

**ADVERTISED
PLAN****165 Williamson Road,
South Morang VIC 3752****Stormwater Management Plan**

Project No.: 24315
12 August 2026
Revision No. 2

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EVISION	DATE	COMMENT	AUTHOR	CHECKER
1	26 th June 2025	Schematic Design	DR	DK
2	12 th Aug 2026	Design Revision	RY	JO

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M A T T E R

1 Executive Summary

This Stormwater Management Plan (SMP) has been prepared to support the proposed development located at 165 Williamson Road, South Morang, VIC within the local jurisdiction of the City of Whittlesea. The development comprises the construction of a data centre along with supporting car parking, access roads, sub-station and fuel storage areas. These works will result in changes to the site's impervious areas, necessitating a robust and compliant stormwater strategy.

The SMP evaluates the existing site conditions, current drainage infrastructure, and flood risks, and outlines a stormwater management approach that aligns with Council regulations, Melbourne Water's Water Sensitive Urban Design (WSUD) guidelines, and best practice principles. The strategy focuses on mitigating both stormwater quantity and quality impacts through:

- Implementation of On-site Stormwater Detention (OSD) to control peak flows and reduce effects downstream.
- Integration of WSUD measures, demonstrating compliance with best practice targets.
- Design of a new underground stormwater network to accommodate a 1 in 20-year storm event, with conservative assumptions to address existing downstream capacity constraints.

The development is not subject to inundation and is therefore located outside designated flood-prone areas.

This SMP provides a framework that supports both development approval and future design progression, ensuring that stormwater is effectively managed to protect downstream environments, public infrastructure, and site users.

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2 Introduction

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2.1 Purpose

Increased intensity of urbanisation of any site drives a need for effective stormwater management to appropriately manage effects of the proposed development on the natural receiving environment. Consequently, regulatory authorities set criteria that new developments need to satisfy to ensure adverse effects on the natural receiving environment is effectively mitigated. The stormwater mitigation measures are broadly characterised into two categories:

- Water Quantity – the increase in impervious surfaces will lead to increased stormwater flows which will need to be mitigated. This is typically done by the provision of detention of the increased runoff from the pre-development baseline in stormwater storage devices with controlled outlets.
- Water Quality – the proposed change in land use from the pre-existing greenfield baseline to an extensive impervious character will lead to generation of polluted stormwater from the various types of impervious surfaces created by the development. As such, mitigation measures need to be provisioned to ensure the treatment of stormwater to the required levels through the implementation of Water Sensitive Urban Design (WSUD) practises.

This Stormwater Management Plan (SMP) report has been prepared to provide an initial description of the proposed stormwater drainage strategy for discussion purposes. The information used to prepare this report includes the architectural drawings, project design team meetings, site investigations, existing condition surveys, existing infrastructure documents, advice from the relevant authorities, and associated reports. This report should be read in conjunction with the Design Development drawings including documentation and reports from other relevant design disciplines.

2.2 Objectives

The purpose of this report is to present a stormwater management strategy to collect, convey, treat and discharge stormwater for the proposed development which will meet the performance requirements of the proposed development whilst mitigating adverse impacts to surrounding environments and existing infrastructure.

The report will outline how the development will achieve the following key objectives:

- Safely and effectively convey stormwater away from the facility to approved points of discharge.
- Mitigate the flood impact of the development on existing infrastructure, overland flow paths and watercourses by controlling the quantity of stormwater discharged off the site.
- Incorporate best practice WSUD principles to protect downstream watercourses and reduce potable water demand.

2.3 Legislation, Regulation & Guidelines

The proposed stormwater management has been formulated as basis of compliance with the legislation and associated regulatory documents as follows:

- Environmental Protection Act 1993
- Environment Protection (Water Quality) Policy 2015
- National Construction Code
- Australian/New Zealand Standard AS/NZS 3500.3-2018 (Plumbing and Drainage, Part 3: Stormwater Drainage)

Stormwater management measures outlined in this report will be designed in reference to the following guidelines and documents:

- Melbourne Water MUSIC Modelling Guidelines – 2024
- Climate Change in Australia (CSIRO and Bureau of Meteorology) 2015
- Development and Stormwater Management Design Guide - City of Unley 2016
- Australian Rainfall and Runoff (ARR) 2019
- Bureau of Meteorology for Rainfall Data and IFD Charts

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3 Existing Condition

3.1 Site Description



The site is located at the corner of Williamson Road and Findon Road in South Morang, Victoria. The area of the site subject to development is 86,411m². The site is located in commercially zoned land and is adjacent to a railway transport corridor at the southern boundary. Williamson Road is located at the north of the property which is an declared uncompleted road. Findon Road is located at the eastern boundary which is complete with carriageways, nature strips and roadside swale. Eastern boundary is adjacent to the South Morang Sub-Station. The site is accessed off Findon Road with culvert crossing of

The lot is currently vacant with grass cover, vegetation and trees onsite. The site is relatively flat with a gentle slope down towards east. Refer to the existing site levels contained in Appendix A.

3.2 Existing Stormwater Infrastructure

From desktop research and limited survey information available, there appears to be a significant lack of stormwater drainage infrastructure able to service the site. Findon Road is drained by a roadside swale flows south toward the Yan Yean Pipe Track, a walking/cycling public amenity that is adjacent to a swale.



Fig.02: Adjacent Stormwater Infrastructure

Further verification of the existing swales within and adjacent to the subject site will be undertaken as the design progresses.

3.3 Flood Risk

Desktop research shows that the site is not subject flooding risks and is situated at the high point within the localised catchment context.

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4 Proposed Development

4.1 Description

The developer proposes to construct data centre with supporting car parks, sub-station and tank/fuel storage areas.



Fig.03: Proposed Development

5 Stormwater Management Strategy

5.1 Pre and Post Development Comparative Analysis

The following tables present the pre-development and post-development site areas, enabling a clear comparison of impervious surfaces and the changes in site runoff characteristics.

