

Construction Soil and Water Management Plan

Darcy Road Public School

Prepared for School Infrastructure NSW / 27 March 2024

221155

Contents

1.0	Background	3
	1.1 Reference Documents	4
2.0	Extent of Works	5
3.0	Access Locations and Traffic Movements within the Worksite	6
4.0	Site Storage and Stockpile Locations	6
5.0	Stormwater and Flooding Flows	6
6.0	Erosion and Sediment Control	6
	Appendix A	8
	Appendix B	10
	Appendix C	14
	Appendix D	16

1.0 Background

This Construction Soil and Water Management Plan (CSWMP) has been prepared to support a State Significant Development Application (SSDA) (ref: SSD-49073460) for the upgrade of the Darcy Road Public School (DRPS). The associated works proposed as part of the SSDA will consist of the following:

- Demolition of all buildings associated with the existing school, except for the existing hall which will be retained and refurbished,
- Construction of a new school comprising two interconnected buildings up to four storeys,
- Construction of new open spaces and landscaping,
- Refurbishment of the existing hall including demolition of existing ancillary features to the eastern side of the building and extension of the hall into the existing covered outdoor learning area, and,
- Extension of the existing car park.

This report has been prepared to satisfy the Draft Consent Condition item B17 (received 22 December 2023) as shown in Table 1 below:

Table 1: Draft Consent Conditions

Draft Consent Condition Item	Document Reference
B17. The Applicant must prepare a Construction Soil and Water Management Plan (CSWPSM) and the plan must address, but not be limited to the following:	-
a. Be prepared by a suitably qualified expert, in consultation with Council;	Refer to Curriculum Vitae (CV) provided in Appendix C. Council to be consulted following finalisation of consent conditions.
b. Measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;	Refer to Section 3.0 and Erosion and Sediment Control Plans in Appendix B for details.
c. Describe all erosion and sediment controls to be implemented during construction, including as a minimum, measures in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the 'Blue Book';	Refer to Sections 4.0, 5.0, 6.0 and Erosion and Sediment Control Plans in Appendix B for details.
d. Provide a plan of how all construction works will be managed in a wet-weather event (i.e. storage of equipment, stabilisation of the Site);	Refer to Section 6.0 and Construction Management Plan (CMP) report prepared by Taylor.

Draft Consent Condition Item	Document Reference
e. Detail all off-site flows from the site; and	Refer to Section 5.0 and Erosion and Sediment Control Plans in Appendix B for details.
f. Describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to, 1 in 5-year ARI and 1 in 100-year ARI.	Refer to Section 5.0 and Erosion and Sediment Control Plans in Appendix B for details.

1.1 Reference Documents

The following documents have been reviewed and referenced in preparation of this CSWMP:

- City of Parramatta Development Control Plan (DCP) 2011.
- Blue Book – Managing Urban Stormwater Soils and Construction (4th Edition, Landcom NSW) 2004.
- Flood Impact Assessment Report prepared by TTW.
- Construction Environment Management Plan (CEMP) prepared by Taylor.
- Construction Management Plan (CMP) prepared by Taylor.

2.0 Extent of Works

DRPC is located at 98A Darcy Road, Wentworthville within the Parramatta LGA and is legally defined as the following:

- Lots 6-7 in DP 10955,
- Lot 1 in DP 782155,
- Lot A in DP 383734,
- Lot 1 in DP 122893,
- Lot 1 in DP 160134, and,
- Lots 12-16 in DP 16811.
-

The extent of SSDA physical works is limited to the area outlined in Appendix A. The existing hard courts and oval fall outside the extent of the proposed SSDA physical works. Staging of is to be as follows:

1. Stage 1 consists of the construction of a temporary school using demountables and associated infrastructure proposed under a separate planning approval.
2. Stage 2 will consist of Construction of Milestone 1 Permanent School under the SSDA.
3. Stage 3 will consist of Construction of Milestone 2 Permanent School under the SSDA.

Stage 1 works are proposed under a separate planning approval process and so are not required as part of this CSWMP. This report will address construction works associated with Stage 2 and 3 only.

3.0 Access Locations and Traffic Movements within the Worksite

Access to the worksite for the SSDA works is anticipated to be from Darcy Road for Stage 2 and Oliver Street for Stage 3. Refer to the CMP prepared by Taylor for further details. All vehicles will enter and exit the site in a forward direction, with direction of travel shown on the CEMP prepared by Taylor.

4.0 Site Storage and Stockpile Locations

Material storage areas are located within the site as detailed on the CMP prepared by Taylor.

5.0 Stormwater and Flooding Flows

The location of off-site stormwater flow control devices is detailed within the Erosion and Sediment Control Plans in Appendix B. Connections are to be temporary and implemented during the construction stage of the SSDA works for conveyance of construction stormwater runoff. For stage 2, a temporary connection to an existing pit located adjacent to Building B is to be made from the proposed Stage 2 sedimentation basin as outlined in Drawing C-0030 of Appendix B. For Stage 3, a temporary connection to an existing pit located within the existing oval is to be made from the proposed Stage 3 sedimentation basin as outlined in Drawing C-0030 of Appendix B.

The extent of works for stage 2 and 3, as shown in Appendix A, are located outside of the major flood paths for both the 5%AEP and 1% AEP floods of the Toongabbie Creek catchment as outlined in the "Flood Impact Assessment Report" prepared by TTW (dated 2024). The extent of works is only impacted by minor overland flows, which are to be conveyed via grading and catch drains towards the south-east of the site as per existing conditions.

6.0 Erosion and Sediment Control

An erosion and sediment control plan has been prepared for the site to prevent sediment laden stormwater from flowing into adjoining properties or receiving water bodies. Stormwater controls are detailed in the attached erosion and sediment control plans provided in Appendix B. These have been prepared with reference to Parramatta City Council's Development Control Plan and Landcom NSW's Managing Urban Stormwater, Soils and Construction (Blue Book).

A sedimentation basin for each development stage has been provided in accordance with Landcom NSW's Managing Urban Stormwater, Soils and Construction (Blue Book) as detailed in Appendix B. Additional measures to be implemented to manage stormwater during minor and larger storm events include catch drains, hay bale sediment filters, geotextile pit filters, silt fences and sandbag sediment traps.

During wet weather events, equipment is to be moved into storage located within the site to be kept dry during the duration of the event. Equipment (including heavy machinery) are to be maintained as per their guidelines/manuals. Loose earthworks are to be stockpiled in allocated stockpiles as shown on plans excavation staging drawings TCG-SK-010.6 and TCG-SK-010.8 by Taylor Construction Group. For site stabilisation, sediment and erosion control measures are to be kept in place as per Erosion and Sediment Control Plans by TTW (refer to Appendix B). Refer to the CMP prepared by Taylor for additional details..

Prepared by
TAYLOR THOMSON WHITTING (NSW) PTY LTD
in its capacity as trustee for the
TAYLOR THOMSON WHITTING NSW TRUST



MITCHELL LEIGHTON
Engineer



CHRISTOPHER GENTILE
Senior Engineer

Authorised By
TAYLOR THOMSON WHITTING (NSW) PTY LTD
in its capacity as trustee for the
TAYLOR THOMSON WHITTING NSW TRUST



GRACE CARPP
Associate

Appendix A

Site Plan and Extent of SSSDA Physical Works

- P CAR PARKS
- VEHICLE ACCESS
- PEDESTRIAN ACCESS
- PROPERTY BOUNDARY LINE
- SSSA BOUNDARY LINE
- EX. FENCE LINE
- PROPOSED FENCE LINE
- RELOCATING / REMOVING DEMOUNTABLES
- DEMOLISHED BUILDING / STRUCTURE
- DEMOLISHED PAVEMENT, STAIRS & GARDEN BEDS
- BUILDINGS / DEMOUNTABLES TO BE RETAINED
- SEWER LINE
- SEWER MANHOLE
- GRATED DRAINS. REFER TO CIVIL & HYDRAULIC ENG. DRAWINGS FOR DETAILS

REFER TO LANDSCAPE & CIVIL DRAWINGS & SPECIFICATION FOR SITE RELATED DETAILS INCLUDING FENCING, RETAINING WALLS, WALKWAYS, RAMPS, STAIRS & OTHER LANDSCAPE DETAILS.
 ALL WALKWAYS TO HAVE A MIN. CROSSFALL OF 1:40
 ALL FENCING & GATES TO BE COMPLIANT WITH EFSG REQUIREMENTS. FOR ADDITIONAL INFORMATION PLEASE REFER TO SINSW SECURITY DESIGN BRIEF.

