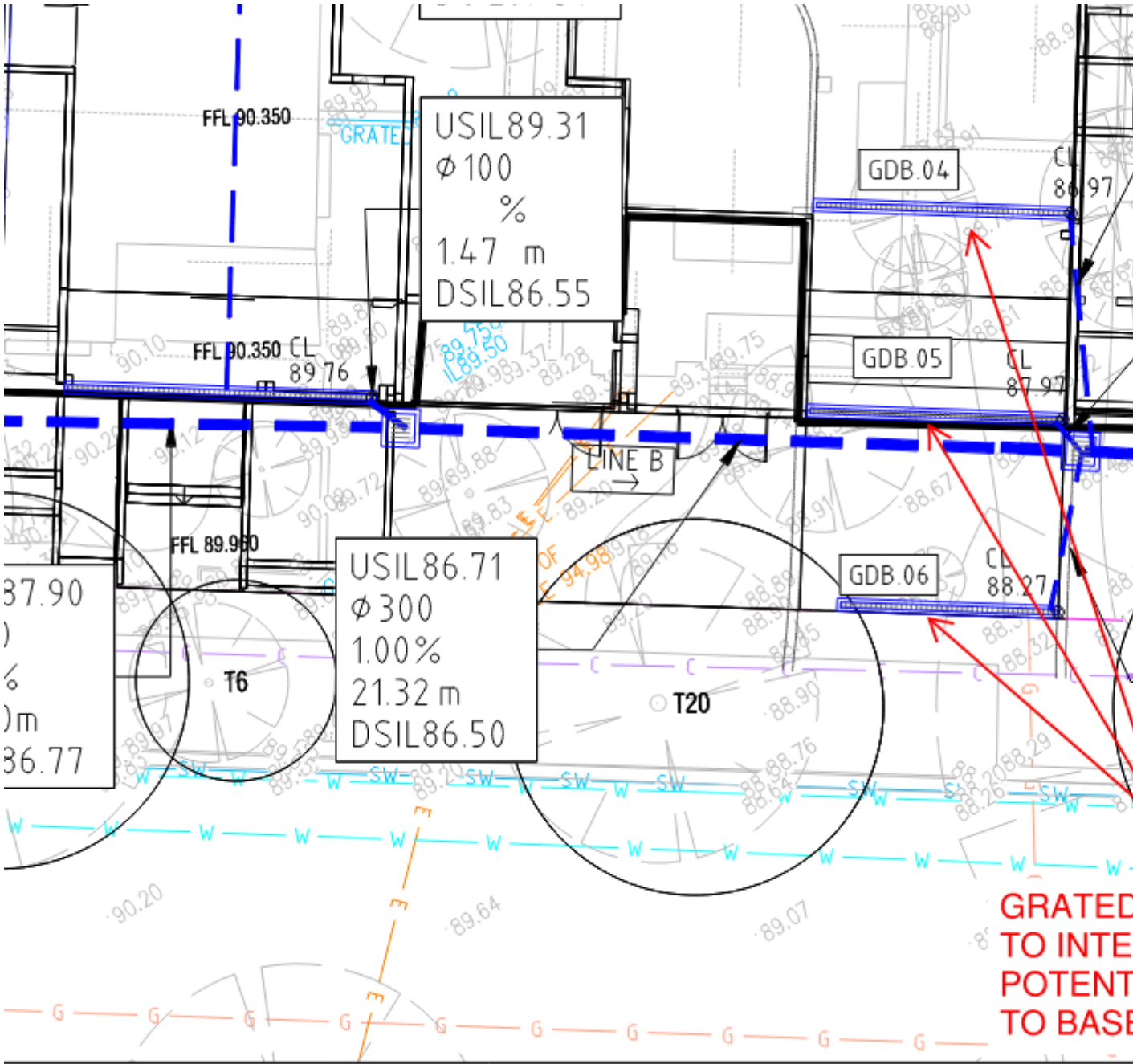
#### **4.2.2. Basement Drainage**

A basement drainage system (to convey water from wet vehicles that enter the basement and any stormwater that may bypass the grated drains located at the basement entrance – refer to the stormwater plan layout at Appendix 1) has been provided.

This consists of a series of floor wastes and pipes that convey water on each basement level to a vertical drop at a column and ultimately to a pump-out pit located within the lowest basement level. The pump-out pit has a storage capacity between the high storage level (pump switched on level) and low storage level (pump switched off level) of 3m<sup>3</sup>. This volume was calculated in accordance with Australian Standard AS 3500.3 Wet Well Capacity as detailed below (and meets the requirements of Section 8.3.6 of AS 3500.3 which requires the minimum wet well storage to be not less than 3m<sup>3</sup>).

The basement pump-out pit at basement level 3 has a rising main connection to the on-site detention tank.

The uncovered area potentially draining to the basement pump-out (in the event of blockage of the grated drains shown in Figure 4) is 95m<sup>2</sup> as shown in





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PROJECT  
**ROSELOR**  
 16-24 Lord Street & 21-27 Roseville  
 Avenue, Roseville

Figure 3 Architectural Extract Showing Potential Area draining to basement

The 10% AEP 2 hour storm rainfall intensity is 175mm/hr (from Bureau Meteorology IFD website). The rational method peak flow calculation is recorded below at Figure 5.

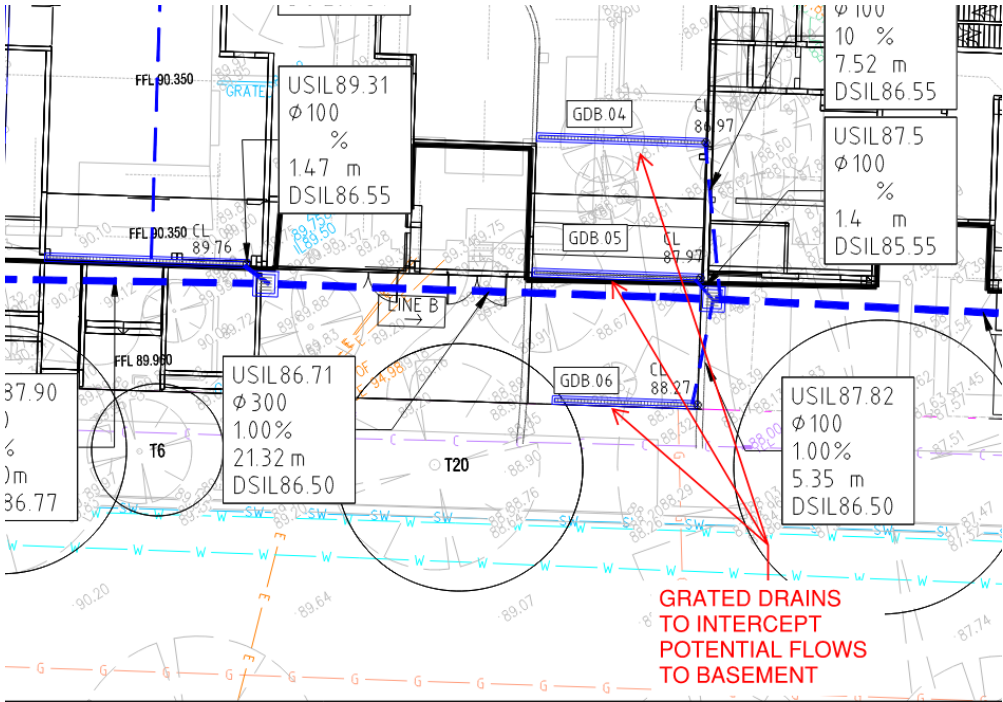


Figure 4 Civil Drawing Extract Showing Drainage to Protect Basement from Inflows

**Peak Flow Rate**

$$Q_y = 0.278 \times C_y \times I_{tc,y} \times A$$

Runoff co-efficient	$C_y =$	0.900
Area of Catchment	$A =$	0.000 (km <sup>2</sup> )
ARI	$y =$	100 (yr)
Time of Concentration	$t_c =$	5.0 (min)
Rainfall Intensity	$I_{tc,y} =$	175.0 (mm/hr)
Peak Flow Rate	$Q_y =$	0.004 (m <sup>3</sup> /sec)
		= 4.2 (ltr/sec)

