April 2026

MNCE Ref: S15582

SITE BASED STORMWATER MANAGEMENT PLAN

Y-Care, Lot 8011 Baringa Drive, Baringa

Commissioned By
Mode Design

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REPORT CONTROL SHEET

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A	C5627-260324-CALCS-MUSIC-REVA	C5627-260325-DRAINS-REVA	C5627-260325-RM CALCS-REVA
B	see above	see above	see above

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1 INTRODUCTION

1.1 Overview and Background

A development application for a Material Change of Use is proposed to be lodged over Lot 8001 on SP298744 at Baringa Drive, Baringa. The site is located within the Sunshine Coast Council local government area, specifically within the Caloundra South Priority Development Area (PDA) – Sub-Precinct 2.9. The site has a total area of approximately 0.4664 ha. Figure 1.1 provides an aerial view of the site and surrounding areas.

Figure 1.1: Subject Site bound by Baringa Drive to the south (QLD Globe)

The proposed development involves the construction of an educational establishment and community facility, with an associated car park and circulation roadway. Refer to Appendix A for the proposed development layout.

The site generally falls in a northerly direction towards Lamerough Creek, with a grade of approximately 1–2%. A stormwater manhole and a 525 mm diameter stormwater main are located in the north-western corner of the site. An outgoing 525 mm pipe from the site connects to existing stormwater manholes to the north, which are located within the northern sports fields and convey stormwater southwards towards Lamerough Creek.

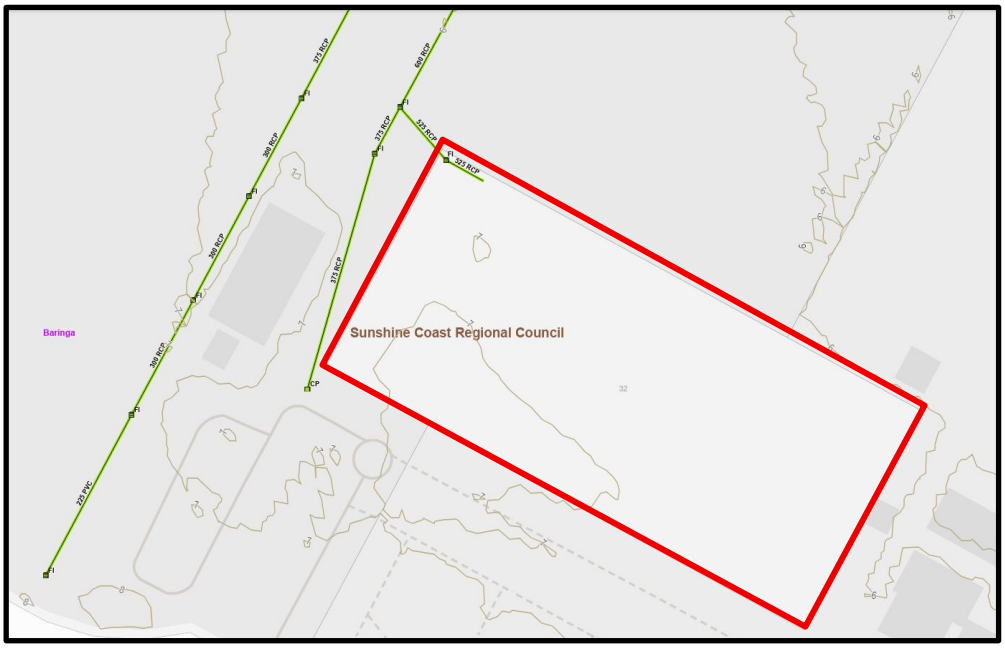


Figure 1.2: Stormwater Infrastructure close-up (SCS MyMaps)

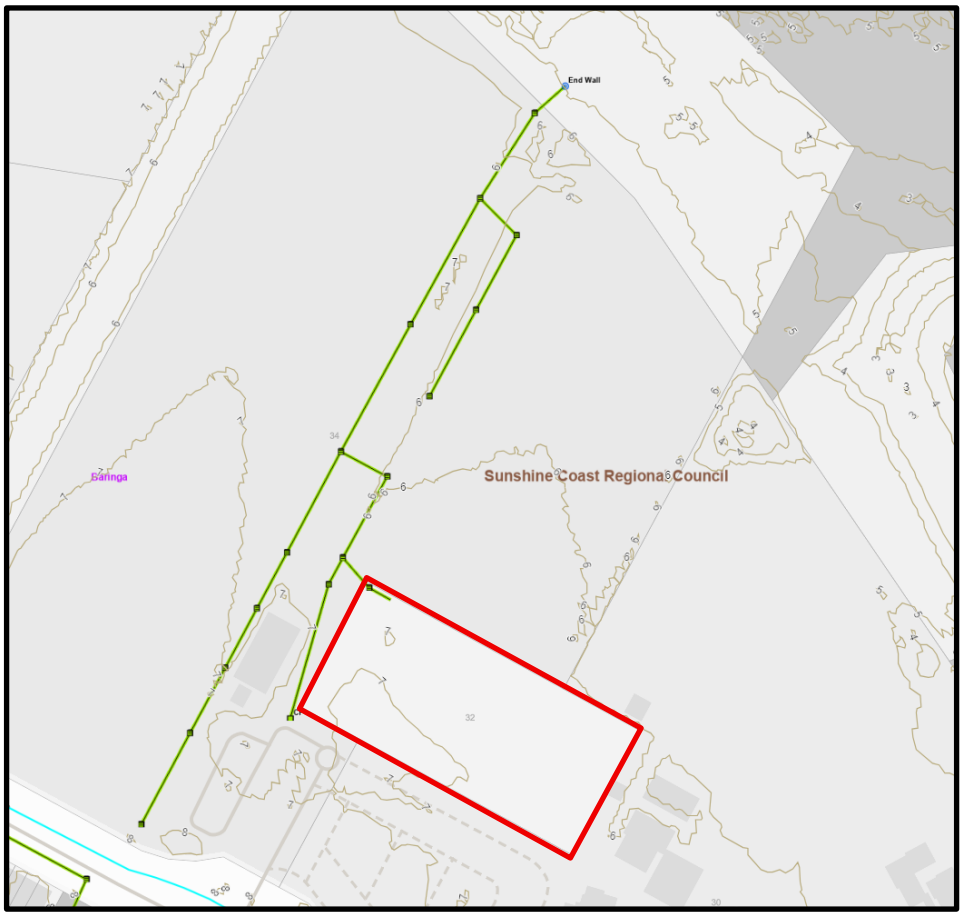


Figure 1.3: Stormwater Infrastructure (SCS MyMaps)

Sunshine Coast Council overlay maps indicate that the site is not identified as being affected by low, moderate, or high flood risk.

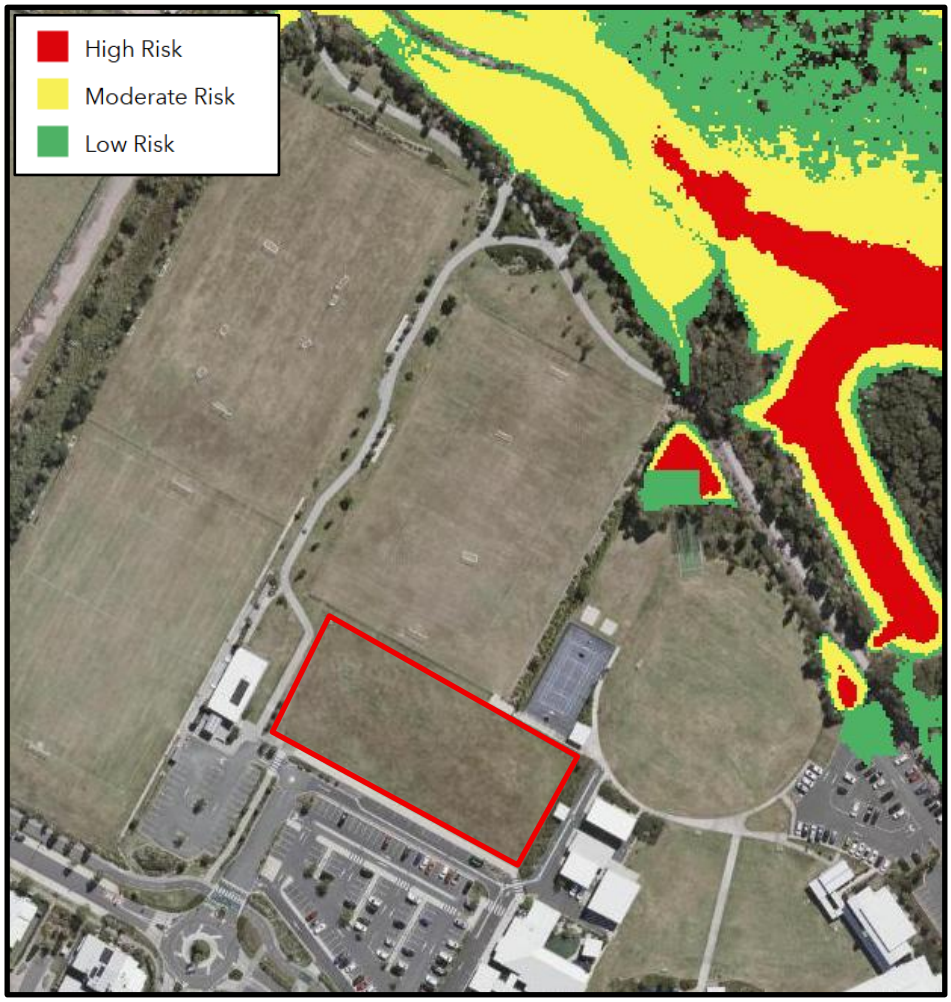


Figure 1.4: Flood risk map (SCC MyMaps)

1.2 Objectives and Scope

Milanovic Neale Consulting Engineers have been commissioned by Mode Design to undertake an assessment of stormwater quality and quantity impacts associated with the proposed development. Stormwater management strategies are also to be identified for the proposed development as required.

The scope of works undertaken for this project is summarized below:

1. Assessment of the development against State and Local Government legislation to identify water quality management measures to be adopted for the proposed development.

2. Undertake pollutant export modelling of anticipated pre and post development pollutant concentrations and loads and conceptual design of water quality improvement devices.

3. Assessment of the pre and post development stormwater discharge and undertake preliminary design and commentary of any mitigation devices required to control site discharge if required.

2 DATA

2.1 State and Local Government Policies

The *Planning Scheme Policy for Development Works* and *Flooding and Stormwater Management Guidelines 2020* from Sunshine Coast Council's *Planning Scheme 2014* have been used to establish the stormwater objectives and requirements for the development. Furthermore, the *Guideline Caloundra South – Northern Locality – Precinct 2 and Part of Precinct 6 – Plan of Development* (December 2023) (RPS Group, Approval No. DEV2013/430/173, approved 15 February 2024) will also be utilised.

2.2 Level and Modelling Data

Contour information for the site and adjacent properties was obtained from publicly available elevation data on ELVIS (Elevation and Depth -Foundation Spatial Data) which comprise surface level contours at 0.5m intervals.

Rainfall data for the Sunshine Coast Region was extracted from AR&R 2019 through the IFD tool on the Bureau of Meteorology website.

The Music Modelling Guidelines 2010, the Queensland Urban Drainage Manual (QUDM) and the Australian Rainfall and Runoff Guidelines have been used as a guide to establish the modelling inputs and methodologies applicable for the development.

3 OPPORTUNITIES AND CONSTRAINTS

3.1 Site Opportunities

Currently there are no stormwater quality measures on site, thus there are some opportunities to improve the quality of the stormwater leaving the site before discharge through stormwater treatment devices.

3.2 Site Constraints

The rear northern boundary of the site is slightly lower than the southern site frontage. A minor retaining wall is proposed along the north-western portion of the northern boundary. On the north-eastern portion of the site, the proposed grassed area will remain approximately at the existing level, and no retaining wall works are proposed along the north-eastern boundary.

4 WATER QUALITY MANAGEMENT

This section of the report will provide an assessment of the development against State and Local Government legislation to identify water quality management measures to be adopted for the proposed development.

Pollutant export modelling will also be undertaken of anticipated pre- and post-development pollutant concentrations and loads and conceptual design of water quality improvement devices.

4.1 Risk Category

The *State Planning Policy – July 2017* and the *Flooding and Stormwater Management Guidelines 2020* from *Sunshine Coast Council's Planning Scheme Policy 2014* identifies developments as high risk with respect to stormwater quality if any of the following criteria are triggered:

1. Material change of use urban purposes that involves a land area greater than 2,500m^2 that:
    a. Will result in an impervious area greater than 25 percent of the net developable area; or
    b. Will result in six or more dwellings, or
2. Reconfiguring a Lot for urban purposes that involves a land area greater than 2,500m^2 and will result in 6 or more Lots: or
3. Operational work for urban purposes that involves disturbing more than 2,500m^2 of land;

With respect to the above, the Policy can be applied to the material change of use of the site due to point 1 (a) and 3 being triggered. Therefore, in order to demonstrate required stormwater quality objectives are achieved, pollutant export modelling will be incorporated in the design of stormwater quality treatment train for the site.

Furthermore, Table 26 – Design Standards for Sub-Precinct 2.9 (DS10.6 and DS11.1) of the *Guideline Caloundra South – Northern Locality – Precinct 2 and Part of Precinct 6 – Plan of Development* (December 2023) (RPS Group, Approval No. DEV2013/430/173, approved 15 February 2024) requires that standard best practice pollutant rates are satisfied (refer to Table 4.1).

4.2 Water Quality Objectives

4.2.1 Construction Phase

The *Urban Stormwater Quality Guidelines 2010* identify that eroded soils and litter are major pollutant sources during construction activity. There is also potential for hydro-modification of streams due to increased run-off coefficients when subsoils are exposed, for longer term major developments. Water sensitive urban design principles and reducing erosion during construction are fundamental to achieving water quality objectives in relevant waterways.

It is therefore proposed to prepare an erosion and sediment management plan during the operational works phase of the development which will incorporate a range of control measures to be implemented during the construction phase of the project.

4.2.2 Operational Phase

Stormwater quality management design objectives for the operational phase of the development are identified in the following table, in accordance with the *Urban Stormwater Quality Guidelines 2010* and Table 26 – Design Standards for Sub-Precinct 2.9 (DS10.6 and DS11.1) of the *Guideline Caloundra South – Northern Locality – Precinct 2 and Part of Precinct 6 – Plan of Development* (December 2023) (RPS Group, Approval No. DEV2013/430/173, approved 15 February 2024). These objectives emphasise the reduction of mean annual pollutant loadings associated with suspended sediments and nutrients.

Table 4.1: Stormwater Quality Objectives

Region	Minimum Reductions in Mean Annual Loads from Unmitigated Development (%)			
	Total Suspended Solids (TSS)	Total Phosphorus (TP)	Total Nitrogen (TN)	Gross Pollutants > 5mm (GP)
South-East Queensland	80	60	45	90

4.3 Pollutant Export Modelling

4.3.1 Model Selection

In order to determine on site pollutant generation, discharge concentrations of target pollutants and the effectiveness of Stormwater Quality Improvement Devices the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) has been used to model the development proposal.

4.3.2 MUSIC Model Configuration

The following sections identify the modelling parameters used in the configuration of the MUSIC Model adopted for the development. The following figure provides a screenshot of the MUSIC model schematic for reference.

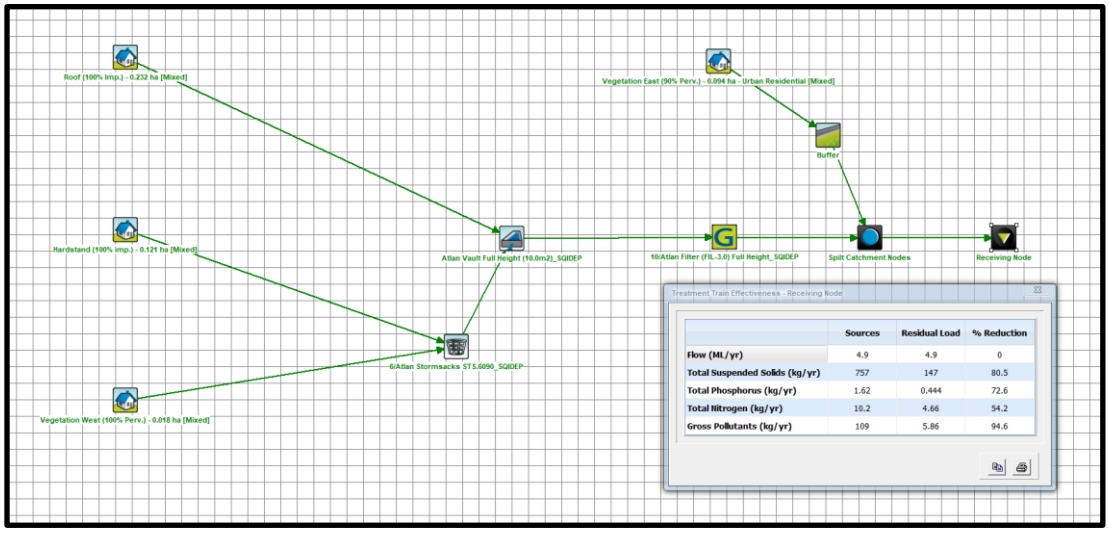


Figure 4.1: MUSIC Model Layout

4.3.2.1 Meteorological and Time Step

Meteorological Data used in the MUSIC model has been identified in accordance with the *MUSIC Modelling Guidelines 2010*, incorporating the following parameters:

Rainfall Period: 01/01/1997 12:00 AM to 31/12/2006 11:54 PM

Rainfall Station: 40496 Cloundra

A model time step of 6 minutes has also been adopted as recommended in Section 3.2 of the *MUSIC Modelling Guidelines 2010.*

4.3.2.2 Catchment Properties

The MUSIC model for the development adopts a split catchment approach, whereby the site has been broken down into various catchments in accordance with site specific land uses. The following table provides a summary of the catchment data used in the MUSIC analysis.

Table 4.2: MUSIC Catchment Parameters

Catchment Name	Area (ha)	Fraction Impervious (%)	MUSIC Source Node
Roof	0.232	100	Residential
Hardstand	0.121	100	Residential
Vegetation	0.018	0	Residential
Bypass East	0.094	10	Residential

4.3.2.3 Rainfall Runoff Parameters

The following table provides a summary of the rainfall runoff parameters adopted for the source nodes used in the MUSIC analysis which has been extracted from Table 3.7 of the *MUSIC Modelling Guidelines 2010.*

Table 4.3: MUSIC Source Node Base and Storm Flow Concentration Parameters

Land Use	Parameter	Total Suspended Solids (Log_{10} mg/L)		Total Phosphorus (Log_{10} mg/L)		Total Nitrogen (Log_{10} mg/L)	
Roof	Mean	N/A	1.30	N/A	-0.89	N/A	0.26
	Std Deviation	N/A	0.39	N/A	0.31	N/A	0.23
Road	Mean	1.00	2.43	-0.97	-0.30	0.20	0.26
	Std Deviation	0.34	0.39	0.31	0.31	0.20	0.23
Ground	Mean	1.00	2.18	-0.97	-0.47	0.20	0.26
	Std Deviation	0.34	0.39	0.31	0.31	0.20	0.23

4.3.2.4 *Pollutant Export Parameters*

The following table provides a summary of the pollutant export parameters for split catchment surface types which have been adopted for the source nodes used in the MUSIC analysis. This information has been extracted from Table 3.8 of the *MUSIC Modelling Guidelines 2010.*

Table 4.4: MUSIC Catchment Parameters

Parameter	Quantity
Rainfall Threshold (mm)	1
Soil Storage Capacity (mm)	500
Initial Storage (%)	10
Field Capacity (mm)	200
Infiltration Capacity Coefficient a	211
Infiltration Capacity Coefficient b	5
Daily Recharge Rate (%)	28
Daily Base-Flow Rate (%)	27
Daily Seepage Rate (%)	0

4.3.3 Developed Unmitigated Conditions

MUSIC Modelling has been performed to determine the pollutant export and corresponding concentrations from the development site under the proposed conditions. The mean annual loads that have been estimated for proposed unmitigated conditions are given in Table 4.5 below, also shown are the mean annual load percentage reductions required to meet current State Planning Policy objectives.

Table 4.5: MUSIC Unmitigated Mean Annual Loads (kg/yr)

Pollutant	Unmitigated Mean Annual Load (kg/yr)	Reduction required to meet Council Requirements (%)
Total Suspended Solids (TSS)	757	80
Total Phosphorous (TP)	1.62	60
Total Nitrogen (TN)	10.2	45
Gross Pollutants (GP)	109	90

Refer Appendix D for MUSIC summary report.

4.3.4 Developed Mitigated Conditions

The scale of the development is large enough to support the implementation of effective water quality design measures. Therefore, a consideration of a variety of best management measures has been given with a focus on water quality treatment measures and reducing polluted runoff volumes from the site.

Key elements of the proposed stormwater management plan are as follows:

- Runoff associated with the proposed access, car parking and landscaped areas is to be captured and initially treated through 6 No. source pollutant filters (Atlan Stormsacks or similar) before being piped to the proposed stormwater treatment tank to the north-west of the site (see Section 5).
- Runoff associated with proposed roof areas to be piped to the proposed stormwater treatment tank which is to be fitted with 10 No. Atlan cartridges.
- Treated and detained site flows to be discharged into existing stormwater infrastructure within the rear sporting fields

The table below demonstrates that the required pollutant reductions have been achieved through the implementation of the proposed stormwater treatment train.

Table 4.6: MUSIC Model Removal Efficiencies

Pollutant	Unmitigated Mean Annual Load (kg/yr)	Residual Mean Annual Load (kg/yr)	Reduction required to meet Council Requirements (%)	Removal Efficiency Achieved (%)
Total Suspended Solids (TSS)	752	147	80	80.5
Total Phosphorous (TP)	1.6	0.444	60	72.6
Total Nitrogen (TN)	10.1	4.66	45	54.2
Gross Pollutants (GP)	104	5.86	90	94.6

5 WATER QUANTITY MANAGEMENT

This section of the report will provide an assessment of the pre and post development stormwater discharge and undertake preliminary design and commentary of any mitigation devices required to control site discharge.

