



STORMWATER MANAGEMENT PLAN

VICTORY LUTHERAN COLLEGE

28 Drages Road

West Wodonga Vic 3690

FOR

BUILDING APPLICATION

MAY 2024

Revision A

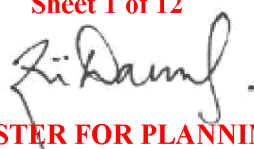
PLANNING and ENVIRONMENT ACT
WODONGA PLANNING SCHEME

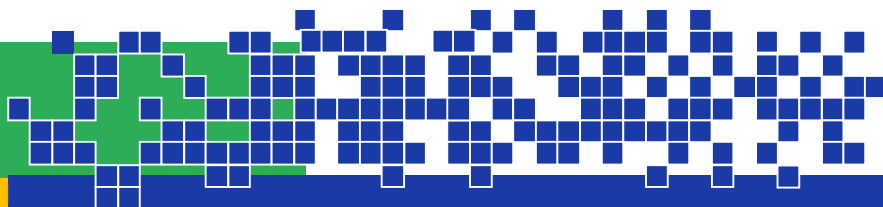
PERMIT NO. PA2402880

Condition 5 - Stormwater

ENDORSED PLAN

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Signed:  for
MINISTER FOR PLANNING
Date: 26 JULY 2024



VICTORY LUTHERAN COLLEGE

28 DRAGES ROAD – WEST WODONGA

STORMWATER MANAGEMENT PLAN FOR BUILDING APPLICATION

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Prepared By:
Date: 31/05/24

Jonath Keys

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WODONGA PLANNING SCHEME**

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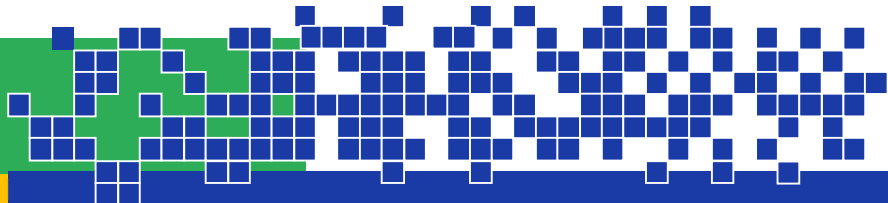


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1. EXECUTIVE SUMMARY

This report outlines the stormwater drainage requirements for the Additional Student Classroom development at Victory Lutheran College, West Wodonga.

These requirements include the treatment of stormwater runoff in accordance with Best Practice Environmental Management Guidelines.

The proposal meets the guidelines and site constraints.

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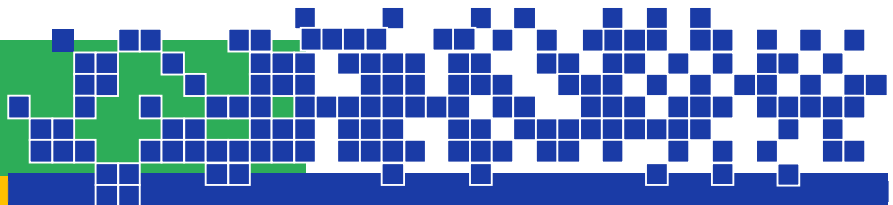
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2. INTRODUCTION

The subject land is currently occupied with an existing student facility with concrete hard stand, buildings, gardens and oval which occurs approximately 9.4ha. The proposal is for a proposed Student classrooms to be constructed on the eastern side of the site. The existing drainage network has been operating effectively to date and the proposed classroom will be connected to the drainage network which will discharge to existing wetlands

The drainage system is being prepared to address four (4) issues;

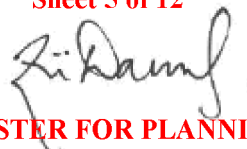
1. The stormwater quality is to meet state guidelines in respect to suspended solids, total phosphorus, total nitrogen and litter.

Water Quality standards are to be met by utilizing, the existing wetlands which is located in the North West Corner of the site.

The maintenance required for the system will be derived from periodic maintenance inspections as required.

