

STORMWATER MANAGEMENT PLAN

Project Address:

MARIAN COLLEGE CHAPEL

196 GLENGALA RD SUNSHINE WEST

VIC 3020

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Job Reference: 264537

ATTENTION:

McIldowie Partners

Date: 01/06/2026

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1 Introduction

BCE Design has been engaged by McIlldowie Partners to provide a stormwater management plan (SMP) for the proposed Chapel at Marian College in Sunshine West.

This report addresses the Stormwater Management response for the proposed development works. The proposed stormwater management strategy addresses the following building elements:

- Demolition of the existing Early Learning and Diversity Hub.
- Construction of a New chapel Building.

The report is also intended to satisfy the Stormwater Management Policy (Water Sensitive Urban Design) Clause 22.18-4, and clause 53.18 Stormwater Management in Urban Development.

The purpose of this report is to demonstrate:

- The hydrological and hydraulic analysis supporting the Strategy.
- The indicative drainage conditions of the developed site.
- Compliance with retardation and stormwater treatment requirements.
- Compliance with town planning criteria.
- Provide stormwater management initiatives for the project during the construction phase of the development.
- Identification and evaluation of the existing drainage on the site.
- Present measures to improve the stormwater discharge quality from the site in accordance with 'Melbourne Water' WSUD Guidelines and removal of hydrocarbons which may include:
 - Re-use tanks
 - Onsite detention.
 - Onsite treatment
- Assess the major drainage network catering for the 1 in 100-year (1% AEP) storm event to pass through the development site without causing damage or nuisance to the adjoining lots.
- Assess the minor drainage network catering for the 1 in 10-year (10% AEP) storm event to pass through the development site without causing damage or nuisance to the adjoining lots.
- All development areas will drain via an underground drainage system designed to retain the post-development 10% AEP event for the critical storm duration. Site discharge will be limited to the equivalent pre-development flow for the 1 in 10 year (10% AEP) event and connected to the existing drainage system.

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1.1 Project Site

The existing Early Learning and Diversity Hub, which is to be demolished, is bounded by the DT Warehouse and Ngali Building to the north, the Brigid Arthur Training Centre to the south-west, and the Louise Early Learning Centre to the south-east. The demolition works will also include removal of the existing covered walkway between the buildings and nearby trees adjacent to the building.

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Figure 1.1 Project Site at 196 Glengala Rd Sunshine West

1.2 Site Description

The site is relatively flat and slightly sloping towards the south (towards Glengala Rd). Parts of the drainage are connected to the drainage network on Links Street. No connection point identified on the feature survey. Hence the catchment from the scope of works to be connected to the existing internal stormwater network. The largest drainage pipe identified on the survey is a 300 DIA towards Links Street.

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1.3 Development Summary

Address: 196 Glengala Rd Sunshine West 3020

Development Type: Education Building

Approximate area of scope of works: 2104 m2 approx.

Approximate area of catchment subject to analysis 885m2

Existing Pervious Area within catchment: 52m² (Landscaping)

Existing Impervious Area within catchment: 833m² (Roofs and pavements)

Total Existing roof area 455m²

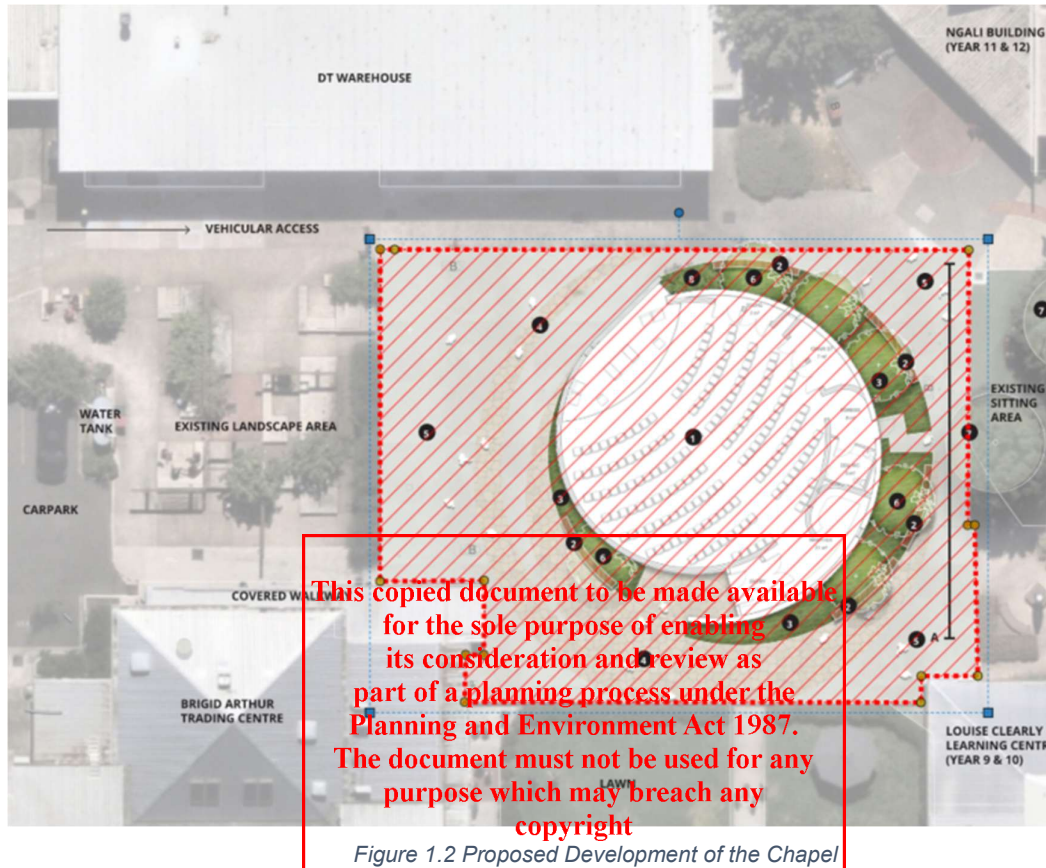
Proposed Roof area of Chapel: 279m²

Importantly noting the above areas are approximates only and subject to change

1.4 Proposed Developed Site

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The proposed development site is shown in figure 1.2 below. The proposed site approximately 279m² of roof area with 606m² of concrete area with a total of 885m² impermeable surface. The raised garden areas are also on the impervious paving which does not contribute to the pervious areas.



The developed site will consist of the following drainage components:

- An internal drainage network capable of accommodating 10% AEP (1 in 10 Year ARI) peak flow in the form of grated pits and pipe networks.
- A major overland flow drainage system conveying the 1 % AEP (1 in 100 Year ARI) peak flow event.