ELECTRICAL
PRO ELECTRICAL
 Steve Ward, Grant Cornwall
 7/276 New Line Road, Dural NSW Australia 2158
 +61 2 98513455
 grant.c@pronetwork.com.au

MECHANICAL
ICR Air Conditioning
 Amir Tambrich
 Unit 12, 175 Briens Road NORTHMEAD NSW 2152
 +61 2 98017788
 amir@icrair.com.au

HYDRAULIC
Hitech Plumbing + Inline Hydraulic
 Ben Bradley, Paul McDonald
 Unit 42 & 43, 45-47 Green St, Banksmeadow, NSW 2019
 PM: 0473 392 909
 paul@inlinenh.com.au

LANDSCAPE ARCHITECT
URBIS
 Yen Yu
 Level 8, Angel Place, 123 Pitt Street, NSW 2000
 +61 2 92337637
 yv@urbis.com.au

STRUCTURE/CIVIL
TTW
 Hung Nguyen
 Level 6, 73 Miller Street, NSW 2060
 +612 9439 7288
 hung.nguyen@ttw.com.au

ARCHITECTURE
NBRSPARTNERS
 John Vasco
 4 Glen Street, Milsons Point NSW Australia 2061
 +61 2 9922 2344
 john.vasco@nbrs.com.au

BUILDER
TAYLOR CONSTRUCTION GROUP
 Katherine Barrionuevo
 Level 16, 100 Pacific Highway, NSW 2060
 +61 2 87369000
 katherineb@taylorau.com.au

Issue No.	Date	Description	Chkd
9	07/11/2023	Issue for Coordination	JV
10	21/11/2023	Issue for Coordination	JV
11	01/12/2023	90% DD Issue	JV
12	08/02/2024	PRELIMINARY CC1 ISSUE	JV
13	14/02/2024	Issue for Coordination	JV

Changes to this Revision

90% DD

+61 2 9922 2344 nbrs.com.au
 Nominated Architect:
 Andrew Duffin NSW 5602
 NBRSPARTNERS Pty Ltd VIC 51197 ABN 16 002 247 565

Project
Darcy Road Public School

at
 98A Darcy Rd, Wentworthville NSW 2145

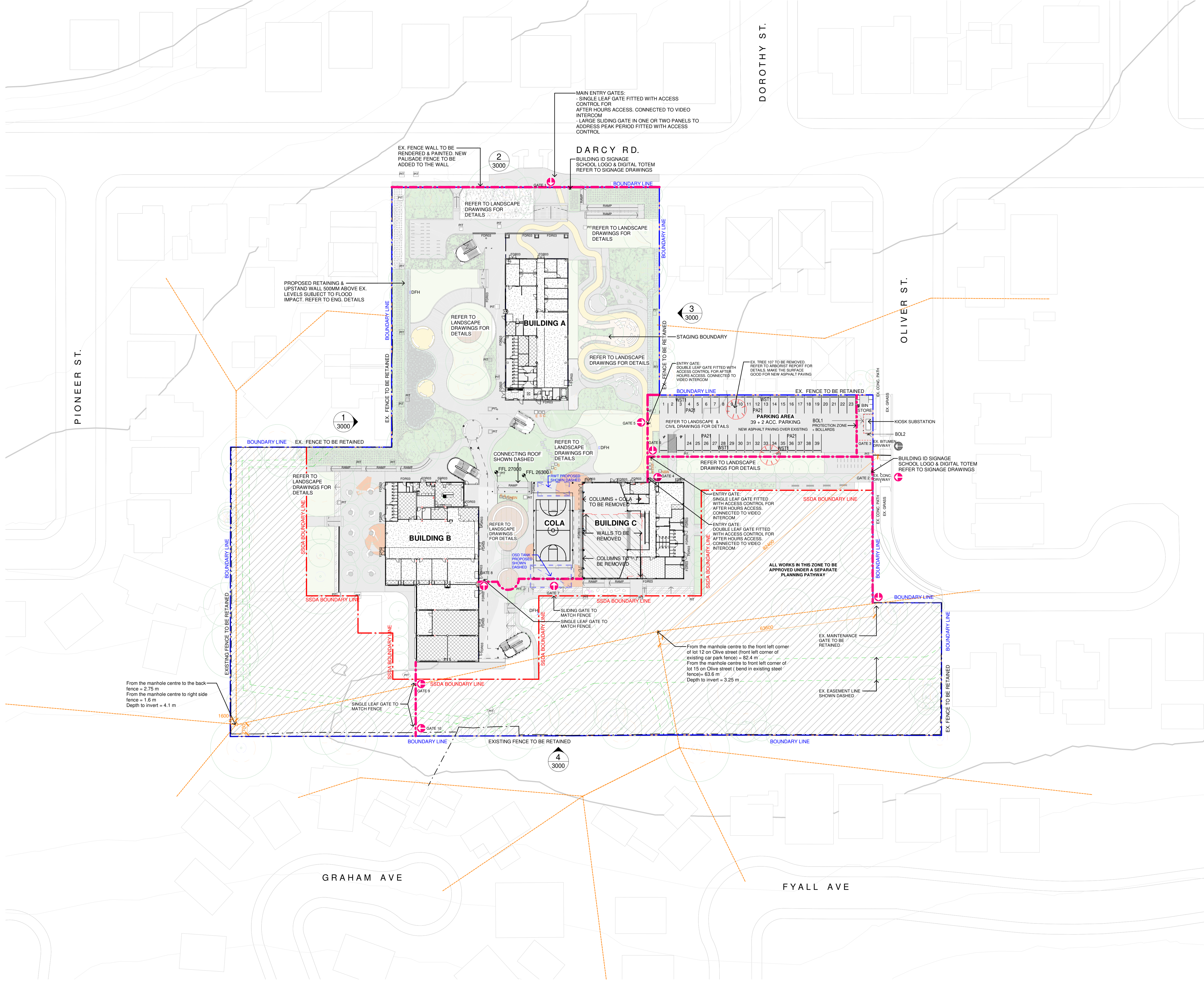
for
 Taylor Construction + SINSW

Drawing Title
PROPOSED SITE PLAN

Date 14/02/2024 9:32:56 PM
 Scale 1:500 @ A1

Drawing Reference	Revision
DRPS-NBRSPARTNERS-ZZ-XX-DR-A-0200	13



Any form of replication of this drawing in full or in part without the written permission of NBRSPARTNERS Pty Ltd constitutes an infringement of the copyright.



Appendix B

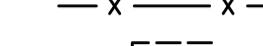
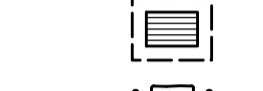