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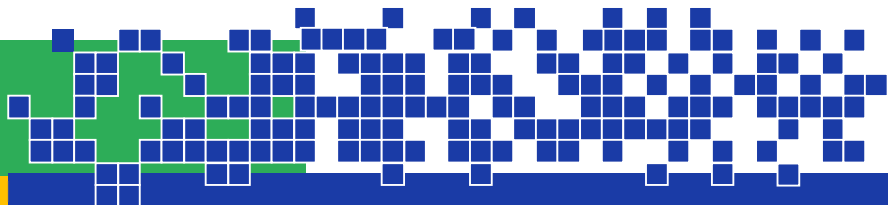
3. STORMWATER TREATMENT

3.1 Objectives for stormwater treatment

Best Practice Environmental Management Guidelines for Urban Stormwater (1999) lists the objectives for environmental management of stormwater, specifying 'best practice performance objectives' as percentage reductions to assumed typical urban annual load for key pollutants. In the absence of site specific monitoring data, these objectives may be used to demonstrate best practice objectives are met. **Table 3** summarises these objectives.

Pollutant (post construction phase only)	Receiving Water Objective	Current best practice performance objective
Suspended solids	Comply with SEPP	80% retention of typical annual urban load
Total Phosphorus	Comply with SEPP	45% retention of typical annual urban load
Total Nitrogen	Comply with SEPP	45% retention of typical annual urban load
Litter	Comply with SEPP	70% retention of typical annual urban load

Table 3. BPEMG Objectives for environmental management of stormwater



3.2 Stormwater treatment

The options for stormwater treatment are;

- **Existing System**
 - **Existing Wetlands** –The existing wetlands has capacity to treat the proposed and existing building infrastructure.

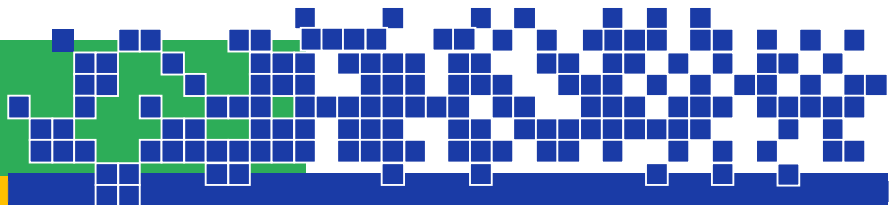
3.3 MUSIC Program

The water quality assessment for Victory Lutheran College will be conducted using MUSIC modelling. The following assessment demonstrates how detention basin achieves compliance with the State Government Standards.

The water quality assessment is based on the following conditions;

1. Existing Wetlands – 1500m²
2. Existing Swales around Oval 400m

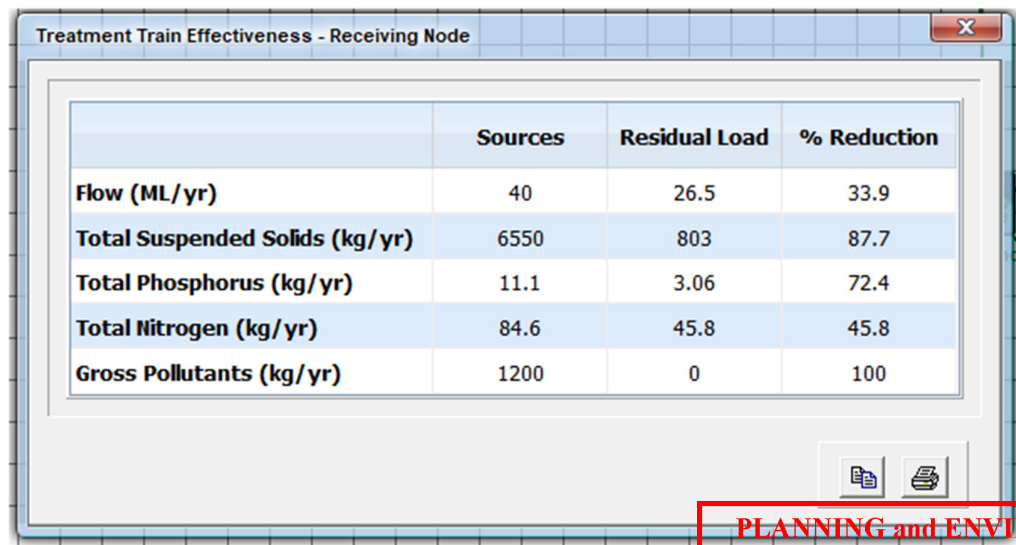
The objective of the stormwater treatment is 80% reduction in total soluble solids (TSS) and 45% reduction in total phosphorus (TP) and total nitrogen (TN).