Additionally, 'Water Sensitive Urban Design' initiatives will be incorporated to treat the stormwater associated with the building works to the satisfaction of Brimbank City Council.

'Water Sensitive Urban Design' (WSUD) initiatives may include:

- On-site retention.
- On-site detention.
- Gross pollutant traps, raingardens, or swales.

We additionally note:

- Proposed measures to enhance stormwater discharge quality from the site in accordance with Melbourne Water WSUD guidelines are utilised in the design.
- A major drainage network catering for the 1% AEP storm event to pass through the development without causing damage or nuisance to adjacent lots.

1.5 Hydrologic and Hydraulic Analysis

BCE has utilised the Rational Method to undertake flow calculations to estimate the sizing of the internal drainage network.

The following parameters have been used in the assessment of the proposed development site:

- $T_c = 25$, $T_{cs} = 5$, 1 in 10-year storm (10% AEP), $I_d = 51.2\text{mm/hr}$
- $T_c = 25$, $T_{cs} = 5$, 1 in 100-year storm (1% AEP), $I_d = 88.0\text{mm/hr}$

We note, the internal underground drainage network has been designed to support a 1% AEP peak flow event entering the OSD system.

We additionally note, the above and below values are consistent with information generally provided by Brimbank City Council. Any flows that exceed this will be via overland flow mechanisms.

Table 1: Tributary Calculation Summary

	Total Site
Catchment Size	885 m ²
Pre-Development Impervious Fraction	0.909
Post Development Impervious Fraction	0.932
Pre-Development Peak Flow 10% AEP	0.011 m ³ /s
Post Development Peak Flow 10% AEP	0.023 m ³ /s

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Based on the above assessment, on-site detention will be required to ensure pre-development flows are maintained.

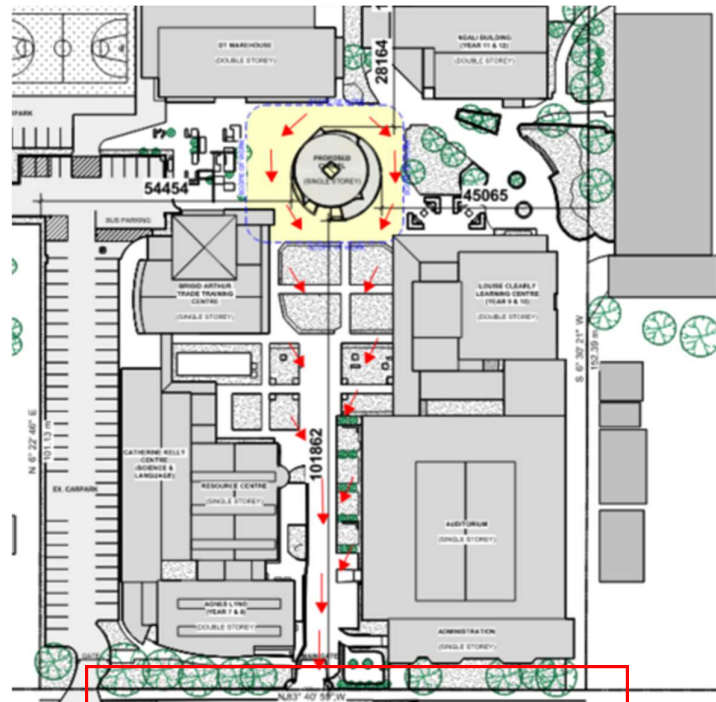
1.6 Minor Drainage Assessment

Approximately 288m² of proposed development roof area and the balance in the extent of the site development is paving. Hence the 885m² of the post development catchment is impervious. Flow from the roof will be conveyed to the existing stormwater system. The surrounding areas will be graded towards the existing drainage pits and new pits will be introduced where necessary.

1.7 Major Drainage Assessment

Flows that exceed the 1% AEP storm event will be provided for via overland flow. The overland flow paths are to be graded from the building line mimicking the existing conditions as closely as possible where the majority of the flow will be going towards the Glengala Road.

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1.8 Stormwater Quality Summary

The improvement of stormwater quality as required by Melbourne Water WSUD guidelines Water Sensitive Urban Design (WSUD) treatment initiatives are proposed to reduce pollutants such as hydrocarbons, suspended solids, gross pollutant phosphorus, and nitrogen within the project's stormwater network.

Potential treatment initiatives include:

Raingardens to treat the paved areas and the roof.

Currently, these water quality performance objectives are (applicable to the proposed impervious areas):

- Total Suspended Solids - >80% reduction in total suspended solids load
- Total Phosphorus - >45% reduction in total phosphorus load
- Total Nitrogen - >45% reduction on total nitrogen load
- Gross Pollutant - >70% reduction in gross pollutant load.

Based on the assessment, the following treatment initiatives are proposed to achieve satisfactory stormwater treatment targets as per below:

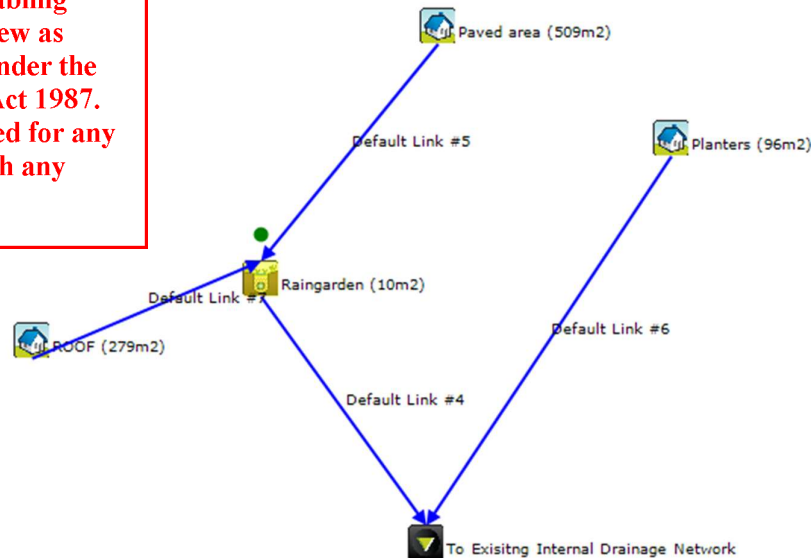
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Figure 1.3: Treatment Train Effectiveness

Latest Run : Treatment Train Effectiveness : To Existing Internal Drainage Network				
	Sources	Residual Load	% Reduction	
Flow (ML/yr)	0.3815	0.3608	5.417	
Total Suspended Solids (kg/yr)	52.36	10.4	80.13	
Total Phosphorus (kg/yr)	0.1184	0.05672	52.07	
Total Nitrogen (kg/yr)	0.984	0.4848	50.73	
Gross Pollutants (kg/yr)	15.02	1.598	89.36	

Figure 1.4: Treatment Train

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1.9 Onsite Detention

In the proposed design, the permissible site discharge (PSD) is based on the pre-development 10% AEP (1 in 10 year) flow rate, with discharge to the existing system limited to 10% AEP.