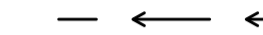
Erosion and Sediment Control Plans

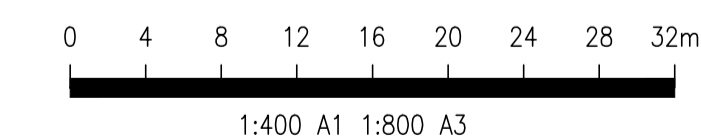
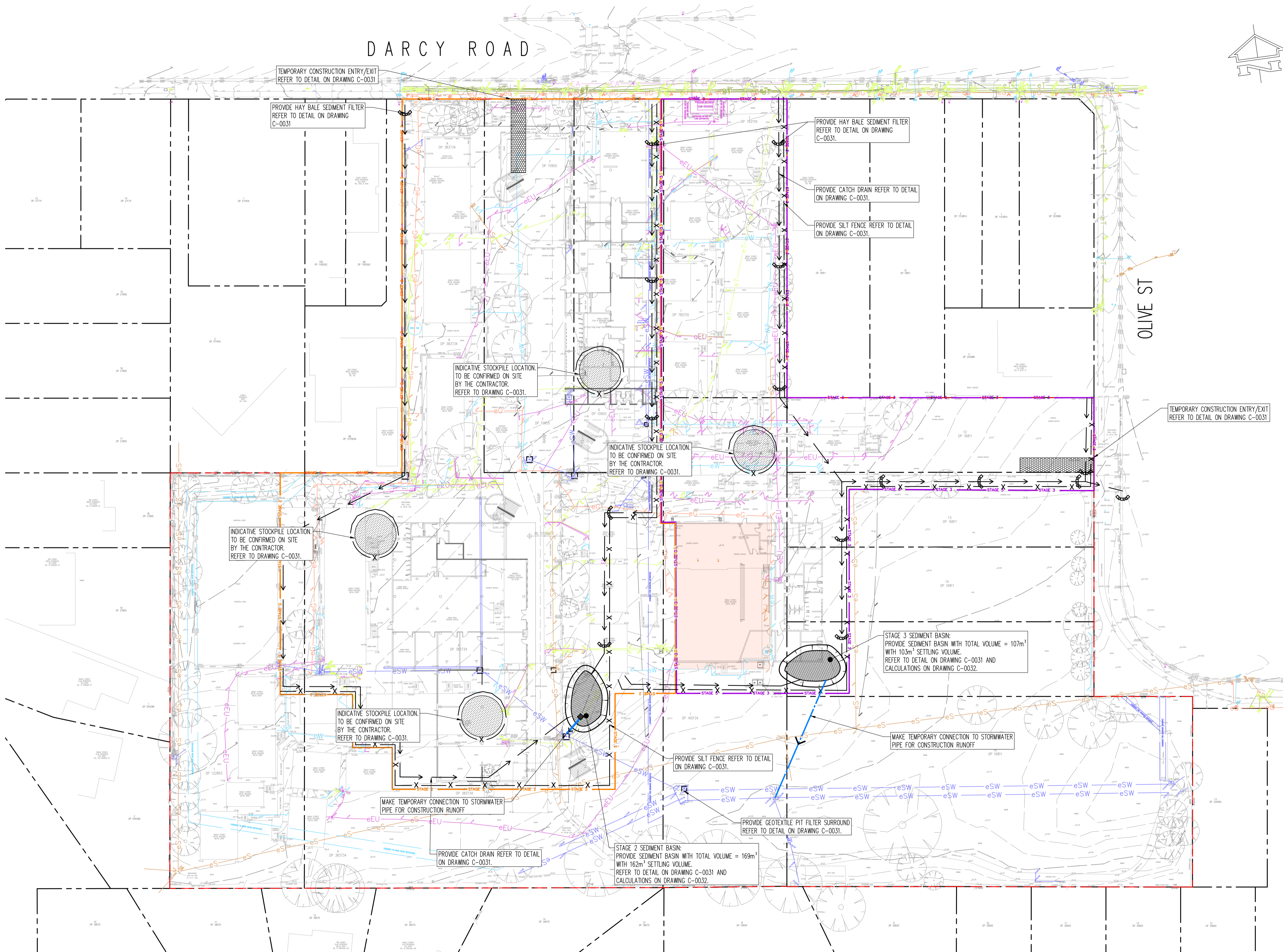
GENERAL LEGEND

-  Site boundary
-  STAGE 2 Stage 2 extent of SSDA physical works
-  STAGE 3 Stage 3 extent of SSDA physical works

REFER TO DRG DRPS-TTW-CV-02 FOR OVERALL GENERAL LEGENDS

EROSION AND SEDIMENT CONTROL LEGEND

-  Siltation fence
-  Stormwater pit with Geotextile filter surround
-  Hay bale barriers
-  Catch drain



THIS DRAWING HAS BEEN PREPARED USING COLOUR

FOR INFORMATION

File Name: DRPS-TTW-ZZ-GF-DR-C-0030.dwg - User: mitchell - Plot File Created: Mar 27, 2024 - 12:57pm

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
6	ISSUE FOR 90% DD	CG	AW	4.12.23										
5	ISSUE FOR 50% DD	SF	AW	07.09.23										
4	SCHEMATIC DESIGN - TENDER ISSUE	SF	JH	28.04.23	9	MINOR AMENDMENTS	CG	AW	27.03.24					
3	SCHEMATIC DESIGN - TENDER ISSUE	SF	JH	24.11.22	9	ISSUE FOR CROWN CERTIFICATE	CG	AW	8.03.24					
2	SCHEMATIC DESIGN - TENDER ISSUE	SF	JH	22.11.22	8	AMENDED LANDSCAPE AND STORMWATER	CG	AW	15.02.24					
1	ISSUE FOR INFORMATION	SF	JH	07.10.22	7	MINOR AMENDMENTS	CG	AW	18.01.24					

Client

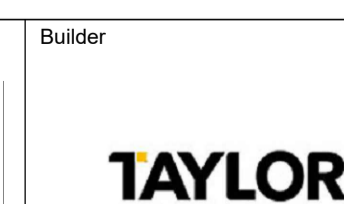


Education School Infrastructure

Architect



Builder



Engineer



612 9439 7288 | Level 6, 73 Miller Street, North Sydney, NSW 2060

Project

DARCY ROAD PUBLIC SCHOOL

Job No
221155

Sheet Subject

EROSION AND SEDIMENT CONTROL PLAN

Scale	Drawn	Authorised
A1	JH	NB
1:400		
Drawing No	Revision	
DRPS-TTW-ZZ-GF-DR-C-0030	10	
Plot File Created: Mar 27, 2024 - 12:57pm		

EROSION AND SEDIMENT CONTROL NOTES

- All work shall be generally carried out in accordance with
 - Local authority requirements,
 - EPA – Pollution control manual for urban stormwater,
 - LANDCOM NSW – Managing Urban Stormwater: Soils and Construction ("Blue Book").
- Erosion and sediment control drawings and notes are provided for the whole of the works. Should the Contractor stage these works then the design may be required to be modified. Variation to these details may require approval by the relevant authorities. The erosion and sediment control plan shall be implemented and adapted to meet the varying situations as work on site progresses.
- Maintain all erosion and sediment control devices to the satisfaction of the superintendent and the local authority.
- When stormwater pits are constructed prevent site runoff entering the pits unless silt fences are erected around pits.
- Minimise the area of site being disturbed at any one time.
- Protect all stockpiles of materials from scour and erosion. Do not stockpile loose material in roadways, near drainage pits or in watercourses.
- All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit site conditions.
- Control water from upstream of the site such that it does not enter the disturbed site.
- All construction vehicles shall enter and exit the site via the temporary construction entry/exit.
- All vehicles leaving the site shall be cleaned and inspected before leaving.
- Maintain all stormwater pipes and pits clear of debris and sediment. Inspect stormwater system and clean out after each storm event.
- Clean out all erosion and sediment control devices after each storm event.

Sequence Of Works

- Prior to commencement of excavation the following soil management devices must be installed.
 - Construct silt fences below the site and across all potential runoff sites.
 - Construct temporary construction entry/exit and divert runoff to suitable control systems.
 - Construct measures to divert upstream flows into existing stormwater system.
 - Construct sedimentation traps/basin including outlet control and overflow.
 - Construct turf lined swales.
 - Provide sandbag sediment traps upstream of existing pits.
- Construct geotextile filter pit surround around all proposed pits as they are constructed.
- On completion of pavement provide sand bag kerb inlet sediment traps around pits.
- Provide and maintain a strip of turf on both sides of all roads after the construction of kerbs.

