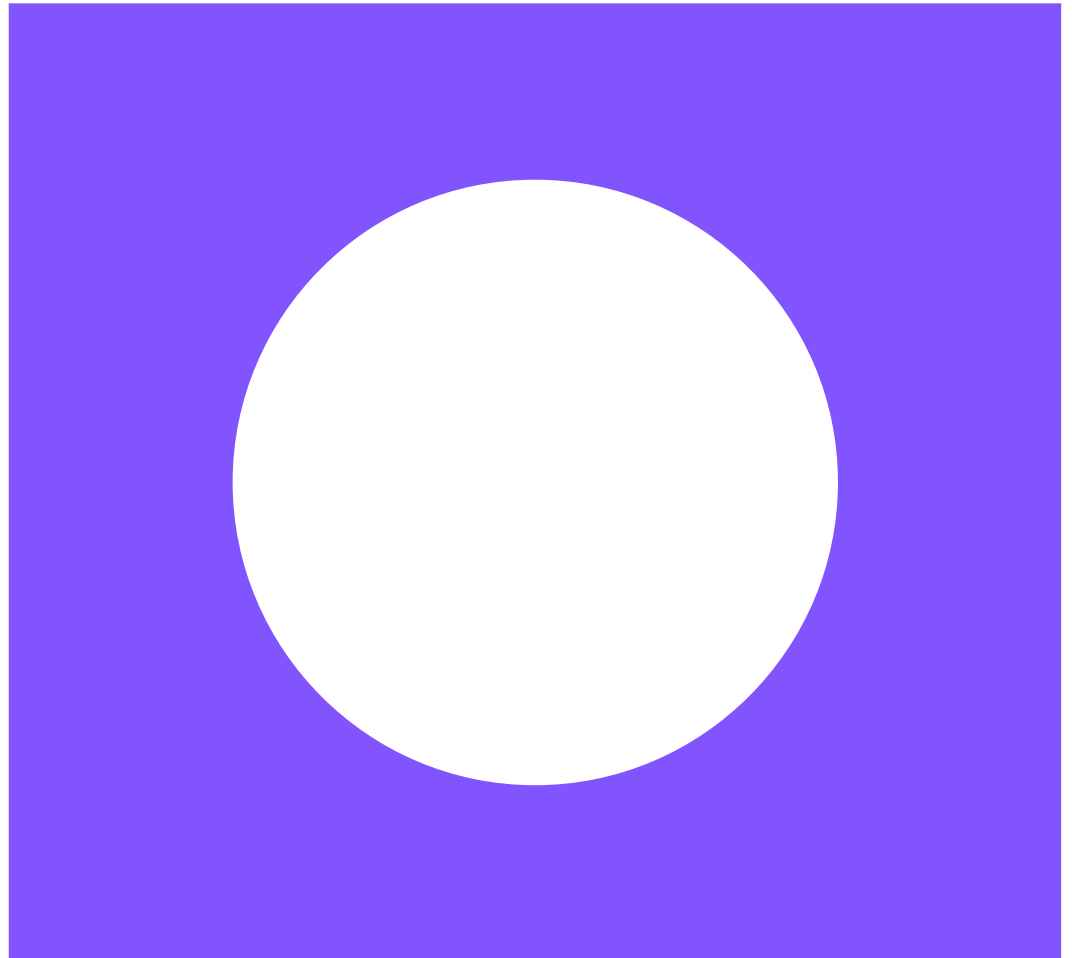




29 Florida Street, Sylvania

Integrated Water Management Plan

November 2025



Acknowledgment of Country

On behalf of Mott MacDonald, we would like to begin by acknowledging the Traditional Custodians of the land on which we meet today, and pay our respects to their Elders past and present.

We recognise and respect their cultural heritage, beliefs, continued connection to the land and water and commit to building a brighter future together.



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Integrated Water Management Plan

November 2025

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Contents

Executive summary	1
1 Introduction	2
1.1 Purpose of Report	2
1.2 Scope of Work	2
1.3 Limitation of this Report	2
2 Design Guidelines and Methodologies	3
2.1 Consultation	3
2.2 Codes and Guidelines	3
2.3 Other Consultants Input	3
2.4 Methodologies	3
2.5 Stormwater Management Design Criteria	4
2.5.1 Design Storm Events	4
2.5.2 Design Requirements	4
3 Existing Site and Stormwater Conditions	8
3.1 Subject site	8
3.2 Existing Stormwater Drainage Characteristics	9
4 Proposed Development	10
5 Stormwater Management	11
5.1 Water Quantity Management	11
5.1.1 Legal Discharge Point	11
5.1.2 Tailwater Assumption	11
5.1.3 Water Quantity Catchment	12
5.1.4 Overland Flow Path	14
6 Water Quality Management	15
6.1 MUSIC Modelling Pluviograph Data Input	15
6.2 Water Quality Catchment	15
6.3 Water Quality Treatment Train	17
6.4 Rainwater Re-use	17
6.5 MUSIC Modelling Results	17
6.6 Maintenance and Access and Safety	18
6.6.1 Maintenance Requirements	18
6.6.2 Access and Safety	18

7	Erosion and Sediment Control	19
7.1	Construction Phase Pollutants of Concern	19
7.2	Construction Phase Performance Criteria	19
8	Conclusion	21
A.1	Appendix A: Civil Plans	22

Tables

Table 1: Site-specific SEARs	1
Table 2-1: Design Criteria and Guidelines	3
Table 2-2: Hydraulic and Hydrology Design Criteria	4
Table 6-1: Soil/groundwater Parameters for MUSIC Modelling	16
Table 6-2: Stormwater Quality Parameters for MUSIC modelling	16
Table 6-3: MUSIC Modelling Assessment Results	17
Table 7-1: Construction Phase Pollutant Loads	19
Table 7-2: Construction Phase Performance Criteria	19

Figures

Figure 3-1: Architectural Plan (Source: BVN, drawing no.: GA - OVERALL - LEVEL 05)	9
Figure 5-1: Water Quantity Catchment Plan	12
Figure 6-1: Water Quality Catchment Plan	16
Figure 6-2: MUSIC Modelling Layout and Results	17

Executive summary

This Integrated Water Management Report has been prepared by Mott Macdonald as part of the Environmental Impact Statement (EIS) for a State Significant Development Application (SSDA) for proposed residential development at 29 Florida Street, Sylvania (the Site).

The site is located at 29 Florida Street, Sylvania in the Sutherland Local Government Area (LGA) and comprises 14 lots with a combined site area of approximately 21,792sqm. It is currently occupied with two storey terrace buildings and 3-4 storey apartment buildings containing one social housing dwellings.

The SSD application seeks approval for demolition of all existing structures and construction of eight residential buildings across the Site comprising a total of 505 dwellings, including 159 social housing dwellings.

The Report has been prepared to address the Secretary’s Environmental Assessment Requirements (SEARs) issued for the project (SSD-83258708) on 2 May 2025 as detailed in the table below.

Table 1: Site-specific SEARs

Issue	SEARS requirement	Section reference
Water Management	- Detail the proposed drainage design and servicing infrastructure to be incorporated as part of the development (stormwater and wastewater). - 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.	- Water Quantity Management - Legal Discharge Point - Tailwater Assumption - Water Quantity Catchment - Water Quality Management - Water Quality Catchment - Water Quality Treatment Train - MUSIC Modelling Results

This report concludes that the proposed residential development appropriately considers Sutherland Shire Council Development Control Plan (DCP) subject to the implementation of the following mitigation measures:

- Sediment and Erosion Control plan
- Stormwater Management
- Stormwater Quality Design Requirements

1 Introduction

1.1 Purpose of Report

The purpose of this Integrated Water Management Plan is to outline the proposed site stormwater management strategy for the development and demonstrate compliance with the stormwater management quantity and quality requirements in accordance with the SEARs issued for the project including, but not limited to, the Sutherland Shire Development Control Plan 2015, Sutherland Shire Stormwater Specification 2009, and relevant Australian and industrial standards.

1.2 Scope of Work

This management plan details the stormwater assessment undertaken, including modelling results, and presents the proposed strategy for both stormwater quantity and quality management for the development.

The assessment includes the following components:

- Understanding the existing stormwater conditions for the site including flood risk, overland flow paths, permeability, existing infrastructure and current points of discharge.
- Assessing the post-development flows for the proposed development by DRAINS to determine any increase in runoff and implement mitigation measures as required under the design criteria.
- Assessing the use of various stormwater quality treatment measures, including Water Sensitive Urban Design (WSUD) initiatives, to meet the stormwater quality objectives under the design criteria.
- Designing a stormwater system to convey the minor flows from the development to nominated points of discharge from the site and incorporating quantity and quality measures from the above.
- Considering major flows and overland flow paths through the developed site for safety and conveyance of flows and implementing above-ground drainage measures as required.
- Implementing erosion and sediment control measures to minimise sediment runoff during the construction phase.

1.3 Limitation of this Report

The proposed water management plan to be read in conjunction with relevant consultants including but not limited to, Architectural Plans, Landscape Plans, Geotechnical Report and relevant approval documents.

2 Design Guidelines and Methodologies

2.1 Consultation

Mott MacDonald is in consultation with the project team throughout the design phase to obtain a feasible design solution for the proposed development site. Iterations of the design were prepared in conjunction with the flood engineers' input to flood advice, structure engineers, hydraulic engineers, landscape architects and architects. The proposed stormwater drainage design was conducted in accordance with Sutherland Shire Council Development Control Plan (DCP) and other relevant guidelines.

2.2 Codes and Guidelines

The design has been undertaken in compliance with the relevant Australian Standards, local government guidelines. Key documents used as a guidance for the design are summarised in Table 2-1.

Table 2-1: Design Criteria and Guidelines

Reference	Title	Version or Date	Originator
DRAINS	DRAINS User Manual		DRAINS
eWater	MUSIC User Manual	V5	eWater
Blue Book	Managing Urban Stormwater – Soils and Construction, Volume 1, 4 th edition, March 2004, Landcom	March 2004	Landcom
NCC	National Code Australia	2022	Australian Building Codes Board
Sutherland Shire Council	Stormwater Specification	2009	Sutherland Shire Council
Sutherland Shire Council	Development Control Plan	2009	Sutherland Shire Council
AS/NZS 3500.3	Plumbing and Drainage – Stormwater Drainage	2021	Standards Australia

2.3 Other Consultants Input

The proposed stormwater design is also based on the following source of information received.

- Architectural design provided by BVN, project no.: 2506009, revision: 07, dated 24.10.2025.
- Landscape architectural design provided by Turf, revision: A, dated 24.10.2025.
- Survey undertaken by LTS, reference no: 52504 001 DT, dated 15.04.2025.

2.4 Methodologies

- DRAINS
 - DRAINS software package has been utilised to size the proposed below ground pit and pipe network to convey the major/minor storm events flows.
 - This software has also been used to undertake iterations to determine suitably sized stormwater detention tanks under the stormwater management quantity requirements.
 - The DRAINS model has been undertaken the online rainfall data from ARR Data Hub.
 - Climate change rainfall modifier has been applied to undertake the hydraulic analysis.

- MUSIC
 - Modelling of the proposed development was undertaken using the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) Version 6.3 software. The software was utilised to simulate urban stormwater systems operating at a range of temporal and spatial scales. MUSIC models the total amounts of gross pollutants, phosphorus, nitrogen, and total suspended solids produced within various types of catchments. It allows the user to simulate the removal rates expected when implementing water quality treatment devices to reduce the increase gross pollutant and nutrient levels created by the proposed development.
 - The water quality modelling has been undertaken in accordance with the current NSW Music Modelling Guidelines 2015.
- BYDA
 - Before You Dig Australia, due diligence investigations have been carried out with a combined services coordination and verification. The information is a supplementary to existing survey to assist civil/stormwater design and other consultants at approval submission stage.

2.5 Stormwater Management Design Criteria

2.5.1 Design Storm Events

The design storm events vary from design purposes and have been summarised below, detailed design regulations to be discussed in the following chapters:

- Water Sensitive Urban Design (WSUD) is designed for 1 in 3-month storm events.
- Permissible Site Discharge (PSD) is designed for all storm events up to and including the 1% AEP event.
- On-site Detention (OSD) volume is designed for all storms up to 1% AEP storm events.
- The hydraulic assessment incorporated a climate change rainfall modifier of 1.2, ensuring that post-development stormwater flows were effectively detained to match pre-development levels across all specified storm events.

2.5.2 Design Requirements

The listed Sutherland Shire Council guidelines in Table 2-1 above provides the synopsis of the design requirements for the subject site. Design criteria have been developed to ensure the proposed design adheres to the requirements denoted in the Sutherland Shire Council guidelines. Table 2-2 below summarises the design criteria for hydrology and hydraulics analysis.

Table 2-2: Hydraulic and Hydrology Design Criteria

Item	Standard	Adopted
Hydrology & Hydraulics		
Hydrological Model	Sutherland Shire Environmental Specification 2009, Section 2	DRAINS (ILSAX)
Design Rainfall Data	Sutherland Shire Environmental Specification 2009, Section 2	AR&R Online Data

Item	Standard	Adopted	
Urban Rainfall Losses	Australian Rainfall & Runoff (ARR) – Book 9 – Runoff in Urban Areas, Table 9.6.6	Parameter	Value
		Paved Area Depression Storage (Initial Load)	1.0mm
		Grassed Area Depression Storage (Initial Loss)	5.0mm
		Soil Type	3
		Slow infiltration rates. This parameter, in conjunction with the AMC, determines the continuing loss	
		AMC	3
		Description	Rather wet
		Total Rainfall in 5 Days Preceding the Storm	12.5 to 25mm
Major Design Storm	Sutherland Shire Stormwater Specification 2009, Section 5.3	100YR Average Recurrence Interval (1% AEP)	
Minor Design Storm	Sutherland Shire Stormwater Specification 2009, Section 5.3	Average Recurrence Intervals for Drainage Design Situation	
			Design Storm AEP
		Street, accessway and pathway – excluding low points which discharge through building allotments	20%
		Relief of low point areas via drainage lines traversing building allotments	5%
		Major system traversing developed areas. (Major systems are defined as those having catchment areas in excess of 15 hectares or run off in excess of 3cu.m/sec whichever is the lesser)	5%
Manning's Roughness Coefficient (Kinematic Wave Equation)	Australian Rainfall & Runoff (ARR) – Book 6 – A Guide to Flood Estimation, Section 2.5.2, Table 6.2.1	Concrete Lining - 0.013 - 0.015	
		Grass (maintained) – 0.030 - 0.035	
		Grass (unmaintained) – 0.070 – 0.080	
		Earth (clear) – 0.022 – 0.030	
Pipes and Culvert Colebrook-White (n value) formular	Australian Rainfall & Runoff, Book 6 – Flood Hydraulics	Section 2.5.2: Application of the Manning Equation, Table 6.2.1	
Pit Losses	Australian Rainfall & Runoff, Book 9 – Runoff in Urban Areas	Section 5.5.3: Energy Losses	
Pit Blockage Factors	Australian Rainfall & Runoff (ARR) – Book 9 – Runoff in Urban Areas, Table 9.5.1	Sag – kerb inlet (side entry) – 20%	
		Sag – grated -50%	
		Sag – combination – kerb inlet -0% & Grate – 100%	
		On grade – kerb inlet (side entry) – 20%	
		On-grade – grated – 50%	
		On grade – combination – 10% (of total capacity)	

