

# **211A-215 Harbour Drive, Coffs Harbour**

Integrated Water Management Plan

September 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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# **211A-215 Harbour Drive, Coffs Harbour**

## **Integrated Water Management Plan**

September 2025

# Issue and Revision Record

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A	04.08.25	S. Saiara	A. Tarshan	D. Fettell	Preliminary Draft
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# Executive summary

This Integrated Water Management Plan has been prepared by Mott MacDonald on behalf of Homes NSW for a State Significant Development Application (SSD-83294209) for construction of a residential flat building up to four storeys with a total of 60 apartments for the purpose of affordable housing at 211A-215 Harbour Drive, Coffs Harbour NSW.

The purpose of this Integrated Water Management Plan is to provide a feasible stormwater management plan and to address the Secretary's Environmental Assessment Requirements (SEARs) for the project issued on 2<sup>nd</sup> May 2025 which identified the following specific assessment requirements:

SEARs Requirement	Section of Report where response is provided
<b>11. Water Management</b>	
<ul style="list-style-type: none"><li>Detail the proposed drainage design and servicing infrastructure to be incorporated as part of the development (stormwater and wastewater).</li></ul>	<ul style="list-style-type: none"><li>Water Quantity Management</li><li>Legal Discharge Point</li><li>Tailwater Assumption</li><li>Water Quantity Catchment</li><li>On-site Detention System</li></ul>
<ul style="list-style-type: none"><li>Demonstrate how the development complies with council's drainage requirements and identify proposed stormwater treatment and water quality management measures to minimise adverse environmental impacts.</li></ul>	<ul style="list-style-type: none"><li>Water Quality Management</li><li>Water Quality Catchment</li><li>Water Quality Treatment Train</li><li>MUSIC Modelling Results</li></ul>

This Integrated Water Management Plan supports the delivery of the proposed development as it identifies opportunities, constraints and risks related to civil design. The scope of this report summarises the existing and proposed stormwater drainage design as well as the design approach, key assumptions, relevant references and standards that will be applied to the development of concept design documentation for the proposed development.

The report is to be read in conjunction with the civil engineering plans in Appendix A.

# 1 Introduction

## 1.1 Purpose of the 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 City of Coffs Harbour Council Water Sensitive Urban Design (WSUD) Guideline, Coffs Harbour Development Control Plan 2015, City of Coffs Harbour Technical Specification for Infrastructure Design, 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.

This assessment and management plan has been undertaken as a desktop study only. Considerable effort has been undertaken to obtain available site data and project information to understand the site conditions and constraints.

## 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 the City of Coffs Harbour 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 1.

**Table 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 <sup>th</sup> edition, March 2004, Landcom	March 2004	Landcom
NCC	National Code Australia	2022	Australian Building Codes Board
City of Coffs Harbour Council	Water Sensitive Urban Design (WSUD)	2018 Edition	City of Coffs Harbour Council
City of Coffs Harbour Council	Development Control Plan 2015	2015	City of Coffs Harbour Council
City of Coffs Harbour Council	Technical Specification for Infrastructure Design	Version 1 – December 2024	City of Coffs Harbour Council
AS/NZS 3500.3	Plumbing and Drainage – Stormwater Drainage	2021	Standards Australia
SEPP, (Section 2.8 and Section 2.10)	State Environmental Planning Policy (Resilience and Hazards)	2021	NSW Government

### 2.3 Other Consultants Input

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

- Architectural design by Studio Johnston—Project No. 2507, Rev. A, dated 29/08/2025.
- Landscape design by Jane Irwin Landscape Architecture—Project No. 250401, Rev 1, dated 29/08/2025.
- Survey by LTS, Reference No 52501 001DT, Rev. C, dated: 05/06/2025.

## 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 0.63% (1EY), 50%, 20%, 10%, 5%, 2% and 1% AEP storm events.
- On-site Detention (OSD) volume is designed for all storms up to 1% AEP storm event.
- The hydraulic assessment incorporated a climate change rainfall modifier of 1.1, 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 City of Coffs Harbour Council guidelines in Table 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 City of Coffs Harbour Council guidelines. Table 2 below summarises the design criteria for hydrology and hydraulics analysis.

**Table 2: Hydraulic and Hydrology Design Criteria**

Item	Standard	Adopted																				
<b>Hydrology &amp; Hydraulics</b>																						
Hydrological Model	Technical Specification for Infrastructure Design, Section 3.5.3.1	DRAINS (ILSAX)																				
Design Rainfall Data	Technical Specification for Infrastructure Design, Section 3.5.3.2	AR&R Online Data																				
Urban Rainfall Losses	Technical Specification for Infrastructure Design, Section 3.5.3.4	Depression storage – impervious (mm) = 2 Depression storage – supplementary (mm) = 2 Depression storage – grassed (mm) = 8																				
Soil Type	Technical Specification for Infrastructure Design, Section 3.5.3.4	Soil type – clay = 3 Soil type – sand = 2 Soil type – grades 15% (any soil type) = 4 Antecedent moisture condition (AMC) = 4																				
Major Design Storm	Technical Specification for Infrastructure Design, Section 3.10.3.4	100YR Average Recurrence Interval (1% AEP)																				
Minor Design Storm	Technical Specification for Infrastructure Design, Section 3.4.6.1	<table border="1"> <thead> <tr> <th colspan="2">Average Recurrence Intervals for Drainage Design</th> </tr> <tr> <th>Location</th> <th>Design Storm AEP</th> </tr> </thead> <tbody> <tr> <td>Residential areas - minor system</td> <td>20%</td> </tr> <tr> <td><b>Inter-allotment drainage - minor system</b></td> <td><b>Same as minor system for the location</b></td> </tr> <tr> <td>Commercial areas - minor system</td> <td>10%</td> </tr> <tr> <td>Industrial areas - minor system</td> <td>10%</td> </tr> <tr> <td>Transverse drainage culvert or bridge under a minor road (Class 4 or 5 road) *</td> <td>10%</td> </tr> <tr> <td>Transverse drainage culvert or bridge under a minor road (collector road) *</td> <td>5%</td> </tr> <tr> <td>Transverse drainage culvert or bridge under a major road (subarterial or arterial)</td> <td>1%</td> </tr> <tr> <td>Major systems</td> <td>1%</td> </tr> </tbody> </table>	Average Recurrence Intervals for Drainage Design		Location	Design Storm AEP	Residential areas - minor system	20%	<b>Inter-allotment drainage - minor system</b>	<b>Same as minor system for the location</b>	Commercial areas - minor system	10%	Industrial areas - minor system	10%	Transverse drainage culvert or bridge under a minor road (Class 4 or 5 road) *	10%	Transverse drainage culvert or bridge under a minor road (collector road) *	5%	Transverse drainage culvert or bridge under a major road (subarterial or arterial)	1%	Major systems	1%
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Major systems	1%																					
Manning's Roughness Coefficient (Kinematic Wave Equation)	Technical Specification for Infrastructure Design, Section 3.7.3.7	Concrete Lining - 0.013 Grass (maintained) – 0.035 Grass (unmaintained) – 0.070 Earth (clear) – 0.020 Rock Lined – Refer to QUDM table 9.3.3																				
Pipes and Culvert Colebrook-White (n value) formular	Technical Specification for Infrastructure Design, Section 3.6.3.2	Steel Reinforced Concrete Pipe (SRCP) – 0.012 Fibre Reinforced Concrete Pipe (FRCP) – 0.011 uPVC Pipe (uPVC) – 0.010 HDPE flexible pipe – 0.010																				
Pit Losses	-	QUDM																				

