

Main Works for Waterloo Mixed Use Development (HDA)

Integrated Water Management Report

Prepared for: The Trustee for Waterloo Property Unit Trust
Date: 05th September 2025
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Revision

Site Address: 881-885 Bourke Street, Waterloo NSW 2017

Real Property Description: Lot 1/DP1308636
Lot 2/DP1308636

Proposed Development: Mixed Use Development

Client: The Trustee for Waterloo Property Unit Trust

Planning Authority: Department of Planning, Housing and Infrastructure

Stantec Reference: 301351683-MW-IWMP-001

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For and on behalf of: Stantec Australia Pty Ltd

Revision	Date	Comment	Prepared By	Approved By
001	26.08.2025	Draft SSDA Issue	MG / NO / MC	VE
002	05.09.2025	SSDA Issue	MG / NO / MC	VE

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Abbreviations Definitions

AEP	Annual Exceedance Probability
AHD	Australian Height Datum
ARI	Average Recurrence Interval
ARR	Australian Rainfall and Runoff
BoM	Bureau of Meteorology
BYDA	Before You Dig Australia
CoS	City of Sydney
DCP	Development Control Plan
DN	Diameter Nominal (mm)
EY	Exceedances per Year
FFL	Finished Floor Level
FPL	Flood Planning Level
GPT	Gross Pollutant Trap
HDA	Housing Delivery Authority
IFD	Intensity-Frequency-Duration
IL	Invert Level
L/s	Litres per second
m/s	Metres per second
MUSIC	Model for Urban Stormwater Improvement Conceptualisation
OSD	On-Site Stormwater Detention
PSD	Permissible Site Discharge
RCP	Reinforced Concrete Pipe
RL	Relative Level
RWT	Rainwater Tank
SEARS	Secretary's Environmental Assessment Requirements
SID	Safety In Design
SSDA	State Significant Development Application
SSR	Site Storage Requirement
VPA	Voluntary Planning Agreement



1. Introduction

This Integrated Water Management Report (IWMP) has been prepared by Stantec Australia Pty Ltd on behalf of Waterloo Property Pty Ltd as trustee for the Waterloo Property Unit Trust (the Applicant) in support of a Housing Delivery Authority (HDA) nominated State Significant Development Application (SSDA) for a proposed mixed-use development at 881-885 Bourke Street, Waterloo, with concurrent rezoning (SSD-80441462). The report is submitted to the NSW Department of Planning, Housing, and Infrastructure (DPHI).

This application is preceded by a separate SSDA for Early Works that prepare the Site for the proposed development (SSD-80911502).

Specifically, consent is sought for the following Main Works for the Waterloo Mixed Use Development:

- Site establishment and enabling works (that were not included in the preceding Early Works SSDA);
- Construction of residential and mixed-use buildings across four development parcels, inclusive of;
 - build to rent apartments and associated amenities;
 - affordable apartments;
 - non residential floor space including commercial premises and creative industry;
- Construction of a consolidated basement with below-ground links between development parcels, comprising car parking, plant and storage area;
- Landscaping and publicly accessible open space;
- Works to site frontages; and
- Extension and augmentation of infrastructure and services (that were not included in the preceding early Works SSDA) as required.

Development on the site was nominated to be SSD by the HDA and declared as such pursuant to State Significant Declaration Order 2025 (Order) issued on 17 February 2025. The Order establishes specified development on specific land to be declared SSD. The Order identifies that development specified in Expression of Interest (EOI) 229420 dated 8 January 2025, being development for the purposes of a mixed-use development (Build to Rent (BTR) including affordable housing) with ground floor non-residential uses at 881-885 Bourke Steet is declared to be SSD.

On 5 March 2025, the Department of Planning, Housing and Infrastructure (DPHI) issued Planning Secretary's Environmental Assessment Requirements (SEARs) and concurrent rezoning requirements for the project.

The site is subject to an existing Voluntary Planning Agreement (VPA) that sets out dedication of public domain between four development parcels. The public domain includes a new east-west street, a through site link and public open space area (comprising future shared zones and park). The development parcels and public domain as set out in the VPA will be delivered notwithstanding the works proposed in this SSDA.

This report has been prepared to detail the proposed stormwater management and treatment measures to be incorporated as part of the development to demonstrate that the development complies with Council's drainage requirements and that an appropriate stormwater management strategy has been adopted.

This IWMP specifically addresses the following items for the Main Works phase of the development:

- Detail of the proposed drainage design and servicing infrastructure to be incorporated in the Main Works
- Stormwater legal point of discharge
- Stormwater quality treatment measures
- Erosion and Sedimentation Control



2. Site Context and Description

The site is legally described as Lot 1 DP1308636 and Lot 2 DP1308636 and is located at 207-229 Young Street and 881-885 Bourke Street, Waterloo. The site has an area of 21,554m². It has an irregular shape, is generally flat and was recently cleared of light industrial and large format commercial buildings. The site has vehicle access from Young Street and Bourke Street.

The site is located within Gadigal Land, in the Sydney Local Government Area (LGA) and is approximately 4km south of the Sydney CBD. The site is approximately 950m walking distance east of an entrance to the Waterloo Metro Station, approximately 1.1km northeast of the Green Square Train Station and approximately 1.5km southeast of Redfern Train Station. The site is also immediately adjacent to a bus stop on Bourke Street. The Site is partly identified as within the Waterloo Town Centre (Danks Street) in the Housing SEPP.

There are a number of trees along the Danks and Young Street frontages. There are commercial and business premises to the west, high-density residential and business premises to the north, primarily high-density residential to the east and high-density residential under construction to the south.

An aerial of the site is provided in Figure 1 below.



Figure 1: Site Aerial (Source: Nearmap, Ethos Urban)



3. SEARs Reporting Requirements

This IWMP has been prepared to address the Planning Secretary's Environmental Assessment Requirements (SEARs) issued by the Department of Planning, Housing and Infrastructure (DPHI) for the subject SSDA (Application Number: SSD-80441462), with specific SEAR(s) identified in the table below.

Table 1: SEARs Reporting Requirements

Element	SEAR Description	Relevant Report Section
Water Management	Detail the proposed drainage design and servicing infrastructure to be incorporated as part of the development (stormwater and wastewater).	Refer to Section 6
	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.	Refer to Section 7



4. Existing Site Characteristics

4.1 Topography

The existing site has currently been demolished and cleared in preparation for early works.

The local topography around the site shows the site primarily falls North-East to South-West, towards Young Street. The high point of the site is located along the North-Eastern boundary of the site at ~RL 30m AHD, and the low point is located along the South-Western boundary of the site at ~RL 26.72m AHD. This is an approximate site fall of 1.45%.



Figure 2: Site Topography (Source: Mecone Mosaic, 2025)

4.2 External Stormwater Catchments

The surrounding area has been investigated to determine the likely impact of existing external stormwater catchments on the proposed site.

The site is currently surrounded by developments and roadway, so it is believed that no external catchments other than the flooding discussed in the following sections impact the development site. These neighbouring properties are fully developed and hence, it is reasonable to assume they have fully functioning stormwater infrastructure, which will capture and convey stormwater to the council system.

4.3 Existing Stormwater Infrastructure

Through analysis of survey information, it has been determined that the site contains pit and pipe infrastructure. From BYDA information, formalised drainage surrounding the development site has been identified in the figure below. As shown, there are kerb inlet pits at the intersection of Young Street and Danks Street, as well as further down Young Street.



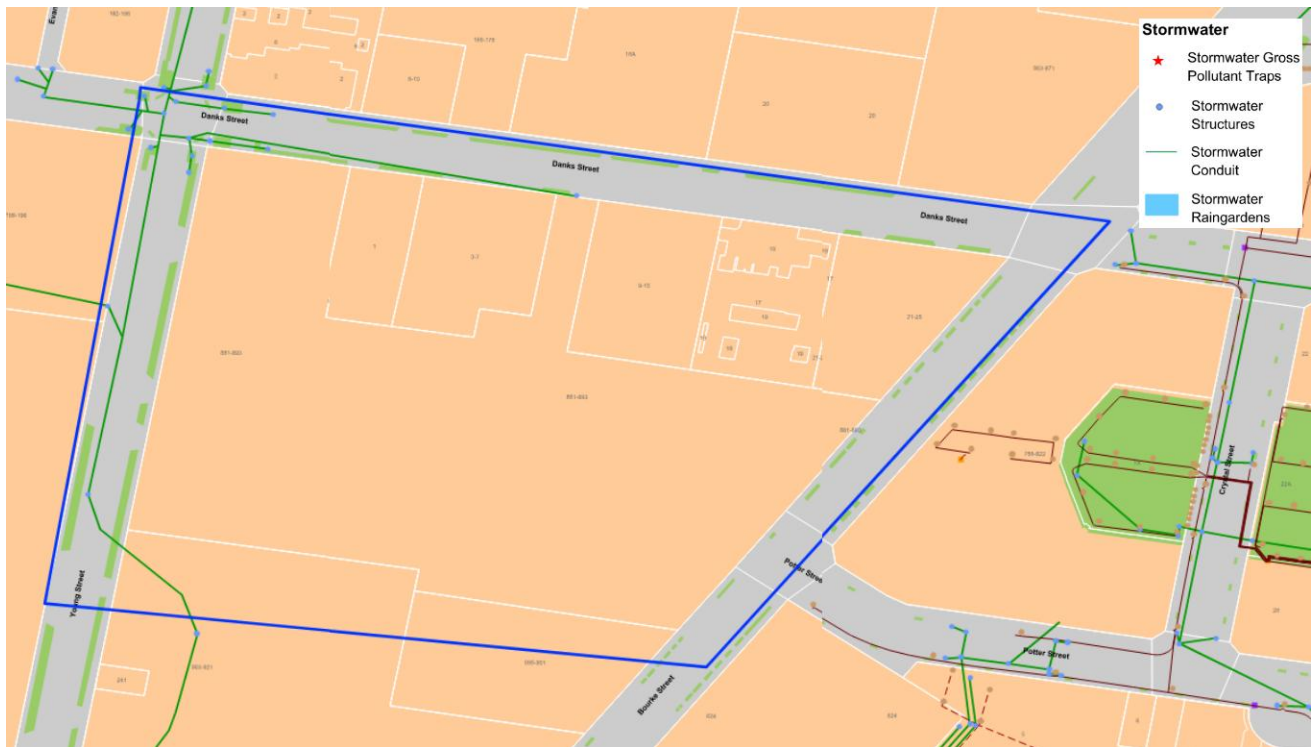


Figure 3: DBYD Asset Location Response (Source: City of Sydney Council, 2025)

Additionally, Figure 4 below from Sydney Water BYDA information indicates a stormwater culvert which runs north to south along Young Street. Potholing survey was undertaken by Astrea, on March 2025, to locate the existing services on Young St, Danks St and Bourke St site frontage.

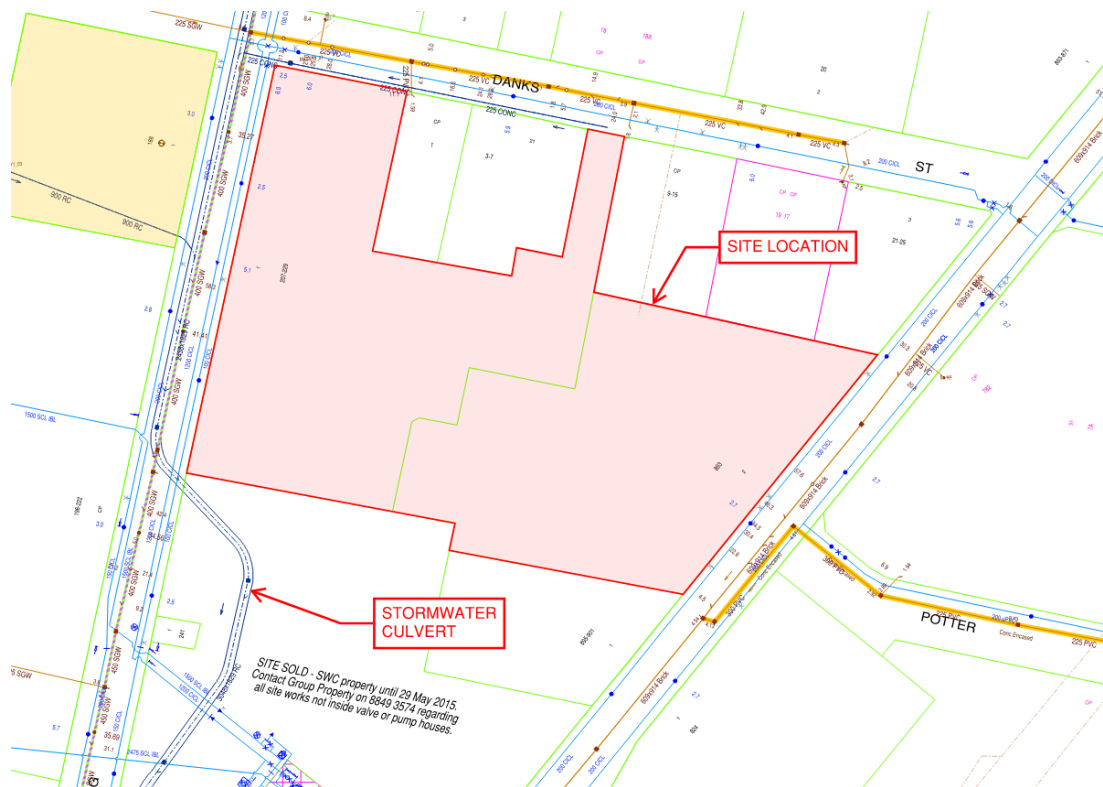


Figure 4: Sydney Water BYDA Plan (Source: Sydney Water, 2025)



4.4 Existing Sewer Infrastructure

Through review of Sydney Water BYDA information, there is evidence of existing sewage infrastructure surrounding the proposed development at 881-885 Bourke Street, Waterloo. Referencing Figure 4 above, there is a DN225 concrete encased sewer main running along Danks Street. This section of pipe is connected at three locations to the properties fronting Danks Street, with two of those being potential connection points for the proposed development. Along Bourke Street there is a 609 x 914 brick sewer main running north to south. Along Young Street, there is evidence of DN400 sewer (rehabilitated).

4.5 Existing Water Infrastructure

Through review of Sydney Water BYDA information, there is evidence of existing water infrastructure surrounding the proposed development. As shown in Figure 4 above, there is potable water infrastructure in each of the three streets containing the site. This includes DN200 water mains in Danks Street and Bourke Street as well as DN1200 and DN100 mains in Young Street.



5. Civil Services

5.1 Reference Documents

This report is based on the following reference documents:

- Detailed Survey by Geosurv, dated Feb 2019 (Ref: 190105-DT-01)
- Topographical Survey and Utility Mapping by Astrea, dated March 2025 (Ref No.: A5190)
- Architectural Site Plan – Proposed by SJB Architects, dated July 2025 (Drawing No. WL-AR-SSDA-EW-1001)
- Before You Dig Australia
- Sydney Development Control Plan (2012)
- City of Sydney Stormwater Drainage Manual (2017)
- Sydney Streets Technical Specifications (2023)
- Australian Rainfall and Runoff (ARR) 2019
- AS/NZS 3500.3-2021 – Stormwater Drainage
- Landcom 'Blue Book' – Managing Urban Stormwater Soils and Construction Guideline Edition

5.2 Civil Scope of Work

The Civil Services scope of work consists of the following services:

- Grading Design;
- Stormwater Drainage works;
- Existing and proposed connections to the drainage system;
- WSUD requirements, and;
- Sediment and erosion control.

The civil scope for proposed stormwater drainage shall comprise the in-ground pit and pipe network external to the building and external overland flow paths. For stormwater drainage associated with suspended slabs and roof drainage, refer to the Hydraulic Engineer's design documentation.

5.3 Limitations

This report is based primarily on the information provided by the architect, design team, survey drawings, and information communicated during the design development process. Any assumptions made through the design process have been communicated in this report.

5.4 Design Criteria

Table 2: Civil Design Criteria

Item	Design Criteria
Stormwater Drainage	Australian Rainfall and Runoff (ARR) 2019



Item	Design Criteria
	AS/NZS 3500.3-2021 – Stormwater Drainage AS 2865 – 2009 Safe Working in a Confined Space City of Sydney Council Development Control Plan (DCP) (2012) Sydney Street Technical Specifications (2013)
On-Site Detention (OSD)	Sydney Water City of Sydney Council Development Control Plan (DCP) (2012) Sydney Street Technical Specifications (2013) AS 2865 – 2009 Safe Working in a Confined Space
Water Sensitive Urban Design (WSUD)	City of Sydney Council Development Control Plan (DCP) (2012) Sydney Street Technical Specifications (2013)
Sediment and Erosion Control	City of Sydney Council Development Control Plan (DCP) (2012) Sydney Street Technical Specifications (2013) Landcom 'Blue Book' – Managing Urban Stormwater Soils and Construction Guideline Edition



6. Stormwater Drainage

6.1 Stormwater Drainage Design Requirements

This section of the report discusses the systems proposed to allow for stormwater to be conveyed across the site to the legal point of discharge. City of Sydney Council's Development Control Plan (2012) has set serviceability requirements for the stormwater conveyance network such that minor flows are conveyed through piped drainage, and major flows are discharged via controlled overland flow.

6.1.1 Surface Drainage

With reference to CoS Council's Sydney Streets Technical Specifications, Section A4 Stormwater Drainage Design, the requirements for stormwater drainage within the public domain are as follows:

- The stormwater networks shall be designed in accordance with the major/minor design concepts outlined in the Australia Rainfall and Runoff (ARR), A Guide to Flood Estimation;
- The minor (piped) drainage system must be designed to convey stormwater runoff for all storm events up to, and including, the 5% Annual Exceedance Probability (AEP) storm event;
- The major (overland) drainage system must be designed to convey the stormwater runoff for all events up to, and including, the 1% AEP storm event, and;
- The minimum size for City-owned conduits is 375mm for pipes and 450mm wide x 300mm high for box culverts.

With reference to CoS Council's DCP 2012, Section 3.7.2 *Drainage and Stormwater Management*, the requirements for stormwater drainage within privately-owned properties are as follows:

- Where the site area exceeds 1000m², the minor (piped) drainage system must be designed to convey stormwater runoff for all storm events up to, and including, the 5% Annual Exceedance Probability (AEP) storm event;
- Where the site area exceeds 1000m², the major (overland) drainage system must be designed to convey stormwater runoff for all storm events up to, and including, the 1% AEP storm event;
- Minor flows from a development site are not to be discharged to the kerb if direct connection to an existing stormwater pipe is available, unless it can be demonstrated that there is sufficient capacity within the existing gutter and the flow velocity and depth within the gutter will remain below 400mm, and;
- Where discharging to kerb and gutter, the maximum permissible site discharge will be limited to 25L/s for storm events up to, and including, the 5% AEP storm event

6.1.2 On-Site Detention (OSD) Requirements

With reference to the City of Sydney Council's Stormwater Drainage Manual, dated February 2017, the requirements for OSD are as follows:

- The following properties must incorporate an OSD system into their development site:
 - All commercial, industrial and special use (e.g. community, education, recreational) buildings or structures;
 - Town houses, villas, home units or other strata subdivisions. These may use a single OSD system for the total site area if it is located on common property and the body corporate is responsible for maintenance;
 - Dual occupancy lots. Each lot within the dual occupancy must have its own OSD system, and;
 - Sealed sporting facilities (e.g. tennis, basketball courts).



As the proposed on-lot development sites shall consist of a mix of retail and residential apartments, OSD systems will be required for the individual lots. Sydney Water has provided the Permissible Site Discharge (PSD) and Site Storage Requirements (SSR) for the four parcels in Table below. Refer to Appendix B.

Table 3: On-site Detention Requirements

Parcel	Design Criteria
Parcel 1	- Total site area = 6,354 square meters - On Site Detention = 98 cubic meters - Permissible Site Discharge = 236 L/s
Parcel 2	- Total site area = 3,204 square meters - On Site Detention = 50 cubic meters - Permissible Site Discharge = 119 L/s
Parcel 3	- Total site area = 2,928 square meters - On Site Detention = 45 cubic meters - Permissible Site Discharge = 109 L/s
Parcel 4	- Total site area = 2,032 square meters - On Site Detention = 32 cubic meters - Permissible Site Discharge = 75 L/s

6.1.3 Stormwater Quality Requirements

With reference to the City of Sydney Council's DCP 2012, Section 3.7.3 Stormwater Quality, the WSUD requirements are as follows:

- Where the development site area exceeds 1000m², a stormwater quality assessment must be undertaken to demonstrate that the development will achieve the post-development pollutant load standards specified below:
 - Reduce the baseline annual pollutant load for litter and vegetation larger than 5mm (gross pollutants (GP)) by 90%;
 - Reduce the baseline annual pollutant load for total suspended solids (TSS) by 85%;
 - Reduce the baseline annual pollutant load for total phosphorus (TP) by 65%, and;
 - Reduce the baseline annual pollutant load for total nitrogen (TN) by 45%.
- The stormwater quality assessment is to include the following:
 - Modelling of pollutant load standards with an industry-standard water quality model;
 - The design of WSUD measures used to achieve the post-development pollutant load standard, and;
 - Maintenance schedules of any proposed WSUD measure that requires maintenance or full replacement.
- The stormwater quality assessment is to include the following:
 - Filtration basket inserts in stormwater pits;
 - Filtration cartridges in stormwater manholes/OSD tanks;
 - Biofiltration basins;
 - Rainwater Tanks.



6.2 Stormwater Conveyance

This section of the report discusses the systems proposed to allow for stormwater to be conveyed across the site to the legal point of discharge. Council have set serviceability requirements for the stormwater conveyance network such that minor flows are conveyed through piped drainage, and major flows are discharged via controlled overland flow.

6.2.1 Roof Drainage

The drainage system will be designed in accordance with AS3500.3-2021 to convey the design storm runoff from the roof to the in-ground drainage system. For storm events exceeding the design storm event, flows will surcharge the roof drainage system and discharge onto the surrounding ground, where it will then be conveyed to the surrounding ground drainage within the site. Refer to the Hydraulic Engineer's design documentation for details of the roof drainage.