3.4 MUSIC Results

Figure 2 shows the results from MUSIC for proposed treatment train.

The percentage reduction achieved are 84.7% reduction in total soluble solids (TSS) and 56.7% reduction in total phosphorus (TP) and 53.4% reduction in total nitrogen (TN). Results shown in Figure below:



	Sources	Residual Load	% Reduction
Flow (ML/yr)	40	26.5	33.9
Total Suspended Solids (kg/yr)	6550	803	87.7
Total Phosphorus (kg/yr)	11.1	3.06	72.4
Total Nitrogen (kg/yr)	84.6	45.8	45.8
Gross Pollutants (kg/yr)	1200	0	100

Figure 1 shows the results from MUSIC for proposed treatment train.

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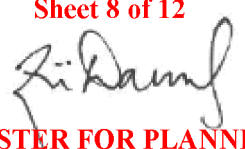
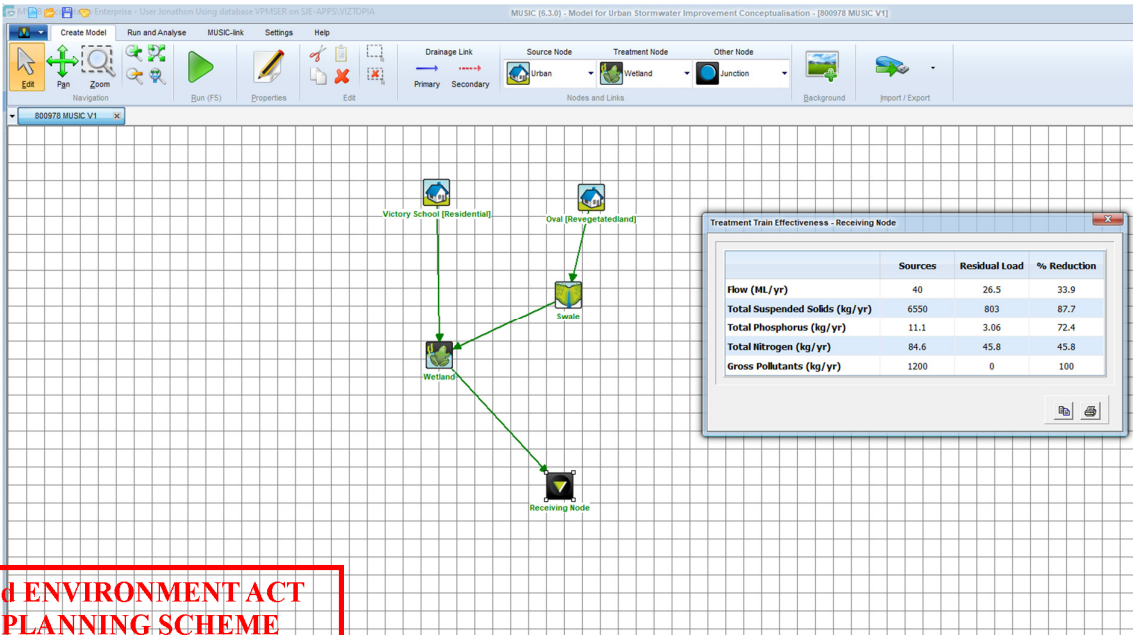
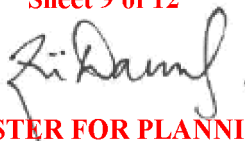
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Figure 2 shows the MUSIC proposed treatment train.



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4. MAINTENANCE OF DRAINAGE SYSTEM

For existing wetlands asset is in private ownership of Victory Lutheran College will have a maintenance system based on management of its assets to achieve ongoing “fit for purpose” objectives.

- The drainage system must be constructed to a standard acceptable to Wodonga City Council.
- Victory Lutheran College undertakes a program of regular inspections to identify any non-conformances outside the maintenance standards as specified in their asset management plans. This information is used to determine the maintenance works program.
- Issues to be addressed include maintenance of the wetlands.

5. CONCLUSIONS

- The outfalls from the development site remain unchanged.
- The quality of the discharge water is maintained at the required state guidelines by the existing wetlands.