Item	Standard	Adopted										
Pit Blockage Factors	Technical Specification for Infrastructure Design, Section 3.6.1.3	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)										
Tailwater level/sea water level	Technical Specification for Infrastructure Design, Section 3.6.3.3	<ul style="list-style-type: none"> <li>• for discharge into receiving waters (excluding the ocean), tailwater equivalent to the design flood level may be adopted.</li> <li>• for discharge into the ocean, tailwater equivalent to the Mean High Water Spring Level shall be adopted for minor systems, and the 5% AEP ocean level for major systems.</li> <li>• for discharge into existing systems where the hydraulic grade levels are unknown, a tailwater 150mm below the natural surface/invert of kerb shall be adopted.</li> <li>• for discharge into a point designed to surcharge, a tailwater level may be determined based on the height of the surcharged water within the receiving waterway and in the absence of this calculation, a level equivalent to 0.5m above the height of the surcharge shall be adopted; and</li> <li>• Where the outlet is limited to serving a water quality treatment device, the outlet pipe level must be in accordance with Table 3-Q. The filter media's top shall exceed the 20% AEP level in the receiving waterway. If this is not possible, further modelling should be undertaken for a range of events (20% to 1% AEP) to ensure the two tailwater levels don't coincide.</li> </ul>										
Overland Flow Safety Criteria	Technical Specification for Infrastructure Design, Section 3.7.2	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th data-bbox="903 1413 983 1435">Location</th> <th data-bbox="1238 1413 1350 1435">Design limit</th> </tr> </thead> <tbody> <tr> <td data-bbox="903 1451 1142 1585">All areas routinely accessed by vehicles and people, including vulnerable people (such as children)</td> <td data-bbox="1174 1451 1410 1585">H1 Hazard Classification as defined in Section 7.2.7 of Book 6 ARR2019 for the critical 1% AEP event</td> </tr> <tr> <td data-bbox="903 1601 1142 1704">All areas routinely accessible by the public but not subject to vehicle traffic</td> <td data-bbox="1174 1601 1410 1736">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 data-bbox="903 1742 1142 1823">Areas without routine public access but without exclusion fencing</td> <td data-bbox="1174 1742 1410 1877">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 data-bbox="903 1892 1102 1942">Where roads convey major flows</td> <td data-bbox="1174 1892 1410 2022">Maximum flow depth to be top of kerb or 200mm above top of kerb where the footway can cater for the depth of overland</td> </tr> </tbody> </table>	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
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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											

Item	Standard	Adopted
		<p>flow and where it is demonstrated that it will not cause any flooding issues to adjacent lots.</p> <hr/> <p>Structures and entrances to underground car parks</p> <p>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.</p> <hr/> <p>All major systems</p> <p>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.</p>
Permissible Site Discharge	Technical Specification for Infrastructure Design, Section 3.10.3.4	Retention/detention structures shall be designed to maintain the existing undeveloped discharges for storm durations and frequencies from 0.63% (1EY), 50%, 20%, 10, 5%, 2% and 1% AEP. The methods described in Section 3.5.3 of these Specifications may be used to calculate permissible peak flows. Retention/detention structures shall be designed for the peak 1% AEP storm with consideration of the sensitivity of the design given to 0.5% AEP events.
On-Site Stormwater Detention	Technical Specification for Infrastructure Design, Section 3.10	<p>Stormwater detention is defined as the process of temporarily holding and/or controlled release of stormwater through the use of a hydraulic storage system; Doc Set 8277088 Technical Specification for Infrastructure Design Page 108 of 249</p> <ul style="list-style-type: none"> <li>• Stormwater retention is defined as the reduction in flow volume by long-term storage or discharge to an alternative outlet such as evaporation or infiltration;</li> <li>• A large subdivision and development are defined as a development consisting of greater than 5 potential dwellings or units;</li> <li>• A small development is defined as a development consisting of less than or equal to 5 potential dwellings or units and a predeveloped lot size less than 2000m<sup>2</sup>; and</li> <li>• Dwelling is defined in the Coffs Harbour LEP 2013.</li> </ul>
Pollution reduction targets	Technical Specification for Infrastructure Design, Section 3.13.2.2	<ul style="list-style-type: none"> <li>• 80% reduction in total suspended solids (TSS)</li> <li>• 60% reduction in total phosphorus (TP)</li> <li>• 45% reduction in total nitrogen (TN)</li> <li>• 90% reduction in gross pollutants; and</li> <li>• 90% reduction in total hydrocarbon</li> </ul>

## 3 Existing Site and Stormwater Conditions

### 3.1 Background

Homes NSW has identified the site as an opportunity to deliver 60 new, quality affordable housing apartments in a well-located area that is serviced by a high level of amenity, services and public active transport.

### 3.2 The Site

The site is located at 211A - 215 Harbour Drive, Coffs Harbour, in City of Coffs Harbour Local Government Area (LGA).

The site has a total site area of 3,807 square metres (sqm) and has two street frontages; Harbour Drive to the south-west and North Street to the east. Refer to Figure 1.

The site is vacant, with only some minor structures such as driveways associated with former dwellings previously on the site. A number of existing trees are also located on the site.

The site is within 200m of the Coffs Harbour City Centre and is close to local schools, open space and recreational areas. A bus stop is located immediately in front of the site, along Harbour Drive and providing bus services throughout Coffs Harbour.



Figure 1: Site Context

### 3.3 Existing Stormwater Drainage Characteristics

The development site is bounded by North Street to the east, Harbour Drive to the south, and Curacoa Street to the west. The natural topography of the site exhibits a slope descending from the north-east towards the north-west, specifically in the direction of the Curacoa Street and Harbour Drive intersection. Figure 2 below presents a survey extract, with directional arrows indicating the gradient of the site. The nearest existing stormwater pit is located at the intersection and is proposed to serve as the designated discharge point for stormwater from the development with an invert level of RL 3.24.