Coverage Type	Runoff Coefficient (C)	Pre-Development		Post-Development	
		Area	%	Area	%
Grass	0.30	86411	100	45266	52.4
Paved	0.90	-	-	22132	25.6
Building	1.00	-	-	19013	22.0
Total		86411	100	86411	100

Table 01: Pre to Post Development Imperviousness

Table 1 demonstrates that the site has a low pre-development imperviousness. Following development, total imperviousness increases from 0.30 to 0.61, which is generally classified as medium from a catchment-wide perspective. This increase in impervious cover will elevate peak stormwater runoff flows triggering the need to for mitigative measures as part of the site stormwater management. Refer to Appendix B for site coverage plan and area breakdown.

5.2 Design Objectives

The stormwater design and management for the site is required to be in accordance with Councils requirements

- Volume Control - On-Site Detention (OSD). Detention tanks must accommodate required OSD storage for the 10% AEP rainfall depth.
- Flow Discharge Control: Post-development peak discharge must not exceed the pre-development 20% Annual Exceedance Probability (AEP) rate. Detention tank shall attenuate flows.
- Freeboard Requirements: Habitable floor levels must maintain a minimum freeboard, governed by the higher of:
 - 150 mm above kerb level
 - 300 mm above the 100-year floodplain level
- Landscape Integration: The stormwater strategy must align with landscape design, including considerations for greening and tree canopy initiatives.

5.3 Legal Point of Discharge (LPoD)

An application for the LPoD has been lodged with Council with approval pending. Given the lack of formal stormwater drainage networks in the area and the existing fall patterns, a legal point of discharge is nominated at this conceptual stage to the existing roadside swale drain. The exact location of the discharge point is to be determined following receipt of detailed survey and advice from Council.

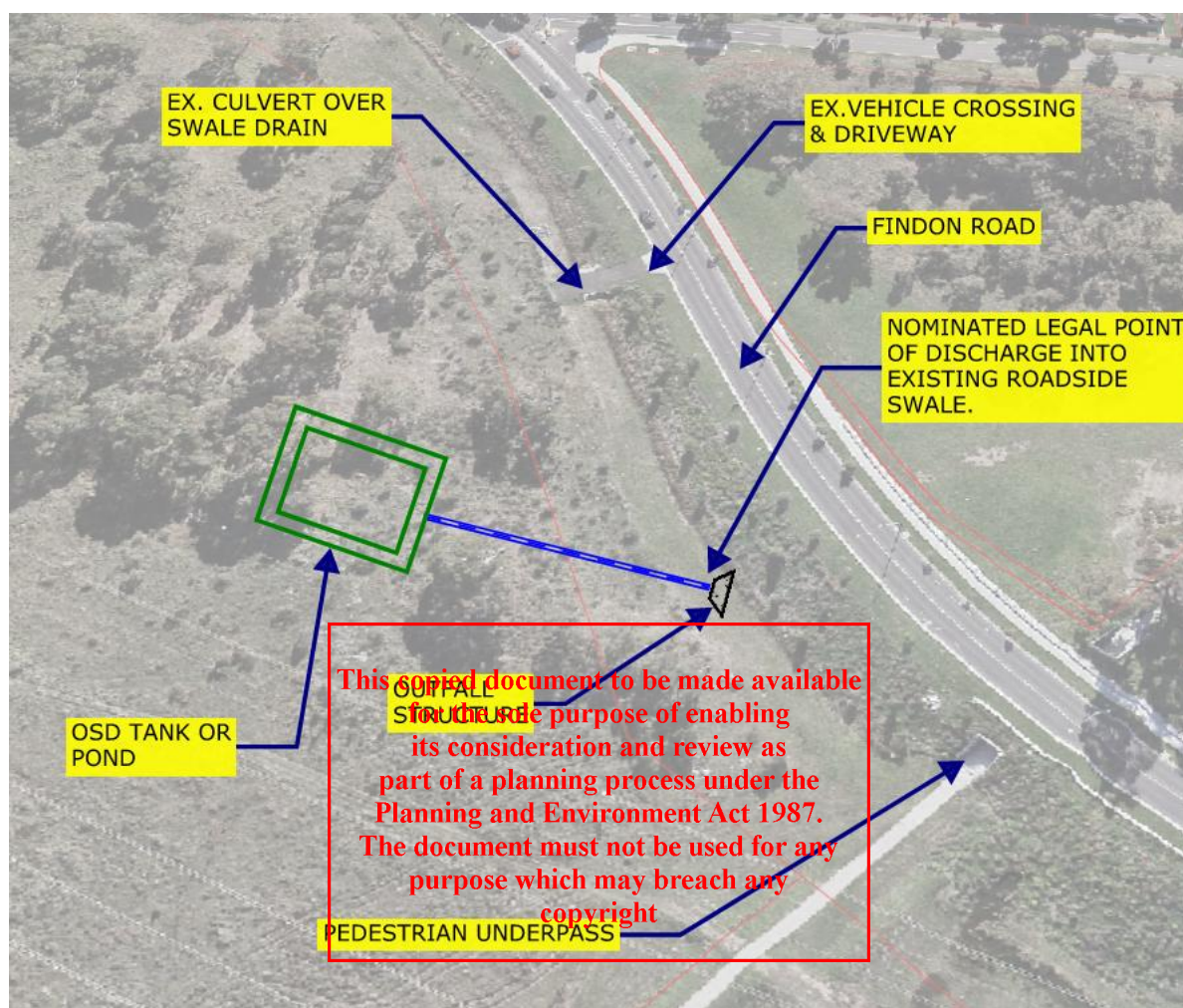


Fig.04: Nominated Legal Point of Discharge

5.4 WSUD Systems

Water Sensitive Urban Design (WSUD) aims to integrate water management into urban planning and development in a sustainable and environmentally conscious manner. Its primary technical goal is the removal of pollutants from stormwater generated primarily by newly created impervious surfaces. Council has confirmed the requirement of WSUD pollutant removal targets will need to be demonstrated as part of the SMP.