**Runoff Co-efficient**

$$C_y = F_y \times C_{10}$$

Total Catchment Area =	95.0 (m <sup>2</sup> )
Pervious Catchment Area =	63 (m <sup>2</sup> )
Impervious Catchment Area =	32 (m <sup>2</sup> )
Fraction Impervious, $f =$	1.00
10yr, 1 hr rainfall intensity, ${}^1I_{10} =$	47.1 (mm/hr)
10yr, 1 hr runoff co-efficient, ${}^1C_{10} =$	0.394
10yr runoff co-efficient, $C_{10} =$	0.900
50yr, 12 hr rainfall intensity, ${}^{12}I_{50} =$	16.3 (mm/hr)
2yr, 12 hr rainfall intensity, ${}^{12}I_2 =$	7.93 (mm/hr)
Frequency Factor, $F_y =$	1.00 (Table 14.6 ARR)

Scroll Down For Time of Concentration Calc

ARR Table 14.6	
ARI (years)	Frequency Factor ( $F_y$ )
1	0.80
2	0.85
5	0.95
10	1.00
20	1.05
50	1.15
100	1.2

Runoff co-efficient,  $C_y =$  0.900

Figure 5 Rational Method Flow Calculations

The calculated peak flow of 4.2L/s results in a required effective storage volume of 30,240L (3.02m<sup>3</sup>) in a 2-hour storm event, in accordance with Section 8.3.6 of AS 3500.3. The provided storage volume of

3m<sup>3</sup> meets the required effective storage value without inclusion of pump capacity – this provides an additional factor of safety against pump failure. A dual-pump system is proposed, in accordance with the requirements of AS 3500.3, as detailed in the stormwater drawings at Appendix 1.

#### **4.2.3. Stormwater Quality**

The Ku-ring-gai Council Development Control Plan set targets for the reductions of water borne pollution being conveyed from the site through the stormwater drainage system and ultimately public waterways. The principles of Water Sensitive Urban Design have been adopted in the stormwater design – firstly by minimizing impervious areas, followed by providing infiltration opportunity for runoff from impervious areas (and implementation of a rainwater tank to provide for reuse) and finally through treatment of runoff by various methods.

Stormwater quality requirements specified by Ku-ring-gai Council Development Control Plans are pollution load reductions:

- 85% reduction of the typical urban annual load for Total Suspended Solids (TSS)
- 65% reduction of the typical urban annual load for Total Phosphorus (TP)
- 45% reduction of the typical urban annual load for Total Nitrogen (TN)
- 70% reduction of the typical urban annual load for gross pollutants (litter)

Modelling for the estimation of the mean annual loads of land uses has been undertaken using MUSIC software and in accordance with the associated Council Water Management Technical Guidelines.

A treatment train that models the treatment train has been modelled in MUSIC.

#### **4.2.4. MUSIC Modelling**

The *MUSIC* model was established using Ku-ring-gai Council's DCP requirements. The Pollutant generation parameters for the site are as per Council Guidelines (as detailed in Draft MUSIC modelling document). A report file is attached as appendix – the MUSIC LINK Report requires different parameters to the MUSIC modelling but still demonstrates that the pollutant reduction targets are met.

The proposed treatment train consists of a rainwater tank reuse (20kL), OceanProtect's Ocean Guards at every grated inlet pit, a vegetated swale and 16 x 690mm stormfilter cartridges (PSORB) to treat the stormwater runoff. Runoff from roof area is to pass through an Ocean Guard basket prior to entering the rainwater tank (as the roof has areas that may be trafficked).

The MUSIC model representing the site is provided below in Figure 6 below.

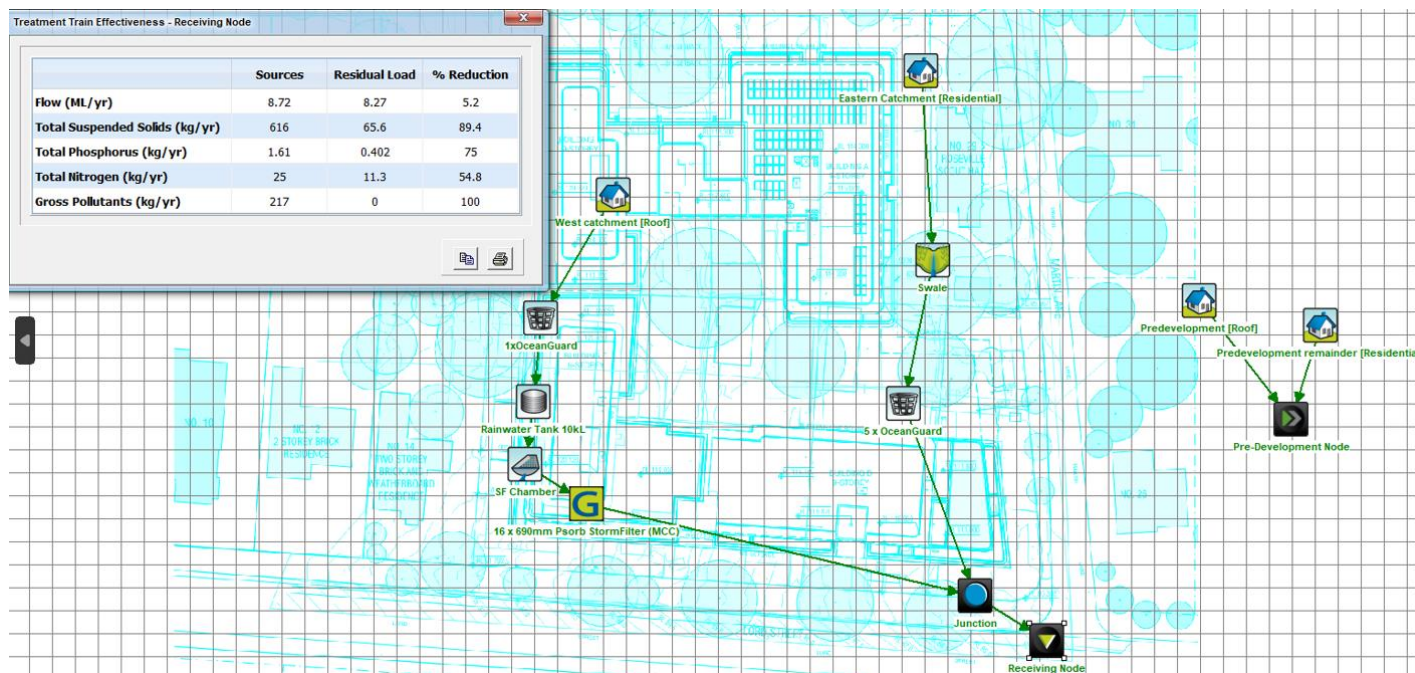


Figure 6 MUSIC Model Schematic Layout

#### 4.2.5. Music Results

The results of the treatment train effectiveness are shown in the screenshot and table below. The table indicates that the proposed stormwater treatment devices meet Ku-ring-gai Council DCP pollutant reduction targets.