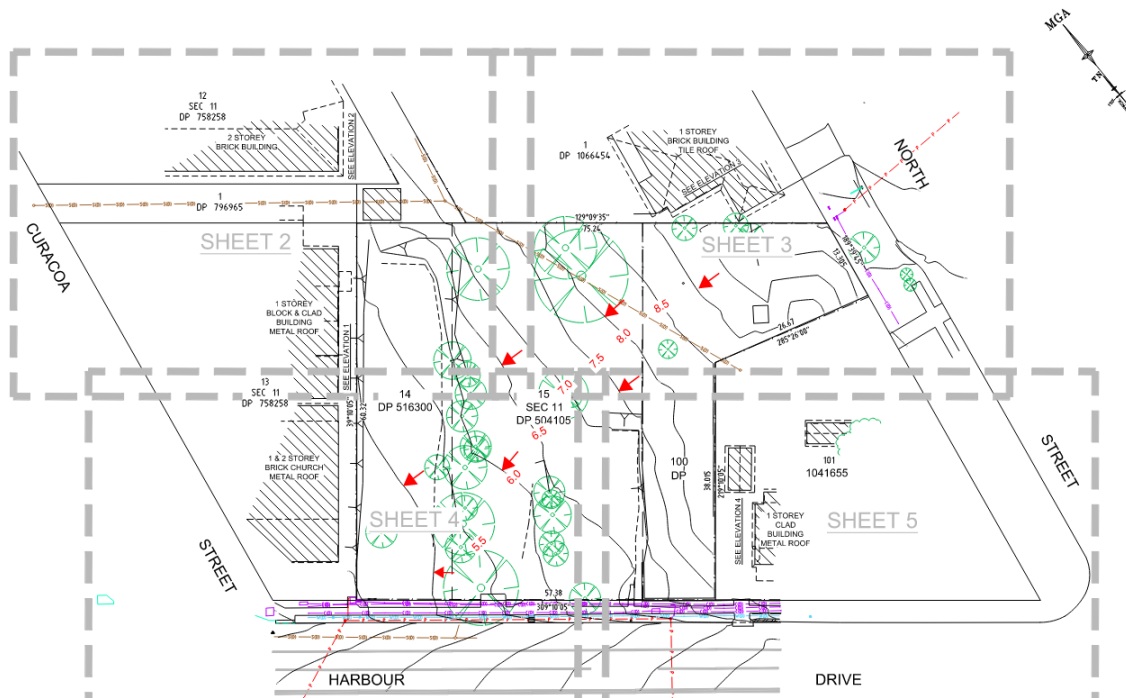


Figure 2: Survey, (LTS, 05/06/2025)

## 4 Proposed Development

The proposed development comprises the construction of a new residential flat building to accommodate 60 apartments to be used for affordable housing, a communal room, basement car parking including excavation, tree removal and associated servicing, landscaping and public domain works.

Refer to proposed Site Plan below.



Figure 3: Proposed Architectural Plan (Studio Johnston, Rev A, 29/08/2025)

## 5 Stormwater Management

### 5.1 Water Quantity Management

The proposed stormwater drainage design has been prepared in accordance with the *Coffs Harbour Technical Specification for Infrastructure Design*.

The objective of stormwater quantity management is to control runoff from the site and to prevent surcharge of the existing street drainage system. Section 3.10.3.4 of the *Coffs Harbour Technical Specification for Infrastructure Design* states:

*“Retention/Detention structures shall be designed to maintain the existing undeveloped discharges for storm durations and frequencies of 0.63% (1EY), 50%, 20%, 10%, 5%, 2%, and 1% Annual Exceedance Probability (AEP).”*

In accordance with this guideline, the proposed on-site detention system has been designed to limit stormwater discharge for all storm events up to and including the 1% AEP.

#### 5.1.1 Legal Discharge Point

A site survey conducted by LTS, undertaken on the 14/03/2025 has identified the closest existing stormwater pit at the intersection of Curacoa Street and Harbour Drive. The invert level of this pit is recorded as 3.24 metres. The proposed stormwater drainage strategy for the development is designed to discharge directly into this pit, which will serve as the designated outlet point for the site.

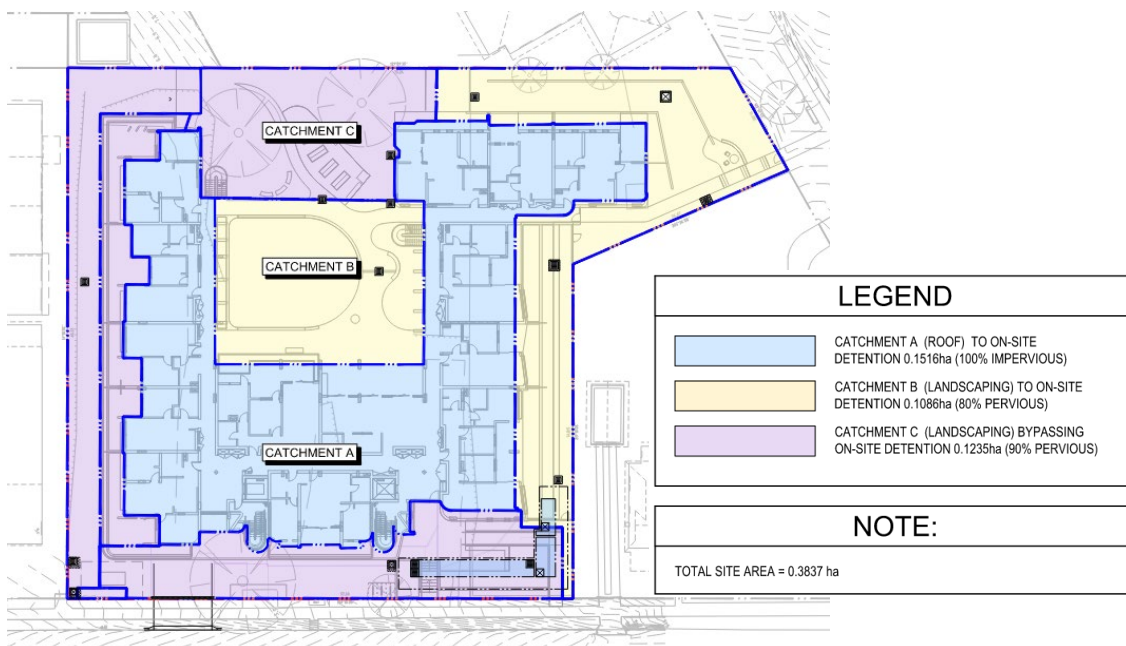
#### 5.1.2 Tailwater Assumption

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.

For the hydraulic assessment undertaken using DRAINS, a tailwater level of 150 mm below the natural invert of the kerb, IL 3.66 has been adopted, in accordance with Section 3.6.3.3 of the *Technical Specification for Infrastructure Design Guideline*.

#### 5.1.3 Water Quantity Catchment

The DRAINS model was set up to represent the post-developed scenario and existing green field scenario. The site was divided into sub-catchments based on the layout and topography. The proposed DRAINS catchment breakdown is shown in Figure 4. Details of water quantity catchment delineation shall be read in conjunction with the civil engineering plans in Appendix A.



**Figure 4: Water Quantity Catchment Plan**

**5.1.3.1 On-site Detention System**

In accordance with the stormwater drainage design requirements set by the City of Coffs Harbour 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 on-site detention will be located below ground external to the basement footprint. Stormwater from the detention system will discharge via an outlet connected to the existing stormwater pit located at the intersection of Curacoa Street and Harbour Drive.

Considering the legal point of discharge, tailwater level assumptions, and the proposed catchment layout, Mott MacDonald has undertaken a hydraulic assessment using DRAINS software. This assessment evaluates the water levels within the on-site detention tank and determines the required storage volume for all storm events up to and including the 1% Annual Exceedance Probability (AEP).