6.2.2 In-Ground Drainage

The surface areas will be drained through a variety of methods, discussed below, in accordance with AS3500.3:2021 and Council's stormwater drainage guidelines. The in-ground drainage has been designed to meet the following criteria:

- The minor (pipes) drainage system must be designed to convey stormwater runoff for storm events up to, and including, the 5% Average Exceedance Probability (AEP) storm event.
- The major (overland) drainage system must be designed to convey stormwater runoff for storm events up to, and including, the 1% Average Exceedance Probability (AEP) storm event.

A pit and pipe system has been designed to capture surface runoff from the access road and surrounding landscaped areas in the 5% AEP storm event. The runoff will then be conveyed below-ground across the site to the legal point of discharge using gravity and the geometric falls of the pipe system.

Under the major storm event, all overland flow paths shall not exceed the overland flow limits as specified in the Sydney Streets Technical Specifications Section A4 and Table 3 below.

Table 4: Overland Flow Limits within Public Domain (Sydney Streets Technical Specifications)

	Maximum Depth (mm)	Maximum Flow Width (m)	Maximum depth x velocity (m ² /s)
1% AEP Gutter Flow Limits for Carriageways <= 7m wide	100	3.0	0.6
1% AEP Gutter Flow Limits for Carriageways > 7m wide	150	3.5	0.6
1% AEP Overland Flow Limits for Pedestrian and Shared Zones	50	1.5	0.4

6.3 Proposed Site Stormwater and OSD Design

Roof areas shall be captured via a downpipe system and discharged to the proposed below-ground stormwater network. Surface flows shall be captured via a pit and pipe network and shall eventually discharge into Council's network in public domain.

6.3.1 DRAINS Input Parameters

A DRAINS model has been prepared to verify the site stormwater drainage system. DRAINS is a runoff routing software program which assesses stormwater drainage hydraulics based on catchment hydrology input from various sources including the Bureau of Meteorology (BoM) and the Australian Rainfall and Runoff (ARR) Datahub.

The parameters used in the DRAINS model are as follows:



• Soil Type – Normal	3.0
• Paved (Impervious) Area Depression Storage	1mm
• Supplementary Area Depression Storage	1mm
• Grassed (Pervious) Area Depression Storage	5mm
• Antecedent Moisture Condition	3.0
• Minimum Pit Blockage (Sag Pits)	0.5
• Minimum Pit Blockage (On-Grade Pits)	0.2
• Minimum Pit Freeboard	150mm
• Minimum Fall Across Pits	30mm

The DRAINS model has been prepared to confirm that the proposed stormwater pit and pipe network is adequately sized to capture and convey the 5% AEP storm. Overland flow paths have been adequately sized to convey the 1% AEP storm flows safely across the site in a north-westerly direction.

6.3.2 Stormwater On-Site Detention Tank (OSD) and Discharge

To ensure the inground stormwater infrastructure has adequate capacity to perform to the required standard, permanent OSD for the proposed development will be installed to control site discharge rates to pre-development levels and align with a rate that maintains the adequacy of the existing downstream stormwater network. Figure 5 below indicates the catchment extents of each parcel, and the minimum requirement of each OSD and PSD is shown in Appendix B.



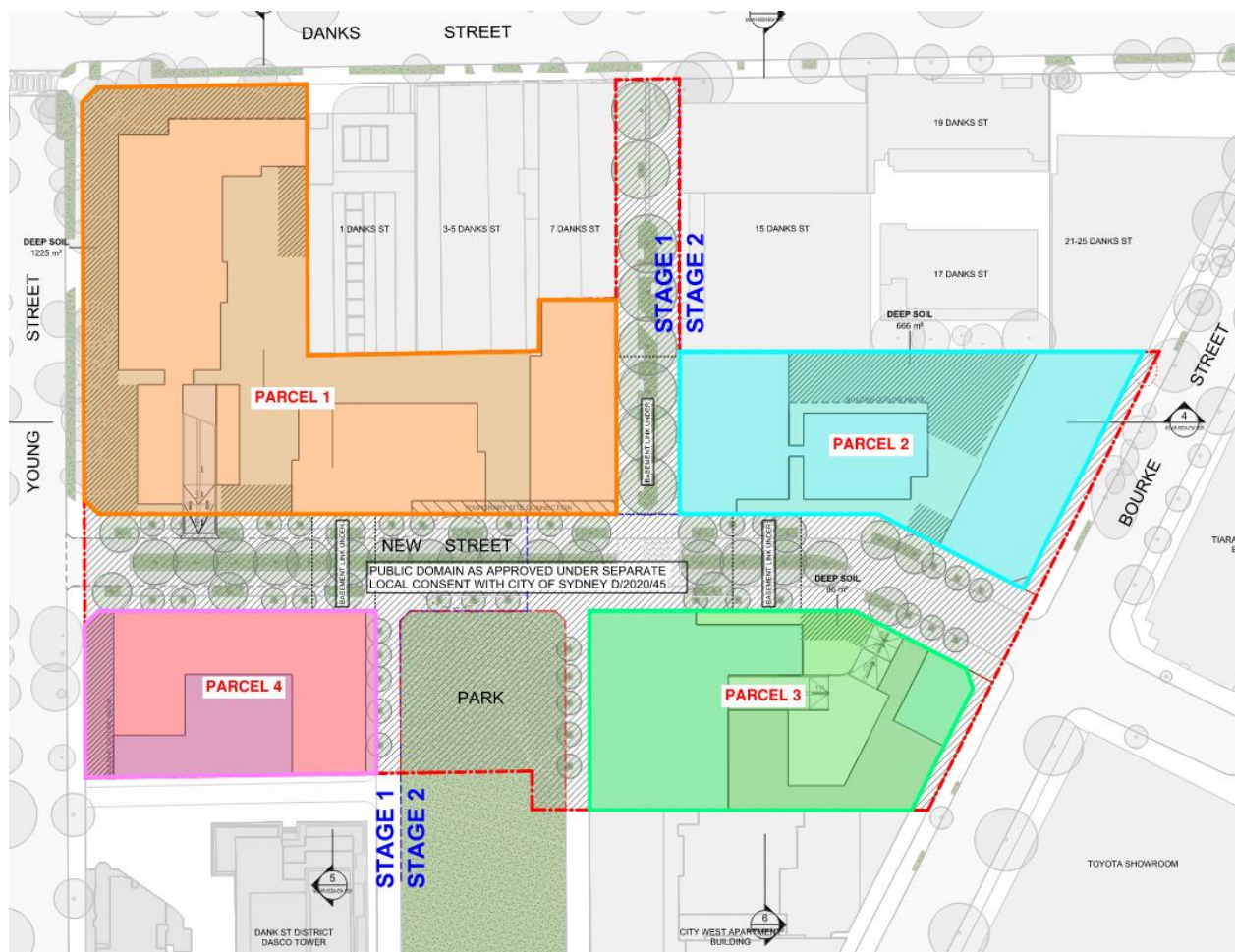


Figure 5: Parcel Catchment Extents (Source: SJB Architects, 2025)

A stormwater model has been generated using DRAINS to size the total volume of OSD that is required for the proposed development. The OSD tanks have been sized in accordance with the requirements provided by Sydney Water. For each parcel, Sydney Water has provided a maximum permissible site discharge (PSD) and minimum OSD volume required to attenuate flows and ensure the downstream piped council system is not adversely impacted by the development, as shown in Appendix B. The OSD tanks capture stormwater within the development and a total volume of 225 m³. Refer to the tables below for the modelled post-development discharge rates and OSD volumes against the requirements stipulated by Sydney Water.

Table 5: Parcel 1 OSD Design

AEP Rainfall Event	Minimum OSD Volume Required by Sydney Water (m ³)	Maximum PSD Required by Sydney Water (m ³ /s)	OSD Post-Development Discharge (m ³ /s)	Bypass (m ³ /s)	Total Post-Development Discharge (m ³ /s)	Minimum OSD Volume Provided (m ³)
10% AEP	98	0.236	0.131	0.041	0.172	98
5% AEP	98	0.236	0.145	0.047	0.192	98
2% AEP	98	0.236	0.161	0.054	0.215	98



AEP Rainfall Event	Minimum OSD Volume Required by Sydney Water (m ³)	Maximum PSD Required by Sydney Water (m ³ /s)	OSD Post-Development Discharge (m ³ /s)	Bypass (m ³ /s)	Total Post-Development Discharge (m ³ /s)	Minimum OSD Volume Provided (m ³)
1% AEP	98	0.236	0.172	0.062	0.234	98

Table 6: Parcel 2 OSD Design

AEP Rainfall Event	Minimum OSD Volume Required by Sydney Water (m ³)	Maximum PSD Required by Sydney Water (m ³ /s)	OSD Post-Development Discharge (m ³ /s)	Bypass (m ³ /s)	Total Post-Development Discharge (m ³ /s)	Minimum OSD Volume Provided (m ³)
10% AEP	50	0.119	0.081	0.007	0.088	50
5% AEP	50	0.119	0.089	0.009	0.098	50
2% AEP	50	0.119	0.099	0.010	0.105	50
1% AEP	50	0.119	0.107	0.011	0.118	50

Table 7: Parcel 3 OSD Design

AEP Rainfall Event	Minimum OSD Volume Required by Sydney Water (m ³)	Maximum PSD Required by Sydney Water (m ³ /s)	OSD Post-Development Discharge (m ³ /s)	Bypass (m ³ /s)	Total Post-Development Discharge (m ³ /s)	Minimum OSD Volume Provided (m ³)
10% AEP	45	0.109	0.078	0.004	0.082	45
5% AEP	45	0.109	0.085	0.005	0.092	45
2% AEP	45	0.109	0.094	0.006	0.100	45
1% AEP	45	0.109	0.101	0.007	0.108	45

Table 8: Parcel 4 OSD Design

AEP Rainfall Event	Minimum OSD Volume Required by Sydney Water (m ³)	Maximum PSD Required by Sydney Water (m ³ /s)	OSD Post-Development Discharge (m ³ /s)	Bypass (m ³ /s)	Total Post-Development Discharge (m ³ /s)	Minimum OSD Volume Provided (m ³)
10% AEP	32	0.075	0.041	0.013	0.054	32



AEP Rainfall Event	Minimum OSD Volume Required by Sydney Water (m ³)	Maximum PSD Required by Sydney Water (m ³ /s)	OSD Post-Development Discharge (m ³ /s)	Bypass (m ³ /s)	Total Post-Development Discharge (m ³ /s)	Minimum OSD Volume Provided (m ³)
5% AEP	32	0.075	0.045	0.015	0.060	32
2% AEP	32	0.075	0.050	0.017	0.067	32
1% AEP	32	0.075	0.054	0.02	0.074	32

The DRAINS modelling indicated that to restrict site discharge to that required by Sydney Water in the 10% AEP, 5% AEP, 2% AEP and 1% AEP storm events, a combined OSD of 298m³ storage volume would be necessary to be implemented on site.

In order to meet the PSD requirements for each OSD tank, an orifice plate was required to control and limit the discharge rate. Sydney Water requires orifice plate sizing calculations to be submitted as part of the SSDA. Refer to the table below for diameter of each OSD orifice plate.

Table 9: Orifice Sizing Calculations

OSD Tank	Orifice Invert Level (m AHD)	Orifice C Value	Maximum Upstream Water Elevation (m AHD)	Maximum Permissible Site Discharge from Tank (m ³ /s)	Orifice Plate Diameter (mm)
Parcel 1 OSD	26.805	0.61	28.05	0.172	280
Parcel 2 OSD	29	0.61	29.95	0.107	226
Parcel 3 OSD	28.748	0.61	30.31	0.101	195
Parcel 4 OSD	26.54	0.61	27.41	0.054	165



7. Water Sensitive Urban Design

The City of Sydney Council require stormwater quality treatment on new developments to reduce the pollutant loading of stormwater discharged into the council drainage system.

This section of the report describes the proposed Stormwater Quality Improvement Devices (SQID's) and the effectiveness of the treatment system in achieving the reduction targets set by council for the proposed development.

7.1 Potential Pollutants

There are a wide range of potential stormwater pollutant sources which occur from urbanised catchments, many which can be managed through appropriate stormwater quality treatment. Typical urban pollutants may include:

- Atmospheric deposition
- Erosion (including that from subdivision and building activities)
- Litter and debris
- Traffic emissions and vehicle wear
- Animal droppings
- Pesticides and fertilisers
- Application, storage and wash-off of car oil, detergents and other household and commercial solvents and chemicals
- Solid's accumulation and growth in stormwater systems
- Weathering of buildings

The following specific pollutants in urban stormwater assessed through water quality modelling and management include:

- Suspended Solids
- Litter
- Nutrients such as Nitrogen and Phosphorous
- Biological oxygen demand (BOD) and chemical oxygen demand (COD) materials
- Micro-organisms
- Toxic organics
- Trace metals
- Oils and surfactants

While only the key pollutants underlined above will be examined within the modelling, the Stormwater Quality Improvement Devices implemented are expected to assist in reducing a wide range of pollutants. For example, heavy metals are commonly associated with and bound to fine sediments. This reduces the discharge of fine sediment during the construction and operational phases will also reduce the discharge of heavy metals to existing stormwater systems.

7.2 Pollutant Reduction System

In order to achieve the pollutant reduction targets specified in section 6.1.3 of this report, a series of treatment devices are proposed within the stormwater network which form a treatment train.



The diagram below shows a typical treatment train:

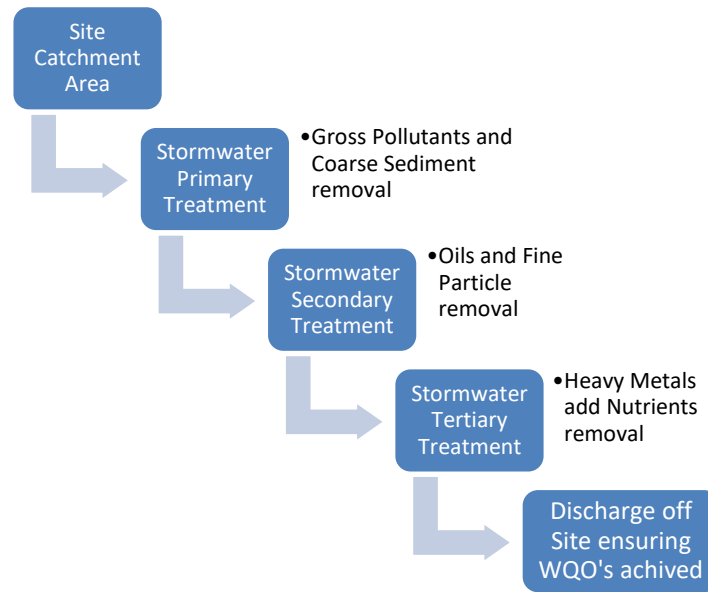


Figure 6: Treatment Train

7.2.1 Water Treatment Modelling

In order to demonstrate that the proposed treatment train meets the required reduction targets, a pollutant reduction model has been generated using the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) Software program. Pollutant export rates are currently only available for Total Suspended Solids (TSS), Total Nitrogen (TN), Total Phosphorus (TP) and Gross Pollutants (GP). Therefore, only quantitative modelling for TSS, TN, TP & GN has been undertaken using MUSIC.

Modelling has only been undertaken on the post-development proposal with SQID's installed to demonstrate the percentage reduction for each pollutant type. To achieve the reduction targets set out in Section 6.1.3, treatment devices are to be used in the stormwater network; ultimately forming a stormwater train. Stormwater primary treatment is used initially to remove gross pollutants and coarse sediments, followed by a secondary treatment used to remove oils and fine particles, finally a tertiary treatment is used to remove heavy metals and nutrients.

Table 10: Catchment Type

Type of Catchment	Catchment Area (ha)
Parcel 1 Roof Area	0.3590
Parcel 2 Roof Area	0.2102
Parcel 3 Roof Area	0.2677
Parcel 4 Roof Area	0.1713
Hardstand Pavement	0.1690
Landscape	0.1496
Bypass	0.1736



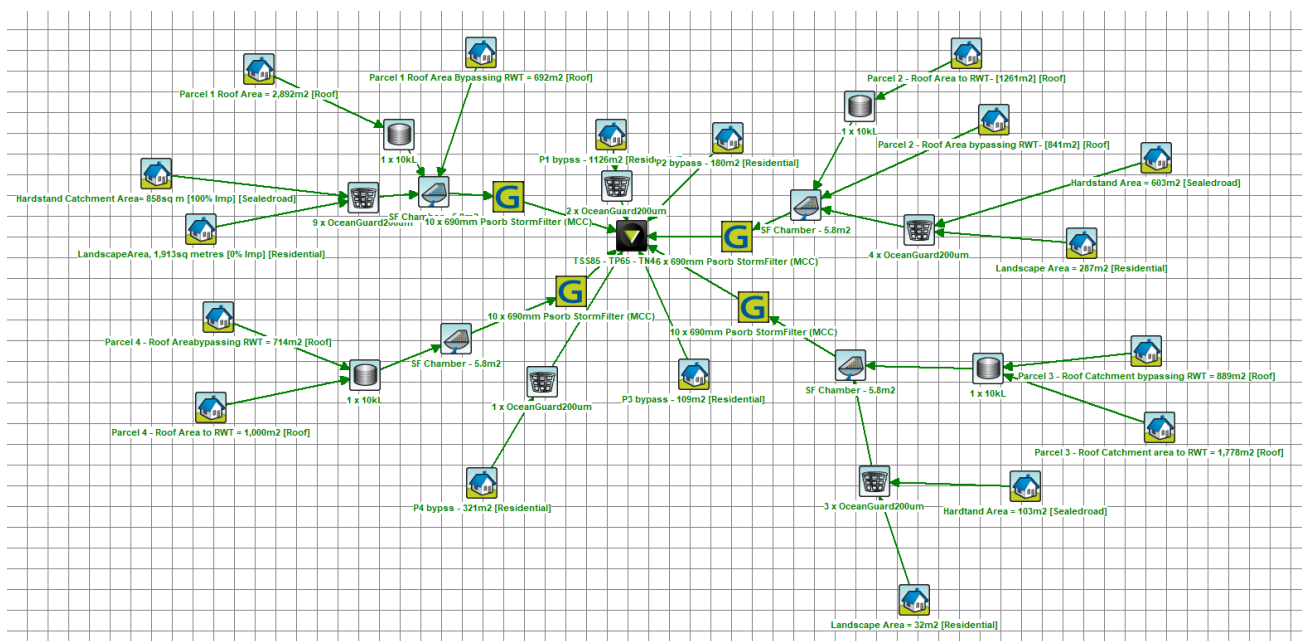


Figure 7: MUSIC Model Treatment Train

Table 11: MUSIC Results vs. Site Targets

Pollutant/Issue	Target	Reduction	Target Achieved
TSS	85%	85%	YES
Phosphorus	65%	66.5%	YES
Nitrogen	45%	46.7%	YES
Gross Pollutants	90%	98.6%	YES

As shown in the table above and the MUSIC result shown below, the MUSIC model indicates the proposed design meets council's pollutant reduction targets.

Ocean Guard Baskets

The OceanGuard Basket is a gully pit basket designed to capture pollution that runs into stormwater drains. It can be installed into existing and new stormwater pits. The system includes filtration bag liners, designed to remove gross pollutants, total suspended solids and attached pollutants.

The filtration bag, filtration cage and flow diverter work together to maximise the flow treated and pollutants captured. This efficient hydraulic design ultimately results in captured pollutants being retained in a dry state.

OceanGuard Baskets are cost-effective, highly efficient, easy to install and simple to maintain.

- **19 Ocean Guard Baskets** have been proposed for the site and will be installed into select proposed grated pits and OSD grated inlet in a surface inlet configuration.
 - Parcel 1 will consist of 9 x Pit Filter Baskets
 - Parcel 2 will consist of 4 x Pit Filter Baskets



- Parcel 3 will consist of 3 x Pit Filter Baskets
- Parcel 4 will consist of 3 x Pit Filter Baskets

Rainwater Re-Use Tanks

A Rainwater Tank is a water storage system designed to be installed to catch rainfall on roof surfaces. These tanks can provide water for non-potable uses such as toilet flushing, hot water, irrigation, and industrial washdown.

The proposed rainwater tanks shall be incorporated into the stormwater drainage system and will collect run-off from 0.8825Ha of non-trafficable roof area in the development. The RWTs will be utilised for irrigation purposes only, 0.4kL/year. There are four (4) x **10kL rainwater tanks** proposed for the site, 1 on each parcel. The size of the rainwater tank is subject to confirmation by BASIX report.

Ocean Protect Cartridge Filters

The Ocean Protect Cartridge Filters clean stormwater through a patented passive filtration system, effectively removing pollutants to meet regulatory requirements. This treatment system uses rechargeable, self-cleaning, media-filled cartridges to absorb and retain pollutants from stormwater runoff, including total suspended solids, hydrocarbons, nutrients, soluble heavy metals, and other common pollutants.

- OSD Tank 1 will consist of **10 x 690mm StormFilter cartridges**
- OSD Tank 2 will consist of **6 x 690mm StormFilter cartridges**
- OSD Tank 3 will consist of **10 x 690mm StormFilter cartridges**
- OSD Tank 4 will consist of **10 x 690mm StormFilter cartridges**



8. Stormwater Network Maintenance Schedule

In order to ensure the ongoing effective operation of the stormwater network and water quality treatment devices, the devices must be maintained in accordance with manufacturer recommendations/requirements and general best practice. It is noted that all pits are to be inspected in a safe manner that assesses localised risk and in accordance with maintenance contractor safe work method statements (SWMS).

The below summaries the various stormwater network components that will need to be maintained, whilst Schedule 1 below details required maintenance of specific items within the network requiring maintenance.

8.1 Pit and Pipe Network

A general inspection of the stormwater pit network is to be undertaken every six (6) months and after major storm events. The general inspection involves visual inspection inside pits, removal and disposal of larger gross pollutants within pits in accordance with waste disposal regulations to prevent blockages, and minimal rectification works as required. Inspection of general pits can coincide with inspection and maintenance of water quality pit inlets (if applicable).

8.2 OSD Tanks

A general inspection of the OSD tank is to be undertaken at a minimum every six (6) months and after major storm events. The general inspection involves visual inspection inside the tank, condition of components such as orifice plates and valves, removal and disposal of larger gross pollutants within pits in accordance with waste disposal regulations to prevent blockages, and minimal rectification works as required. Inspection of general pits can coincide with inspection and maintenance of water quality pit inlets (if applicable). It is expected that the tanks are hosed out and cleaned on an annual basis to ensure required performance can be achieved.