5.1 Existing Conditions

This section of the report will analyse and comment on the existing site stormwater discharge conditions. The modelling software DRAINS will be used to generate the hydrographs and peak median flows from the site for all storm events up to an including the 1% AEP storm event.

5.2 Existing Hydrologic Model

5.2.1 Catchment Definition

An examination of the existing site land topography and land use was undertaken to quantify the number of sub catchments and sub catchment areas applicable for the site. One fundamental sub catchment was considered for the site; the pervious grassed area which is currently utilised as sports field. This catchment currently drains to west and the residual portion of the site drains to the east.

Refer Table 5.1 below for existing site catchment details and existing catchments. For details refer MNCE Pre-Developed Catchment Plan in Appendix A. Manning's 'n' numbers were adopted for specific surface areas and the catchment slope has been determined following review of the architectural drawing set (refer Appendix A for architectural drawings).

Table 5.1: Catchment Data Summary Table

Catchment	Sub Catchment	Area (ha)	Impervious (%)	Slope (%)	Manning's 'n'
Existing Vegetation West	Impervious/ Pervious	0.1274	0	2	0.035
Existing Vegetation East	Impervious/ Pervious	0.3391	100	2	0.035
EXT 1	Impervious/ Pervious	0.2907	80/20	2	0.015/0.035
EXT 2	Impervious/ Pervious	0.0867	80/20	2	0.015/0.035

EXT 3	Impervious/ Pervious	0.1109	100	2	0.035
EXT 4	Impervious/ Pervious	0.4875	100	2	0.015/0.035
EXT 5	Impervious/ Pervious	0.1682	100	2	0.035
EXT 6	Impervious/ Pervious	0.6089	100	2	0.035
EXT 7	Impervious/ Pervious	0.4851	100	2	0.035

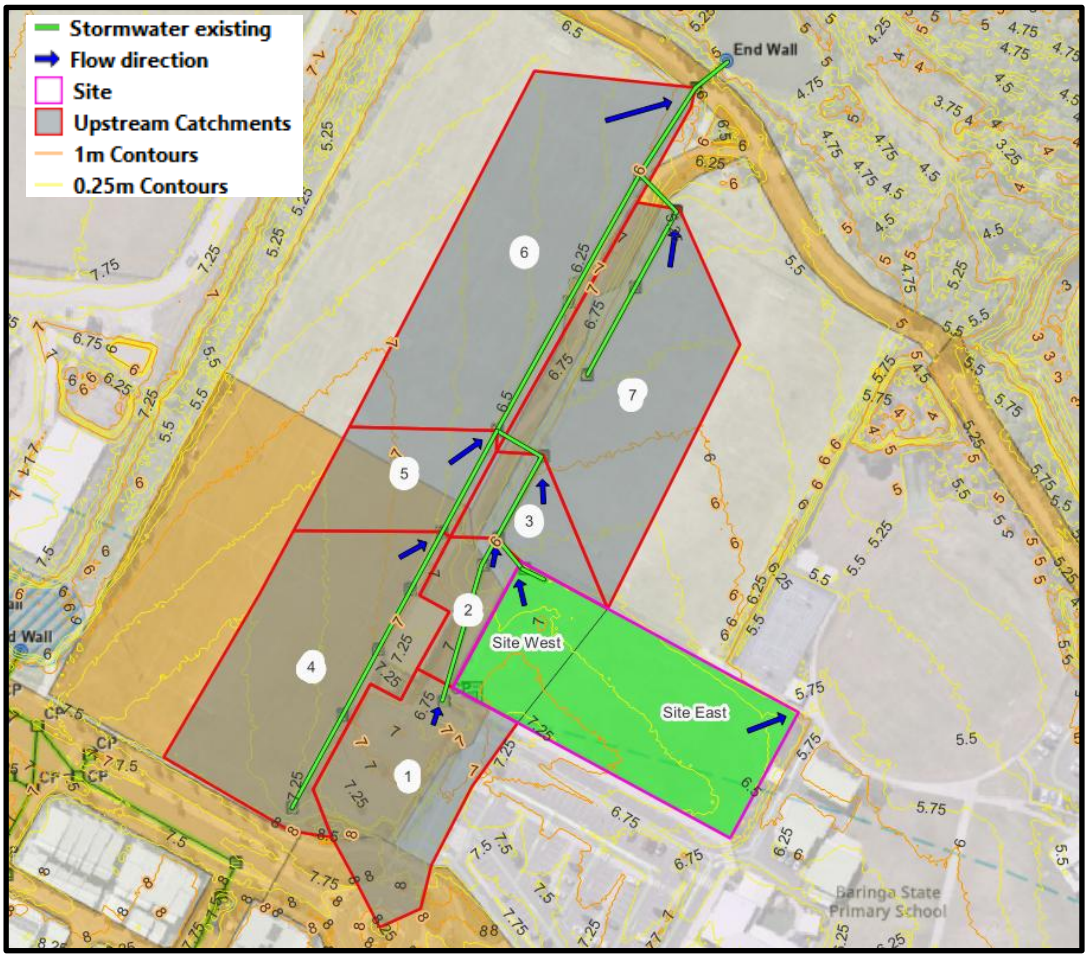


Figure 5.1: Overview of existing stormwater infrastructure and catchments

5.2.2 Rainfall Parameters and Losses

As indicated in Section 2.2 above, Rainfall data relative to the subject site has been extracted from AR&R 2016 through the IFD tool on the Bureau of Meteorology website. The uniform loss method was adopted to account for rainfall losses throughout the existing catchment. Based on information provided in the *ARR Data Hub tool*, initial and continuing loss coefficients adopted for the impervious and pervious sub catchments have been tabulated below. It is noted that an initial loss coefficient equal to approximately 70% of the rural loss value provided in the ARR Data Hub has been considered to reference to *Book 5 of ARR 2019.*

Table 5.2: Initial and Continuing Loss Parameters

Parameter	Value (mm)
Initial Loss (Pervious)	19.0
Initial Loss (Impervious)	1.0
Continuing Loss (Pervious)	2.7
Continuing Loss (Impervious)	0.0

Temporal patters applicable to East Coast North have been adopted in accordance with the *Australian Rainfall and Runoff, A Guide to Flood Estimation*.

Furthermore a 20% climate change factor has been included within DRAINS model (as recommended by the Sunshine Cost Planning Scheme).

5.2.3 Existing Hydrological Results

The following table provides a summary of the peak median discharge from the existing site that was estimated by the DRAINS software for all storm events up to and including the 1% AEP storm event.

Table 5.3: Existing Site Peak Discharge

Storm Event	DRAINS Peak Runoff West (m^3/s)	DRAINS Peak Runoff East (m^3/s)	DRAINS Peak Runoff Total (m^3/s)
39% AEP	0.035	0.092	0.126
18% AEP	0.044	0.119	0.162
10% AEP	0.052	0.138	0.189
5% AEP	0.061	0.162	0.222
2% AEP	0.072	0.193	0.264
1% AEP	0.081	0.217	0.297

5.2.4 Runoff Comparison

QUDM Section 4.1.3 recommends hydrologic models are calibrated with actual flow data rather than to an alternate runoff routing model. In the absence of such data, Section 4.1.3 continues to state that as an alternative, model results may be compared with the results to a Rational Method peak discharge for catchments less than 500ha.

Based on the methods outlined in *QUDM*, the following parameters were used to estimate the peak runoff from the upstream catchment affecting the site. Refer Appendix C for detailed rational method calculation summary.

Table 5.4: Rational Method Parameters

Name	Area (ha)	Runoff Coefficient (C10)	Time of Concentration (mins)
Site West	0.1274	0.88	6
Site East	0.3391	0.74	15
Total	0.4665	0.85	

The following table provides a comparison of the results of both the Rational Method and DRAINS Model results for peak discharges up to and including the 1% AEP storm event.

Table 5.5: Existing Site Discharge Comparison

Storm Event	Rational Method Peak Runoff (m^3/s)	DRAINS Peak Runoff (m^3/s)	Difference	
			+/-	%
39% AEP	0.081	0.126	0.045	56%
18% AEP	0.120	0.162	0.042	35%
10% AEP	0.147	0.189	0.042	29%
5% AEP	0.176	0.222	0.042	26%
2% AEP	0.223	0.264	0.041	19%
1% AEP	0.257	0.297	0.040	16%

As can be seen above, the DRAINS IL-CL model generates peak flows that are larger than to what is estimated by the Rational Method for the catchment. This is mostly due to the climate change factor that was included within the DRAINS model. The scenario that has been modelled is within 16-56% and is therefore considered suitable.

5.3 Developed Conditions

This section of the report will analyse and comment on the developed site stormwater discharge conditions. The DRAINS modelling software, utilising the IL-CL model, will be used to generate the hydrographs and peak median flows from the site for all storm events up to an including the 1% AEP storm event.

5.4 Developed Unmitigated Model

5.4.1 Catchment Definition

An examination of the developed site land topography and land use was undertaken to establish the quantity of sub catchments applicable to the proposed development. Three fundamental sub catchments were considered for the site: proposed development roof, hardstand, and vegetation.

The ground surface has been further broken down to pervious and impervious sub catchments and Manning's 'n' numbers were adopted for specific surface areas. Refer Table 5.6 below for developed site catchment details and Appendix A for supporting catchment plan.

Catchment slopes have been defined in accordance with current earthworks plans by MNCE.

Table 5.6: Catchment Data Summary Table

Catchment	Sub Catchment	Area (ha)	Impervious (%)	Slope (%)	Manning's 'n'
Site Roof	Impervious/ Pervious	0.232	100/0	17	0.012
Site Hardstand	Impervious/ Pervious	0.121	100/0	1	0.015
Site Vegetation	Impervious/ Pervious	0.018	0/100	1	0.035
Bypass Pervious (East)	Impervious/ Pervious	0.018	0/100	5	0.035
EXT 1	Impervious/ Pervious	0.2907	80/20	2	0.015/0.035
EXT 2	Impervious/ Pervious	0.0867	80/20	2	0.015/0.035
EXT 3	Impervious/ Pervious	0.1109	100	2	0.035
EXT 4	Impervious/ Pervious	0.4875	100	2	0.035

EXT 5	Impervious/ Pervious	0.1682	100	2	0.035
EXT 6	Impervious/ Pervious	0.6089	100	2	0.035
EXT 7	Impervious/ Pervious	0.4851	100	2	0.035

5.4.2 Rainfall Parameters and Losses

Rainfall Parameters and Losses have been adopted in accordance with Section 5.2.2 of this report.

5.4.3 Developed Hydrological Results

The following table provides a summary of the peak median discharge from the developed site that was estimated by the DRAINS modelling for all storm events up to and including the 1% AEP storm event.

Table 5.7: Developed Site Peak Discharges

Storm Event	DRAINS Peak Runoff West (m^3/s)	DRAINS Peak Runoff East (m^3/s)	DRAINS Peak Runoff Total (m^3/s)
39% AEP	0.155	0.025	0.180
18% AEP	0.193	0.033	0.226
10% AEP	0.220	0.038	0.258
5% AEP	0.252	0.045	0.297
2% AEP	0.293	0.053	0.346
1% AEP	0.324	0.060	0.384

5.4.4 Runoff Comparison

As noted in Section 5.2.4 of this report, a comparison between the DRAINS discharge and Rational Method peak discharge is recommended to be undertaken by *QUDM*.

Based on the methods outlined in *QUDM*, the following parameters were used to estimate the peak runoff from the upstream catchment affecting the site. Refer Appendix C for detailed rational method calculation summary.

Table 5.8: Rational Method Parameters

Name	Area (ha)	Runoff Coefficient (C10)	Time of Concentration (mins)
Prop. Site	0.465	0.87	9

The following table provides a comparison of the results of both the Rational Method and DRAINS Model results for peak discharges up to and including the 1% AEP storm event.

Table 5.9: Developed Site Peak Discharge Comparison

Storm Event	Rational Method Peak Runoff (m^3/s)	Total DRAINS Peak Runoff (m^3/s)	Difference	
			+/-	%
39% AEP	0.117	0.180	0.063	54%
18% AEP	0.173	0.226	0.053	31%
10% AEP	0.212	0.258	0.046	21%
5% AEP	0.254	0.297	0.043	17%
2% AEP	0.323	0.346	0.023	7%
1% AEP	0.357	0.384	0.028	8%

As can be seen above, the DRAINS IL-CL model generates peak flows that are larger than to what is estimated by the Rational Method for the catchment. This is mostly due to the climate change factor that was included within the DRAINS model. The scenario that has been modelled is within 8-54% and is therefore considered suitable.

5.5 Potential Impacts of Development

The following table provides a summary of the peak runoff from the site under both existing and developed scenarios.

Table 5.10: Runoff Comparison

Storm Event	Existing Peak Runoff (m^3/s)	Total Developed Peak Runoff (m^3/s)	Difference	
			+/-	%
39% AEP	0.126	0.180	0.054	43%
18% AEP	0.162	0.226	0.064	40%
10% AEP	0.189	0.258	0.069	37%
5% AEP	0.222	0.297	0.075	34%
2% AEP	0.264	0.346	0.082	31%
1% AEP	0.297	0.384	0.087	29%

The proposed development has increased the proportion of the site that is impervious, consequently the runoff characteristics from the site will be altered as a result of the development. As demonstrated above, the development has increased runoff volumes and peak flow rates downstream in comparison to the existing conditions for all storm events. As a result, the capacity of the downstream network will be assessed to determine whether the increase in runoff from the site can be adequately accommodated.

5.6 Developed Mitigated Model

5.6.1 DRAINS model of post-developed case downstream stormwater system

The runoff from the proposed development is increased due to the larger area draining towards the western side, increased imperviousness, and the inclusion of a climate change factor within the model. The hydraulic grade line of the downstream stormwater system was modelled, and it was found that the hydraulic grade line had increased, resulting in insufficient freeboard (minimum 150 mm) for various existing pits, with surcharging occurring at “Pit 5”.

It is therefore proposed to include an on-site detention tank within the development, designed to limit the peak site discharge such that the hydraulic grade line has sufficient freeboard to the surface (150 mm) for all storm events up to the minor design storm event (10% AEP).

5.6.2 Developed Mitigated Model

This section of the report will specify the mitigation device(s) required to detain the post development flow rate to optimise the downstream hydraulic gradeline such that it can cater for the proposed development. The modelling software DRAINS will be used to generate the hydrographs and peak flows from the mitigated site in conjunction with the design of on-site detention devices for all storm events up to an including the 10% AEP minor design storm event.

Most of the site catchment runoff is to be captured and discharged directly into a proposed inground stormwater pit and pipe system and on-site detention tank (water quality and quantity). Runoff associated with the proposed small eastern grassed courtyard area is to bypass the combined stormwater treatment and detention system and free drain as sheet flow from site as per existing conditions.

All storm events up to and including the relevant 10% AEP minor design storm event have been modelled in the DRAINS software package. An on-site detention tank/basin has been included in the proposed model to account for the addition of the detention basin.

The following parameters were used to define a stage storage discharge relationship for the basin:

- Basin depth of approx. 1.40m
- Total Storage Volume of min. 45m^3
- 1 x 400mm dia. outlet at system invert
- 1 x 250mm dia. outlet, 1.14m above system invert

Refer to Appendix B for DRAINS data and results. The total peak runoff comprises the flow discharged from the OSD tank and the north-eastern bypass.

Table 5.11: Developed Mitigated Runoff from Development Area (West) and Bypass (Unmitigated East)

Storm Event	Developed Mitigated Peak Runoff (West)(m^3/s)	Developed Peak unmitigated Bypass Runoff (East) (m^3/s)	Total Mitigated Peak Runoff (m^3/s)
39% AEP	0.136	0.025	0.161
18% AEP	0.159	0.033	0.192
10% AEP	0.172	0.038	0.210
5% AEP	0.189	0.045	0.234
2% AEP	0.204	0.053	0.257
1% AEP	0.221	0.060	0.281

The table below is a summary of the combined peak discharge flows from the site with the proposed detention measure implemented:

Table 5.12: Mitigated Runoff Comparison

Storm Event	Total Existing Peak Runoff (m^3/s)	Total Mitigated Peak Runoff (m^3/s)	Difference	
			+/-	%
39% AEP	0.126	0.161	0.035	28
18% AEP	0.162	0.192	0.030	19
10% AEP	0.189	0.210	0.021	11
5% AEP	0.222	0.226	0.004	2
2% AEP	0.264	0.316	0.052	20
1% AEP	0.297	0.307	0.010	3

All storm events have been mitigated to some extent. As such, the proposal satisfies the condition of reducing the outgoing flow such that the downstream stormwater system can cater for the additional flow. Sizing the proposed OSD to cater for a non-worsening in regard to peak stormwater runoff from the site for all storm events up to the 1% AEP is not required, as the site is located just upstream of the creek into which it discharges, and no private properties are affected by overflow from the site. Furthermore, the developed flows for the eastern site catchment are reduced compared to the existing eastern flows, as the majority of the stormwater is diverted to the existing stormwater system on the western side.

5.6.3 Minor DRAINS modelling results of developed stormwater system

The proposed development site discharges a mitigated flow of approx. 0.172m^3/s into the existing downstream drainage system as per the DRAINS modelling results in the minor design event (10% AEP). The flows are conveyed via a proposed inground pipe connections to manholes "Pit 5", which is the governing pit in the downstream stormwater system. The developed flow is approx. 0.329m^3/s leading into "Pit 5".

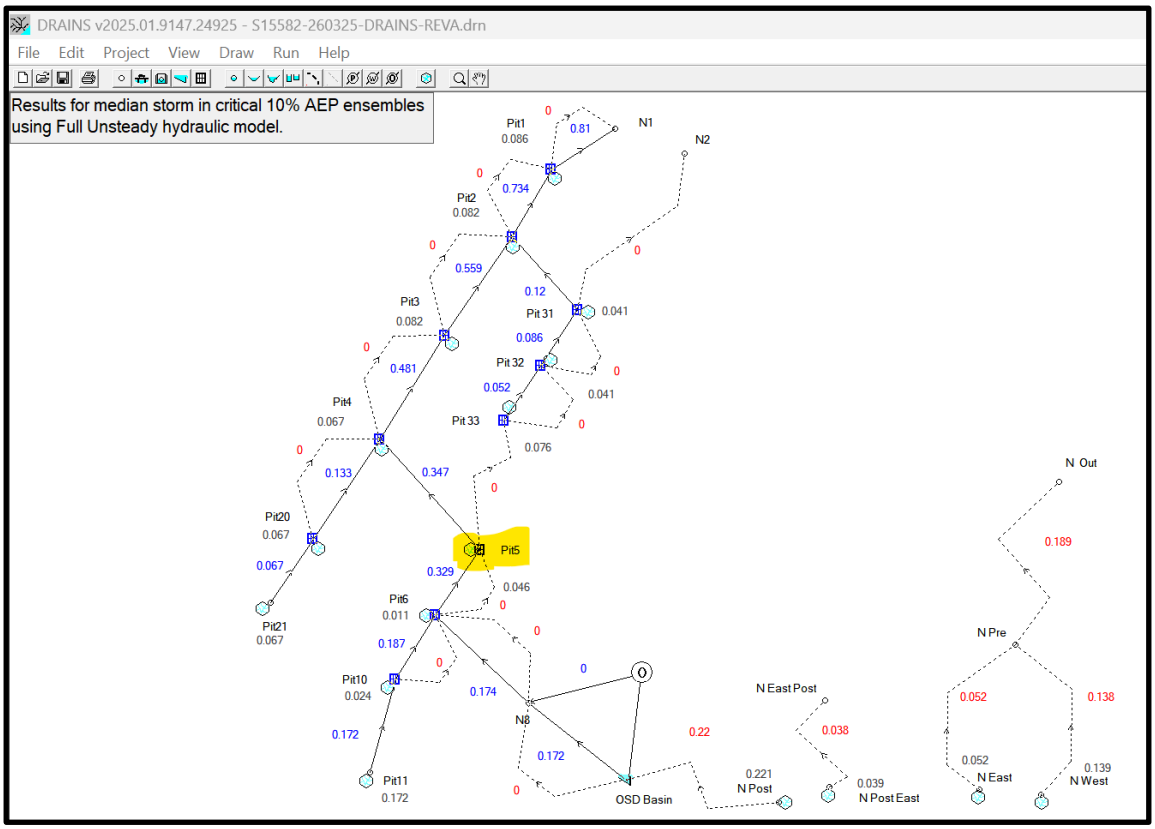


Figure 5.2: Developed 10% AEP DRAINS modelling results (site discharge marked up in yellow)

The following figure displays the proposed hydraulic gradeline within the downstream stormwater line from proposed tank "OSD basin" to the creek "N1".