A cumulative frequency graph was produced for the post-development and pre-development receiving nodes to check that there was a minimum 50% reduction in rainfall runoff days (that is, days in which the receiving node received flow greater than 0).

	Sources	Residual Load	% Reduction
<b>Flow (ML/yr)</b>	8.72	8.27	5.2
<b>Total Suspended Solids (kg/yr)</b>	616	65.6	89.4
<b>Total Phosphorus (kg/yr)</b>	1.61	0.402	75
<b>Total Nitrogen (kg/yr)</b>	25	11.3	54.8
<b>Gross Pollutants (kg/yr)</b>	217	0	100

Figure 7 MUSIC Model Results (Post-Development Receiving Node)

Pollutant	% Target	% Reduction
Total Suspended Solids (TSS)	85.00	89.4
Total Phosphorus (TP)	65.00	75
Total Nitrogen (TN)	45.00	54.8
Gross Pollutants	70.00	100

Table 3 MUSIC Model Results

The cumulative frequency graph for Daily Maxima Flow (m<sup>3</sup>/s) is shown below. The time period for the MUSIC model was 30 years, in accordance with Council guidelines. The cumulative frequency graph shows that:

- in the pre-development case, 80% of days received 0 flow
- in the post-development case, 91% of days received 0 flow

For the time period of 30 years, this equates to:

- 2190 runoff days in the pre-development case and
- 986 runoff days in the post-development case.

This is a reduction in runoff days of 55%, which exceeds the requirement (as stated in Council response to submission) that the development reduce runoff days by 50% compared to pre-development conditions. An enlarged extract is provided at Figure 9 showing the percentages.

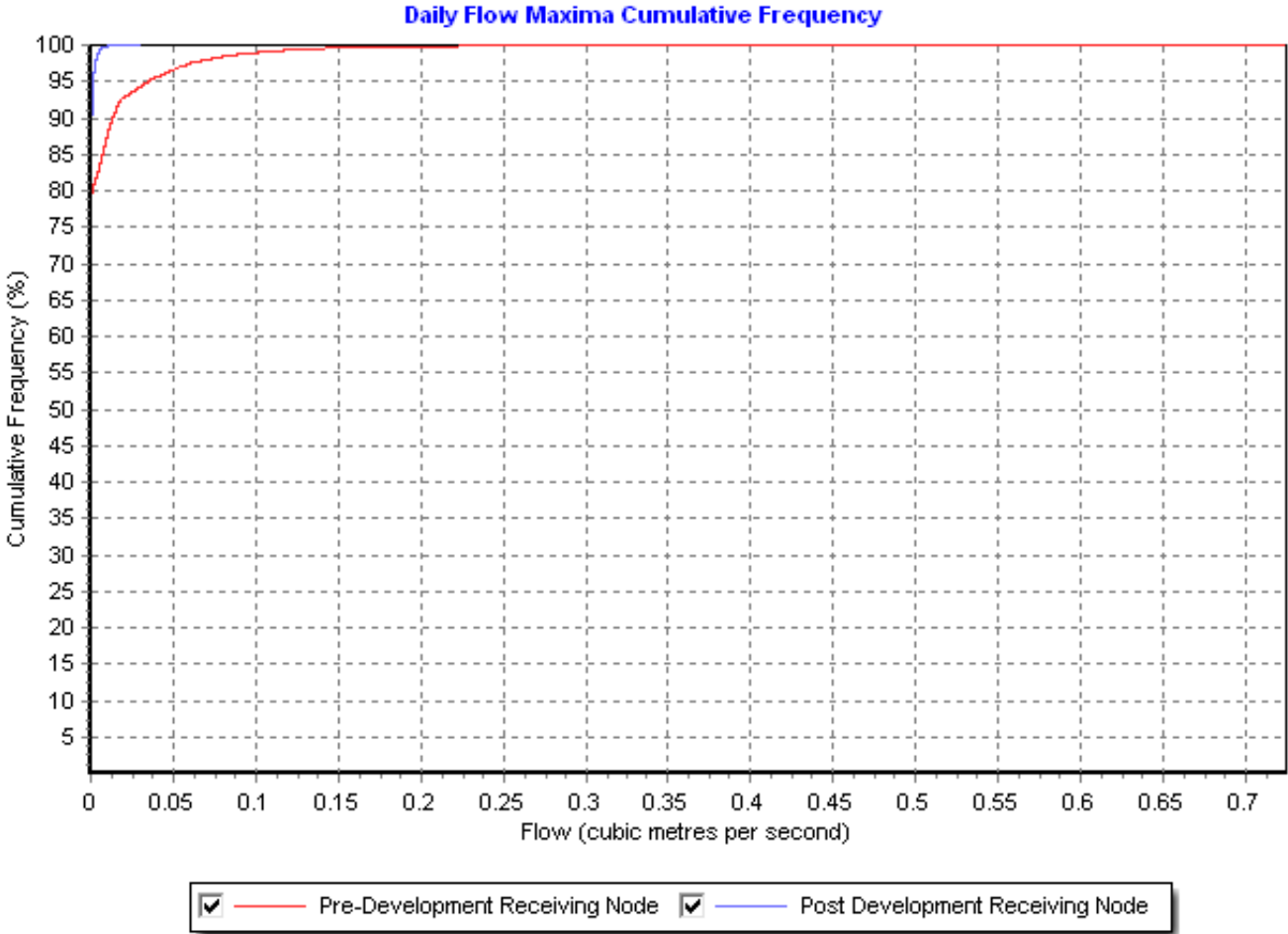


Figure 8 MUSIC Model Results (Post-Development Receiving Node)

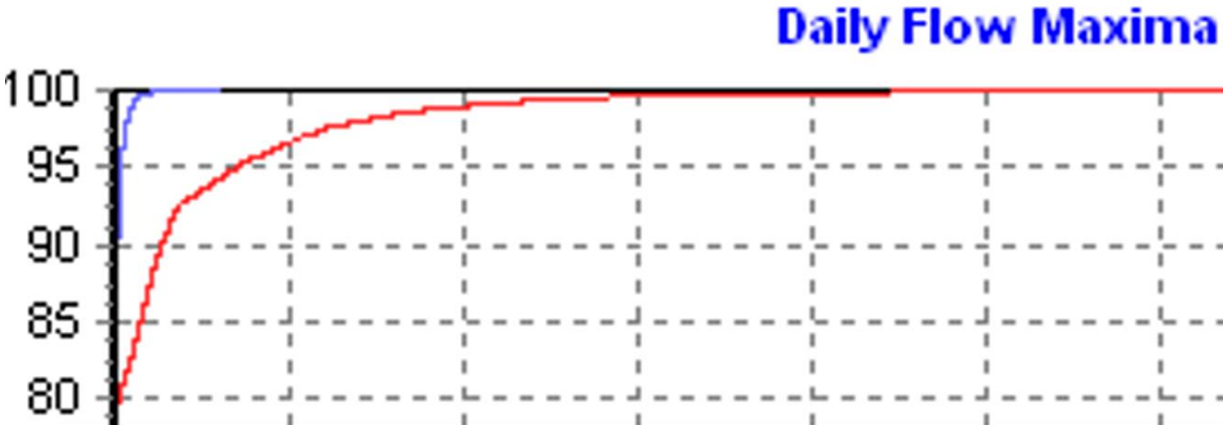


Figure 9 MUSIC Model Results (Post-Development Receiving Node) – Enlarged Extract

## 5. Conclusion

This report provides a summary of the proposed stormwater management for the residential development. It includes provision for a minimum OSD and rainwater tank volume of 210m<sup>3</sup> to attenuate the peak flow coming from the site and provide storage for reuse. The OSD tank will control the stormwater discharge rate to less than the Permissible Site Discharge requirement.