8.3 Water Quality Treatment Devices

The filtration inserts, located within the pits, are to undergo minor service every three (3) months and after major storm events or a hazardous material spill. This involves inspection and evaluation of the filter bad and its condition, removal of captured pollutants, and the appropriate disposal of captured material in accordance with waste disposal regulations. The minor service is designed to return the ocean guard back to optimal operating performance. An inspection of the condition is to be particularly undertaken following major storm events to check for damage and higher than normal sediment accumulation. Refer to manufacturer's maintenance procedures for details of safely undertaking hand maintenance or vacuum maintenance of the ocean guards.

A major service of the ocean guards is undertaken on an as-required basis and involves the inspection of ocean guards to determine the need for filter bag replacement and support frame rectification. Replacement is based on the outcomes from the minor service whereby damage is detected. Contact manufacturer for assessment and replacement components and refer to manufacturer's maintenance procedures for safely replacing components.

A general inspection of the filtration cartridges located in a Stormfilter chamber within the OSD tank, is to be undertaken every six (6) months and after major storm events or a hazardous material spill. The general inspection involves visual inspection of the Stormfilter cartridges and chamber, removal and disposal of larger gross pollutants from the device in accordance with waste disposal regulations to prevent blockages, and minimal rectification works as required. Cartridges are also to be checked to ensure they are all firmly connected to the connectors.

A minor service of the Stormfilters, undertaken every twelve (12) months and after major storm events or a hazardous material spill, involves the evaluation of the Stormfilter cartridges and media, removal of accumulated sediment and a wash-down of the Stormfilter chamber. Refer to Ocean Protect maintenance procedures for details of safely undertaking maintenance of the Stormfilter cartridges. During this service, the cartridge media is to be inspected and replaced if it is revealed that the cartridge media is exhausted. If this is the case, a major service is to be undertaken to replace the Stormfilter cartridge media. Contact manufacturer for assessment and replacement components and refer to manufacturer's maintenance procedures for details of safely replacing the media components.



8.4 Civil Structures

A general inspection of civil structures such as retaining wall and road subsoil and associate drainage across a site should be undertaken annually. The general inspection involves visual inspection, with identified defects assessed by applicable qualified engineers



8.5 Stormwater and OSD Maintenance Schedule

Maintenance Action	Frequency	Responsibility	Procedure
Pit and Pipe Network			
Blockages of inlet and outlet pipes within pits	Six Monthly	Maintenance Contractor	Remove grate. Remove any debris/litter/sludge from within pits.
Condition of inlet grates	Six Monthly	Maintenance Contractor	Clear vegetation and any debris from the pit grate and repair as required.
Condition of pit structures and section of pipes at inlets/ outlets.	Two Years	Maintenance Contractor	Remove grate to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required. Notify structural engineer if detrimental features observed.
Overland flow paths and drainage swales	Six Monthly	Maintenance Contractor	Walk along the flow path and swale. Check batters and condition of path extent. Remove any debris/litter/sludge.
Survey pipe condition with CCTV's and repair defects as necessary	Five Years	Maintenance Contractor	Remove grate. Clear blockages for camera access. Operate camera in accordance with manufacturer specifications and operator standard procedures.
OSD and Discharge Control			
Blockage of orifice plate	Six Monthly	Maintenance Contractor	Remove grate and screen to inspect orifice. See attached Site Stormwater plan for location of Discharge Control Pit.
Orifice structure size and connection to wall	Five Years	Maintenance Contractor	Compare orifice diameter to approved design (see Works as Executed Drawing) and ensure edge of orifice is not pitted or damaged.
Trash screen blockage	Six Monthly	Maintenance Contractor	Remove grate and screen if required to clean it.
Trash screen condition and connection to wall.	Annually	Maintenance Contractor	Remove grate and rack screen. Check corrosion in particular corners. Check screen fixings to wall for stability and corrosion. Repair as required.
Condition and performance of flap valves	Annually	Maintenance Contractor	Remove grate. Test valve hinge by moving flap to full extent and allowing it to drop back into normal position. Flap should freely swing at hinge.



Blockage of overflow weirs	Six Monthly	Maintenance Contractor	Remove grate and open cover to ventilate underground storage if present. Ensure weir clear of blockages.
Tank and pit wall defects and structural adequacy.	Two Years	Maintenance Contractor	Remove grate to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required.
Tank slab build-up of sediment and sludge.	Six Monthly	Maintenance Contractor	Remove grate and screen. Remove sediment/ sludge build up, check orifice and flap valves are clear.
Condition and fixing of step irons	Two Years	Maintenance Contractor	Remove grate to inspect step irons and connection into wall. Repair as required. Notify structural engineer if detrimental features observed.
OSD warning signage	Two Years	Maintenance Contractor	Remove grate to inspect signage and connections. Check for fading in sign and any vegetation growth over or near sign impacting visibility. Repair as required.
Water Quality Devices			
Blockages and debris within stormwater pit filtration inserts/ storm sacks	Six Monthly	Maintenance Contractor	Remove grate. Remove any debris/litter/sludge from within inserts.
Blockages and debris within filtration tanks and devices	Six Monthly	Maintenance Contractor	Remove grate. Remove any debris/litter/sludge. Hose out tank and devices from outside tank.
Blockages and debris within filtration cartridges inside storage tanks.	Six Monthly	Maintenance Contractor	Remove grate. Remove any debris/litter/sludge. Hose out tank and devices from outside tank.
Blockages and water conveyance within filtration stormwater lines	Annual	Maintenance Contractor	Remove grate. Flow water through filtration stormwater line from inspection openings to remove blockages.
Condition of stormwater pit filtration inserts/ storm sacks	Annual	Manufacturer's Contractor	Remove inserts from pit to inspect. Repair as required.
Condition and performance of treatment tank components	Annual	Manufacturer's Contractor	Remove grate and follow SWMS procedures to enter into the tank. View and repair damaged components.
Condition and performance of filtration cartridges	Annual	Manufacturer's Contractor	Remove cartridges from pit to inspect. Repair as required.
Civil Structures			
Check subsoil behind retaining walls drainage capacity via hose flushing	Annual	Maintenance Contractor	Blast with hose, water into inspection openings and pits to ensure conveyance through lines. Review outlets to ensure flow through line.



Condition of retaining walls and other structures, including cracking and stability	Annual	Maintenance Contractor	Walk along and inspect all visible faces of wall structure. Observe for cracking, crack width, any lean in on wall and moisture within structure. Notify structural engineer if detrimental features observed.
Check batters for signs of scour and erosion	Annual	Maintenance Contractor	Walk along bottom of embankments where possible. Check batter stability and vegetation. Notify civil engineer if detrimental features observed.



9. Erosion & Sedimentation Control

Landcom have published a design guide entitled “Managing Urban Stormwater - Soils and Construction” which is regarded as the standard to which erosion and sedimentation control should be designed to within New South Wales (NSW). City of Sydney Council specifies compliance with the Landcom design guide in their Stormwater and Floodplain Management Technical Manual.

The control of erosion and sedimentation describes the measures incorporated during and following construction of a new development to prevent the pollution and degradation of the downstream watercourse.

During early works, a combination of standard erosion and sediment control measures will be implemented in accordance with Landcom’s Blue Book (Managing Urban Stormwater: Soils and Construction), Australian Rainfall and Runoff 2019 (ARR2019), and best practice engineering design. The key measures proposed include:

- Perimeter silt fences around the site boundary to intercept overland flow and capture sediment-laden water.
- Sandbag or silt fence protection to existing kerb inlet pits, along Danks Street and Young Street, to reduce risk of sediment from entering the local drainage network.
- A vehicle shakedown device at site entry points to reduce sediment tracking onto the public road network.
- Proposed temporary diversion swales to direct surface flows in a controlled manner towards sediment capture areas.

9.1 Stormwater Drainage Infrastructure Inlets

Risk:

- Sediment from the construction site washing into the existing stormwater drainage inlet infrastructure.

Consequence:

- The sediment will then be conveyed into the downstream waterbody by stormwater runoff, contaminating the waterbody.
- The sediment will build up blocking the stormwater infrastructure and preventing stormwater conveyance to the downstream waterbody and impacting drainage upstream.

Mitigation:

- Sediment traps protection will be installed surrounding all existing stormwater drainage infrastructure inlets to prevent sediment entering the system.
- Temporary Stormwater Systems are to be installed where required to capture all site runoff within the zone of excavation. Runoff will be allowed to settle out suspended particles and debris, and an acceptable water of 50mg per litre of Non-Filterable Residues (NFR) is required to be achieved prior to discharge.
- Installation of a fence around the perimeter of the basin is required as well as a rip rap to allow for bobcat access for periodic removal of sediment. Also, a perforated riser outlet pipe needs to be placed for the connection and discharge to an existing pit.

Maintenance:

- Frequent inspection of the sandbags to ensure they are arranged in a manner that prevents sediment from accessing the drainage system. If sediment is building up on the sandbags they should be cleared of sediment and re-established.



- All soil erosion and sediment control structures including temporary sediment basins and sediment traps shall be inspected following each storm event and any necessary maintenance work shall be undertaken to ensure their continued proper operation.

9.2 Proposed Sediment Basin

Risk:

- Sediment from the construction site leaving the site and washing into the existing stormwater drainage inlet infrastructure or downstream properties

Consequence:

- The sediment will build up blocking the stormwater infrastructure and preventing stormwater conveyance to the downstream waterbody and impacting drainage upstream and downstream.

Mitigation:

- Sediment basins will be installed, and overland flow directed towards them. The basins will attenuate stormwater flows allowing for the settlement of sediment preventing discharge into the downstream infrastructure.
- The proposed basement excavation will serve as a temporary sediment basin, leveraging the significant depth of the excavation to detain stormwater runoff and promote the settlement of suspended sediments prior to controlled discharge. Due to the scale of the excavated area, dewatering may be undertaken at multiple discharge locations along Young Street and Danks Street, subject to the requirements of a dedicated Dewatering Management Plan prepared by an external consultant.
- In addition to the basement excavation areas, three supplementary sediment basins are proposed across the site to manage runoff from unexcavated ground surfaces and public domain works. These basins have been positioned in locations aligned with the site's natural topography to optimise the collection and treatment of sediment-laden stormwater. Each basin will be dewatered in accordance with the aforementioned Dewatering Management Plan to ensure compliance with environmental and regulatory requirements.

Maintenance:

- Frequent inspection of the basins to ensure there is sufficient volume for the storage of settlement. If there is insufficient storage the basins should be cleared of sediment and re-established.

9.3 Construction Exit Protection

Risk:

- Mud Tracking

Consequence:

- Spoil being tracked onto the public road corridors, where it is then washed into the existing stormwater drainage infrastructure and is then washed downstream, polluting the downstream waterbody.
- Spoil being tracked onto the public road creating dangerous driving conditions for other road users.

Mitigation:

- A shaker grid and/or truck wash down zone to be implemented to the construction site. All vehicles leaving the site will have their wheels washed down and pass over the shaker grid to remove any spoil.

Maintenance:

- Frequent inspection of the shaker grid to ensure it is clean and still functioning.



9.4 Downstream Site Boundaries

Risk:

- Rainfall runoff falling on the site collecting sediment from the construction site and conveying it overland onto downstream properties and waterbodies.

Consequence:

- Sediment discharge polluting downstream properties and waterbodies.

Mitigation:

- Installation of sediment fences on all downstream boundaries of the site to collect sediment and prevent it discharging onto downstream properties or waterbodies.

Maintenance:

- Regular inspection of the sediment fences to ensure they are functioning correctly and are intact.
- If sediment build up is present it should be removed to ensure correct functionality of the fences.

9.5 Sediment Runoff

Risk: -

- Sediment from the construction site washing into the existing stormwater drainage inlet infrastructure.

Consequence: -

- The sediment will build up blocking the stormwater infrastructure and preventing stormwater conveyance to the downstream waterbody and impacting drainage upstream.

Mitigation: -

- One sediment basin will be installed, and all overland flow directed towards them. The basins will attenuate stormwater flows allowing for the settlement of sediment preventing discharge into the downstream infrastructure.

Maintenance: -

- Frequent inspection of the basins to ensure there is sufficient volume for the storage of settlement. If there is insufficient storage the basins should be cleared of sediment and re-established.



Appendix A Civil Design Documentation





DRAWING LIST			
NO.	DRAWING NAME	REVISION	DATE
STN-ZZ-000-DR-CI-000001	COVER SHEET, DRAWING REGISTRY AND LOCALITY PLAN	B	2025.09.05
STN-ZZ-000-DR-CI-007001	GENERAL NOTES - SHEET 1	B	2025.09.05
STN-ZZ-000-DR-CI-007002	GENERAL NOTES - SHEET 2	B	2025.09.05
STN-ZZ-000-DR-CI-060001	GENERAL ARRANGEMENT PLAN	B	2025.09.05
STN-ZZ-000-DR-CI-070001	EROSION AND SEDIMENT CONTROL PLAN	B	2025.09.05
STN-ZZ-000-DR-CI-076001	EROSION AND SEDIMENT CONTROL DETAILS	B	2025.09.05
STN-ZZ-000-DR-CI-500001	STORMWATER CATCHMENT PLAN	B	2025.09.05
STN-ZZ-000-DR-CI-520001	STORMWATER DRAINAGE PLAN	B	2025.09.05
STN-ZZ-000-DR-CI-526001	STORMWATER DRAINAGE DETAILS - SHEET 1	B	2025.09.05
STN-ZZ-000-DR-CI-526002	STORMWATER DRAINAGE DETAILS - SHEET 2	B	2025.09.05
STN-ZZ-000-DR-CI-526003	STORMWATER DRAINAGE DETAILS - SHEET 3	B	2025.09.05
STN-ZZ-000-DR-CI-526004	STORMWATER DRAINAGE DETAILS - SHEET 4	B	2025.09.05
STN-ZZ-000-DR-CI-526005	STORMWATER DRAINAGE DETAILS - SHEET 5	B	2025.09.05
STN-ZZ-000-DR-CI-526006	STORMWATER DRAINAGE DETAILS - SHEET 6	B	2025.09.05
STN-ZZ-000-DR-CI-526007	STORMWATER DRAINAGE DETAILS - SHEET 7	B	2025.09.05

YOUNG AND BOURKE STREETS

ISSUE FOR SSDA
2025.09.05

Stantec Project Number: 301351683



SOURCE: NEARMAPS, SCALE: 1:1000

The professional's seal on the cover sheet represents that the information on the cover sheet is accurate in designer's professional opinion but does not assume professional responsibility for documents sealed by others that are referenced on the cover sheet. All professionals sealing drawings as a part of the design are professionally responsible for their own sealed documents.

GENERAL

- DESIGN HEREIN HAS BEEN PREPARED BY STANTEC AUSTRALIA PTY LTD LEVEL 9, THE FORUM, 203 PACIFIC HIGHWAY, ST LEONARDS NSW 2065
- CONTRACTOR TO CHECK WITH ENGINEER IF THESE NOTES ARE TO SUPPLEMENT A CIVIL SPECIFICATION.
- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
- THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH OTHER SUCH WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- ALL DIMENSIONS ARE IN MILLIMETRES (mm) & ALL LEVELS ARE IN METRES (m), UNO (UNLESS NOTED OTHERWISE).
- NO DIMENSION SHALL BE OBTAINED BY SCALING THE DRAWINGS.
- ALL LEVELS AND SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS.
- EXISTING SERVICES WHERE SHOWN HAVE BEEN PLOTTED FROM SUPPLIED DATA AND SUCH THEIR ACCURACY CAN NOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF WORK.

ELECTRONIC FILES

- IF APPLICABLE AND UPON REQUEST, ELECTRONIC FILES CAN BE SUPPLIED IN AUTOCAD FORMAT FOR INFORMATION PURPOSES ONLY. THESE FILES ARE NOT INTENDED FOR SETOUT AND ARE NOT TO BE RELIED UPON FOR CONSTRUCTION PURPOSES. THE FILES MAY FORM JUST PART OF OUR DESIGN PACKAGE / PROCESS AND, AS SUCH, THEIR ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED.
- THE FILES ARE CONSIDERED TO BE "UNCONTROLLED" AND, AS STANTEC ARE UNABLE TO CONTROL THE ACCURACY OF THESE EDITABLE FILES, ALL RESPONSIBILITY FOR SUCH ACCURACY AND THE SUITABILITY OF THESE FILES RESTS WITH THE RECIPIENT.
- REFER TO THE LATEST HARD COPY ENGINEERING DRAWINGS FOR ALL CURRENT INFORMATION. IN THE EVENT OF ANY DISCREPANCY BETWEEN PAPER AND ELECTRONIC VERSIONS, THE PAPER VERSION IS TO TAKE PRECEDENCE.
- THE ELECTRONIC FILES SHALL BE USED SOLELY BY THE INTENDED RECIPIENT AND SHALL NOT BE DISTRIBUTED TO OTHERS WITHOUT THE EXPRESS CONSENT OF STANTEC. STANTEC ACCEPTS NO LIABILITY FOR USE OF THE INFORMATION BY ANY THIRD PARTIES.

SURVEY

- THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN SHOWN AS PER THE TOPOGRAPHIC SURVEY RECEIVED ON 23/06/2025 PREPARED BY SDG, REFERENCE 9350 DATED 07/04/2025.
- THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. STANTEC DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT THE SUPERINTENDENT.
- IF AN EXISTING SERVICES PLAN HAS BEEN SUPPLIED THIS DOES NOT TAKE PRECEDENCE OVER ORIGINAL SURVEY PLAN.
- CONTRACTOR TO REVIEW ORIGINAL SURVEY PLAN AND NOTES. THIS INCLUDES REVIEW OF SUBSURFACE UTILITY CLASS INFORMATION

SITEWORKS

- ORIGIN OF LEVELS:- REFER SURVEY NOTES.
- CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES TO BE REPORTED TO THE SUPERINTENDENT.
- ALL WORK IS TO BE UNDERTAKEN IN ACCORDANCE WITH COUNCIL CONSTRUCTION SPECIFICATIONS, THE DETAILS SHOWN ON THE DRAWINGS AND THE SPECIFICATIONS AND THE DIRECTIONS OF THE PRINCIPAL'S REPRESENTATIVE.
- ALL WORKS TO BE COMPLETED IN ACCORDANCE WITH CITY OF SYDNEY COUNCIL AND OTHER AUTHORITY REQUIREMENTS.
- ALL CONSTRUCTION UNDERTAKEN BY THE CONTRACTOR IS TO COMPLY WITH THE REQUIREMENTS OF THE CURRENT WORKPLACE HEALTH AND SAFETY ACT.
- CONTRACTOR TO CONFIRM ALL CBR VALUES PRIOR TO COMMENCEMENT OF WORKS.
- WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES, IS OBTAINED.
- THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.
- CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS ARE TO BE UNDERTAKEN OVER GAS, COMMUNICATIONS OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS ONLY.
- ALL TRENCH BACKFILL MATERIAL NOT IN PAVEMENTS SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.
- UNLESS NOTED OTHERWISE IN CIVIL SPECIFICATION, ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75).
- ON COMPLETION OF PIPE INSTALLATION, ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AND GRASSED AREAS, AND ROAD PAVEMENTS.
- TRENCHES THROUGH EXISTING ROAD AND CONCRETE PAVEMENTS SHALL BE SAWCUT TO THE FULL DEPTH OF CONCRETE AND MIN. 50mm IN BITUMINOUS PAVING.
- MAKE SMOOTH TRANSITION TO EXISTING SERVICES AND MAKE GOOD.
- THESE PLANS ARE TO BE READ IN CONJUNCTION WITH COUNCIL CONSTRUCTION SPECIFICATIONS AND APPROVED LANDSCAPE, ELECTRICAL AND TELECOMMUNICATION DRAWINGS AND SPECIFICATIONS.
- WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED BY OTHERS, (eg. ADJUSTMENT OF SERVICES), THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF THESE WORKS.
- ON COMPLETION OF WORKS, ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL INCLUDING, BUT NOT LIMITED TO, KERBS, FOOTPATHS, CONCRETE AREAS, GRASS AND LANDSCAPED AREAS.

COUNCIL REQUIREMENTS

- ALL WORKS TO BE CONDUCTED IN ACCORDANCE WITH CITY OF SYDNEY COUNCIL REQUIREMENTS.
- THE CONTRACTOR MUST OBTAIN AND SUBMIT TRAFFIC/PEDESTRIAN MANAGEMENT PLANS TO CITY OF SYDNEY COUNCIL PRIOR TO WORKS.
- ALL AREAS AFFECTED BY WORKS ARE TO BE MINIMIZED AT ALL TIMES AND BE MADE GOOD AT COMPLETION OF WORKS TO THE SATISFACTION OF THE SUPERINTENDENT AND CITY OF SYDNEY COUNCIL.
- 1500mm MIN FOOTPATHS ARE TO BE MAINTAINED AT ALL TIMES AND, IF WIDTH NOT AVAILABLE, PROVIDE ADVISORY SIGNS REQUESTING PEDESTRIANS TO USE OPPOSITE FOOTPATH.
- CONTRACTOR TO MEET ALL ABUTTING PROPERTIES REASONABLE ACCESS REQUIREMENTS THAT THEY MAY HAVE.
- THE WORKS SHALL NOT IMPACT ON THE OPERATIONS OF BUSINESSES, HOTELS, RESTAURANTS, STREET VENDORS, OFF STREET CAR PARKS ETC. ALL PARKING AND NO STOPPING RESTRICTIONS SHALL BE OBSERVED.
- THE WORKS/INSTALLATION SHALL NOT INTERFERE WITH COUNCILS AND PRIVATE DRAINAGE INFRASTRUCTURE INCLUDING SURFACE DRAINS.
- THE CONTRACTOR SHALL AGREE TO A DEFECTS LIABILITY PERIOD FOR THE BACKFILLING OF ONE (1) YEAR COMMENCING FROM THE DATE OF WORK. ANY DEFECTS FOUND BY COUNCIL WITHIN THE ONE YEAR PERIOD SHALL BE RECTIFIED BY THE APPLICANT/CONTRACTOR TO COUNCILS SATISFACTION WITHIN TWO WEEKS OF NOTIFICATION IN WRITING.
- IF COUNCIL'S INFRASTRUCTURE SUCH AS PARKING SIGNS, ROAD OR LINE MARKINGS, PARKING METERS TICKET MACHINES OR SUPPORTING CABLES/CONDUITS, IRRIGATION PIPES OR STREET FURNITURE ARE REMOVED OR DAMAGED AS A RESULT OF THE WORKS THE CONTRACTOR SHALL, AT COMPLETION OR WORKS, ARRANGE AND PAY FOR THEIR REINSTATEMENT.
- ALL DRAWINGS TO BE READ IN CONJUNCTION WITH LATEST COUNCIL STANDARD DRAWINGS. ANY DISCREPANCY TO BE RAISED WITH STANTEC.