Item	Standard	Adopted																
Tailwater level/sea water level	Australian Rainfall & Runoff, Book 6 – Flood Hydraulics	Refer to guide.																
Overland Flow Safety Criteria	Sutherland Shire Stormwater Specification 2009, Section 5.3	<table><tr><th colspan="2">Table 3-R-Major flow design limits</th></tr><tr><th>Location</th><th>Design limit</th></tr><tr><td>All areas routinely accessed by vehicles and people, including vulnerable people (such as children)</td><td>H1 Hazard Classification as defined in Section 7.2.7 of Book 6 ARR2019 for the critical 1% AEP event</td></tr><tr><td>All areas routinely accessible by the public but not subject to vehicle traffic</td><td>H2 or lower Hazard Classification as defined in Section 7.2.7 of Book 6 ARR2019 for the critical 1% AEP event</td></tr><tr><td>Areas without routine public access but without exclusion fencing</td><td>H3 or lower Hazard Classification as defined in Section 7.2.7 of Book 6 ARR2019 for the critical 1% AEP event</td></tr><tr><td>Where roads convey major flows</td><td>Maximum flow depth to be top of kerb or 200mm above top of kerb where the footway can cater for the depth of overland flow and where it is demonstrated that it will not cause any flooding issues to adjacent lots.</td></tr><tr><td>Structures and entrances to underground car parks</td><td>For floor levels on structures and underground carparks a minimum freeboard of 0.3m is required above the 1% AEP flood event. A higher freeboard may be required in areas of mainstream overland flooding.</td></tr><tr><td>All major systems</td><td>Freeboard to be the greatest of: Doc Set 8277088 Technical Specification for Infrastructure Design Page 100 of 249 • 150mm • Flow velocity head • The additional capacity required to convey the relevant climate change flow as calculated using section 3.5.3.2.</td></tr></table>	Table 3-R-Major flow design limits		Location	Design limit	All areas routinely accessed by vehicles and people, including vulnerable people (such as children)	H1 Hazard Classification as defined in Section 7.2.7 of Book 6 ARR2019 for the critical 1% AEP event	All areas routinely accessible by the public but not subject to vehicle traffic	H2 or lower Hazard Classification as defined in Section 7.2.7 of Book 6 ARR2019 for the critical 1% AEP event	Areas without routine public access but without exclusion fencing	H3 or lower Hazard Classification as defined in Section 7.2.7 of Book 6 ARR2019 for the critical 1% AEP event	Where roads convey major flows	Maximum flow depth to be top of kerb or 200mm above top of kerb where the footway can cater for the depth of overland flow and where it is demonstrated that it will not cause any flooding issues to adjacent lots.	Structures and entrances to underground car parks	For floor levels on structures and underground carparks a minimum freeboard of 0.3m is required above the 1% AEP flood event. A higher freeboard may be required in areas of mainstream overland flooding.	All major systems	Freeboard to be the greatest of: Doc Set 8277088 Technical Specification for Infrastructure Design Page 100 of 249 • 150mm • Flow velocity head • The additional capacity required to convey the relevant climate change flow as calculated using section 3.5.3.2.
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All major systems	Freeboard to be the greatest of: Doc Set 8277088 Technical Specification for Infrastructure Design Page 100 of 249 • 150mm • Flow velocity head • The additional capacity required to convey the relevant climate change flow as calculated using section 3.5.3.2.																	
Permissible Site Discharge	Sutherland Shire Council, Stormwater and Groundwater Management DCP 2015 Chapter 38	Section 1.3: The post development rate of stormwater runoff (both piped and overland) from the site shall not exceed the rate of flow of runoff from the site than would exist prior to the subject development occurring.																

Item	Standard	Adopted
On-Site Stormwater Detention	Sutherland Shire Stormwater Specification 2009	Section 4.0: Specific Requirements for On-Site Detention.
Pollution reduction targets	Sutherland Shire Development Control Plan 2015, Chapter 38: Stormwater and Groundwater Management	• 80% reduction in total suspended solids (TSS) • 40% reduction in total phosphorus (TP) • 40% reduction in total nitrogen (TN) • 90% reduction in gross pollutants

3 Existing Site and Stormwater Conditions

3.1 Subject site

The Site is located at 29 Florida Street, Sylvania. The site comprises 14 lots and has a total combined site area of 21,792sqm and is legally described as Lot X DP411212, Y DP411212, Lots 2-9 & Lots 10-13 DP22661, Lot 104 DP 733063.

The Site falls within the block bounded by the Princes Highway to the north, Port Hacking Road to the west, Pembroke Street to the south and Florida Street to the east. The Site has access from Florida Street via an internal roadway (Coral Tree Place).

The Site comprises the majority of the street block, except for properties located directly to the north and west at the corner of Florida Street and Princes Highway. This land comprises a car dealership and adjacent vacant land, a dwelling house on Florida Street, and a telecommunications facility zoned SP2 Infrastructure.

The Site is currently occupied with two storey terrace buildings and 3-4 storey apartment buildings containing one social housing dwellings.

To the west of the Site is Southgate Shopping Centre providing access to a wide range of retail and services. To the south and east the Site is surrounded by low density residential areas within the wider suburb of Sylvania. To the north across Princes Highway are commercial uses including retail shops, childcare and a car dealer.



The development site is bound by Princes Highway to the north, Florida Street to the east, Port Hacking Road to the west and Pembroke Street to the south. The natural topography of the site exhibits a slope descending from east to west, specifically in the direction of Hacking Road. An existing ridge is noted hugging the western boundary and descending to the south.

4 Proposed Development

The proposed development includes site preparation works, tree removal and demolition of all structures, and the construction of eight (8) residential buildings up to nine (9) storeys across the site, including basement parking, construction of a new access street, associated landscaping and public domain works, and infrastructure servicing.

A detailed description of the project is included in the EIS.

5 Stormwater Management

5.1 Water Quantity Management

The proposed stormwater drainage design has been prepared in accordance with the Sutherland Shire Stormwater Specification.

The objective of stormwater quantity management is to adhere to the following controls as stated in *Sutherland Shire Development Control Plan 2015*:

- “Minimise the impacts of excessive stormwater runoff and flooding of downstream properties.”
- “Control the volume of stormwater runoff from any site to reasonable pre-development levels.”
- “Preserve and enhance water bodies and riparian zones as natural systems.”
- “Manage rainfall runoff from a site in a manner that does not increase the risk of flooding, risk to life, property damage, water pollution, sedimentation, environmental degradation or result in adverse visual impacts.
- “Enhance the long-term health and quality of waterways and aquifers.”
- “Ensure that the peak discharge rate of stormwater flow from development is no greater than that of the permissible site discharge rate.”
- “Reduce the impacts of stormwater discharge on downstream properties and natural systems.”

5.1.1 Legal Discharge Point

The development will incorporate a proposed internal reserve road, along which new stormwater pits will be constructed as part of the road drainage system. These pits will serve as discharge points for the respective on-site detention systems: On-site Detention 1 and On-site Detention 2.

On-site Detention 3 and On-site Detention 4 are proposed to connect to the existing stormwater pit on Florida Street, which has an invert level of 13.68. The justification for this connection is provided in section 5.1.2 below.

Refer to the civil drawing set prepared by Mott MacDonald for detailed design and layout.

5.1.2 Tailwater Assumption

The downstream tailwater level is a critical parameter used to evaluate potential backwater effects at the proposed outlet, considering the performance and capacity of the existing stormwater network.

A portion of the site is subject to inundation during the 1% Annual Exceedance Probability (AEP) flood event. For the design of On-Site Detention (OSD) system 2, a tailwater level of RL 14.00 has been adopted, reflecting the anticipated flood conditions. For the remaining detention systems—OSD 1, OSD 3, and OSD 4—the tailwater level has been conservatively set at the obvert level of their respective outlet pipes, ensuring appropriate hydraulic performance under design conditions. OSD 3 and OSD 4 are proposed to connect to the existing stormwater pit along Florida Street to mitigate the backwater effects associated with the 1% AEP flood event along Pembroke Street. This connection will also facilitate the efficient operation of the on-site detention tank system.

5.1.3 Water Quantity Catchment

A water quantity catchment plan has been developed to clearly illustrate the drainage catchments contributing to the on-site detention system, as well as any areas bypassing it. This plan supports the overall stormwater management strategy by identifying flow paths and ensuring compliance with discharge requirements.

The catchment plan also helps explain which areas of the site are likely to drain into the on-site detention tank, and which areas will bypass it due to site constraints. This distinction is important for understanding how stormwater is managed across the site.

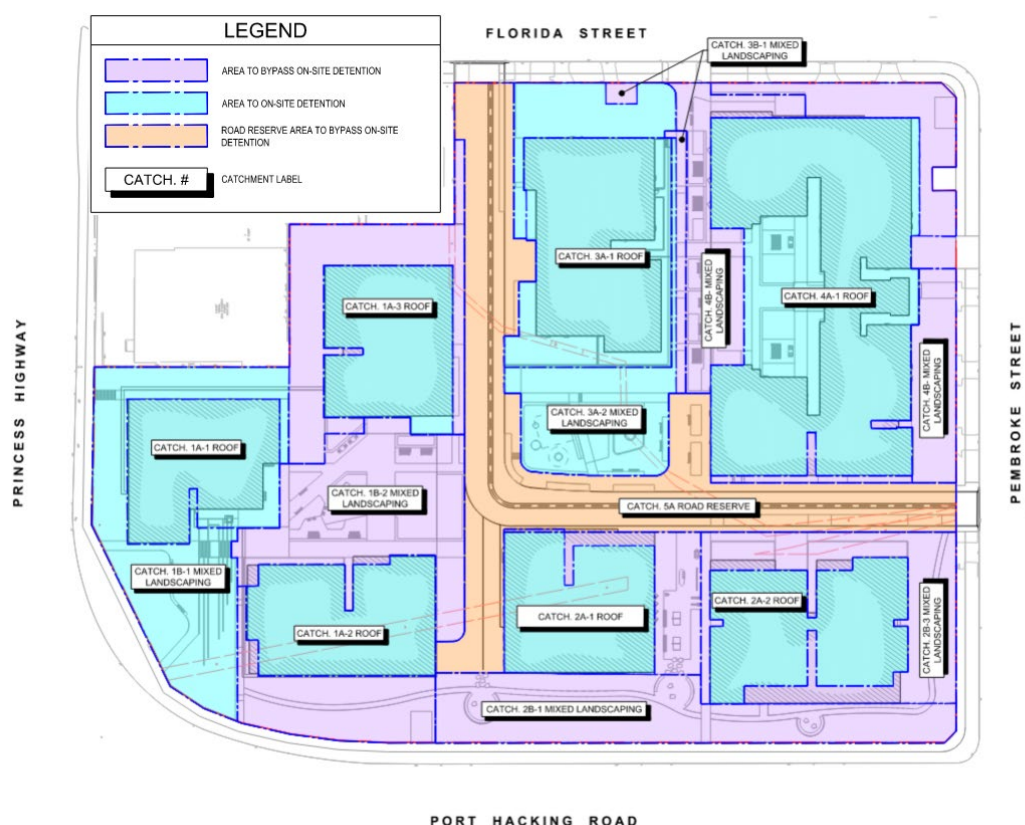


Figure 5-1: Water Quantity Catchment Plan

Refer to Drawing No. 103419-MMD-SYL-XX-DR-C-0511 for detailed catchment delineation and associated design information.

5.1.3.1 On-Site Detention System

An on-site detention system has been proposed to ensure the following stated objectives are achieved:

- “Minimise the impacts of excessive stormwater runoff and flooding of downstream properties.”
- “Control the volume of stormwater runoff from any site to reasonable pre-development levels.”

- “The post development rate of stormwater runoff (both piped and overland) from the site shall not exceed the rate of flow from the site than would exist prior to the subject development occurring.”
- “The peak rate of flow for any site shall be calculated on the basis of catering for all storm events up to and including the 1% AEP event.”
- “Preserve and enhance water bodies riparian zones as natural systems.”

An on-site detention system detains stormwater temporarily while releasing it at a controlled manner that can be accommodated by the existing council drainage system.

In accordance with the stormwater drainage design requirements set by the Sutherland Shire Council, Mott MacDonald has reviewed the existing site conditions alongside the proposed architectural plans to determine an optimal solution for managing stormwater runoff. The objective is to minimise impacts on neighbouring properties and the existing drainage infrastructure.

The proposed development comprises three distinct market and social housing projects, with staging potentially occurring at different intervals. Regardless of the staging sequence, each individual development will require a separate on-site detention system. These systems must be assessed independently to ensure compliance with the applicable stormwater management controls.

Due to partial inundation of the site by the 1% Annual Exceedance Probability (AEP) flood event, several challenges have been identified for each building development.

- **OSD 1:** The proposed on-site detention system is located on level 5 at RL 20.385 which extends below to level 4 at RL 17.185. Due to existing site levels, a portion of the site will bypass this detention system.
- **OSD 2:** The proposed on-site detention is also located on level 5 at RL 19.53 which extends below to level 4 at 16.33. Given the 1% AEP flood level and a tailwater level of RL 14.00, the detention tank has been positioned at a higher elevation to prevent backwater effects at the outlet. Consequently, lower areas of the site cannot drain into the OSD, resulting in increased bypass. This poses a significant challenge, as the majority of the site bypasses the detention system.
- **OSD 3:** The proposed on-site detention (OSD) system has been located on Level 6 at RL 22.30 and extends below to level 5 at 19.10. The outlet from this system is designed to connect to an existing stormwater pit situated along Florida Street, facilitating discharge into the local drainage network. Due to challenging site levels, a portion of the site will bypass the OSD system, and alternative stormwater management measures may be required for these areas to ensure compliance with overall drainage objectives.
- **OSD 4:** The proposed on-site detention (OSD) system is located on Level 5 at RL 17.80 and extends vertically to Level 4 at RL 14.30 to accommodate required storage volume. The outlet from the OSD is designed to discharge into a proposed stormwater pit within the site boundary. From there, flow will be conveyed to the existing Council drainage pit on Florida Street, which has an invert level of RL 13.68. This configuration ensures effective integration with the existing stormwater infrastructure while addressing site-specific level constraints.

Proposed stormwater drainage strategy alongside with detailed design information regarding the OSD system can be found in the civil drawing set prepared by Mott MacDonald in Appendix A.

5.1.4 Overland Flow Path

Each on-site detention (OSD) tank is equipped with an integrated overflow chamber designed to safely redirect excess water in the event of an orifice blockage. This ensures that any potential overflow is managed effectively, preventing flooding within the building.

In addition, any blockages occurring in the ground floor stormwater pits during major storm events are mitigated by a diversion system that channels excess water away from the building. The flow is directed toward the road reserve, allowing stormwater to safely discharge along Pembroke Street.

6 Water Quality Management

To ensure that the development improves the quality of stormwater leaving the development site, Mott MacDonald has reviewed the site and formulated a Water Sensitive Urban Design concept model, treatment train effectiveness and summarised the results in this section of the report. MUSIC software was utilised to simulate urban stormwater systems operating at a range of temporal and spatial scales. MUSIC models the total amounts of gross pollutants, phosphorus, nitrogen and total suspended solids produced within various types of catchments. It allows the user to simulate the removal rates expected when implementing water quality treatment devices to reduce the increased gross pollutant and nutrient levels created by the proposed development.

6.1 MUSIC Modelling Pluviograph Data Input

As there is no official MUSIC rainfall file available for the Sutherland Shire Council Local Government Area (LGA), an alternative approach was required to proceed with the water quality modelling. To address this, Ocean Protect was contact requesting for a MUSIC template with built in rainfall data of the nearest station. The rainfall data adopted covers the period from 1979-1988.

6.2 Water Quality Catchment

The MUSIC model was set up to represent the post-developed scenario. The site was divided into sub-catchments based on the layout and topography. The proposed MUSIC catchment breakdown is shown in Table 6-1. Details of water quality catchment delineation shall be read in conjunction with stormwater management plan prepared by Mott Macdonlad.