A drainage line and landscaping will be provided along the western edge of the site to capture any external overland flow from adjacent properties, which is then discharged onto the street (at Lord Street and Roseville Avenue).

The proposed water quality treatment for the development meets the Ku-ring-gai Council pollutant reduction targets using water quality treatment measures including a 20kL rainwater reuse tank, pit litter basket inserts, swales and stormfilter cartridges before discharging into the receiving street infrastructure.

This report has outlined the SEARS requirements and addressed how they have been met.

# **Appendix 1. Stormwater Layout Drawing**



**LEGEND**

- STORM WATER PIT
- STORM WATER PIPE
- SITE BOUNDARY
- BUILDING OUTLINE



**NOTE :**

- ALL ROOF AREA TO DRAW TO RAINWATER TANK TO OVERFLOW TO OSD TANK (FILTER CHAMBER).
- DIRECT UPSTREAM FLOWS TO STORM WATER LINE FOR EXTERNAL CATCHMENT SHOWN CYAN

**WARNING**

**BEWARE OF UNDERGROUND SERVICES**

THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

ALL EXISTING PROPERTY SERVICES' LOCATIONS AND DEPTHS ARE APPROXIMATE AND MUST BE VERIFIED ON SITE. THE CONTRACTOR SHOULD SUPPLY PRECISE LOCATIONS AND DEPTHS TO THE ENGINEER FOR REVIEW PRIOR TO ANY WORKS THAT MAY AFFECT THESE SERVICES.



**DRAWING KEY**

REV	DATE	DESCRIPTION	DRAWN	REVIEWED
P1	24/10/25	REISSUE FOR SSSA	AA	SN

**PROJECT**  
16-24 LORD ST & 21-27 ROSEVILLE AVE

**DRAWING TITLE**  
STORMWATER DRAINAGE PLAN - BASEMENT 1

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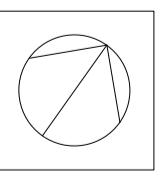
**CLIENT** HYECORP

**DRAWING #** 01-0401

**PROJECT #** 24-1045

**SCALE** A1@1:250  
A3@1:500

REISSUE FOR SSSA



NOT FOR CONSTRUCTION

REV P1

**LEGEND**

- STORM WATER PIT
- STORM WATER PIPE
- SITE BOUNDARY
- BUILDING OUTLINE



**NOTE :**

- ALL ROOF AREA TO DRAW TO RAINWATER TANK TO OVERFLOW TO OSD TANK (FILTER CHAMBER).
- DIRECT UPSTREAM FLOWS TO STORM WATER LINE FOR EXTERNAL CATCHMENT SHOWN CYAN

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**DRAWING KEY**

REV	DATE	DESCRIPTION	DRAWN	REVIEWED
P1	24/10/25	REISSUE FOR SSSA	AA	SN

**PROJECT**  
16-24 LORD ST & 21-27 ROSEVILLE AVE

**DRAWING TITLE**  
STORMWATER DRAINAGE PLAN - BASEMENT 2

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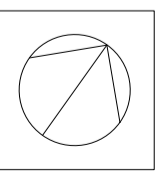
**CLIENT** HYECORP

**DRAWING #** 01-0402

**PROJECT #** 24-1045

**SCALE** A1@1:250  
A3@1:500

REISSUE FOR SSSA



**REV P1**

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**LEGEND**

- STORM WATER PIT
- STORM WATER PIPE
- SITE BOUNDARY
- BUILDING OUTLINE



**NOTE :**

- ALL ROOF AREA TO DRAW TO RAINWATER TANK TO OVERFLOW TO OSD TANK (FILTER CHAMBER).
- DIRECT UPSTREAM FLOWS TO STORM WATER LINE FOR EXTERNAL CATCHMENT SHOWN CYAN

**WARNING**

**BEWARE OF UNDERGROUND SERVICES**

THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

ALL EXISTING PROPERTY SERVICES' LOCATIONS AND DEPTHS ARE APPROXIMATE AND MUST BE VERIFIED ON SITE. THE CONTRACTOR SHOULD SUPPLY PRECISE LOCATIONS AND DEPTHS TO THE ENGINEER FOR REVIEW PRIOR TO ANY WORKS THAT MAY AFFECT THESE SERVICES.



**DRAWING KEY**

REV	DATE	DESCRIPTION	DRAWN	REVIEWED
P1	24/10/25	REISSUE FOR SSSA	AA	SN

**PROJECT**  
16-24 LORD ST & 21-27 ROSEVILLE AVE

**DRAWING TITLE**  
STORMWATER DRAINAGE PLAN - BASEMENT 3

**ptc.** Suite 502, 1 James Place  
North Sydney NSW 2060  
t +61 2 8920 0800  
ptccconsultants.co

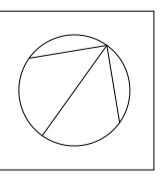
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**DRAWING #** 01-0403