DEMOLITION

- ALL DEMOLISHED SWALES AND OPEN DRAINS TO BE STRIPPED AND INFILLED WITH SELECT FILL COMPACTED IN 300mm THICK LAYERS.
- ALL DEMOLISHED PAVEMENTS TO BE REMOVED DOWN TO SUBGRADE LEVEL. BUILD BACK UP TO FINISHED SURFACE WITH SELECT FILL COMPACTED IN 200mm THICK LAYERS TO CIVIL SPECIFICATION.
- ALL DISTURBED AREAS SHALL BE FINISHED WITH TOPSOIL AND DURABLE DRYLAND GRASS IN ACCORDANCE WITH LANDSCAPE ARCHITECTS SPECIFICATION.
- ALL BUILDING DEMOLITION WORKS SHALL INCLUDE SEQUENCING, DISCONNECTION AND DEMOLITION OF ALL ASSOCIATED BUILDING SERVICES.
- PRIOR TO REMOVAL OF TREES AND VEGETATION, TRADE CONTRACTOR SHALL SEEK ALL RELEVANT APPROVALS FROM THE MANAGING CONTRACTOR.
- ALL DEMOLISHED MATERIALS TO BE DISPOSED OFF SITE AT AN APPROVED WASTE COLLECTION AND PROCESSING FACILITY (UNLESS OTHERWISE DIRECTED IN WRITING BY THE MANAGING CONTRACTOR).
- REFER TO THE RELEVANT ENGINEERING DRAWINGS FOR TREATMENT, DIVERSION AND DEMOLITION OF EXISTING SERVICES AFFECTED BY THE WORKS, INCLUDING BUT NOT LIMITED TO ELECTRICAL, COMMUNICATIONS, HYDRAULIC SERVICES
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ANY PRIOR APPROVAL REQUIRED FROM COUNCIL WITH RESPECT TO POTENTIAL IMPACT ON TREES FOR ANY WORKS SHOWN ON THE DRAWINGS PRIOR TO THE COMMENCEMENT OF THOSE WORKS.

PROTECTION OF FLORA

- ANY TRENCHES WITHIN 3m OF TREES SHALL BE DUG BY NON-DESTRUCTIVE MEANS TO AVOID DAMAGE TO THE TREE ROOTS, OR AS DIRECTED BY THE PROJECT ARBORIST.
- THE STORMWATER WORKS HAVE BEEN LOCATED TO MINIMISE CLEARING AND DAMAGE TO THE EXISTING FLORA ENVIRONMENT TO BE RETAINED. NO TREES ARE PERMITTED TO BE REMOVED OR DAMAGES UNO. CONSTRUCTION OF THE STORMWATER IN THE VICINITY OF EXISTING TREES SHALL BE DUG BY NON-DESTRUCTIVE MEANS, OR AS DIRECTED BY THE PROJECT ARBORIST, ENSURING IRREVERSIBLE DAMAGE OF THE ROOT SYSTEM DOES NOT OCCUR.
- ANY WORK ON TREES, INCLUDING TRIMMING, LOPPING, ROOT CUTTING, REPAIR AND REMOVAL, IS TO BE TO THE PROJECT ARBORIST'S REQUIREMENTS.
- NO MATURE TREES OR SHRUBS ARE TO BE REMOVED FOR THE PURPOSES OF THE WORKS WITHOUT PRIOR APPROVAL FROM COUNCIL.

ALTERNATIVE PRODUCTS

- ALTERNATIVE PRODUCTS SUCH AS ALTERNATIVE STORMWATER PIPE MATERIALS OR WATER QUALITY TREATMENT DEVICES MAY ONLY BE USED WITH WRITTEN APPROVAL OF STANTEC. ALL TESTING AND MATERIAL DATA SPECIFICATIONS TO BE SUPPLIED TO STANTEC FOR REVIEW.

EXISTING SERVICES

- EXISTING SERVICES, WHERE SHOWN, HAVE BEEN PLOTTED FROM SUPPLIED DATA AND SUCH THEIR ACCURACY CAN NOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF WORK.
- EXISTING SERVICES SHOWN ON THE PLANS ARE LOCATED APPROXIMATELY BASED ON INFORMATION SUPPLIED BY THE RELEVANT AUTHORITIES AND/OR SURVEY RECEIVED. STANTEC DOES NOT TAKE RESPONSIBILITY FOR THE SUITABILITY OR LOCATION/DEPTH OF THE EXISTING SERVICES.
- STANTEC DOES NOT TAKE RESPONSIBILITY FOR ANY POSSIBLE DESIGN ADJUSTMENT OF ANY ADDITIONAL EXISTING SERVICES OR THE ASSOCIATED AUTHORITY NEGOTIATIONS AS A RESULT OF THE PROPOSED WORKS.
- THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. STANTEC DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.
- EXISTING BUILDINGS, EXTERNAL STRUCTURES AND TREES SHOWN ON THESE DRAWINGS ARE FEATURES EXISTING PRIOR TO ANY DEMOLITION WORKS.
- THE CONTRACTOR SHALL UNDERTAKE POT-HOLING AND/OR INVESTIGATION WORKS TO LOCATE ALL EXISTING SERVICES PRIOR TO COMMENCING WORKS. THIS INCLUDES CONFIRMING THE LOCATION AND DETAILS OF THE EXISTING SITE STORMWATER DISCHARGE.
- ALL AREAS WITHIN THE EXTENT OF WORKS TO BE SCANNED FOR EXISTING UTILITY SERVICES AND LOCATIONS PRIOR TO CONSTRUCTION.
- WHIST REASONABLE EFFORT HAS BEEN MADE TO AVOID CLASHES WITH EXISTING SERVICES, EXTENT AND QUALITY OF SUPPLIED DATA IS INSUFFICIENT FOR COMPLETE CLASH DETECTION ACCURACY. CONTRACTOR TO TAKE CARE WORKING AROUND EXISTING UTILITIES AND REPORT ANY POSSIBLE CLASHES BACK TO THE ENGINEER.
- THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION, REMOVAL AND DISPOSAL IF REQUIRED OF ALL EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA, AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT.
- THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT INTERRUPTED.
- THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SERVICE AUTHORITY. ONCE DIVERSION IS COMPLETE AND COMMISSIONED, THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE RELEVANT SERVICE AUTHORITY.
- PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN WRITTEN APPROVAL OF THEIR PROGRAMME FOR THE RELOCATION/CONSTRUCTION OF TEMPORARY SERVICES.
- CLEARANCE AND COVER REQUIREMENTS SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY BEFORE COMMENCEMENT OF WORKS AND SHALL BE ADHERED TO AT ALL TIMES.

TELSTRA - DUTY OF CARE

TELSTRA'S PLANS SHOW ONLY THE PRESENCE OF CABLES AND PLANT. THEY ONLY SHOW THEIR POSITION RELATIVE TO ROAD BOUNDARIES, PROPERTY FENCES ETC. AT THE TIME OF INSTALLATION AND TELSTRA DOES NOT WARRANT OR HOLD OUT THAT SUCH PLANS ARE ACCURATE THEREAFTER DUE TO CHANGES THAT MAY OCCUR OVER TIME. DO NOT ASSUME DEPTH OR ALIGNMENT OF CABLES OR PLANT AS THESE VARY SIGNIFICANTLY. THE CONTRACTOR HAS A DUTY OF CARE WHEN EXCAVATING NEAR TELSTRA CABLES & PLANT. BEFORE USING MACHINE EXCAVATORS TELSTRA PLANT MUST FIRST BE PHYSICALLY EXPOSED BY SOFT DIG POT-HOLING TO IDENTIFY ITS LOCATION TELSTRA WILL SEEK COMPENSATION FOR DAMAGES CAUSED TO ITS PROPERTY AND LOSSES CAUSED TO TELSTRA AND ITS CUSTOMERS.

EROSION AND SEDIMENT CONTROL

GENERAL INSTRUCTIONS

- THIS SPECIFICATION IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND ANY OTHER PLANS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED AND RELATING TO DEVELOPMENT AT THE SUBJECT SITE.
- THE CONTRACTOR WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS INSTRUCTED IN THIS SPECIFICATION AND CONSTRUCTED FOLLOWING THE GUIDELINES OF "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", DEPT OF HOUSING, 2004 (BLUE BOOK).
- REQUIRED SITE SPECIFIC ADDITIONS/CHANGES TO THE SOIL AND WATER MANAGEMENT WORKS ARE TO BE MADE AS NECESSARY BY THE SUPERINTENDENT.
- ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH
 - LOCAL AUTHORITY REQUIREMENTS
 - EPA REQUIREMENTS
 - NSW DEPARTMENT OF HOUSING MANUAL "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004.
- MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.
- WHEN STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.
- CONTRACTOR IS TO ENSURE ALL EROSION & SEDIMENT CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER AND OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.
- ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED PRIOR TO ANY GROUND DISTURBANCE.

LAND DISTURBANCE

- DISTURBANCE TO BE NO FURTHER THAN 5 (PREFERABLY 2) METRES FROM THE EDGE OF ANY ESSENTIAL ENGINEERING ACTIVITY AS SHOWN ON THE APPROVED PLANS. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE ZONES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
- ACCESS AREAS ARE TO BE LIMITED TO A MAXIMUM WIDTH OF 10 METRES. THE SITE MANAGER WILL DETERMINE AND MARK THE LOCATION OF THESE ZONES ON-SITE. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE BOUNDARIES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
- WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE WILL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:
 - INSTALL A BARRIER AND SEDIMENT FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
 - CLEAR SITE AND STRIP AND STOCKPILE TOPSOIL IN LOCATIONS AS AGREED WITH THE CONTRACTOR.
 - CONSTRUCT STABILISED CONSTRUCTION ENTRANCE TO LOCATION AS DETERMINED BY SUPERINTENDENT/ENGINEER. REFER DETAIL.
 - CONSTRUCT DIVERSION DRAINS AS REQUIRED.
 - INSTALL MESH AND GRAVEL INLETS FOR ANY ADJACENT KERB INLETS. REFER DETAIL.
 - INSTALL GEOTEXTILE INLET FILTERS AROUND ANY ON-SITE DROP INLET PITS. REFER DETAIL.
 - INSTALL SEDIMENT BASIN AS SHOWN ON PLAN (IF REQUIRED).
 - UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS ENSURING THAT ROOF AND/OR PAVED AREA STORMWATER SYSTEMS ARE CONNECTED TO PERMANENT DRAINAGE AS SOON AS PRACTICABLE.
 - GRADE AREAS TO FINAL GRADES AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 20 DAYS OF COMPLETION OF CONSTRUCTION WORKS.
 - REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.
- ENSURE THAT SLOPE LENGTHS DO NOT EXCEED 80 METRES WHERE PRACTICABLE. SLOPE LENGTHS ARE DETERMINED BY SILTATION FENCING AND CATCH DRAIN SPACING.
- ON COMPLETION OF MAJOR WORKS, LEAVE DISTURBED LANDS WITH A SCARIFIED SURFACE TO ENCOURAGE WATER INFILTRATION AND ASSIST WITH KEYING TOPSOIL LATER.

SEDIMENT CONTROL

- SEDIMENT FENCES WILL BE INSTALLED AS SHOWN ON THE PLAN AND ELSEWHERE AT THE DISCRETION OF THE SITE SUPERINTENDENT TO CONTAIN SOIL AS NEAR AS POSSIBLE TO THEIR SOURCE.
- SEDIMENT FENCES WILL NOT HAVE CATCHMENT AREAS EXCEEDING 900 SQUARE METRES AND HAVE A STORAGE DEPTH OF AT LEAST 0.6 METRES.
- SEDIMENT REMOVED FROM ANY TRAPPING DEVICES WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS CANNOT OCCUR.
- STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS AND DRIVEWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.
- WHERE AREA PERMITS, STOCKPILES SHALL BE A MAXIMUM OF 2 METRES IN HEIGHT AND WITH SIDE SLOPES OF 1(V)ER) TO 2(H)OR). ADVICE SHOULD BE SOUGHT FROM THE CONTRACTOR FOR TEMPORARY STOCKPILES HIGHER THAN 2 METRES OR WITH SIDE SLOPES STEEPER THAN 1(V)ER) TO 2 (HOR).
- TEMPORARY STOCKPILES STORED FOR LESS THAN 20 DAYS WILL BE ESTABLISHED WITH THE FOLLOWING CONTROLS:
 - SEDIMENT FENCE ON DOWNSTREAM SIDE OF STOCKPILE
 - DUST SUPPRESSION MEASURES TO BE PROVIDED SUCH AS COVERING STOCKPILE WITH GEOFABRIC AND/OR REGULAR WATERING
- TEMPORARY STOCKPILES STORED FOR MORE THAN 20 DAYS WILL BE ESTABLISHED WITH THE FOLLOWING CONTROLS:
 - SEDIMENT FENCE ON DOWNSTREAM SIDE OF STOCKPILE
 - DUST SUPPRESSION MEASURES TO BE PROVIDED SUCH AS COVERING STOCKPILE WITH GEOFABRIC AND/OR REGULAR WATERING
 - STABILISATION OF STOCKPILE SURFACE WITH HYDROMULCH / GEOTEXTILE BLANKET / SOIL GLUE / ROCK MULCH OR OTHER APPROVED EQUIVALENT
 - PROVIDE DIVERSION BANK ON UPSTREAM SIDE TO PROTECT STOCKPILE FROM STORMWATER OVERLAND FLOW
- ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
- WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE AND MEETS THE RELEVANT AUTHORITY REQUIREMENTS PRIOR TO LEAVING THE SITE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
- TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.
- ACCESS TO SITES SHOULD BE STABILISED TO REDUCE THE LIKELIHOOD OF VEHICLES TRACKING SOIL MATERIALS ONTO PUBLIC ROADS AND ENSURE ALL-WEATHER ENTRY/EXIT.

EROSION CONTROL

- DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
- FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.
- EARTH BATTERS WILL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEPPER, UNLESS NOTED OTHERWISE, THAN:
 - 2(H):1(V) WHERE SLOPE LENGTH IS LESS THAN 12 METRES
 - 2.5(H):1(V) WHERE SLOPE LENGTH IS BETWEEN 12 AND 16 METRES
 - 3(H):1(V) WHERE SLOPE LENGTH IS BETWEEN 16 AND 20 METRES
 - 4(H):1(V) WHERE SLOPE LENGTH IS GREATER THAN 20 METRES
- ALL WATERWAYS, DRAINS, SPILLWAYS AND THEIR OUTLETS WILL BE CONSTRUCTED TO BE STABLE IN AT LEAST THE 5% AEP TIME OF CONCENTRATION STORM EVENT.
- WATERWAYS AND OTHER AREAS SUBJECT TO CONCENTRATED FLOWS AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND COVER C-FACTOR OF 0.05 (70% GROUND COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION. FLOW VELOCITIES ARE TO BE LIMITED TO THOSE SHOWN IN TABLE 5-1 OF "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", DEPT OF HOUSING 2004 (BLUE BOOK). FOOT AND VEHICULAR TRAFFIC WILL BE PROHIBITED IN THESE AREAS.
- STOCKPILES, AFTER CONSTRUCTION, ARE TO HAVE A MAXIMUM GROUND COVER C-FACTOR OF 0.1 (60% GROUND COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION.
- ALL LANDS, INCLUDING WATERWAYS AND STOCKPILES, DURING CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND COVER C-FACTOR OF 0.15 (50% GROUND COVER) WITHIN 20 WORKING DAYS FROM INACTIVITY EVEN THOUGH WORKS MAY CONTINUE LATER.
- FOR AREAS OF SHEET FLOW, USE THE FOLLOWING GROUND COVER PLANT SPECIES FOR TEMPORARY COVER. JAPANESE MILLET 20KG/HA AND OATS 20KG/HA.
- PERMANENT REHABILITATION OF LANDS AFTER CONSTRUCTION WILL ACHIEVE A GROUND COVER C-FACTOR OF LESS THAN 0.1 AND LESS THAN 0.05 WITHIN 60 DAYS. NEWLY PLANTED LANDS WILL BE WATERED REGULARLY UNTIL AN EFFECTIVE COVER IS ESTABLISHED AND PLANTS ARE GROWING VIGOROUSLY. FOLLOW-UP SEED AND FERTILISER WILL BE APPLIED AS NECESSARY.
- RE-VEGETATION SHOULD BE AIMED AT RE-ESTABLISHING NATURAL SPECIES. NATURAL SURFACE SOILS SHOULD BE REPLACED AND NON-PERSISTANT ANNUAL COVER CROPS SHOULD BE USED.

SITE INSPECTION AND MAINTENANCE

- THE SITE PRINCIPAL CONTRACTOR WILL INSPECT THE SITE AT LEAST WEEKLY AND AT THE CONCLUSION OF EVERY STORM EVENT TO:
 - ENSURE THAT DRAINS OPERATE PROPERLY AND TO EFFECT ANY NECESSARY REPAIRS
 - REMOVE SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5 METRES FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS AND PAVED AREAS
 - REMOVE TRAPPED SEDIMENT WHENEVER THE DESIGN CAPACITY OF THAT STRUCTURE HAS BEEN EXCEEDED
 - ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS NECESSARY
 - CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS. MAKE ONGOING CHANGES TO THE PLAN WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECTED TO CHANGES IN CONDITIONS ON THE WORK-SITE OR ELSEWHERE IN THE CATCHMENT
 - MAINTAIN EROSION AND SEDIMENT CONTROL STRUCTURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED.
- THE SITE PRINCIPAL CONTRACTOR SHALL KEEP A LOGBOOK MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST RAIN AND AFTER RAINFALL. ENTRIES WILL INCLUDE:
 - THE VOLUME AND INTENSITY OF ANY RAINFALL EVENTS
 - THE CONDITION OF ANY SOIL AND WATER MANAGEMENT WORKS
 - THE CONDITION OF VEGETATION AND ANY NEED TO IRRIGATE
 - THE NEED FOR DUST PREVENTION STRATEGIES
 - ANY REMEDIAL WORKS TO BE UNDERTAKEN. THE LOGBOOK WILL BE KEPT ON-SITE AND MADE AVAILABLE TO ANY AUTHORISED PERSON UPON REQUEST. IT WILL BE GIVEN TO THE PROJECT MANAGER AT THE CONCLUSION OF THE WORKS

WASTE CONTROL MEASURES

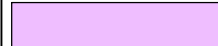
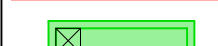
- ACCEPTABLE BINS WILL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHING, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES WILL BE PROVIDED AT LEAST WEEKLY. DISPOSAL OF WASTE WILL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT.
- ALL POSSIBLE POLLUTANT MATERIALS ARE TO BE STORED WELL CLEAR OF ANY POORLY DRAINED AREAS, FLOOD PRONE AREAS, STREAMBANKS, CHANNELS AND STORMWATER DRAINAGE AREAS. STORE SUCH MATERIALS IN A DESIGNATED AREA UNDER COVER WHERE POSSIBLE AND WITHIN CONTAINMENT BUNDS.
- ALL PERSONNEL ARE TO BE INFORMED OF THEIR OBLIGATION TO USE WASTE CONTROL FACILITIES PROVIDED.
- ANY DE-WATERING ACTIVITIES ARE TO BE CLOSELY MONITORED TO ENSURE THAT WATER IS NOT POLLUTED BY SEDIMENT, TOXIC MATERIALS OR PETROLEUM PRODUCTS.
- PROVIDE DESIGNATED VEHICULAR WASHDOWN AND MAINTENANCE AREAS WHICH ARE TO HAVE CONTAINMENT BUNDS.
- ALL WASHDOWN AND MAINTENANCE AREAS ARE TO BE IMPERVIOUS PAVEMENTS TO RETAIN WATER ON THE SURFACE. NO RUNOFF FROM WASHDOWN AND MAINTENANCE AREAS ARE TO BE INFILTRATED.

OTHER MATTERS

- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AFTER RAINFALL EVENTS TO ENSURE THAT THEY OPERATE EFFECTIVELY. REPAIR AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED.
- ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
 - PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE
 - ENSURING THAT NOTHING IS NAILED TO THEM
 - PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS.
 - ENCROACHMENT ONLY OCCURS ON ONE SIDE AND NO CLOSER TO THE TRUNK THAN EITHER 1.5 METRES OR HALF THE DISTANCE BETWEEN THE OUTER EDGE OF THE DRIP LINE AND THE TRUNK, WHICHEVER IS THE GREATER
 - A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (E.G. A GRAVEL BED) IS PLACED UNDER ALL FILL LAYERS OF MORE THAN 300 MILLIMETRES DEPTH
 - CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.
- WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH THE REMEDIAL ACTION PLAN, IF APPLICABLE. ANY FINDS ARE TO BE BROUGHT TO THE SITE SUPERINTENDENT'S ATTENTION WITHIN 24 HOURS.
- ANY RECOMMENDATIONS IN THE ARBORISTS REPORT ARE TO BE FOLLOWED AND INCORPORATED INTO THE EROSION AND SEDIMENT CONTROL WORKS.