In accordance with the Melbourne Water MUSIC Modelling guidelines, the performance targets for pollutant removal as follows:

Pollutant Type	Target Removal
Total Suspended Solids (TSS)	80% of annual load
Total Phosphorus (TP)	45% of annual load
Total Nitrogen (TN)	45% of annual load
Gross Pollutants	70% of annual load

Table 03: MUSIC Model Performance Targets

6 Stormwater Quantity

Stormwater quantity (volume) reduction will be required as a mitigation measure for the proposed development, subject to Council approval. The overarching approach is to reduce post-development outflows to align with pre-development flow rates. This will be achieved through the implementation of On-site Stormwater Detention (OSD), using a detention storage device, such as a tank, located near the legal point of discharge. The underground pipe drainage system will be designed to accommodate the 5% AEP storm, in accordance with National Construction Code (NCC) requirements.

6.1 Storage & Peak Flow Mitigation

The primary objective of the stormwater volume management strategy is to mitigate the increase in peak flows resulting from the development, particularly given the transition to more intensive impervious land use. The proposed design was hydrologically analysed using the Rational Method for both pre- and post-development scenarios, based on the following computational parameters:

Computation Methodology	Modified Rational Method
Location	South Morning
Permissible Site Discharge	20% AEP
Onsite Detention (OSD) Storage	part of 10% AEP process under the Planning and Environment Act 1987

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6.2 OSD Storage Volumes

The following figure illustrates the outputs from the computation. Refer to Appendix C for detailed OSD outputs.

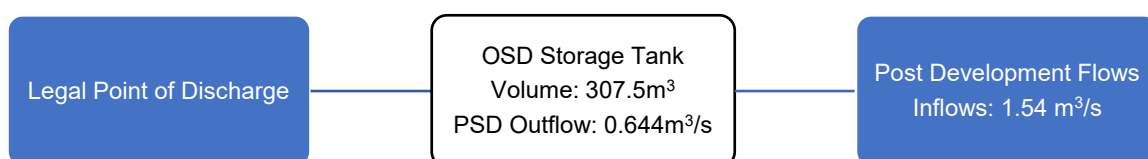


Fig.05 OSD Storage Schematic

The detention system is proposed to consist of a storage tank that will capture stormwater runoff during design rainfall events up to the 10% Annual Exceedance Probability (AEP). The tank will discharge at a controlled rate equivalent to the pre-development 20% AEP flow rate, with the stored volume generally draining out within a 6-hour period. Table 5 summarises the proposed OSD design:

Catchment	Area (m²)	PSD (L/s)	Storage (m³)	Storage Device Type	Nominal Device Size
Site	86,411	644	307.5	Rectangular	Tank or Pond (TBC)

Table 05: OSD Design Summary

6.3 Private Stormwater Drainage Network

A new primary underground stormwater drainage network will be constructed to manage surface water runoff generated during the 5% AEP storm event. The system will comprise pipes, pits, detention tanks, subsoil drains, pit covers, and inspection points, all designed to capture and convey runoff to the Legal Point of Discharge (LPoD).

The drainage network has been designed in accordance with *AS/NZS 3500.3: Plumbing and Drainage – Part 3: Stormwater Drainage*. Pits will be constructed as reinforced concrete chambers, while pipework will comprise either concrete or high-strength plastic, selected based on site-specific load and hydraulic requirements. All drainage components will utilise industry-standard sizes and materials. Refer to Appendix A for schematic drainage design.

6.4 Rainwater Reuse

The development proposes the capture of roof water rainwater tank for reuse in non-potable applications, including landscape irrigation and ground-level toilet flushing.

Overflow from the rainwater reuse tank will discharge into the civil stormwater drainage network. On-site detention (OSD) tanks will be positioned downstream of the rainwater tanks to provide additional flow attenuation.

For further details on water reuse initiatives, refer to the Environmental Sustainability Consultant (ESD). Water balance calculations are provided by the Hydraulics Engineer.

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7 Stormwater Quality

7.1 MUSIC Model

The recognised tool for establishing pollutant loads from the site's constituent surface types (paved, roof, carpark, landscape) is a software called MUSIC which is an acronym for Model for Urban Stormwater Improvement Conceptualization. MUSIC is a widely used tool in the industry which assists engineers, urban planners, and environmental professionals to analyse and optimize stormwater management strategies in urban areas.

It can simulate a wide range of stormwater management practices, such as detention basins, green roofs, permeable pavements, and biofiltration systems. Overall, the MUSIC model provides a performance rating of the stormwater management system in terms of percentage removal of the target pollutants.

7.2 Treatment Train Configuration

The following diagram provides a high-level illustration of proposed treatment train:

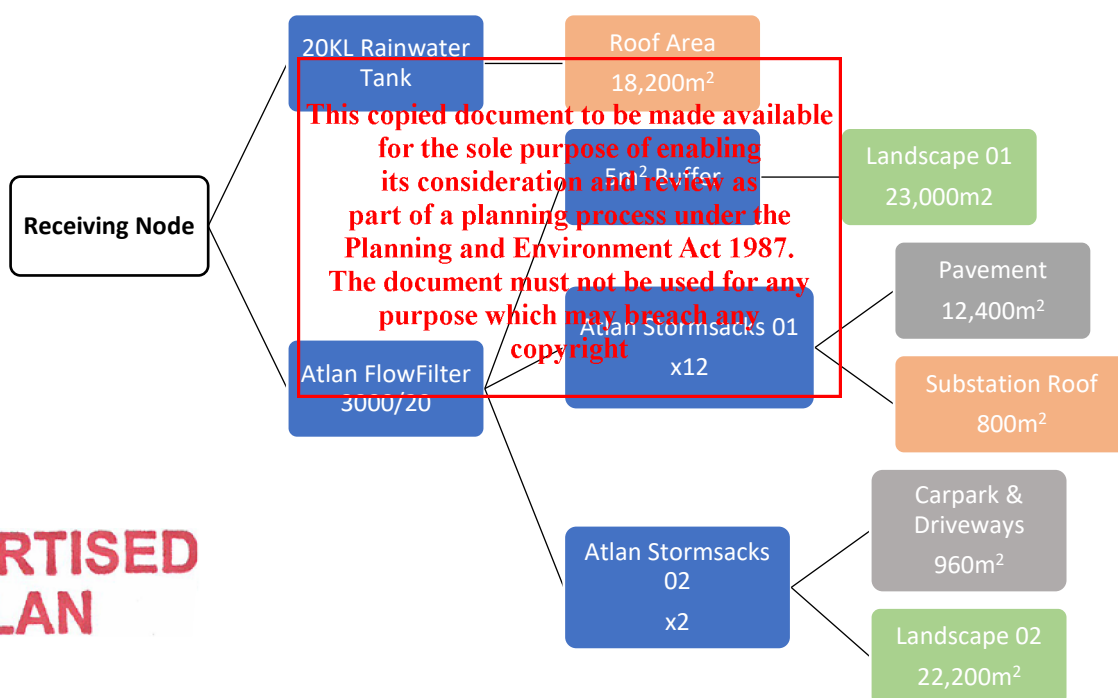


Fig.06: Treatment Train Schematic

Area Description	Surface Type	Area (m ²)	Treatment Devices
Roof	Impervious	18,200	Rainwater Tank
Landscape 01	Pervious	23,000	5m ² Buffer
Pavement	Impervious	12,400	Atlan FlowFilter & Stormsack
Substation Roof	Impervious	800	Atlan FlowFilter & Stormsack
Carpark & Driveways	Impervious	960	Atlan FlowFilter & Stormsack
Landscape 02	Pervious	22,200	Atlan FlowFilter & Stormsack

Table 06: Proposed WSUD Measures - Summary

The above are to serve as a performance specification for the respective treatment devices. Detailed design for these elements will be by other parties as follows:

- Refer to Hydraulics Engineer and ESD Consultant for rainwater tank details.
- Refer to Landscape Architect for details relating to the buffer strips.

Refer to Appendix D for detailed MUSIC Modelling results.

7.3 Results – Pollutant Removal

The preliminary design of the treatment train as outlined above was tested on MUSIC model to assess its effectiveness against the targeted pollutant removal rates.

The following table outlines the performance of the proposed stormwater management in relation to WSUD objectives:

Pollutant Type	Target Removal Rates	Removal Rates Achieved %
Total Suspended Solids (TSS)	80% of annual load	85.5
Total Phosphorus (TP)	60% of annual load	79.9
Total Nitrogen (TN)	45% of annual load	49.1
Gross Polltants	70% of annual load	95.5

Table 07: MUSIC Modelling Results

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8 Overland Flows and Flooding

8.1 Design Provisions for Flood Protection

The site is not identified as subject to flooding hazards; however, the design of the proposed development shall consider measures to adequately protect the critical elements from a localised overland flows perspective.

The protective measures must seek to avoid or minimise risks to prevent floodwater ingress into buildings and critical assets where damage or operational disruption is likely.

- building floor levels are set above the external levels in accordance with the NCC design guidance
- critical infrastructure like sub-stations and fuel storage areas set clear of overland flow paths

The design of the site layout will account for the above as a design response to mitigate against the flooding risk.

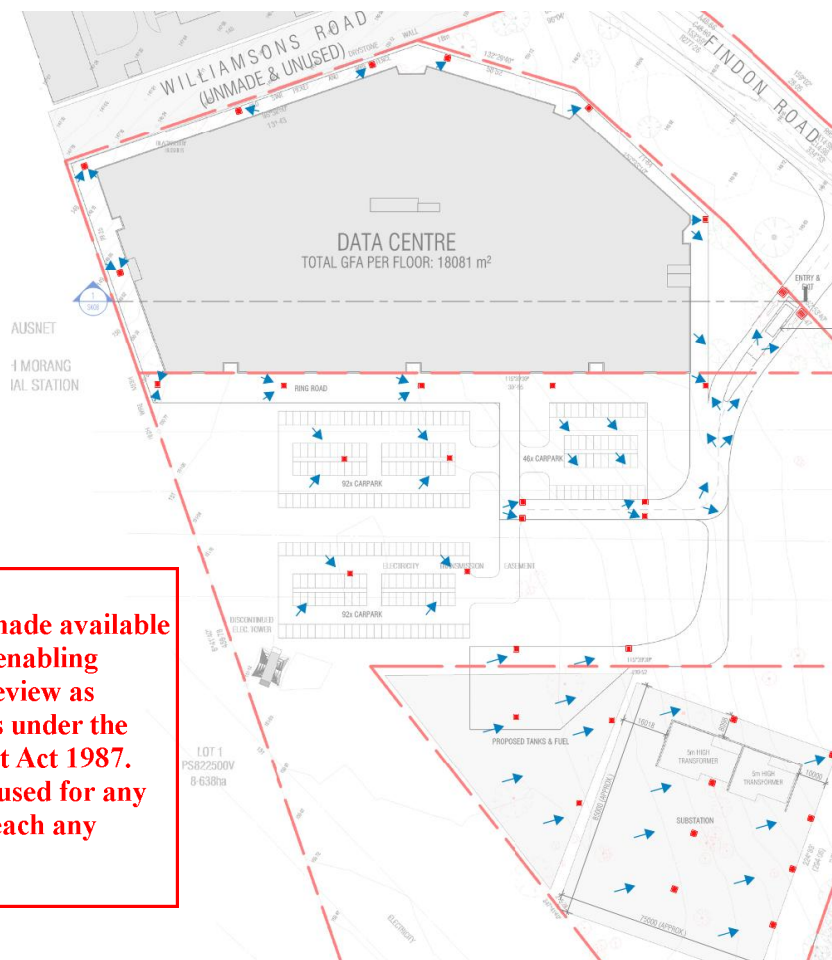
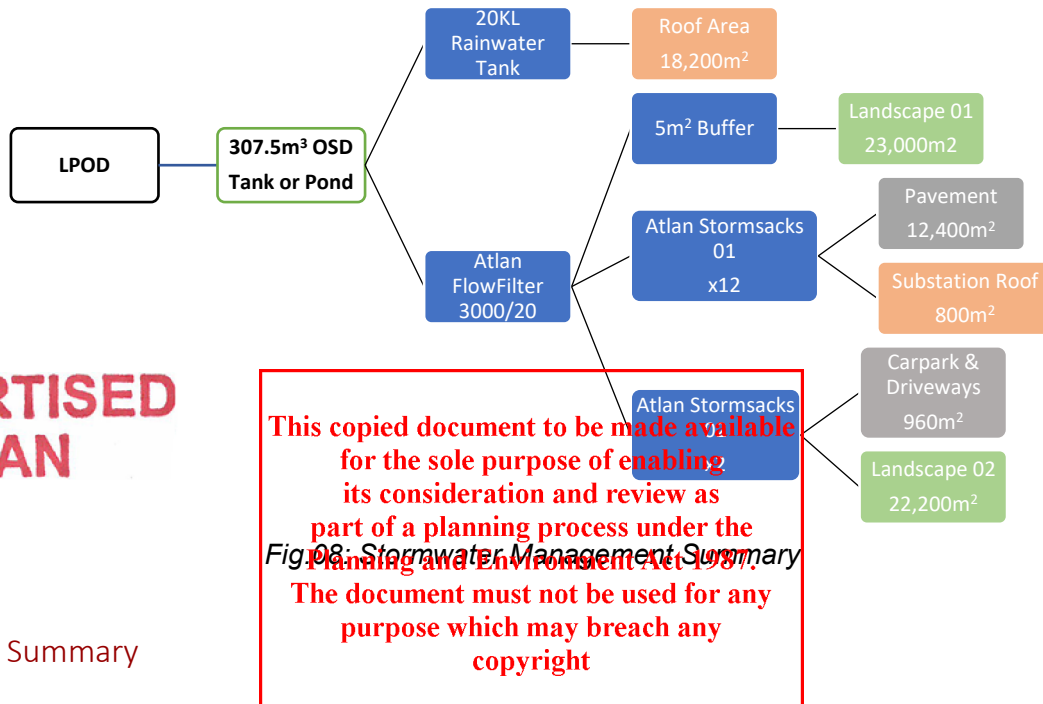