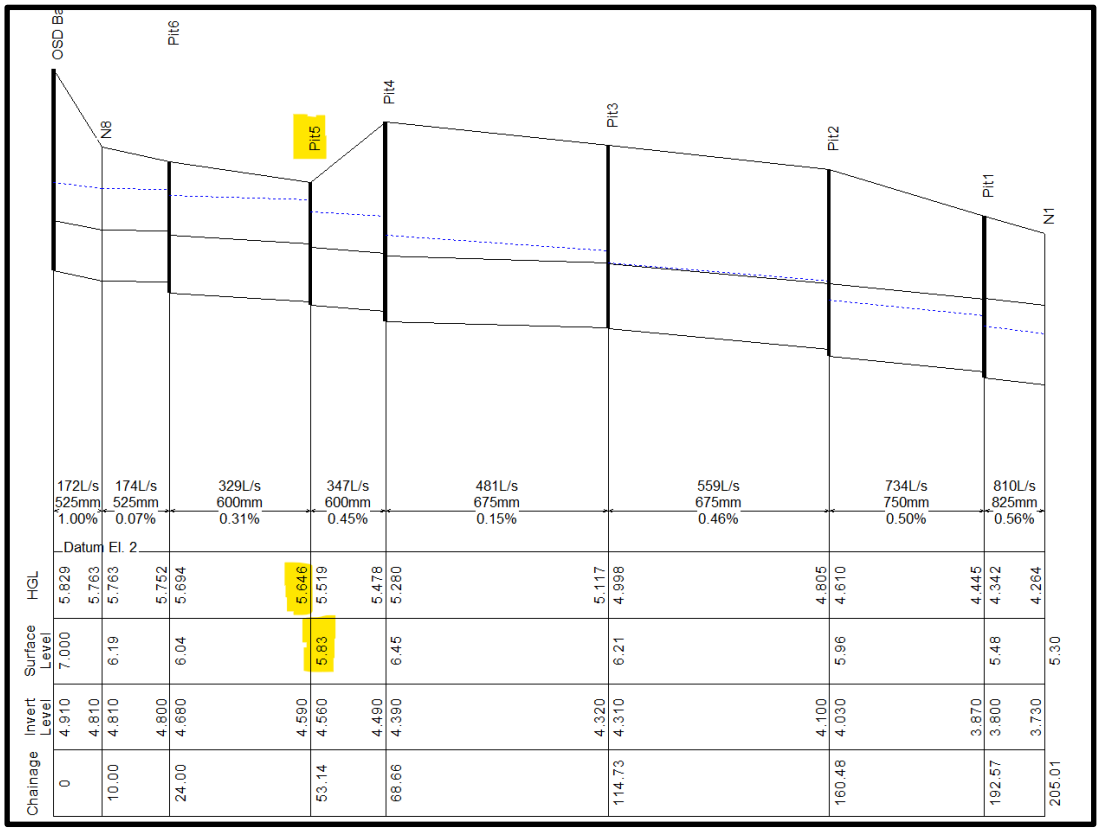


Figure 5.3: Longsection of existing downstream stormwater system with sufficient freeboard in the existing "Pit 5", due to the proposed OSD tank.

The long section shown in Figure 5.1 demonstrates that the downstream drainage system can accommodate fully developed peak flows from the catchment in accordance with Council's standard of service, due to the proposed OSD tank. All freeboard requirements are satisfied, and no surcharging occurs during the minor 10% AEP design event, including at the critical manhole, "Pit 5".

For larger storm events (5%, 2%, and 1% AEP), site discharge can sheet flow over the existing grassed downstream areas. No private infrastructure is impacted. The flow is then captured by the existing grassed channel adjacent to the downstream sports fields, from which all runoff is discharged via overland flow into Lamerough Creek.

6 INTERPRETATION AND CONCLUSIONS

A legal point of discharge for the proposed development will be obtained by utilising an existing stormwater manhole in the north-western corner of the site. Site flows are to be captured and discharged to a stormwater treatment tank which is located beneath the proposed car parking area in the north-western portion of the proposed development.

The proposed development, if unmitigated, would have a negative effect on runoff water quality from the site. Best practices in water quality design have been implemented to improve the quality of the stormwater runoff generated on the site.

The predicted pollutant export load concentrations for the mitigated conditions as determined by the MUSIC model show that the proposed water quality treatment measures comply with Council's mean annual load reduction requirements for total suspended solids (TSS), total phosphorous (TP), total nitrogen (TN) and gross pollutants (GP).

Key elements of the proposed stormwater treatment train are as follows:

- Runoff associated with the proposed access, car parking and landscaped areas is to be captured and initially treated through 6 No. source pollutant filters (Atlan Stormsacks or similar) before being piped to the proposed stormwater treatment tank to the north-west of the site (see Section 5).
- Runoff associated with proposed roof areas to be piped to the proposed stormwater treatment tank which is to be fitted with 10 No. Atlan cartridges.
- Treated and detained site flows to be discharged into existing stormwater infrastructure within the rear sporting fields.

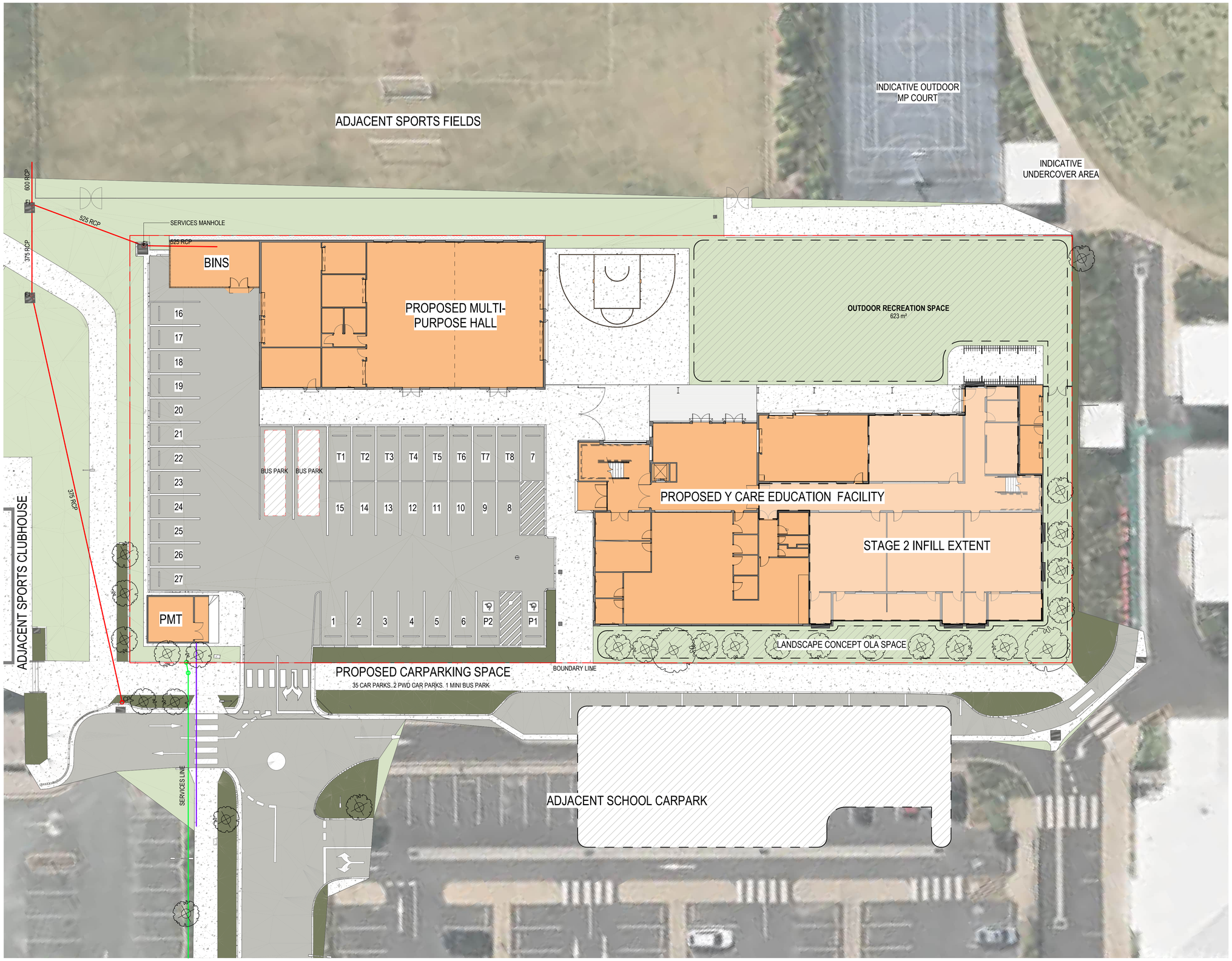
An analysis of the pre and post development site discharge has been undertaken which has revealed that the development has increased runoff volumes and peak flow rates downstream in comparison to the existing conditions for all storm events. To control the downstream hydraulic grade line in the existing stormwater system an on-site detention tank is proposed for the development.

The following parameters were used to define a stage storage discharge relationship for the basin:

- Basin depth of approx. 1.40m
- Total Storage Volume of min. 45m^3
- 1 x 400mm dia. outlet at system invert
- 1 x 250mm dia. outlet, 1.14m above system invert

Most of the site catchment runoff is to be captured and discharged directly into a proposed inground stormwater pit and pipe system and on-site detention tank (water quality and quantity). Runoff associated with the proposed small eastern grassed courtyard area is to bypass the combined stormwater treatment and detention system and free drain as sheet flow from site as per existing conditions.

APPENDIX A: PROPOSED DEVELOPMENT LAYOUT



AMENDMENTS

REV	DESCRIPTION	AUTH	CHK	DATE
A	UPDATED CONCEPT			25.02.25
B	GFA AREAS			01.05.25
C	UPDATED DA SET			28.10.25
D	PRELIMINARY DA			19.12.25

PRELIMINARY

STATUS
PRELIMINARY DA

TRUE NORTH

0m 2 4 6 8 10

BRISBANE
Plaza Level, Mosaic
826 Ann St
Fortitude Valley QLD 4006
T +61 7 3253 9900
bne@modedesign.com.au

ABN: 65 112 807 931

CLIENT
YMCA BRISBANE

PROJECT
YCARE NEW EDUCATIONAL FACILITY
LOT 8011, BARINGA DRIVE, BARINGA

DRAWING TITLE
SITE PLAN - PROPOSED

DRAWN SL/JM	CHECKED AP
ISSUE 16/03/2026 3:40:26 PM	SCALE @ A1 1 : 200

PROJECT No	STAGE	DRAWING No	REVISION
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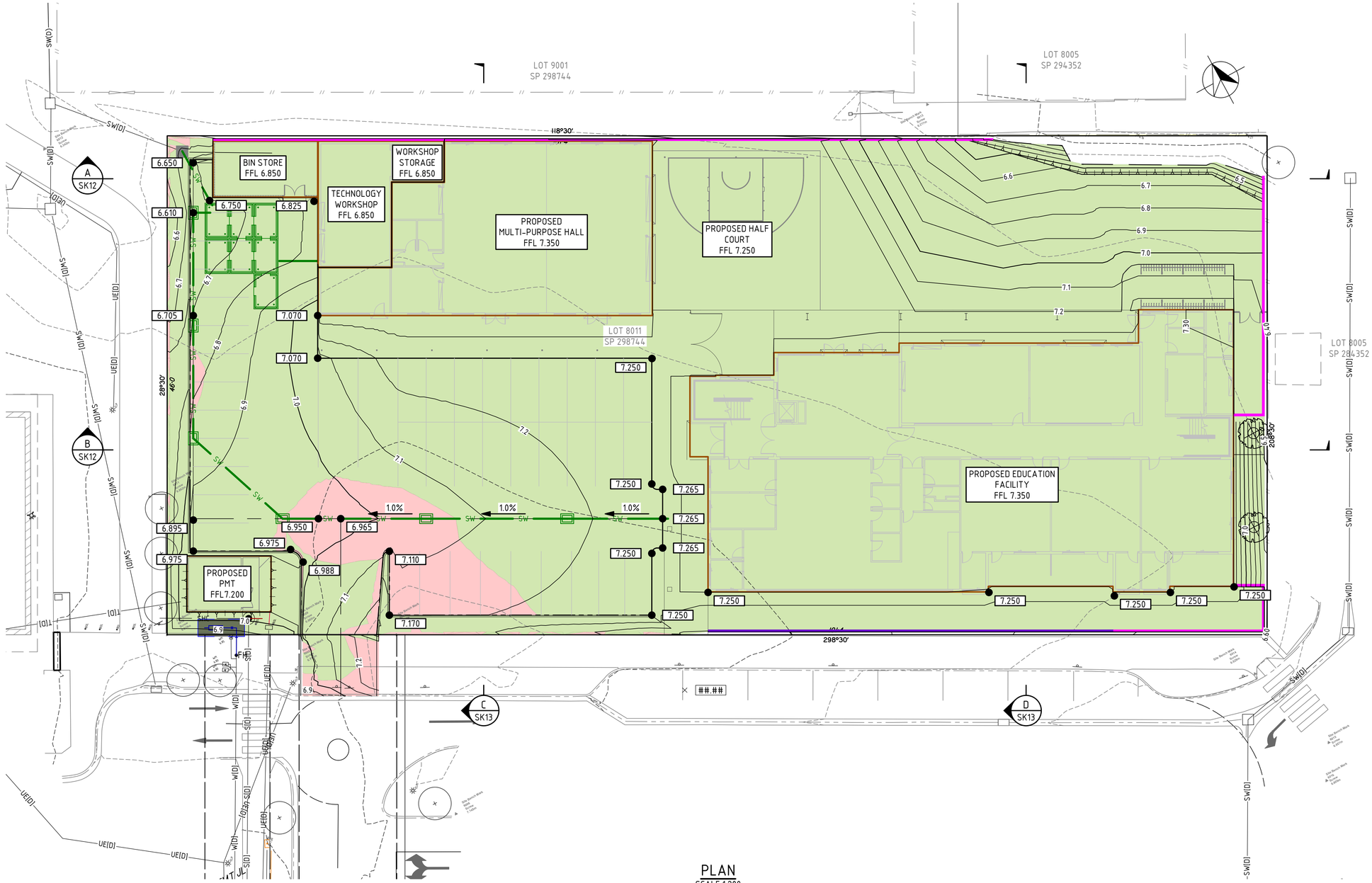
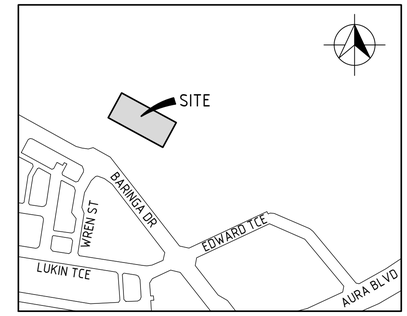


PLAN
SCALE 1:200



LOCALITY PLAN
SCALE 1:5000

NOT FOR CONSTRUCTION

LEGEND

UE(D)	EXISTING ELECTRICAL UNDERGROUND
T(D)	EXISTING TELECOMMUNICATION
SW(D)	EXISTING STORMWATER DRAINAGE
S(D)	EXISTING SEWERAGE MAIN
W(D)	EXISTING WATER MAIN
9.999	EXISTING CONTOURS
9.9	PROPOSED FINISHED SURFACE CONTOURS
SW	PROPOSED STORMWATER DRAINAGE
S	PROPOSED SEWERAGE MAIN
W	PROPOSED WATER MAIN
	EXISTING CONCRETE
	PROPOSED CONCRETE
	PROPOSED FILL
	PROPOSED CUT
	PROPOSED RETAINING WALL
× ##.##	EXISTING SURFACE LEVEL
● ##.##	PROPOSED SURFACE LEVEL

NOTES:
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SCALE 1:200 (A1) 0 4 8 12m (SCALE BEFORE REDUCTION)

SCALE 1:5000 (A1) 0 100 200 300m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 8011 ON SP298744

REV.	DESCRIPTION	DATE	DRAWN	REVIEWED	VERIFIED
A	PRELIMINARY ISSUE	24.03.26	SM	JHU	

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CLIENT: MODE DESIGN

PROJECT: 32 BARINGA DRIVE, BARINGA

TITLE: PRELIMINARY BULK EARTHWORKS LAYOUT PLAN

DRAWN	DESIGNED	DATE
SM	SM	MAR 2026
CHECKED	APPROVED	
SS		
DRAWING No.		REV.
S15582 - SK11		A

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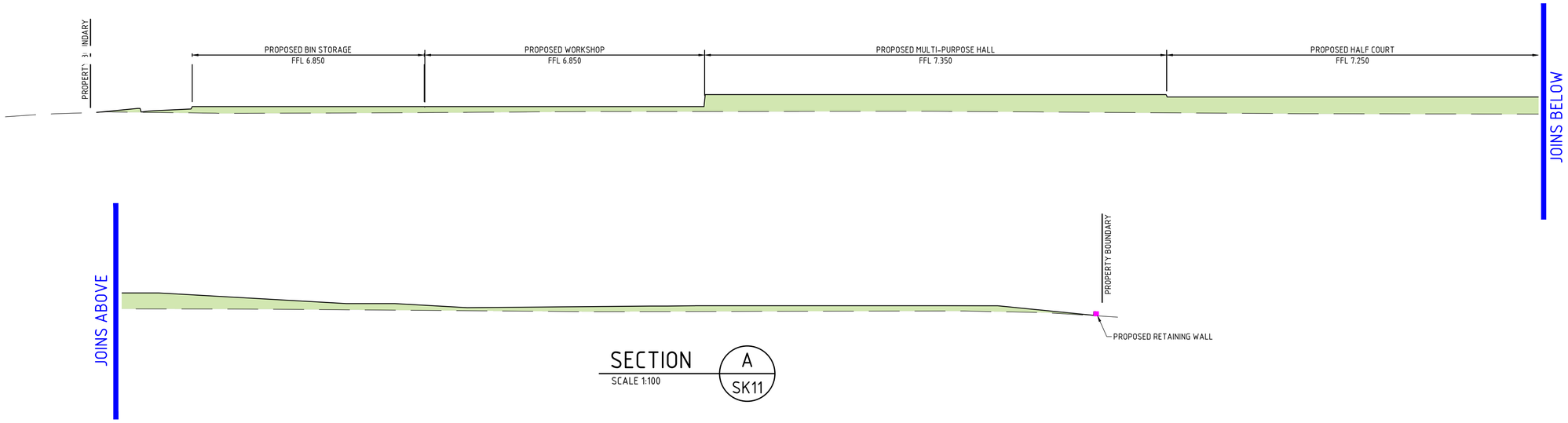
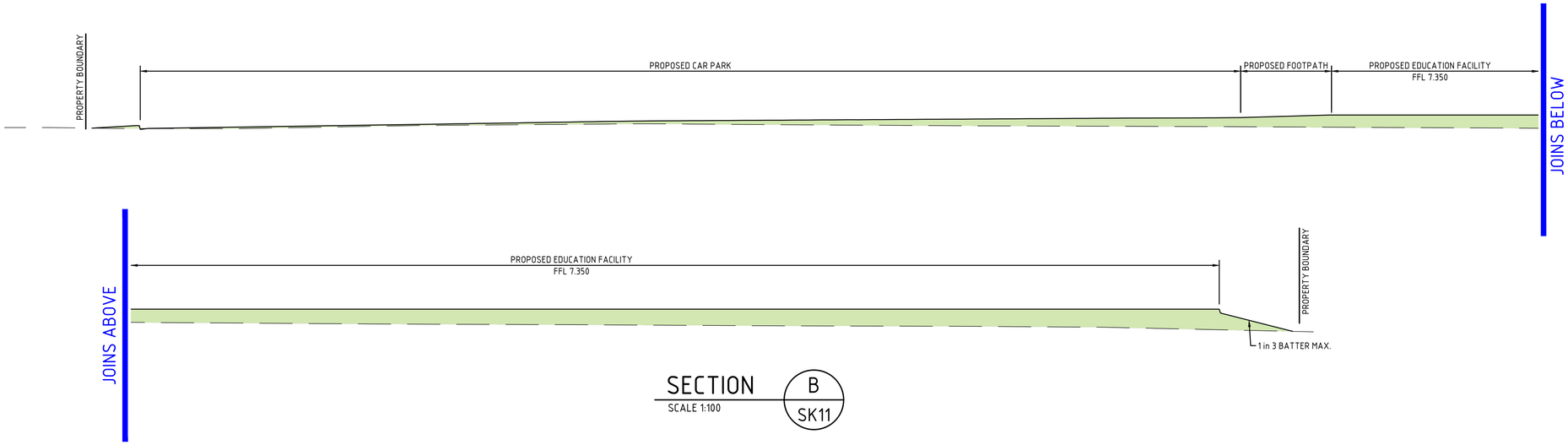
LEGEND

- EXISTING SURFACE LEVEL
- PROPOSED SURFACE LEVEL
- PROPOSED FILL



SECTION A
SCALE 1:100
SK11



SECTION B
SCALE 1:100
SK11

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PROJECT: 32 BARINGA DRIVE, BARINGA

TITLE: PRELIMINARY BULK EARTHWORKS SECTIONS - SHEET 1 OF 2

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SS		
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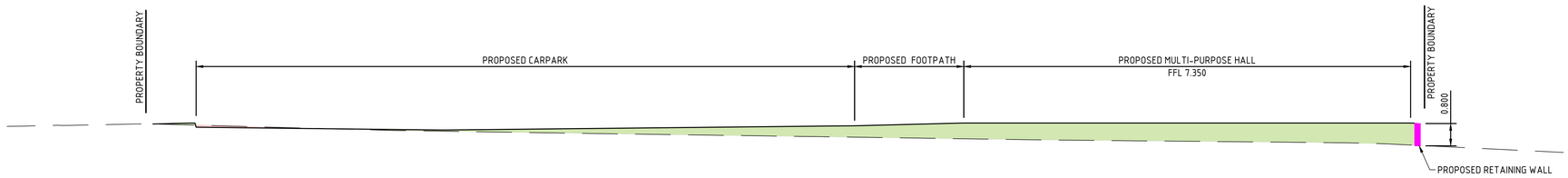
LEGEND

- EXISTING SURFACE LEVEL
- PROPOSED SURFACE LEVEL
- PROPOSED FILL
- PROPOSED CUT



SECTION C / SK11
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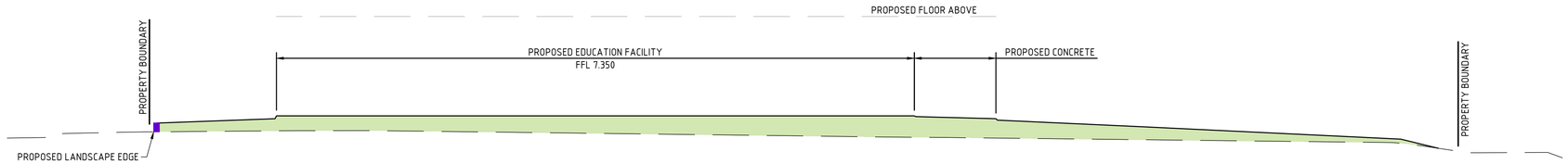