Notes		Issue Status	Colour Disclaimer This drawing has been documented in colour. This drawing is required to be printed in colour. Failure to do so may result in loss of information. Black and white printing may be used if specific black and white documents have been obtained from Stantec.	Stantec Stantec Australia Pty. Ltd. Level 6, Building B 207 Pacific Highway St Leonards, NSW 2045 Tel: +61 2 8484 7000 Copyright Reserved The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden. The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.	CORONATION Client/Project Logo	Client/Project CORONATION YOUNG AND BOURKE STREET MAIN WORKS YOUNG AND BOURKE STREET	Client/Project CORONATION YOUNG AND BOURKE STREET	File Name: 301351683-STN-ZZ-000-DR-CI-007001.DWG MK Dwn. VE Dign. VE Chkd. 2025.08.26 YYYY.MM.DD	Project No. 301351683 Revision B	Scale AS SHOWN Drawing No. STN-ZZ-000-DR-CI-007001
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LEGEND	
	SITE BOUNDARY
	BUILDING BASEMENT EXTENT
	PROPOSED BUILDING
	CONCRETE CROSSOVER (MEDIUM DUTY)
	FOOTPATH (REFER TO ARCHITECTURAL)
	MESH PLATFORM
	LANDSCAPE AREA (DEEP SOIL)
	LANDSCAPE AREA (ON STRUCTURE)
	PROPOSED RETAINING WALL
	ON SITE DETENTION (OSD) TANK
	RAINWATER TANK
	PROPOSED JUNCTION PIT
	EXISTING JUNCTION PIT
	PROPOSED GRATED PIT
	EXISTING GRATED PIT
	PROPOSED KERB INLET PIT
	EXISTING KERB INLET PIT
	EXISTING TREE TO REMAIN

NOTES:

1. PUBLIC DOMAIN WORKS UNDER EXISTING VOLUNTARY PLANNING AGREEMENT (VPA).
2. ARCHITECTURAL PLAN SHOWN BASED ON OVERALL PRECINCT PLAN - GROUND, BY SJB AND BATESMART ET AL, DATED 29 AUG 2025.

Plotted: 9/5/2005 9:28:28 PM By: ECCLES, VINIE
PROJECT FILES: 301351483 - YOUNG AND BOURKE/DRAWINGS & DESIGN/MAIN WORKSHEET SET
USER: VECLES\VCAC\DOTCDS\JNATEC CONSULTING\30139900\3013_CIVIL\CLOUD_ACC\PROJECT FILES\301351483 - YOUNG AND BOURKE/DRAWINGS & DESIGN/MAIN WORKSHEET SET

Notes

B	ISSUE FOR SSDA	MK	VE 2025.09.05
A	DRAFT ISSUE FOR SSDA	MK	VE 2025.08.26
Issued/Revision		By	Appd YYYY.MM.DD

Issue Status

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Client/Project
CORONATION

YOUNG AND BOURKE STREET
MAIN WORKS

YOUNG AND BOURKE STREET

File Name:	MK	VE	VE	2025.08.26
301351683-STN-ZZ-000-DR-CH060001.DWG	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title

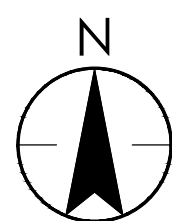
GENERAL ARRANGEMENT PLAN

Project No.
301351683

Scale
1:500

Revision
B

Drawing No.
STN-ZZ-000-DR-CI-060001



INDICATIVE LOCATION OF SITE STOCKPILE. EXACT LOCATION TO BE CONFIRMED ONSITE IN ACCORDANCE WITH THE 'BLUE BOOK'. PROVIDE SEDIMENT FENCE TO THE DOWNSTREAM END. REFER TO DETAIL S

DANKS STREET

YOUNG STREET

DANKS STREET

BOURKE STREET

PROVIDE STABILISED SITE ACCESS
AND SITE ENTRY GATE. SHAKER GRID
TO BE LOCATED AT SITE ENTRY.
LOCATION TO BE CONFIRMED ON
SITE BY THE CONTRACTOR

INSTALL AND MAINTAIN SEDIMENT FENCE AROUND THE SITE WHERE NECESSARY. REFER TO DETAILS

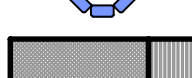
INSTALL AND MAINTAIN SEDIMENT FENCE AROUND THE SITE WHERE NECESSARY. REFER TO DETAILS

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PROVIDE STABILISED SITE ACCESS
AND SITE ENTRY GATE. SHAKER GRI
TO BE LOCATED AT SITE ENTRY.
LOCATION TO BE CONFIRMED ON
SITE BY THE CONTRACTOR

1:500 5 0 5 10 15 20 25 A
1:1000 A.

LEGEND	
	SITE BOUNDARY
	EXTENT OF WORKS
	PROPOSED SILT FENCE
	PROPOSED ENTRY GATE
	SANDBAG PIT PROTECTION
	VEHICLE SHAKEDOWN DEVICE
	PROPOSED GRATED PIT
	EXISTING GRATED PIT
	EXISTING TREE TO REMAIN

NOTES:

1. FOR EROSION AND SEDIMENT CONTROL NOTES REFER
CI-007 SERIES
2. FOR EROSION AND SEDIMENT CONTROL DETAILS REFER
DRAWING CI-076-01

Notes:

Issue Status

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CORONATION

YOUNG AND BOURKE STREET MAIN WORKS

YOUNG AND BOURKE STREET

File Name:
301351683-STN-ZZ-000-DR-CH070001.DWG

MK	VE	VE	2025.08.26
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Title

EROSION AND SEDIMENT
CONTROL PLAN

Project No.
301351683

Scale
1:500

Revision
B

Drawing No.
STN-77-000-DR-CI-070001

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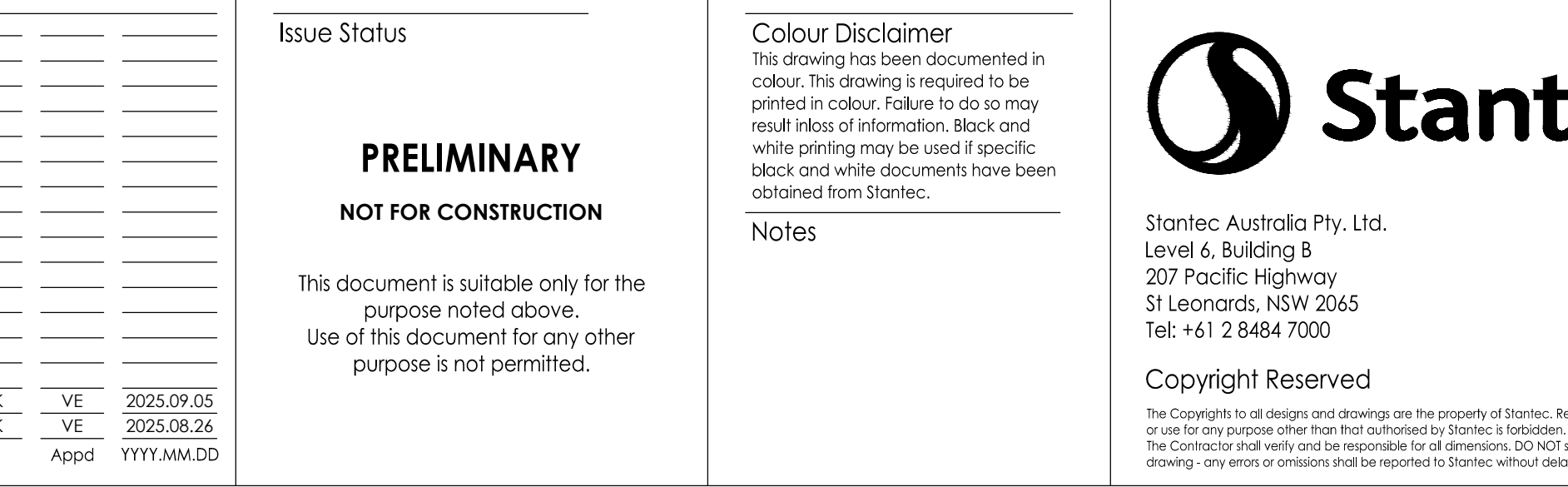
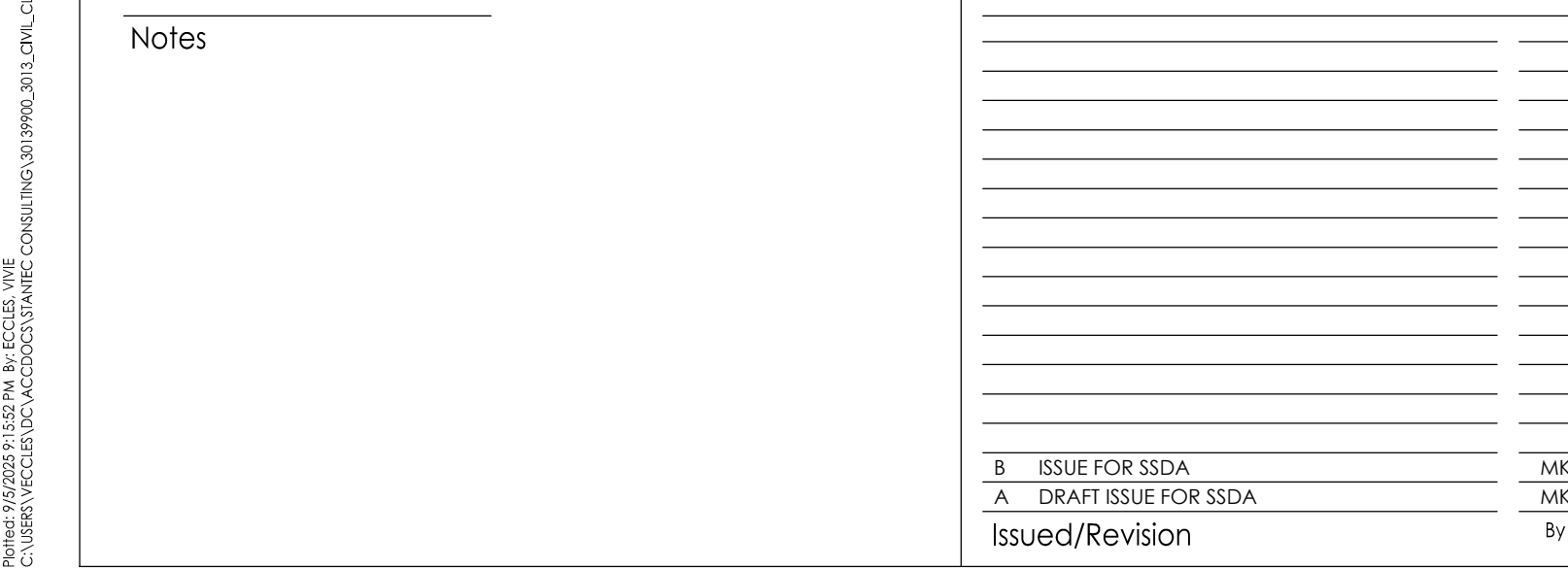
Notes

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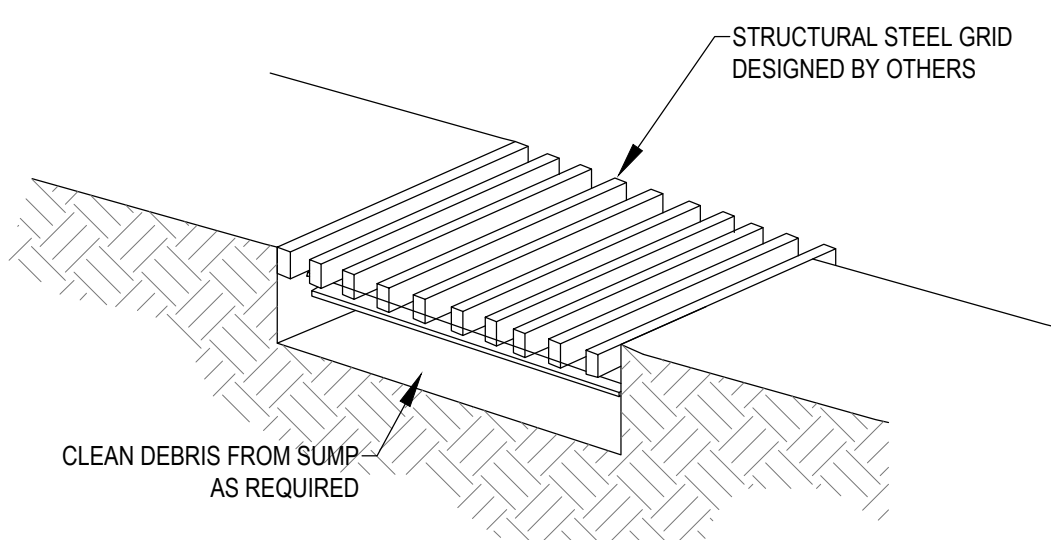
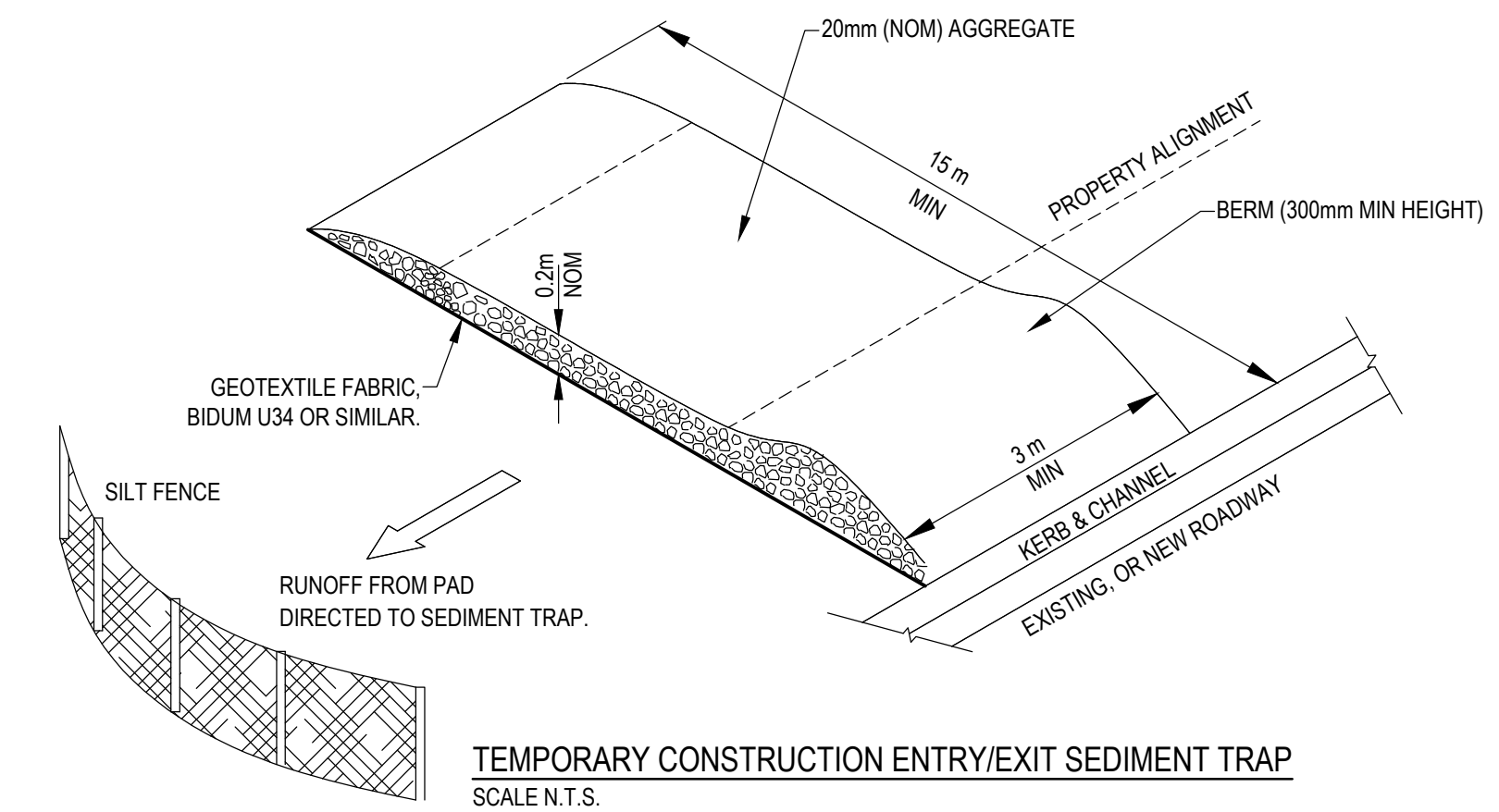
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-
- The technical drawing illustrates a Geotextile Filter Fabric Drop Inlet Sediment Trap in two views: a cross-section and an elevation.
- Cross-Section View (Top):**
- 50 x 50 HARDWOOD STAKES:** Two vertical stakes are shown, one on each side of the trap, secured with horizontal stakes.
 - WOVEN GEOTEXTILE SEDIMENT FENCE FABRIC:** A grid-like fabric is stretched across the top and sides of the trap.
 - RUNOFF WATER WITH SEDIMENT:** Indicated by an arrow pointing into the trap from the left.
 - BURIED FABRIC:** The fabric is shown extending into the ground beneath the trap.
 - 300 MIN:** A dimension indicating the minimum depth of the buried fabric.
 - FIELD INLET WITH GRATE:** The central opening at the bottom of the trap where water passes.
 - FILTERED WATER:** Indicated by an arrow pointing away from the trap, showing the water after sedimentation.
- Elevation View (Bottom):**
- STAKES:** The vertical stakes supporting the fabric are shown in this view.
 - DROP INLET WITH GRATE:** The central opening at the bottom of the trap.
 - 900 MIN:** A dimension indicating the minimum height of the trap structure.
 - GEOTEXTILE FILTER FABRIC:** The grid-like fabric is shown in this view.
 - DROP INLET SEDIMENT TRAP:** The overall structure is labeled as such.
 - SCALE N.T.S.:** Not To Scale.



- # NOTES
1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH OTHER ENGINEERING PLANS AND ANY WRITTEN INSTRUCTIONS THAT MAY BE ISSUED.
 2. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO DISTURBANCE OF THE RELATED CATCHMENT AREA AND TO THE STANDARD OF 'MANAGING URBAN STORMWATER, SOIL & CONSTRUCTION & COUNCIL SPECIFICATIONS'.
 3. ALL SUBCONTRACTORS SHALL BE INFORMED OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWN SLOPE AREAS.
 4. LAND DISTURBANCE SHALL BE LIMITED TO THAT NECESSARY FOR IMPLEMENTATION OF THE PLANS OF WORKS. BUFFER ZONES AND LAND NOT TO BE DISTURBED SHALL BE CLEARLY MARKED WITH BARRIER FENCE. 'SILT' FENCE FOR STRAW BALE SEDIMENT TRAPS SHALL BE PLACED AT REGULAR INTERVALS IMMEDIATELY DOWNSLOPE OF ALL UNPROTECTED DISTURBED LANDS.
 5. THE LOCATION OF 'SILT' FENCES, BARRIER FENCES, SEDIMENT TRAPS AND OTHER DEVICES ARE INDICATIVE ONLY AND FINAL LOCATIONS ARE TO BE DECIDED ON SITE. VARIATIONS WILL BE PERMITTED TO BEST SUIT THE CIRCUMSTANCES. CONTRACTOR TO PREPARE DETAILED CONSTRUCTION SEDIMENT AND EROSION CONTROL PLAN.
 6. ALL SOIL EROSION AND SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED FOLLOWING EACH STORM EVENT AND ANY NECESSARY MAINTENANCE WORK SHALL BE UNDERTAKEN TO ENSURE THEIR CONTINUED PROPER OPERATION. SEDIMENT SHALL BE REMOVED FROM THE SOIL EROSION & SEDIMENT CONTROL STRUCTURES WHEN
 7. NO MORE THAN 40% CAPACITY HAS BEEN REACHED. THESE STRUCTURES SHALL CONTINUE IN PROPER OPERATION UNTIL ALL DEVELOPMENT ACTIVITIES HAS BEEN COMPLETED AND THE SITE FULLY REHABILITATED.
 8. WHERE THE AREA TO BE DISTURB CONTAINS TREES TO REMAIN, AN ARBORIST CONSULTANT SHOULD PROVIDE ADVICE ON PROCEDURES AND MEASURES TO BE PLACED.
 9. TEMPORARY REHABILITATION SHALL BE UNDERTAKEN WITHIN 14 WORKING DAYS BEFORE EITHER WORKS CONTINUE OR PERMANENT REHABILITATION IS UNDERTAKEN.
 10. ALL OF THE SOIL STORAGE, REVEGETATION AND SEDIMENT AND EROSION CONTROL MANAGEMENT DEVICES/MEASURES SHALL BE IMPLEMENTED TO NSW ENVIRONMENT PROTECTION AUTHORITY (EPA) AND DEPARTMENT OF LAND AND WATER REQUIREMENTS.
 11. ALL SEDIMENT AND EROSION CONTROL MANAGEMENT MEASURES/DEVICES SHOWN ON THE PLANS SHALL BE IMPLEMENTED PRIOR TO CONSTRUCTION, AND MAINTAINED DURING AND AFTER.