WATER QUALITY TESTING REQUIREMENTS

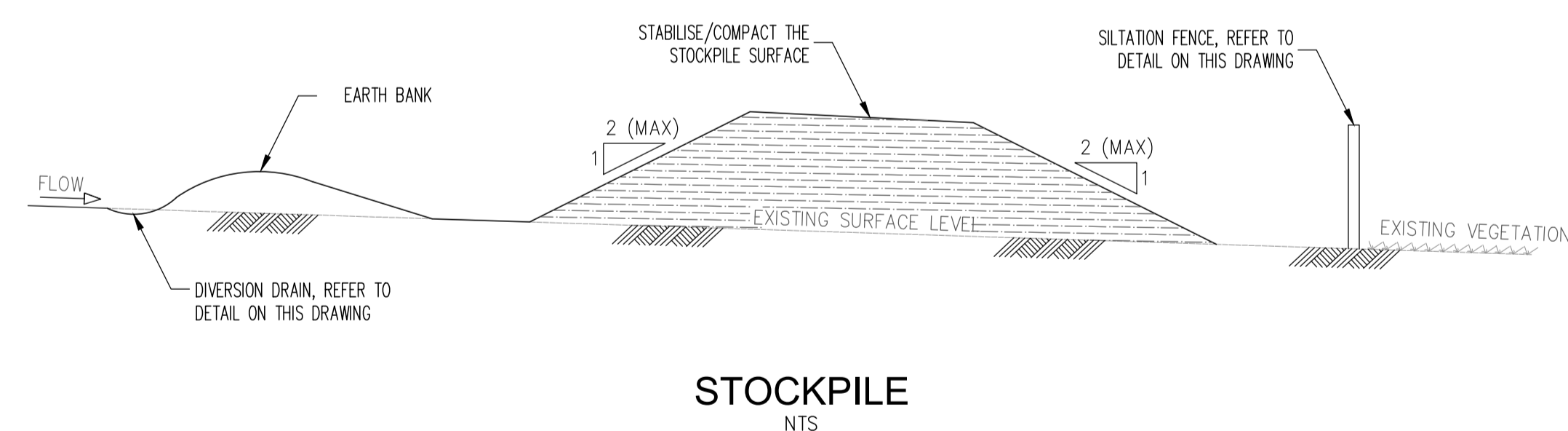
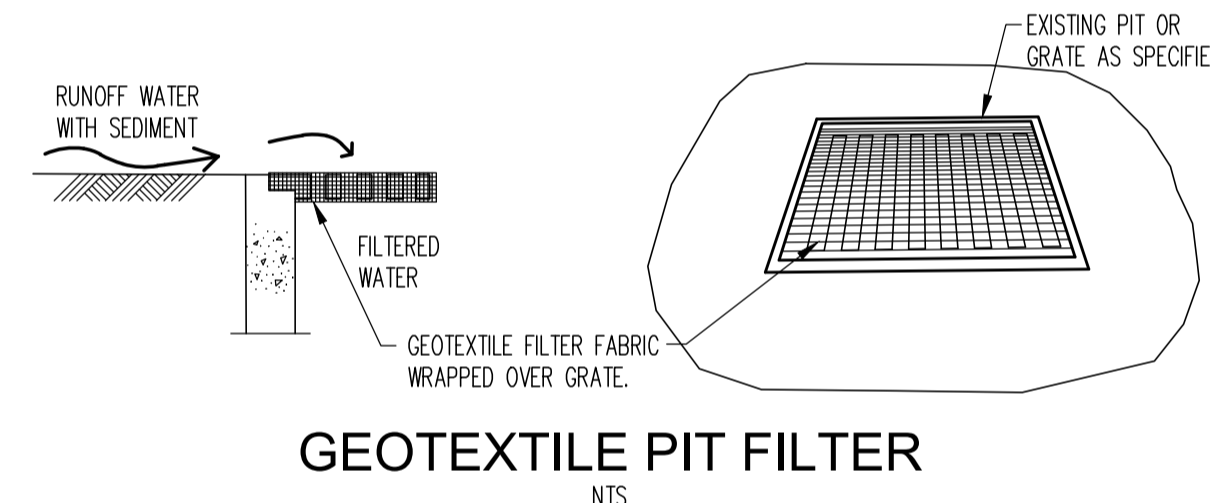
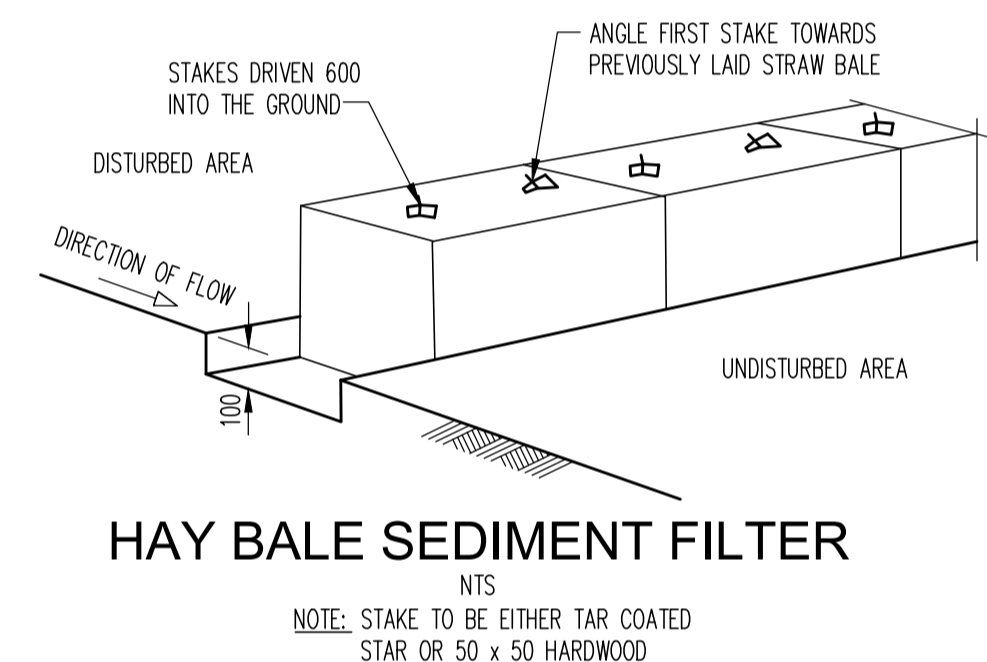
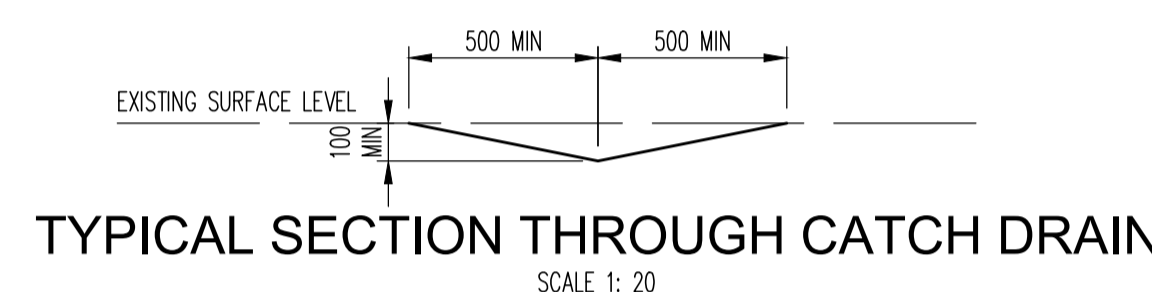
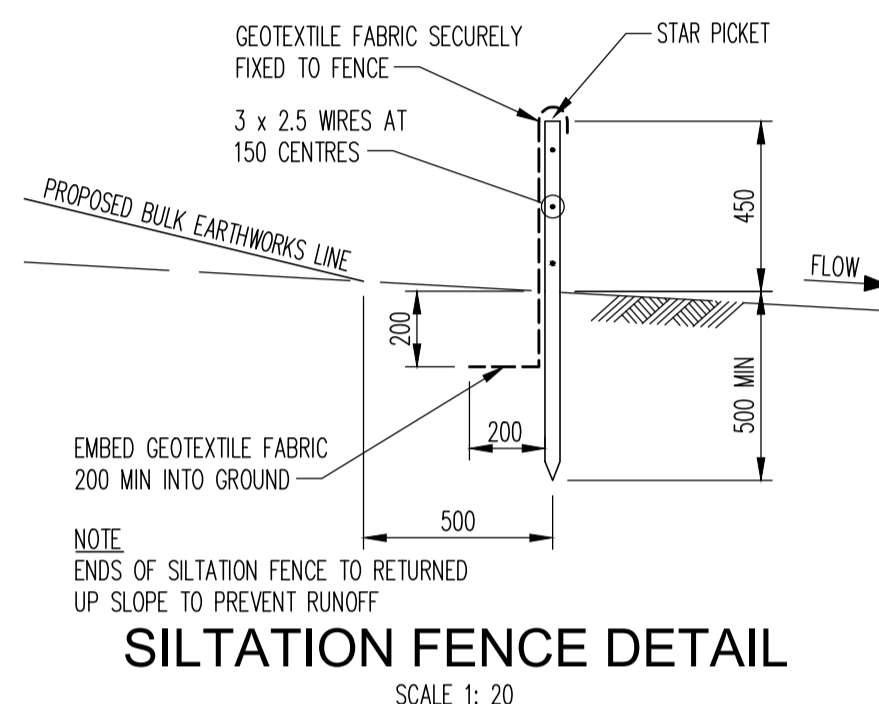
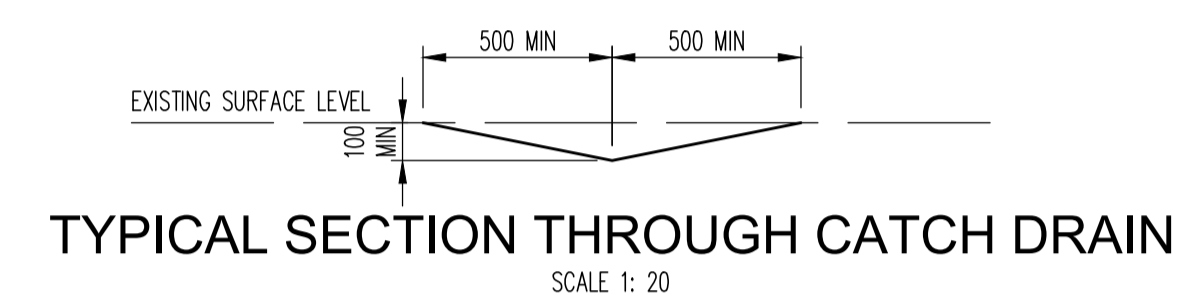