**PROJECT #** 24-1045

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REISSUE FOR SSSA

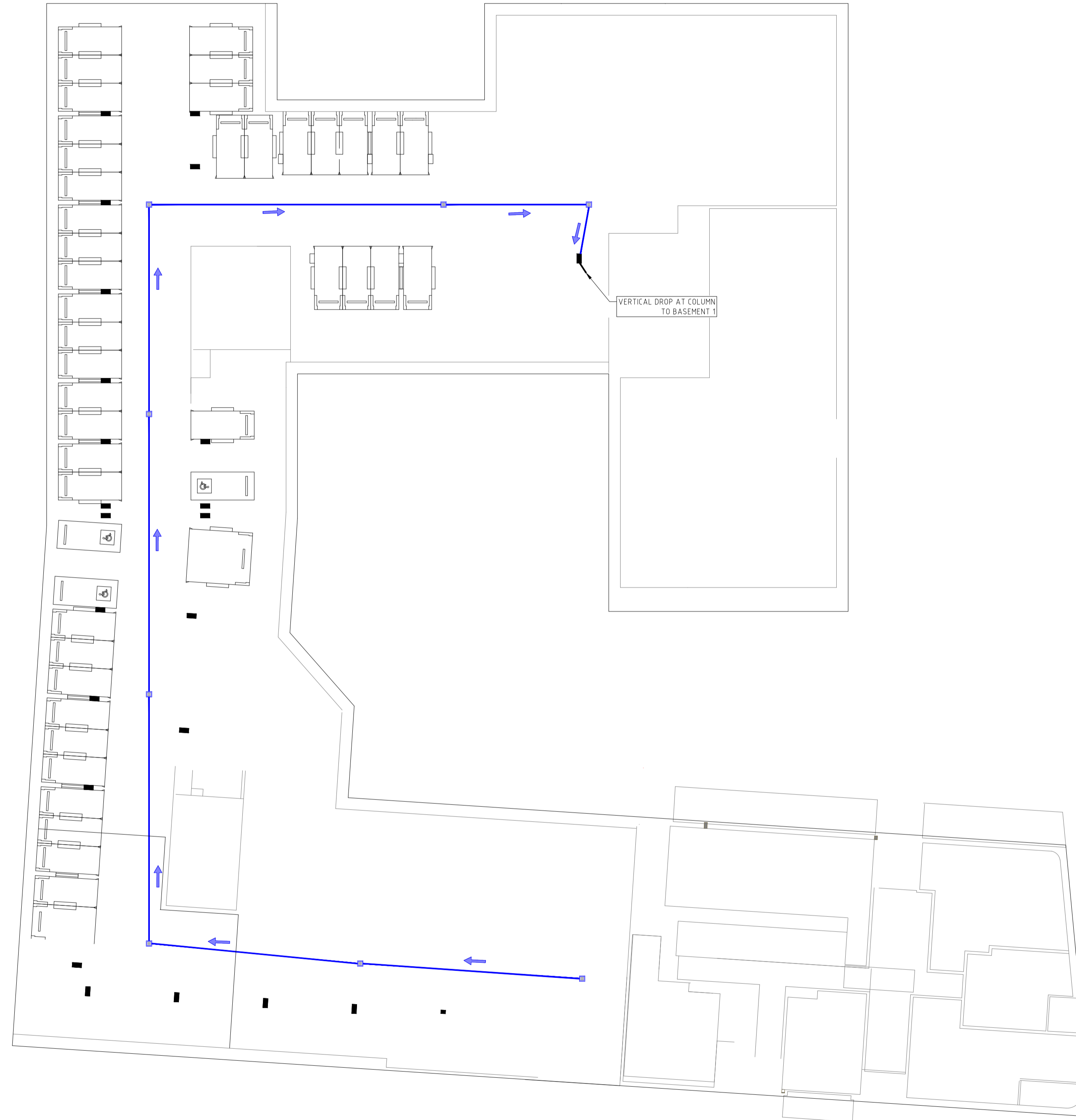


NOT FOR CONSTRUCTION

REV P1

**LEGEND**

- STORM WATER PIT
- STORM WATER PIPE
- BUILDING OUTLINE



**NOTE :**

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- DIRECT UPSTREAM FLOWS TO STORM WATER LINE FOR EXTERNAL CATCHMENT SHOWN CYAN

**WARNING**

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**DRAWING KEY**

REV	DATE	DESCRIPTION	DRAWN	REVIEWED
P1	24/10/25	REISSUE FOR SSDA	AA	SN

**PROJECT**  
16-24 LORD ST & 21-27 ROSEVILLE AVE

**DRAWING TITLE**  
STORMWATER DRAINAGE PLAN - LOWER GROUND

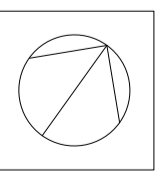
**ptc.** Suite 502, 1 James Place  
North Sydney NSW 2060  
t +61 2 8920 0800  
ptcconsultants.co

**CLIENT** HYECORP

**DRAWING #** 01-0404

**PROJECT #** 24-1045

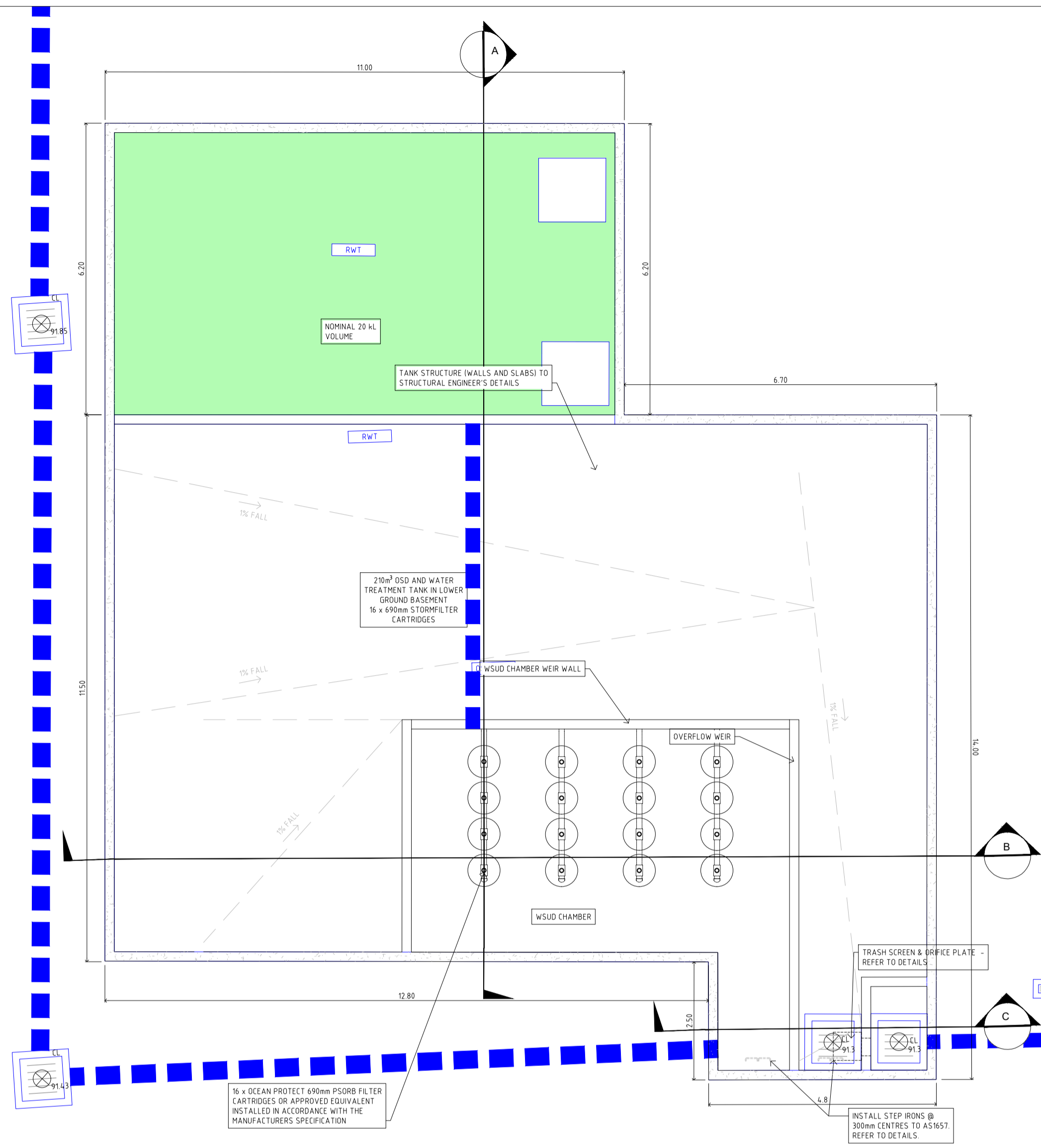
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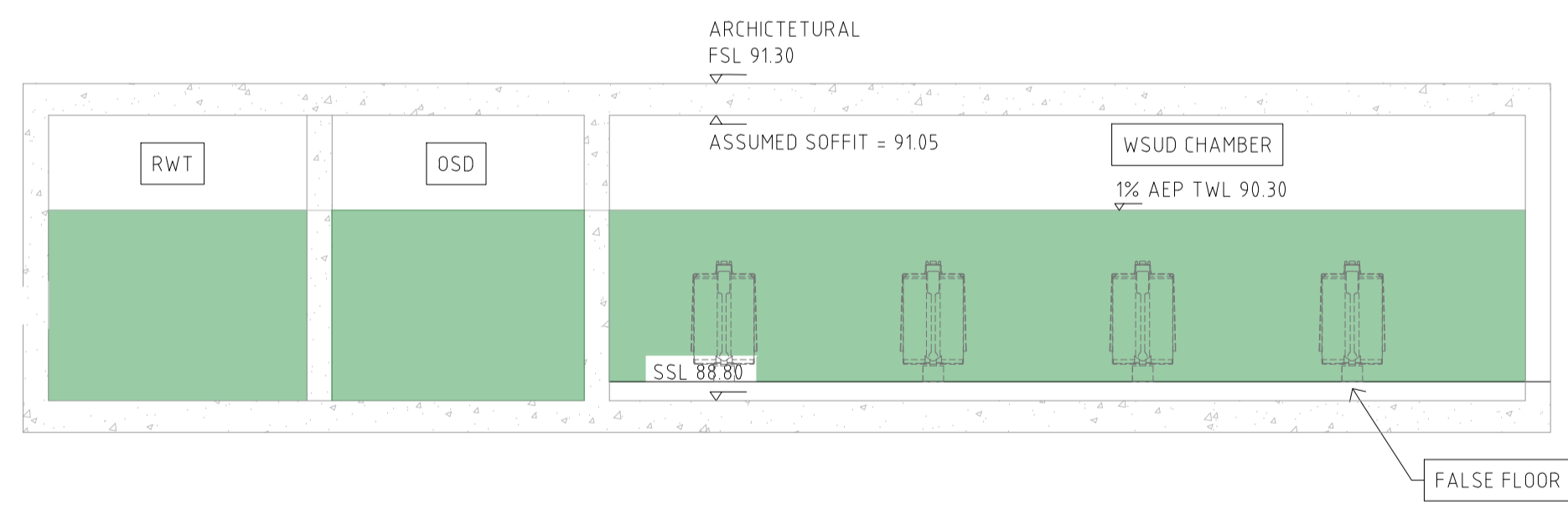
REISSUE FOR SSDA