[illegible]

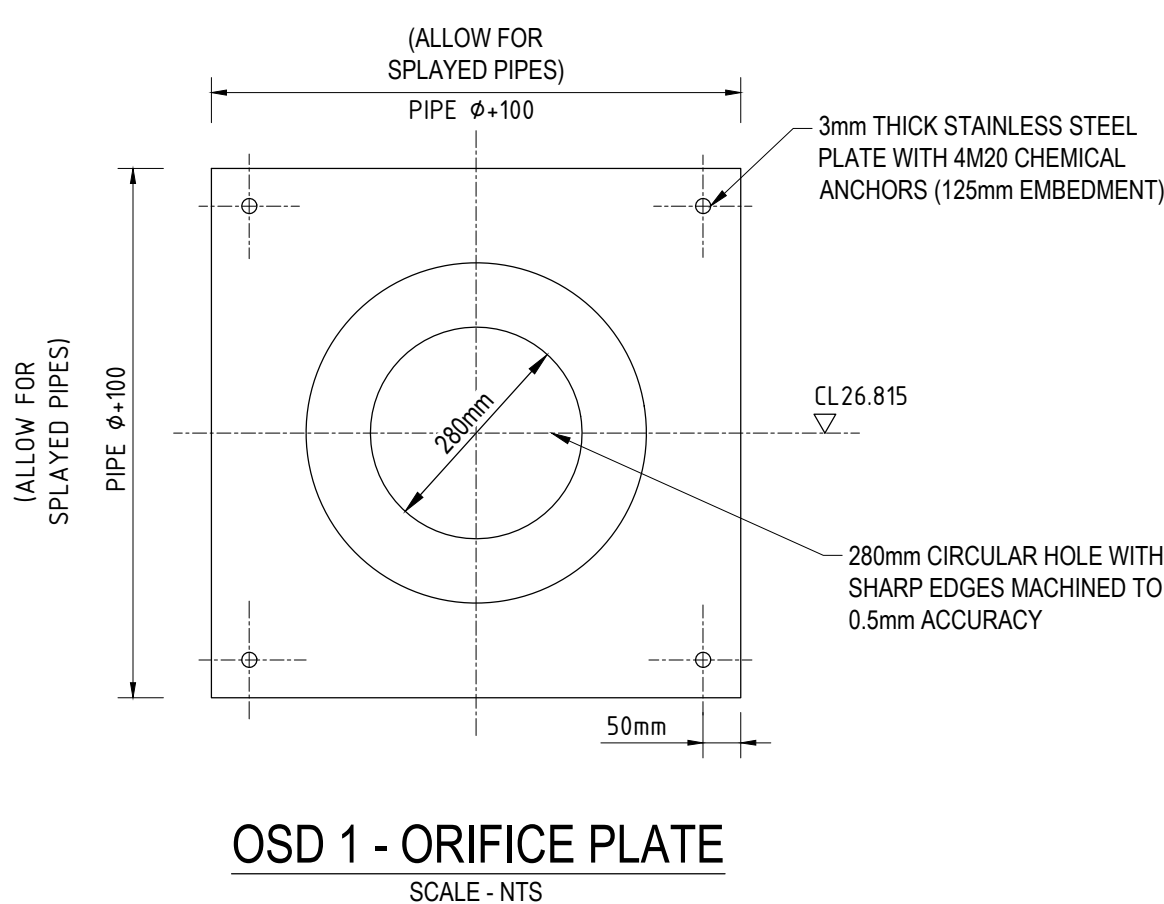


ON SITE STORMWATER DETENTION WARNING SIGN



- NOTES:
1. A CONFINED SPACE DANGER SIGN SHALL BE PLACED NEXT TO EACH AND EVERY ACCESS POINT SO THAT THEY ARE VISIBLE TO PERSONS ENTERING ANY BELOW GROUND TANK OR PIT.
 2. COLORS:
 - DANGER AND BACKGROUND = WHITE
 - ELLIPTICAL AREA = RED
 - RECTANGLE CONTAINING ELLIPSE = BLACK
 - OTHER LETTERING AND BORDER = BLACK
 3. MINIMUM DIMENSIONS OF SIGN.
 - LARGE ENTRIES: 300mm x 450mm
 - SMALL ENTRIES: 250mm x 180mm
 4. SIGN TO BE MADE FROM COLOUR BONDED ALUMINUM OR POLYPROPYLENE.
 5. SIGN FIXED USING HILTI CHEMSETS OR EPOXY.

CONFINED SPACE SIGN
SCALE N.T.S.



OSD 1 - ORIFICE PLATE

Issue Status

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YOUNG AND BOURKE STREET MAIN WORKS

YOUNG AND BOURKE STREET

File Name:	MK	VE	VE	2025.08.26
X01351683-STN-ZZ-000-DR-CI-526001.DWG	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
STORMWATER DRAINAGE DETAILS -
SHEET 4

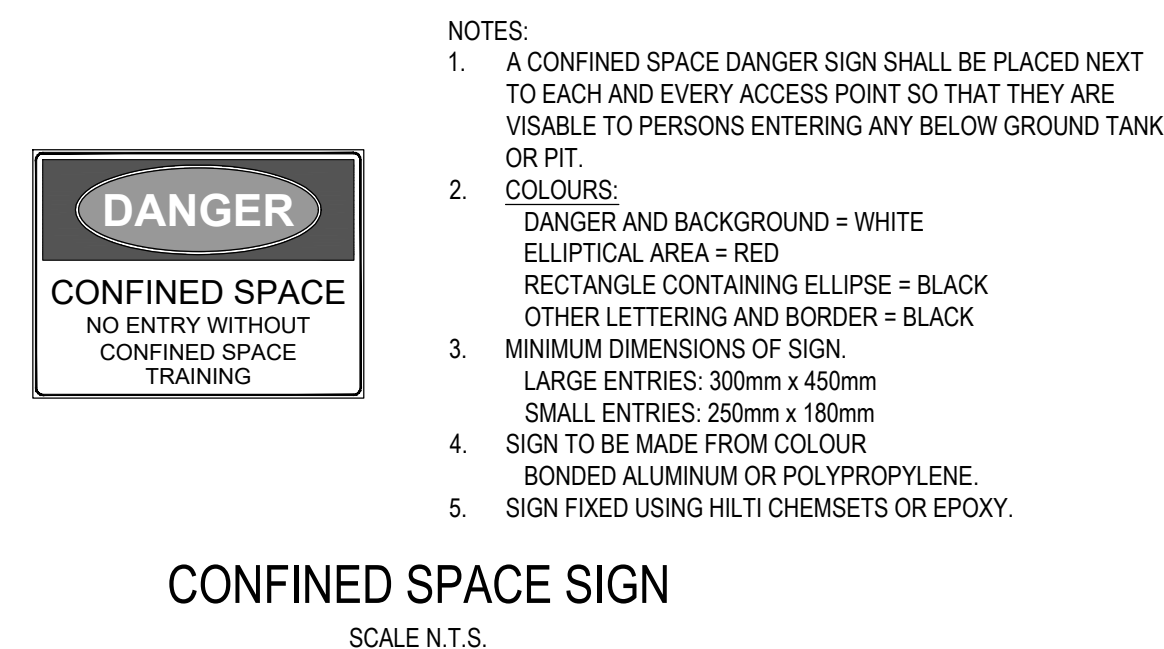
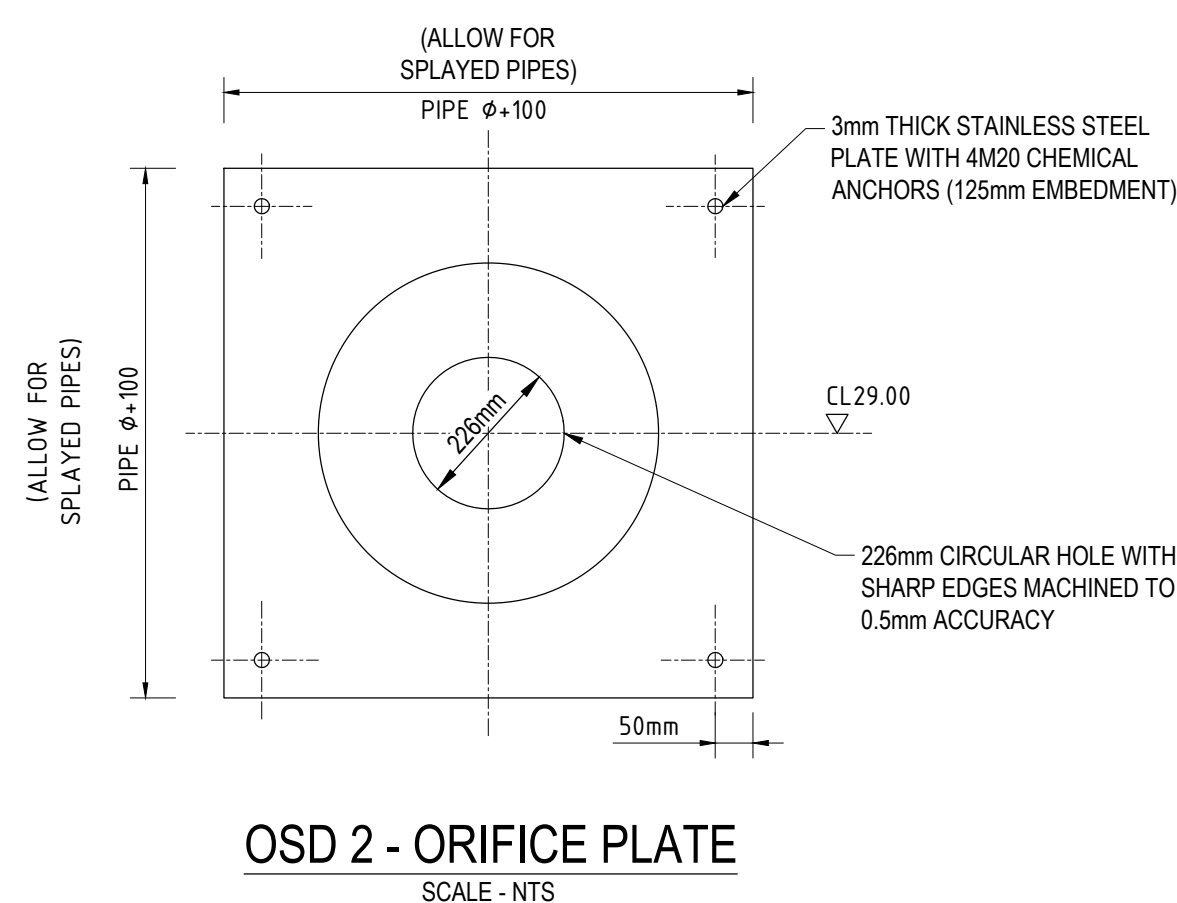
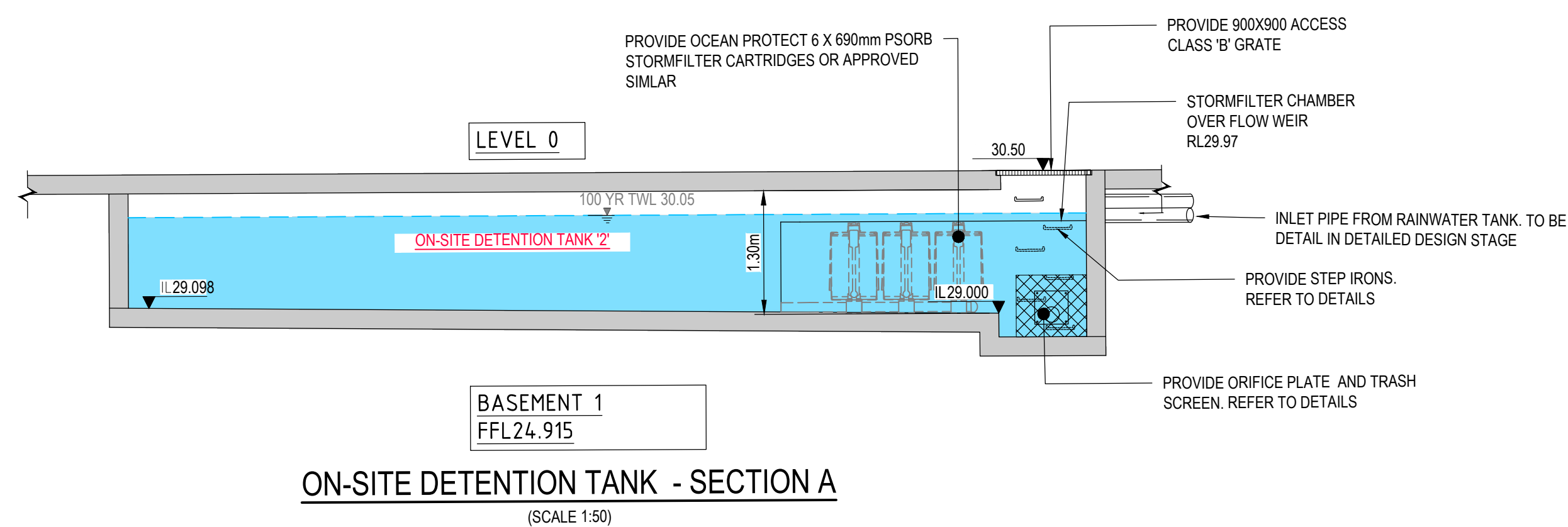
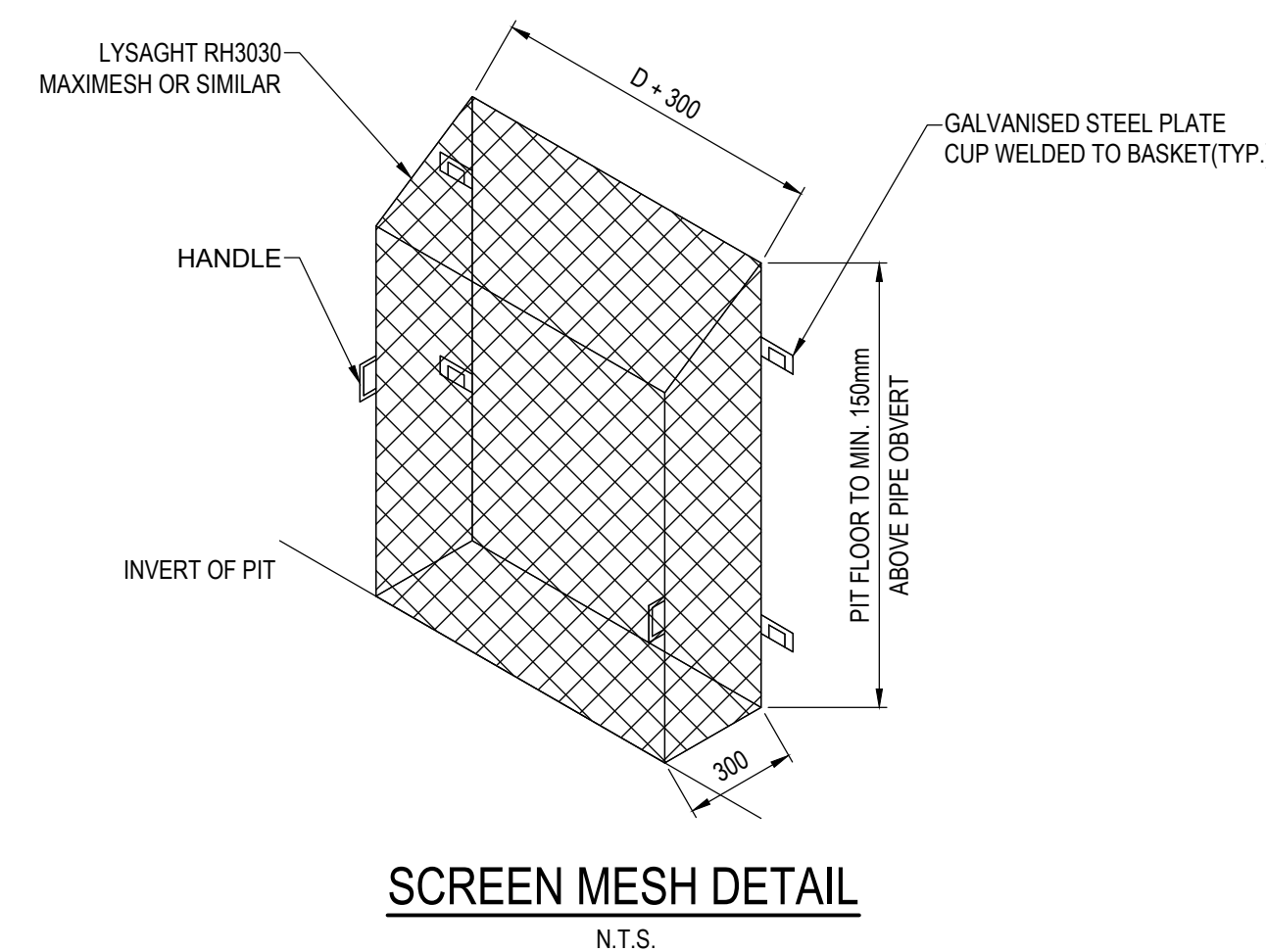
Project No.
301351683

Revision
B

Scale
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Drawing No.
STN-ZZ-000-DR-CI-526004

B



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YOUNG AND BOURKE STREET MAIN WORKS

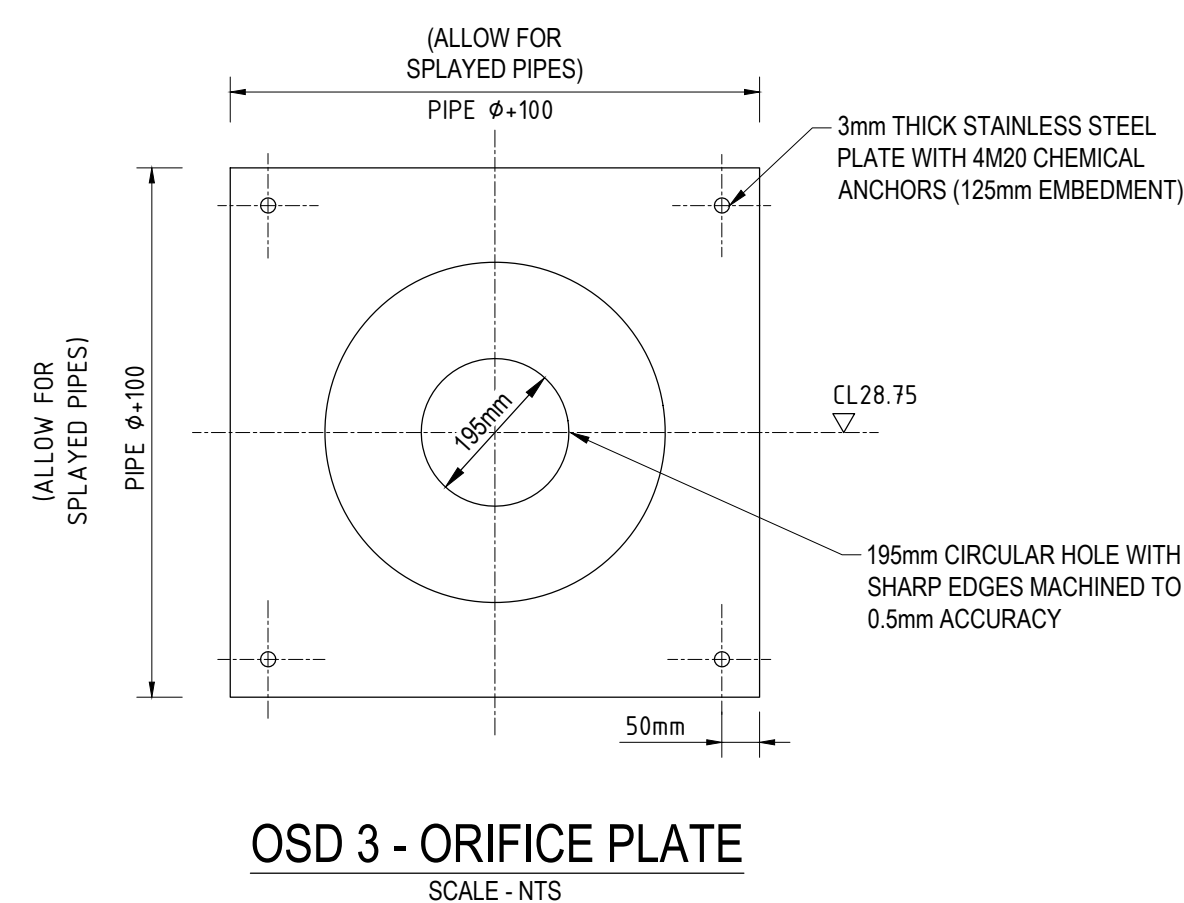
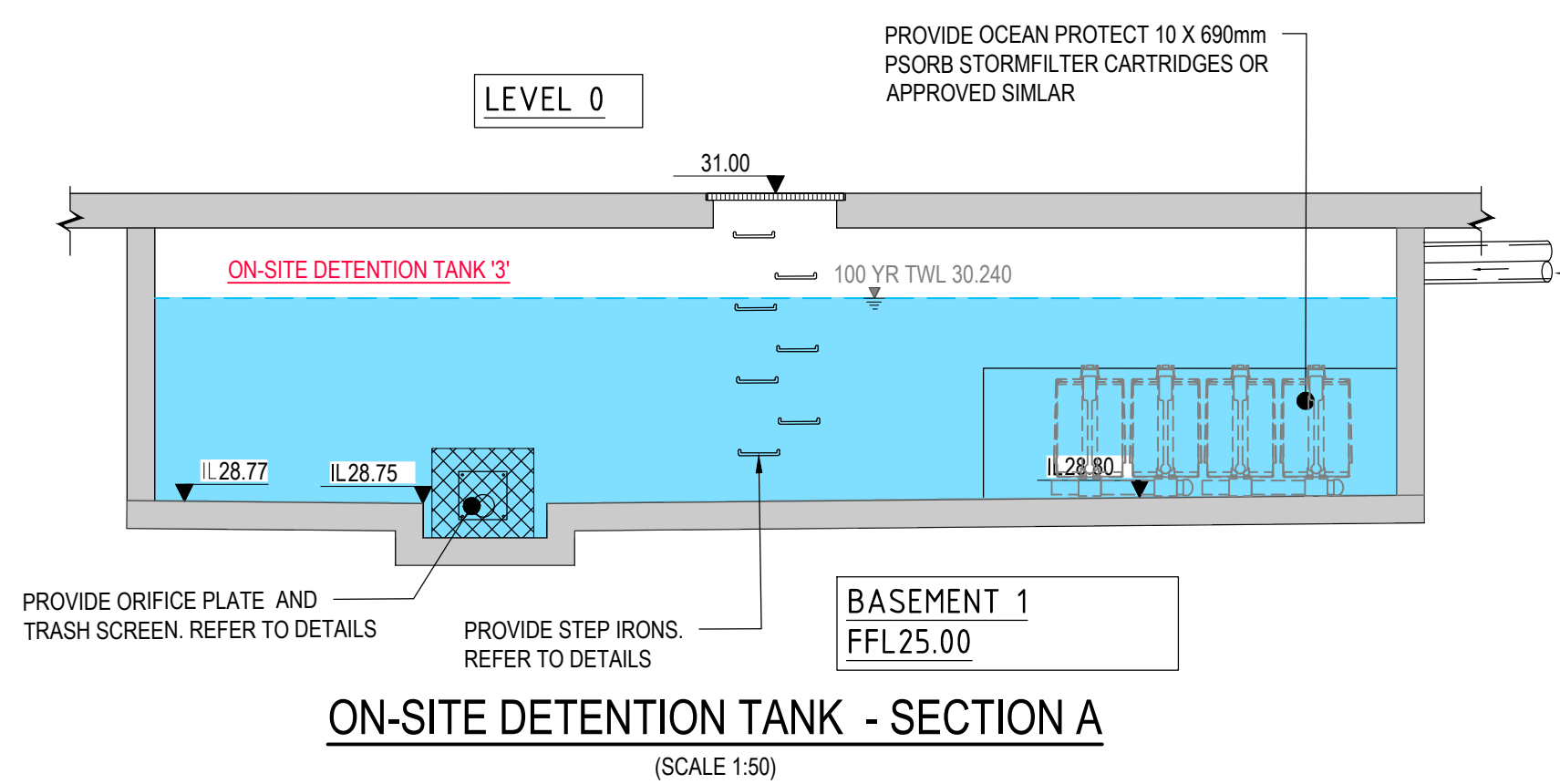
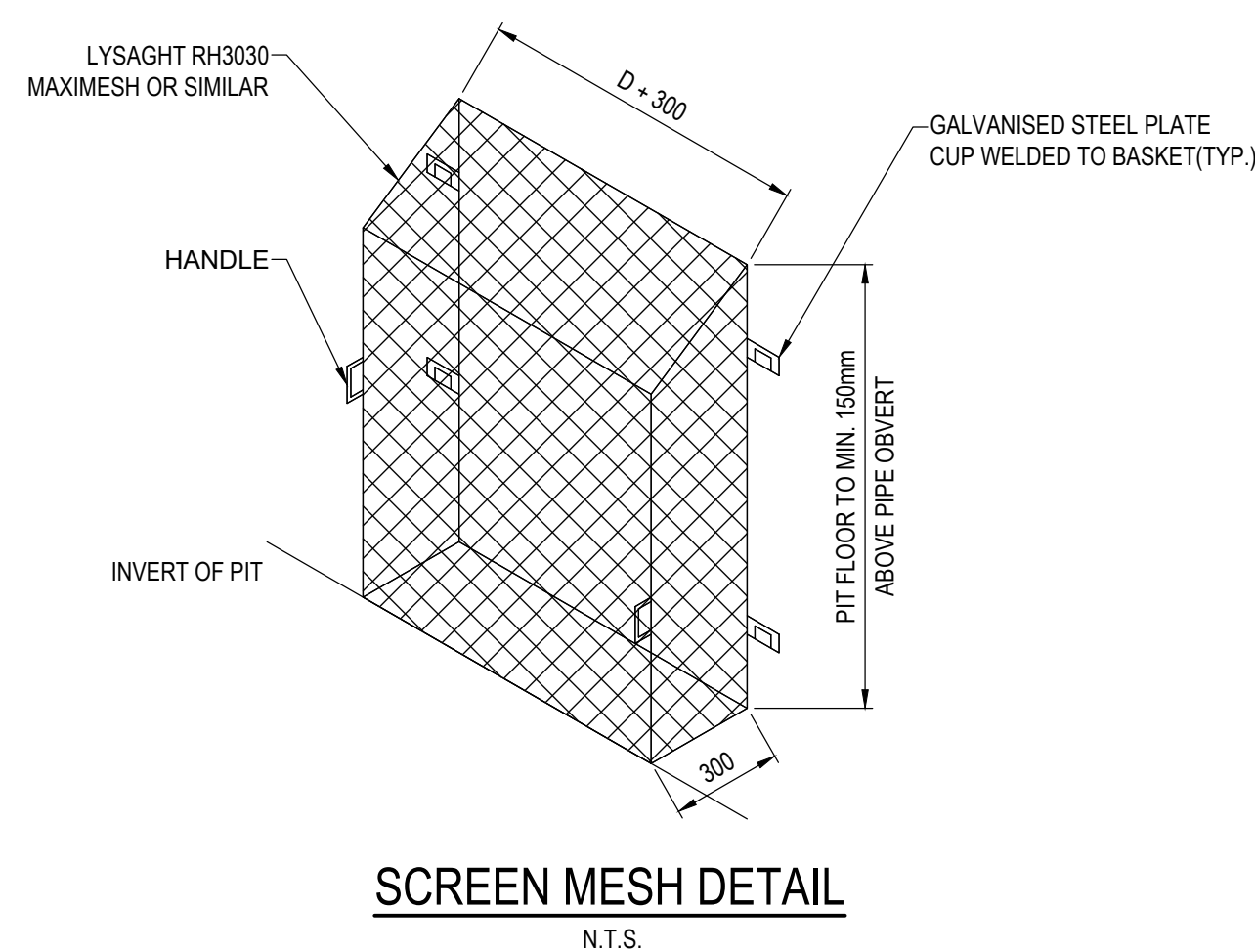
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301351683-STN-ZZ-000-DR-CI-526001.DWG	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Project No.
301351683