SECTION D / SK11
SCALE 1:100

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REAL PROPERTY DESCRIPTION
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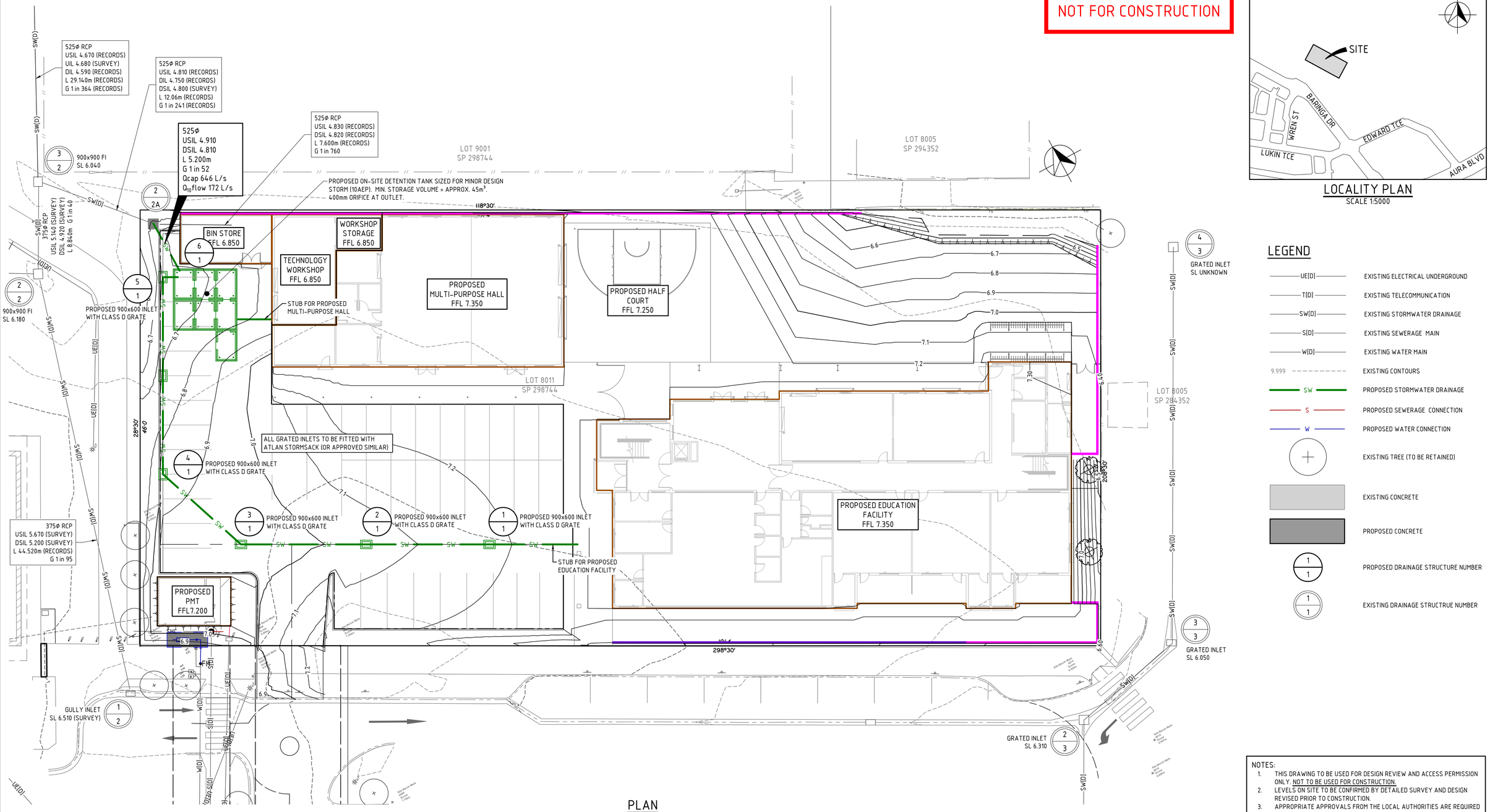

PLAN
SCALE 1:200

LOCALITY PLAN
SCALE 1:5000

LEGEND

- UE(D) — EXISTING ELECTRICAL UNDERGROUND
- T(D) — EXISTING TELECOMMUNICATION
- SW(D) — EXISTING STORMWATER DRAINAGE
- S(D) — EXISTING SEWERAGE MAIN
- W(D) — EXISTING WATER MAIN
- 9.999 — EXISTING CONTOURS
- SW — PROPOSED STORMWATER DRAINAGE
- S — PROPOSED SEWERAGE CONNECTION
- W — PROPOSED WATER CONNECTION
- EXISTING TREE (TO BE RETAINED)
- EXISTING CONCRETE
- PROPOSED CONCRETE
- 1/1 — PROPOSED DRAINAGE STRUCTURE NUMBER
- 1/1 — EXISTING DRAINAGE STRUCTRUE NUMBER

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LOT 8011 ON SP298744

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CLIENT: MODE DESIGN

PROJECT: 32 BARINGA DRIVE, BARINGA

TITLE: STORMWATER MANAGEMENT LAYOUT PLAN

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SS		
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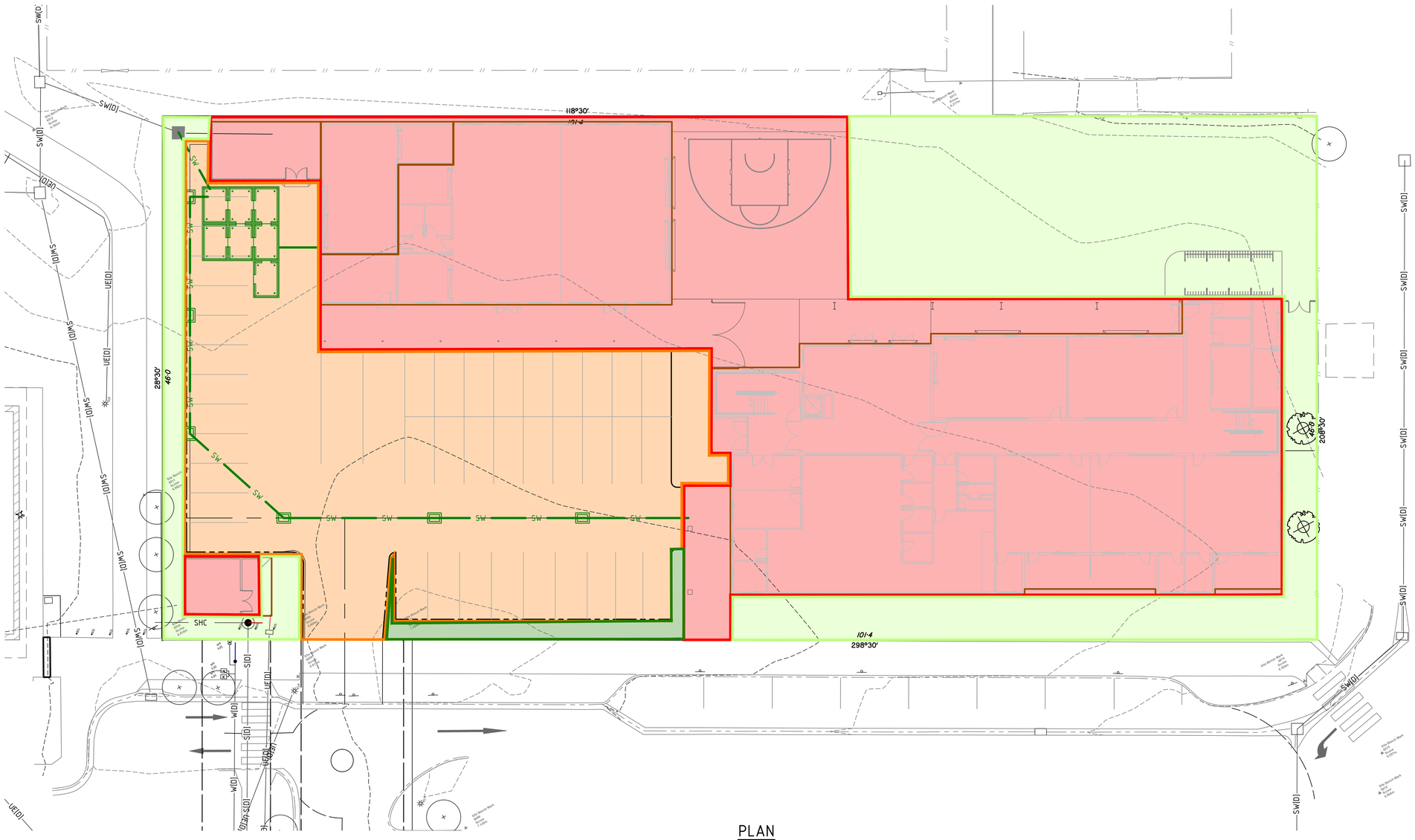

PLAN
SCALE 1:200

DEVELOPED CATCHMENT

ROOF CATCHMENT	
A	0.232ha
I	100%
S	17%
n	0.015
HARDSTAND	
A	0.121ha
I	100%
S	2%
n	0.015
BYPASS PERVIOUS	
A	0.094ha
I	0%
S	2%
n	0.015
VEGETATION CATCHMENT	
A	0.018ha
I	0%
S	2%
n	0.015
TOTAL	0.466ha

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SCALE 1:200 (A1) 0 4 8 12m
(SCALE BEFORE REDUCTION)

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LOT 8011 ON SP298744

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CLIENT: MODE DESIGN

PROJECT: 32 BARINGA DRIVE, BARINGA

TITLE: STORMWATER MANAGEMENT CATCHMENT PLAN

DRAWN	DESIGNED	DATE
SH	SS	MAR 2026
CHECKED	APPROVED	
SS		
DRAWING No.		REV.
S15582 - SK22		A

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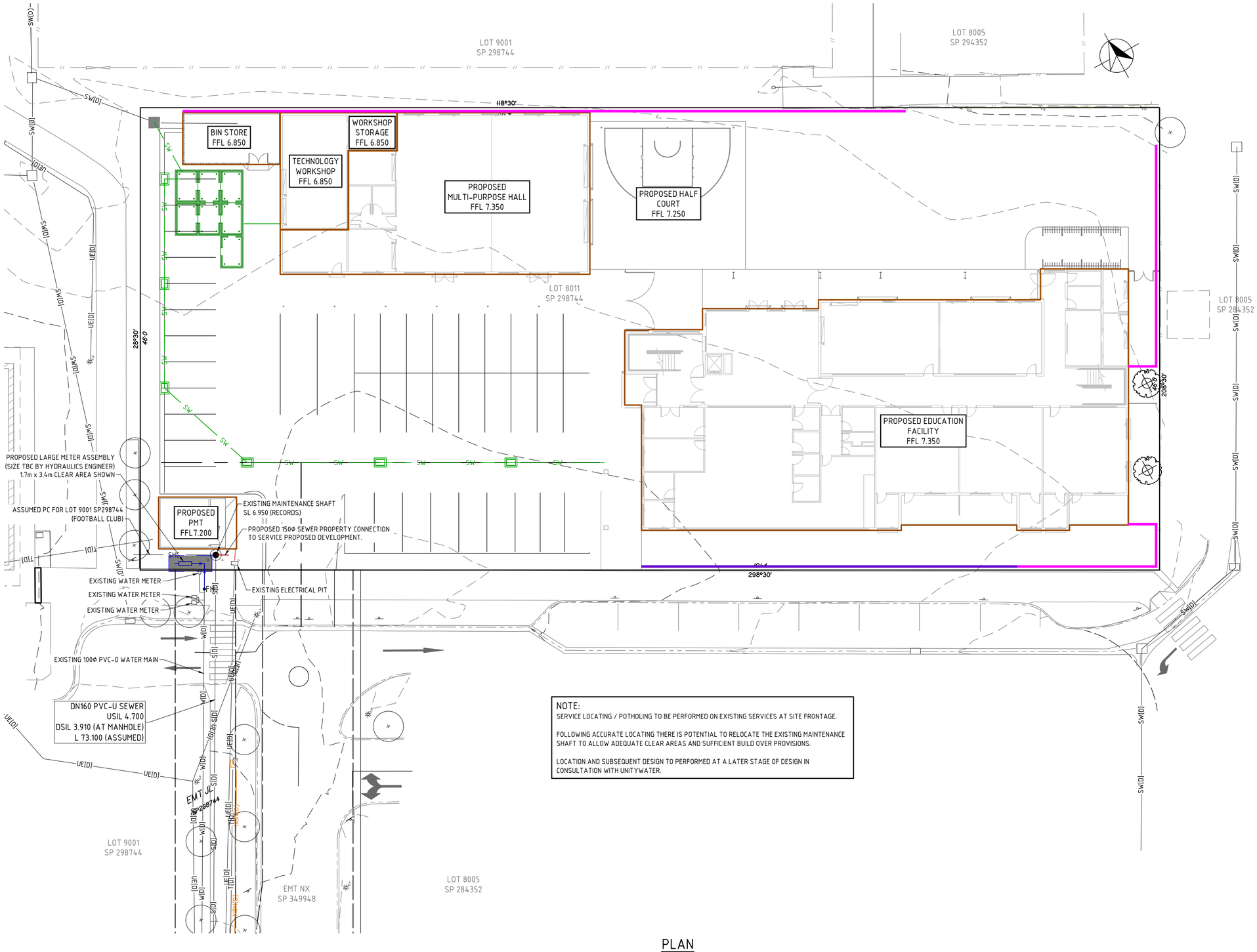

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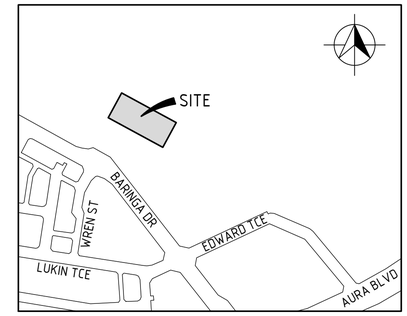
SCALE 1:200



LOCALITY PLAN
SCALE 1:5000

NOT FOR CONSTRUCTION

LEGEND

UE(D)	EXISTING ELECTRICAL UNDERGROUND
T(D)	EXISTING TELECOMMUNICATION
SW(D)	EXISTING STORMWATER DRAINAGE
S(D)	EXISTING SEWERAGE MAIN
W(D)	EXISTING WATER MAIN
9.999	EXISTING CONTOURS
SW	PROPOSED STORMWATER DRAINAGE
SHC	PROPOSED SEWERAGE CONNECTION

NOTE:
SERVICE LOCATING / POTHOLING TO BE PERFORMED ON EXISTING SERVICES AT SITE FRONTAGE.

FOLLOWING ACCURATE LOCATING THERE IS POTENTIAL TO RELOCATE THE EXISTING MAINTENANCE SHAFT TO ALLOW ADEQUATE CLEAR AREAS AND SUFFICIENT BUILD OVER PROVISIONS.

LOCATION AND SUBSEQUENT DESIGN TO PERFORMED AT A LATER STAGE OF DESIGN IN CONSULTATION WITH UNITYWATER.

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SCALE 1:200 (A1) 0 4 8 12m (SCALE BEFORE REDUCTION)

SCALE 1:5000 (A1) 0 100 200 300m (SCALE BEFORE REDUCTION)

REAL PROPERTY DESCRIPTION
LOT 8011 ON SP298744

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CLIENT: MODE DESIGN

PROJECT: 32 BARINGA DRIVE, BARINGA

TITLE: PRELIMINARY SERVICES LAYOUT PLAN

DRAWN	DESIGNED	DATE
SH	JHU	MAR 2026
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SS		
DRAWING No.		REV.
S15582 - SK31		A

APPENDIX B: DRAINS DATA

DRAINS RESULTS

2y ARI 0.5 EY	PRE	POST	Mitigated
	0.035	0.155	0.136
	0.092	0.025	0.025
	0.126	0.18	0.161

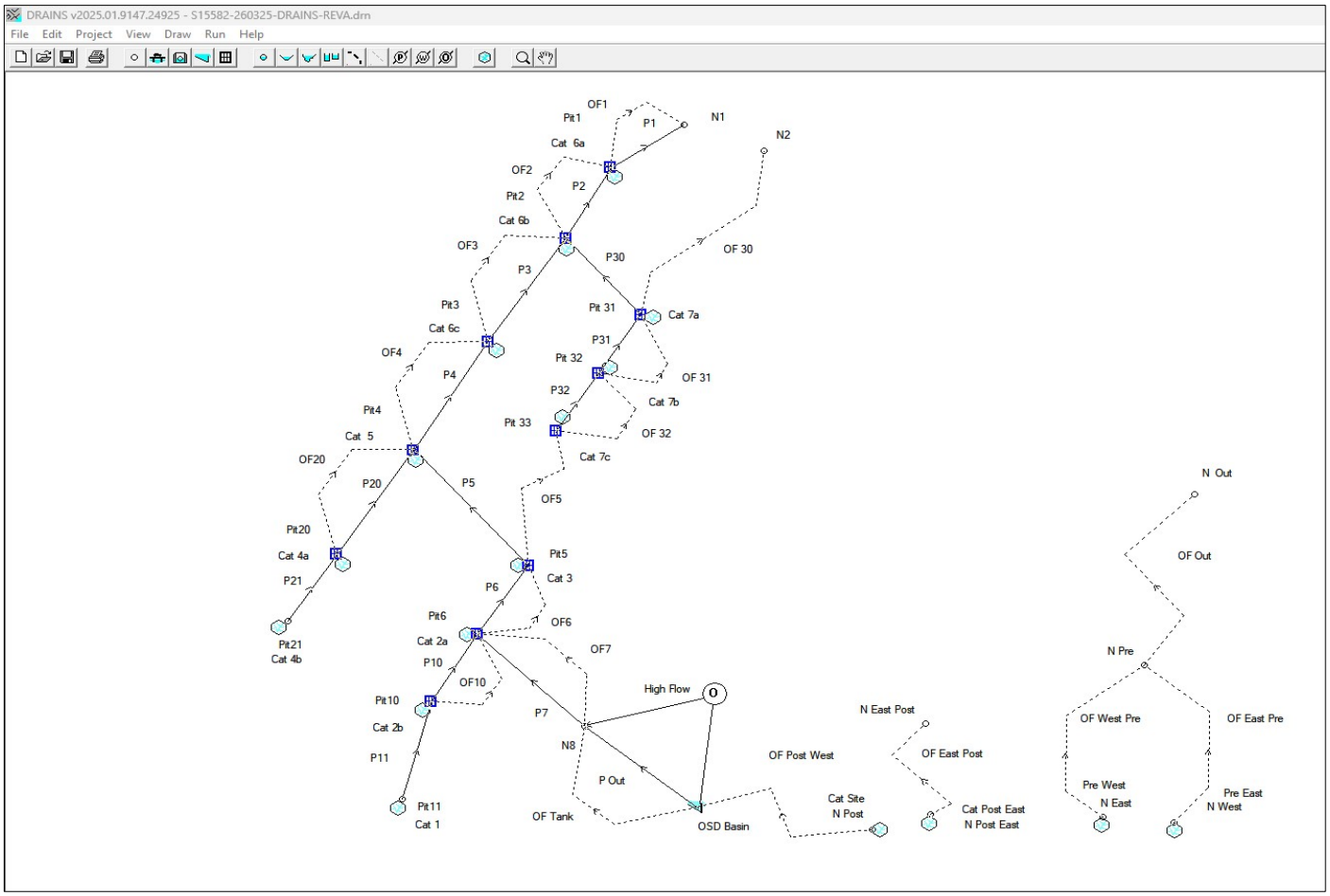
5y ARI 0.2 EY	PRE	POST	Mitigated
	0.044	0.193	0.159
	0.119	0.033	0.033
	0.162	0.226	0.192

10y ARI 10% AEP	PRE	POST	Mitigated
	0.052	0.22	0.172
	0.138	0.038	0.038
	0.189	0.258	0.210

20y ARI 5% AEP	PRE	POST	Mitigated
	0.061	0.252	0.189
	0.162	0.045	0.037
	0.222	0.297	0.226

50y ARI 2% AEP	PRE	POST	Mitigated
	0.072	0.293	0.204
	0.193	0.053	0.053
			0.059
	0.264	0.346	0.316

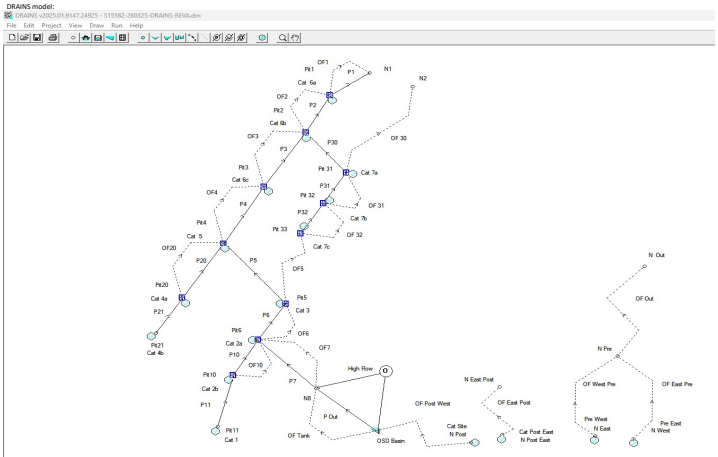
100y ARI 1% AEP	PRE	POST	Mitigated
	0.081	0.324	0.221
	0.217	0.06	0.067
			0.019
	0.297	0.384	0.307



PRE	POST unmitigated			
0.126	0.18	0.054	30%	43%
0.162	0.226	0.064	28%	40%
0.189	0.258	0.069	27%	37%
0.222	0.297	0.075	25%	34%
0.264	0.346	0.082	24%	31%
0.297	0.384	0.087	23%	29%

PRE	POST mitigated			
0.126	0.161	0.035	22%	28%
0.162	0.192	0.03	16%	19%
0.189	0.21	0.021	10%	11%
0.222	0.226	0.004	2%	2%
0.264	0.316	0.052	16%	20%
0.297	0.307	0.01	3%	3%

DRAINS model:



DRAINS Data:

PIT / NODE DETAILS

Version 15

Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id	Part Full Shock Loss	Inflow Hydrograph	Pit is	Internal Width (mm)	Inflow is Misaligned	Minor Pond (m)	Safe Depth (m)	Major Pond (m)	Safe Depth (m)
Pit21	Node					6.77		0		2006.667	-1125.83		51760176		No							
Pit20	Sag	Dept. of Mai	Single Field In	1	2	6.66	0.1	0	0	2048	-1064	No	51760070	1 x Ku	No	New		No	0.15	0.15		
Pit4	Sag	Dept. of Mai	Single Field In	1	2	6.45	0.1	0	0	2113	-967	No	51760072	1 x Ku	No	New			0.15	0.15		
Pit3	Sag	Dept. of Mai	Single Field In	1	1	6.21	0.1	0	0	2176	-866	No	51760074	1 x Ku	No	New		No	0.15	0.15		
Pit2	Sag	Dept. of Mai	Single Field In	1	1.5	5.96	0.1	0	0	2242	-770	No	51760076	1 x Ku	No	New			0.15	0.15		
Pit1	Sag	Dept. of Mai	Single Field In	1	0.8	5.48	0.1	0	0	2279.861	-704.63	No	51760078	1 x Ku	No	New		Yes	0.15	0.15		
N1	Node					5.3		0		2341.667	-665		3		No							
N Post	Node					6.4		0		2500.833	-1320		51760442		No							
Pit 33	Sag	Dept. of Mai	Single Field In	2	4	5.59	0.15	0	0	2233.565	-948.843	No	51760545	1 x Ku	No	New		No	0.15	0.15		
Pit 32	Sag	Dept. of Mai	Single Field In	2	2	5.34	0.1	0	0	2269.168	-895.752	No	51760547	1 x Ku	No	New		No	0.15	0.15		
Pit 31	Sag	Dept. of Mai	Single Field In	2	1.5	5.22	0.1	0	0	2305.324	-841.204	No	51760546	1 x Ku	No	New			0.15	0.15		
N2	Node					4.5		0		2409.167	-689.167		51760708		No							
Pit11	Node					6.77		0		2103.356	-1290.86		55201088		No							
Pit10	Sag	Dept. of Mai	Single Field In	1	1.5	6.18	0.1	0	0	2128.333	-1200	No	51760086	1 x Ku	No	New		Yes	0.15	0.15		
Pit6	Sag	Dept. of Mai	Single Field In	0.5	1.5	6.04	1	0	0	2167	-1138	No	51760084	1 x Ku	No	New			0.15	0.15		
Pit5	Sag	Dept. of Mai	Single Field In	2	2	5.83	0.1	0	0	2210	-1074.17	No	51760082	1 x Ku	No	New			0.15	0.15		
N8	Node					6.19		0		2258	-1224		78254586		No							
N East	Node					6.4		0		2695.833	-1307.5		87722287		No							
N West	Node					6.4		0		2756.25	-1313.19		87722508		No							
N Pre	Node							0		2731.25	-1166.67		87722615		No							
N Out	Node					6.4		0		2773.6	-1008.4		87722692		No							
N Post East	Node					6.4		0		2550	-1305		95714072		No							
N East Post	Node							0		2546.065	-1220.83		95714087		No							

DETENTION BASIN DETAILS

Name	Elev	Surf. Area	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Length	id
OSD Basin	4.91	44		Orifice		400	5.15			2353	-1299	No			78254561
	4.95	44													
	5.8	44													
	6.8	44													
	7	44													

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area (ha)	EIA %	Perv Area %	RIA %	EIA Time (min)	Perv Time (min)	RIA Time (min)	EIA Length (m)	Perv Length (m)	RIA Length (m)	EIA Slope(%) %	Perv Slope %	RIA Slope %	EIA Rough	Perv Rough	RIA Rough	Rainfall Multiplier
Cat 4b	Pit21	0.1625	0	100	0	15	15	15										1
Cat 4a	Pit20	0.1625	0	100	0	0	15	0										1
Cat 5	Pit4	0.1625	0	100	0	0	15	0										1
Cat 6c	Pit3	0.2	0	100	0	0	15	0										1
Cat 6b	Pit2	0.2	0	100	0	0	15	0										1
Cat 6a	Pit1	0.2089	0	100	0	0	15	0										1
Cat Site	N Post	0.371	90	10	0	6	13	5										1
Cat 7c	Pit 33	0.1851	0	100	0	0	15	0										1
Cat 7b	Pit 32	0.1	0	100	0	0	15	0										1
Cat 7a	Pit 31	0.1	0	100	0	0	15	0										1
Cat 1	Pit11	0.2907	80	20	0	5	10	18										1
Cat 2b	Pit10	0.06	20	80	0	5	15	0										1
Cat 2a	Pit6	0.0267	20	80	0	5	15	0										1
Cat 3	Pit5	0.1109	0	100	0	0	15	0										1
Pre West	N East	0.1274	0	100	0	5	15	5										1
Pre East	N West	0.3391	0	100	0	7	15	5										1
Cat Post East	N Post East	0.094	0	100	0	7	15	5										1

PIPE DETAILS

Name	From	To	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Type	Dia (mm)	I.D. (mm)	Rough	Pipe Is	No. Pipes	Chg From	At Chg	Chg (m)	Rl (m)	Chg (m)	RL (m)	etc (m)
P21	Pit21	Pit20	19.63	5.8	5.67	0.66	Concrete, und	300	300	0.013	New	1	Pit21		0				
P20	Pit20	Pit4	36.23	5.55	4.74	2.24	Concrete, und	375	375	0.013	New	1	Pit20		0				
P4	Pit4	Pit3	46.07	4.39	4.32	0.15	Concrete, und	675	675	0.013	New	1	Pit4		0				
P3	Pit3	Pit2	45.75	4.31	4.1	0.46	Concrete, und	675	675	0.013	New	1	Pit3		0				
P2	Pit2	Pit1	32.09	4.03	3.87	0.5	Concrete, und	750	750	0.013	New	1	Pit2		0				
P1	Pit1	N1	12.44	3.8	3.73	0.56	Concrete, und	825	825	0.013	New	1	Pit1		0				
P32	Pit 33	Pit 32	30.87	4.85	4.66	0.62	Concrete, und	225	225	0.013	New	1	Pit 33		0				
P31	Pit 32	Pit 31	26.67	4.47	4.27	0.75	Concrete, und	375	375	0.013	New	1	Pit 32		0				
P30	Pit 31	Pit2	15.79	4.19	4.11	0.51	Concrete, und	525	525	0.013	New	1	Pit 31		0				
P11	Pit11	Pit10	44.52	5.62	5.2	0.94	Concrete, und	375	375	0.013	New	1	Pit11		0				
P10	Pit10	Pit6	8.84	5.14	4.92	2.49	Concrete, und	375	375	0.013	New	1	Pit10		0				
P6	Pit6	Pit5	29.14	4.68	4.59	0.31	Concrete, und	600	600	0.013	New	1	Pit6		0				
P5	Pit5	Pit4	15.52	4.56	4.49	0.45	Concrete, und	600	600	0.013	New	1	Pit5		0				
P Out	OSD Basin	N8	10	4.91	4.81	1	Concrete, und	525	525	0.013	New	1	OSD Basin		0				
P7	N8	Pit6	14	4.81	4.8	0.07	Concrete, und	525	525	0.013	New	1	N 8		0				

DETAILS of SERVICES CROSSING PIPES

Pipe	Cha (m)	Bottom Elev (m)	Height of Serv (m)	Cha (m)	Bottom Elev (m)	Height of Se (m)	Cha (m)	Bottom Elev (m)	Height of S (m)	etc etc

CHANNEL DETAILS

Name	From	To	Type	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Base Width (m)	L.B. Slope (1:?)	R.B. Slope (1:?)	Manning n	Depth (m)	Roofed

OVERFLOW ROUTE DETAILS

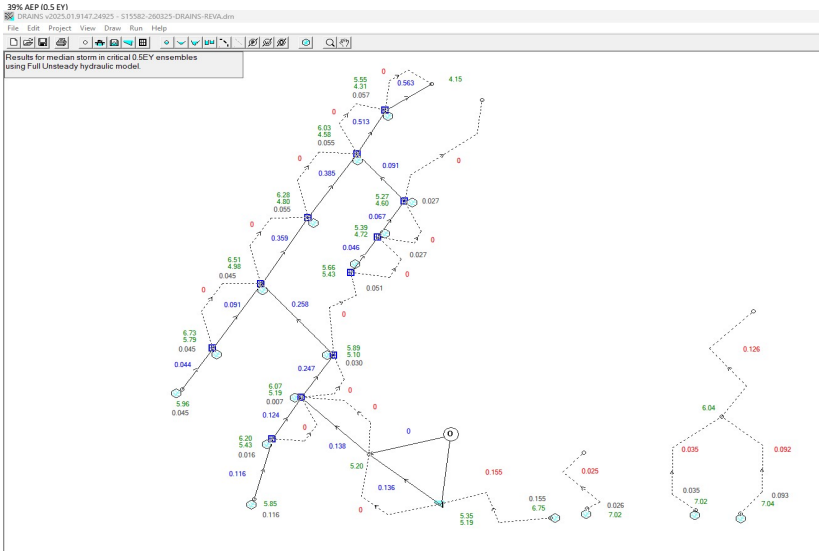
Name	From	To	Travel Time (min)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Sto (m)	Safe Depth Minor Sto (m)	Safe Dep Velocity (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %	id	U/S IL	D/S IL	Length (m)
OF20	Pit20	Pit4		0.8			Overflow acro	0.05	0	0.6	1	0	51759944	6.76	6.45	35
OF4	Pit4	Pit3		0.8			Overflow acro	0.05	0	0.6	1	0	51759948	6.55	6.21	35
OF3	Pit3	Pit2		0.8			Overflow acro	0.05	0	0.6	1	0	51759951	6.31	5.96	35
OF2	Pit2	Pit1		0.8			Overflow acro	0.05	0	0.6	1	0	51759953	6.06	5.48	35
OF1	Pit1	N1		0.8			Overflow acro	0.05	0	0.6	1	0	51759959	5.58	5.3	35
OF Post West	N Post	OSD Basin		0.1			4 m wide patt	0.3	0.15	0.4	1	0	78254631	6.7	6.5	10
OF 32	Pit 33	Pit 32		0.8			Overflow acro	0.05	0	0.6	1	0	51760590	5.74	5.34	35
OF 31	Pit 32	Pit 31		0.8			Overflow acro	0.05	0	0.6	1	0	51760578	5.44	5.22	35
OF 30	Pit 31	N2		1.1			Overflow acro	0.05	0	0.6	1	0	51760565	5.32	4	50
OF10	Pit10	Pit6		0.2			Overflow acro	0.05	0	0.6	1	0	51760013	6.28	6.15	8.84
OF6	Pit6	Pit5		1			Swale with 1:1	0.15	0.1	1	1	0	51759981	6.19	5.83	35
OF5	Pit5	Pit 33		0.7			Overflow acro	0.05	0	0.6	1	0	51759971	5.93	5.59	30
OF Tank	OSD Basin	N8		0.1	6.5	2	4 m wide patt	0.3	0.15	0.4	3.1	0	123312832	6.5	6.19	10
OF7	N8	Pit6		1			Swale with 1:1	0.15	0.1	1	1	0	51760046	6.19	6.15	35
OF West Pre	N East	N Pre		0.4			4 m wide patt	0.3	0.15	0.4	1	0	87722617	7	6	50
OF East Pre	N West	N Pre		0.4			4 m wide patt	0.3	0.15	0.4	1	0	87722884	7	6	50
OF Out	N Pre	N Out		0.1			4 m wide patt	0.3	0.15	0.4	1	0	87722673	6	5.8	5
OF East Post	N Post East	N East Post		0.4			4 m wide patt	0.3	0.15	0.4	1	0	95714078	7	6	50

PIPE COVER DETAILS

Name	Type	Dia (mm)	Safe Cover (m	Cover (m)	
P21	Concrete, ur	300	0.6	0.64	
P20	Concrete, ur	375	0.6	0.7	
P4	Concrete, ur	675	0.6	1.16	
P3	Concrete, ur	675	0.6	1.13	
P2	Concrete, ur	750	0.6	0.8	
P1	Concrete, ur	825	0.6	0.69	
P32	Concrete, ur	225	0.6	0.42	Unsafe
P31	Concrete, ur	375	0.6	0.46	Unsafe
P30	Concrete, ur	525	0.6	0.46	Unsafe
P11	Concrete, ur	375	0.6	0.57	Unsafe
P10	Concrete, ur	375	0.6	0.63	
P6	Concrete, ur	600	0.6	0.59	Unsafe
P5	Concrete, ur	600	0.6	0.62	
P Out	Concrete, ur	525	0.6	-0.57	Unsafe
P7	Concrete, ur	525	0.6	0.67	

This model has no pipes with non-return valves

39% AEP (0.5 EY)



DRAINS Data:

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Version 8

Name	Max HGL	Max Pond HGL	Max Surface Flow Arrivin (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
Pit21	5.96		0.05				
Pit20	5.79	6.73	0.05	0.4	0.87	0	Inlet Capacity
Pit4	4.98	6.51	0.05	0.4	1.47	0	Inlet Capacity
Pit3	4.8	6.28	0.061	0.5	1.41	0	Inlet Capacity
Pit2	4.58	6.03	0.061	0.5	1.38	0	Inlet Capacity
Pit1	4.31	5.55	0.064	0.5	1.17	0	Inlet Capacity
N1	4.15		0				
N Post	6.75		0.175				
Pit 33	5.43	5.66	0.056	0.5	0.16	0	Inlet Capacity
Pit 32	4.72	5.39	0.031	0.6	0.62	0	Inlet Capacity
Pit 31	4.6	5.27	0.031	0.6	0.62	0	Inlet Capacity
Pit11	5.85		0.144				
Pit10	5.43	6.2	0.02	0.3	0.75	0	Inlet Capacity
Pit6	5.19	6.07	0.009	0	0.85	0	Inlet Capacity
Pit5	5.1	5.89	0.034	0.7	0.73	0	Inlet Capacity
N8	5.2		0				
N East	7.02		0.039				
N West	7.04		0.103				
N Pre	6.04		0.142				
N Post East	7.02		0.029				

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	EIA Max Q (cu.m/s)	Remaining Max Q (cu.m/s)	EIA Tc (cu.m/s)	RIA Tc (min)	PA Tc (min)	Due to Storm (min)
Cat 4b	0.045	0	0.045	15	15	15	0.5EY AEP, 30 min burst, Storm 7
Cat 4a	0.045	0	0.045	0	0	15	0.5EY AEP, 30 min burst, Storm 7
Cat 5	0.045	0	0.045	0	0	15	0.5EY AEP, 30 min burst, Storm 7
Cat 6c	0.055	0	0.055	0	0	15	0.5EY AEP, 30 min burst, Storm 7
Cat 6b	0.055	0	0.055	0	0	15	0.5EY AEP, 30 min burst, Storm 7
Cat 6a	0.057	0	0.057	0	0	15	0.5EY AEP, 30 min burst, Storm 7
Cat Site	0.155	0.155	0.003	6	5	13	0.5EY AEP, 10 min burst, Storm 3
Cat 7c	0.051	0	0.051	0	0	15	0.5EY AEP, 30 min burst, Storm 7
Cat 7b	0.027	0	0.027	0	0	15	0.5EY AEP, 30 min burst, Storm 7
Cat 7a	0.027	0	0.027	0	0	15	0.5EY AEP, 30 min burst, Storm 7
Cat 1	0.116	0.116	0	5	18	10	0.5EY AEP, 5 min burst, Storm 1
Cat 2b	0.016	0.004	0.013	5	0	15	0.5EY AEP, 30 min burst, Storm 5
Cat 2a	0.007	0.002	0.006	5	0	15	0.5EY AEP, 30 min burst, Storm 5
Cat 3	0.03	0	0.03	0	0	15	0.5EY AEP, 30 min burst, Storm 7
Pre West	0.035	0	0.035	5	5	15	0.5EY AEP, 30 min burst, Storm 7
Pre East	0.093	0	0.093	7	5	15	0.5EY AEP, 30 min burst, Storm 7
Cat Post East	0.026	0	0.026	7	5	15	0.5EY AEP, 30 min burst, Storm 7

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
P21	0.044	1.16	5.962	5.83	0.5EY AEP, 30 min burst, Storm 7
P20	0.091	1.35	5.77	4.981	0.5EY AEP, 30 min burst, Storm 9
P4	0.359	1.32	4.981	4.799	0.5EY AEP, 30 min burst, Storm 8
P3	0.385	1.55	4.751	4.578	0.5EY AEP, 30 min burst, Storm 5
P2	0.513	1.92	4.469	4.307	0.5EY AEP, 30 min burst, Storm 5
P1	0.563	2.04	4.253	4.154	0.5EY AEP, 30 min burst, Storm 5
P32	0.046	1.35	5.107	4.838	0.5EY AEP, 30 min burst, Storm 7
P31	0.067	0.98	4.692	4.6	0.5EY AEP, 30 min burst, Storm 7
P30	0.091	0.52	4.589	4.578	0.5EY AEP, 30 min burst, Storm 8
P11	0.116	1.63	5.85	5.433	0.5EY AEP, 5 min burst, Storm 1
P10	0.124	1.53	5.397	5.187	0.5EY AEP, 30 min burst, Storm 6
P6	0.247	1.04	5.148	5.103	0.5EY AEP, 10 min burst, Storm 9
P5	0.258	1.12	5.016	4.981	0.5EY AEP, 30 min burst, Storm 6
P Out	0.136	0.82	5.289	5.198	0.5EY AEP, 10 min burst, Storm 5
P7	0.138	0.81	5.198	5.187	0.5EY AEP, 10 min burst, Storm 9

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF20	0	0	0	0	0	0	0	
OF4	0	0	0	0	0	0	0	
OF3	0	0	0	0	0	0	0	
OF2	0	0	0	0	0	0	0	
OF1	0	0	0	0	0	0	0	
OF Post West	0.155	0.155	0.908	0.052	0.05	4	1.05	0.5EY AEP, 10 min burst, Storm 3
OF 32	0	0	0	0	0	0	0	
OF 31	0	0	0	0	0	0	0	
OF 30	0	0	0	0	0	0	0	
OF10	0	0	0	0	0	0	0	
OF6	0	0	0.054	0	0	0	0	
OF5	0	0	0	0	0	0	0	
OF Tank	0	0	1.433	0	0	0	0	
High Flow								
OF7	0	0	0.054	0	0	0	0	
OF West Pre	0.035	0.034	0.908	0.03	0.03	4	1.68	0.5EY AEP, 30 min burst, Storm 7
OF East Pre	0.092	0.092	0.908	0.042	0.04	4	1.11	0.5EY AEP, 30 min burst, Storm 7
OF Out	0.126	0.126	0.908	0.042	0.05	4	1.17	0.5EY AEP, 30 min burst, Storm 7
OF East Post	0.025	0.025	0.908	0.027	0.03	4	1.77	0.5EY AEP, 30 min burst, Storm 7

DETENTION BASIN DETAILS

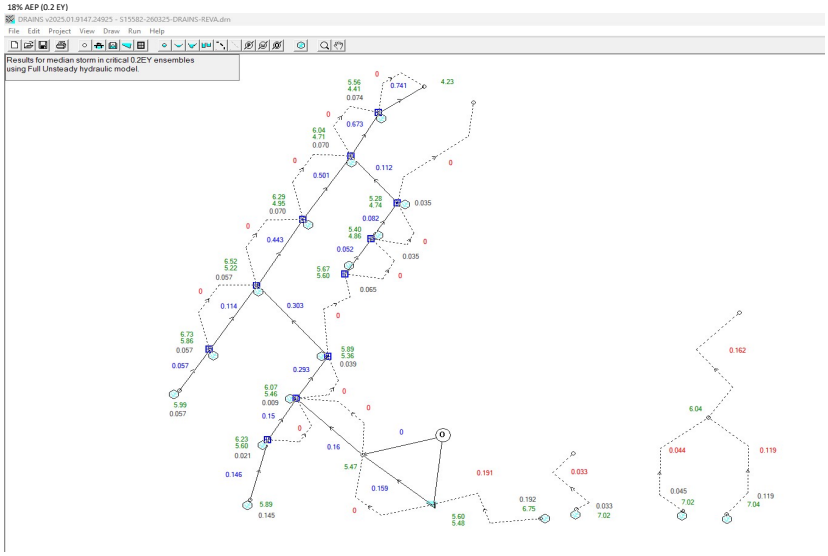
Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
OSD Basin	5.35	19.4	0.136	0.136	0

Run Log for DRAINS v2025.01.9147.24925 - S15582-260325-DRAINS-REVA
Run Log for DRAINS v2025.01.9147.24925 - S15582-260325-DRAINS-REVA.drn run at 12:11:42 on 25/3/2026.

No water upwelling from any pit.
Freeboard was adequate at all pits.

Flows were safe in all overflow routes.