**REV P1**

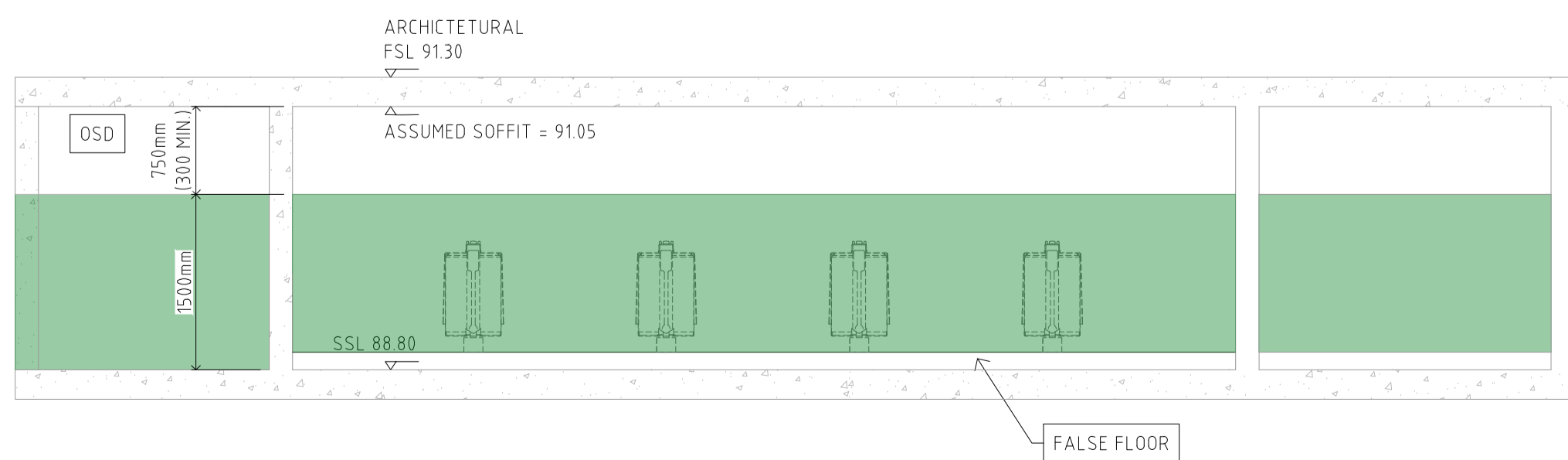
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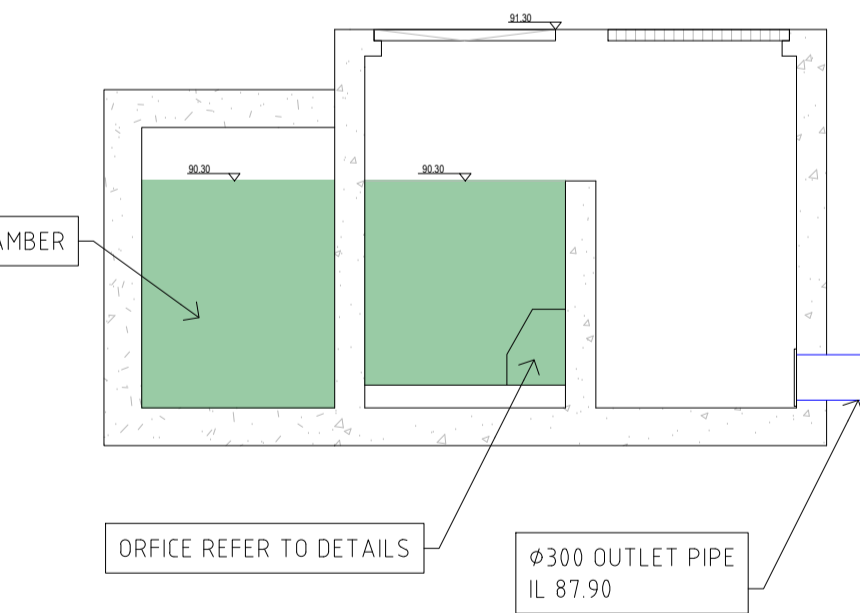
OSD BASE PLAN  
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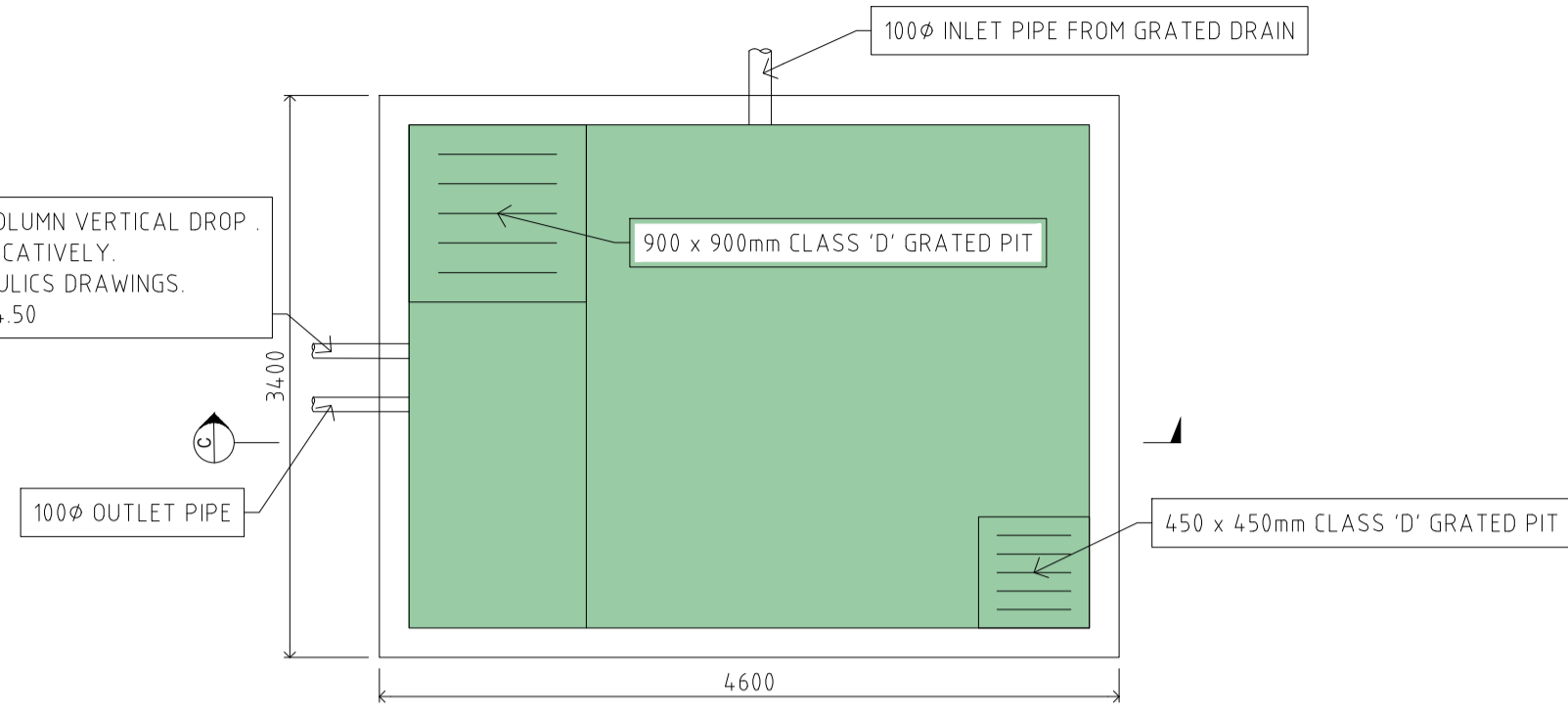