Fig.07 – Conceptual Overland Flowpaths

9 Conclusions

9.1 Strategy Schematic

The following schematic diagram summarises the stormwater management strategy proposed to service the development.



9.2 Summary

This SMP analyses the existing site and the proposed development to prepare a robust means of stormwater management to enable the proposed development at the subject site. The report considers the existing site features and nature of the development whilst responding the best practise design outcomes as targeted by the compliance requirements.

The SMP demonstrates that the proposed stormwater management measures are the best practical option to minimize any potential for adverse effects on the existing infrastructure and surrounding receiving environments.

9.3 Design Progression

This report has been compiled for use by the developer and their consultant team directly involved with the project in relation to this site. The report will be used to support the development approval processes as part of an overall submission package. The report should not be used or relied upon for any other developments.

The SMP will be updated as the design progresses and further stakeholder input is received. The intention is to retain the objectives of the strategy proposed within this SMP with regard to any potential changes resulting from input from relevant stakeholders and further design development

10 Limitations

The report has been prepared for this specific project as described to Matter Consulting and its extent is limited to the scope of work agreed between the parties. The assessment contained herein is largely desktop based relying on survey, architectural and other data provided by the client along with services information from Dial Before U Dig and publicly available GIS information. All third-party information is considered current at the time of this document's production. No responsibility is accepted by Matter Consulting for the accuracy of information from third party sources and/or the use of any part of this report in any other context or for purposes other than intended.

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Appendix A - Schematic Drainage Design

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LEGEND

- 

PROPOSED
GRADED INLET PIT
- 

PROPOSED
JUNCTION PIT
- 

STORMWATER PIPE
MIN 100 DIA UPVC 1:150 (U.N.O)
- 

ON SITE DETENTION
- 

OUTFALL (INDICATIVE)
- 

OVERLAND FLOWPATHS

ALL INTERNAL DRAINAGE WORKS ARE TO BE IN ACCORDANCE WITH A.S./N.Z.S.3500.3-2018 PART 3 'STORMWATER DRAINAGE SYSTEMS' AND IN ACCORDANCE WITH MANUFACTURERS DETAILS AND SPECIFICATIONS

INSTALL AG DRAINS TO THE PERIMETER OF LANDSCAPE AREAS INTERFACING WITH PAVED AREAS AND BEHIND RETAINING WALLS. CONNECT AG DRAINS INTO ADJACENT STORMWATER PITS

CONTRACTOR IS TO ENSURE THAT ANY EXISTING STORMWATER REMAINS FUNCTIONAL OR IS REDIRECTED TO AN ALTERNATIVE POINT OF DISCHARGE DURING CONSTRUCTION. AN ALLOWANCE SHOULD BE MADE FOR ALL TEMPORARY WORKS AS REQUIRED.

ALL PIT AND PIPE SIZES SHOWN ON THIS SKETCH ARE NOMINAL. FINAL GRADE AND LOCATION TBC.