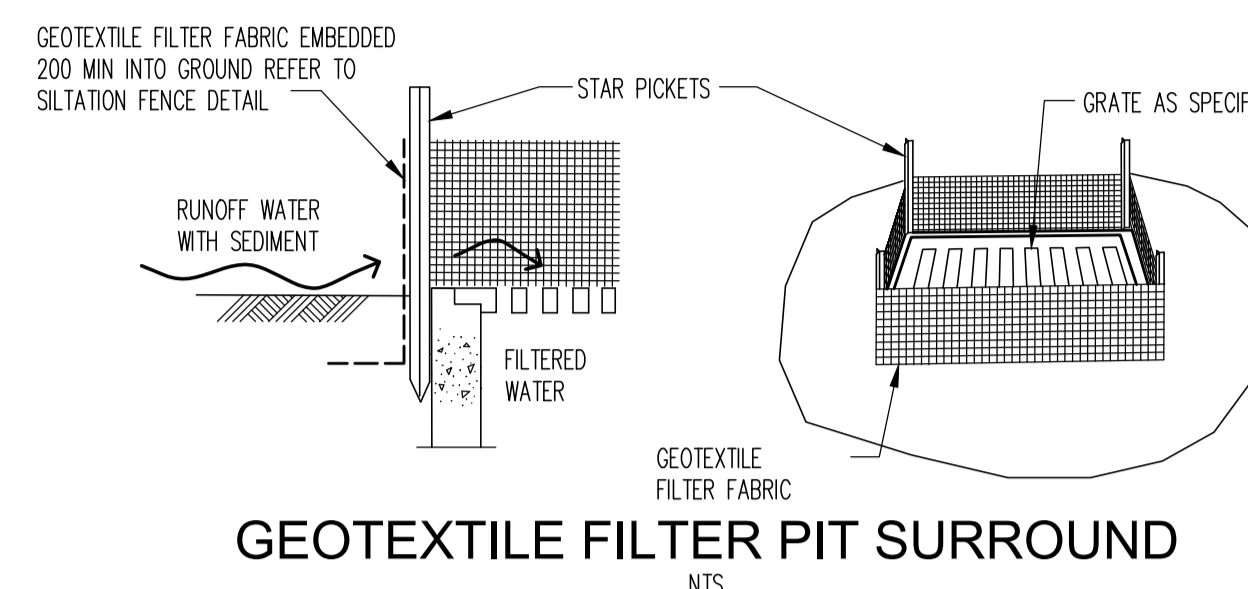
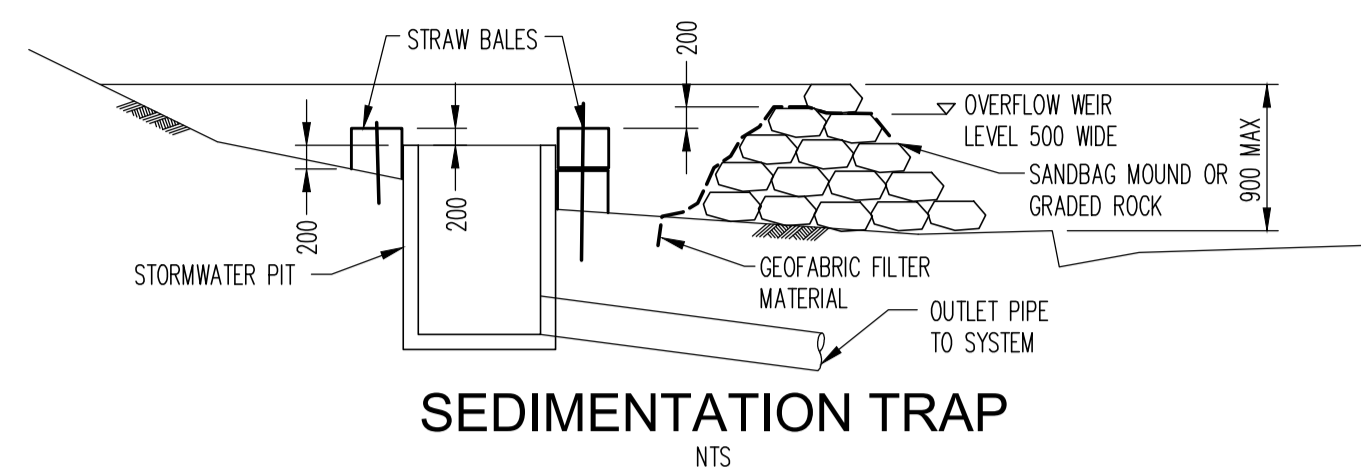
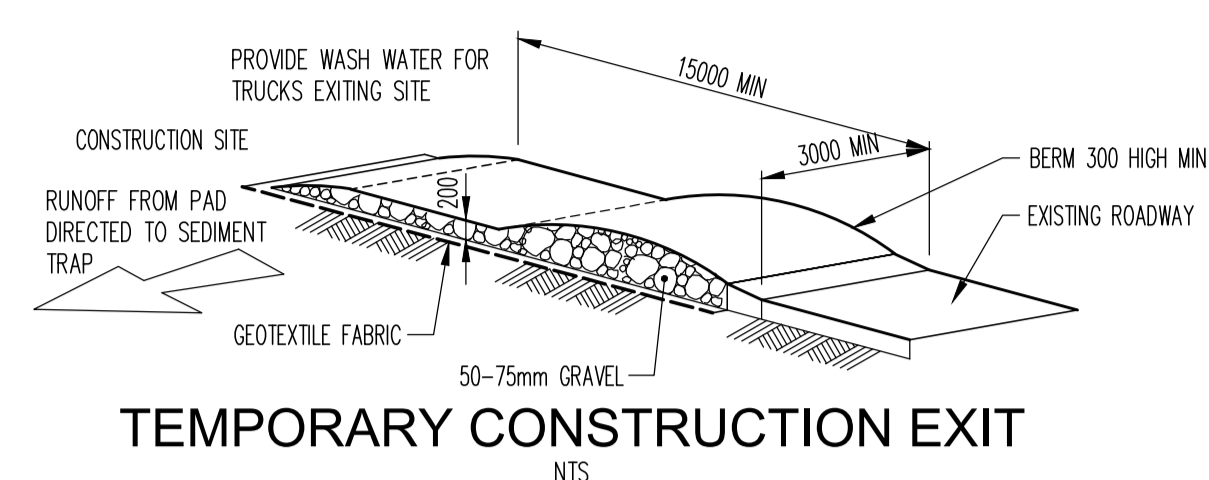
Prior to discharge of site stormwater, groundwater and seepage water into council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environmental consultant outlining the following:

- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Councils storm water drainage system. This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually monitor the quality of water discharged from this site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

EROSION AND SEDIMENT CONTROL PUMP OUT NOTES

Any accumulated water contaminated with sediment, from a sediment basin or excavation pit, is to be flocculated or filtered in order to lower the suspended solid load to less than 50mg per litre gypsum qps or other approved flocculant should be applied within 24 hours of the end of the storm event. The gypsum must be spread evenly over the entire water surface. Pumping is not to occur for at least 36 hours and preferably 48 hours after application. Clean water is to be discharged to the water table via a hole ball sediment filter in a way that does not pick up sediment that has dropped to the bottom.

Note: gypsum is a hydrated form of calcium sulphate and is available at many swimming pool shops and hardware stores.



Filename: DRPS-TTW-ZZ-GF-DR-C-0031.dwg - USER: admin - Plot File Created: Mar 08, 2024 - 2:17pm

THIS DRAWING HAS BEEN PREPARED USING COLOUR

FOR CROWN CERTIFICATE ONLY

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
6	ISSUE FOR CROWN CERTIFICATE	CG	AW	8.03.24										
5	AMENDED LANDSCAPE AND STORMWATER	CG	AW	15.02.24										
4	ISSUE FOR 90% DD	CG	AW	4.12.23										
3	ISSUE FOR 50% DD	SF	AW	07.09.23										
2	SCHEMATIC DESIGN - TENDER ISSUE	SF	JH	22.11.22										
1	ISSUE FOR INFORMATION	SF	JH	07.10.22										

Client Education School Infrastructure	Architect 	Builder 	Engineer 612 9439 7288 Level 6, 73 Miller Street, North Sydney, NSW 2060	Project DARCY ROAD PUBLIC SCHOOL	Job No 221155	Sheet Subject EROSION AND SEDIMENT CONTROL DETAILS SHEET 1	Scale : A1 AS SHWON	Drawn JH	Authorised NB
						Drawing No DRPS-TTW-ZZ-GF-DR-C-0031	Revision 6		
Plot File Created: Mar 08, 2024 - 2:17pm									

EROSION AND SEDIMENT CONTROL NOTES

- All work shall be generally carried out in accordance with:
 (A) Local authority requirements,
 (B) EPA – Pollution control manual for urban stormwater,
 (C) LANDCOM NSW – Managing Urban Stormwater: Soils and Construction ("Blue Book").
- Erosion and sediment control drawings and notes are provided for the whole of the works. Should the Contractor stage these works then the design may be required to be modified. Variation to these details may require approval by the relevant authorities. The erosion and sediment control plan shall be implemented and adapted to meet the varying situations as work on site progresses.
- Maintain all erosion and sediment control devices to the satisfaction of the superintendent and the local authority.
- When stormwater pits are constructed prevent site runoff entering the pits unless silt fences are erected around pits.
- Minimise the area of site being disturbed at any one time.
- Protect all stockpiles of materials from scour and erosion. Do not stockpile loose material in roadways, near drainage pits or in watercourses.
- All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit site conditions.
- Control water from upstream of the site such that it does not enter the disturbed site.
- All construction vehicles shall enter and exit the site via the temporary construction entry/exit.
- All vehicles leaving the site shall be cleaned and inspected before leaving.
- Maintain all stormwater pipes and pits clear of debris and sediment. Inspect stormwater system and clean out after each storm event.
- Clean out all erosion and sediment control devices after each storm event.

Sequence of Works

- Prior to commencement of excavation the following soil management devices must be installed.
 - Construct silt fences below the site and across all potential runoff sites.
 - Construct temporary construction entry/exit and divert runoff to suitable control systems.
 - Construct measures to divert upstream flows into existing stormwater system.
 - Construct sedimentation traps/basin including outlet control and overflow.
 - Construct turf lined swales.
 - Provide sandbag sediment traps upstream of existing pits.
- Construct geotextile filter pit surround around all proposed pits as they are constructed.
- On completion of pavement provide sand bag kerb inlet sediment traps around pits.
- Provide and maintain a strip of turf on both sides of all roads after the construction of kerbs.

WATER QUALITY TESTING REQUIREMENTS

Prior to discharge of site stormwater, groundwater and seepage water into council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environmental consultant outlining the following:

- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Councils storm water drainage system. This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continuously monitor the quality of water discharged from this site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

EROSION AND SEDIMENT CONTROL PUMP OUT NOTES

Any accumulated water contaminated with sediment, from a sediment basin or excavation pit, is to be flocculated or filtered in order to lower the suspended solid load to less than 50mg per litre gypsum gms or other approved flocculant should be applied within 24 hours of the end of the storm event. The gypsum must be spread evenly over the entire water surface. Pumping is not to occur for at least 36 hours and preferably 48 hours after application. Clean water is to be discharged to the water table via a hole ball sediment filter in a way that does not pick up sediment that has dropped to the bottom.

Note: gypsum is a hydrated form of calcium sulphate and is available at many swimming pool shops and hardware stores.



FOR CROWN CERTIFICATE ONLY

1. Erosion Hazard and Sediment Basins

Site Name:

Site Location:

Precinct/Stage:

Other Details:

Site area	Sub-catchment or Name of Structure		Notes
	STG 2	STG 3	
Total catchment area (ha)	0.764	0.487	
Disturbed catchment area (ha)	0.764	0.487	

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	D		From Appendix C (if known)
	D	D	
% sand (fraction 0.02 to 2.00 mm)			Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)			
% clay (fraction finer than 0.002 mm)			
Dispersion percentage			E.g. enter 10 for dispersion of 10%
% of whole soil dispersible			See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D	D	Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5	5			
Design rainfall depth (percentile)	85	85			See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
x-day, y-percentile rainfall event (mm)	33.1	33.1			
Rainfall R-factor (if known)	2500	2500			Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)					

RUSLE Factors

Rainfall erosivity (R-factor)	2500	2500					Auto-filled from above
Soil erodibility (K-factor)	0.022	0.022					
Slope length (m)	143	127					
Slope gradient (%)	3.3	3.3					RUSLE LS factor calculated for a high till/interill ratio.
Length/gradien (LS-factor)	0.97	0.91					
Erosion control practice (P-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (C-factor)	1	1	1	1	1	1	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2	2					Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.64	0.64					See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (t/ha/yr)	69	65					
Soil Loss Class	1	1					See Table 4.2, page 4-13
Soil loss (m ³ /ha/yr)	53	50					Conversion to cubic metres
Sediment basin storage (soil) volume (m ³)	7	4					See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m ³)	162	103					See Sections 6.3.4(i) for calculations
Sediment basin total volume (m ³)	169	107					

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

2. Flow Calculations

Peak flow is given by the Rational Formula: $Q_y = 0.00278 \times C_{10} \times F_y \times I_{y,tc} \times A$

where: Q_y is peak flow rate (m³/sec) of average recurrence interval (ARI) of "Y" years
 C_{10} is the runoff coefficient (dimensionless) for ARI of 10 years.
 F_y is a frequency factor for "Y" years.
 A is the catchment area in hectares (ha)
 $I_{y,tc}$ is the average rainfall intensity (mm/hr) for an ARI of "Y" years and a design duration of "tc" (minutes or hours)

Time of concentration (t_c) = $0.76 \times (A/100)^{0.38}$ hrs

Note: For urban catchments the time of concentration should be determined by more precise calculations or reduced by a factor of 50 per cent. Place an x in the appropriate row below to automatically halve the time of concentration for that sub-catchment.

Structure Details		Notes					
Name	STG 2	STG 3					
Catchment Area (ha)	0.764	0.487					
Place an x here to halve tc	X	X					Place an x if disturbed catchment
Time of concentration (tc)	4	3					minutes

Rainfall Intensities

1-year, tc	91.9	97.5					
2-year, tc	101	107					Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used
5-year, tc	130	136					
10-year, tc	151	157					
20-year, tc	172	178					
50-year, tc	199	207					
100-year, tc	221	229					

C10 runoff coefficient	0.9	0.9					Use AR&R or Table F3, pg F-6
------------------------	-----	-----	--	--	--	--	------------------------------

Frequency Factors

FF, 1-year	0.8	0.8					Can use 0.8 for a construction site
FF, 2-year	0.85	0.85					Can use 0.85 for a construction site
FF, 5-year	0.95	0.95					Can use 0.95 for a construction site
FF, 10-year	1	1					Generally always 1
FF, 20-year	1.05	1.05					Can use 1.05 for a construction site
FF, 50-year	1.15	1.15					Can use 1.15 for a construction site
FF, 100-year	1.2	1.2					Can use 1.2 for a construction site

Flow Calculations

Flow Calculations		Notes					
1-year, tc (m ³ /s)	0.141	0.095					
2-year, tc (m ³ /s)	0.164	0.111					
5-year, tc (m ³ /s)	0.236	0.157					
10-year, tc (m ³ /s)	0.289	0.191					
20-year, tc (m ³ /s)	0.345	0.228					
50-year, tc (m ³ /s)	0.437	0.29					
100-year, tc (m ³ /s)	0.507	0.335					

NB for flow calculations on sediment basin spillways, see Worksheet 3 (if required).