The detention system has been implemented to detain post-development 10% AEP flows to pre-development discharge rate (18.55 L/s)

Underground pipes will be located within the development before the existing stormwater network to the LPOD.

The required storage was calculated using the Swinburne Method. The estimated pre-development and post-development flows and associated storage are indicated in table 2 below.

Table 2: Detention Calculation Summary

Parameter	Pre-Development	Post-Development	Detention Volume
	0.0114 m ³ /s	0.0235 m ³ /s	4.98 m ³

Catchment runoff is into the OSD system within the pipes and sent via the Raingarden prior to controlled release at the permissible site discharge of 18.55L/s.

1.10 Design Summary

The information contained within this stormwater management plan demonstrates the required stormwater network is sufficient to satisfy the stormwater quality and quantity requirements.

The following summary supports this position:

- All flows up to the 10% AEP event will be catered for via the internal drainage network.
- All flows that exceed 10% AEP event in areas where there is no change in the pervious coefficient will be catered for via overland flows and drained naturally to the South of the site.
- Stormwater discharge from the site will be catered for 18.55L/s via onsite detention, A combined minimum detention volume of 4.98m³ will need to be allowed for to prevent additional gas flow.
- Construct a 10m² raingarden for treatment of the roof and the paved areas.

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2 Detailed Response

2.1 Response Summary

The selected response is to direct all roof rainfall runoff and the paved areas to raingarden for further treatment. The stormwater runoff will be controlled by a stormwater detention system before connecting to the existing system.

2.2 Site Layout

Requirement

"To illustrate the position, area draining to treatment measures, and any connection points of the following":

- Water Quality Treatment Measures may include wetlands, raingardens, and swales.
- Passive Irrigation Measures, including directing runoff into gardens.

Response

A detailed site layout is provided in Annex C.

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2.3 Proposed Response (Operation Phase)

The proposed development makes use of biological treatment to meet Water-Sensitive Urban Design (WSUD) initiatives.

- The garden beds which are exposed are considered impermeable and overflow will need to connect to the stormwater system.
- All paved areas need to be treated with the inground raingarden.

2.4 Site Management Plan (Construction Phase)

Requirement

“Details specifying measures aimed at preventing sediment, pollution and litter entering stormwater systems. To advise for preparation of the WSUD site management plan.”

Response

Principles from the EPA Environmental Guidelines. These principles and measures are intended to reduce runoff to adjacent properties and reduce erosion. Any waste accumulated during construction, including chemicals and food waste is to be disposed of correctly using best practice measures, described below.

Principles:

- Minimise any disturbance of land.
- Minimise time bare earth is exposed.
- Install features such as rock, vegetation, grass, etc as early as possible.
- Minimise stormwater run-off into and within site.
- Divert stormwater from exposed parts of site.
- Devise solutions for possible peak run-off flows.
- Position earth stockpiles away from run-off pathways.

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- Ensure stockpiles have mild slopes (max 1:2 height to radius).

Measures:

The following measures will be implemented as required to achieve the principles listed above.

- **Mesh fabric** to minimise sediment flow, placed at porous fences and gates.
- **Silt fences** to prevent large sediment transport by installation at the base, where the site has a slope steeper than 1:20.
- **Drain filters/sediment traps** to cover pits. Any water pumped from the site must be filtered with this method.
- **Temporary down pipes** to facilitate runoff from the roof to LPOD during construction prior to installation of water tanks.
- **Crushed Rock** to stabilise site and prevent access issues on foot due to mud, as well as stabilise areas subject to heavy vehicle use.
- **Removal of mud on the cross-over and roadway** to contain mud to construction site. Maintained by removing mud from vehicles on site on the day the mud is deposited.
- **Vehicle wash down within site** to remove earth gathered from excavation.
- **Erosion control blankets** to control erosion over mounded earth, especially over any steep slopes.
- **Waste bins** to be provided for personnel as appropriate.
- **Proper disposal of paints and solvents**, to allow safe removal and disposal, separate bins will be used as appropriate.
- **Brick cleaning with acid to be avoided**, particularly on-site.

Additionally, the contractor is required to:

- **Identify and document**, where these measures are to be fitted and how erosion and waste will be managed.
- **Fit tarps on waste bins** each night.
- **Avoid overfilling vehicles** and cover soils being taken offsite.
- **Sweep the site** each day works occurs.

- **Ensure sediment and erosion measures** are operating appropriately via weekly checks and maintenance.



Figure A. Temporary downpipes (image credit: Northumberland Handyman Supplies Pty Ltd)



Figure B. Sediment trap (image credit: ERTEC Environmental Systems)

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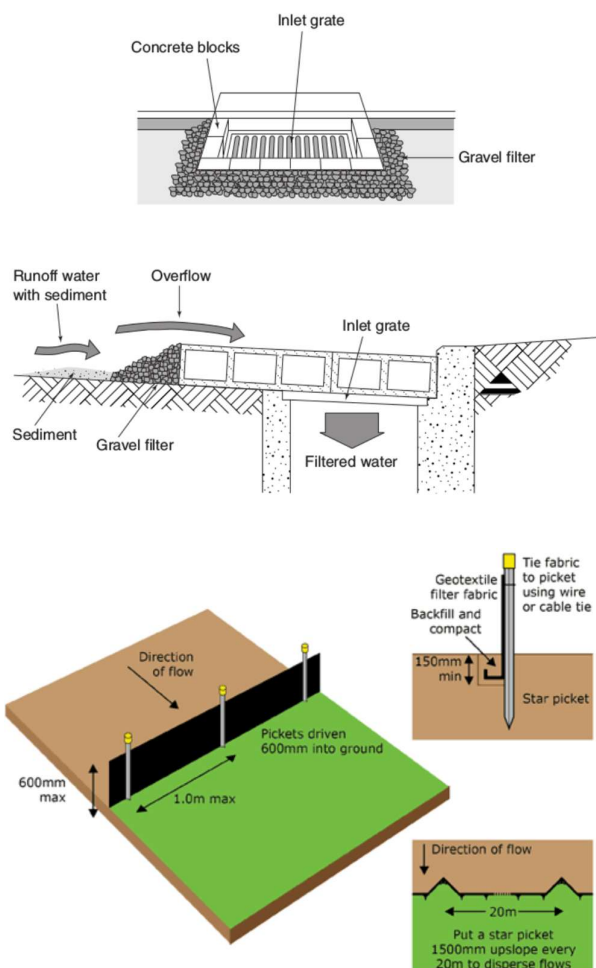


Figure E. Silt fence installation (image credit: Melbourne Water via EPA Victoria 2004, Publication 960 p.30)



Figure D. Sediment trap (image credit: Delta T Solutions)



Figure F. Silt Fence (image credit: US EPA, 2008)

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2.5 Maintenance Plan (Operation Phase)

Maintenance Checklist

The property owner is responsible for checking the maintenance items in this checklist at the recommended frequency at the bottom of the table. The maintenance log at the bottom of the page should be filled in once each maintenance check is complete. Upkeep of this maintenance log should continue throughout the life of the raingarden.