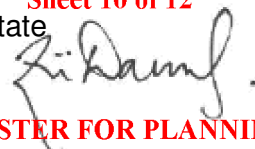
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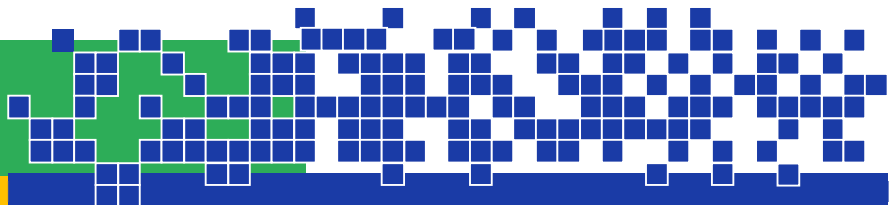
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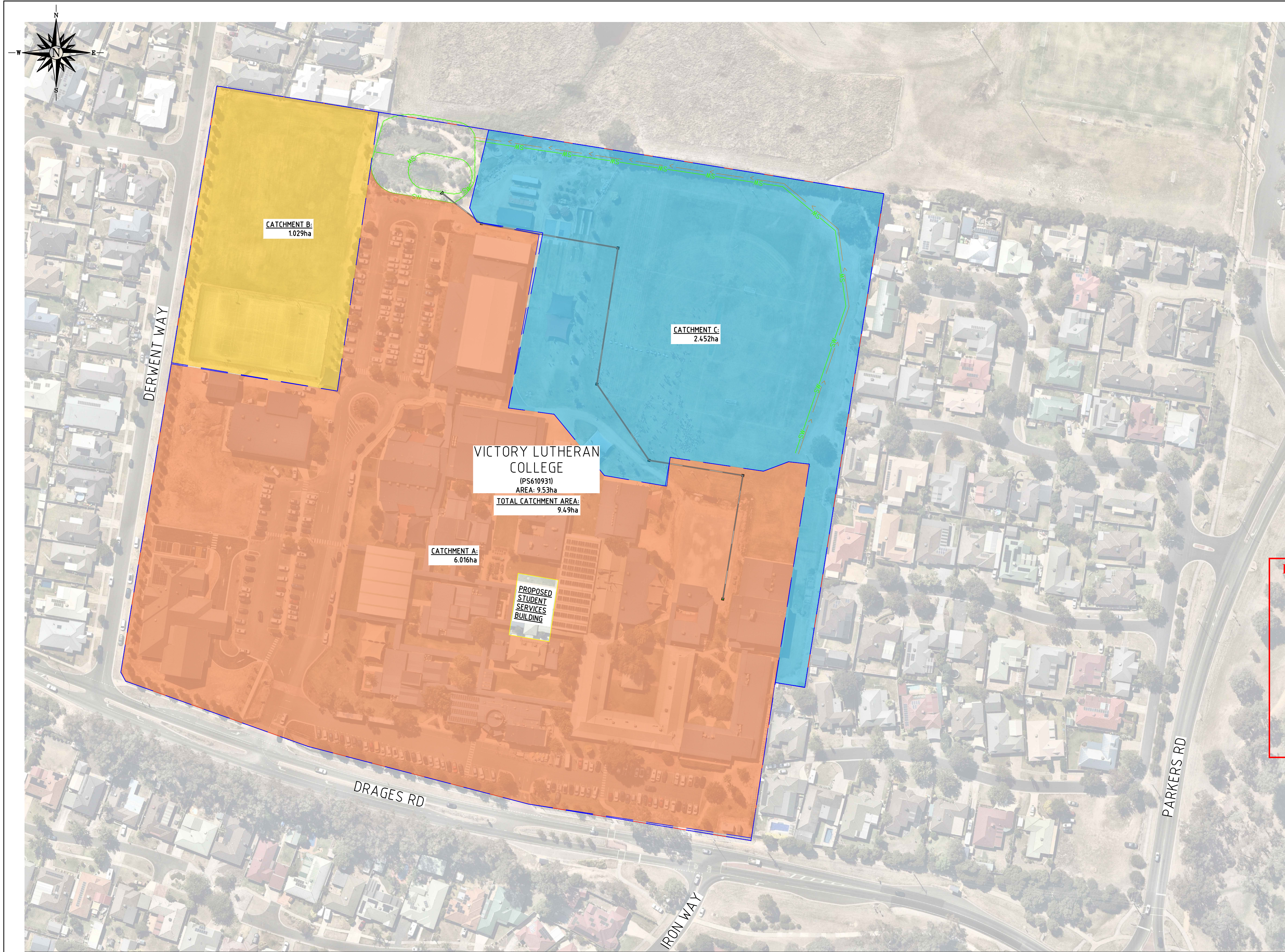
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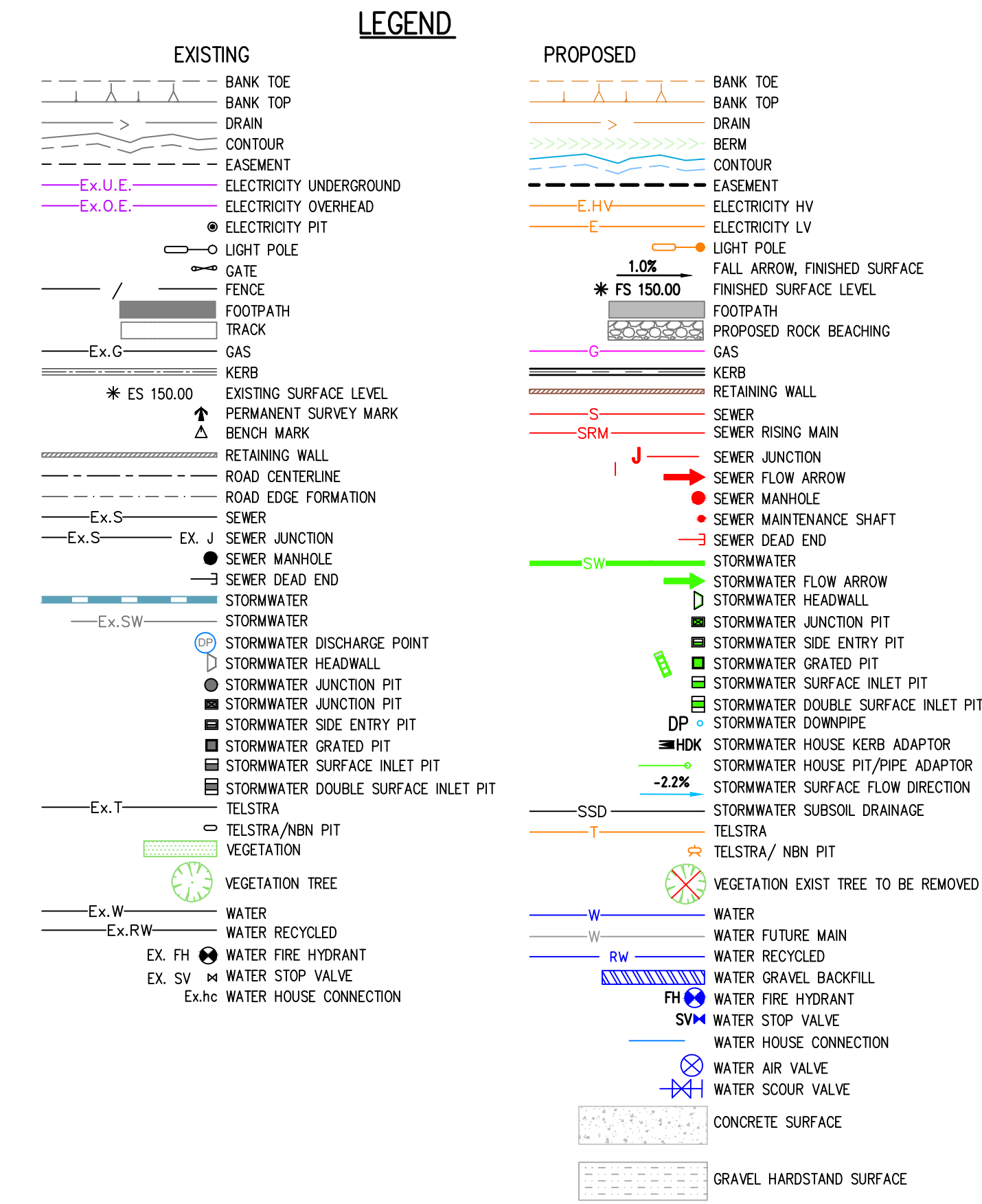
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GENERAL ARRANGEMENT PLAN
SCALE 1:1000 @ A1