18% AEP (0.2 EY)



DRAINS Data:

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Version 8

Name	Max HGL	Max Pond HGL	Max Surfa Flow Arrivi (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
Pit21	5.99		0.067				
Pit20	5.86	6.73	0.067	0.6	0.8	0	Inlet Capacity
Pit4	5.22	6.52	0.067	0.5	1.23	0	Inlet Capacity
Pit3	4.95	6.29	0.083	0.6	1.26	0	Inlet Capacity
Pit2	4.71	6.04	0.083	0.6	1.25	0	Inlet Capacity
Pit1	4.41	5.56	0.087	0.6	1.07	0	Inlet Capacity
N1	4.23		0				
N Post	6.75		0.221				
Pit 33	5.6	5.67	0.077	1	0	0	Outlet System
Pit 32	4.86	5.4	0.041	0.7	0.48	0	Inlet Capacity
Pit 31	4.74	5.28	0.041	0.7	0.48	0	Inlet Capacity
Pit11	5.89		0.184				
Pit10	5.6	6.23	0.027	0.3	0.58	0	Inlet Capacity
Pit6	5.46	6.07	0.012	0	0.58	0	Inlet Capacity
Pit5	5.36	5.89	0.046	0.8	0.47	0	Inlet Capacity
N8	5.47		0				
N East	7.02		0.053				
N West	7.04		0.141				
N Pre	6.04		0.192				
N Post East	7.02		0.039				

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	EIA Max Q (cu.m/s)	Remaining Max Q (cu.m/s)	EIA Tc (cu.m/s)	RIA Tc (min)	PA Tc (min)	Due to Storm (min)	
Cat 4b	0.057	0	0.057	15	15	15		0.2EY AEP, 30 min burst, Storm 7
Cat 4a	0.057	0	0.057	0	0	15		0.2EY AEP, 30 min burst, Storm 7
Cat 5	0.057	0	0.057	0	0	15		0.2EY AEP, 30 min burst, Storm 7
Cat 6c	0.07	0	0.07	0	0	15		0.2EY AEP, 30 min burst, Storm 7
Cat 6b	0.07	0	0.07	0	0	15		0.2EY AEP, 30 min burst, Storm 7
Cat 6a	0.074	0	0.074	0	0	15		0.2EY AEP, 30 min burst, Storm 7
Cat Site	0.192	0.19	0.006	6	5	13		0.2EY AEP, 10 min burst, Storm 3
Cat 7c	0.065	0	0.065	0	0	15		0.2EY AEP, 30 min burst, Storm 7
Cat 7b	0.035	0	0.035	0	0	15		0.2EY AEP, 30 min burst, Storm 7
Cat 7a	0.035	0	0.035	0	0	15		0.2EY AEP, 30 min burst, Storm 7
Cat 1	0.145	0.145	0.001	5	18	10		0.2EY AEP, 5 min burst, Storm 1
Cat 2b	0.021	0.005	0.017	5	0	15		0.2EY AEP, 30 min burst, Storm 5
Cat 2a	0.009	0.002	0.007	5	0	15		0.2EY AEP, 30 min burst, Storm 5
Cat 3	0.039	0	0.039	0	0	15		0.2EY AEP, 30 min burst, Storm 7
Pre West	0.045	0	0.045	5	5	15		0.2EY AEP, 30 min burst, Storm 7
Pre East	0.119	0	0.119	7	5	15		0.2EY AEP, 30 min burst, Storm 7
Cat Post East	0.033	0	0.033	7	5	15		0.2EY AEP, 30 min burst, Storm 7

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
P21	0.057	1.21	5.99	5.86	0.2EY AEP, 30 min burst, Storm 7
P20	0.114	1.48	5.796	5.225	0.2EY AEP, 30 min burst, Storm 7
P4	0.443	1.27	5.076	4.954	0.2EY AEP, 30 min burst, Storm 9
P3	0.501	1.58	4.867	4.713	0.2EY AEP, 30 min burst, Storm 9
P2	0.673	1.99	4.57	4.406	0.2EY AEP, 30 min burst, Storm 9
P1	0.741	2.17	4.316	4.233	0.2EY AEP, 30 min burst, Storm 9
P32	0.052	1.39	5.262	4.858	0.2EY AEP, 30 min burst, Storm 7
P31	0.082	0.79	4.802	4.744	0.2EY AEP, 30 min burst, Storm 7
P30	0.112	0.52	4.724	4.713	0.2EY AEP, 30 min burst, Storm 7
P11	0.146	1.71	5.892	5.596	0.2EY AEP, 5 min burst, Storm 1
P10	0.15	1.37	5.504	5.462	0.2EY AEP, 10 min burst, Storm 7
P6	0.293	1.04	5.407	5.363	0.2EY AEP, 10 min burst, Storm 10
P5	0.303	1.07	5.259	5.225	0.2EY AEP, 10 min burst, Storm 10
P Out	0.159	0.73	5.537	5.473	0.2EY AEP, 10 min burst, Storm 2
P7	0.16	0.74	5.473	5.462	0.2EY AEP, 10 min burst, Storm 9

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF20	0	0	0	0	0	0	0	
OF4	0	0	0	0	0	0	0	
OF3	0	0	0	0	0	0	0	
OF2	0	0	0	0	0	0	0	
OF1	0	0	0	0	0	0	0	
OF Post West	0.191	0.191	0.908	0.058	0.06	4	1.12	0.2EY AEP, 10 min burst, Storm 3
OF 32	0	0	0	0	0	0	0	
OF 31	0	0	0	0	0	0	0	
OF 30	0	0	0	0	0	0	0	
OF10	0	0	0	0	0	0	0	
OF6	0	0	0.054	0	0	0	0	
OF5	0	0	0	0	0	0	0	
OF Tank	0	0	1.433	0	0	0	0	
High Flow								
OF7	0	0	0.054	0	0	0	0	
OF West Pre	0.044	0.044	0.908	0.032	0.03	4	1.33	0.2EY AEP, 30 min burst, Storm 7
OF East Pre	0.119	0.118	0.908	0.047	0.05	4	1.13	0.2EY AEP, 30 min burst, Storm 7
OF Out	0.162	0.162	0.908	0.046	0.06	4	1.31	0.2EY AEP, 30 min burst, Storm 7
OF East Post	0.033	0.032	0.908	0.029	0.03	4	1.7	0.2EY AEP, 30 min burst, Storm 7

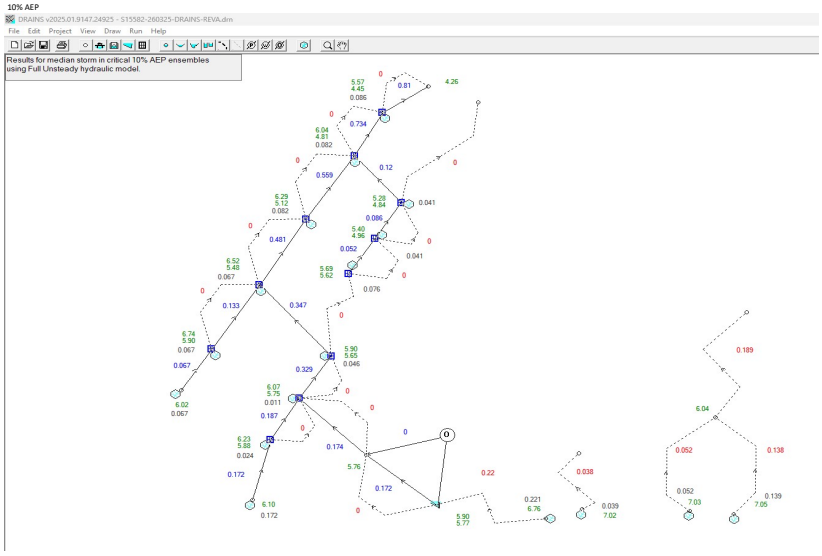
DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
OSD Basin	5.6	30.4	0.159	0.159	0

Run Log for DRAINS v2025.01.9147.24925 - S15582-260325-DRAINS-REVA
Run Log for DRAINS v2025.01.9147.24925 - S15582-260325-DRAINS-REVA.drn run at 12:16:13 on 25/3/2026.

No water upwelling from any pit.
Freeboard was less than 0.15m at Pit 33
Flows were safe in all overflow routes.

10% AEP



DRAINS Data:

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Version 8

Name	Max HGL	Max Pond HGL	Max Surfa Flow Arrivi (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
Pit21	6.02		0.077				
Pit20	5.9	6.74	0.077	0.6	0.76	0	Inlet Capacity
Pit4	5.48	6.52	0.077	0.6	0.97	0	Inlet Capacity
Pit3	5.12	6.29	0.095	0.7	1.09	0	Inlet Capacity
Pit2	4.81	6.04	0.095	0.7	1.15	0	Inlet Capacity
Pit1	4.45	5.57	0.099	0.7	1.03	0	Inlet Capacity
N1	4.26		0				
N Post	6.76		0.266				
Pit 33	5.62	5.69	0.127	1.7	0	0	Outlet System
Pit 32	4.96	5.4	0.091	1.2	0.38	0	Inlet Capacity
Pit 31	4.84	5.28	0.047	0.8	0.38	0	Inlet Capacity
Pit11	6.1		0.227				
Pit10	5.88	6.23	0.03	0.9	0.3	0	Inlet Capacity
Pit6	5.75	6.07	0.047	0	0.29	0	Inlet Capacity
Pit5	5.65	5.9	0.053	1.7	0.18	0	Inlet Capacity
N8	5.76		0				
N East	7.03		0.06				
N West	7.05		0.161				
N Pre	6.04		0.219				
N Post East	7.02		0.045				

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	EIA Max Q (cu.m/s)	Remaining Max Q (cu.m/s)	EIA Tc (cu.m/s)	RIA Tc (min)	PA Tc (min)	Due to Storm (min)
Cat 4b	0.067	0	0.067	15	15	15	10% AEP, 25 min burst, Storm 7
Cat 4a	0.067	0	0.067	0	0	15	10% AEP, 25 min burst, Storm 7
Cat 5	0.067	0	0.067	0	0	15	10% AEP, 25 min burst, Storm 7
Cat 6c	0.082	0	0.082	0	0	15	10% AEP, 25 min burst, Storm 7
Cat 6b	0.082	0	0.082	0	0	15	10% AEP, 25 min burst, Storm 7
Cat 6a	0.086	0	0.086	0	0	15	10% AEP, 25 min burst, Storm 7
Cat Site	0.221	0.213	0.008	6	5	13	10% AEP, 10 min burst, Storm 8
Cat 7c	0.076	0	0.076	0	0	15	10% AEP, 25 min burst, Storm 7
Cat 7b	0.041	0	0.041	0	0	15	10% AEP, 25 min burst, Storm 7
Cat 7a	0.041	0	0.041	0	0	15	10% AEP, 25 min burst, Storm 7
Cat 1	0.172	0.168	0.004	5	18	10	10% AEP, 5 min burst, Storm 1
Cat 2b	0.024	0.007	0.02	5	0	15	10% AEP, 25 min burst, Storm 7
Cat 2a	0.011	0.003	0.009	5	0	15	10% AEP, 25 min burst, Storm 7
Cat 3	0.046	0	0.046	0	0	15	10% AEP, 25 min burst, Storm 7
Pre West	0.052	0	0.052	5	5	15	10% AEP, 25 min burst, Storm 7
Pre East	0.139	0	0.139	7	5	15	10% AEP, 25 min burst, Storm 7
Cat Post East	0.039	0	0.039	7	5	15	10% AEP, 25 min burst, Storm 7

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
P21	0.067	1.22	6.017	5.897	10% AEP, 25 min burst, Storm 7
P20	0.133	1.58	5.817	5.478	10% AEP, 25 min burst, Storm 7
P4	0.481	1.34	5.28	5.117	10% AEP, 20 min burst, Storm 5
P3	0.559	1.56	4.998	4.805	10% AEP, 30 min burst, Storm 8
P2	0.734	2.02	4.61	4.445	10% AEP, 25 min burst, Storm 7
P1	0.81	2.21	4.342	4.264	10% AEP, 25 min burst, Storm 7
P32	0.052	1.31	5.318	4.956	10% AEP, 45 min burst, Storm 4
P31	0.086	0.78	4.899	4.839	10% AEP, 30 min burst, Storm 8
P30	0.12	0.56	4.817	4.805	10% AEP, 30 min burst, Storm 3
P11	0.172	1.56	6.104	5.881	10% AEP, 5 min burst, Storm 1
P10	0.187	1.7	5.793	5.752	10% AEP, 5 min burst, Storm 1
P6	0.329	1.17	5.694	5.646	10% AEP, 10 min burst, Storm 6
P5	0.347	1.23	5.519	5.478	10% AEP, 10 min burst, Storm 6
P Out	0.172	0.79	5.829	5.763	10% AEP, 10 min burst, Storm 6
P7	0.174	0.81	5.763	5.752	10% AEP, 10 min burst, Storm 6

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q	U/S	Max Q	D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF20	0		0		0	0	0	0	0	
OF4	0		0		0	0	0	0	0	
OF3	0		0		0	0	0	0	0	
OF2	0		0		0	0	0	0	0	
OF1	0		0		0	0	0	0	0	
OF Post West	0.22		0.22		0.908	0.061	0.07	4	1.21	10% AEP, 10 min burst, Storm 8
OF 32	0		0		0	0	0	0	0	
OF 31	0		0		0	0	0	0	0	
OF 30	0		0		0	0	0	0	0	
OF10	0		0		0	0	0	0	0	
OF6	0		0		0.054	0	0	0	0	
OF5	0		0		0	0	0	0	0	
OF Tank	0		0		1.433	0	0	0	0	
High Flow										
OF7	0		0		0.054	0	0	0	0	
OF West Pre	0.052		0.051		0.908	0.034	0.03	4	1.23	10% AEP, 25 min burst, Storm 7
OF East Pre	0.138		0.138		0.908	0.05	0.05	4	1.15	10% AEP, 25 min burst, Storm 7
OF Out	0.189		0.189		0.908	0.049	0.07	4	1.4	10% AEP, 25 min burst, Storm 7
OF East Post	0.038		0.038		0.908	0.031	0.03	4	1.48	10% AEP, 25 min burst, Storm 7

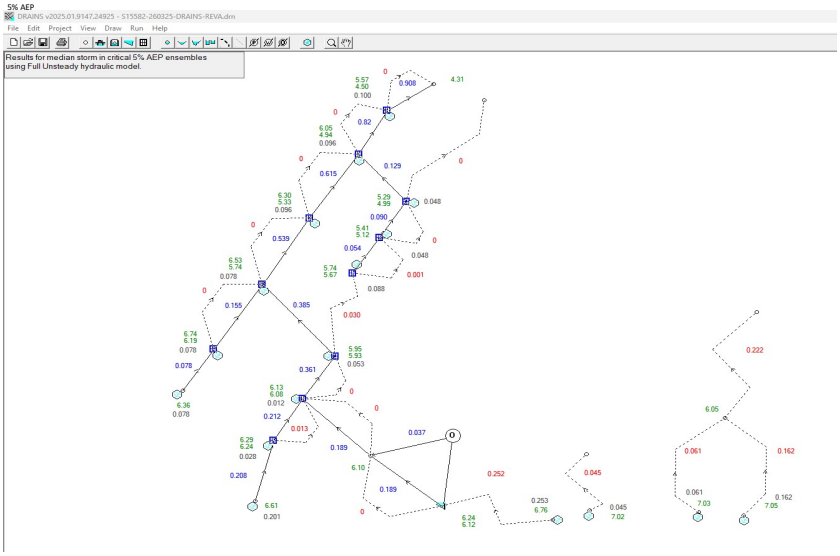
DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
OSD Basin	5.9	43.4	0.172	0.172	0

Run Log for DRAINS v2025.01.9147.24925 - S15582-260325-DRAINS-REVA
Run Log for DRAINS v2025.01.9147.24925 - S15582-260325-DRAINS-REVA.drn run at 12:17:55 on 25/3/2026.

No water upwelling from any pit.
Freeboard was less than 0.15m at Pit 33
Flows were safe in all overflow routes.

5% AEP



DRAINS Data:

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Name	Max HGL	Max Pond HGL	Max Surfa Flow Arriv (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
Pit21	6.36		0.088				
Pit20	6.19	6.74	0.088	0.7	0.47	0	Inlet Capacity
Pit4	5.74	6.53	0.088	0.7	0.71	0	Inlet Capacity
Pit3	5.33	6.3	0.109	0.8	0.88	0	Inlet Capacity
Pit2	4.94	6.05	0.109	0.8	1.02	0	Inlet Capacity
Pit1	4.5	5.57	0.114	0.9	0.98	0	Inlet Capacity
N1	4.31		0				
N Post	6.76		0.304				
Pit 33	5.67	5.74	0.245	1.7	0	0.001	Outlet System
Pit 32	5.12	5.41	0.246	1.7	0.22	0	Inlet Capacity
Pit 31	4.99	5.29	0.187	1.7	0.23	0	Inlet Capacity
Pit11	6.61		0.26				
Pit10	6.24	6.29	0.035	0.9	0	0.013	Outlet System
Pit6	6.08	6.13	0.109	0.1	0	0	Outlet System
Pit5	5.93	5.95	0.103	1.7	0	0.03	Outlet System
N8	6.1		0				
N East	7.03		0.069				
N West	7.05		0.184				
N Pre	6.05		0.252				
N Post East	7.02		0.051				

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	EIA Max Q (cu.m/s)	Remaining Max Q (cu.m/s)	EIA Tc (cu.m/s)	RIA Tc (min)	PA Tc (min)	Due to Storm (min)
Cat 4b	0.078	0	0.078	15	15	15	5% AEP, 25 min burst, Storm 8
Cat 4a	0.078	0	0.078	0	0	15	5% AEP, 25 min burst, Storm 8
Cat 5	0.078	0	0.078	0	0	15	5% AEP, 25 min burst, Storm 8
Cat 6c	0.096	0	0.096	0	0	15	5% AEP, 25 min burst, Storm 8
Cat 6b	0.096	0	0.096	0	0	15	5% AEP, 25 min burst, Storm 8
Cat 6a	0.1	0	0.1	0	0	15	5% AEP, 25 min burst, Storm 8
Cat Site	0.253	0.242	0.011	6	5	13	5% AEP, 10 min burst, Storm 8
Cat 7c	0.088	0	0.088	0	0	15	5% AEP, 25 min burst, Storm 8
Cat 7b	0.048	0	0.048	0	0	15	5% AEP, 25 min burst, Storm 8
Cat 7a	0.048	0	0.048	0	0	15	5% AEP, 25 min burst, Storm 8
Cat 1	0.201	0.194	0.007	5	18	10	5% AEP, 5 min burst, Storm 1
Cat 2b	0.028	0.008	0.022	5	0	15	5% AEP, 20 min burst, Storm 6
Cat 2a	0.012	0.003	0.01	5	0	15	5% AEP, 20 min burst, Storm 6
Cat 3	0.053	0	0.053	0	0	15	5% AEP, 25 min burst, Storm 8
Pre West	0.061	0	0.061	5	5	15	5% AEP, 25 min burst, Storm 8
Pre East	0.162	0	0.162	7	5	15	5% AEP, 25 min burst, Storm 8
Cat Post East	0.045	0	0.045	7	5	15	5% AEP, 25 min burst, Storm 8

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
P21	0.078	1.1	6.356	6.186	5% AEP, 25 min burst, Storm 8
P20	0.155	1.4	5.999	5.735	5% AEP, 25 min burst, Storm 8
P4	0.539	1.5	5.513	5.331	5% AEP, 30 min burst, Storm 2
P3	0.615	1.72	5.182	4.941	5% AEP, 20 min burst, Storm 5
P2	0.82	2.07	4.78	4.501	5% AEP, 20 min burst, Storm 5
P1	0.908	2.28	4.386	4.306	5% AEP, 20 min burst, Storm 5
P32	0.054	1.35	5.418	5.117	5% AEP, 45 min burst, Storm 4
P31	0.09	0.81	5.056	4.992	5% AEP, 30 min burst, Storm 3
P30	0.129	0.6	4.959	4.941	5% AEP, 30 min burst, Storm 3
P11	0.208	1.89	6.614	6.244	5% AEP, 5 min burst, Storm 1
P10	0.212	1.92	6.131	6.08	5% AEP, 5 min burst, Storm 1
P6	0.361	1.28	5.995	5.926	5% AEP, 10 min burst, Storm 6
P5	0.385	1.36	5.782	5.735	5% AEP, 10 min burst, Storm 6
P Out	0.189	0.87	6.168	6.1	5% AEP, 10 min burst, Storm 6
P7	0.189	0.87	6.1	6.08	5% AEP, 10 min burst, Storm 6

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q	U/S Max Q	D/S Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF20	0	0	0	0	0	0	0	
OF4	0	0	0	0	0	0	0	
OF3	0	0	0	0	0	0	0	
OF2	0	0	0	0	0	0	0	
OF1	0	0	0	0	0	0	0	
OF Post West	0.252	0.252	0.908	0.065	0.08	4	1.27	5% AEP, 10 min burst, Storm 3
OF 32	0.001	0.001	0	0	0	0	0	5% AEP, 25 min burst, Storm 7
OF 31	0	0	0	0	0	0	0	
OF 30	0	0	0	0	0	0	0	
OF10	0.013	0.013	0	0.012	0	5.74	0.33	5% AEP, 20 min burst, Storm 5
OF6	0	0	0.054	0	0	0	0	
OF5	0.03	0.03	0	0.018	0.01	6.91	0.39	5% AEP, 30 min burst, Storm 3
OF Tank	0	0	1.433	0	0	0	0	
High Flow	0.037	0.037						5% AEP, 30 min burst, Storm 2
OF7	0	0	0.054	0	0	0	0	
OF West Pre	0.061	0.061	0.908	0.036	0.03	4	1.17	5% AEP, 25 min burst, Storm 8
OF East Pre	0.162	0.162	0.908	0.053	0.06	4	1.18	5% AEP, 25 min burst, Storm 8
OF Out	0.222	0.222	0.908	0.053	0.08	4	1.47	5% AEP, 25 min burst, Storm 8
OF East Post	0.045	0.045	0.908	0.033	0.03	4	1.32	5% AEP, 25 min burst, Storm 8

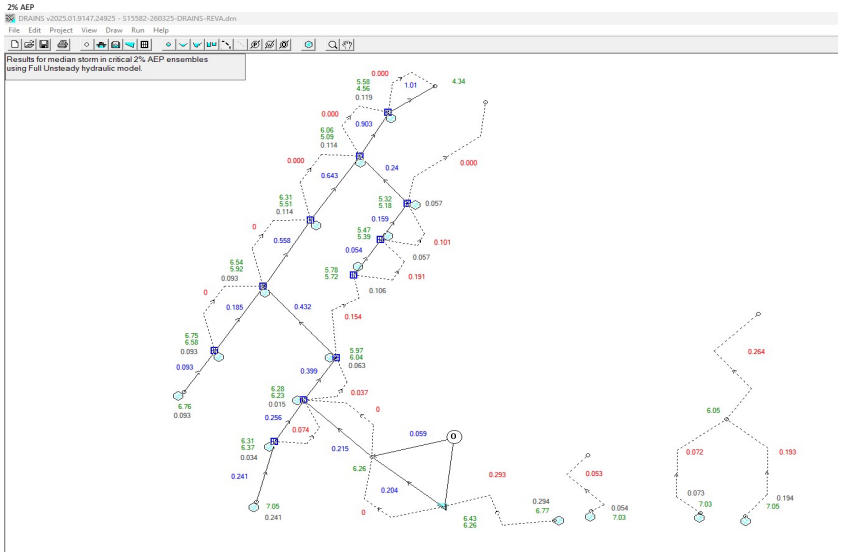
DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
OSD Basin	6.24	58.4	0.225	0.189	0.037

Run Log for DRAINS v2025.01.9147.24925 - S15582-260325-DRAINS-REVA
Run Log for DRAINS v2025.01.9147.24925 - S15582-260325-DRAINS-REVA.drn run at 12:19:18 on 25/3/2026.