Item	Raingarden element	Inspection item	Y/N	Likely maintenance task
①	Raingarden inlet	Is there scour or erosion where water enters the raingarden?		Re-profile with hand tools, place gravel or stones at the inlet.
		Is there rubbish, leaf litter or sediment blocking the inlet?		Remove by hand and dispose responsibly.
②	Raingarden surface level	Is the level of the raingarden surface sitting less than 5 cm below the raingarden edges/borders?		Remove sediment from the surface so it is sitting about 10-20 cm below surrounding areas.
③	Raingarden temporary detention	Is there moss or clay on the surface of the raingarden which seem to be slowing the filtration of flows?		Remove the crust from the top of the raingarden and check water will filter through exposed media.
④	Raingarden surface	Are there areas which appear to be the road are not getting wet during rain events?		Smooth out surface so it is flat with hand tools.
		Are there areas which have been eroded away or scoured?		
⑤	Plants	Are the plants looking unhealthy or dying?		Prune diseased sections, irrigate and/or replace dead plants. If plants keep dying, replace with a different type which is doing well. Do not use fertilizer to improve plant health as this will pollute the raingarden.
		Are there bare patches forming between plants?		
		Are there weeds present?		Remove weeds by hand and dispose responsibly.
⑥	Planting media	Is the raingarden holding water for more than a couple of hours after the rain has stopped?		Remove and replace the top 100 mm of planting material (loamy sand).
⑦	Overflow pit / pipe	Is there anything blocking the top of the overflow pit / pipe preventing water from entering?		Remove blockages and dispose responsibly.
⑧	Underdrainage	Is there rain draining to the bottom of the raingarden following heavy rain?		Flush the underdrain or uncover it to check for blockages.
⑨	Stormwater network connection	Is there water ponding in the overflow pit or pipe and not entering the stormwater network?		Remove blockages and dispose responsibly.

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References

1. EPA Environmental Guidelines for Major Construction Sites, Victorian Environmental Protection Authority 1996
<http://www.epa.vic.gov.au/~media/Publications/480.pdf>
2. Urban Stormwater: Best Practice Environmental Management Guidelines, CSIRO, 1999, <http://www.publish.csiro.au/pid/2190.htm>

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Annex A: Detention Calculations

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STORMWATER DETENTION V5.06

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Location: Melbourne, VIC
Site: 885m² with tc = 25 and tcs = 5 mins.
PSD: AEP of 10%, Below ground pipe PSD = 18.55L/s
Storage: AEP of 10%, Below ground pipe volume = 4.98m³

Design Criteria

Location = Melbourne, VIC
Method = E (A)RI 2001,A(E)P 2019

PSD annual exceedance probability (APE) = 10 %
Storage annual exceedance probability (APE) = 10 %

Storage method = P (A)bove,(P)ipe,(U)nderground,(C)ustom

Site Geometry

Site area (As) = 885 m² = 0.0885 Ha
Pre-development coefficient (Cp) = 0.91
Post development coefficient (Cw) = 0.93

Total catchment (tc) = 25 minutes
Upstream catchment to site (tcs) = 5 minutes

Coefficient Calculations

Pre-development				Post development			
Zone	Area (m ²)	C	Area * C	Zone	Area (m ²)	C	Area * C
Concrete	378	0.90	340	Concrete	606	0.90	545
Roof	455	1.00	455	Roof	279	1.00	279
Gravel	0	0.35	0	Gravel	0	0.35	0
Garden	52	0.17	9	Garden	0	0.17	0
Total	885		804	Total	885		824
Cp = $\Sigma \text{Area} * C / \text{Total} = 0.909$				Cw = $\Sigma \text{Area} * C / \text{Total} = 0.932$			

Permissible Site Discharge (PSD) (AEP of 10%)

PSD Intensity (I) = 51.2 mm/hr For catchment tc = 25 mins.
Pre-development ($Q_p = C_p * I * A_s / 0.36$) = 11.44 L/s
Peak post development ($Q_a = 2 * C_w * I * A_s / 0.36$) = 23.46 L/s $= (0.458 \times I)$ Eq. 2.24
Storage method = P (A)bove,(P)ipe,(U)nderground,(C)ustom
Permissible site discharge ($Q_u = \text{PSD}$) = 18.551 L/s

Above ground - Eq 3.8

$$0 = \text{PSD}^2 - 2 * Q_a / t_c * (0.667 * t_c * Q_p / Q_a + 0.75 * t_c + 0.25 * t_{cs}) * \text{PSD} + 2 * Q_a * Q_p$$

Taking x as = PSD and solving

$$a = 1.0 \quad b = -52.8 \quad c = 536.6$$

$$\text{PSD} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\text{PSD} = 13.743 \text{ L/s}$$

Below ground pipe - Eq 3.3

$$Q_p = \text{PSD} * [1.6 * t_{cs} / (t_c * (1 - 2 * \text{PSD} / (3 * Q_a))) - 0.6 * t_{cs}^{2.67} / (t_c * (1 - 2 * \text{PSD} / (3 * Q_a)))^{2.67}]$$

$$= 11.44$$

$$\text{PSD} = 18.551 \text{ L/s}$$

Below ground rectangular tank - Eq 3.4

$$t = t_{cs} / (t_c * (1 - 2 * \text{PSD} / (3 * Q_a))) = 0.461$$

$$Q_p = \text{PSD} * [0.005 - 0.455 * t + 5.228 * t^2 - 1.045 * t^3 - 7.199 * t^4 + 4.519 * t^5]$$

$$= 11.44$$

$$\text{PSD} = 19.935 \text{ L/s}$$

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STORMWATER DETENTION V5.06

BCE Design Pty Ltd

Design Storage Capacity (AEP of 10%)