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ABBREVIATION TABLE
KERB
LAYBACK = LAYBACK KERB & GUTTER
SM1 = SEMI-MOUNTABLE KERB
SM2 = SEMI-MOUNTABLE KERB & CHANNEL
SM3 = SEMI-MOUNTABLE KERB & CHANNEL
K&G = KERB & GUTTER
M1 = MOUNTABLE
150mm KERB = 150mm WIDE BARRIER KERB
SEWER
M.H. = MANHOLE
D.E. = DEAD END
J = HOUSE JUNCTION
I.S. = INSPECTION SHAFT
TMS = TERMINAL MAINTENANCE SHAFT
IL = INVERT LEVEL
DRAINAGE
HW = HEADWALL
SEP = SIDE ENTRY PIT
ESEP = SIDE ENTRY PIT-EXTENDED INLET
GP = GRATED PIT
GCP = GRATED GULLY PIT
SIP = SURFACE INLET PIT
DSIP = DOUBLE SURFACE INLET PIT
J.P. = JUNCTION PIT
J.P.(C) = JUNCTION PIT WITH GRATE
CPO(A) = CIRCULAR PUNCH OUT 450mm
CPO(B) = CIRCULAR PUNCH OUT 600mm
CPO(C) = CIRCULAR PUNCH OUT 750mm
CPO(D) = CIRCULAR PUNCH OUT 900mm
PIP = PROPERTY INLET PIT
IO = INSPECTION OPENING
IOS = INSPECTION OPENING (SUB-SOIL)
IL = INVERT LEVEL
WATER
F.H. = FIRE HYDRANT
D.E. = DEAD END
S.V. = STOP VALVE
OTHER
FFL = FINISHED FLOOR LEVEL
FS = FINISHED SURFACE LEVEL
ES = EXISTING SURFACE LEVEL