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

M A T T E R

Project: DATA CENTRE - SOUTH MORANG

Job No.: 24315

Sketch Title: SCHEMATIC DESIGN

Sketch No.: CSK-001

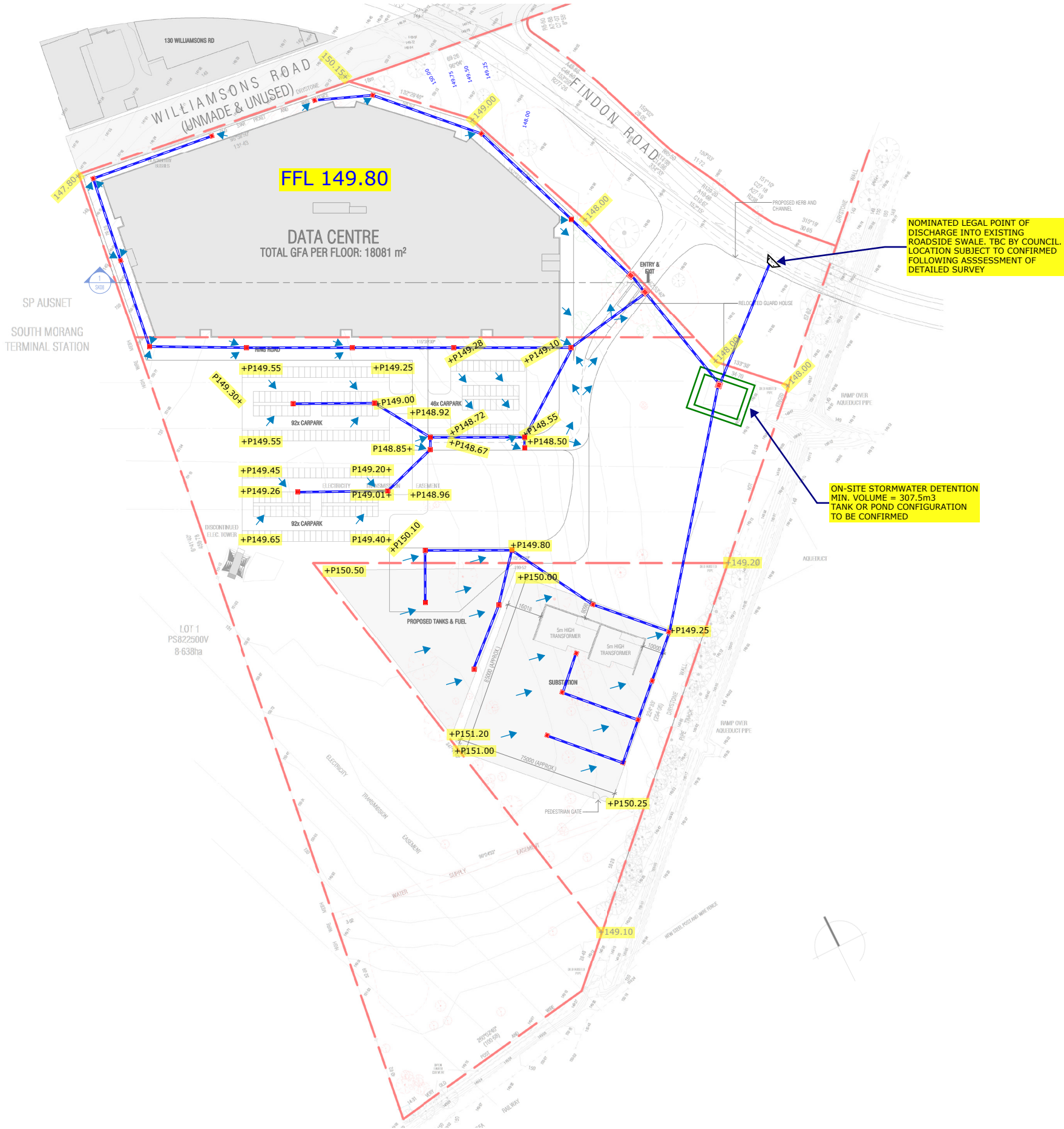
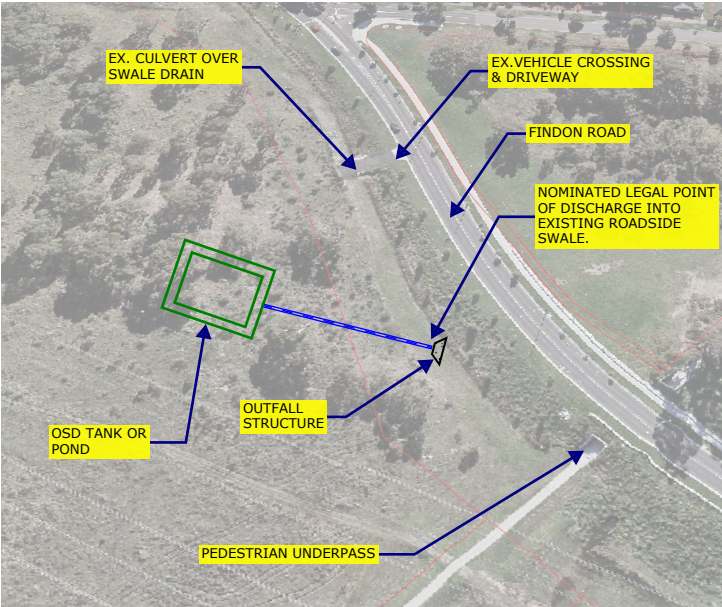
By: DR

Date: 30/06/2025

S:\24\24315\Engineering\Civil\CAD\04 SKETCH\24315-CSK-001-SITE PLAN.pdf

Data Centre
165 Williamsons Road, South Morang

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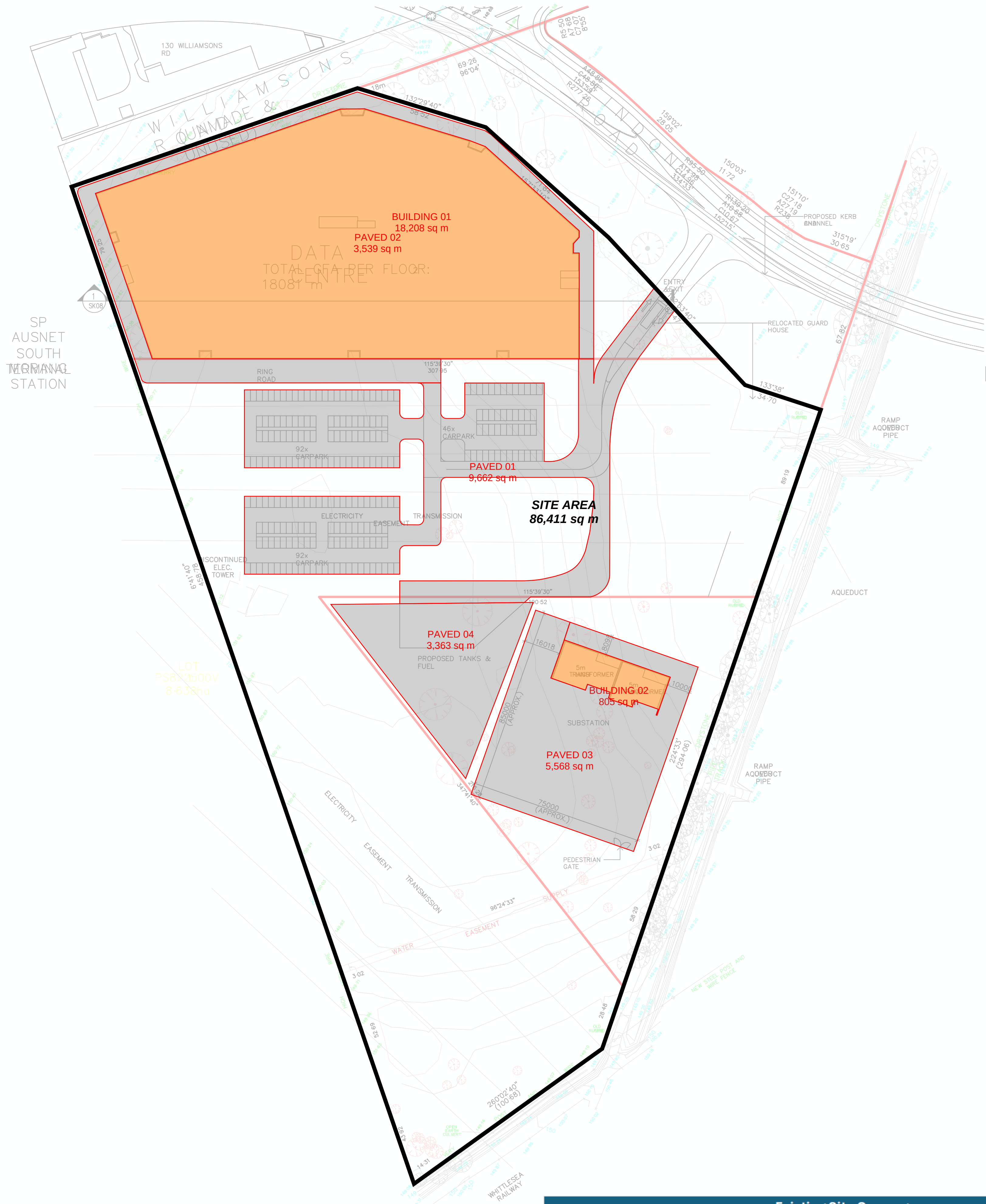
Appendix B - Proposed Site Coverage