Above ground (Vs) = $[0.5 \cdot Q_a \cdot t_d - [(0.875 \cdot PSD \cdot t_d)(1 - 0.917 \cdot PSD/Q_a) + (0.427 \cdot t_d \cdot PSD^2/Q_a)]] \cdot 60/10^3 \text{ m}^3$ Eq 4.23
Below ground pipe (Vs) = $[(0.5 \cdot Q_a - 0.637 \cdot PSD + 0.089 \cdot PSD^2/Q_a) \cdot t_d] \cdot 60/10^3 \text{ m}^3$ Eq 4.8
Below ground rect. tank (Vs) = $[(0.5 \cdot Q_a - 0.572 \cdot PSD + 0.048 \cdot PSD^2/Q_a) \cdot t_d] \cdot 60/10^3 \text{ m}^3$ Eq 4.13

td (mins)	I (mm/hr)	Qa (L/s)	Above Vs (m³)	Pipe Vs (m³)	B/G Vs (m³)
5	111.1	50.9		4.27	
6	104.2	47.7		4.57	
7	98.3	45.0		4.78	
8	93.1	42.6		4.90	
9	88.5	40.5		4.97	
9	88.5	40.5		4.97	
10	84.3	38.6		4.97	
11	80.6	36.9		4.93	
11	80.6	36.9		4.93	
12	77.3	35.4		4.85	

Table 1 - Storage as function of time for AEP of 10%

Type	td (mins)	I (mm/hr)	Qa (L/s)	Vs (m³)
Above Pipe	9.7	85.5	39.2	4.98
B/ground				

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Frequency of operation of Above Ground storage

$Q_{p2} = Q_{p1} \cdot C_d$ (where $Q_{p1} = 10.31 \text{ L/s}$ at which time above ground storage occurs)
 $I = 360 \cdot Q_{p2} / (2 \cdot t_d)$ Eq 4.24

Period of Storage

Time to Fill:
Above ground (tf) = $t_d \cdot (1 - 0.92 \cdot PSD/Q_a)$ Eq 4.27
Below ground pipe (tf) = $t_d \cdot (1 - 2 \cdot PSD/(3 \cdot Q_a))$ Eq 3.2
Below ground rect. tank (tf) = $t_d \cdot (1 - 2 \cdot PSD/(3 \cdot Q_a))$ Eq 3.2

Time to empty:
Above ground (te) = $(V_s + 0.33 \cdot PSD^2 \cdot t_d / Q_a \cdot 60/10^3) \cdot (1.14/PSD) \cdot (10^3/60)$ Eq 4.28
Below ground pipe (te) = $1.464/PSD \cdot (V_s + 0.333 \cdot PSD^2 \cdot t_d / Q_a \cdot 60/10^3) \cdot (10^3/60)$ Eq 4.32
Below ground rect. tank (te) = $2.653/PSD \cdot (V_s + 0.333 \cdot PSD^2 \cdot t_d / Q_a \cdot 60/10^3) \cdot (10^3/60)$ Eq 4.36

Storage period (Ps = tf + te) Eq 4.26

Type	td (mins)	Qa (L/s)	Vs (L/s)	tf (mins)	te (mins)	Ps (mins)
Above Pipe	9.7	39.2	5.0	6.6	8.8	15.4
B/ground						

Table 3 - Period of Storage requirements for AEP of 10%

Orifice

Permissible site discharge ($Q_u = PSD$) = 18.55 L/s (Pipe storage)
Orifice coefficient (CD) = 0.61 For sharp circular orifice
Gravitational acceration (g) = 9.81 m/s²
Maximum storage depth above orifice (H) = 400 mm
Orifice flow (Q) = $CD \cdot A_o \cdot \sqrt{2 \cdot g \cdot H}$

Therefore:
Orifice area (A_o) = 10856 mm²
Orifice diameter ($D = \sqrt{4 \cdot A_o / \pi}$) = 117.6 mm

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Annex B: Technical Measure Explained

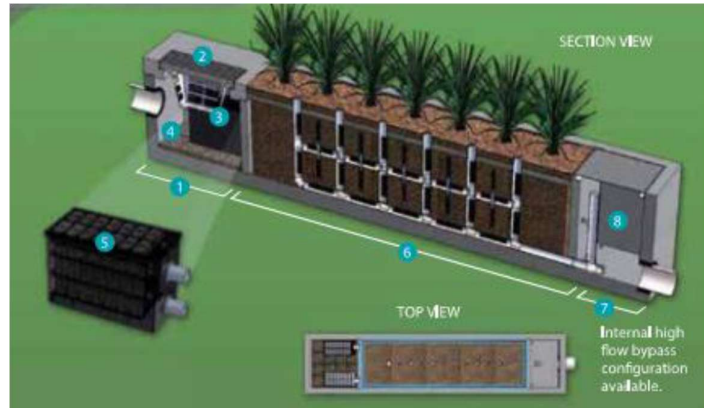
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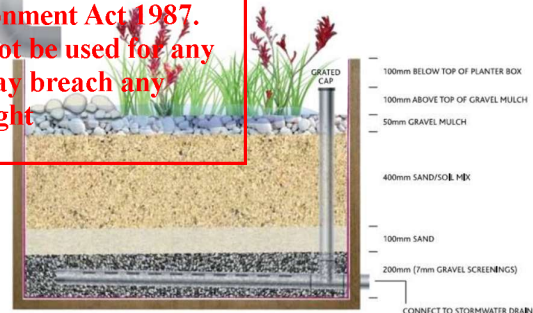
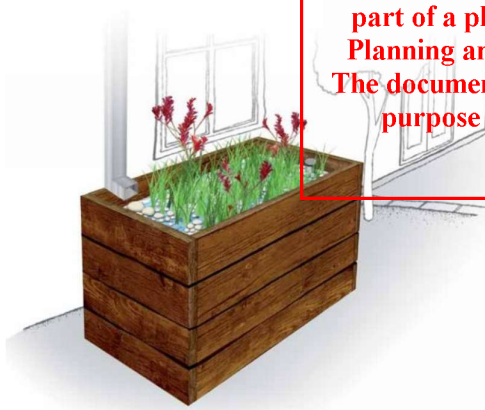
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ADVERTISED PLAN



SPEL BASIN – Modular bio-retention basin

SPEL BASIN – Modular bio-retention

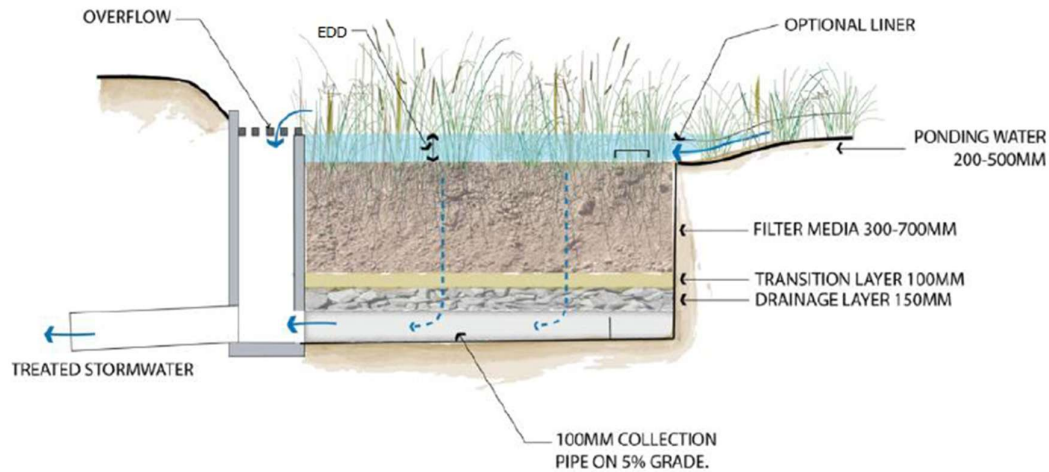


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Examples of in-ground and planter box rain garden systems. Sources: Melbourne Water, LID Consulting.