NOTE:
1. CONTRACTOR TO CALL DIAL BEFORE YOU DIG ON PH 1100 AND LOCATE ALL SERVICES BY HAND PRIOR TO COMMENCEMENT OF ANY WORKS TO VERIFY THE LOCATION OF ANY UNDERGROUND SERVICES.
2. ALL DRAINAGE WORKS TO BE CARRIED OUT IN ACCORDANCE WITH AS 3500.
3. CONNECTION TO EXISTING PIT IN ACCORDANCE WITH COUNCIL REQUIREMENTS.
4. ALL PITS TO BE A MINIMUM OF 450 x 450 SQ PITS UNLESS SPECIFIED ON THE PLAN.
5. DEPTH OF PITS 450mm SQ PIT 0.60m AND 600mm PIT 0.90m.
6. MINIMUM COVER ON PVC STORM WATER UNDER CONCRETE PAVEMENT TO BE 100mm FROM UNDERSIDE OF PAVEMENT AND 500mm COVER UNDER ASPHALT PAVEMENT. REFER TO TABLE 7.1 IN AS 3500.3.
7. MINIMUM GRADE OF 100mm AND 150mm STORM WATER PIPE TO BE 1% AND 1% FOR ASPHALT.
8. MINIMUM GRADE OF CARPARK PAVEMENT IS 0.5% FOR CONCRETE AND 1% FOR ASPHALT.
9. MAXIMUM DISTANCE BETWEEN SAWCUTS 6.0m UNLESS NOTED OTHERWISE.
10. MAXIMUM DISTANCE BETWEEN DOWELED EXPANSION JOINT TO BE 15m UNLESS NOTED OTHERWISE

REV.	AMENDMENTS	DATE	INIT.
C	STUDENT SERVICE BUILDING	25-06-24	JEK
B	SEDIMENT CONTROL PLAN	15-05-24	JEK
A	PRELIMINARY	14-09-23	JEK

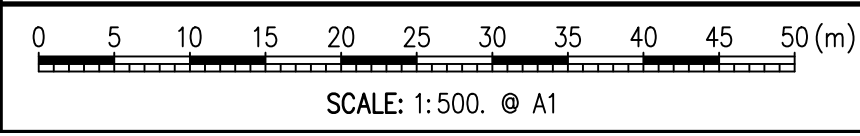
NOTES:
ALL LEVELS ARE TO AHD
ALL SERVICES ARE APPROXIMATE ONLY
ALL BOUNDARIES ARE APPROXIMATE ONLY
REFER TO PLAN OF SUBDIVISION
CONTRACTOR TO CALL DIAL BEFORE YOU DIG ON PH 1100 AND LOCATE ALL SERVICES BY HAND PRIOR TO COMMENCEMENT OF ANY WORKS TO VERIFY THE LOCATION OF ANY UNDERGROUND SERVICES.