No water upwelling from any pit.
Freeboard was less than 0.15m at Pit 33, Pit10, Pit6, Pit5
The maximum flow in these overflow routes is unsafe: OF10, OF5

2% AEP



DRAINS Data:

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Version 8

Name	Max HGL	Max Pond HGL	Max Surfa Flow Arriv (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
Pit21	6.76		0.104				
Pit20	6.58	6.75	0.104	0.9	0.08	0	Inlet Capacity
Pit4	5.92	6.54	0.108	0.8	0.53	0	Inlet Capacity
Pit3	5.51	6.31	0.128	0.9	0.7	0	Inlet Capacity
Pit2	5.09	6.06	0.129	0.9	0.87	0	Inlet Capacity
Pit1	4.56	5.58	0.135	0.9	0.92	0	Inlet Capacity
N1	4.34		0.003				
N Post	6.77		0.333				
Pit 33	5.72	5.78	0.391	1.7	0	0.191	Outlet System
Pit 32	5.39	5.47	0.405	1.7	0	0.101	Outlet System
Pit 31	5.18	5.32	0.368	1.7	0.04	0	Inlet Capacity
Pit11	7.05		0.275				
Pit10	6.37	6.31	0.04	0.9	0	0.074	Outlet System
Pit6	6.23	6.28	0.172	0.1	0	0.037	Outlet System
Pit5	6.04	5.97	0.184	1.7	0	0.154	Outlet System
N8	6.26		0.056				
N East	7.03		0.082				
N West	7.05		0.218				
N Pre	6.05		0.298				
N Post East	7.03		0.06				

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	EIA Max Q (cu.m/s)	Remaining Max Q (cu.m/s)	EIA Tc (cu.m/s)	RIA Tc (min)	PA Tc (min)	Due to Storm (min)
Cat 4b	0.093	0	0.093	15	15	15	2% AEP, 25 min burst, Storm 9
Cat 4a	0.093	0	0.093	0	0	15	2% AEP, 25 min burst, Storm 9
Cat 5	0.093	0	0.093	0	0	15	2% AEP, 25 min burst, Storm 9
Cat 6c	0.114	0	0.114	0	0	15	2% AEP, 25 min burst, Storm 9
Cat 6b	0.114	0	0.114	0	0	15	2% AEP, 25 min burst, Storm 9
Cat 6a	0.119	0	0.119	0	0	15	2% AEP, 25 min burst, Storm 9
Cat Site	0.294	0.28	0.014	6	5	13	2% AEP, 10 min burst, Storm 4
Cat 7c	0.106	0	0.106	0	0	15	2% AEP, 25 min burst, Storm 9
Cat 7b	0.057	0	0.057	0	0	15	2% AEP, 25 min burst, Storm 9
Cat 7a	0.057	0	0.057	0	0	15	2% AEP, 25 min burst, Storm 9
Cat 1	0.241	0.229	0.011	5	18	10	2% AEP, 5 min burst, Storm 1
Cat 2b	0.034	0.008	0.027	5	0	15	2% AEP, 25 min burst, Storm 4
Cat 2a	0.015	0.003	0.012	5	0	15	2% AEP, 25 min burst, Storm 4
Cat 3	0.063	0	0.063	0	0	15	2% AEP, 25 min burst, Storm 9
Pre West	0.073	0	0.073	5	5	15	2% AEP, 25 min burst, Storm 9
Pre East	0.194	0	0.194	7	5	15	2% AEP, 25 min burst, Storm 9
Cat Post East	0.054	0	0.054	7	5	15	2% AEP, 25 min burst, Storm 9

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
P21	0.093	1.31	6.763	6.581	2% AEP, 25 min burst, Storm 9
P20	0.185	1.68	6.308	5.922	2% AEP, 25 min burst, Storm 9
P4	0.558	1.56	5.696	5.512	2% AEP, 10 min burst, Storm 7
P3	0.643	1.8	5.35	5.087	2% AEP, 25 min burst, Storm 4
P2	0.903	2.13	4.78	4.556	2% AEP, 25 min burst, Storm 4
P1	1.012	2.39	4.442	4.339	2% AEP, 25 min burst, Storm 4
P32	0.054	1.36	5.568	5.389	2% AEP, 15 min burst, Storm 1
P31	0.159	1.44	5.285	5.178	2% AEP, 25 min burst, Storm 4
P30	0.24	1.11	5.118	5.087	2% AEP, 25 min burst, Storm 4
P11	0.241	2.18	7.051	6.373	2% AEP, 5 min burst, Storm 1
P10	0.256	2.32	6.277	6.234	2% AEP, 5 min burst, Storm 1
P6	0.399	1.41	6.129	6.044	2% AEP, 10 min burst, Storm 7
P5	0.432	1.53	5.952	5.922	2% AEP, 10 min burst, Storm 7
P Out	0.204	0.94	6.345	6.264	2% AEP, 5 min burst, Storm 1
P7	0.215	0.99	6.264	6.234	2% AEP, 10 min burst, Storm 5

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF20	0	0	0	0	0	0	0	
OF4	0	0	0	0	0	0	0	
OF3	0	0	0	0	0	0	0	
OF2	0	0	0	0	0	0	0	
OF1	0	0	0	0	0	0	0	
OF Post West	0.293	0.293	0.908	0.07	0.09	4	1.34	2% AEP, 10 min burst, Storm 4
OF 32	0.191	0.191	0	0.041	0.03	10.74	0.67	2% AEP, 25 min burst, Storm 4
OF 31	0.101	0.101	0	0.034	0.02	10.1	0.46	2% AEP, 25 min burst, Storm 4
OF 30	0	0	0	0	0	0	0	
OF10	0.074	0.074	0	0.025	0.01	8.44	0.54	2% AEP, 15 min burst, Storm 6
OF6	0.037	0.037	0.054	0.072	0.04	1.73	0.59	2% AEP, 25 min burst, Storm 4
OF5	0.154	0.154	0	0.037	0.02	10.39	0.62	2% AEP, 25 min burst, Storm 4
OF Tank	0	0	1.433	0	0	0	0	
High Flow	0.059	0.059						2% AEP, 10 min burst, Storm 7
OF7	0	0	0.054	0	0	0	0	
OF West Pre	0.072	0.072	0.908	0.039	0.03	4	1.13	2% AEP, 25 min burst, Storm 9
OF East Pre	0.193	0.193	0.908	0.058	0.07	4	1.23	2% AEP, 25 min burst, Storm 9
OF Out	0.264	0.264	0.908	0.057	0.09	4	1.58	2% AEP, 25 min burst, Storm 9
OF East Post	0.053	0.053	0.908	0.035	0.03	4	1.21	2% AEP, 25 min burst, Storm 9

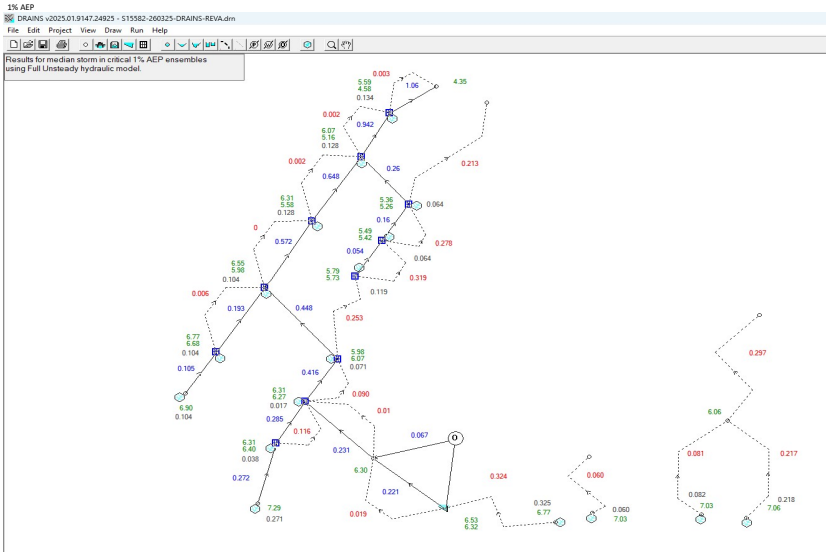
DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
OSD Basin	6.43	66.7	0.262	0.204	0.059

Run Log for DRAINS v2025.01.9147.24925 - S15582-260325-DRAINS-REVA
Run Log for DRAINS v2025.01.9147.24925 - S15582-260325-DRAINS-REVA.drn run at 12:29:29 on 25/3/2026.

Upwelling occurred at: Pit10, Pit5
Freeboard was less than 0.15m at Pit 32, Pit 31, Pit 33, Pit6, Pit20
The maximum flow in these overflow routes is unsafe: OF 32, OF 31, OF 30, OF10, OF5These sag pits have unsafe water levels for minor storms: Pit6

1% AEP



DRAINS Data:

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS Version 8

Name	Max HGL	Max Pond HGL	Max Surfa Flow Arrivi (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
Pit21	6.9		0.116				
Pit20	6.68	6.77	0.116	0.9	0	0.006	Outlet System
Pit4	5.98	6.55	0.153	0.9	0.47	0	Inlet Capacity
Pit3	5.58	6.31	0.144	0.9	0.63	0.002	Inlet Capacity
Pit2	5.16	6.07	0.147	0.9	0.8	0.002	Inlet Capacity
Pit1	4.58	5.59	0.155	0.9	0.9	0.003	Inlet Capacity
N1	4.35		0.012				
N Post	6.77		0.368				
Pit 33	5.73	5.79	0.515	1.7	0	0.319	Outlet System
Pit 32	5.42	5.49	0.54	1.7	0	0.278	Outlet System
Pit 31	5.26	5.36	0.519	1.7	0	0.213	Outlet System
Pit11	7.29		0.305				
Pit10	6.4	6.31	0.045	0.9	0	0.116	Outlet System
Pit6	6.27	6.31	0.24	0.1	0	0.09	Outlet System
Pit5	6.07	5.98	0.268	1.7	0	0.253	Outlet System
N8	6.3		0.108				
N East	7.03		0.091				
N West	7.06		0.241				
N Pre	6.06		0.331				
N Post East	7.03		0.067				

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	EIA Max Q (cu.m/s)	Remaining Max Q (cu.m/s)	EIA Tc (cu.m/s)	RIA Tc (min)	PA Tc (min)	Due to Storm (min)
Cat 4b	0.104	0	0.104	15	15	15	1% AEP, 25 min burst, Storm 3
Cat 4a	0.104	0	0.104	0	0	15	1% AEP, 25 min burst, Storm 3
Cat 5	0.104	0	0.104	0	0	15	1% AEP, 25 min burst, Storm 3
Cat 6c	0.128	0	0.128	0	0	15	1% AEP, 25 min burst, Storm 3
Cat 6b	0.128	0	0.128	0	0	15	1% AEP, 25 min burst, Storm 3
Cat 6a	0.134	0	0.134	0	0	15	1% AEP, 25 min burst, Storm 3
Cat Site	0.325	0.309	0.016	6	5	13	1% AEP, 10 min burst, Storm 4
Cat 7c	0.119	0	0.119	0	0	15	1% AEP, 25 min burst, Storm 3
Cat 7b	0.064	0	0.064	0	0	15	1% AEP, 25 min burst, Storm 3
Cat 7a	0.064	0	0.064	0	0	15	1% AEP, 25 min burst, Storm 3
Cat 1	0.271	0.256	0.015	5	18	10	1% AEP, 5 min burst, Storm 1
Cat 2b	0.038	0.009	0.03	5	0	15	1% AEP, 25 min burst, Storm 4
Cat 2a	0.017	0.004	0.013	5	0	15	1% AEP, 25 min burst, Storm 4
Cat 3	0.071	0	0.071	0	0	15	1% AEP, 25 min burst, Storm 3
Pre West	0.082	0	0.082	5	5	15	1% AEP, 25 min burst, Storm 3
Pre East	0.218	0	0.218	7	5	15	1% AEP, 25 min burst, Storm 3
Cat Post East	0.06	0	0.06	7	5	15	1% AEP, 25 min burst, Storm 3

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
P21	0.105	1.48	6.903	6.678	1% AEP, 25 min burst, Storm 3
P20	0.193	1.75	6.387	5.977	1% AEP, 25 min burst, Storm 6
P4	0.572	1.6	5.76	5.582	1% AEP, 10 min burst, Storm 2
P3	0.648	1.81	5.422	5.161	1% AEP, 25 min burst, Storm 4
P2	0.942	2.17	4.813	4.584	1% AEP, 25 min burst, Storm 4
P1	1.061	2.45	4.468	4.353	1% AEP, 25 min burst, Storm 4
P32	0.054	1.36	5.587	5.416	1% AEP, 1 hour burst, Storm 6
P31	0.16	1.45	5.338	5.256	1% AEP, 15 min burst, Storm 2
P30	0.26	1.2	5.194	5.161	1% AEP, 25 min burst, Storm 4
P11	0.272	2.46	7.289	6.401	1% AEP, 5 min burst, Storm 1
P10	0.285	2.58	6.313	6.273	1% AEP, 5 min burst, Storm 1
P6	0.416	1.47	6.162	6.073	1% AEP, 10 min burst, Storm 2
P5	0.448	1.59	6	5.977	1% AEP, 10 min burst, Storm 9
P Out	0.221	1.02	6.417	6.305	1% AEP, 5 min burst, Storm 1
P7	0.231	1.07	6.305	6.273	1% AEP, 15 min burst, Storm 9

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q	U/S Max Q	D/S Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF20	0.006	0.006	0.288	0.01	0	5.29	0.23	1% AEP, 25 min burst, Storm 4
OF4	0	0	0.288	0	0	0	0	
OF3	0.002	0.002	0.288	0.006	0	3.41	0.17	1% AEP, 25 min burst, Storm 4
OF2	0.002	0.002	0.288	0.006	0	3.7	0.2	1% AEP, 25 min burst, Storm 4
OF1	0.003	0.003	0.288	0.008	0	4.56	0.19	1% AEP, 25 min burst, Storm 4
OF Post West	0.324	0.324	1.479	0.073	0.1	4	1.39	1% AEP, 10 min burst, Storm 4
OF 32	0.319	0.319	0.288	0.051	0.04	11.74	0.8	1% AEP, 25 min burst, Storm 4
OF 31	0.278	0.278	0.288	0.055	0.03	12.15	0.62	1% AEP, 25 min burst, Storm 4
OF 30	0.213	0.211	0.288	0.036	0.03	10.23	0.93	1% AEP, 25 min burst, Storm 4
OF10	0.116	0.116	0.288	0.031	0.02	9.49	0.63	1% AEP, 15 min burst, Storm 2
OF6	0.09	0.09	0.159	0.103	0.07	2.47	0.71	1% AEP, 25 min burst, Storm 4
OF5	0.253	0.253	0.288	0.046	0.03	11.27	0.74	1% AEP, 25 min burst, Storm 4
OF Tank	0.019	0.019	1.433	0.024	0.01	4	0.52	1% AEP, 25 min burst, Storm 4
High Flow	0.067	0.067						1% AEP, 10 min burst, Storm 10
OF7	0.01	0.01	0.159	0.043	0.02	1.03	0.46	1% AEP, 25 min burst, Storm 4
OF West Pre	0.081	0.081	1.479	0.04	0.04	4	1.12	1% AEP, 25 min burst, Storm 3
OF East Pre	0.217	0.216	1.479	0.061	0.07	4	1.26	1% AEP, 25 min burst, Storm 3
OF Out	0.297	0.297	1.479	0.06	0.1	4	1.66	1% AEP, 25 min burst, Storm 3
OF East Post	0.06	0.059	1.479	0.036	0.03	4	1.16	1% AEP, 25 min burst, Storm 3

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
OSD Basin	6.53	71.3	0.308	0.221	0.087

Run Log for DRAINS v2025.01.9147.24925 - S15582-260325-DRAINS-REVA
Run Log for DRAINS v2025.01.9147.24925 - S15582-260325-DRAINS-REVA.drn run at 12:33:07 on 25/3/2026.

Upwelling occurred at: Pit10, Pit5
Freeboard was less than 0.15m at Pit 32, Pit 31, Pit 33, Pit6, Pit20
The maximum pond depth in these sag pits is unsafe: Pit 32, Pit 33, Pit6\line
The maximum flow in these overflow routes is unsafe: OF 32, OF 31

APPENDIX C: RATIONAL METHOD CALCULATION SUMMARY

RATIONAL METHOD CALCULATIONS - EXISTING SITE

Job Reference	S15582
Site Address	Y-Care Baringa Drive, Baringa - Site West
Council	SCC

Number of Sub-Catchments	2	
Minor Storm Event	10% AEP	*(As per QUDM Table 7.02.1)*
Major Storm Event	1% AEP	*(As per QUDM Table 7.02.1)*

Subcatchment Summary Table

Number	*Catchment Name*	*Catchment Description*	*C_{10}*	*tc*
1	West	Rural areas (2-5 dwelling units/ha)	0.74	15
2	East	Rural areas (2-5 dwelling units/ha)	0.74	15

Site C_{10} 0.74

Catchment Calculations (Major and Minor Storm ARI's)

Number	*Area*	*C10*	*I10*	*10% AEP*	*C100*	*I100*	*1% AEP*
	ha		*mm/hr*	*m^3/s*		*mm/hr*	*m^3/s*
1	0.127	0.74	153	0.040	0.89	223	0.070
2	0.339	0.74	153	0.107	0.89	223	0.187

Total Runoff	Minor	0.147	*m^3/s*
	Major	0.257	*m^3/s*
Total Area		0.467	*ha*

Overland Flow Calculations

Trunk SW Infrastructure		
Pipe Diameter	N/A	*m*
Number of Pipes		
Grade		*m/m*
mannings		
Pipe Capacity		*m^3/s*
Pipe Velocity		*m/s*
Capacity @ 3m/s		*m^3/s*
Overland Flow		*m^3/s*

Runoff Summary

Freq.	*Peak Discharge*	
4 EY	0.034	*m^3/s*
63% AEP	0.068	*m^3/s*
39% AEP	0.081	*m^3/s*
15% AEP	0.120	*m^3/s*
10% AEP	0.147	*m^3/s*
5% AEP	0.176	*m^3/s*
2% AEP	0.223	*m^3/s*
1% AEP	0.257	*m^3/s*

RATIONAL METHOD CALCULATIONS - DEVELOPED SITE

Job Reference	S15582
Site Address	Y-Care Baringa Drive, Baringa
Council	SCC

Number of Sub-Catchments	1	
Minor Storm Event	10% AEP	*(As per QUDM Table 7.02.1)*
Major Storm Event	1% AEP	*(As per QUDM Table 7.02.1)*

Subcatchment Summary Table

Number	*Catchment Name*	*Catchment Description*	*C_{10}*	*tc*
1	Prop. Site	Low-medium to high density residential areas	0.87	9

Site C_{10} 0.87

Catchment Calculations (Major and Minor Storm ARI's)

Number	*Area*	*C10*	*I10*	*10% AEP*	*C100*	*I100*	*1% AEP*
	ha		*mm/hr*	*m^3/s*		*mm/hr*	*m^3/s*
1	0.465	0.87	189	0.212	1.00	276	0.357

Total Runoff	Minor	0.212	*m^3/s*
	Major	0.357	*m^3/s*
Total Area		0.465	*ha*

Overland Flow Calculations		
Trunk SW Infrastructure		
Pipe Diameter	N/A	*m*
Number of Pipes		
Grade		*m/m*
mannings		
Pipe Capacity		*m^3/s*
Pipe Velocity		*m/s*
Capacity @ 3m/s		*m^3/s*
Overland Flow		*m^3/s*

Runoff Summary		
Freq.	*Peak Discharge*	
4 EY	0.049	*m^3/s*
63% AEP	0.098	*m^3/s*
39% AEP	0.117	*m^3/s*
15% AEP	0.173	*m^3/s*
10% AEP	0.212	*m^3/s*
5% AEP	0.254	*m^3/s*
2% AEP	0.323	*m^3/s*
1% AEP	0.357	*m^3/s*