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Existing Site Coverage				
Area ID	Description	Area (m ²)	Runoff Coefficient	Area Equivalent
Site Area	Pervious	86411	0.30	25923
Total		86411	0.30	25923

Proposed Site Coverage				
Area ID	Description	Area (m ²)	Runoff Coefficient	Area Equivalent
Building 01	Impervious	18208	1.00	18208.0
Building 02	Impervious	805	1.00	805.0
Paved 01	Impervious	9662	0.90	8695.8
Paved 02	Impervious	3539	0.90	3185.1
Paved 03	Impervious	5568	0.90	5011.2
Paved 04	Impervious	3363	0.90	3026.7
Grass	Pervious	45266	0.30	13579.8
Total		86411	0.61	52512

SCALE 1:1000 @ A1

M A T T E R

Project: DATA CENTRE - 165 WILLIAMSON'S ROAD

Job No.: 24315

Sketch Title: SITE COVERAGE

Sketch No.: CSK-002

By: DR

Date: 25/06/2025

Appendix C - OSD Calculations

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Calculations**M A T T E R**

Data Centre - SMP & WSUD

job no.	24315	designed	DK	date	27/06/2025	page no.	
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Stormwater detention/infiltration design (via Modified Rational Method)**Location of design**

USER DATA

Pre-development flows

ARI adopted for pre-development

5

Pre-development time of concentration

5

minutes

Design Rainfall Intensity

89.47

mm/hr

Development areas

Roof	(c=1.0)	0	m ²
Concrete paving	(c=0.9)	0	m ²
Bitumen paving	(c=0.7)	0	m ²
Soft landscaping	(c=0.3)	86411	m ²
sum		86411	m ²

Pre-development weighted C

0.300

User override C

Adopted pre-development C

0.300**Maximum Pre-development flow****644.29**

l/s

Post-development flows

ARI adopted for post-development

10

Post-development time of concentration

5

minutes

Design Rainfall Intensity

105.71

mm/hr

Development areas

Roof	(c=1.0)	19013	m ²
Concrete paving	(c=0.9)	22132	m ²
Bitumen paving	(c=0.7)	0	m ²
Soft landscaping	(c=0.3)	45266	m ²
sum		86411	m ²

Post-development weighted C

0.608

User override C

Adopted pre-development C

0.608**Maximum Post-development flow****1541.90**

l/s

Difference between pre and post areas**0****Soil infiltration**Infiltration rate (l/s/m²)**0**

Infiltration area

0

Infiltration system absorption rate (l/s)

0.0**Required detention system capacity (l)****307391.3**

for a 9.58 minute event duration

Required detention system capacity (m³)**307.3913393**

calculations**M A T T E R**

project _____

job no. _____

designed _____

date _____

page no. _____

Intensity frequency duration table

Iteration	Duration	10 year	Post-development	Difference b/w	Required detention
No.	(min)	mm/hr	flowrate (l/s)	pre and post flows (l/s)	volume (litres)
0	5	105.707	1541.90	897.61	269283
1	7.5	89.9939	1312.70	668.41	300783
2	3.33333	121.257	1768.72	1124.42	224885
3	8.75	84.1821	1227.93	583.63	306408
4	11.4583	74.3904	1085.10	440.81	303054
5	10.1042	78.8906	1150.74	506.45	307035
6	10.7813	76.5543	1116.66	472.37	305564
7	10.4427	77.6995	1133.37	489.07	306436
8	10.2734	78.2891	1141.97	497.68	306770
9	10.0195	79.1959	1155.20	510.90	307140
10	9.80794	79.973	1166.53	522.24	307324
11	9.5752	80.8512	1179.34	535.05	307391
12	9.35303	81.7137	1191.92	547.63	307318
13	9.46411	81.2794	1185.59	541.29	307372
14	9.51965	81.0646	1182.45	538.16	307386
15	9.60297	80.7451	1177.79	533.50	307391
16	9.67239	80.4814	1173.95	529.65	307381
17	9.63768	80.613	1175.87	531.57	307387
18	9.62032	80.679	1176.83	532.54	307390
19	9.59429	80.7782	1178.28	533.98	307391
20	9.57259	80.8612	1179.49	535.19	307391
21	9.58344	80.8197	1178.88	534.59	307391
22	9.57802	80.8405	1179.18	534.89	307391
23	9.58073	80.8301	1179.03	534.74	307391
24	9.58208	80.8249	1178.96	534.66	307391
25	9.58412	80.8171	1178.84	534.55	307391
26	9.58581	80.8106	1178.75	534.46	307391
27	9.58497	80.8139	1178.80	534.50	307391
28	9.58454	80.8155	1178.82	534.53	307391
29	9.58391	80.8179	1178.86	534.56	307391
30	9.58338	80.8199	1178.88	534.59	307391