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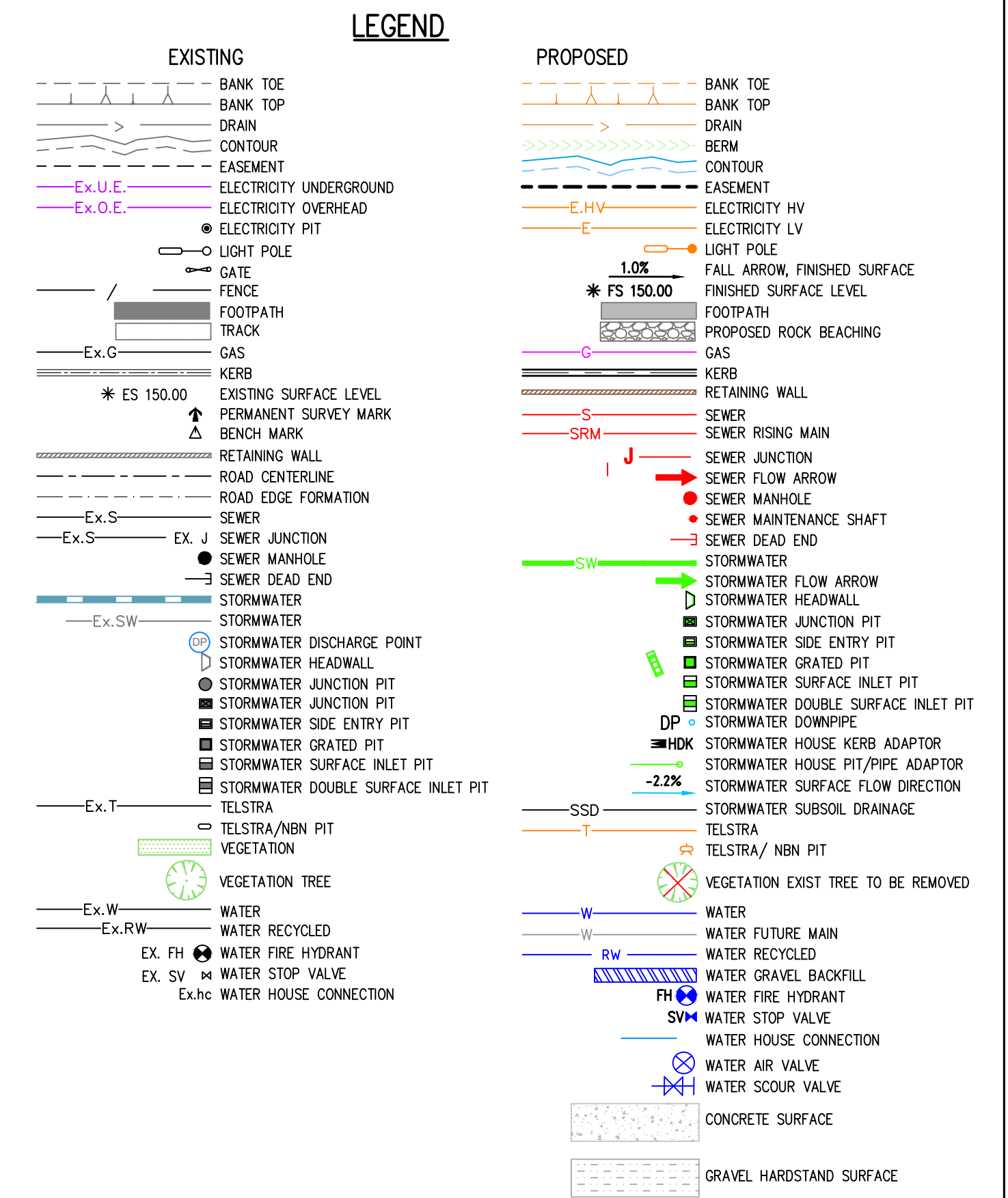
NOTE:
SURVEY HAS BEEN PROVIDED BY OTHERS
LEVELS ARE TO BE CHECKED AND CONFIRMED
ONSITE PRIOR TO COMMENCEMENT OF WORKS