The summary of On-site Detention (OSD) design competency is listed in Table below:

**Table 3: On-site Detention Parameters**

SITE SUB-CATCHMENTS PROFILE		
Total Site Area (ha)	0.3837	
To OSD (ha)	0.2603 (30% pervious)	
Bypass Area (ha)	0.1234 (90% pervious)	
PERMISSIBLE SITE DISCHARGE		
Storm Events (AEP)	Pre-Development Site Discharge (L/s)	Post-Development Site Discharge (L/s)
0.63% AEP (1EY)	61	48
50% AEP	78	57

#### SITE SUB-CATCHMENTS PROFILE

20% AEP	119	78
10% AEP	143	136
5% AEP	173	173
2% AEP	213	203
1% AEP	246	240

#### ON-SITE DETENTION PARAMETERS

OSD Storage Required	70.29m <sup>3</sup>
OSD Storage Provided	74.74m <sup>3</sup>
Internal Area	37.00m <sup>2</sup>
Internal Average Storage Height	2.02m
Internal Maximum Height to Sump	2.36m
Tank Soffit Level	RL 6.1m
Water Quality Chamber (WQC) Area	10m <sup>2</sup>
WQC False Floor Minimum Thickness	150mm
Number of Filter Cartridges	16 x 690mm (StormFilter®)
Low Flow Orifice	126mm
Second Orifice (from 5% AEP to 1% AEP)	228mm
Tank Outlet Pipe Size	DN375mm
Tank Outlet Pipe Invert Level	IL 3.84
Discharge Control Pit Size	0.81m <sup>2</sup>
Discharger Control Pit Weir Level	5.55m

Accordingly, post-development site discharge is effectively managed through the implementation of an on-site detention (OSD) tank. 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 Local Overland Flow Path

Proposed crest levels have been indicated on the plans at the north-eastern corner of the site to minimise excessive excavation while facilitating a safe overland flow path during major storm events. Additionally, swales have been designed and sized to accommodate overland flow in accordance with safe conveyance requirements during such events.

## 5.2 Water Quality Management

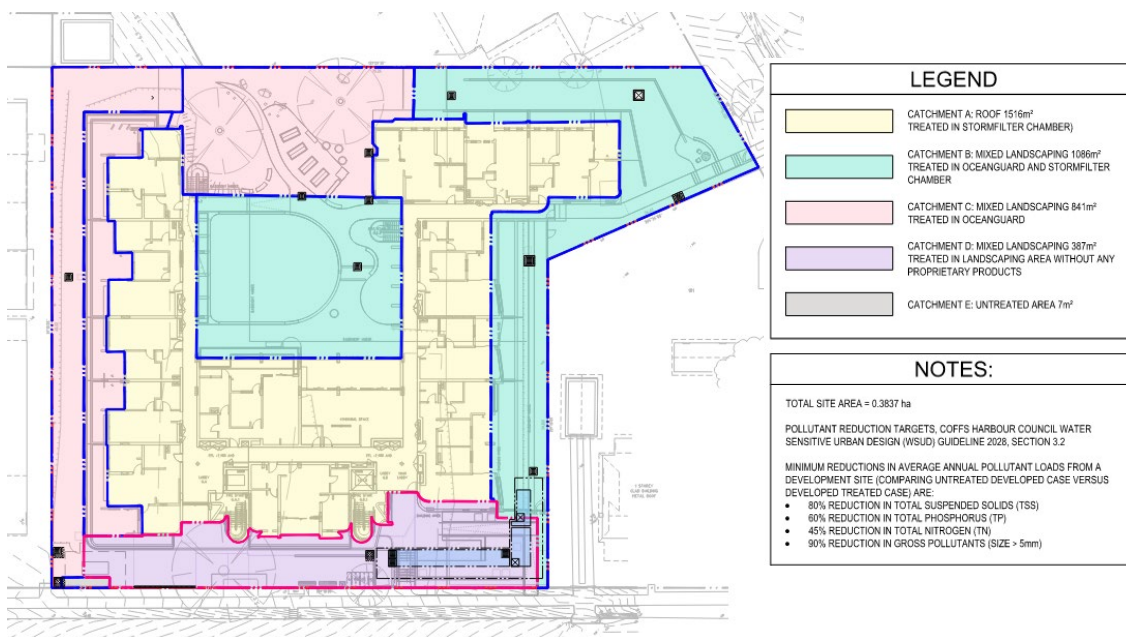
To ensure that the development improves the quality of stormwater leaving the development site, Mott MacDonald has reviewed the site and formulated a Water Sensitive Urban Design concept model, treatment train effectiveness and summarised the results in this section of the report. MUSIC software was 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.

### 5.2.1 MUSIC Modelling Pluviograph Data Input

The water quality assessment for the proposed development has been undertaken using the MUSIC software, incorporating the pre-configured MUSIC-LINK settings provided by the City of Coffs Harbour Council. This configuration includes rainfall data spanning the period from 1985 to 1994, with a temporal resolution of six-minute intervals, ensuring alignment with local climatic conditions and council requirements.

### 5.2.2 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 Figure 5 below. Details of water quality catchment delineation shall be read in conjunction with the civil engineering plans in Appendix A.



**Figure 5: Proposed 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 4 and MUSIC node rainfall runoff parameters are set as per Table 5 respectively.

**Table 4: Soil/groundwater Parameters for MUSIC Modelling**

	Units	Mixed	Roof
<b>Impervious area parameters</b>			
Rainfall threshold	mm/day	1	1
<b>Pervious area parameters</b>			
Soil storage capacity	mm	500	500
Initial storage	% of capacity	10	10
Field capacity	mm	200	200
Infiltration capacity coefficient - a		211	211
Infiltration capacity coefficient - b		5	5
<b>Groundwater properties</b>			
Initial depth	mm	50	50
Daily recharge rate	%	28	28
Daily baseflow rate	%	27	27
Daily deep seepage rate	%	0	0

**Table 5: 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 <sub>10</sub> mg/l)												
Mixed	2.180	0.339	-0.470	0.320	0.26	0.23	1.00	0.34	-0.97	0.31	0.200	0.20
Roads	2.43	0.39	-0.30	0.31	0.26	0.23	1.00	0.34	-0.97	0.31	0.200	0.20
Roofs	1.30	0.34	-0.89	0.31	0.26	0.23	1.00	0.34	-0.97	0.31	0.200	0.200

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

### 5.3 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 OceanGuard 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.