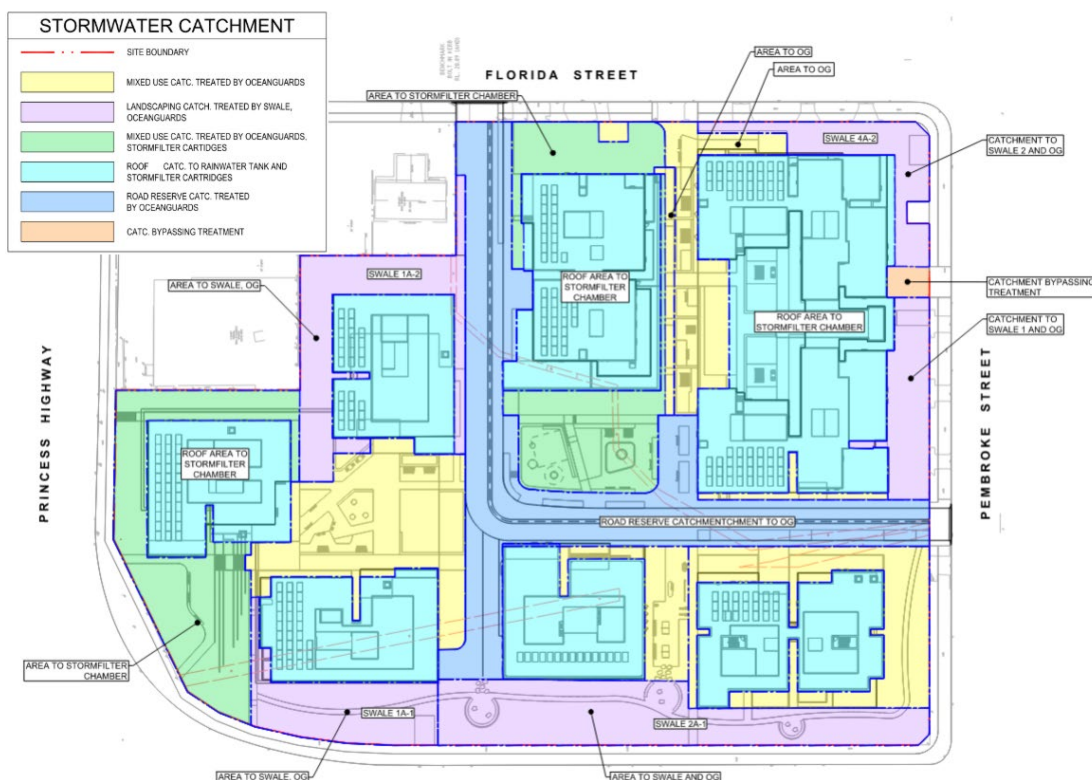


Figure 6-1: Water Quality Catchment Plan

The proposed catchments are separated into the following land use types:

- **Roof** – The roof area of all proposed buildings.
- **Landscape** – Both landscape and natural areas that are within the development.
- **Mixed Area** – All paved area outside roof and landscape area

MUSIC soil and groundwater parameters are set as per Table 6-1 and MUSIC node rainfall runoff parameters are set as per Table 6-2 respectively.

Table 6-1: Soil/groundwater Parameters for MUSIC Modelling

	Units	Mixed	Roof
Impervious area parameters			
Rainfall threshold	mm/day	1.50	1
Pervious area parameters			
Soil storage capacity	mm	120	120
Initial storage	% of capacity	30	25
Field capacity	mm	80	80
Infiltration capacity coefficient - a		200	200
Infiltration capacity coefficient - b		1	1
Groundwater properties			
Initial depth	mm	10	10
Daily recharge rate	%	25	25
Daily baseflow rate	%	5	5
Daily deep seepage rate	%	0	0

Table 6-2: Stormwater Quality Parameters for MUSIC modelling

Land Use	Storm Flow						Base Flow					
	TSS		TP		TN		TSS		TP		TN	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
(All values expressed as log ₁₀ mg/l)												
Mixed	2.40	0.32	-0.30	0.25	0.34	0.19	1.20	0.17	-0.85	0.19	0.11	0.12
Roofs	1.30	0.32	-0.89	0.25	0.30	0.19	1.10	0.17	-0.82	0.00	0.32	0.12

(Note: SD = Standard Deviation, TSS = Total Suspended Solids, TP = Total Phosphorus and TN = Total Nitrogen)

6.3 Water Quality Treatment Train

The following treatment train has been proposed for the site:

- Stormwater capture within the development area is directed into the civil stormwater network consisting of pit and pipe networks and to be treated by rainwater tank and StormFilters from Ocean Protect or equivalent.
- Stormwater runoff not draining to the water quality chamber shall be installed with an Ocean guard basket within the pit to treat suspended solids as best practice.
- The treatment train that has been modelled is limited to the new building drainage network that drains into the combined water quality / detention tank.

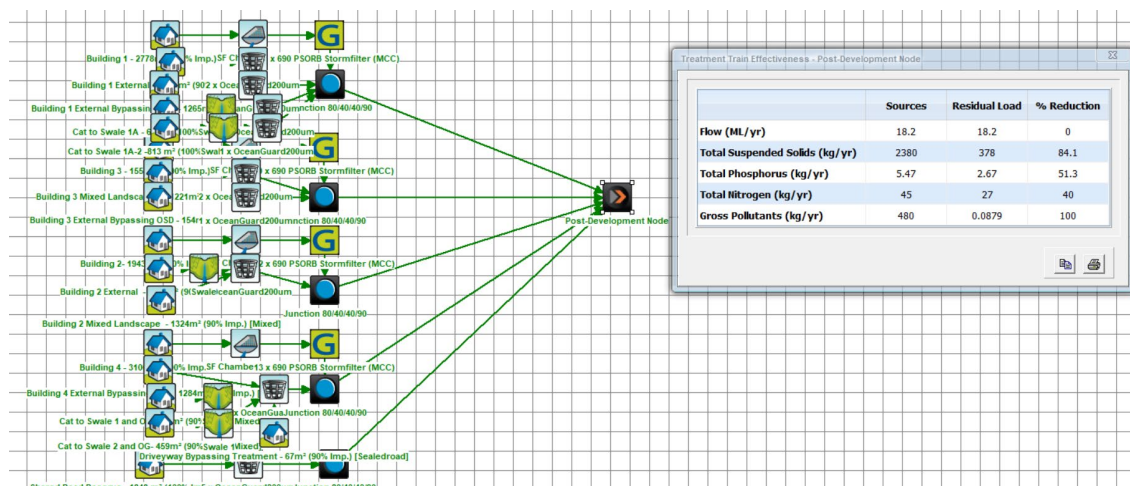


Figure 6-2: MUSIC Modelling Layout and Results

6.4 Rainwater Re-use

Downpipes with first flush devices to be installed before roof stormwater entering rainwater tank to avoid any debris blockage, overflow from rainwater tank shall be directly into StormFilter chamber for further treatment.

6.5 MUSIC Modelling Results

Based on the results of this assessment, the proposed water quality treatment train will provide adequate improvements in Total Suspended Solids, Total Phosphorus, Total Nitrogen and Gross Pollutants for the proposed development. Similarly, Table 6-3 below indicate the minimum works required to meet the water quality targets. Further options could be explored during the detailed design phase of the project to further refine the stormwater network and treatment train and/or achieve higher standards where feasible.

Table 6-3: MUSIC Modelling Assessment Results

Pollutants	Sutherland Shire Development Control Plan 2015, Chapter 38: Stormwater and Groundwater Management	Reduction %	Results
Gross Pollutants (GP)	90%	100%	Satisfy
Total Suspended Solids (TSS)	80%	84.1%	Satisfy
Total Phosphorus (TP)	40%	51.3%	Satisfy
Total Nitrogen (TN)	40%	40%	Satisfy

6.6 Maintenance and Access and Safety

6.6.1 Maintenance Requirements

Throughout the operational life of the development, the stormwater system will require regular simple maintenance to ensure effective functionality, minimise lifecycle costs and maintain safety.

It is proposed maintenance activities are the responsibility of the strata facilities department and should generally include:

- Removal of gross pollutants such as litter and debris from open areas to prevent from entering the stormwater network.
- Periodic inspection of the stormwater network including pit/pipe network, StormFilters, detention tanks and outlets at street pits.
- Periodic inspection of rainwater tanks (requirements to be set out by building hydraulic design).
- Unblocking of inlets and outlets (system flushing) as required, including flushing of subsoil drainage systems.
- Removal of sediment build-up as required.
- Landscaping maintenance to grass swales and bio-retention basins.
- Regular inspection of safety elements (such as proposed fencing/gates around bio-retention basins).

6.6.2 Access and Safety

The following items for access and safety should be considered by the project architect and civil engineering team for the detailed design stage of the project:

- Covers and grates to stormwater network to be lockable to prevent unauthorized access or displacement.
- Appropriate fencing / barriers with lockable gates to detention tanks and pipe headwall outlets to prevent access from children.

7 Erosion and Sediment Control

The erosion and sediment control measures will be undertaken for each lot with reference to Landcom Blue Book; Managing Urban Stormwater Soil for best practice through the construction phase to limit any sediments generated from the site from entering the external stormwater network and creek. As such the following measures are to be undertaken as part of the proposed construction works:

- Sediment fence to be installed around the site perimeter to trap any sediment.
- Shaker grid/wash down facility to be installed at the site egress to limit any sediments from being carried outside of the constructions site.
- Stockpile location to be confirmed by contractor on-site during the construction phase, preferably to be located at the highest point of the site.

7.1 Construction Phase Pollutants of Concern

Pollutants that are typically generated during the construction phase of a development have been identified by reviewing the Managing Urban Stormwater: Soils and construction by Landcom. The various pollutants and their priority ratings are listed in the Table 7-1 below.

Table 7-1: Construction Phase Pollutant Loads

Pollutant	Source	Priority
Litter	Paper, construction packaging, food packaging, cement bags, off-cuts	High
Sediment	Unprotected exposed soils and stockpiles during earthworks and building	High
Hydrocarbons	Fuel and oil spill, leaks from construction equipment and temporary carpark areas	High
Toxic materials	Cement slurry, asphalt prime, solvents, cleaning agents, wash waters (e.g., from tile works)	High
pH altering substances	Acid sulfate soils, cement slurry and wash waters	High

7.2 Construction Phase Performance Criteria

The construction phase performance criteria are limited to those parameters that are directly linked to construction site management practices are listed in Table 7-2.

Table 7-2: Construction Phase Performance Criteria

Issue	Construction Phase Stormwater Design Objectives	
Erosion Control	Erosion Control Measures	• Minimise exposure of disturbed soils at any time. • Divert water run-off from undisturbed areas around disturbed areas. • Determine the erosion risk rating using local rainfall erosivity, rainfall depth, soil-loss rate or other acceptable methods. • Implement erosion control methods corresponding to identified erosion risk rating

Issue		Construction Phase Stormwater Design Objectives
Sediment Control	Sediment control measures	Determine appropriate sediment control measures using: • Potential soil loss rate, or • Monthly erosivity, or • Average monthly rainfall
	Design storm for sediment control basins.	Collect and drain stormwater from disturbed soils to sediment basin for design storm event:
	Sediment basin dewatering	• Design storm for sediment basin sizing is 80th % five-day event or similar. Site discharge during sediment basin dewatering: • TSS < 50mg/l TSS, and • Turbidity not > 10% receiving water turbidity, and
Water Quality	Litter and other waste, hydrocarbons and other contaminants	Avoid wind-blown litter; remove gross pollutants. Ensure there is no visible oil or grease sheen on released waters. Dispose of waste containing contaminants at authorised facilities
Water stability and flood flow Management	Changes to the natural waterway hydraulics and hydrology	For peak flow for the 1-year and 100-year ARI event, use constructed sediment basins to attenuate the discharge rate of stormwater from the site

8 Conclusion

The objective of this Integrated Water Management Plan is to provide a comprehensive and detailed overview of the proposed stormwater drainage system for the proposed development site. It also outlines the approach taken to ensure compliance with various regulations and guidelines, including those set forth by the Sutherland Shire Council DCP and relevant council guidelines.

This Water Management Plan has been developed in accordance with the guidelines and standards listed outlined below:

- Sutherland Shire Council DCP
- Sutherland Shire Council Stormwater Specification
- Australian Standards 3500.3 Plumbing and Drainage – Stormwater Drainage
- DRAINS User Manual
- MUSIC User Manual
- Managing Urban Stormwater – Soils and Construction, Volume 1, 4th edition, March 2004, Landcom
- National Code Australia

To manage the impacts of the proposed development on the existing site and downstream stormwater conditions. The Water Management Plan addressed the following components:

- Stormwater quantity management includes implementing detention tanks to mitigate the peak flows from the site to retain existing conditions.
- Stormwater quality management implementing treatment trains with storm filter cartridges, Ocean guard baskets and rainwater tank to achieve the water quality objectives.
- Recommended maintenance and safety and access considerations.
- Construction phase erosion and sediment control measures to minimise soil erosion and control sediment discharge from site.

The implementation of the measures outlined in this plan in the development of this site will result in no worsening stormwater and environmental conditions and will provide improvement to quality of the runoff discharged from the site.

For a comprehensive understanding of the water management plan, this report should be read in conjunction with the civil drawing set prepared by Mott MacDonald, located in Appendix A.

A.1 Appendix A: Civil Plans



DRAWING LIST

DRAWING NUMBER	DRAWING TITLE
103419-MMD-SYL-XX-DR-C-0001	COVER SHEET, DRAWING LIST AND LOCALITY PLAN
103419-MMD-SYL-XX-DR-C-0002	GENERAL NOTES
103419-MMD-SYL-XX-DR-C-0011	EROSION AND SEDIMENT CONTROL PLAN
103419-MMD-SYL-XX-DR-C-0015	EROSION AND SEDIMENT CONTROL DETAILS
103419-MMD-SYL-XX-DR-C-0051	SITEWORKS AND DRAINAGE PLAN
103419-MMD-SYL-XX-DR-C-0061	ON-SITE DETENTION LAYOUT PLAN: LEVEL 04
103419-MMD-SYL-XX-DR-C-0062	ON-SITE DETENTION LAYOUT PLAN: LEVEL 05
103419-MMD-SYL-XX-DR-C-0063	ON-SITE DETENTION LAYOUT PLAN: LEVEL 06
103419-MMD-SYL-XX-DR-C-0331	ON-SITE DETENTION TANK 01: SECTION AND DETAILS
103419-MMD-SYL-XX-DR-C-0332	ON-SITE DETENTION TANK 02: SECTION AND DETAILS
103419-MMD-SYL-XX-DR-C-0333	ON-SITE DETENTION TANK 03: SECTION AND DETAILS
103419-MMD-SYL-XX-DR-C-0334	ON-SITE DETENTION TANK 04: SECTION AND DETAILS
103419-MMD-SYL-XX-DR-C-0341	STORMWATER DRAINAGE DETAILS
103419-MMD-SYL-XX-DR-C-0511	WATER QUANTITY CATCHMENT PLAN
103419-MMD-SYL-XX-DR-C-0512	WATER QUALITY CATCHMENT PLAN
103419-MMD-SYL-XX-DR-C-0521	WATER QUALITY CATCHMENT PLAN

29 FLORIDA STREET,
SYLVANIA, NSW 2224

COVER SHEET AND DRAWING INDEX



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NOT FOR CONSTRUCTION

M M MOTT MACDONALD	Level 10, 383 Kent Street Sydney, NSW 2000 Australia NSW 1230, Australia PO Box Q1678, QVB Sydney T +61 (0)2 9008 6800 W www.mottmac.com	P1	12.11.25	ISSUED FOR INFORMATION		AT	AT	SCALE 1:1000 0 50m 100m	CLIENT  	TITLE 29 FLORIDA STREET, SYLVANIA, NSW 2224 COVER SHEET, DRAWING LIST AND LOCALITY PLAN	DRAWING INFORMATION Drawn: J. O Designed: S. SAJARA Checked: A TARSHAN Approved: - Revision: P1 Status: PRE Security: STD	
	<table><tr><th>Rev</th><th>Date</th><th>Description</th><th>Ch'k'd</th><th>App'd</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	Rev	Date	Description	Ch'k'd	App'd						DRAWING NUMBER 103419-MMD-SYL-XX-DR-C-0000
Rev	Date	Description	Ch'k'd	App'd								

FILE LOCATION: C:\2dS\data\MotMac\SYN 103419-Housing Australia_181101\WIP\Sylvania\02 CAD\DRGs\103419-MMD-Sys_XX-DB-C-0000.dwg Nov 12, 2025 - 8:36PM 01110593

SO A1 594mm x 841mm

GENERAL NOTES	
GN1	ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE NATIONAL CONSTRUCTION CODE OF AUSTRALIA AND THE RELEVANT CURRENT AUSTRALIAN STANDARDS.
GN2	ANY DISCREPANCIES, OMISSIONS OR ERRORS SHALL BE REPORTED TO THE SUPERINTENDENT FOR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
GN3	DO NOT SCALE MEASUREMENTS FROM THE DRAWINGS.