Scale
AS SHOWN

Revision **B** Drawing No. **STN-ZZ-000-DR-CI-526005**

B



- SIGNAGE NOTES:**
1. SIGN SHALL BE 600x450x1.6mm ALUMINIUM PLATE
 2. COLOURS SHALL BE AS FOLLOWS:
TRIANGLE = RED
"WARNING" = RED
WATER = BLUE
PICTURE = BLACK
WORDING = BLACK
 3. SIGN TO BE FIXED TO FENCE IN A PROMINENT LOCATION WITHIN THE DETENTION BASIN AREA

ON SITE STORMWATER DETENTION WARNING SIGN
SCALE N.T.S.



- NOTES:
 1. A CONFINED SPACE DANGER SIGN SHALL BE PLACED NEXT TO EACH AND EVERY ACCESS POINT SO THAT THEY ARE VISIBLE TO PERSONS ENTERING ANY BELOW GROUND TANK OR PIT.
 2. COLORS:
 - DANGER AND BACKGROUND = WHITE
 - ELLIPTICAL AREA = RED
 - RECTANGLE CONTAINING ELLIPSE = BLACK
 - OTHER LETTERING AND BORDER = BLACK
 3. MINIMUM DIMENSIONS OF SIGN.
 - LARGE ENTRIES: 300mm x 450mm
 - SMALL ENTRIES: 250mm x 180mm
 4. SIGN TO BE MADE FROM COLOUR
 - BONDED ALUMINUM OR POLYPROPYLENE.
 5. SIGN FIXED USING HILTI CHEMISTS OR EPOXY.

CONFINED SPACE SIGN
SCALE N.T.S.

[illegible]

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Client/Project
CORONATION

YOUNG AND BOURKE STREET
MAIN WORKS

YOUNG AND BOURKE STREET

File Name:	MK	VE	VE	2025.08.26
301351683-STN-ZZ-000-DR-CI-526001.DWG	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

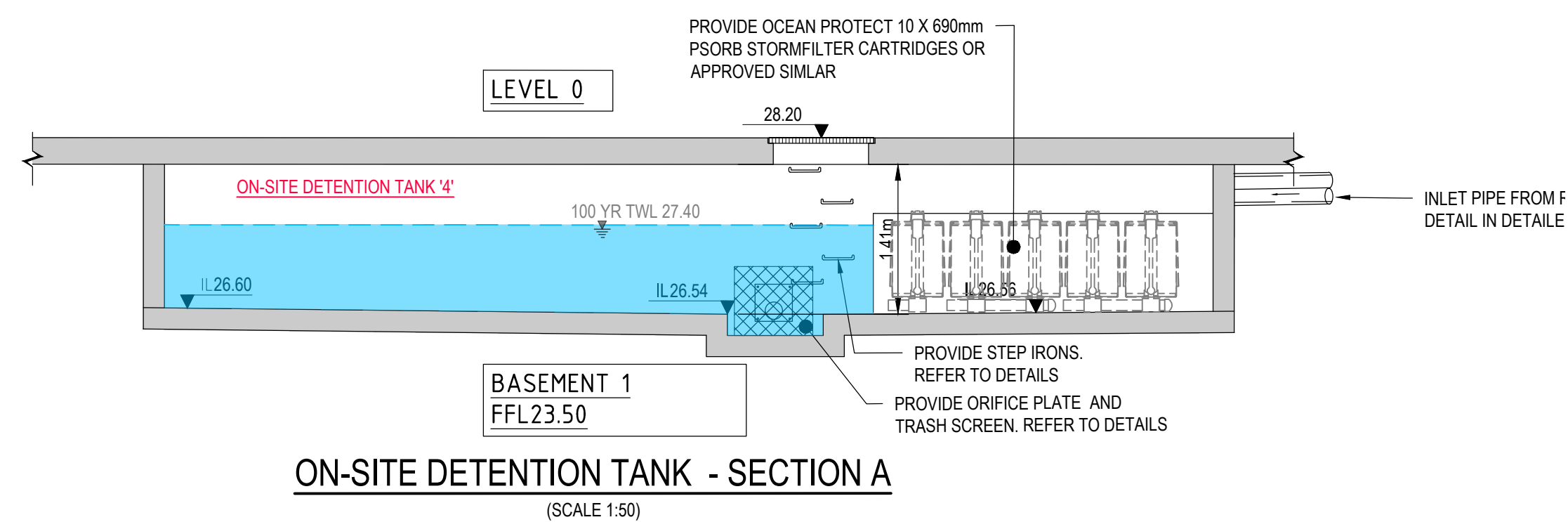
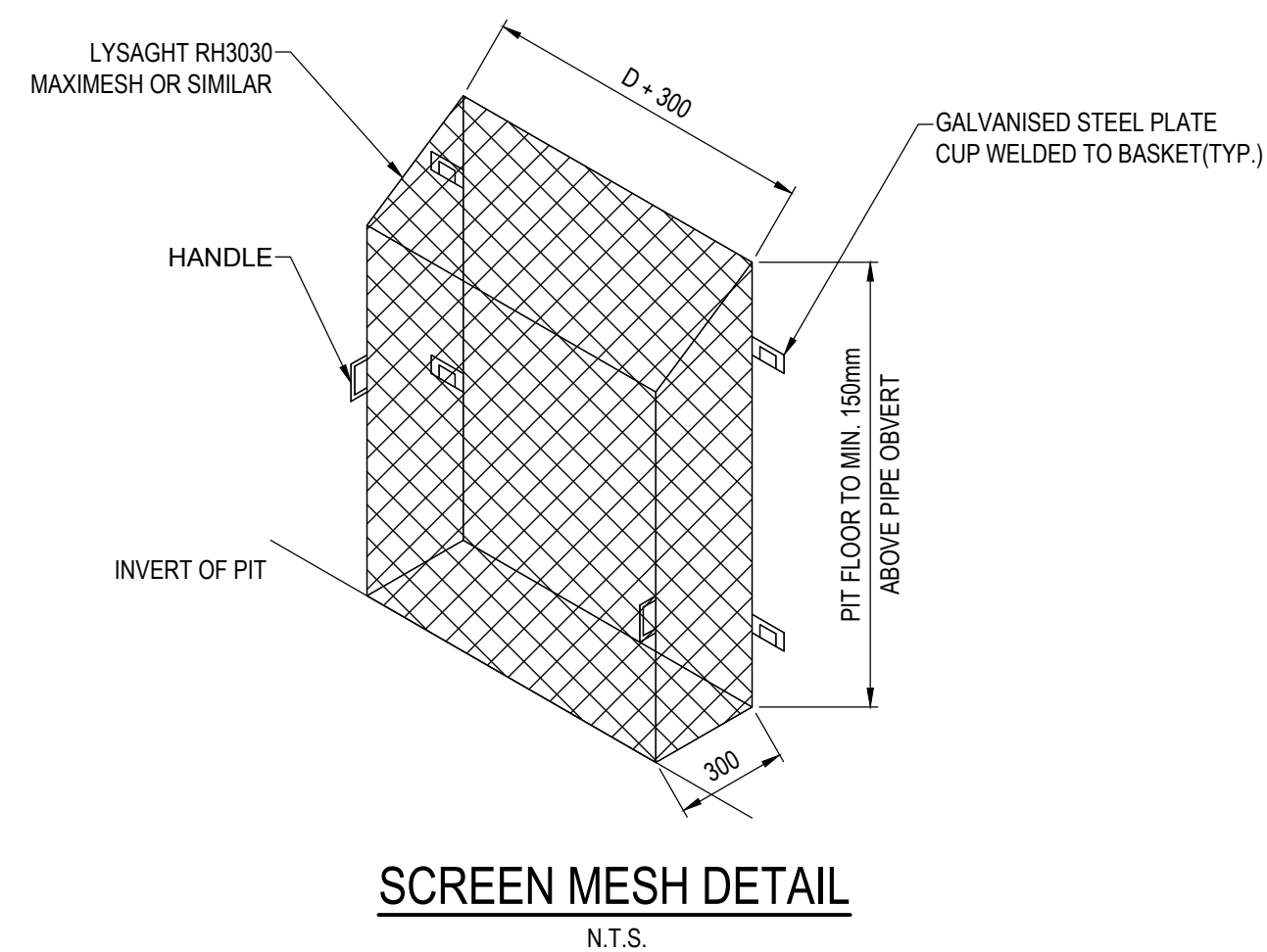
STORMWATER DRAINAGE DETAILS -
SHEET 6

Project No.
301351683

Revision
B

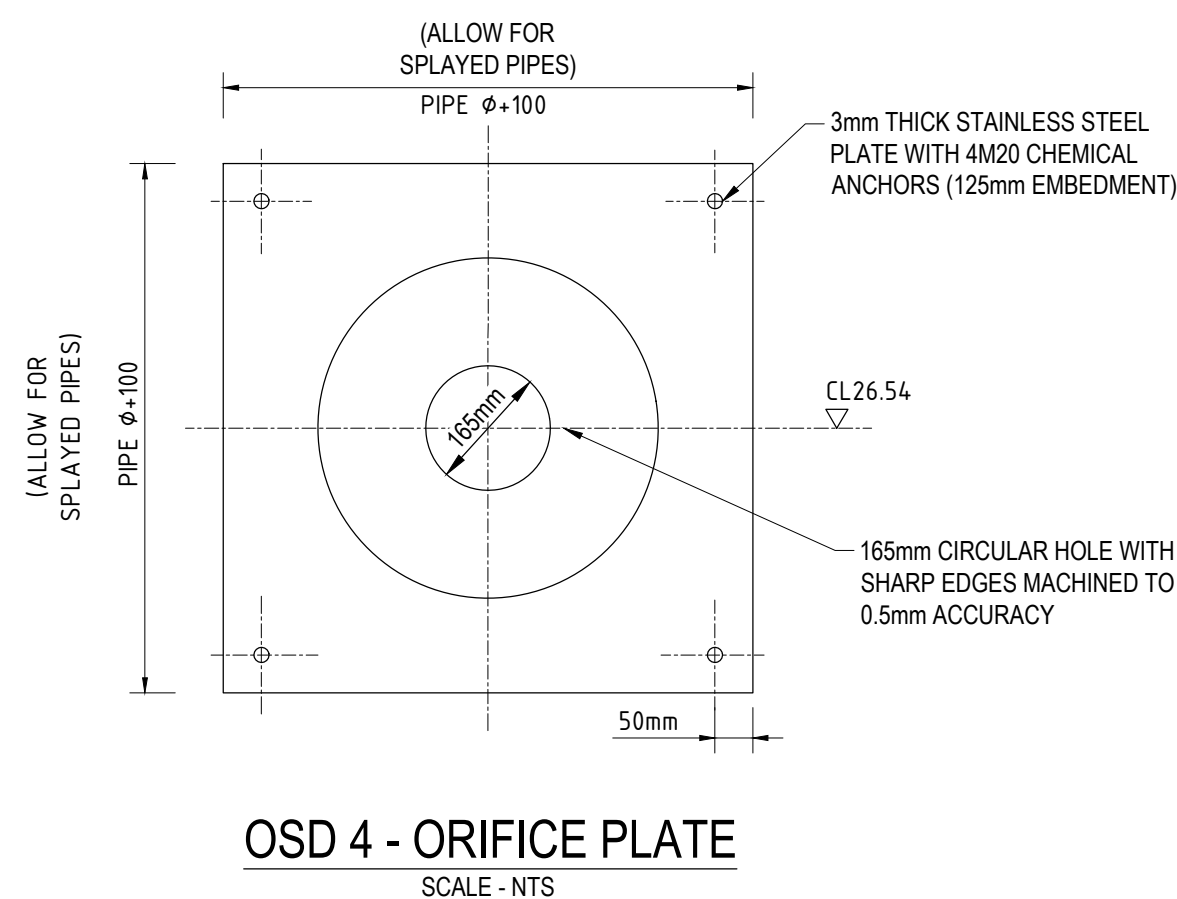
Scale
AS SHOWN

Drawing No.
STN-ZZ-000-DR-CI-526006



3. SIGN TO BE FIXED TO FENCE IN A PROMINENT LOCATION WITHIN THE DETENTION BASIN AREA

SCALE N.T.S.



1. A CONFINED SPACE DANGER SIGN SHALL BE PLACED NEXT TO EACH AND EVERY ACCESS POINT SO THAT THEY ARE VISIBLE TO PERSONS ENTERING ANY BELOW GROUND TANK OR PIT.
2. COLOURS:
 - DANGER AND BACKGROUND = WHITE
 - ELLIPTICAL AREA = RED
 - RECTANGLE CONTAINING ELLIPSE = BLACK
 - OTHER LETTERING AND BORDER = BLACK
3. MINIMUM DIMENSIONS OF SIGN.
 - LARGE ENTRIES: 300mm x 450mm
 - SMALL ENTRIES: 250mm x 180mm
4. SIGN TO BE MADE FROM COLOUR
 - BONDED ALUMINUM OR POLYPROPYLENE.
5. SIGN FIXED USING HILTI CHEMSETS OR EPOXY.

SCALE N.T.S.

Appendix B Email From Sydney Water Regarding OSD Size



From: Stormwater <Stormwater@sydneywater.com.au>
Sent: Monday, July 14, 2025 12:53 PM
To: De Pasquale, Philip <Philip.DePasquale@stantec.com>
Cc: Eccles, Vivie <Vivie.Eccles@stantec.com>
Subject: RE: [External] Young and Bourke St OSD Requirements

Philip,

The On Site Detention requirements for the site at 207 – 229 Young Street and 881 – 893 Bouk Street, Waterloo, are as follows (Based on the preliminary drawing DA-EW-0101) :

Parcel 1

- Total site area 6,354 square meters
- On Site Detention 98 cubic meters
- Permissible Site Discharge 236 L/s

Parcel 2

- Total site area 3,204 square meters
- On Site Detention 50 cubic meters
- Permissible Site Discharge 119 L/s

Parcel 3

- Total site area 2,928 square meters
- On Site Detention 45 cubic meters
- Permissible Site Discharge 109 L/s

Parcel 4

- Total site area 2,032 square meters
- On Site Detention 32 cubic meters
- Permissible Site Discharge 75 L/s

The approval for the On Site Detention would only be given as part of the Section 73 application for this development. The On Site Detention is to be designed according to the above values and submitted to Sydney Water for approval with the Section 73 application. The following details are to be included in your submission for On Site Detention approval:

- Location of the On Site Detention in relation to the development
- Location of the On Site Detention in relation to overall stormwater network of the property
- Plan and Elevation of the On Site Detention tank with all dimensions
- Orifice plate calculation

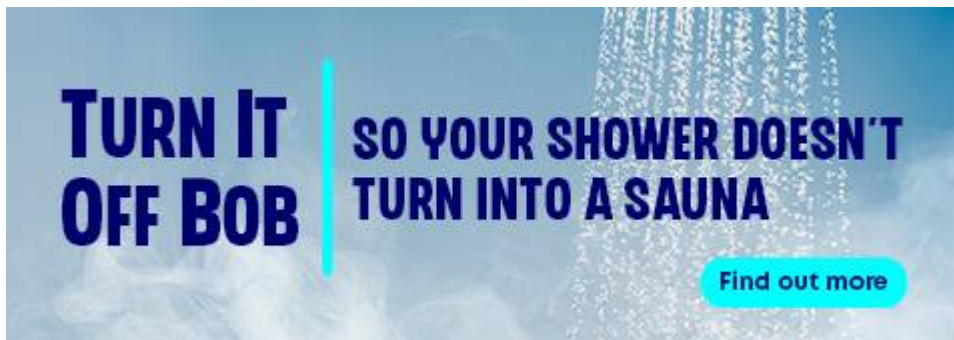
Best Regards

Planning and Technical

Water and Environment Services

Sydney Water, Level 13, 1 Smith Street, Parramatta NSW 2150





From: De Pasquale, Philip <Philip.DePasquale@stantec.com>
Sent: Friday, 13 June 2025 2:44 PM
To: Stormwater <Stormwater@sydneywater.com.au>
Cc: Eccles, Vivie <Vivie.Eccles@stantec.com>
Subject: [External] Young and Bourke St OSD Requirements

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi,

I have a development at Young and Bourke St, Waterloo, which involves the development of 4 lots and associated public domain. Below are the site details for the new lots:

Lot 1 – within existing 1/DP1308636

Total lot area: 6354m²
Existing pre-development impervious area (m²): 6354m²
Proposed post-development impervious area (m²): 5562m²

Lot 2 – within existing 2/DP1308636

Total lot area: 3204m²
Existing pre-development impervious area (m²): 3204m²
Proposed post-development impervious area (m²): 3204m²

Lot 3 – within existing 2/DP1308636

Total lot area: 2928m²
Existing pre-development impervious area (m²): 2928m²
Proposed post-development impervious area (m²): 2928m²

Lot 4 – within existing 1/DP1308636

Total lot area: 2032m²
Existing pre-development impervious area (m²): 2032m²
Proposed post-development impervious area (m²): 1801m²

Can you please advise the OSD requirements for the individual lots.

I have attached a plan showing the location of the 4 lots detailed above for your reference.

Kind Regards,

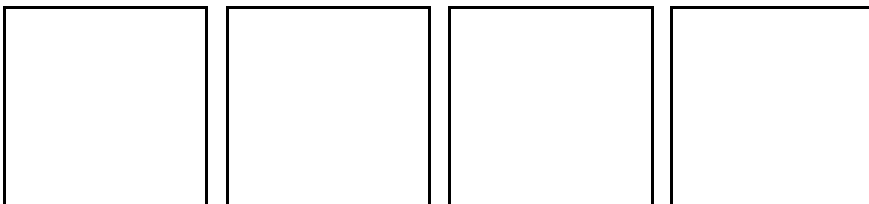
Philip De Pasquale
Graduate Civil Engineer

Philip.DePasquale@stantec.com

Stantec
Level 9, The Forum, 203 Pacific Highway
Sydney NSW 2065
AUSTRALIA



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Atención: Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.