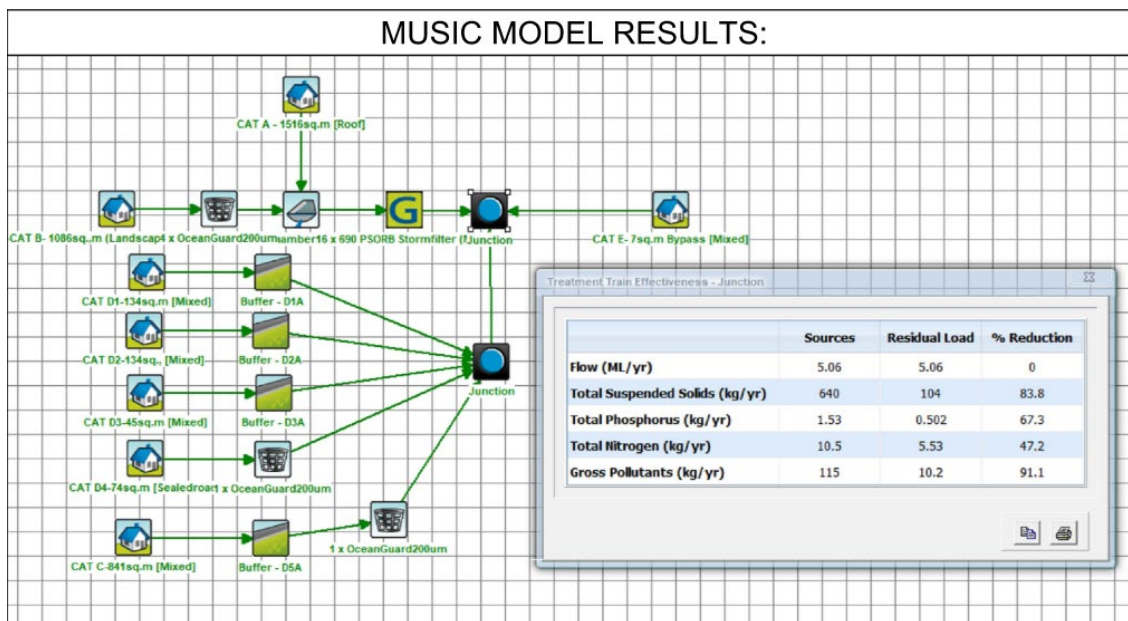


Figure 6: MUSIC Modelling Result Extract

## 5.4 Rainwater Re-use

Rainwater tank has been introduced as part of the treatment train and to satisfy BASIX requirement as per sustainability engineer’s specifications. The proposed 1000kL rainwater tank is designed for irrigation purpose only.

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

## 5.5 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 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: MUSIC Modelling Assessment Results

Pollutants	City of Coffs Harbour Council WSUD Guideline	Reduction %	Results
Gross Pollutants (GP)	90%	91.1%	Satisfy
Total Suspended Solids (TSS)	80%	83.8%	Satisfy
Total Phosphorus (TP)	60%	67.3%	Satisfy
Total Nitrogen (TN)	45%	47.2%	Satisfy

The results of the MUSIC modelling assessment indicate that the proposed development will not have any adverse impacts on the following key elements outlined in Sections 2.8 and 2.10 of the State Environmental Planning Policy (Resilience and Hazard) 2021:

- The hydrological integrity of the adjacent coastal wetland or littoral rainforest, or
- The quantity and quality of surface flows to and from the adjacent coastal wetland or littoral rainforest.

## 5.6 Maintenance and Access and Safety

### 5.6.1 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).

### 5.6.2 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.

## 6 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.

### 6.1 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: 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

### 6.2 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 8.

**Table 8: Construction Phase Performance Criteria**

Issue	Construction Phase Stormwater Design Objectives	
Erosion Control	Erosion Control Measures	<ul style="list-style-type: none"> <li>• Minimise exposure of disturbed soils at any time</li> <li>• Divert water run-off from undisturbed areas around disturbed areas.</li> <li>• Determine the erosion risk rating using local rainfall erosivity, rainfall depth, soil-loss rate or other acceptable methods.</li> <li>• Implement erosion control methods corresponding to identified erosion risk rating</li> </ul>

Issue		Construction Phase Stormwater Design Objectives
Sediment Control	Sediment control measures	Determine appropriate sediment control measures using: <ul style="list-style-type: none"> <li>• Potential soil loss rate, or</li> <li>• Monthly erosivity, or</li> <li>• Average monthly rainfall</li> </ul>
	Design storm for sediment control basins.	Collect and drain stormwater from disturbed soils to sediment basin for design storm event:
	Sediment basin dewatering	<ul style="list-style-type: none"> <li>• Design storm for sediment basin sizing is 80<sup>th</sup> % five-day event or similar.</li> </ul> Site discharge during sediment basin dewatering: <ul style="list-style-type: none"> <li>• TSS &lt; 50mg/l TSS, and</li> <li>• Turbidity not &gt; 10% receiving water turbidity, and</li> </ul>
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

## 7 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 City of Coffs Harbour Council DCP and relevant council guidelines.

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

- State Environmental Planning Policy (Resilience and Hazards) 2021
- City of Coffs Harbour Council DC
- City of Coffs Harbour Council Water Sensitive Urban Design (WSUD) Guideline 2018
- City of Coffs Harbour Council Technical Specification for Infrastructure Design Guideline 2024
- 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 StormFilter cartridges, OceanGuard 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.

This report outlines the drainage strategy and water quality measures implemented for the proposed development, demonstrating that these provisions will prevent any adverse impacts on the adjacent coastal wetland, littoral rainforest, and the quality of surface water flows, thereby meeting the requirements stated in SEPP, Section 2.8 and Section 2.10.

For a comprehensive understanding of the water management plan, this report should be read in conjunction with the civil drawing plans in Appendix A.

# APPENDIX A: CIVIL DRAWINGS



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 S18 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: 2010 - 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 S18 IN ACCORDANCE WITH AS/NZS 1260: 2009 - PVC-U PIPES AND FITTINGS FOR DRAIN, WASTE AND VENT APPLICATION WITH SOLVENT WELDED JOINTS. 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 TYPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPES/WORK.
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 320pa MINIMUM AT 28 DAYS.
SW9	PITS AND PIPES IN AREAS OF SEPTIC 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 REMAINDER OF TRENCH TO PAVEMENT SURGRADE 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 S18 PIPE SHALL BE USED.
SW16	PROVIDE 3m LENGTH OF Ø100mm SUBSOIL DRAINAGE LINE OR 200 'N'LEX STRIP DRAIN SURROUNDED WITH 150mm OF 20mm BLUE METAL OR GRAVEL AND WRAPPED IN 500M x 2M GEOTEXTILE FILTER FABRIC OR APPROVED EQUIVALENT, AT INVERT OF INCOMING UPSTREAM PIPE ON EACH PIT.

SITEWORKS NOTES	
SN1	DATUM : Australian Height Datum (AHD): PM 12040, RL 10762 ORIGIN OF LEVELS : PM 12040 - E: 511685.152, N: 66447781.527 ORIGIN OF CO-ORDINATES : Mapping Grid Of Australia (MGA2020) SURVEY PREPARED BY : LTS LOCKLEY E: www.lts.com.au P: 1300 567 000
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 PROPERTY INFORMATION NSW, 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://icfcmr.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 ADJUT 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 NATURAL 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 ARCHITECTS 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, WHICH EVER 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.