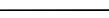
STORMWATER NOTES	
SW1	FOR RESIDENTIAL SUBDIVISIONS AND PUBLIC ROADS - ALL Ø375mm TO Ø600mm DRAINAGE PIPES SHALL BE CLASS 4 APPROVED SPIGOT AND SOCKET REINFORCED CONCRETE PIPES WITH RUBBER RING JOINTS (UNO). ALL Ø675mm OR LARGER DRAINAGE PIPES SHALL BE CLASS 3 APPROVED SPIGOT AND SOCKET REINFORCED CONCRETE PIPES WITH RUBBER RING JOINTS (UNO). ALL PVC-U DRAINAGE PIPES IN FOOTWAYS OR ACCESS WAYS SHALL BE DWV GRADE CLASS SN8 IN ACCORDANCE WITH AS/NZS 1260:2009 - PVC-U PIPES AND FITTINGS FOR DRAIN, WASTE AND VENT APPLICATION. HEAVY DUTY PVC-U PIPES TO BE IN ACCORDANCE WITH AS/NZS 1254 : 2012 - PVC PIPES AND FITTINGS FOR STORM AND SURFACE WATER APPLICATIONS MAY BE USED WITHIN ALLOTMENTS.
SW2	FOR COMMERCIAL OR INDUSTRIAL SITES - ALL Ø300mm TO Ø600mm DRAINAGE PIPES SHALL BE CLASS 4 APPROVED SPIGOT AND SOCKET REINFORCED CONCRETE PIPES WITH RUBBER RING JOINTS (UNO). ALL Ø675mm OR LARGER DRAINAGE PIPES SHALL BE CLASS 3 APPROVED SPIGOT AND SOCKET REINFORCED CONCRETE PIPES WITH RUBBER RING JOINTS (UNO). ALL DRAINAGE PIPES LESS THAN OR EQUAL TO Ø225mm SHALL BE PVC-U DWV GRADE CLASS SN8 IN ACCORDANCE WITH AS/NZS 1260 : 2009 - PVC-U PIPES AND FITTINGS FOR DRAIN, WASTE AND VENT APPLICATION WITH SOLVENT WELDED JOINTS.
SW3	EQUIVALENT STRENGTH FIBROUS REINFORCED CONCRETE (F.R.C.) AND / OR HIGH DENSITY POLYETHYLENE (H.D.P.E.) MAY BE USED SUBJECT TO APPROVAL BY THE SUPERINTENDENT.
SW4	ALL PIPE JUNCTIONS UP TO AND INCLUDING Ø450mm AND TAPERS, SHALL BE VIA PURPOSE MADE FITTINGS (UNO).
SW5	MINIMUM GRADE TO STORMWATER LINES TO BE 1% (UNO).
SW6	CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
SW7	ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN A TRADESMAN LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH WITH NO PROTRUSIONS.
SW8	ALL IN-SITU CONCRETE PITS TO BE 300mm MINIMUM AT 28 DAYS.
SW9	PITS AND PIPES IN AREAS OF SALINITY HAZARD SHALL HAVE INCREASED COVER TO ANY REINFORCEMENT.
SW10	Precast concrete pits may be installed in lieu of cast in-situ pits, when pipe junctions are accommodated within the overall dimensions of the pit, and approved by the superintendent.
SW11	PITS DEEPER THAN 1000mm SHALL HAVE STEP IRONS INSTALLED IN ACCORDANCE WITH THE LOCAL OR STATUTORY AUTHORITY REQUIREMENTS.
SW12	BEDDING SHALL BE TYPE H2 (UNO) FOR PIPES NOT UNDER PAVEMENTS, AND TYPE H2 FOR PIPES UNDER PAVEMENTS IN ACCORDANCE WITH AS/NZS 3725 : 2007 - DESIGN FOR INSTALLATION OF BURIED CONCRETE PIPES.
SW13	BACKFILL TRENCH WITH SAND OR APPROVED GRANULAR BACKFILL TO 300mm MIN ABOVE THE PIPE, WHERE THE PIPE IS UNDER PAVEMENTS BACKFILL REMINDER OF TRENCH TO PAVEMENT SUBGRADE WITH SAND OR APPROVED GRAVEL SUB-BASE COMPACTED IN 150mm LAYERS TO 98% STANDARD MAXIMUM DRY DENSITY. THE CONTRACTOR IS TO ENSURE COMPACTION EQUIPMENT IS APPROPRIATE FOR THE PIPE CLASS USED.
SW14	WHERE STORMWATER LINES PASS UNDER FLOOR SLABS DWV GRADE PVC-U RUBBER RING JOINTS ARE TO BE USED (UNO).
SW15	WHERE SUBSOIL DRAINAGE LINES PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED PVC-U DWV GRADE CLASS SN8 PIPE SHALL BE USED.
SW16	PROVIDE 3m LENGTH OF Ø100mm SUBSOIL DRAINAGE LINE OR 200 'NYLEX' STRIP DRAIN SURROUNDED WITH 150mm OF 20mm BLUE METAL OR GRAVEL, AND WRAPPED IN 500M A24 GEOTEXTILE FILTER FABRIC OR APPROVED EQUIVALENT, AT INVERT OF INCOMING UPSTREAM PIPE ON EACH PIT.

SITEWORKS NOTES	
SN1	DATUM : Australian Height Datum (AHD) ORIGIN OF LEVELS : BM / GSN 1234 - RL 10.00 ORIGIN OF CO-ORDINATES : Mapping Grid Of Australia (MGA) SURVEY PREPARED BY :
SN2	THE CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK, AND REPORT ANY DISCREPANCIES TO THE SUPERINTENDENT.
SN3	ALL EXISTING SERVICES (INCLUDING ANY NOT SHOWN ON THE PLANS) MUST BE ACCURATELY LOCATED IN POSITION AND LEVEL, PRIOR TO ANY EXCAVATION. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. MINIMUM SERVICE CLEARANCES SHALL BE MAINTAINED FROM THE RELEVANT SERVICE AUTHORITY.
SN4	THE CONTRACTOR SHALL ARRANGE FOR ALL SETTING OUT BY A REGISTERED SURVEYOR.
SN5	IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE DEPARTMENT OF LAND AND SURVEY INFORMATION NOW, OF ANY SURVEY MARKS THAT WILL BE DESTROYED IN THE CONSTRUCTION OF WORKS. CONTACT HEAD OFFICE ON 1300 052 637 www.lpi.nsw.gov.au AND http://lscims.lpi.nsw.gov.au/status_report_frames.html
SN6	THE CONTRACTOR SHALL OBTAIN ALL REGULATORY AUTHORITY APPROVALS AT THEIR OWN EXPENSE.
SN7	WHERE NEW WORKS ABUT EXISTING, THE CONTRACTOR MUST ENSURE THAT A SMOOTH AND EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED.
SN8	ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, UNLESS SPECIFIED OTHERWISE.
SN9	EXCAVATED TRENCHES SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT EXISTING MATERIAL. ANY SUBSIDENCE'S DURING THE PERIOD TO BE RECTIFIED AS DIRECTED BY THE SUPERINTENDENT.
SN10	ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH THE LANDSCAPE ARCHITECT'S DETAILS AND / OR 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 1.5m 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 (eg A GRAVEL BED) IS PLACED UNDER ALL FILL LAYERS OF MORE THAN 300mm CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.
SN11	RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER ARE TO BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SUPERINTENDENT OR AS SPECIFIED IN THE WORKS CONTRACT.

EXISTING SERVICES NOTES	
ES1	EXISTING SERVICES HAVE BEEN PLOTTED FROM SUPPLIED DATA AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT.
ES2	THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL IF REQUIRED OF ALL REDUNDANT EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA, AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT.
ES3	THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED.
ES4	IF REQUIRED, THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT AND THE RELEVANT SERVICE AUTHORITY.
ES5	INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. THE CONTRACTOR IS TO GAIN APPROVAL FROM THE SUPERINTENDENT FOR TIME OF INTERRUPTION - THE CONTRACTOR IS RESPONSIBLE FOR ALL LIAISON.
ES6	ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN Ø800mm PVC SEWER GRADE CONDUITS EXTENDING A MINIMUM OF 500mm BEYOND THE EDGE OF PAVING.
ES7	CLEARANCE AND COVER REQUIREMENTS SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY BEFORE COMMENCEMENT OF WORKS AND SHALL BE ADHERED TO AT ALL TIMES.
ES8	CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS ARE TO BE UNDERTAKEN OVER TELECOM OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS ONLY.

SOIL AND WATER MANAGEMENT NOTES	
GENERAL INSTRUCTIONS	
SWM01	THESE PLANS PRESENT A CONCEPTUAL SOIL AND WATER MANAGEMENT PLAN (SWMP) ONLY AND SHOWS A POSSIBLE WAY OF MANAGING SOIL AND EROSION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ESTABLISHMENT AND MANAGEMENT OF THE SITE AND PREPARING A DETAILED PLAN AND OBTAINING APPROVAL FROM THE RELEVANT AUTHORITY PRIOR TO THE COMMENCEMENT OF ANY WORKS.
SWM02	THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS AND ANY OTHER PLANS, WRITTEN INSTRUCTIONS, SPECIFICATION OR DOCUMENTATION THAT MAY BE ISSUED AND RELATING TO DEVELOPEMENT OF THE SUBJECT SITE.
SWM03	THE CONTRACTOR MUST ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE CONSISTENT WITH MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION - ALSO KNOWN AS THE BLUE BOOK.
SWM04	ALL BUILDERS AND SUB-CONTRACTORS SHALL BE INFORMED OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS.
EROSION CONTROL	
SWM05	WATER SHALL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNTIL SEDIMENT CONCENTRATION IS LESS THEN OR EQUAL TO 50mg/L @ THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND / OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
SWM06	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.
SWM07	ACCEPTABLE RECEPTORS WILL BE CONSTRUCTED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
SWM08	SEDIMENT FENCING WILL BE INSTALLED AS INDICATED ON THE PLANS AND AT THE DIRECTION OF SITE SUPERINTENDENT TO ENSURE CONTAINMENT OF SEDIMENT. THE FENCING WILL OUTLET OR OVERFLOW UNDER STABILISED CONDITIONS INTO THE SEDIMENT BASIN, TO SAFELY CONVEY WATER INTO A SUITABLE FILTERING SYSTEM SHOULD THE PORES IN THE FABRIC BLOCK.
SWM09	THE SEDIMENT BASINS WILL BE CONSTRUCTED WITH THE MINIMUM WET SEDIMENT CAPACITY OF 'XX' CUBIC METRES AND DESIGNED TO REMAIN STABLE IN AT LEAST THE 1 IN 'XX' YEAR CRITICAL DURATION STORM EVENT. ARTIFICIAL FLOCCULATION OF THE FINER PARTICLES MAY NOT BE NECESSARY IN THIS INSTANCE.
SWM10	STOCKPILES SHOULD NOT BE LOCATED WITHIN 5m OF TREES AND HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS, DRAINAGE LINES, PAVED AREAS AND DRIVEWAYS, WHERE THEY ARE WITHIN 5M FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSTREAM WATERS. MEASURES SHOULD ALSO BE APPLIED TO PREVENT THE EROSION OF THE STOCKPILE.
SWM11	ALL CUT AND FILL BATTERS ARE TO BE SEEDED AND MULCHED WITHIN 14 DAYS OF COMPLETION OF FORMATION.
SWM12	ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY - a. PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE, b. ENSURING THAT NOTHING IS NAILED TO THEM, c. PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS - (i) 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. (ii) 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 (iii) CARE IS TAKEN.
SWM13	DURING WINDY WEATHER, LARGE DISTURBED UNPROTECTED AREAS SHOULD BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
SWM14	TEMPORARY PROTECTION FROM EROSION FORCES WILL BE UNDERTAKEN ON LANDS WHERE FINAL SHAPING HAS NOT BEEN COMPLETED BUT WORKS ARE UNLIKELY TO PROCEED FOR PERIODS OF TWO MONTHS OR MORE (EG. ON TOPSOIL STOCKPILES). THIS MAY BE ACHIEVED WITH A VEGETATIVE COVER, A RECOMMENDED LISTING OF PLANT SPECIES FOR TEMPORARY COVER IS - i) AUTUMN / WINTER SOWING - OATS / RYE/CORN AT 20 kg/ha - JAPANESE MILLET AT 10 kg/ha ii) SPRING / SUMMER SOWING - JAPANESE MILLET AT 20 kg/ha - OATS / RYE/CORN AT 10 kg/ha
SWM15	DIVERSION BANKS / CHANNELS WILL BE REHABILITATED AS SOON AS POSSIBLE AND WITHIN 5 WORKING DAYS FROM THEIR FINAL SHAPING. OTHER THAN IN THE WINTER MONTHS, SUITABLE MATERIALS INCLUDE TURF GRASSES SUCH AS COUCH OR KIKUYU, DURING WINTER, OR AT OTHER TIMES WHEN TEMPORARY REHABILITATION (MORE THAN 3 MONTHS) IS REQUIRED, IT IS SUGGESTED THAT HESSIAN CLOTH IS USED BUT ONLY IF TACKED WITH APPROPRIATE PEGS AND AN ANIONIC BITUMEN EMULSION. FOOT AND VEHICULAR TRAFFIC SHOULD BE KEPT AWAY FROM THESE AREAS.
SWM16	UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS, WHERE POSSIBLE, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.
CONSTRUCTION SEQUENCE	
SWM17	WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE SHOULD BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE - (i) INSTALL INLET SEDIMENT TRAPS TO ALL GULLY PITS FRONTING THE SITE. (ii) INSTALL A 1.8m CHAIN WIRE FENCE AROUND THE BOUNDARIES AND ATTACH HESSIAN CLOTH OR SIMILAR TO IT ON THE WINDWARD SIDE (TIES AT THE TOP, CENTRE AND BOTTOM AND AT 1M INTERVALS OR AS INSTRUCTED BY THE SUPERINTENDENT). (iii) INSTALL GEOGRAPHIC SEDIMENT FENCE AND SEDIMENT TRAPS AROUND ALL PERMANENT STORMWATER RETICULATION STRUCTURES AS SHOWN ON THE PLAN. (iv) CONSTRUCT STABILISED CONSTRUCTION ENTRANCE AS SHOWN ON THE PLAN OR TO LOCATION AS DETERMINED BY SUPERINTENDENT. (v) INSTALL DIVERSION BANKS ALONG THE BOUNDARY WHERE REQUIRED, REHABILITATE DISTURBED LANDS DOWNSLOPE FROM THE BASINS WITHIN 20 WORKING DAYS. (vi) ENSURE THAT THE SEDIMENT BASIN IS DIRECTED ONTO A TURRED AREA AND DRAINS TO A SUITABLE LOCATION. A TEMPORARY STORMWATER LINE MAY BE NECESSARY TO CONVEY THE FLOWS TO THIS LOCATION. CONSTRUCT DIVERSION CHANNELS AT THE BOUNDARY TO DRAIN INTO THE SEDIMENT BASIN AS SHOWN ON PLANS. (vii) AT COMPLETION STABILISE SITE AND DECOMMISSION SEDIMENT BASIN AND ALL EROSION CONTROL DEVICES.
SWM18	TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.
SWM19	FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.
SITE INSPECTION AND MAINTENANCE	
SWM20	AT LEAST WEEKLY AND AFTER EVERY RAIN FALL EVENT, THE CONTRACTOR WILL INSPECT THE SITE AND ENSURE THAT - (i) DRAINS AND ALL SEDIMENT CONTROL DEVICES OPERATE EFFECTIVELY AND INITIATE REPAIR OR MAINTENANCE AS REQUIRED, (ii) RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER ARE TO BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SUPERINTENDENT, (iii) SPILLED SAND (OR OTHER MATERIALS) IS REMOVED FROM HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS, GUTTERS, PAVED AREAS AND DRIVEWAYS, (iv) SEDIMENT IS REMOVED FROM BASINS AND / OR TRAPS WHEN LESS THAN 20mm OF TRAPPING CAPACITY REMAINS PER 100mm OF DISTURBED LANDS, AND / OR LESS THAN 500mm DEPTH REMAINS IN THE SETTLING ZONE. ANY COLLECTED SEDIMENT WILL BE DISPOSED IN AREAS WHERE FURTHER POLLUTION TO DOWN SLOPE LANDS AND WATERWAYS IS UNLIKELY. (v) REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND INITIATE UPGRADING OR REPAIR AS APPROPRIATE.
SWM21	THE CONTRACTOR SHALL PROVIDE ALL MONITORING CONTROL AND TESTING.