Acceptable raingarden design

- standard system with 300-500mm filter media depth
- including a submerged zone system and 300mm filter depth
- including properly sized upstream sedimentation basin
- standard system with filter media depth of 500mm where surrounding soil has a high infiltration rate



Avoid

- standard raingardens with filter media depth less than 300mm
- raingardens downstream of a wetland or an oversized sedimentation basin

Note: All systems should be designed as per Adoption Guidelines for Stormwater Biofiltration Systems (FAWB, 2009).

Plant selection

This should be guided by expert opinion, based on the particular project conditions. The plant species that are commonly used in raingardens can be grouped into three general categories:

Category

Tolerant of both wet and dry conditions once established

Tolerant of dry conditions once established

Prefer more constant conditions without wet/dry extremes

Example plant species

Carex appressa (tall sedge)

Ficinia nodosa

Lomandra longifolia

Juncus amibilis

Goodenia ovate

Juncus flavidis

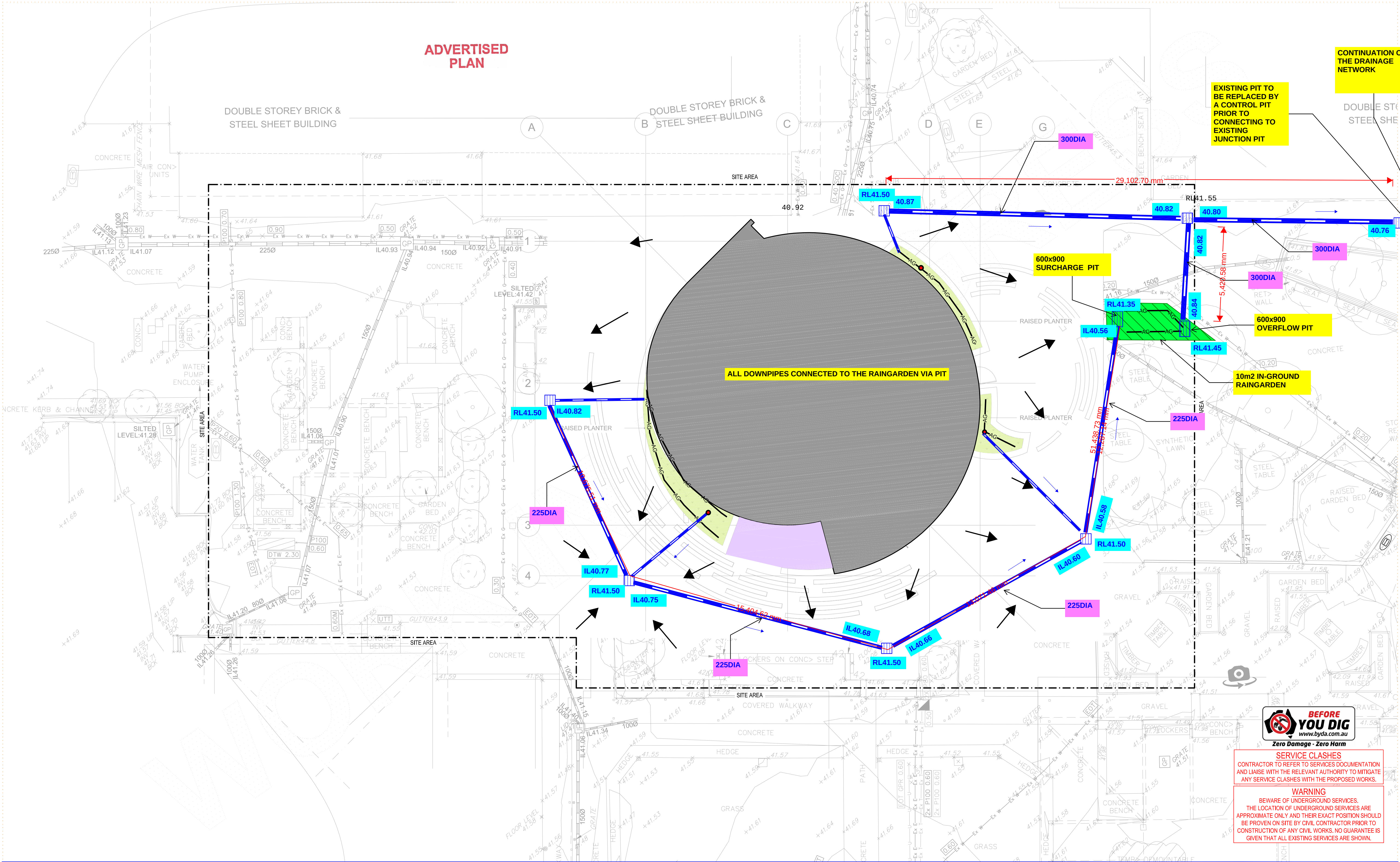
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Annex C: Functional Civil Drainage Arrangement

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P1	PRELIMINARY ISSUE	V.K	01/01/2026						
REV	DESCRIPTION	BY	DATE	REV	DESCRIPTION	BY	DATE		