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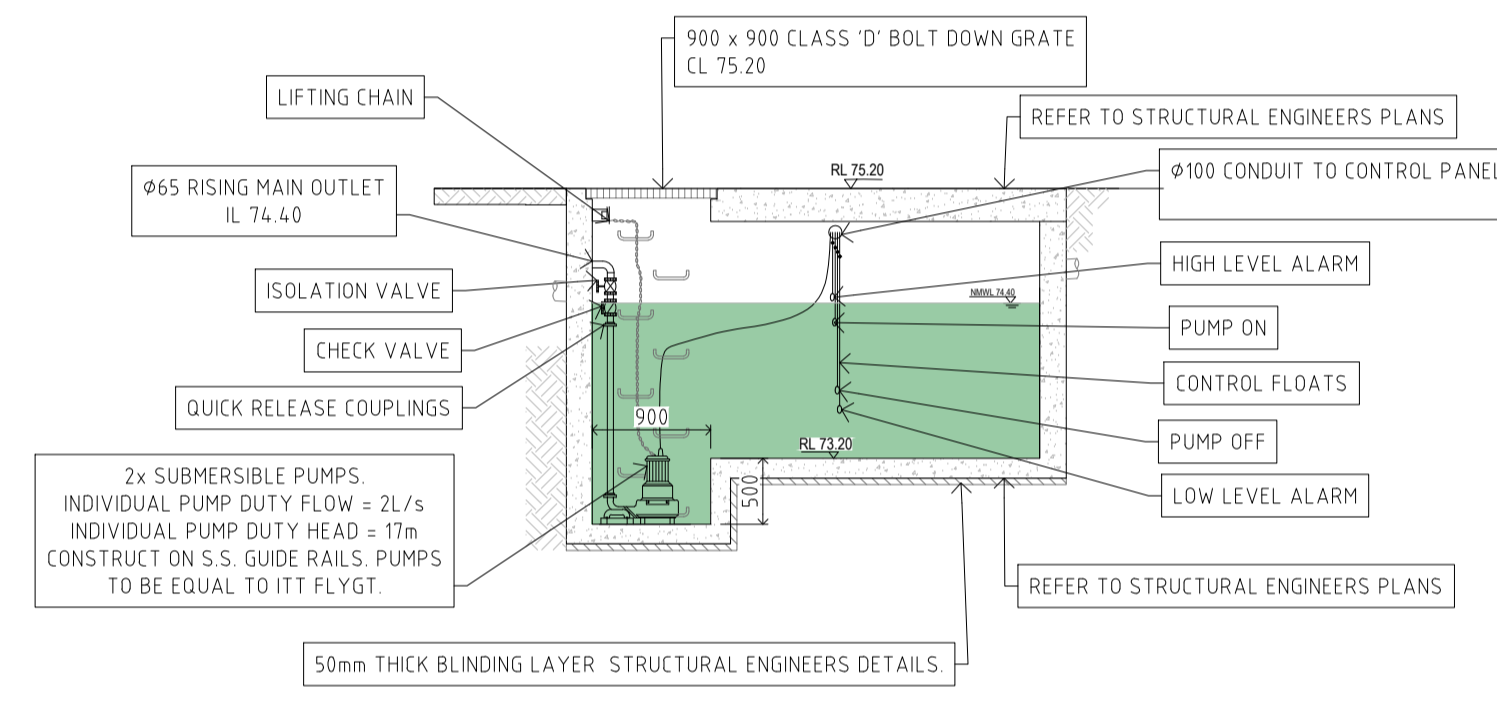
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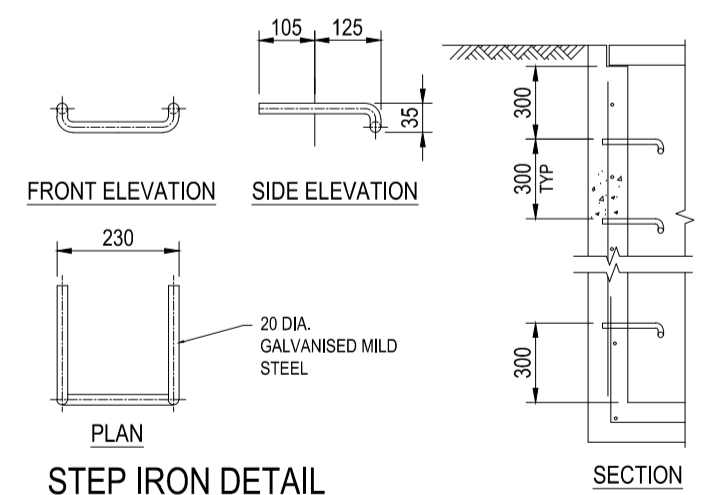
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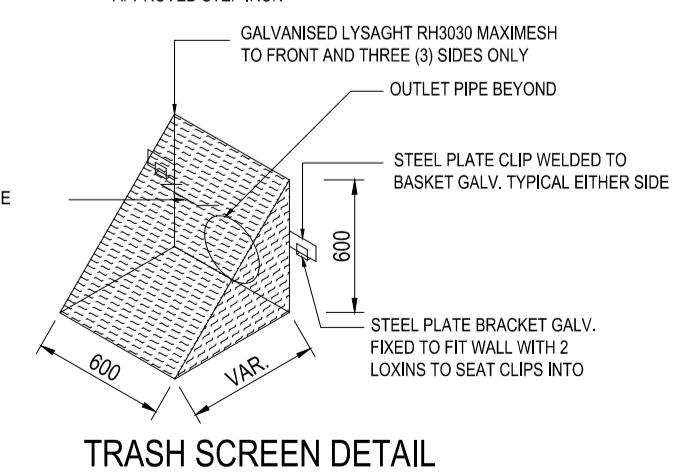
PUMP OUT PIT PLAN  
SCALE 1:50