3. Sediment Basin Spillway Design

Structure Details		Notes					
Structure Name	STG 2	STG 3					
Catchment Area (ha)	0.764	0.487					Auto-filled from Worksheet 1
Time of concentration (tc)	4	3					Auto-calculated assuming tc is halved

Rainfall Intensities (IFD Values)

1 year, tc	91.9	97.5						Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used
2 year, tc	101	107						
5 year, tc	130	136						
10 year, tc	151	157						
20 year, tc	172	178						
50 year, tc	199	207						
100 year, tc	221	229						

C10 runoff coefficient	0.9	0.9					Use AR&R or Table F3, pg F-6
------------------------	-----	-----	--	--	--	--	------------------------------

Design ARI event (select):	100	100	100	100	100	100	Select design ARI (years) from dropdown
----------------------------	-----	-----	-----	-----	-----	-----	---

Frequency Factor	1.2	1.2	1.2	1.2	1.2	1.2	Auto-filled based on selected ARI
------------------	-----	-----	-----	-----	-----	-----	-----------------------------------

Flow Calculation	0.507	0.335					Auto-calculated based on selected ARI
------------------	-------	-------	--	--	--	--	---------------------------------------

4. Volume of Type C (Coarse) Sediment Basins

Type C Basin Design Criteria

Structure Name	STG 2	STG 3					
Catchment Area (ha)	0.764	0.487					Auto-filled from Worksheet 1
Sediment type (C, F or D)	D	D					Auto-filled from Worksheet 1
Design rainfall event	2	2					Choose design event from dropdown
Flow volume (m ³ /s)	0.164	0.111					Calculated from IFD values above
Area Factor	4100	4100	4100	4100	4100	4100	Default is 4,100. See pg 6-12
Depth of settling (water zone) (m)	0.6	0.6	0.6	0.6	0.6	0.6	Minimum is 0.6m (6-12)

Type C Basin Volume Calculations

Basin Surface Area (m ²)	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Auto-calculated
Settling (water) zone volume (m ³)	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Auto-calculated
Storage (soil) zone volume (m ³)	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Auto-calculated
Total basin volume (m ³)	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Auto-calculated

Basin Shape

Enter length:width ratio	3	3	3	3	3	3	E.g. for 3:1 (L:W) enter 3.
Length (m)	N/A	N/A	N/A	N/A	N/A	N/A	These figures should be taken as a guide only. Detailed calcs might be required.
Width (m)	N/A	N/A	N/A	N/A	N/A	N/A	

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
4	ISSUE FOR CROWN CERTIFICATE	CG	AW	8.03.24										
3	AMENDED LANDSCAPE AND STORMWATER	CG	AW	15.02.24										
2	MINOR AMENDMENTS	CG	AW	18.01.24										
1	ISSUE FOR 90% DD	CG	AW	4.12.23										

Client	Architect	Builder	Engineer	Project	Sheet Subject	Scale: A1	Drawn	Authorised
				DARCY ROAD PUBLIC SCHOOL	EROSION AND SEDIMENT CONTROL DETAILS SHEET 2	AS SHWON	JH	NB
				612 9439 7288 Level 6, 73 Miller Street, North Sydney, NSW 2060		Drawing No	Revision	
						DRPS-TTW-ZZ-GF-DR-C-0032	4	
				Job No: 221155		Plot File Created: Mar 08, 2024 - 2:17pm		

Appendix C

Curriculum Vitae (CV)



Christopher Gentile

Senior Civil Engineer

B. Eng (Civil), D. Eng Prac

christopher.gentile@ttw.com.au

Experience

2023 – Current
Senior Civil Engineer, TTW

2021 – 2023
Senior Civil Engineer, Martens & Associates

2015 – 2021
Civil Engineer, Martens & Associates

Christopher is a highly motivated and ambitious civil engineer with 10 years experience working in Australia.

Christopher has worked on a diverse range of projects including road corridors, residential subdivisions, commercial developments and remediation projects. He has worked on various projects in these fields from conception to completion.

Christopher has diverse experience in various fields of Civil Engineering including, road design, stormwater pit and pipe design, on-site detention design and modelling, water quality modelling and design, flood modelling and mitigation design, flood evacuation risk assessment, and traffic impact assessments. He has proficiency in various engineering tools including 12D model, DRAINS, MUSIC, SIDRA, Tuflow, AutoCAD, AutoTURN

Mixed Development

518A Old South Head Road, Rose Bay NSW – *Carpark and vehicle access design.*

4 Hill Road, West Pennant Hills NSW – *Carpark design, vehicle access design, traffic and safety assessment.*

Residential

37 Railway Road, Quakers Hill NSW. – *Flood impact modelling and assessment.*

34-44 Kent Street, Epping NSW. – *Stormwater modelling and design.*

10-14 Hazelwood Place, Epping NSW. Second Avenue, Eastwood NSW. – *Stormwater modelling and design.*

Subdivision

Alma Den Way, Tahmoor NSW. – *Stormwater modelling and design.*

Fothergill Place, Tahmoor NSW. – *Roadworks and earthworks design.*

Long Gully Road, Singleton NSW. – *Road corridor design.*

Curves Drive, Manyana NSW. – *Roadworks and earthworks design.*

10 Boundary Road, Tallawong NSW. – *Stormwater modelling and design.*

53 Boundary Road, Tallawong NSW – *Roadworks and earthworks design. Stormwater modelling and design.*

127 Boundary Road, Tallawong NSW – *Stormwater modelling and design.*

Healthcaae + Aged Car Centre

Rockford Road, Tahmoor NSW. – *Internal and public domain roadworks and earthworks design.*

Traffic impact assessment.

Vincents Road, Kurrajong NSW. – *Internal roadworks and earthworks design.*

Intrastructure + Data Centre

Velgrove Aveune, Parkwood, WA. – *Vehicle access design.*

Office + Commercial

752 George Street, South Windsor NSW – *Vehicle access design works*

221 Bringelly Road, Leppington NSW. – *Carpark and vehicle access design.*

13 Gongola Road, North Narrabeen NSW – *Flood Evacuation Risk Assessment*

Education

Leppington Anglican College NSW. – *Stormwater modelling and design. Internal roadworks, carpark and earthworks design.*

St Narsai College, Horsley Park NSW. – *Internal roadworks, carpark and earthworks design.*

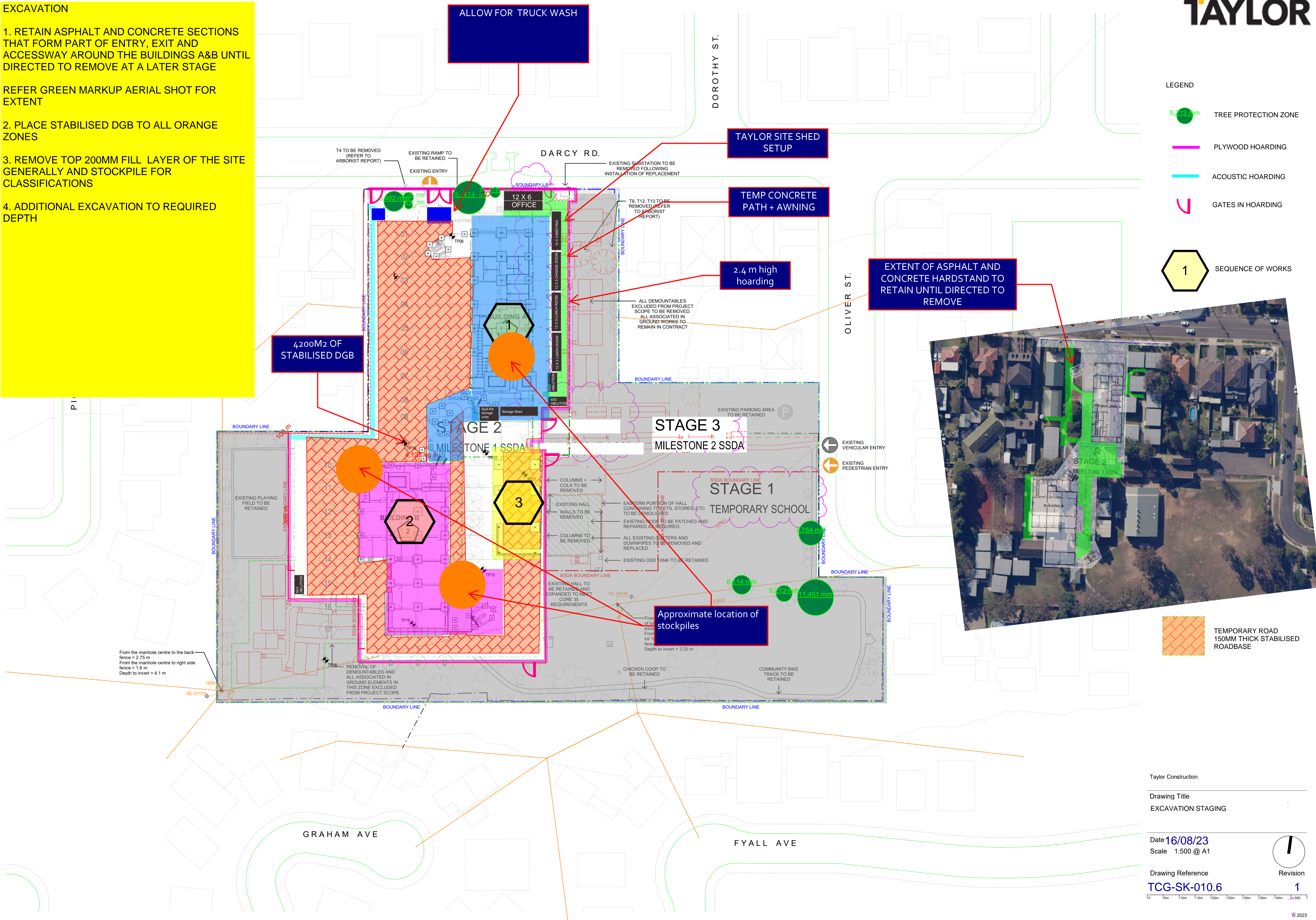
St Annan Christian School NSW. – *Carpark and stormwater design.*