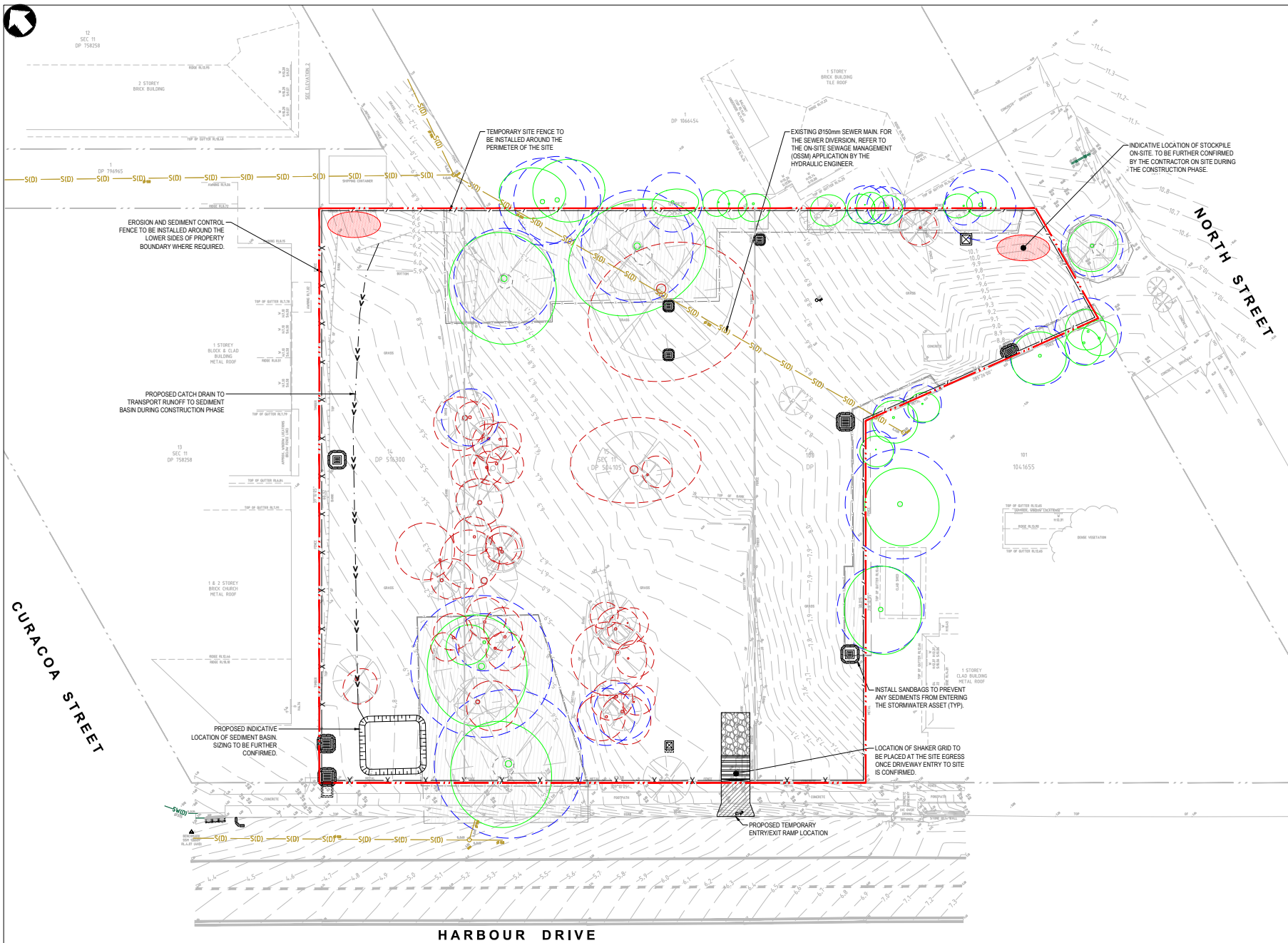
EXISTING SERVICES NOTES	
ES1	EXISTING SERVICES HAVE BEEN PLOTTED FROM SUPPLIED DATA AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE 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 LIASION.
ES6	ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN Ø80mm 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 DEVELOPMENT OF THE SUBJECT SITE.
SWM03	THE CONTRACTOR WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE CONSISTENT WITH MANAGING URBAN STORMWATER - SOLIS 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. IF 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. SEDIMENT 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 SETTLING CAPACITY OF 'XX' CUBIC METRES AND DESIGNED TO REMAIN STABLE IN AT LEAST 1 IN 'XX' YEAR CRITICAL SURFACIN 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, WHICH EVER 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 - DATS / RYEGRASS AT 20 kg/ha - JAPANESE MILLET AT 10 kg/ha ii) SPRING / SUMMER SOWING - JAPANESE MILLET AT 20 kg/ha - DATS / RYEGRASS 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 GEOFABRIC 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 LANDS AND DOWNSLOPE FROM THE BASINS WITHIN 20 WORKING DAYS. (vi) ENSURE THAT THE SEDIMENT BASIN IS DIRECTED ONTO A TURFED 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) SPLIT 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 20m <sup>3</sup> OF TRAPPING CAPACITY REMAINS PER 1000m <sup>2</sup> 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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	02	21.08.25	ISSUE FOR SSDA [DRAFT]	SS	AT	Drawn: J.O Designed: S. SAARA Checked: A. TARSHAN Approved: -						Revision: 03 Status: DFT Security: STD		
	Rev	Date	Description	Ch'k'd	App'd						DRAWING NUMBER	103419-NMMD-COF-XX-DR-C-0001		

NOT FOR CONSTRUCTION



### LEGEND

- SITE BOUNDARY
- ADJACENT SITE BOUNDARY LINE
- EXISTING BOUNDARY LINE TO BE REMOVED
- TEMPORARY CONSTRUCTION SITE ACCESS WITH SHAKE GRID
- SEDIMENT TRAP - SAND BAGS
- SEDIMENT FENCE
- SITE FENCE
- TEMPORARY CATCH DRAIN
- INDICATIVE LOCATION OF STOCKPILE
- EXISTING TREES TO BE REMOVED - REFER TO SITE ARBORIST REPORT FOR DETAILS
- EXISTING TREES TO BE RETAINED - REFER TO SITE ARBORIST REPORT FOR DETAILS
- TREE PROTECTION ZONE - REFER TO SITE ARBORIST REPORT FOR DETAILS
- TREE PROTECTION AREA - REFER TO SITE ARBORIST REPORT FOR DETAILS
- TREE PROTECTION FENCE - REFER TO SITE ARBORIST REPORT FOR DETAILS

- ### 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' 2014 (4TH EDITION) PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION, EXCAVATION OR CONSTRUCTION WORKS UPON THE SITE. BUILDERS SHALL PROVIDE SEDIMENT FENCING MATERIAL DURING CONSTRUCTION TO THE LOW SIDE BOUNDARIES. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (eg PROFAB SILT FENCE OR SIMILAR) STANDING MINIMUM 500mm ABOVE GROUND AND EXTENDING 200mm BELOW GROUND.
  4. 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.
  5. NO PARKING OR STOCK PILING OF MATERIALS IS PERMITTED ON THE LOWER SIDE OF SEDIMENT FENCE.
  6. 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.
  7. 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.
  8. 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.
  9. MEASURES OUTLINED IN THE EROSION AND SEDIMENT CONTROL PLAN MUST BE IMPLEMENTED PRIOR TO AND MAINTAINED DURING AND AFTER THE CONSTRUCTION WORKS.
  10. ALL DISTURBED AREAS AND STOCKPILES TO BE STABILISED WITH 5 DAYS.
  11. TOPSOIL TO BE STRIPPED, STOCKPILED AND RE-SPREAD ON COMPLETION OF EARTHWORKS. NONE TO BE REMOVED.
  12. NO DISTURBANCE OF THE SITE OTHER THAN IMMEDIATE AREA OF WORKS.
  13. SEDIMENT BASIN WILL BE SIZED IN ACCORDANCE WITH SOILS AND CONSTRUCTION, VOLUME 1, MANAGING URBAN STORMWATER GUIDE.