APPENDIX D: MUSIC MODEL SUMMARY REPORT

Source nodes
Location,Roof (100% Imp.) - 0.232 ha,Hardstand (100% imp.) - 0.121 ha,Vegetation West (100% Perv.) - 0.018 ha,Vegetation East (90% Perv.) - 0.094 ha - Urban Residential
ID,1,2,3,5
Node Type,UrbanSourceNode,UrbanSourceNode,UrbanSourceNode,UrbanSourceNode
Zoning Surface Type,Mixed,Mixed,Mixed,Mixed
Total Area (ha),0.232,0.121,0.018,0.094
Area Impervious (ha),0.232,0.121,0,0.00956485074626865
Area Pervious (ha),0,0,0.018,0.0844351492537314
Field Capacity (mm),200,200,200,200
Pervious Area Infiltration Capacity coefficient - a,211,211,211,211
Pervious Area Infiltration Capacity exponent - b,5,5,5,5
Impervious Area Rainfall Threshold (mm/day),1,1,1,1
Pervious Area Soil Storage Capacity (mm),500,500,500,500
Pervious Area Soil Initial Storage (% of Capacity),10,10,10,10
Groundwater Initial Depth (mm),50,50,50,50
Groundwater Daily Recharge Rate (%),28,28,28,28
Groundwater Daily Baseflow Rate (%),27,27,27,27
Groundwater Daily Deep Seepage Rate (%),0,0,0,0
Stormflow Total Suspended Solids Mean (log mg/L),1.3,2.43,2.18,2.18
Stormflow Total Suspended Solids Standard Deviation (log mg/L),0.39,0.39,0.39,0.39
Stormflow Total Suspended Solids Estimation Method,Stochastic,Stochastic,Stochastic,Stochastic
Stormflow Total Suspended Solids Serial Correlation,0,0,0,0
Stormflow Total Phosphorus Mean (log mg/L),-0.89,-0.3,-0.47,-0.47
Stormflow Total Phosphorus Standard Deviation (log mg/L),0.31,0.31,0.31,0.31
Stormflow Total Phosphorus Estimation Method,Stochastic,Stochastic,Stochastic,Stochastic
Stormflow Total Phosphorus Serial Correlation,0,0,0,0
Stormflow Total Nitrogen Mean (log mg/L),0.26,0.26,0.26,0.26
Stormflow Total Nitrogen Standard Deviation (log mg/L),0.23,0.23,0.23,0.23
Stormflow Total Nitrogen Estimation Method,Stochastic,Stochastic,Stochastic,Stochastic
Stormflow Total Nitrogen Serial Correlation,0,0,0,0
Baseflow Total Suspended Solids Mean (log mg/L),0,1,1,1
Baseflow Total Suspended Solids Standard Deviation (log mg/L),0,0.34,0.34,0.34
Baseflow Total Suspended Solids Estimation Method,Stochastic,Stochastic,Stochastic,Stochastic
Baseflow Total Suspended Solids Serial Correlation,0,0,0,0
Baseflow Total Phosphorus Mean (log mg/L),0,-0.97,-0.97,-0.97
Baseflow Total Phosphorus Standard Deviation (log mg/L),0,0.31,0.31,0.31
Baseflow Total Phosphorus Estimation Method,Stochastic,Stochastic,Stochastic,Stochastic
Baseflow Total Phosphorus Serial Correlation,0,0,0,0
Baseflow Total Nitrogen Mean (log mg/L),0,0.2,0.2,0.2
Baseflow Total Nitrogen Standard Deviation (log mg/L),0,0.2,0.2,0.2
Baseflow Total Nitrogen Estimation Method,Stochastic,Stochastic,Stochastic,Stochastic
Baseflow Total Nitrogen Serial Correlation,0,0,0,0

Flow based constituent generation - enabled,Off,Off,Off,Off
Flow based constituent generation - flow file, , , ,
Flow based constituent generation - base flow column, , , ,
Flow based constituent generation - pervious flow column, , , ,
Flow based constituent generation - impervious flow column, , , ,
Flow based constituent generation - unit, , , ,
OUT - Mean Annual Flow (ML/yr),2.87,1.50,71.0E-3,0.450
OUT - TSS Mean Annual Load (kg/yr),83.9,588,9.52,75.9
OUT - TP Mean Annual Load (kg/yr),0.474,0.970,22.1E-3,0.152
OUT - TN Mean Annual Load (kg/yr),5.99,3.17,0.136,0.896
OUT - Gross Pollutant Mean Annual Load (kg/yr),67.6,35.2,0.00,5.86
Rain In (ML/yr),3.1258,1.63026,0.242519,1.26649
ET Loss (ML/yr),0.250867,0.130837,0.171849,0.817852
Deep Seepage Loss (ML/yr),0,0,0,0
Baseflow Out (ML/yr),0,0,0.0308217,0.144862
Imp. Stormflow Out (ML/yr),2.87493,1.49943,0,0.116484
Perv. Stormflow Out (ML/yr),0,0,0.0401946,0.188915
Total Stormflow Out (ML/yr),2.87493,1.49943,0.0401946,0.305399
Total Outflow (ML/yr),2.87493,1.49943,0.0710163,0.450261
Change in Soil Storage (ML/yr),0,0,-0.0003454,-0.0016234
TSS Baseflow Out (kg/yr),0,0,0.416229,1.95639
TSS Total Stormflow Out (kg/yr),83.881,587.891,9.10302,73.903
TSS Total Outflow (kg/yr),83.881,587.891,9.51925,75.8594
TP Baseflow Out (kg/yr),0,0,0.0042653,0.0199231
TP Total Stormflow Out (kg/yr),0.474448,0.97004,0.0178056,0.132307
TP Total Outflow (kg/yr),0.474448,0.97004,0.0220709,0.15223
TN Baseflow Out (kg/yr),0,0,0.0544191,0.255063
TN Total Stormflow Out (kg/yr),5.98774,3.16646,0.0813442,0.640644
TN Total Outflow (kg/yr),5.98774,3.16646,0.135763,0.895707
GP Total Outflow (kg/yr),67.5537,35.2328,0,6.19878

No Imported Data Source nodes

USTM treatment nodes
Location,Atlan Vault Full Height (10.0m2)_SQIDEP,Buffer
ID,8,10
Node Type,DetentionBasinNode,BufferNode
Lo-flow bypass rate (cum/sec),0,
Hi-flow bypass rate (cum/sec),100,
Inlet pond volume,0,
Area (sqm),10,4.78242537313433
Initial Volume (m^3), ,
Extended detention depth (m),0.85,
Number of Rainwater tanks, ,
Permanent Pool Volume (cubic metres),0,
Proportion vegetated,0,
Equivalent Pipe Diameter (mm),125,
Overflow weir width (m),2,
Notional Detention Time (hrs),70.3E-3,
Orifice Discharge Coefficient,0.6,

Weir Coefficient,1.7,
Number of CSTR Cells,1,
Total Suspended Solids - k (m/yr),1,
Total Suspended Solids - C* (mg/L),20,
Total Suspended Solids - C** (mg/L),20,
Total Phosphorus - k (m/yr),1,
Total Phosphorus - C* (mg/L),0.13,
Total Phosphorus - C** (mg/L),0.13,
Total Nitrogen - k (m/yr),1,
Total Nitrogen - C* (mg/L),1.4,
Total Nitrogen - C** (mg/L),1.4,
Threshold Hydraulic Loading for C** (m/yr),3500,
Horizontal Flow Coefficient, ,
Reuse Enabled,Off,Off
Max drawdown height (m), ,
Annual Demand Enabled,Off,Off
Annual Demand Value (ML/year), ,
Annual Demand Distribution, ,
Annual Demand Monthly Distribution: Jan, ,
Annual Demand Monthly Distribution: Feb, ,
Annual Demand Monthly Distribution: Mar, ,
Annual Demand Monthly Distribution: Apr, ,
Annual Demand Monthly Distribution: May, ,
Annual Demand Monthly Distribution: Jun, ,
Annual Demand Monthly Distribution: Jul, ,
Annual Demand Monthly Distribution: Aug, ,
Annual Demand Monthly Distribution: Sep, ,
Annual Demand Monthly Distribution: Oct, ,
Annual Demand Monthly Distribution: Nov, ,
Annual Demand Monthly Distribution: Dec, ,
Daily Demand Enabled,Off,Off
Daily Demand Value (ML/day), ,
Custom Demand Enabled,Off,Off
Custom Demand Time Series File, ,
Custom Demand Time Series Units, ,
Filter area (sqm), ,
Filter perimeter (m), ,
Filter depth (m), ,
Filter Median Particle Diameter (mm), ,
Saturated Hydraulic Conductivity (mm/hr), ,
Infiltration Media Porosity, ,
Length (m), ,
Bed slope, ,
Base Width (m), ,
Top width (m), ,
Vegetation height (m), ,
Vegetation Type, ,
Total Nitrogen Content in Filter (mg/kg), ,
Orthophosphate Content in Filter (mg/kg), ,
Is Base Lined?, ,

Is Underdrain Present?, ,
Is Submerged Zone Present?, ,
Submerged Zone Depth (m), ,
B for Media Soil Texture,-9999,-9999
Proportion of upstream impervious area treated, ,0.5
Exfiltration Rate (mm/hr),0,0
Evaporative Loss as % of PET,0,
Depth in metres below the drain pipe, ,
TSS A Coefficient, ,
TSS B Coefficient, ,
TP A Coefficient, ,
TP B Coefficient, ,
TN A Coefficient, ,
TN B Coefficient, ,
Sfc, ,
S*, ,
Sw, ,
Sh, ,
Emax (m/day), ,
Ew (m/day), ,
IN - Mean Annual Flow (ML/yr),4.45,0.450
IN - TSS Mean Annual Load (kg/yr),412,75.9
IN - TP Mean Annual Load (kg/yr),1.00,0.152
IN - TN Mean Annual Load (kg/yr),8.46,0.896
IN - Gross Pollutant Mean Annual Load (kg/yr),67.6,5.86
OUT - Mean Annual Flow (ML/yr),4.45,0.450
OUT - TSS Mean Annual Load (kg/yr),412,60.5
OUT - TP Mean Annual Load (kg/yr),0.997,0.130
OUT - TN Mean Annual Load (kg/yr),8.44,0.838
OUT - Gross Pollutant Mean Annual Load (kg/yr),0.00,5.86
Flow In (ML/yr),4.4432,0.450069
ET Loss (ML/yr),0,0
Infiltration Loss (ML/yr),0,0
Low Flow Bypass Out (ML/yr),0,0
High Flow Bypass Out (ML/yr),0,0.225035
Orifice / Filter Out (ML/yr),4.11216,0.225035
Weir Out (ML/yr),0.330982,0
Transfer Function Out (ML/yr),0,0
Reuse Supplied (ML/yr),0,0
Reuse Requested (ML/yr),0,0
% Reuse Demand Met,0,0
% Load Reduction,0.00130537,-0.000222188
TSS Flow In (kg/yr),412.457,75.8594
TSS ET Loss (kg/yr),0,0
TSS Infiltration Loss (kg/yr),0,0
TSS Low Flow Bypass Out (kg/yr),0,0
TSS High Flow Bypass Out (kg/yr),0,37.9297
TSS Orifice / Filter Out (kg/yr),382.63,22.5803
TSS Weir Out (kg/yr),28.9769,0
TSS Transfer Function Out (kg/yr),0,0

TSS Reuse Supplied (kg/yr),0,0
TSS Reuse Requested (kg/yr),0,0
TSS % Reuse Demand Met,0,0
TSS % Load Reduction,0.206106,20.234
TP Flow In (kg/yr),1.00026,0.152228
TP ET Loss (kg/yr),0,0
TP Infiltration Loss (kg/yr),0,0
TP Low Flow Bypass Out (kg/yr),0,0
TP High Flow Bypass Out (kg/yr),0,0.0761142
TP Orifice / Filter Out (kg/yr),0.923953,0.0536652
TP Weir Out (kg/yr),0.0726318,0
TP Transfer Function Out (kg/yr),0,0
TP Reuse Supplied (kg/yr),0,0
TP Reuse Requested (kg/yr),0,0
TP % Reuse Demand Met,0,0
TP % Load Reduction,0.367424,14.7467
TN Flow In (kg/yr),8.46438,0.895682
TN ET Loss (kg/yr),0,0
TN Infiltration Loss (kg/yr),0,0
TN Low Flow Bypass Out (kg/yr),0,0
TN High Flow Bypass Out (kg/yr),0,0.447841
TN Orifice / Filter Out (kg/yr),7.84362,0.389964
TN Weir Out (kg/yr),0.601115,0
TN Transfer Function Out (kg/yr),0,0
TN Reuse Supplied (kg/yr),0,0
TN Reuse Requested (kg/yr),0,0
TN % Reuse Demand Met,0,0
TN % Load Reduction,0.23209,6.46178
GP Flow In (kg/yr),67.5537,5.85805
GP ET Loss (kg/yr),0,0
GP Infiltration Loss (kg/yr),0,0
GP Low Flow Bypass Out (kg/yr),0,0
GP High Flow Bypass Out (kg/yr),0,2.92902
GP Orifice / Filter Out (kg/yr),0,0
GP Weir Out (kg/yr),0,0
GP Transfer Function Out (kg/yr),0,0
GP Reuse Supplied (kg/yr),0,0
GP Reuse Requested (kg/yr),0,0
GP % Reuse Demand Met,0,0
GP % Load Reduction,100,50.0001
PET Scaling Factor, ,

Generic treatment nodes
Location,6/Atlan Stormsacks STS.6090_SQIDEP,10/Atlan Filter (FIL-3.0) Full Height_SQIDEP
ID,7,9
Node Type,GPTNode,GenericNode
Lo-flow bypass rate (cum/sec),0,0
Hi-flow bypass rate (cum/sec),0.192,0.03
Flow Transfer Function

Input (cum/sec),0,0
Output (cum/sec),0,0
Input (cum/sec),10,10
Output (cum/sec),10,10
Input (cum/sec), ,
Output (cum/sec), ,
Input (cum/sec), ,
Output (cum/sec), ,
Input (cum/sec), ,
Output (cum/sec), ,
Input (cum/sec), ,
Output (cum/sec), ,
Input (cum/sec), ,
Output (cum/sec), ,
Input (cum/sec), ,
Output (cum/sec), ,
Input (cum/sec), ,
Output (cum/sec), ,
Input (cum/sec), ,
Output (cum/sec), ,
Gross Pollutant Transfer Function
Enabled,True,True
Input (kg/ML),0,0
Output (kg/ML),0,0
Input (kg/ML),15,15
Output (kg/ML),0,15
Input (kg/ML), ,
Output (kg/ML), ,
Input (kg/ML), ,
Output (kg/ML), ,
Input (kg/ML), ,
Output (kg/ML), ,
Input (kg/ML), ,
Output (kg/ML), ,
Input (kg/ML), ,
Output (kg/ML), ,
Input (kg/ML), ,
Output (kg/ML), ,
Input (kg/ML), ,
Output (kg/ML), ,
Input (kg/ML), ,
Output (kg/ML), ,
Total Nitrogen Transfer Function
Enabled,True,True
Input (mg/L),0,0
Output (mg/L),0,0
Input (mg/L),100,100
Output (mg/L),75,41
Input (mg/L), ,
Output (mg/L), ,

Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Total Phosphorus Transfer Function
Enabled,True,True
Input (mg/L),0,0
Output (mg/L),0,0
Input (mg/L),100,100
Output (mg/L),53,26
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Total Suspended Solids Transfer Function
Enabled,True,True
Input (mg/L),0,0
Output (mg/L),0,0
Input (mg/L),100,100
Output (mg/L),55,15
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,

Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
Input (mg/L), ,
Output (mg/L), ,
TSS Flow based Efficiency Enabled,Off,Off
TSS Flow based Efficiency, ,
TP Flow based Efficiency Enabled,Off,Off
TP Flow based Efficiency, ,
TN Flow based Efficiency Enabled,Off,Off
TN Flow based Efficiency, ,
GP Flow based Efficiency Enabled,Off,Off
GP Flow based Efficiency, ,
IN - Mean Annual Flow (ML/yr),1.57,4.45
IN - TSS Mean Annual Load (kg/yr),597,412
IN - TP Mean Annual Load (kg/yr),0.992,0.997
IN - TN Mean Annual Load (kg/yr),3.30,8.44
IN - Gross Pollutant Mean Annual Load (kg/yr),35.2,0.00
OUT - Mean Annual Flow (ML/yr),1.57,4.45
OUT - TSS Mean Annual Load (kg/yr),329,87.0
OUT - TP Mean Annual Load (kg/yr),0.526,0.314
OUT - TN Mean Annual Load (kg/yr),2.48,3.83
OUT - Gross Pollutant Mean Annual Load (kg/yr),0.00,0.00
Flow In (ML/yr),1.56984,4.44283
ET Loss (ML/yr),0,0
Infiltration Loss (ML/yr),0,0
Low Flow Bypass Out (ML/yr),0,0
High Flow Bypass Out (ML/yr),0,0.339197
Orifice / Filter Out (ML/yr),0,0
Weir Out (ML/yr),0,0
Transfer Function Out (ML/yr),1.56984,4.10397
Reuse Supplied (ML/yr),0,0
Reuse Requested (ML/yr),0,0
% Reuse Demand Met,0,0
% Load Reduction,0,-0.00753123
TSS Flow In (kg/yr),597.184,411.452
TSS ET Loss (kg/yr),0,0
TSS Infiltration Loss (kg/yr),0,0
TSS Low Flow Bypass Out (kg/yr),0,0
TSS High Flow Bypass Out (kg/yr),0,29.6941
TSS Orifice / Filter Out (kg/yr),0,0
TSS Weir Out (kg/yr),0,0
TSS Transfer Function Out (kg/yr),328.449,57.2642
TSS Reuse Supplied (kg/yr),0,0
TSS Reuse Requested (kg/yr),0,0
TSS % Reuse Demand Met,0,0
TSS % Load Reduction,45.0004,78.8655

TP Flow In (kg/yr),0.991413,0.995901
TP ET Loss (kg/yr),0,0
TP Infiltration Loss (kg/yr),0,0
TP Low Flow Bypass Out (kg/yr),0,0
TP High Flow Bypass Out (kg/yr),0,0.0744614
TP Orifice / Filter Out (kg/yr),0,0
TP Weir Out (kg/yr),0,0
TP Transfer Function Out (kg/yr),0.525459,0.239596
TP Reuse Supplied (kg/yr),0,0
TP Reuse Requested (kg/yr),0,0
TP % Reuse Demand Met,0,0
TP % Load Reduction,46.9989,68.465
TN Flow In (kg/yr),3.30069,8.43965
TN ET Loss (kg/yr),0,0
TN Infiltration Loss (kg/yr),0,0
TN Low Flow Bypass Out (kg/yr),0,0
TN High Flow Bypass Out (kg/yr),0,0.616236
TN Orifice / Filter Out (kg/yr),0,0
TN Weir Out (kg/yr),0,0
TN Transfer Function Out (kg/yr),2.47533,3.20793
TN Reuse Supplied (kg/yr),0,0
TN Reuse Requested (kg/yr),0,0
TN % Reuse Demand Met,0,0
TN % Load Reduction,25.0056,54.6882
GP Flow In (kg/yr),35.2323,0
GP ET Loss (kg/yr),0,0
GP Infiltration Loss (kg/yr),0,0
GP Low Flow Bypass Out (kg/yr),0,0
GP High Flow Bypass Out (kg/yr),0,0
GP Orifice / Filter Out (kg/yr),0,0
GP Weir Out (kg/yr),0,0
GP Transfer Function Out (kg/yr),0,0
GP Reuse Supplied (kg/yr),0,0
GP Reuse Requested (kg/yr),0,0
GP % Reuse Demand Met,0,0
GP % Load Reduction,100,100

Other nodes
Location,Spilt Catchment Nodes,Receiving Node
ID,4,6
Node Type,JunctionNode,ReceivingNode
IN - Mean Annual Flow (ML/yr),4.90,4.90
IN - TSS Mean Annual Load (kg/yr),147,147
IN - TP Mean Annual Load (kg/yr),0.444,0.444
IN - TN Mean Annual Load (kg/yr),4.66,4.66
IN - Gross Pollutant Mean Annual Load (kg/yr),5.86,5.86
OUT - Mean Annual Flow (ML/yr),4.90,4.90
OUT - TSS Mean Annual Load (kg/yr),147,147
OUT - TP Mean Annual Load (kg/yr),0.444,0.444
OUT - TN Mean Annual Load (kg/yr),4.66,4.66

OUT - Gross Pollutant Mean Annual Load (kg/yr),5.86,5.86
% Load Reduction,1.16E-3,1.16E-3
TSS % Load Reduction,80.5,80.5
TN % Load Reduction,54.2,54.2
TP % Load Reduction,72.6,72.6
GP % Load Reduction,94.6,94.6

Links
Location,Drainage Link,Drainage Link,Drainage Link,Drainage Link,Drainage Link,Drainage Link,Drainage Link,Drainage Link,Drainage Link
Source node ID,2,1,3,7,8,9,4,5,10
Target node ID,7,8,7,8,9,4,6,10,4
Muskingum-Cunge Routing,Not Routed,Not Routed,Not Routed,Not Routed,Not Routed,Not Routed,Not Routed,Not Routed,Not Routed
Muskingum K, , , , , , , , ,
Muskingum theta, , , , , , , , ,
IN - Mean Annual Flow (ML/yr),1.50,2.87,71.0E-3,1.57,4.45,4.45,4.90,0.450,0.450
IN - TSS Mean Annual Load (kg/yr),588,83.9,9.52,329,412,87.0,147,75.9,60.5
IN - TP Mean Annual Load (kg/yr),0.970,0.474,22.1E-3,0.526,0.997,0.314,0.444,0.152,0.130
IN - TN Mean Annual Load (kg/yr),3.17,5.99,0.136,2.48,8.44,3.83,4.66,0.896,0.838
IN - Gross Pollutant Mean Annual Load (kg/yr),35.2,67.6,0.00,0.00,0.00,0.00,5.86,5.86,5.86
OUT - Mean Annual Flow (ML/yr),1.50,2.87,71.0E-3,1.57,4.45,4.45,4.90,0.450,0.450
OUT - TSS Mean Annual Load (kg/yr),588,83.9,9.52,329,412,87.0,147,75.9,60.5
OUT - TP Mean Annual Load (kg/yr),0.970,0.474,22.1E-3,0.526,0.997,0.314,0.444,0.152,0.130
OUT - TN Mean Annual Load (kg/yr),3.17,5.99,0.136,2.48,8.44,3.83,4.66,0.896,0.838
OUT - Gross Pollutant Mean Annual Load (kg/yr),35.2,67.6,0.00,0.00,0.00,0.00,5.86,5.86,5.86

Catchment Details
Catchment Name,S15582-260324-MUSIC-REVA
Timestep,6 Minutes
Start Date,1/01/1997
End Date,31/12/2006 11:54:00 PM
Rainfall Station, 40496 CALOUNDRA
ET Station,User-defined monthly PET
Mean Annual Rainfall (mm), 1348
Mean Annual ET (mm), 1618