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NOT FOR CONSTRUCTION

ASPHALTIC CONCRETE NOTES

GENERAL

AC1 ASPHALTIC CONCRETE MIX DESIGN, MANUFACTURE, PLACING AND COMPACTION SHALL BE IN ACCORDANCE WITH RMS SPECIFICATION ROAD MIX (DENSE GRADE) AND OPEN GRADES AND AS2159- 2005 - HOT MIX ASPHALT - A GUIDE TO GOOD PRACTICE. ANNEXURE R16101 TO BE COMPLETED BY SUBCONTRACTOR AND SUBMITTED FOR APPROVAL BY SUPERINTENDENT 7 DAYS PRIOR TO AC WORKS.

AC2 MINERAL FILLER TO COMPLY WITH AS2150 - 2005 - HOT MIX ASPHALT - A GUIDE TO GOOD PRACTICE.

MIX PROPORTIONS

AC3 JOB MIX - 7mm NOMINAL SIZE AGGREGATE, MINIMUM BITUMEN CONTENT (%) (BY MASS OF TOTAL MASS) - 5.1%.

AC4 MIX STABILITY - Between 150m and 300m AS DETERMINED BY RMS TEST MIX T801 - COMPACTION OF TEST SPECIMENS OF DENSE GRADE BITUMINOUS MIXTURES AND T803 - STABILITY OF DENSE GRADE BITUMINOUS MIXTURES.

AC5 AIR VIDS IN COMPACTED MIX - BETWEEN 4% OF VOLUME AND 7% OF THE MIX. VIDS FILLED IN BINDER - 65-80% OF AIR VIDS IN THE TOTAL MINERAL AGGREGATE FILLED BY BINDER IN ACCORDANCE WITH RMS TEST METHOD T801 - COMPACTION OF TEST SPECIMENS OF DENSE GRADE BITUMINOUS MIXTURES, T805 - MAXIMUM DENSITY OF BITUMINOUS PLANT MIX AND T806 - BULK DENSITY OF COMPACTED DENSE GRADED BITUMINOUS MIXTURES.

PAVEMENT PREPARATION

AC6 THE EXISTING SURFACE TO BE SEALD. SHALL BE DRY AND BROOMED BEFORE COMMENCEMENT OF WORK TO ENSURE COMPLETE REMOVAL OF ALL SUPERFICIAL FOREIGN AND LOOSE MATTER.

AC7 ALL DEPRESSIONS OR UNEVEN AREAS ARE TO BE TACK-COATED AND BROUGHT UP TO GENERAL LEVEL OF PAVEMENT WITH ASPHALTIC CONCRETE BEFORE LAYING OF MAIN COURSE.

TACK COAT

AC8 THE WHOLE OF THE AREA TO BE SHEETED WITH ASPHALTIC CONCRETE SHALL BE LIGHTLY AND EVENLY COATED WITH RAPID SETTING BITUMEN. APPLICATION RATE FOR RESIDUAL BITUMEN SHALL BE 0.15 TO 0.30 KILOGRAMS PER SQAURE METRE. APPLICATION SHALL BE BY MEANS OF A MECHANICAL SPRAYER WITH SPRAY BAR.

SPREADING

AC9 ALL ASPHALTIC CONCRETE SHALL BE SPREAD WITH A SELF PROPELLED PAVING MACHINE.

AC10 THE ASPHALTIC CONCRETE SHALL BE LAID AT A MIX TEMPERATURE AS SHOWN BELOW -

ROAD SURFACE TEMP IN SHADE (°C)	MIX TEMPERATURES (°C)
5 - 10	NOT PERMITTED
10 - 15	150
15 - 25	145
25+	140

AC11 ASPHALTIC CONCRETE SHALL NOT BE LAID WHEN THE ROAD SURFACE IS WET OR WHEN COOLD WINDS CHL THE MIX TO ADVERSELY AFFECT TEMPERATURE OF MIX DURING SPREADING AND COMPACTION OPERATIONS.

AC12 THE MINIMUM COMPACTED THICKNESS IS 50mm IN TWO (2) LAYERS.

JOINTS

AC13 THE NUMBER OF JOINTS BOTH LONGITUDINAL AND TRANSVERSE SHALL BE KEPT TO A MINIMUM.

AC14 THE DENSITY AND SURFACE FINISH AT JOINTS SHALL BE SIMILAR TO THOSE OF THE REMAINDER OF THE LAYER.

COMPACTION

AC15 ALL COMPACTION SHALL BE UNDERTAKEN USING SELF PROPELLED ROLLERS.

AC16 INITIAL ROLLING SHALL BE COMPLETED BEFORE THE MIX TEMPERATURE FALLS BELOW 105°C.

AC17 SECONDARY ROLLING SHALL BE COMPLETED BEFORE THE MIX TEMPERATURE FALLS BELOW 80°C.

AC18 A MINIMUM CHARACTERISTIC VALUE OF RELATIVE COMPACTION OF A LOT WHEN TESTED IN ACCORDANCE WITH AS2150 - 2005 - HOT MIX ASPHALT - A GUIDE TO GOOD PRACTICE, SHALL BE 95%.

FINISHED PAVEMENT PROPERTIES

AC19 FINISHED SURFACES SHALL BE SMOOTH, DENSE AND TRUE TO SHAPE #S SHALL NOT VARY MORE THAN 10mm FROM THE SPECIFIED PLAN LEVEL AT ANY POINT AND SHALL NOT DEVIATE FROM THE BOTTOM OF A 3m STRAIGHT EDGE LAID IN ANY DIRECTION BY MORE THAN 5mm.

BITUMEN SEALING NOTES

PAVEMENT PREPARATION

BS1 THE SURFACE TO BE SEALED SHALL BE DRY AND BROOME FREE. THE COMMENCEMENT OF WORK TO ENSURE COMPLETE REMOVAL OF ALL SUPERFLUOUS, FOREIGN AND LOOSE MATTER.

BS2 IF APPROVED BY THE SUPERINTENDENT, ALL DEPRESSIONS OR UNLICH AREAS ARE TO BE TACK-COATED AND BROUGHT TO GENERAL LEVEL OF PAVEMENT WITH ASPHALTIC CONCRETE BEFORE SEALING COMMENCES.

MATERIAL

BS3 BINDER SHALL BE CLASSY TO A20008 - 1997. RESIDUAL BITUMEN FOR PAVEMENTS OR APPROVED PROPRIETARY MATERIAL FOR PRIMING AND PRIME-SEALING.

BS4 AGGREGATE SHALL BE DURABLE AND WET TO DRY STRENGTH SHALL COMPLY TO A52758.2 - 2009. AGGREGATES AND ROCK FOR ENGINEERING PURPOSES FOR CLASS "N" AGGREGATES.

BS5 A 20kg SAMPLE OF AGGREGATE PROPOSED FOR USE SHALL BE APPROVED BY THE SUPERINTENDENT PRIOR TO USE.

BS6 AGGREGATES SHALL BE DELIVERED UNIFORMLY PRECOATED, EXCESSIVE OR UNEVEN PRECOATING MAY RESULT IN AGGREGATES BEING REJECTED.

BS7 FOR TWO COAT FLUSH SEALS, THE SIZE OF THE AGGREGATE FOR THE SECOND COAT, WHILE NORMALLY HALF THAT OF THE FIRST COAT, SHALL BE DIMENSIONALLY COMPATIBLE WITH THAT OF THE FIRST COAT.

BS8 PRECOATING AGENTS SHALL BE COMPATIBLE WITH THE AGGREGATES AND BINDER TO BE USED.

DESIGN

BS9 DESIGN OF SPRAYED BITUMINOUS SEALS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE AUSTRALAS (MANASRA) PUBLICATION, "PRINCIPLES AND PRACTICE OF BITUMINOUS SURFACING, VOLUME 1 - SPRAYED WORK".

BS10 WHERE NOT INDICATED ON THE DRAWINGS, PRIMERS AND PRIMER-SEALS SHALL BE DESIGNED TO REMAIN INTACT UNTIL FINAL SEALING TAKES PLACE, HAVING REGARD FOR THE TRAFFIC AND CLIMATIC CONDITIONS PERTAINING.

BS11 UNLESS OTHERWISE SPECIFIED, BINDER APPLICATION RATES SHALL BE SELECTED TO FILL 85% OF THE THEORETICAL VOIDS OF THE MAT.

PRIMER-SEALING

BS12 A SINGLE COAT PRIMER-SEAL USING A SUITABLE CUT-BACK OR PROPRIETARY BINDER SHALL BE APPLIED TO BASECOURSE MATERIAL FOR PROTECTION OF PAVEMENT DURING CONSTRUCTION.

BITUMEN FLUSH SEALING

BS13 BITUMEN FLUSH SEALS SHALL BE EITHER SINGLE OR DOUBLE COAT AS SHOWN ON THE DRAWINGS, eg 2010 INDICATES A DOUBLE COAT FLUSH SEAL USING TWO APPLICATIONS OF BITUMEN AND AGGREGATE, THE FIRST AGGREGATE LAYER BEING OF 20mm NOM. SIZE, THE SECOND 10mm.

BS14 COVER AGGREGATE SHALL BE SPREAD IMMEDIATELY AFTER SPRAYING OF BINDER. IN NO CASE SHALL SPREADING BE DELAYED MORE THAN 8 MINUTES (OR SO THAT BITUMEN HAS COOLED SUCH THAT ADHESION OF AGGREGATE IS COMPROMISED).

BS15 ALL SPRAY RECORDS, AGGREGATE SUPPLY TONNAGE AND RECEIPTS SHALL BE RETAINED AND PASSED ON TO THE SUPERINTENDENT AS PART OF THE QUALITY ASSURANCE PROCEDURES.

FLEXIBLE PAVEMENT NOTES	
FP1	ALL SUB-BASE AND BASE COURSE MATERIALS SHALL CONFORM WITH RIMS QO SPECIFICATION 3051 UNBOUND AND MODIFIED BASE AND SUB-BASE MATERIALS FOR SURFACE ROAD PAVEMENTS.
FP2	ALL SUB-BASE AND BASE COURSE MATERIALS SHALL BE COMPACTED TO ACHIEVE THE FOLLOWING COMPACTION STANDARDS - BASE COURSE MINIMUM 98% MMD 425/75 2.1 - 2003 - METHODS OF TESTING SOLS FOR ENGINEERING PURPOSES SUB-BASE MINIMUM 98% MMD 425/75 2.1 - 2003 - METHODS OF TESTING SOLS FOR ENGINEERING PURPOSES

CONCRETE NOTES

GENERAL

CN1 USE 'AS3372 - 2010 - GENERAL PURPOSE AND BLENDED CEMENTS - TYPE GP' CEMENT (UNO)

CN2 ALL CONCRETE SHALL BE SUBJECT TO PROJECT CONTROL SAMPLE AND TESTING TO AS3600 - 2009 - CONCRETE STRUCTURES.

CN3 CONSOLIDATE ALL CONCRETE, INCLUDING FOOTINGS AND SLABS ON GROUND WITH MECHANICAL VIBRATORS.

CN4 CURE ALL CONCRETE AS FOLLOWS -
-KEEP SURFACES CONTINUOUSLY WET FOR 3 DAYS, THEN
-PREVENT MOISTURE LOSS FOR THE NEXT 4 DAYS USING POLYETHYLENE SHEETING TO PREVENT DRYING FROM WIND AND TRAFFIC, AND THEN ALLOW DRYING OUT.
-CURING COMPOUNDS MAY BE USED PROVIDED THAT THEY COMPLY WITH AS3091 AND THEY DO NOT AFFECT FLOOR FINISHES.
-FVA-BASED CURING COMPOUNDS ARE NOT ACCEPTABLE.

CN5 FIX REINFORCEMENT AS SHOWN ON DRAWINGS. THE TYPE AND GRADE IS INDICATED BY A SYMBOL, AS SHOWN BELOW -

N	HOT ROLLED DEFORMED BAR, GRADE 500
PL	PLAIN ROUND BAR, GRADE 250
SL / RL	HARD DRAWN WIRE FABRIC SQUARE OR RECTANGULAR

FOLLOWING THIS SYMBOL A NUMERAL INDICATES THE SPECIFIED DIAMETER.

CN6 PROVIDE BAR SUPPORTS OR SPACERS TO PROVIDE CONCRETE COVER AS DETAILED TO ALL REINFORCEMENT.

CONCRETE PAVEMENTS

CN7 CONCRETE MIX PARAMETERS -
MAXIMUM AGGREGATE SIZE 20mm
FLEXURAL STRENGTH AT 28 DAYS ≥ 3.5 MPa, f_{cr} 32 MPa, (UNO)
FLEXURAL STRENGTH AT 70 DAYS ≥ 3.85 MPa
MAX WATER/CEMENT RATIO ≤ 0.55
MAX AIR-CONTENT LIMIT 4%
MAXIMUM MODULUS OF ELASTICITY STRAINS (AS1012.13-1992)
MIN CEMENT CONTENT ≥ 300 kg/m³
CEMENT TO BE TYPE 'SL' (NORMAL CEMENT) TO AS3372-2010
SLUMP ≥ 80 mm

CN8 EARLY AGE SAW CUTTING (SOFTCUT) OR SIMILAR SHALL BE USED FOR INITIAL SAW CUT. IT IS TO BE PERFORMED AS SOON AS THE CONCRETE HAS HARDENED SUFFICIENTLY, TO PREVENT EXCESSIVE CHIPPING, SPALLING, OR TEARING REGARDLESS OF TIME OR WEATHER CONDITIONS.

CN9 JOINT LAYOUT SHALL BE AS DETAILED ON THE PLANS.

CN10 PROVIDE 10mm WIDE EXPANSION JOINTS BETWEEN ALL BUILDINGS, OTHER STRUCTURES AND PAVEMENTS.

CN11 BOND BREAKER TO BE TWO (2) UNIFORM COATS OF BITUMEN EMULSION APPLIED OVER THE EXPOSED SURFACE AND ON END.

CN12 DOWELS AND TE BARS TO MEET STRENGTH REQUIREMENTS OF STRUCTURAL GRADE STEEL, IN ACCORDANCE WITH AS ISO 1302 - 2005 - GEOMETRICAL PROJECT SPECIFICATIONS.
DOWELS AND TE BARS SHALL BE -
STRAIGHT,
TO LENGTH SPECIFIED,
ALL DOWELS TO BE HOT DIP GALVANIZED,
SAWNS TO DIMENSION NOT CROPPED.

CN13 DIMENSIONS OF SEALANT RESERVOIR DEPENDANT ON THE SEALANT TYPE AND JOINT SUPERFICIAL AREA. APPROVAL IS TO BE OBTAINED FOR SEALANT AND RESERVOIR DIMENSIONS AND DETAIL PROPOSED BY THE CONTRACTOR. REFER TO PLANS FOR TYPICAL ARRANGEMENT AND SEALANT.

CN14 PRIOR TO THE PLACEMENT OF CONCRETE IN THE ADJACENT SLAB, 'ABEFLUX' FILLER SHALL BE ADHERED TO THE ALREADY CAST AND CURED CONCRETE FACE USING AN APPROVED WATERPROOF ADHESIVE. ADHESIVE SHALL BE LIBERALLY APPLIED TO THE FULL FACE OF THE CONCRETE SLAB TO BE COVERED BY THE FILLER, AND ON THE FULL FACE OF THE FILLER TO BE ADHERED.

CN15 THE BASE COURSE SHALL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER IMMEDIATELY PRIOR TO POURING THE CONCRETE.

CN16 ALL WORK TO BE FINISHED TO SATISFY ITS INTENDED USE AS SHOWN ON THE PLANS, AND IN ACCORDANCE WITH THE SPECIFICATION.