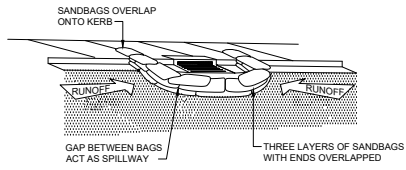
**NOTE:**  
THIS PLAN IS CONCEPT ONLY. IT IS CREATED TO HIGHLIGHT SOME OF THE SEDIMENT AND EROSION CONTROL MEASURES WHICH MAY APPEAR. THE CONTRACTOR IS RESPONSIBLE FOR THE FINAL DESIGN AND ENSURING ALL MEASURES ARE TAKEN TO PROTECT THE ENVIRONMENT.

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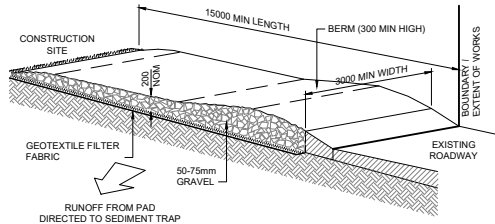
	Level 10, 383 Kent Street Sydney, NSW 2000 Australia NSW 1230, Australia PO Box Q1678, QVB Sydney T +61 (0)2 9038 6800 W www.mottmac.com	<table border="1"> <tr> <th>Rev</th> <th>Date</th> <th>Description</th> <th>Ch'k'd</th> <th>App'd</th> </tr> <tr> <td>03</td> <td>03.09.25</td> <td>ISSUE FOR SSDA</td> <td>SS</td> <td>AT</td> </tr> <tr> <td>02</td> <td>05.08.25</td> <td>RE-ISSUE FOR INFORMATION</td> <td>SS</td> <td>AT</td> </tr> <tr> <td>01</td> <td>13.05.25</td> <td>ISSUE FOR INFORMATION</td> <td>SS</td> <td>AT</td> </tr> </table>	Rev	Date	Description	Ch'k'd	App'd	03	03.09.25	ISSUE FOR SSDA	SS	AT	02	05.08.25	RE-ISSUE FOR INFORMATION	SS	AT	01	13.05.25	ISSUE FOR INFORMATION	SS	AT	SCALE: ##### 1:1000 0 50m 100m	CLIENT: 	TITLE: <b>211A - 215 HARBOUR DRIVE,          COFFS HARBOUR, NSW 2450          EROSION AND SEDIMENT CONTROL          PLAN</b>	DRAWING INFORMATION: Drawn: J.O Designed: S. SAIRA Checked: A. TARSHAN Approved: - DRAWING NUMBER: 103419-MMD-COF-XX-DR-C-0011	Revision: 03 Status: DFT Security: STD
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**SEDIMENT TRAP FOR KERB INLET  
(AT LOW POINT - SANDBAG)**

NTS

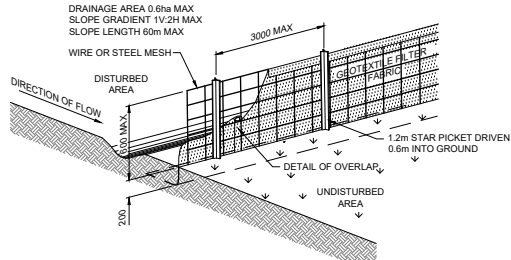


**TEMPORARY SITE ENTRANCE**

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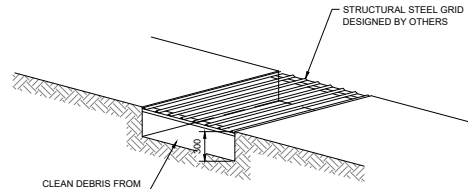
**MAINTENANCE**

- THE TEMPORARY ACCESS SHALL COMPLY WITH THE CITY OF COFFS HARBOUR COUNCIL STANDARD DRAWING: R-230-03.
- ALL CLEARANCES TO EXISTING SERVICES TO BE MAINTAINED. LAYBACK PROFILE AND VEHICULAR CROSSING GRADES TO COMPLY WITH COUNCIL STANDARD DRAWING R-230-03
- 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.



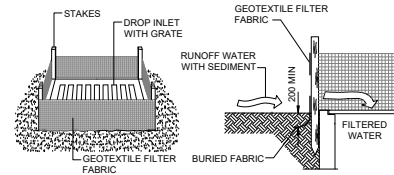
**SEDIMENT FENCE  
(GEOTEXTILE FILTER FABRIC)**

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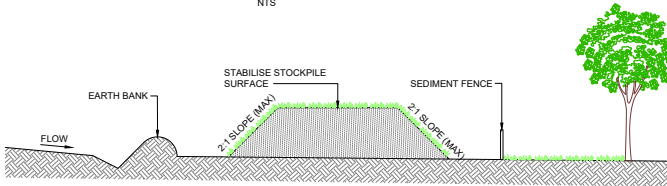
**SHAKER PAD**

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**SEDIMENT TRAP FOR DROP INLET  
(GEOTEXTILE FILTER FABRIC)**

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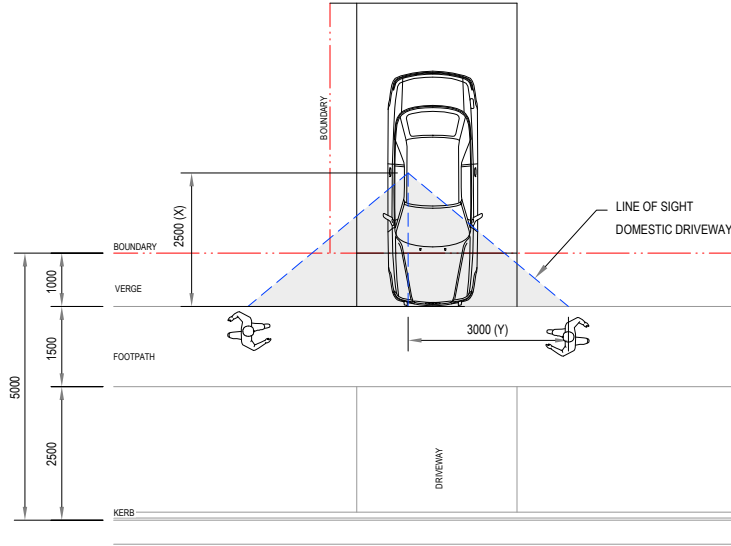


**STOCKPILES**

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 DOWN SLOPE CONSISTENT WITH 'MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION', ALSO KNOW AS 'THE BLUE BOOK'.