Appendix C MUSIC Link Report



MUSIC-*link* Report

Project Details	Company Details
Project: Report Export Date: 5/09/2025 Catchment Name: 301351683 - MUSIC Modelling [2] - Atlan Catchment Area: 1.56ha Impervious Area*: 77.09% Rainfall Station: 66062 SYDNEY Modelling Time-step: 6 Minutes Modelling Period: 1/01/1982 - 31/12/1986 11:54:00 PM Mean Annual Rainfall: 1278mm Evapotranspiration: 1265mm MUSIC Version: 6.4.0 MUSIC-link data Version: 6.40 Study Area: City of Sydney Clay Soil Scenario: City Of Sydney Development	Company: Contact: Address: Phone: Email:

* takes into account area from all source nodes that link to the chosen reporting node, excluding Import Data Nodes

Treatment Train Effectiveness	Treatment Nodes	Source Nodes
Node: TSS85 - TP65 - TN45 - GP90	Node Type	Number
Flow	Rain Water Tank Node	4
TSS	Sedimentation Basin Node	4
TP	GPT Node	5
TN	Generic Node	4
GP		
Reduction		

Comments
Achieved the minimum reduction targets

Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
GPT	1 x OceanGuard200um	Hi-flow bypass rate (cum/sec)	None	99	0.02
GPT	2 x OceanGuard200um	Hi-flow bypass rate (cum/sec)	None	99	0.04
GPT	3 x OceanGuard200um	Hi-flow bypass rate (cum/sec)	None	99	0.06
GPT	4 x OceanGuard200um	Hi-flow bypass rate (cum/sec)	None	99	0.08
GPT	9 x OceanGuard200um	Hi-flow bypass rate (cum/sec)	None	99	0.18
Rain	1 x 10kL	% Reuse Demand Met	None	None	98.20
Rain	1 x 10kL	% Reuse Demand Met	None	None	8.81418
Rain	1 x 10kL	% Reuse Demand Met	None	None	10.35
Rain	1 x 10kL	% Reuse Demand Met	None	None	97.85
Receiving	TSS85 - TP65 - TN45 - GP90	% Load Reduction	None	None	5.92
Receiving	TSS85 - TP65 - TN45 - GP90	GP % Load Reduction	90	None	98.6
Receiving	TSS85 - TP65 - TN45 - GP90	TN % Load Reduction	45	None	47
Receiving	TSS85 - TP65 - TN45 - GP90	TP % Load Reduction	65	None	66.7
Receiving	TSS85 - TP65 - TN45 - GP90	TSS % Load Reduction	85	None	85
Sedimentation	SF Chamber - 5.8m2	% Reuse Demand Met	None	None	0
Sedimentation	SF Chamber - 5.8m2	% Reuse Demand Met	None	None	0
Sedimentation	SF Chamber - 5.8m2	% Reuse Demand Met	None	None	0
Sedimentation	SF Chamber - 5.8m2	% Reuse Demand Met	None	None	0
Sedimentation	SF Chamber - 5.8m2	Exfiltration Rate (mm/hr)	0	0	0
Sedimentation	SF Chamber - 5.8m2	Exfiltration Rate (mm/hr)	0	0	0
Sedimentation	SF Chamber - 5.8m2	Exfiltration Rate (mm/hr)	0	0	0
Sedimentation	SF Chamber - 5.8m2	Exfiltration Rate (mm/hr)	0	0	0
Sedimentation	SF Chamber - 5.8m2	Extended detention depth (m)	0.25	1	0.77
Sedimentation	SF Chamber - 5.8m2	Extended detention depth (m)	0.25	1	0.77
Sedimentation	SF Chamber - 5.8m2	Extended detention depth (m)	0.25	1	0.77
Sedimentation	SF Chamber - 5.8m2	Extended detention depth (m)	0.25	1	0.77
Sedimentation	SF Chamber - 5.8m2	High Flow Bypass Out (ML/yr)	None	None	0
Sedimentation	SF Chamber - 5.8m2	High Flow Bypass Out (ML/yr)	None	None	0
Sedimentation	SF Chamber - 5.8m2	High Flow Bypass Out (ML/yr)	None	None	0
Sedimentation	SF Chamber - 5.8m2	High Flow Bypass Out (ML/yr)	None	None	0
Urban	Hardstand Area = 603m2	Area Impervious (ha)	None	None	0.061
Urban	Hardstand Area = 603m2	Area Pervious (ha)	None	None	0
Urban	Hardstand Area = 603m2	Total Area (ha)	None	None	0.061
Urban	Hardstand Catchment Area= 858sq m [100% Imp]	Area Impervious (ha)	None	None	0.086
Urban	Hardstand Catchment Area= 858sq m [100% Imp]	Area Pervious (ha)	None	None	0
Urban	Hardstand Catchment Area= 858sq m [100% Imp]	Total Area (ha)	None	None	0.086
Urban	Hardtand Area = 103m2	Area Impervious (ha)	None	None	0.011
Urban	Hardtand Area = 103m2	Area Pervious (ha)	None	None	0
Urban	Hardtand Area = 103m2	Total Area (ha)	None	None	0.011
Urban	Landscape Area = 287m2	Area Impervious (ha)	None	None	0

Only certain parameters are reported when they pass validation

Node Type	Node Name	Parameter	Min	Max	Actual
Urban	Landscape Area = 287m2	Area Pervious (ha)	None	None	0.028
Urban	Landscape Area = 287m2	Total Area (ha)	None	None	0.028
Urban	Landscape Area = 32m2	Area Impervious (ha)	None	None	0
Urban	Landscape Area = 32m2	Area Pervious (ha)	None	None	0.004
Urban	Landscape Area = 32m2	Total Area (ha)	None	None	0.004
Urban	LandscapeArea_ 1_913sq metres [0% Imp]	Area Impervious (ha)	None	None	0
Urban	LandscapeArea_ 1_913sq metres [0% Imp]	Area Pervious (ha)	None	None	0.192
Urban	LandscapeArea_ 1_913sq metres [0% Imp]	Total Area (ha)	None	None	0.192
Urban	P1 bypss - 1126m2	Area Impervious (ha)	None	None	0.014
Urban	P1 bypss - 1126m2	Area Pervious (ha)	None	None	0.097
Urban	P1 bypss - 1126m2	Total Area (ha)	None	None	0.112
Urban	P2 bypass - 180m2	Area Impervious (ha)	None	None	0.005
Urban	P2 bypass - 180m2	Area Pervious (ha)	None	None	0.012
Urban	P2 bypass - 180m2	Total Area (ha)	None	None	0.018
Urban	P3 bypass - 109m2	Area Impervious (ha)	None	None	0.005
Urban	P3 bypass - 109m2	Area Pervious (ha)	None	None	0.004
Urban	P3 bypass - 109m2	Total Area (ha)	None	None	0.01
Urban	P4 bypss - 321m2	Area Impervious (ha)	None	None	0.012
Urban	P4 bypss - 321m2	Area Pervious (ha)	None	None	0.019
Urban	P4 bypss - 321m2	Total Area (ha)	None	None	0.032
Urban	Parcel 1 Roof Area = 2_892m2	Area Impervious (ha)	None	None	0.29
Urban	Parcel 1 Roof Area = 2_892m2	Area Pervious (ha)	None	None	0
Urban	Parcel 1 Roof Area = 2_892m2	Total Area (ha)	None	None	0.29
Urban	Parcel 1 Roof Area Bypassing RWT = 692m2	Area Impervious (ha)	None	None	0.069
Urban	Parcel 1 Roof Area Bypassing RWT = 692m2	Area Pervious (ha)	None	None	0
Urban	Parcel 1 Roof Area Bypassing RWT = 692m2	Total Area (ha)	None	None	0.069
Urban	Parcel 2 - Roof Area bypassing RWT- [841m2]	Area Impervious (ha)	None	None	0.084
Urban	Parcel 2 - Roof Area bypassing RWT- [841m2]	Area Pervious (ha)	None	None	0
Urban	Parcel 2 - Roof Area bypassing RWT- [841m2]	Total Area (ha)	None	None	0.084
Urban	Parcel 2 - Roof Area to RWT- [1261m2]	Area Impervious (ha)	None	None	0.126
Urban	Parcel 2 - Roof Area to RWT- [1261m2]	Area Pervious (ha)	None	None	0
Urban	Parcel 2 - Roof Area to RWT- [1261m2]	Total Area (ha)	None	None	0.126
Urban	Parcel 3 - Roof Catchment area to RWT = 1_778m2	Area Impervious (ha)	None	None	0.177
Urban	Parcel 3 - Roof Catchment area to RWT = 1_778m2	Area Pervious (ha)	None	None	0
Urban	Parcel 3 - Roof Catchment area to RWT = 1_778m2	Total Area (ha)	None	None	0.177
Urban	Parcel 3 - Roof Catchment bypassing RWT = 889m2	Area Impervious (ha)	None	None	0.089
Urban	Parcel 3 - Roof Catchment bypassing RWT = 889m2	Area Pervious (ha)	None	None	0
Urban	Parcel 3 - Roof Catchment bypassing RWT = 889m2	Total Area (ha)	None	None	0.089
Urban	Parcel 4 - Roof Area to RWT = 1_000m2	Area Impervious (ha)	None	None	0.1
Urban	Parcel 4 - Roof Area to RWT = 1_000m2	Area Pervious (ha)	None	None	0

Only certain parameters are reported when they pass validation

Node Type	Node Name	Parameter	Min	Max	Actual
Urban	Parcel 4 - Roof Area to RWT = 1_000m2	Total Area (ha)	None	None	0.1
Urban	Parcel 4 - Roof Areabypassing RWT = 714m2	Area Impervious (ha)	None	None	0.071
Urban	Parcel 4 - Roof Areabypassing RWT = 714m2	Area Pervious (ha)	None	None	0
Urban	Parcel 4 - Roof Areabypassing RWT = 714m2	Total Area (ha)	None	None	0.071

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Failing Parameters					
Node Type	Node Name	Parameter	Min	Max	Actual
Rain	1 x 10kL	Total Nitrogen - C** (mg/L)	0	0	1.4
Rain	1 x 10kL	Total Nitrogen - C** (mg/L)	0	0	1.4
Rain	1 x 10kL	Total Nitrogen - C** (mg/L)	0	0	1.4
Rain	1 x 10kL	Total Nitrogen - C** (mg/L)	0	0	1.4
Rain	1 x 10kL	Total Phosphorus - C** (mg/L)	0	0	0.13
Rain	1 x 10kL	Total Phosphorus - C** (mg/L)	0	0	0.13
Rain	1 x 10kL	Total Phosphorus - C** (mg/L)	0	0	0.13
Rain	1 x 10kL	Total Phosphorus - C** (mg/L)	0	0	0.13
Rain	1 x 10kL	Total Suspended Solids - C** (mg/L)	0	0	12
Rain	1 x 10kL	Total Suspended Solids - C** (mg/L)	0	0	12
Rain	1 x 10kL	Total Suspended Solids - C** (mg/L)	0	0	12
Rain	1 x 10kL	Total Suspended Solids - C** (mg/L)	0	0	12
Sedimentation	SF Chamber - 5.8m2	Notional Detention Time (hrs)	8	12	0.0744
Sedimentation	SF Chamber - 5.8m2	Notional Detention Time (hrs)	8	12	0.146
Sedimentation	SF Chamber - 5.8m2	Notional Detention Time (hrs)	8	12	0.0744
Sedimentation	SF Chamber - 5.8m2	Notional Detention Time (hrs)	8	12	0.0744
Sedimentation	SF Chamber - 5.8m2	Total Nitrogen - k (m/yr)	500	500	1
Sedimentation	SF Chamber - 5.8m2	Total Nitrogen - k (m/yr)	500	500	1
Sedimentation	SF Chamber - 5.8m2	Total Nitrogen - k (m/yr)	500	500	1
Sedimentation	SF Chamber - 5.8m2	Total Nitrogen - k (m/yr)	500	500	1
Sedimentation	SF Chamber - 5.8m2	Total Phosphorus - k (m/yr)	6000	6000	1
Sedimentation	SF Chamber - 5.8m2	Total Phosphorus - k (m/yr)	6000	6000	1
Sedimentation	SF Chamber - 5.8m2	Total Phosphorus - k (m/yr)	6000	6000	1
Sedimentation	SF Chamber - 5.8m2	Total Phosphorus - k (m/yr)	6000	6000	1
Sedimentation	SF Chamber - 5.8m2	Total Suspended Solids - k (m/yr)	8000	8000	1
Sedimentation	SF Chamber - 5.8m2	Total Suspended Solids - k (m/yr)	8000	8000	1
Sedimentation	SF Chamber - 5.8m2	Total Suspended Solids - k (m/yr)	8000	8000	1
Sedimentation	SF Chamber - 5.8m2	Total Suspended Solids - k (m/yr)	8000	8000	1
Urban	Hardstand Area = 603m2	Field Capacity (mm)	127	127	80
Urban	Hardstand Area = 603m2	Groundwater Daily Baseflow Rate (%)	10	10	5
Urban	Hardstand Area = 603m2	Groundwater Daily Recharge Rate (%)	10	10	25
Urban	Hardstand Area = 603m2	Impervious Area Rainfall Threshold (mm/day)	1.5	1.5	1
Urban	Hardstand Area = 603m2	Pervious Area Infiltration Capacity coefficient - a	135	135	200
Urban	Hardstand Area = 603m2	Pervious Area Infiltration Capacity exponent - b	4	4	1
Urban	Hardstand Area = 603m2	Pervious Area Soil Initial Storage (% of Capacity)	30	30	25
Urban	Hardstand Area = 603m2	Pervious Area Soil Storage Capacity (mm)	187	187	120
Urban	Hardstand Catchment Area= 858sq m [100% Imp]	Field Capacity (mm)	127	127	80
Urban	Hardstand Catchment Area= 858sq m [100% Imp]	Groundwater Daily Baseflow Rate (%)	10	10	5
Urban	Hardstand Catchment Area= 858sq m [100% Imp]	Groundwater Daily Recharge Rate (%)	10	10	25
Urban	Hardstand Catchment Area= 858sq m [100%	Impervious Area Rainfall Threshold (mm/day)	1.5	1.5	1

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Type					
Urban	Hardstand Catchment Area= 858sq m [100% Imp]	Pervious Area Infiltration Capacity coefficient - a	135	135	200
Urban	Hardstand Catchment Area= 858sq m [100% Imp]	Pervious Area Infiltration Capacity exponent - b	4	4	1
Urban	Hardstand Catchment Area= 858sq m [100% Imp]	Pervious Area Soil Initial Storage (% of Capacity)	30	30	25
Urban	Hardstand Catchment Area= 858sq m [100% Imp]	Pervious Area Soil Storage Capacity (mm)	187	187	120
Urban	Hardtand Area = 103m2	Field Capacity (mm)	127	127	80
Urban	Hardtand Area = 103m2	Groundwater Daily Baseflow Rate (%)	10	10	5
Urban	Hardtand Area = 103m2	Groundwater Daily Recharge Rate (%)	10	10	25
Urban	Hardtand Area = 103m2	Impervious Area Rainfall Threshold (mm/day)	1.5	1.5	1
Urban	Hardtand Area = 103m2	Pervious Area Infiltration Capacity coefficient - a	135	135	200
Urban	Hardtand Area = 103m2	Pervious Area Infiltration Capacity exponent - b	4	4	1
Urban	Hardtand Area = 103m2	Pervious Area Soil Initial Storage (% of Capacity)	30	30	25
Urban	Hardtand Area = 103m2	Pervious Area Soil Storage Capacity (mm)	187	187	120
Urban	Parcel 1 Roof Area = 2_892m2	Field Capacity (mm)	127	127	70
Urban	Parcel 1 Roof Area = 2_892m2	Groundwater Daily Baseflow Rate (%)	10	10	4
Urban	Parcel 1 Roof Area = 2_892m2	Groundwater Daily Recharge Rate (%)	10	10	50
Urban	Parcel 1 Roof Area = 2_892m2	Impervious Area Rainfall Threshold (mm/day)	0.3	0.3	1.4
Urban	Parcel 1 Roof Area = 2_892m2	Pervious Area Infiltration Capacity coefficient - a	135	135	210
Urban	Parcel 1 Roof Area = 2_892m2	Pervious Area Infiltration Capacity exponent - b	4	4	4.7
Urban	Parcel 1 Roof Area = 2_892m2	Pervious Area Soil Storage Capacity (mm)	187	187	170
Urban	Parcel 1 Roof Area Bypassing RWT = 692m2	Field Capacity (mm)	127	127	70
Urban	Parcel 1 Roof Area Bypassing RWT = 692m2	Groundwater Daily Baseflow Rate (%)	10	10	4
Urban	Parcel 1 Roof Area Bypassing RWT = 692m2	Groundwater Daily Recharge Rate (%)	10	10	50
Urban	Parcel 1 Roof Area Bypassing RWT = 692m2	Impervious Area Rainfall Threshold (mm/day)	0.3	0.3	1.4
Urban	Parcel 1 Roof Area Bypassing RWT = 692m2	Pervious Area Infiltration Capacity coefficient - a	135	135	210
Urban	Parcel 1 Roof Area Bypassing RWT = 692m2	Pervious Area Infiltration Capacity exponent - b	4	4	4.7
Urban	Parcel 1 Roof Area Bypassing RWT = 692m2	Pervious Area Soil Storage Capacity (mm)	187	187	170
Urban	Parcel 2 - Roof Area bypassing RWT- [841m2]	Field Capacity (mm)	127	127	70
Urban	Parcel 2 - Roof Area bypassing RWT- [841m2]	Groundwater Daily Baseflow Rate (%)	10	10	4
Urban	Parcel 2 - Roof Area bypassing RWT- [841m2]	Groundwater Daily Recharge Rate (%)	10	10	50
Urban	Parcel 2 - Roof Area bypassing RWT- [841m2]	Impervious Area Rainfall Threshold (mm/day)	0.3	0.3	1.4
Urban	Parcel 2 - Roof Area bypassing RWT- [841m2]	Pervious Area Infiltration Capacity coefficient - a	135	135	210
Urban	Parcel 2 - Roof Area bypassing RWT- [841m2]	Pervious Area Infiltration Capacity exponent - b	4	4	4.7
Urban	Parcel 2 - Roof Area bypassing RWT- [841m2]	Pervious Area Soil Storage Capacity (mm)	187	187	170
Urban	Parcel 2 - Roof Area to RWT- [1261m2]	Field Capacity (mm)	127	127	70
Urban	Parcel 2 - Roof Area to RWT- [1261m2]	Groundwater Daily Baseflow Rate (%)	10	10	4
Urban	Parcel 2 - Roof Area to RWT- [1261m2]	Groundwater Daily Recharge Rate (%)	10	10	50
Urban	Parcel 2 - Roof Area to RWT- [1261m2]	Impervious Area Rainfall Threshold (mm/day)	0.3	0.3	1.4
Urban	Parcel 2 - Roof Area to RWT- [1261m2]	Pervious Area Infiltration Capacity coefficient - a	135	135	210
Urban	Parcel 2 - Roof Area to RWT- [1261m2]	Pervious Area Infiltration Capacity exponent - b	4	4	4.7
Urban	Parcel 2 - Roof Area to RWT- [1261m2]	Pervious Area Soil Storage Capacity (mm)	187	187	170

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Node Type	Node Name	Parameter	Min	Max	Actual
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Urban	Parcel 3 - Roof Catchment area to RWT = 1_778m2	Pervious Area Infiltration Capacity coefficient - a	135	135	210
Urban	Parcel 3 - Roof Catchment area to RWT = 1_778m2	Pervious Area Infiltration Capacity exponent - b	4	4	4.7
Urban	Parcel 3 - Roof Catchment area to RWT = 1_778m2	Pervious Area Soil Storage Capacity (mm)	187	187	170
Urban	Parcel 3 - Roof Catchment bypassing RWT = 889m2	Field Capacity (mm)	127	127	70
Urban	Parcel 3 - Roof Catchment bypassing RWT = 889m2	Groundwater Daily Baseflow Rate (%)	10	10	4
Urban	Parcel 3 - Roof Catchment bypassing RWT = 889m2	Groundwater Daily Recharge Rate (%)	10	10	50
Urban	Parcel 3 - Roof Catchment bypassing RWT = 889m2	Impervious Area Rainfall Threshold (mm/day)	0.3	0.3	1.4
Urban	Parcel 3 - Roof Catchment bypassing RWT = 889m2	Pervious Area Infiltration Capacity coefficient - a	135	135	210
Urban	Parcel 3 - Roof Catchment bypassing RWT = 889m2	Pervious Area Infiltration Capacity exponent - b	4	4	4.7
Urban	Parcel 3 - Roof Catchment bypassing RWT = 889m2	Pervious Area Soil Storage Capacity (mm)	187	187	170
Urban	Parcel 4 - Roof Area to RWT = 1_000m2	Field Capacity (mm)	127	127	70
Urban	Parcel 4 - Roof Area to RWT = 1_000m2	Groundwater Daily Baseflow Rate (%)	10	10	4
Urban	Parcel 4 - Roof Area to RWT = 1_000m2	Groundwater Daily Recharge Rate (%)	10	10	50
Urban	Parcel 4 - Roof Area to RWT = 1_000m2	Impervious Area Rainfall Threshold (mm/day)	0.3	0.3	1.4
Urban	Parcel 4 - Roof Area to RWT = 1_000m2	Pervious Area Infiltration Capacity coefficient - a	135	135	210
Urban	Parcel 4 - Roof Area to RWT = 1_000m2	Pervious Area Infiltration Capacity exponent - b	4	4	4.7
Urban	Parcel 4 - Roof Area to RWT = 1_000m2	Pervious Area Soil Storage Capacity (mm)	187	187	170
Urban	Parcel 4 - Roof Area bypassing RWT = 714m2	Field Capacity (mm)	127	127	70
Urban	Parcel 4 - Roof Area bypassing RWT = 714m2	Groundwater Daily Baseflow Rate (%)	10	10	4
Urban	Parcel 4 - Roof Area bypassing RWT = 714m2	Groundwater Daily Recharge Rate (%)	10	10	50
Urban	Parcel 4 - Roof Area bypassing RWT = 714m2	Impervious Area Rainfall Threshold (mm/day)	0.3	0.3	1.4
Urban	Parcel 4 - Roof Area bypassing RWT = 714m2	Pervious Area Infiltration Capacity coefficient - a	135	135	210
Urban	Parcel 4 - Roof Area bypassing RWT = 714m2	Pervious Area Infiltration Capacity exponent - b	4	4	4.7
Urban	Parcel 4 - Roof Area bypassing RWT = 714m2	Pervious Area Soil Storage Capacity (mm)	187	187	170

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