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CLIENT: **MARIAN COLLEGE**

PROJECT NAME: **MARIAN COLLEGE CHAPEL
196 GLENGALA ROAD, SUNSHINE WEST
VIC 3020**

DRAWING TITLE: **CIVIL SITE PLAN**

PROJECT NUMBER: **264537**

DRAWING No: **C020**

REVISION: **P1**

DESIGN DEVELOPMENT
NOT TO BE USED FOR CONSTRUCTION

SCALE AT A1: 1:100
AS SHOWN MAY 2026

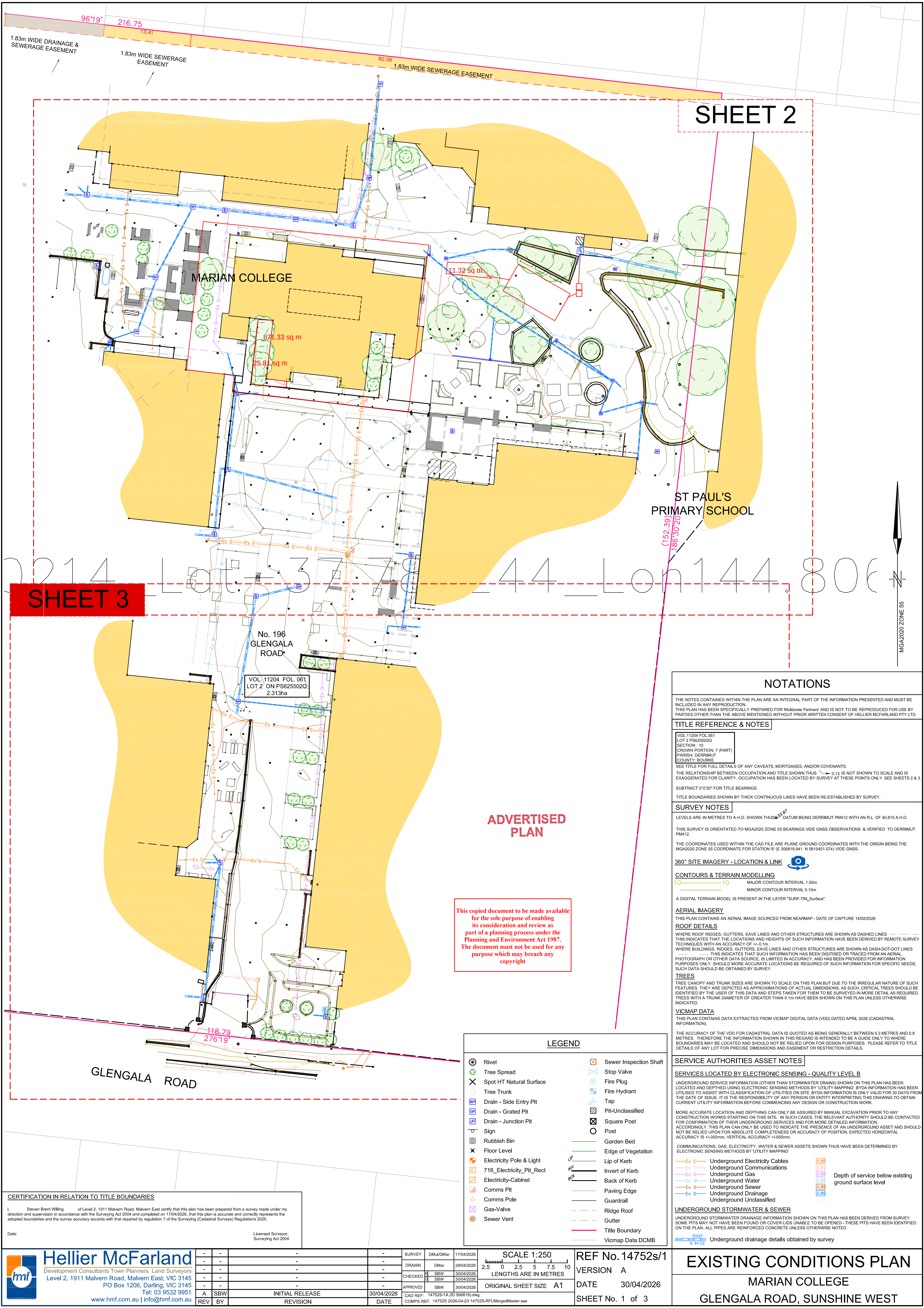
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Annex D: Survey Information

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SHEET 2

SHEET 3

NOTATIONS

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TITLE REFERENCE & NOTES

VOL. 11204 FOL. 061
LOT 2 PS625502Q
SECTION: 10
CROWN PORTION: 7 (PART)
PARISH: DERRIMUT
COUNTY: BOURKE

SEE TITLE FOR FULL DETAILS OF ANY CAVEATS, MORTGAGES, AND/OR COVENANTS. THE RELATIONSHIP BETWEEN OCCUPATION AND TITLE SHOWN THIS 0.13 IS NOT SHOWN TO SCALE AND IS EXAGGERATED FOR CLARITY. OCCUPATION HAS BEEN LOCATED BY SURVEY AT THESE POINTS ONLY. SEE SHEETS 2 & 3. SUBTRACT 0°0'30" FOR TITLE BEARINGS. TITLE BOUNDARIES SHOWN BY THICK CONTINUOUS LINES HAVE BEEN RE-ESTABLISHED BY SURVEY.

SURVEY NOTES

LEVELS ARE IN METRES TO A.H.D. SHOWN THUS 33.97 DATUM BEING DERRIMUT PM412 WITH AN R.L. OF 40.810 A.H.D. THIS SURVEY IS ORIENTATED TO MGA2020 ZONE 55 BEARINGS & VERIFIED TO DERRIMUT PM412. THE COORDINATES USED WITHIN THE CAD FILE ARE PLANE GROUND COORDINATES WITH THE ORIGIN BEING THE MGA2020 ZONE 55 COORDINATE FOR STATION 'B' (E 306818.941 N 5815451.074) VIDE GNSS.

360° SITE IMAGERY - LOCATION & LINK



CONTOURS & TERRAIN MODELLING

MAJOR CONTOUR INTERVAL 1.00m
MINOR CONTOUR INTERVAL 0.10m

A DIGITAL TERRAIN MODEL IS PRESENT IN THE LAYER 'SURF-TIN_Surface'.

AERIAL IMAGERY

THIS PLAN CONTAINS AN AERIAL IMAGE SOURCED FROM NEARMAP - DATE OF CAPTURE 14/02/2026

ROOF DETAILS

WHERE ROOF RIDGES, GUTTERS, EAVE LINES AND OTHER STRUCTURES ARE SHOWN AS DASHED LINES THIS INDICATES THAT THE LOCATIONS AND HEIGHTS OF SUCH INFORMATION HAVE BEEN DERIVED BY REMOTE SURVEY TECHNIQUES WITH AN ACCURACY OF +/- 0.1m. WHERE BUILDINGS, RIDGES, GUTTERS, EAVE LINES AND OTHER STRUCTURES ARE SHOWN AS DASH-DOT-DOT LINES THIS INDICATES THAT SUCH INFORMATION HAS BEEN DIGITISED OR TRACED FROM AN AERIAL PHOTOGRAPH OR OTHER DATA SOURCE, IS LIMITED IN ACCURACY, AND HAS BEEN PROVIDED FOR INFORMATION PURPOSES ONLY. SHOULD MORE ACCURATE LOCATIONS BE REQUIRED OF SUCH INFORMATION FOR SPECIFIC NEEDS, SUCH DATA SHOULD BE OBTAINED BY SURVEY.