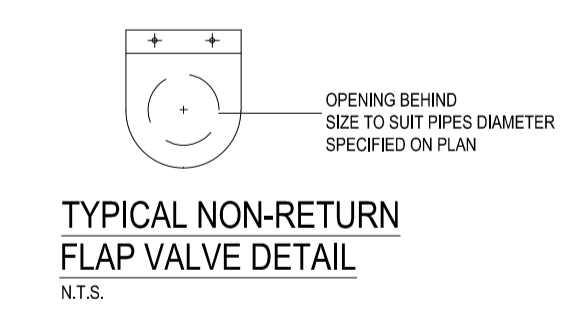
PUMP OUT PIT SECTION  
SCALE 1:50



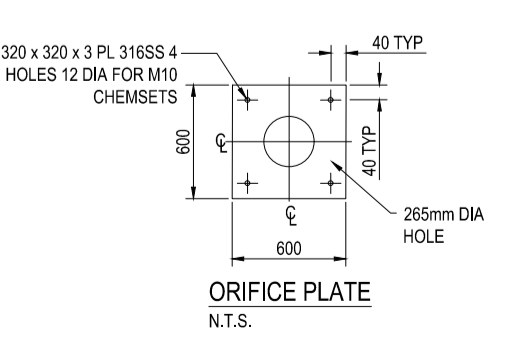
STEP IRON DETAIL  
N.T.S.



TRASH SCREEN DETAIL  
N.T.S.



TYPICAL NON-RETURN  
FLAP VALVE DETAIL  
N.T.S.

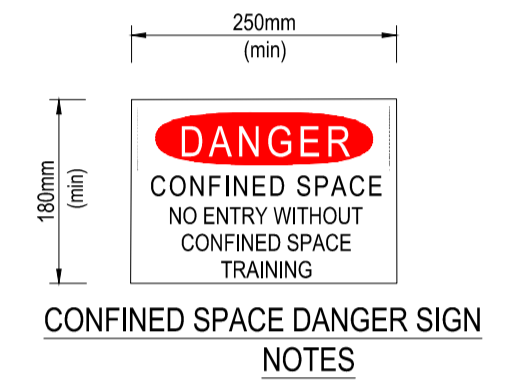


ORIFICE PLATE  
N.T.S.

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CONFINED SPACE DANGER SIGN  
NOTES

- A CONFINED SPACE SIGN SHALL BE PLACED NEXT TO EACH AND EVERY ACCESS POINT THEY ARE VISIBLE TO PERSON ENTERING ANY BELOW GROUND TANK OR PIT.
- COLOURS :  
- "DANGER" AND BACKGROUND - WHITE  
- ELLIPTICAL AREA - RED  
- LETTERING AND BORDER - BLACK
- MINIMUM OF THE SIGN:  
- LARGE ENTRIES - 300mm x 450mm  
- SMALL ENTRIES - 250mm x 180mm
- SIGN TO BE MADE FROM COLOUR BONDED ALUMINIUM OR POLYPROPYLENE
- SIGN FIXED USING HILTI CHEMSETS OR EPOXY

DRAWING KEY

REV	DATE	DESCRIPTION	MD	SN	DRAWN	REVIEWED
P4	24/10/25	REISSUE FOR SSSA	AA	SN		
P3	10/10/25	REISSUE FOR SSSA	AA	SN		
P2	02/04/25	ISSUE FOR SSSA	MD	SN		
P1	31/03/25	ISSUE FOR SSSA	MD	SN		

PROJECT  
16-24 LORD ST & 21-27 ROSEVILLE AVE

DRAWING TITLE  
STORMWATER DRAINAGE OSD PLAN AND DETAILS

**ptc.** Suite 502, 1 James Place  
North Sydney NSW 2060  
t +61 2 8920 0800  
ptcconsultants.co

CLIENT HYECORP

DRAWING # 01-0420

PROJECT # 24-1045

SCALE AS SHOWN

REISSUE FOR SSSA

REV P4

NOT FOR CONSTRUCTION

DETAILS  
N.T.S.

**Appendix 2. OSD and PSD  
Calculation (Ku-ring-  
gai Council technical  
Guideline for Water  
Management)**

# PART 4: On-site Stormwater Detention

## 4.1 On-site Detention Calculation Sheet

### On-Site Detention Calculation Sheet

Project Size = 9400m <sup>2</sup>					
Address ..... Roseville .....					
<b>Catchment Detail</b>					
1. Catchment Name .....					
2.	385l/s	Catchment Discharge Rate	0.041	l/sec/m <sup>2</sup>	<b>A</b>
3.		Catchment Storage Rate	0.0315	m <sup>3</sup> /m <sup>2</sup>	<b>B</b>
<b>Site Details</b>					
4.	Site Area	9400m <sup>2</sup>	60% of site area	5640	m <sup>2</sup> <b>C</b>
5.	Area(s) not draining to the detention system.....3000.....m <sup>2</sup>				
6.	Total impervious area (roofs, driveways, paving, etc.)		5700	m <sup>2</sup>	<b>D</b>
7.	Impervious area bypassing detention system		900	m <sup>2</sup>	<b>E</b>
<b>Permitted Site Discharge</b>					
8.	C [ ...5640...m <sup>2</sup> ] x A [ 0.041... l/sec/m <sup>2</sup> ] =		231	l/sec	<b>Flow 1</b>
9.	Adjustment for any uncontrolled impervious flow E / D =		0.157	(<0.25)	<b>F</b>
10.	Flow 1 [ 231... l/sec ] x F [ 0.157... ] =		36	l/sec	<b>Flow 2</b>
11.	Flow 1 [ 231 ] - Flow 2 [ 36 ] =		195	l/sec	<b>PSD</b>
<b>Site Storage Requirement</b>					
12.	C [ ...5640...m <sup>2</sup> ] x B [ 0.0315...m <sup>3</sup> /m <sup>2</sup> ] =		178	m <sup>3</sup>	<b>SSR1</b>
13.	If the storage is in a landscaped basin, SSR1 x 1.2 =		N/A	m <sup>3</sup>	<b>SSR2</b>
<b>Outlet Control</b>					
14.	Height difference between top water surface level and the centre of the orifice		1.5	m	<b>G</b>
15.	Orifice Diameter		$21.8 \times \sqrt{\frac{PSD}{G}}$	265	mm <b>OD</b>
<p>PSD = Permitted Site Discharge                  SSR1 = Site Storage Requirement (except for landscaped basins)                  SSR2 = Site Storage Requirement (landscaped basins) (<b>Note: Use only SSR1 or SSR2</b>)                  OD = Orifice Diameter</p>					
Signature.....		Name..... STEPHEN NAUGHTON			
Qualifications.....		Date..... 17/10/2025			