**TEMPORARY ENTRY/EXIT VISIBILITY TRIANGLE**

FIGURE 3.2 - ILLUSTRATION OF SIGHT DISTANCES TO PATH  
(REFERENCE DRAFT AS2890.1 FIGURE 3.2)

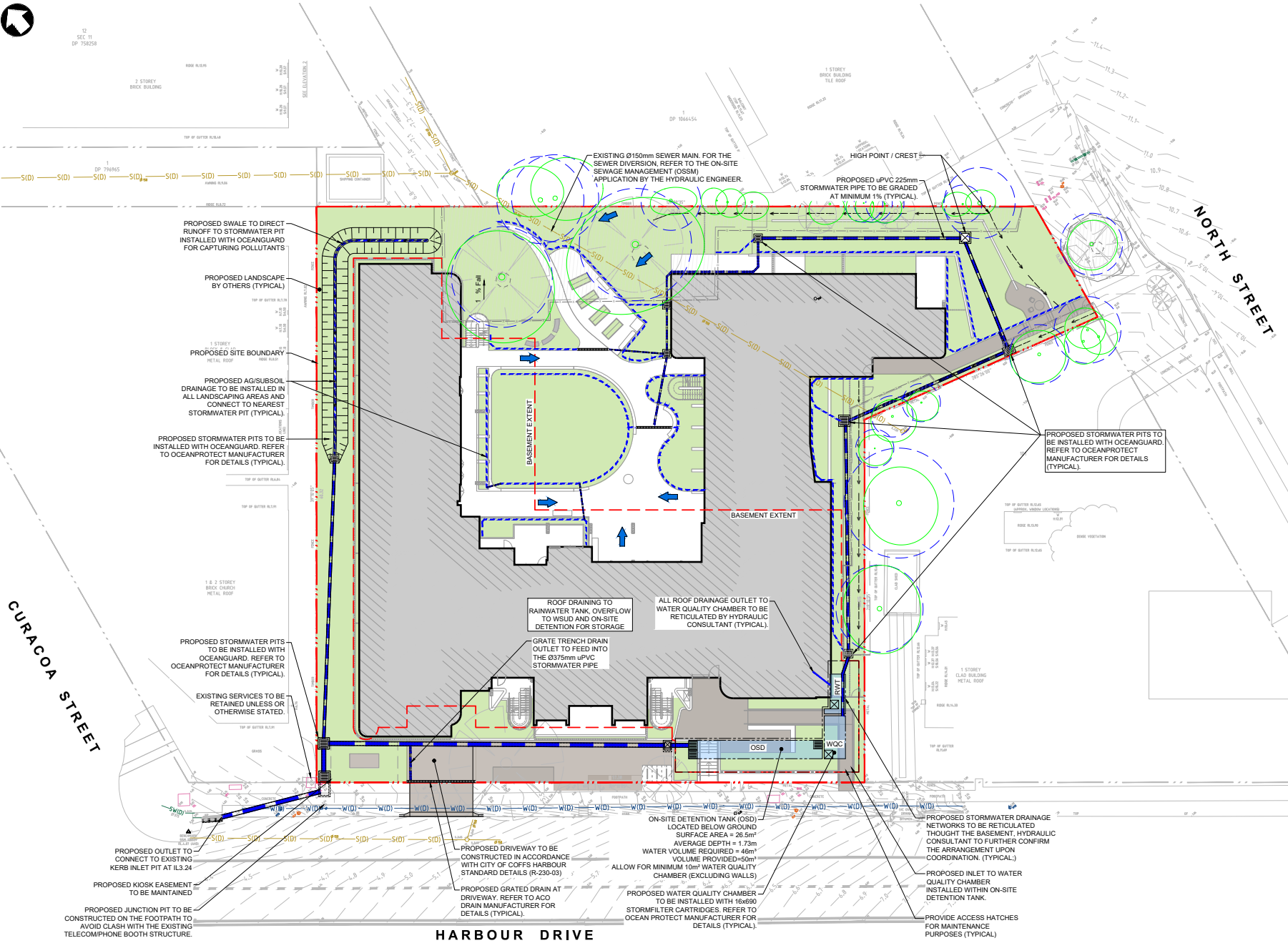
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	Rev Date Description Chk'd App'd							



13  
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LEGEND	
	SITE BOUNDARY
	ADJACENT BOUNDARY
	STORMWATER PROPOSED
	SUBSOIL DRAINAGE LINE
	LANDSCAPE DEPRESSION
	PROPOSED KERB JUNCTION PIT
	PROPOSED KERB JUNCTION PIT
	PROPOSED KERB JUNCTION PIT
	PROPOSED OSD TANK

- NOTES:**
- TOTAL SITE AREA = 3,837m<sup>2</sup>
  - PROPOSED STORMWATER DRAINAGE IS CONCEPT ONLY FOR DEVELOPMENT APPROVAL AND SUBJECT TO DETAILED DESIGN AT CONSTRUCTION ON CERTIFICATE STAGE.
  - EXISTING SERVICES SHOWN INDICATIVE ONLY. REFER TO SERVICES 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 THE MINOR STORM EVENT OF 20% AEP IN ACCORDANCE WITH THE COFFS HARBOUR TECHNICAL SPECIFICATION FOR INFRASTRUCTURE DESIGN, SECTION 3.4.
  - SAFE OVERLAND FLOW PATH TO CATER FOR MAJOR STORM OF 1% AEP.
  - 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-COF-XX-DR-C-0331 ON-SITE DETENTION DETAILS.
  - ON-SITE DETENTION TANK TO BE DESIGNED IN ACCORDANCE WITH COFFS HARBOUR TECHNICAL SPECIFICATION FOR INFRASTRUCTURE DESIGN.
  - AN INTEGRATED WATER MANAGEMENT PLAN HAS BEEN OULINED BY MOTT MACDONALD.

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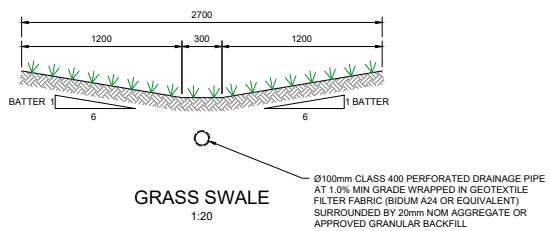
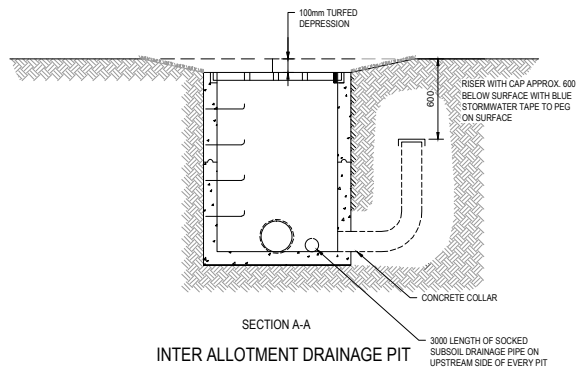
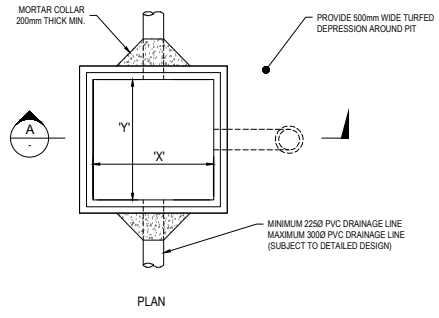
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TITLE  
211A - 215 HARBOUR DRIVE,  
COFFS HARBOUR, NSW 2450  
SITEWORKS AND DRAINAGE  
PLAN

DRAWING INFORMATION	
Drawn: J.O	Revision: 03
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				Revision: 02 Status: DFT Security: STD		

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