Appendix D

Excavation Staging Drawings (Taylor)

- EXCAVATION**
1. RETAIN ASPHALT AND CONCRETE SECTIONS THAT FORM PART OF ENTRY, EXIT AND ACCESSWAY AROUND THE BUILDINGS A&B UNTIL DIRECTED TO REMOVE AT A LATER STAGE
 2. PLACE STABILISED DGB TO ALL ORANGE ZONES
 3. REMOVE TOP 200MM FILL LAYER OF THE SITE GENERALLY AND STOCKPILE FOR CLASSIFICATIONS
 4. ADDITIONAL EXCAVATION TO REQUIRED DEPTH

- LEGEND**
- 5,213 mm TREE PROTECTION ZONE
 - PLYWOOD HOARDING
 - ACOUSTIC HOARDING
 - GATES IN HOARDING
 - 1 SEQUENCE OF WORKS



From the manhole centre to the back fence = 2.75 m
 From the manhole centre to right side fence = 1.6 m
 Depth to invert = 4.1 m

REMOVAL OF DEMOUNTABLES AND ALL ASSOCIATED IN GROUND ELEMENTS IN THIS ZONE EXCLUDED FROM PROJECT SCOPE

EXISTING HALL WALLS TO BE REMOVED
 EASTERN PORTION OF HALL CONTAINING TOILETS, STORES, ETC TO BE DEMOLISHED
 EXISTING FLOOR TO BE PATCHED AND REPAIRED AS REQUIRED
 ALL EXISTING GUTTERS AND DOWNPIPES TO BE REMOVED AND REPLACED
 EXISTING OSD TANK TO BE RETAINED

Approximate location of stockpiles

TEMPORARY ROAD 150MM THICK STABILISED ROADBASE

Taylor Construction

Drawing Title
 EXCAVATION STAGING

Date 16/08/23
 Scale 1:500 @ A1

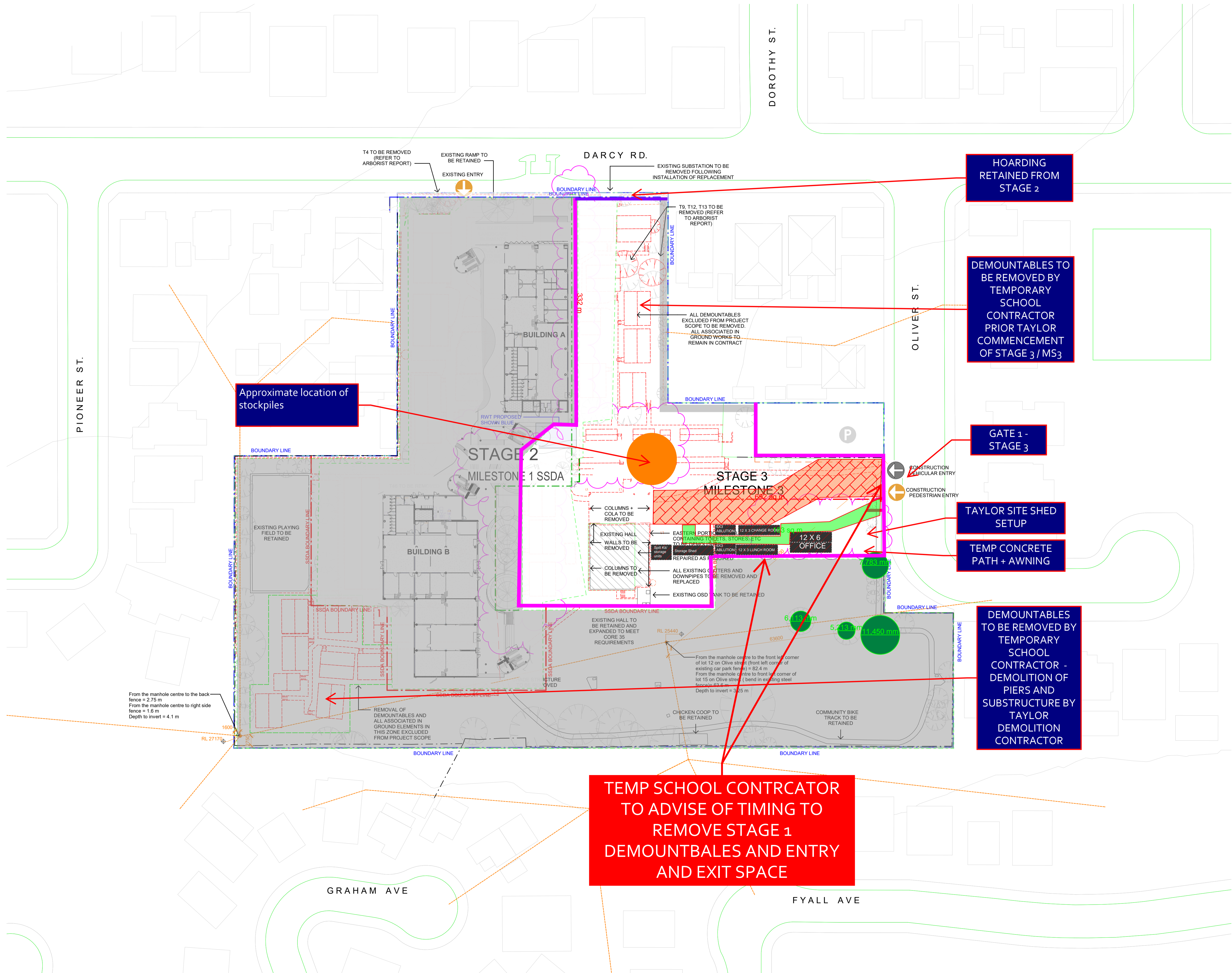
Drawing Reference
 TCG-SK-010.6

Revision
 1

0 5m 10m 15m 20m 25m 30m 35m 40m 45m 500

LEGEND

- 5,213 mm TREE PROTECTION ZONE
- PLYWOOD HOARDING
- ACOUSTIC HOARDING
- ⌋ GATES IN HOARDING
- 1 SEQUENCE OF WORKS
- TEMPORARY ROAD 150MM THICK STABILISED ROADBASE



Approximate location of stockpiles

HOARDING RETAINED FROM STAGE 2

DEMOUNTABLES TO BE REMOVED BY TEMPORARY SCHOOL CONTRACTOR PRIOR TAYLOR COMMENCEMENT OF STAGE 3 / MS3

GATE 1 - STAGE 3

TAYLOR SITE SHED SETUP

TEMP CONCRETE PATH + AWNING

DEMOUNTABLES TO BE REMOVED BY TEMPORARY SCHOOL CONTRACTOR - DEMOLITION OF PIERS AND SUBSTRUCTURE BY TAYLOR DEMOLITION CONTRACTOR

TEMP SCHOOL CONTRCATOR TO ADVISE OF TIMING TO REMOVE STAGE 1 DEMOUNTBALES AND ENTRY AND EXIT SPACE

Taylor Construction

Drawing Title
STAGE 3 / MS3 - HALL AND COLA

Date 16/08/23
Scale 1:500 @ A1

Drawing Reference
TCG-SK-010.8

Revision
1

0 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m