KERBING NOTES

CN17 ALL CONCRETE KERBS TO HAVE A MINIMUM CHARACTERISTIC COMPRESSIVE STRENGTH f_{cr} 32MPa, (UNO)

CN18 ALL KERBS, DRISH DRAINS, ETC. TO BE CONSTRUCTED ON 75mm MINIMUM BASE COURSE, (UNO ON THE DRAWINGS)

CN19 KERB EXPANSION JOINTS SHALL BE FORMED FROM 10mm 'ABEFLUX' (OR APPROVED EQUIVALENT) FOR THE FULL DEPTH OF THE SECTION.

CN20 EXPANSION JOINTS SHALL BE LOCATED AT DRAINAGE PITS, TANGENT POINTS OF CURVES AND ELSEWHERE AT 12m MAXIMUM SPACING (UNO).

CN21 TOOLED JOINTS SHALL BE MIN 3mm WIDE AND LOCATED AT MAXIMUM 3m SPACING.

CN22 INTEGRAL KERB JOINTS SHALL MATCH THE LOCATION OF THE PAVEMENT JOINTING.

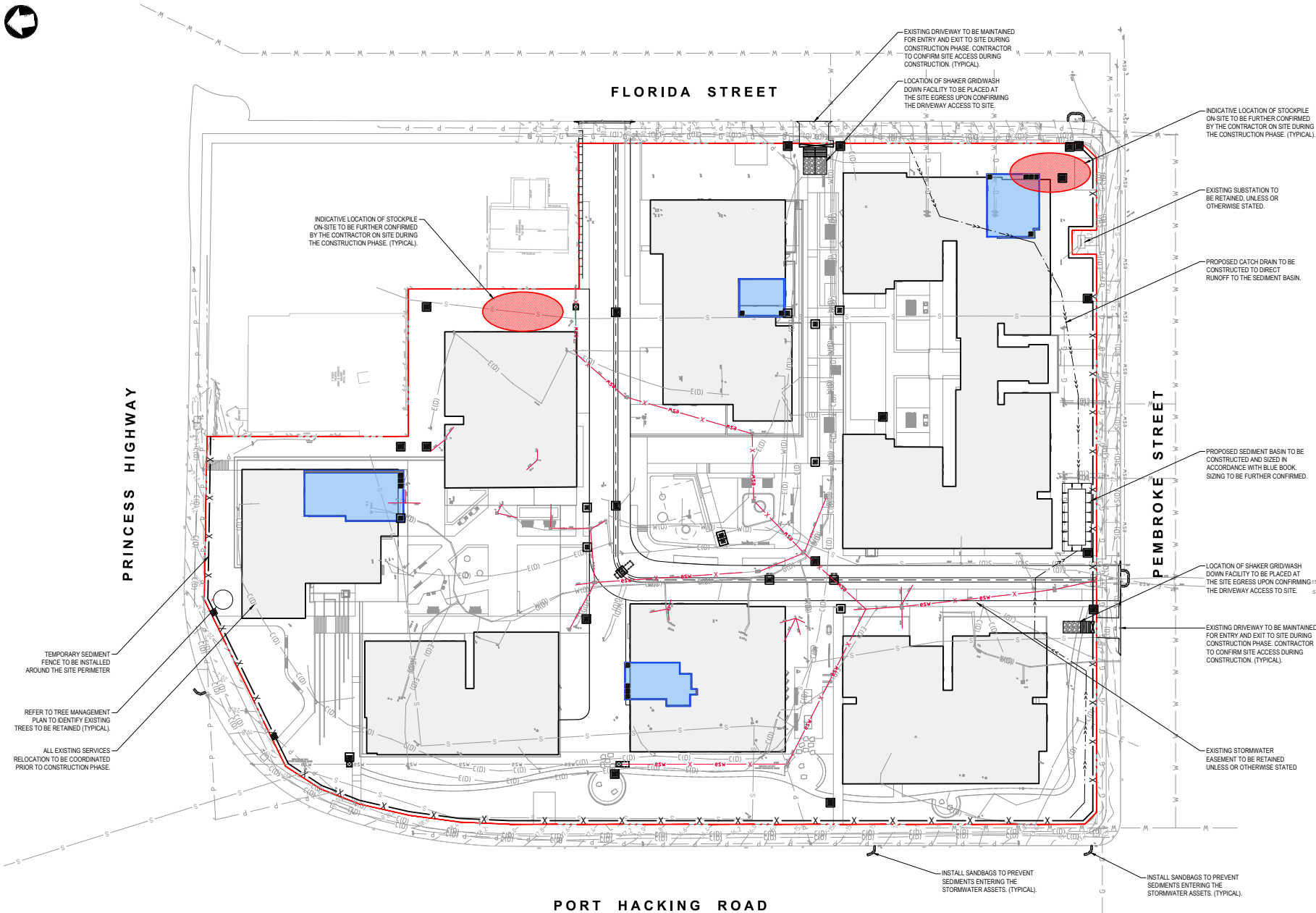
EARTHWORKS NOTES

EW1	ALL WORK SHALL COMPLY WITH AS3578 (2007) - GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS.										
EW2	ALL WORK SHALL COMPLY WITH THE PROJECT GEOTECHNICAL REPORT - Geotechnical Engineer Report Reference Number DD.MM.YY										
EW3	STRIP TOPSOIL TO EXPOSE NATURALLY OCCURRING ENGINEERING MATERIAL AND STOCKPILE ON SITE FOR REUSE AS DIRECTED BY THE SUPERINTENDENT.										
EW4	ALL SOFT, WET OR UNSUITABLE MATERIAL TO BE REMOVED AS DIRECTED BY THE SUPERINTENDENT AND REPLACED WITH APPROVED FILL MATERIAL.										
EW5	ALL FILL MATERIAL SHALL BE FROM A SOURCE APPROVED BY THE SUPERINTENDENT AND SHALL COMPLY WITH THE FOLLOWING - A) FREE FROM ORGANIC AND PERISHABLE MATERIAL B) MAXIMUM PARTICLE SIZE 75mm C) PLASTICITY INDEX - BETWEEN 2% AND 15%.										
EW6	ALL FILL MATERIAL SHALL BE PLACED IN MAXIMUM 200mm THICK LAYERS AND COMPACTED AT OPTIMUM MOISTURE CONTENT (+/- 2%) TO ACHIEVE A DRY DENSITY DETERMINED IN ACCORDANCE WITH AS1289.5.1.1 - 2004. METHODS OF TESTING SOILS FOR ENGINEERING PURPOSES, OF NOT LESS THAN THE FOLLOWING STANDARD MINIMUM DRY DENSITY -										
	<table><thead><tr><th>LOCATION</th><th>STANDARD DRY DENSITY</th></tr></thead><tbody><tr><td>UNDER BUILDING SLABS</td><td>98%</td></tr><tr><td>VEHICULAR PAVED AREAS</td><td>96%</td></tr><tr><td>NON-VEHICULAR PAVED AREAS</td><td>94%</td></tr><tr><td>LANDSCAPED AREAS</td><td>95%</td></tr></tbody></table>	LOCATION	STANDARD DRY DENSITY	UNDER BUILDING SLABS	98%	VEHICULAR PAVED AREAS	96%	NON-VEHICULAR PAVED AREAS	94%	LANDSCAPED AREAS	95%
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UNDER BUILDING SLABS	98%										
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LANDSCAPED AREAS	95%										
EW7	THE CONTRACTOR SHALL PROGRAM THE EARTHWORKS OPERATION SO THAT THE WORKING AREAS ARE ADEQUATELY DRAINED DURING THE PERIOD OF CONSTRUCTION. THE SURFACE SHALL BE GRADED AND SEALED OFF TO REMOVE DEPRESSIONS, ROLLER MARKS AND SLOTTING WHICH WOULD ALLOW WATER TO POND AND PENETRATE THE UNDERLYING MATERIAL. ANY DAMAGE RESULTING FROM THE CONTRACTOR NOT OBSERVING THESE REQUIREMENTS SHALL BE RECTIFIED BY THE CONTRACTOR AT THEIR OWN EXPENSE.										
EW8	TESTING OF THE FILL MATERIAL SHALL BE CARRIED OUT BY AN APPROVED NATIALLY REGISTERED LABORATORY AT THE CONTRACTORS EXPENSE.										
EW9	WHERE THE SUBGRADE IS UNABLE TO SUPPORT CONSTRUCTION EQUIPMENT, OR IT IS NOT POSSIBLE TO COMPACT OVERLYING PAVEMENT LAYERS, ONLY BECAUSE OF THE SUBGRADE MOISTURE CONTENT, THEN THE CONTRACTOR SHALL CONDITION OR REPLACE THE MATERIAL AT THE CONTRACTORS DISCRETION AND EXPENSE.										
EW10	EARTHWORKS CALCULATIONS ARE VOLUMETRIC ONLY AND DO NOT ALLOW FOR BULKING OF EXCAVATED MATERIAL. IT IS THE CONTRACTORS RESPONSIBILITY TO MAKE ALLOWANCES FOR THESE ITEMS AS PART OF THE TENDER / WORKS.										
EW11	NO ALLOWANCE HAS BEEN MADE FOR FOOTINGS OR FOUNDATIONS, RETAINING WALLS OR TRENCING. IT IS THE CONTRACTORS RESPONSIBILITY TO MAKE ALLOWANCES FOR THESE ITEMS AS PART OF THE TENDER / WORKS.										

LINEMARKING NOTES

- LM1 ALL LINEMARKING WORKS TO BE IN ACCORDANCE WITH EITHER THE CURRENT AUSTRALIAN STANDARD AS112-2:2000-MANUAL, UNIFORM-TRAFFIC CONTROL DEVICES, OR AS SHOWN ON THE PLANS OR AS DIRECTED BY THE SUPERINTENDENT.
- LM2 THE SCOPE OF WORK SHALL INCLUDE ALL PAVEMENT MARKINGS TO ROADS AND CARPARKS.
- LM3 THE WORK CARRIED OUT AND TESTING PERFORMED SHALL COMPLY WITH THE CURRENT, RELEVANT AUSTRALIAN STANDARDS AND RMS STANDARDS WHERE NECESSARY.
- LM4 ALL MARKINGS SHALL BE SPOTTED OUT AND VERIFIED BY THE CONTRACTORS REPRESENTATIVE PRIOR TO APPLICATION.
- LM5 PAINT SHALL BE APPLIED AT A WET THICKNESS OF 0.35mm - 0.45mm.
- LM6 PAINT SHALL ONLY BE APPLIED TO CLEAN AND DRY SURFACES.
- LM7 ALL LONGITUDINAL LINES SHALL BE APPLIED BY A SELF-PROPELLED MACHINE.
- LM8 LINEMARKING REMOVAL SHALL BE CARRIED OUT BY GRINDING OR SANDBLASTING. REMOVAL BY BURNING WILL NOT BE PERMITTED.
- LM9 THE EXTENT OF LINEMARKING TO BE GRADICATED SHALL BE DETERMINED ON SITE PRIOR TO REMOVAL. ANY MARKINGS INCORRECTLY REMOVED SHALL BE REINSTATED AT THE CONTRACTORS EXPENSE.
- LM10 ALL MARKINGS SHALL BE COMPLETED IN A WORKMANLIKE MANNER AND BE STRAIGHT, SMOOTH AND WITH EVEN CURVES. ANY NON-CONFORMING WORK SHALL BE REMOVED AND REINSTATED AT THE DIRECTION OF THE SUPERINTENDENT AT THE CONTRACTORS EXPENSE.
- LM11 LINEMARKING ON AC PAVEMENTS TO BE PROVIDED NO SOONER THAN 7-10 DAYS ONCE THE ASPHALT HAS SET.

[illegible]



LEGEND

SITE BOUNDARY

ADJACENT SITE BOUNDARY LINE

EASEMENT BOUNDARY

BUILDING OUTLINE

EXISTING

EXISTING UTILITY (TYPICAL)

EXISTING STORMWATER PITS

PROPOSED

TEMPORARY CONSTRUCTION SITE ACCESS WITH SHAKE GRID

SEDIMENT TRAP - SAND BAGS

SEDIMENT TRAP - DROP INLET

SEDIMENT FENCE

TEMPORARY DIVERSION / CATCH DRAIN

EXISTING STORMWATER PIPE TO BE REMOVED

INDICATIVE LOCATION OF STOCKPILE

TEMPORARY SEDIMENT BASIN

- GENERAL NOTES**
1. CONTRACTORS TO CONFIRM PUMP-OUT FROM DEEP BASEMENT EXCAVATION.

2. UPON INSTALLATION OF NEW STORMWATER PITS, SANDBAGS ARE TO BE PLACED AROUND PROPOSED PITS TO PREVENT AND SEDIMENT RUNOFF TO THE PITS.

3. EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH THE PUBLICATION URBAN STORMWATER SOILS AND CONSTRUCTION "THE BLUE BOOK" (4TH EDITION) PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION, EXCAVATION OR CONSTRUCTION WORKS UPON THE SITE.

4. BUILDERS SHALL PROVIDE SEDIMENT FENCING MATERIAL DURING CONSTRUCTION TO THE LOW SIDE BOUNDARIES. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (eg PROBAB SILT FENCE OR SIMILAR) STANDING MINIMUM 500mm ABOVE GROUND AND EXTENDING 200mm BELOW GROUND.

5. GRASS VERGES AND VEGETATION SHALL BE MAINTAINED AS MUCH AS PRACTICAL AND SHALL NOT BE CLEARED FROM NEIGHBORING SITE TO PROVIDE A BUFFER ZONE TO THE CONSTRUCTION SITE.

6. NO PARKING OR STOCK PILING OF MATERIALS IS PERMITTED ON THE LOWER SIDE OF SEDIMENT FENCE.

7. VEHICLE ACCESS SHALL BE RESTRICTED TO ONE DESIGNATED POINT AS SHOWN AND VEHICLE CROSSINGS ARE TO BE ADEQUATELY COVERED AT ALL TIMES WITH BLUE METAL OR THE LIKE.

8. TEMPORARY CONSTRUCTION ENTRY/EXIT SHALL BE AS PER DRAWING 0015. BUILDER TO ENSURE ALL DROPPABLE SOIL AND SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXITING SITE USING VEHICLE WHEEL, WASH, CATTLE GRID, WHEEL SHAKER OR OTHER APPROPRIATE DEVICE. BUILDER SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING AND LEAVING THE SITE, DO SO IN A FORWARD DIRECTION.

9. ALL STORMWATER INCIDENT ON THE CONSTRUCTION SITE MUST BE COLLECTED AND APPROPRIATELY DISPOSED OF IN A MANNER THAT DOES NOT INCREASE THE FLOOD RISK FOR THE CATCHMENT AREA OR DEGRADE THE QUALITY OF WATER BEING DISPOSED OF TO COUNCIL STORMWATER INFRASTRUCTURE.

10. MEASURES OUTLINED IN THE EROSION AND SEDIMENT CONTROL PLAN MUST BE IMPLEMENTED PRIOR TO AND MAINTAINED DURING AND AFTER THE CONSTRUCTION WORKS.

11. ALL DISTURBED AREAS AND STOCKPILES TO BE STABILISED WITH 5 DAYS.

12. TOPSOIL TO BE STRIPPED, STOCKPILED AND RE-SPREAD ON COMPLETION OF EARTHWORKS. NONE TO BE REMOVED.

13. NO DISTURBANCE OF THE SITE OTHER THAN IMMEDIATE AREA OF WORKS.

14. SEDIMENT BASIN TO BE SIZED IN ACCORDANCE WITH "SOILS AND CONSTRUCTION, VOLUME 1: MANAGING URBAN STORMWATER GUIDE".

THIS PLAN IS A CONCEPT ONLY. IT IS CREATED TO HIGHLIGHT SOME OF THE SEDIMENT AND EROSION CONTROL MEASURES WHICH MAY APPEAR. THE CONTRACTOR IS RESPONSIBLE FOR THE FINAL DESIGN AND ENSURING ALL MEASURES ARE TAKEN TO PROTECT THE ENVIRONMENT.