TREES

TREE CANOPY AND TRUNK SIZES ARE SHOWN TO SCALE ON THIS PLAN BUT DUE TO THE IRREGULAR NATURE OF SUCH FEATURES, THEY ARE DEPICTED AS APPROXIMATIONS OF ACTUAL DIMENSIONS. AS SUCH, CRITICAL TREES SHOULD BE IDENTIFIED BY THE USER OF THIS DATA AND STEPS TAKEN FOR THEM TO BE SURVEYED IN MORE DETAIL AS REQUIRED. TREES WITH A TRUNK DIAMETER OF GREATER THAN 0.1m HAVE BEEN SHOWN ON THIS PLAN UNLESS OTHERWISE INDICATED.

VICMAP DATA

THIS PLAN CONTAINS DATA EXTRACTED FROM VICMAP DIGITAL DATA (VDD) DATED APRIL 2026 (CADASTRAL INFORMATION).

THE ACCURACY OF THE VDD FOR CADASTRAL DATA IS QUOTED AS BEING GENERALLY BETWEEN 0.3 METRES AND 0.8 METRES. THEREFORE THE INFORMATION SHOWN IN THIS REGARD IS INTENDED TO BE A GUIDE ONLY TO WHERE BOUNDARIES MAY BE LOCATED AND SHOULD NOT BE RELIED UPON FOR DESIGN PURPOSES. PLEASE REFER TO TITLE DETAILS OF ANY LOT FOR PRECISE DIMENSIONS AND EASEMENT OR RESTRICTION DETAILS.

SERVICE AUTHORITIES ASSET NOTES

SERVICES LOCATED BY ELECTRONIC SENSING - QUALITY LEVEL B

UNDERGROUND SERVICE INFORMATION (OTHER THAN STORMWATER DRAINS) SHOWN ON THIS PLAN HAS BEEN LOCATED AND DEPTHEED USING ELECTRONIC SENSING METHODS BY 'UTILITY MAPPING'. BYDA INFORMATION HAS BEEN UTILISED TO ASSIST WITH CLASSIFICATION OF UTILITIES ON SITE. BYDA INFORMATION IS ONLY VALID FOR 30 DAYS FROM THE DATE OF ISSUE. IT IS THE RESPONSIBILITY OF ANY PERSON OR ENTITY INTERPRETING THIS DRAWING TO OBTAIN CURRENT UTILITY INFORMATION BEFORE COMMENCING ANY DESIGN OR CONSTRUCTION WORK.

MORE ACCURATE LOCATION AND DEPTHEED CAN ONLY BE ASSURED BY MANUAL EXCAVATION PRIOR TO ANY CONSTRUCTION WORKS STARTING ON THIS SITE. IN SUCH CASES, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR CONFIRMATION OF THEIR UNDERGROUND SERVICES AND FOR MORE DETAILED INFORMATION. ACCORDINGLY, THIS PLAN CAN ONLY BE USED TO INDICATE THE PRESENCE OF AN UNDERGROUND ASSET AND SHOULD NOT BE RELIED UPON FOR ABSOLUTE COMPLETENESS OR ACCURACY OF POSITION. EXPECTED HORIZONTAL ACCURACY IS +/-300mm, VERTICAL ACCURACY +/-500mm.

COMMUNICATIONS, GAS, ELECTRICITY, WATER & SEWER ASSETS SHOWN THIS HAVE BEEN DETERMINED BY ELECTRONIC SENSING METHODS BY 'UTILITY MAPPING'

- Ex E Underground Electricity Cables
- Ex T Underground Communications
- Ex G Underground Gas
- Ex W Underground Water
- Ex S Underground Sewer
- Ex D Underground Drainage
- Underground Unclassified

Depth of service below existing ground surface level

UNDERGROUND STORMWATER & SEWER

UNDERGROUND STORMWATER DRAINAGE INFORMATION SHOWN ON THIS PLAN HAS BEEN DERIVED FROM SURVEY. SOME PITS MAY NOT HAVE BEEN FOUND OR COVER LIDS UNABLE TO BE OPENED - THESE PITS HAVE BEEN IDENTIFIED ON THE PLAN. ALL PIPES ARE REINFORCED CONCRETE UNLESS OTHERWISE NOTED.

Underground drainage details obtained by survey

LEGEND

- Rivet
- Tree Spread
- Spot HT Natural Surface
- Tree Trunk
- Drain - Side Entry Pit
- Drain - Grated Pit
- Drain - Junction Pit
- Sign
- Rubbish Bin
- Floor Level
- Electricity Pole & Light
- 716_Electricity_Pit_Rect
- Electricity-Cabinet
- Comms Pit
- Comms Pole
- Gas-Valve
- Sewer Vent
- Sewer Inspection Shaft
- Stop Valve
- Fire Plug
- Fire Hydrant
- Tap
- Pit-Unclassified
- Square Post
- Post
- Garden Bed
- Edge of Vegetation
- Lip of Kerb
- Invert of Kerb
- Back of Kerb
- Paving Edge
- Guardrail
- Ridge Roof
- Gutter
- Title Boundary
- Vicmap Data DCMB

CERTIFICATION IN RELATION TO TITLE BOUNDARIES

I, Steven Brent Willing of Level 2, 1911 Malvern Road, Malvern East certify that this plan has been prepared from a survey made under my direction and supervision in accordance with the Surveying Act 2004 and completed on 17/04/2026, that this plan is accurate and correctly represents the adopted boundaries and the survey accuracy accords with that required by regulation 7 of the Surveying (Cadastral Surveys) Regulations 2025.

Date: Licensed Surveyor, Surveying Act 2004

Hellier McFarland
Development Consultants Town Planners Land Surveyors
Level 2, 1911 Malvern Road, Malvern East, VIC 3145
PO Box 1206, Darling, VIC 3145
Tel: 03 9532 9951
www.hmf.com.au | info@hmf.com.au

REV	BY	INITIAL RELEASE	30/04/2026	DATE	147525-1A (10 666818).dwg
1	SBW	REVISION			COMPS REF: 147525 2025-04-23 147525-RFLMergedMaster.sxd

SURVEY	DMu/DMar	17/04/2026
DRAWN	DMar	28/04/2026
CHECKED	SBW	30/04/2026
APPROVED	SBW	30/04/2026

SCALE 1:250
LENGTHS ARE IN METRES
ORIGINAL SHEET SIZE A1

REF No. 147525/1
VERSION A
DATE 30/04/2026
SHEET No. 1 of 3

EXISTING CONDITIONS PLAN
MARIAN COLLEGE
GLENGALA ROAD, SUNSHINE WEST