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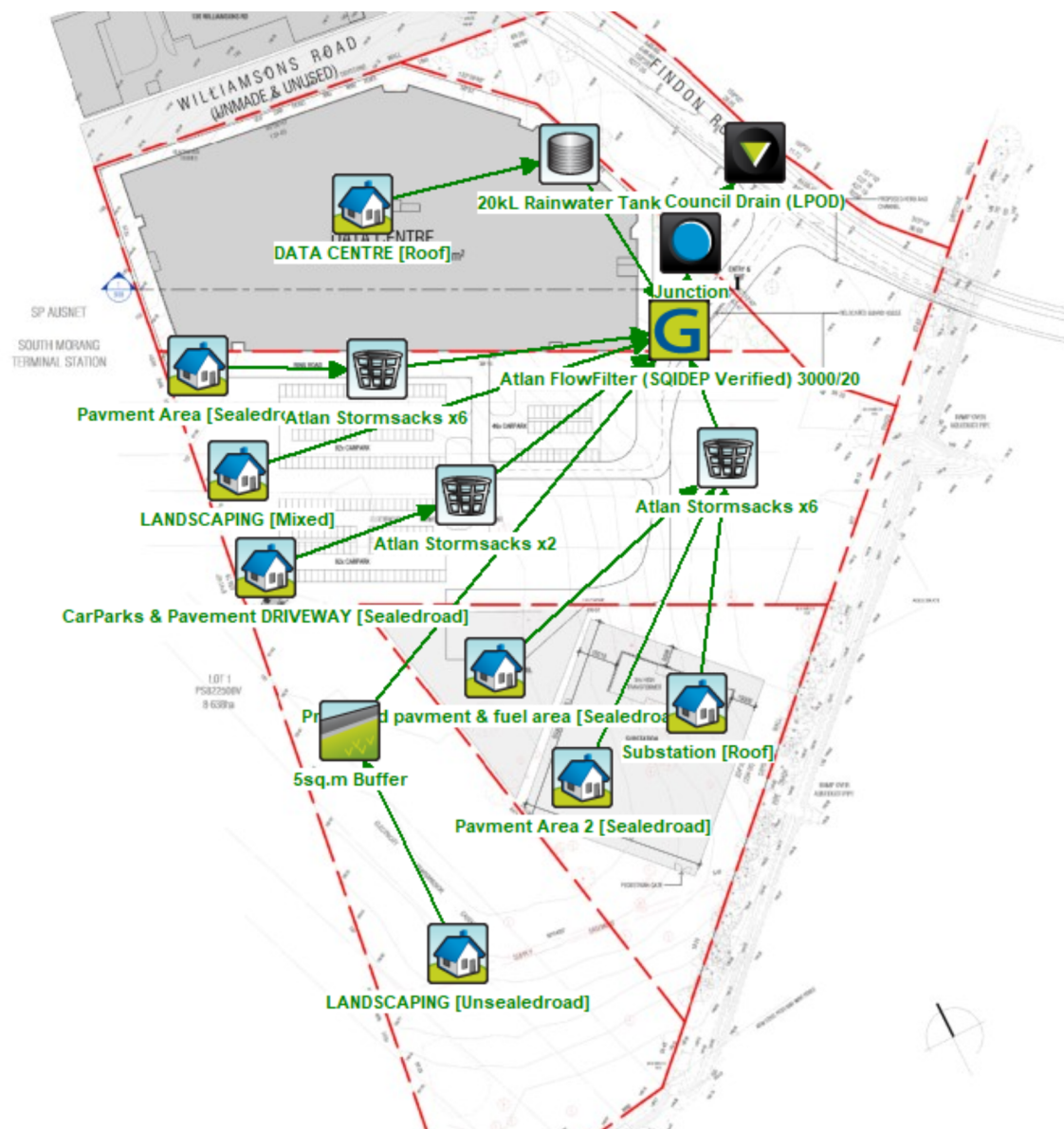
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Appendix D - MUSIC Modelling Results

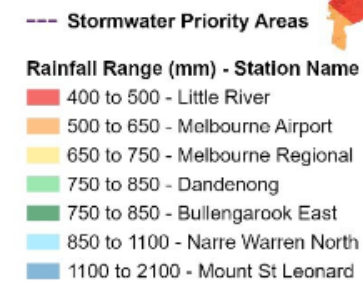
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M A T T E R



Rainfall Distribution - Greater Melbourne



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Figure 2 Rainfall template selection map

Table 1 Rainfall templates with mean annual rainfall and evapotranspiration

Rainfall band	Rainfall station	Period	Mean annual rainfall	Evapo-transpiration
400-500	87033 Little River	1992-2001	472	1067
500-650	86282 Melbourne Airport infilled	1987-1996	574	1047
650-750	86071 Melbourne Regional	1952-1961	708	995
750-850 West	87075 Bullengarook East	1990-1999	779	1043
750-850 East	86224 Dandenong	1967-1976	777	1027
850-1,100	86085 Narre Warren North	1984-1993	932	985
1,100-2,100	86142 Toolangi (Mount St Leonard DPI)	1995-2004	1,221	962

Treatment Train Effectiveness - Council Drain (LPD)			
	Sources	Residual Load	% Reduction
Flow (ML/yr)	24.6	23.6	4.2
Total Suspended Solids (kg/yr)	7520	1090	85.5
Total Phosphorus (kg/yr)	9.02	1.81	79.9
Total Nitrogen (kg/yr)	55.7	28.3	49.1
Gross Pollutants (kg/yr)	968	43.9	95.5

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M A T T E R

Project: DATA CENTRE - SOUTH MORANG

Job No.: 24315

Sketch Title: MUSIC MODELLING RESULTS

Sketch No.: CSK-002

By: RY **Date:** 12/08/2026