NOT FOR CONSTRUCTION

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NOTT

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Description

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CLIENT

NSW

GOVERNMENT

Homes

NSW

TITLE

29 FLORIDA STREET,
SYLVANIA, NSW 2224
EROSION AND SEDIMENT CONTROL
PLAN

DRAWING INFORMATION

Drawn: J. O

Designed: S. SAIRA

Checked: A. TARSHAN

Approved: -

Revision:

Status:

Security:

P1

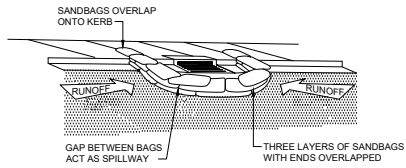
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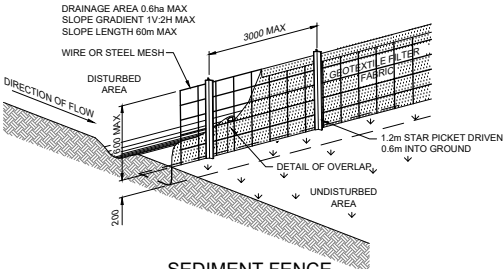
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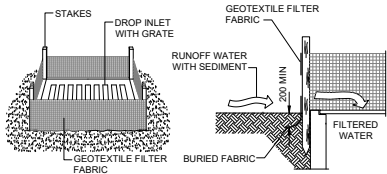
SEDIMENT TRAP FOR KERB INLET
(AT LOW POINT - SANDBAG)

NTS



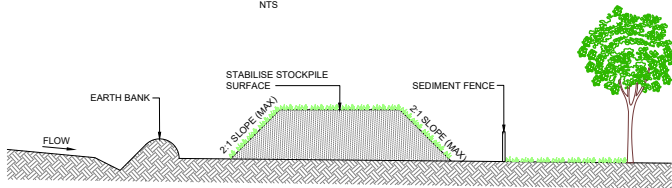
SEDIMENT FENCE
(GEOTEXTILE FILTER FABRIC)

NTS



SEDIMENT TRAP FOR DROP INLET
(GEOTEXTILE FILTER FABRIC)

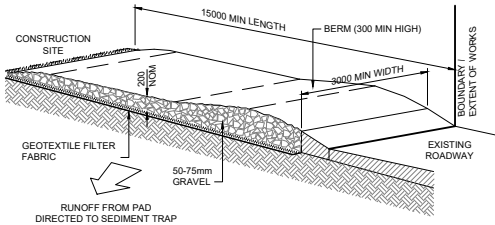
NTS



- CONSTRUCTION NOTES**
1. PLACE STOCKPILES AS DIRECTED BY THE SUPERINTENDENT.
 2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
 3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
 4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED E.S.C.P OR S.W.M.P. TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
 5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND INSTALL SEDIMENT FENCES 1m TO 2m UPSLOPE CONSISTENT WITH MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", ALSO KNOW AS "THE BLUE BOOK".

STOCKPILES

NTS

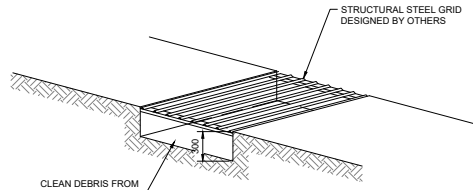


TEMPORARY SITE ENTRANCE

NTS

MAINTENANCE

- THE TEMPORARY ACCESS SHALL BE MAINTAINED IN A CONDITION THAT PREVENTS TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY.
- THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL GRAVEL AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
- ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS OF WAY MUST BE REMOVED IMMEDIATELY.



SHAKER PAD

NTS

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M M MOT MACDONALD Level 10, 383 Kent Street Sydney, NSW 2000 Australia NSW 1230, Australia PO Box Q1678, QVB Sydney T +61 (0)2 9098 6800 W www.motmac.com	P1 12.11.25 ISSUED FOR INFORMATION Rev Date Description AT AT	SCALE	CLIENT  	TITLE 29 FLORIDA STREET, SYLVANIA, NSW 2224 EROSION AND SEDIMENT CONTROL DETAILS	DRAWING INFORMATION Drawn: J. O Designed: S. SAIARA Checked: A. TARSHAN Approved: - Revision: P1 Status: PRE Security: STD DRAWING NUMBER 103419-MMD-SYL-XX-DR-C-0015
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103419-MMD-SYL-XX-DR-C-0015



NO EXCAVATION IS REQUIRED NEAR THE EXISTING TREE. REFER TO THE ARBORICULTURAL IMPACT ASSESSMENT REPORT FOR DETAILS.

PROPOSED DRIVEWAY TO BE CONSTRUCTED IN ACCORDANCE WITH THE SUTHERLAND SHIRE COUNCIL STANDARD DETAILS (TYPICAL)

REFER TO DRAWING DR-C-0511 FOR ON-SITE DETENTION 3 LOCATED BELOW LEVEL 5, TOP OF TANK AT RL: 22.30

PROPOSED WATER QUALITY CHAMBER TO BE INSTALLED WITH 13 x 690 STORMFILTER CARTRIDGES, INTEGRATED WITHIN THE ON-SITE DETENTION TANK

FLORIDA STREET

PROPOSED GRATED TRENCH DRAIN WITH ANTI-SLIP HEEL SAFE GRATE. REFER TO ACO DRAINS MANUFACTURER FOR DETAILS (TYPICAL)

EXISTING KERB INLET PIT RL: 14.92 IL: 13.68

PROPOSED OUTLET TO CONNECT TO THE EXISTING KERB INLET PIT ALONG FLORIDA STREET WITH AN INVERT LEVEL OF 13.68

REFER TO DRAWING 0334 FOR ON-SITE DETENTION 4 LOCATED BELOW LEVEL 5, TOP OF TANK AT RL: 17.80

PROPOSED ON-SITE DETENTION OUTLET TO BE RETICULATED TO PROPOSED STORMWATER PIT FOR DISCHARGE. ARRANGEMENT TO BE FURTHER CONFIRMED BY HYDRAULIC CONSULTANT (TYPICAL)

PROPOSED GRATED DRAIN WITH ANTI HEEL SAFE GRATE. REFER TO ACO DRAINS MANUFACTURER FOR DETAILS (TYPICAL)

PROPOSED DRIVEWAY TO BE CONSTRUCTED IN ACCORDANCE WITH THE SUTHERLAND SHIRE COUNCIL STANDARD DETAILS (TYPICAL)

PROPOSED REALIGNMENT OF THE EXISTING 1050MM DIAMETER STORMWATER PIPE. EXISTING INVERT LEVEL TO BE RETAINED

PIPED OUTLET BENEATH PAVEMENT TO CONNECT TO STORMWATER PIT

PORT HACKING ROAD

REFER TO DRAWING 0332 FOR ON-SITE DETENTION 2 LOCATED BELOW LEVEL 5, TOP OF TANK AT RL: 19.53

PROPOSED ON-SITE DETENTION OUTLET TO BE RETICULATED TO PROPOSED STORMWATER PIT FOR DISCHARGE. ARRANGEMENT TO BE FURTHER CONFIRMED BY HYDRAULIC CONSULTANT (TYPICAL)

REFER TO DRAWING DR-C-0511 FOR ON-SITE DETENTION 1 LOCATED BELOW LEVEL 5, TOP OF TANK AT RL: 20.385

PROPOSED WATER QUALITY CHAMBER TO BE INSTALLED WITH 14 x 690 STORMFILTER CARTRIDGES. REFER TO OCEAN PROTECT MANUFACTURER FOR DETAILS (TYPICAL)

PROPOSED AG/SUBSOIL DRAINAGE TO BE INSTALLED IN LANDSCAPING (TYPICAL)

PROVIDE HIGH END RISER (HED) ON EVERY AG/SUBSOIL DRAINAGE (TYPICAL)

PROPOSED LANDSCAPING BY OTHERS. REFER TO LANDSCAPE DRAWINGS. TYPICAL

PROPOSED SURFACE INLET PIT WITH CLASS 'A' GRATE TO FINISH SURFACE LEVEL (TYPICAL)

INDICATIVE CONNECTION OF ROOF DRAINAGE OUTLET TO WATER QUALITY CHAMBER. TO BE FURTHER CONFIRMED BY HYDRAULIC CONSULTANT (TYPICAL)

EXISTING CURB INLET PIT RL: 19.52

PROPOSED DRAINAGE IN SUSPENDED AREAS TO BE DIRECTED TO WATER QUALITY CHAMBER LOCATED IN LEVEL 04. FINAL PIPE RETICULATION WITHIN THE BUILDING TO BE FURTHER CONFIRMED BY HYDRAULIC CONSULTANT (TYPICAL)

CONSTRUCT NEW JUNCTION PIT ON EXISTING STORMWATER TRUNK DRAINAGE TO PROVIDE CONNECTION FOR DIVERSION. INVERT LEVELS TO BE RETAINED AS PER EXISTING

EXISTING STORMWATER PIPE TO BE RETAINED AND REALIGNED AS SHOWN

PROPOSED STORMWATER OUTLET TO CONNECT TO PROPOSED JUNCTION PIT

PIPED OUTLET BENEATH PAVEMENT TO CONNECT TO STORMWATER PIT

LEGEND

---	SITE BOUNDARY
---	EXISTING
---	STORMWATER EXISTING
---	STORMWATER EXISTING TO BE REMOVED
---	PROPOSED
---	MAJOR CONTOUR
---	MINOR CONTOUR
---	ROAD DISH DRAIN
---	DISH DRAIN
---	CARRIAGEWAY
---	SURFACE INLET PIT
---	JUNCTION PIT
---	PIT LABEL
---	GRATED TRENCH DRAIN
---	GRATED DRAIN
---	STORMWATER PIPE
---	SUBSOIL DRAINAGE LINE
---	LANDSCAPE DEPRESSION
---	INTERMEDIATE RISER
---	HIGH END RISER
---	ON-SITE DETENTION TANK
---	EXISTING TREE TO BE REMOVED
---	EXISTING TREE TO BE RETAINED (TP2)

GENERAL NOTES:

- TOTAL SITE AREA = 21.691m²
- PROPOSED STORMWATER DRAINAGE IS CONCEPT ONLY FOR DEVELOPMENT APPROVAL AND SUBJECT TO DETAILED DESIGN AT CONSTRUCTION ON CERTIFICATE STAGE.
- EXISTING SERVICE SHOWN INDICATIVE ONLY. REFER TO SERVICE PLANS APPROVED BY RELEVANT AUTHORITIES FOR FURTHER INFORMATION. EXISTING SERVICES SUBJECT TO FURTHER INVESTIGATION PRIOR TO CONSTRUCTION FOR DETAILED DESIGN PURPOSES.
- ALL PROPOSED STORMWATER TO BE DESIGNED TO CATER FOR MINOR STORM OF 5% AEP IN ACCORDANCE WITH SUTHERLAND SHIRE STORMWATER SPECIFICATION 2009, SECTION 5.3.
- SAFE OVERLAND FLOW PATH TO CATER FOR MAJOR STORM OF 100 YEAR ARI.
- ALL BUILDING DRAINAGE TO BE CONFIRMED BY HYDRAULIC CONSULTANTS.
- PROVIDE OCEAN PROTECT STORMFILTER CARTRIDGES OR SIMILAR. DETAILS TO BE PROVIDED BY THE MANUFACTURER.
- REFER DRAWING 103419-MMD-SYL-XX-DR-C-0341 TO 103419-MMD-SYL-XX-DR-C-0344 FOR STORMWATER DRAINAGE DETAILS.
- ON-SITE DETENTION TO BE DESIGNED IN ACCORDANCE WITH SUTHERLAND SHIRE COUNCIL STORMWATER AND GROUNDWATER MANAGEMENT DGP 2015, CHAPTER 38 AND STORMWATER MANAGEMENT GUIDELINE.

THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE LATEST ARCHITECTURAL PLANS AND DETAILS. PROPOSED LEVELS ARE AS PER ARCHITECTURAL PLANS.

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	P1 12.11.25 ISSUED FOR INFORMATION				AT AT		DRAWING NUMBER 103419-MMD-SYL-XX-DR-C-0051							
	Rev Date Description			Chk'd App'd										