CLIENT:
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28 DRAGES ROAD, WODONGA



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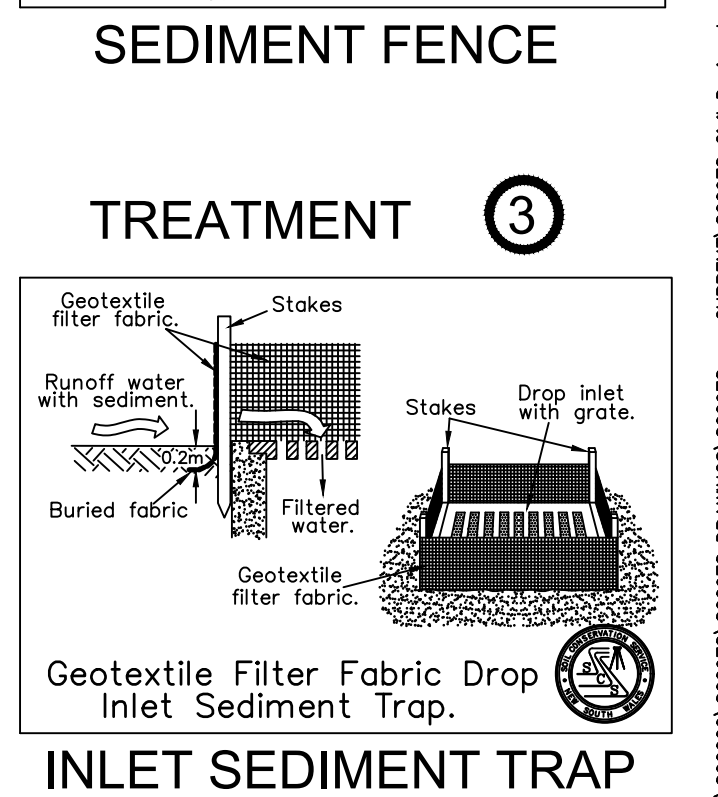
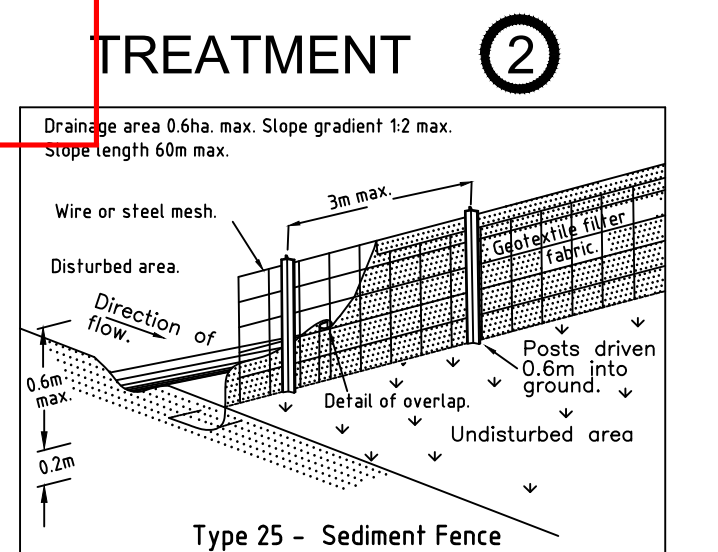
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SEDIMENT CONTROL PLAN VICTORY LUTHERAN COLLEGE DRAINAGE PROPOSAL 28 DRAGES ROAD, WODONGA				
DESIGNER: JEK	DRAWN: JEK	DRAWING NO. 800978-C-01	REVISION C	
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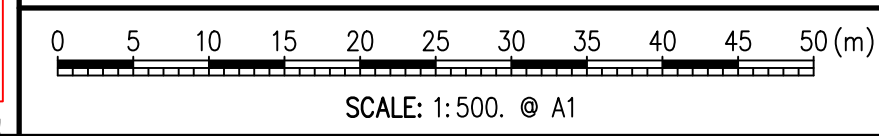
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LEVELS ARE TO BE CHECKED AND CONFIRMED
ONSITE PRIOR TO COMMENCEMENT OF WORKS

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