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ISSUED BY: S. SAIRA

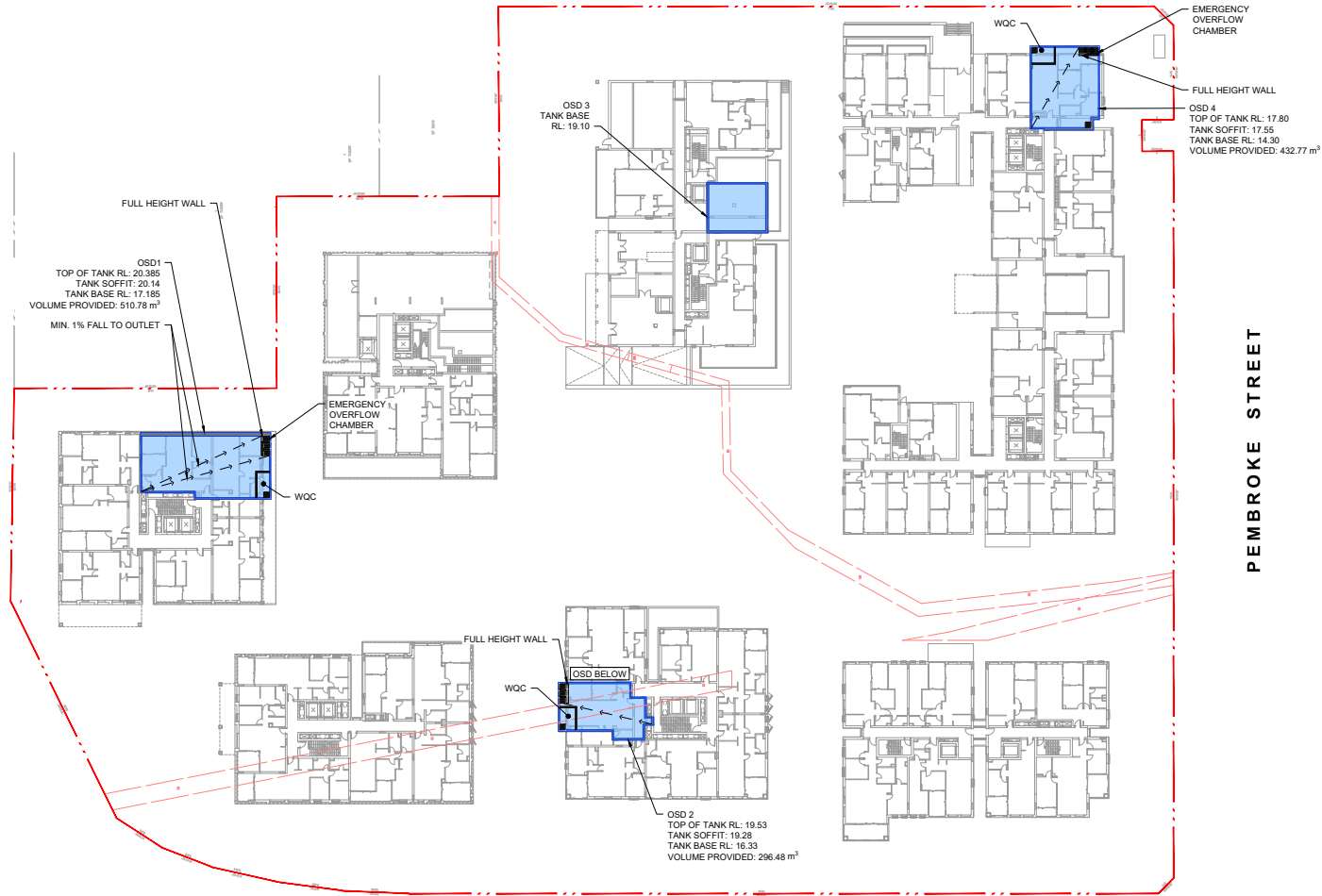


FLORIDA STREET

PRINCESS HIGHWAY

PEMBROKE STREET

PORT HACKING ROAD



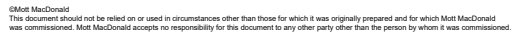
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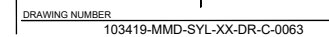
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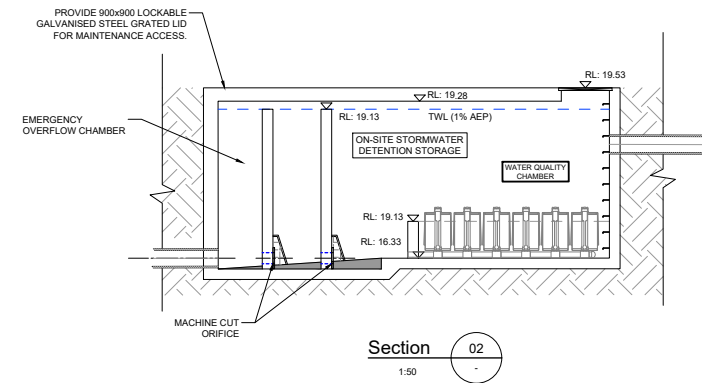
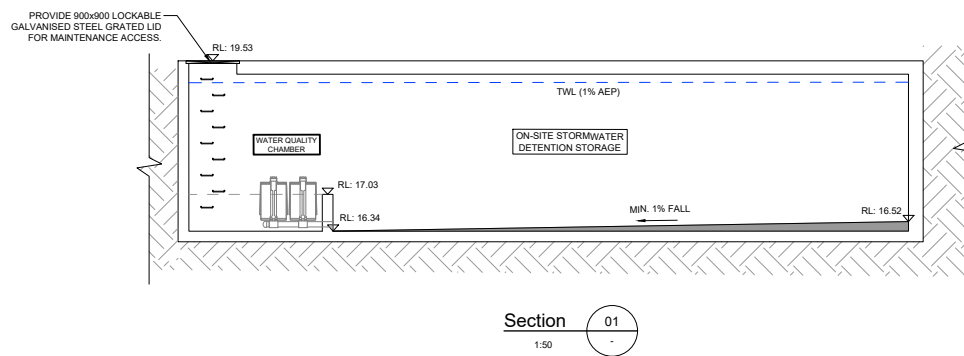
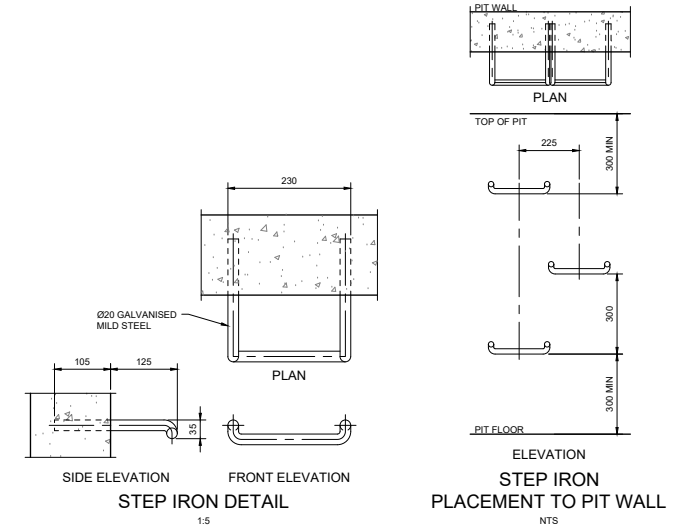
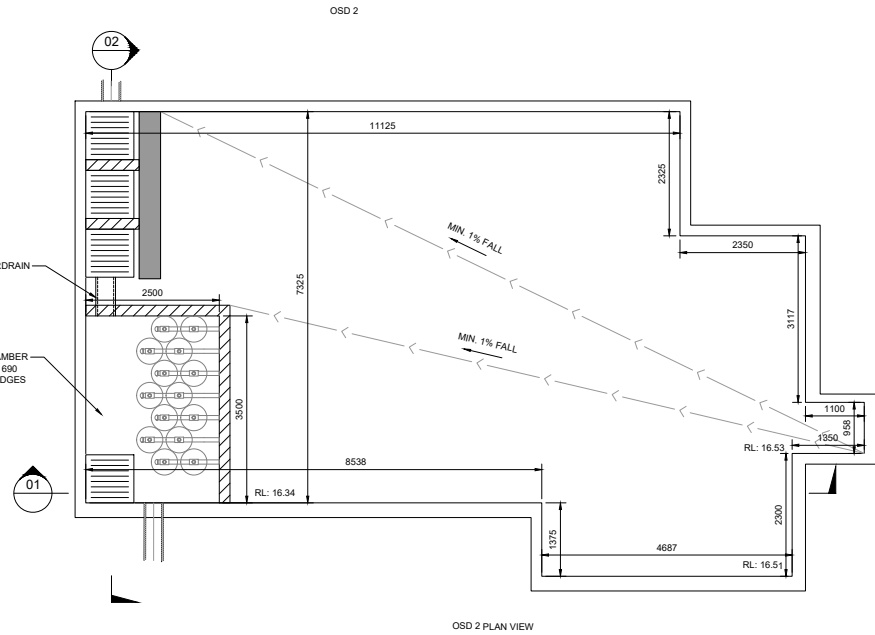
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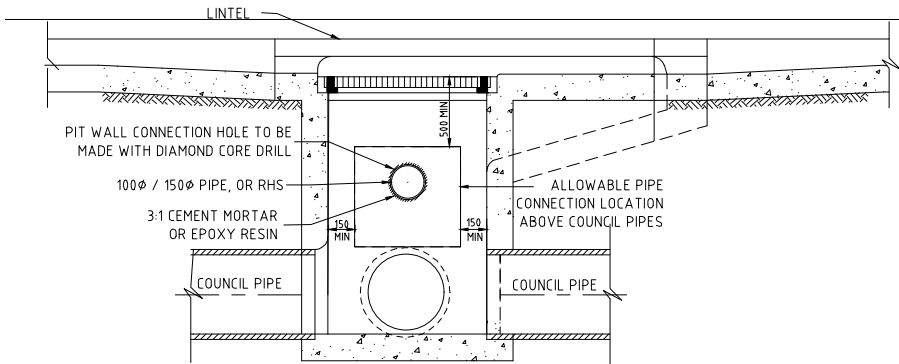


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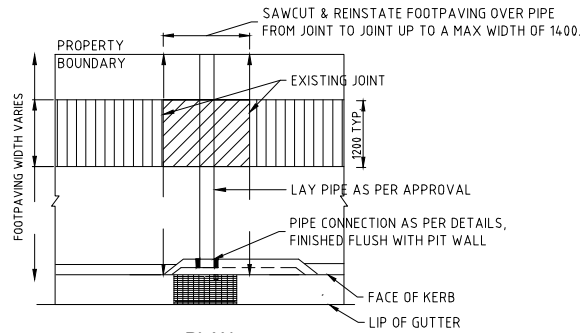
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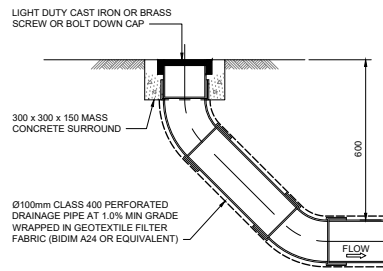
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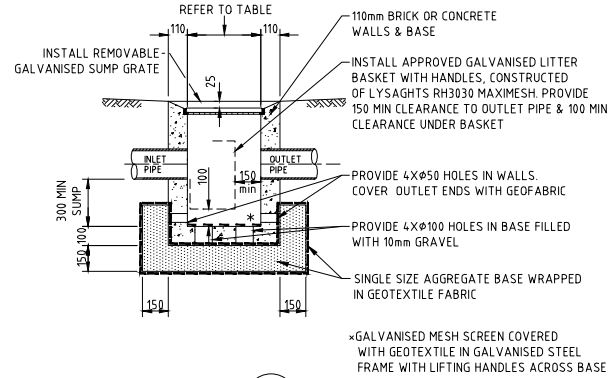
PIT SECTION
STANDARD PROPERTY DRAINAGE
CONNECTION TO COUNCIL PIT.



**PLAN
FOOTWAY INSTALLATION**
SCALE: NTS
STANDARD PROPERTY DRAINAGE CONNECTION TO
COUNCIL PIT WITH FOOTWAY INSTALLATION.

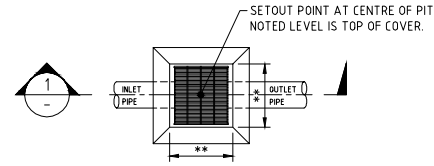


HIGH END RISER (HER)
1:10

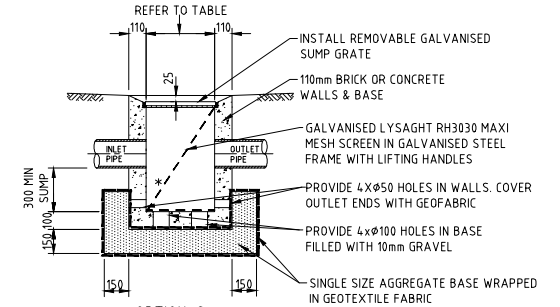


Section 1
1:20

GRATED POLLUTION CONTROL PIT - OPTION 1

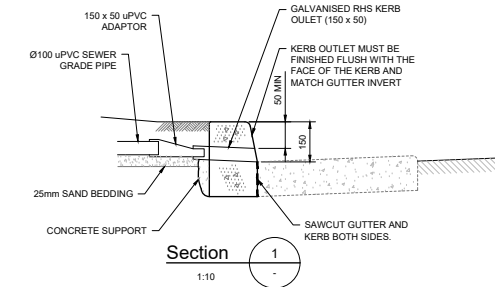


GRATED POLLUTION CONTROL PIT

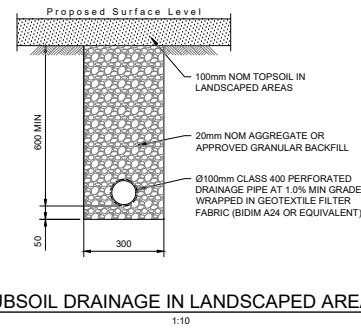


Section 1
1:20

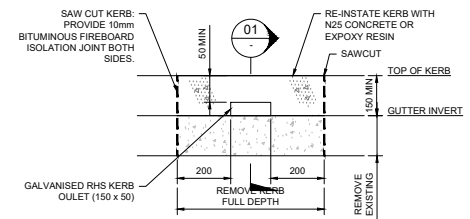
GRATED POLLUTION CONTROL PIT - OPTION 2



STORMWATER OUTLET CONNECTION TO 150 KERB



SUBSOIL DRAINAGE IN LANDSCAPED AREAS
1:10



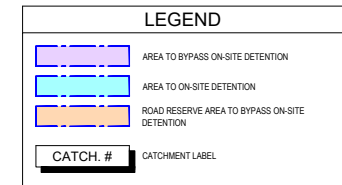
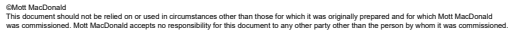
STORMWATER OUTLET CONNECTION TO 150 KERB
1:10

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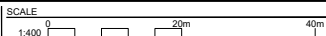
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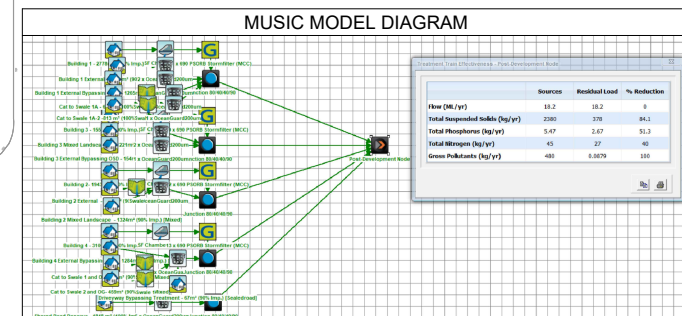
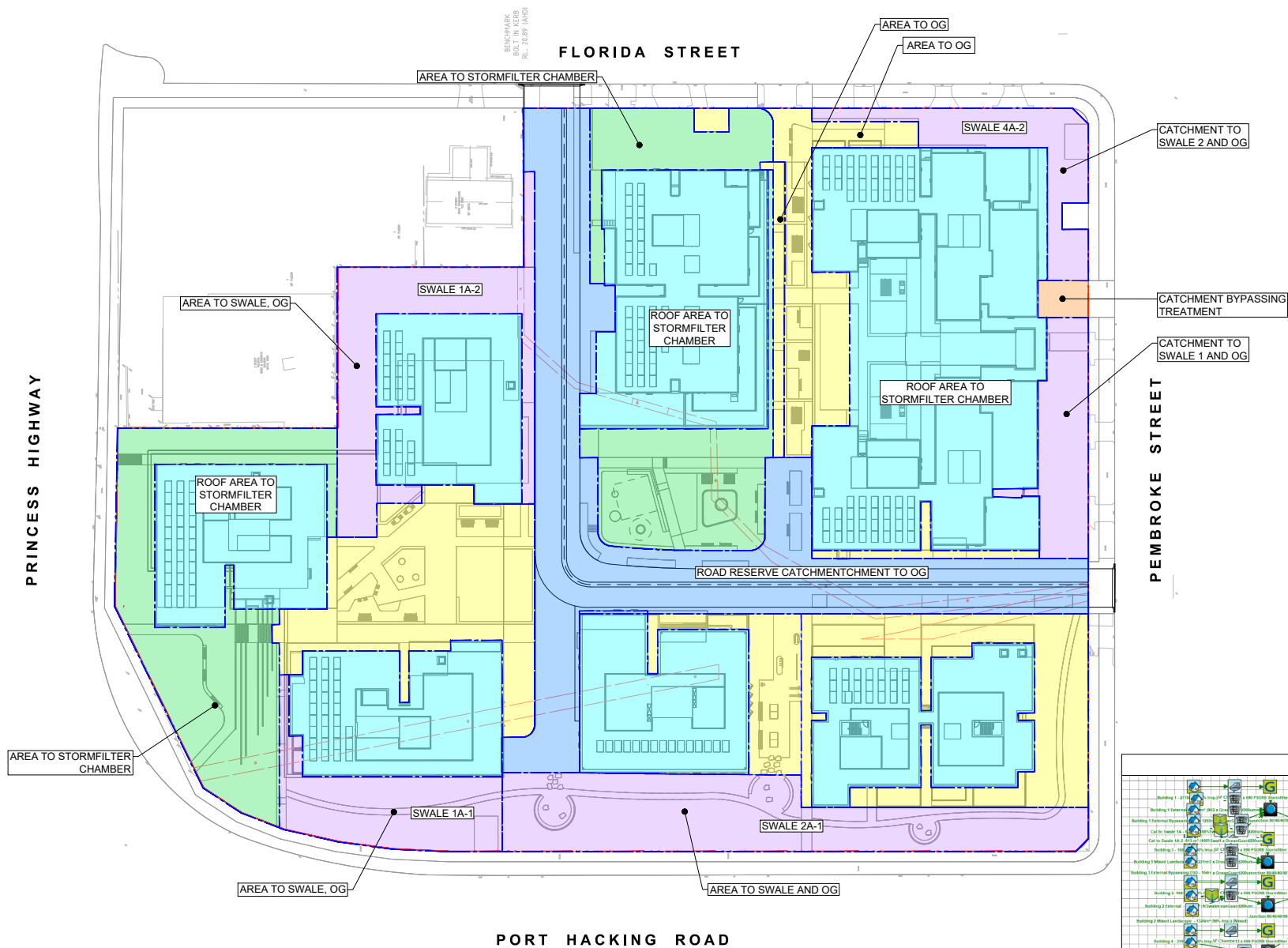


TITLE
29 FLORIDA STREET, SYLVANIA, NSW 2224 WATER QUANTITY CATCHMENT PLAN

DRAWING INFORMATION	
Drawn: J. O	Revision: P1
Designed: S. SAIARA	Status: PRE
Checked: A TARSHAN	Security: STD
Approved: -	
DRAWING NUMBER	
103419-MMD-SYL-XX-DR-C-0511	

FILE LOCATION: C:\1245\data\Mot\MacSYN\103419-Housing Australia_181\01\WIP\Sylvania\02 CAD\DRG\103419-MMD-SY_XX-DB-C-0511.dwg Nov 12, 2025 - 8:37PM 01106932

SO A1 594mm x 841mm



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 SYLVANIA, NSW 2224
 WATER QUALITY
 CATCHMENT PLAN

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