

PENDLE HILL HIGH SCHOOL - BUILDING H

SOIL & WATER MANAGEMENT PLAN

PROJECT NO: 7817

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PROJECT TITLE: *Pendle Hill High School*

PROJECT NUMBER: 7817

Prepared by:	Erfan Karami	Date:	22 October 2021
Reviewed by:	Oliver Walsh	Date:	25 October 2021
Approved by:	Oliver Walsh	Date:	25 October 2021

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1. INTRODUCTION

Indesco Pty Ltd (Indesco) has been engaged by Taylor Construction (the Proponent) to prepare a Soil and Water Management Plan for the proposed development of Building H as part of the redevelopment works for Pendle Hill High School. This involves the construction of a new 3 Level education facility consisting of two buildings under a connected roof.

This report will outline the methodology adopted and associated results of:

- Management of sediment and erosion on-site during construction; and
- Maintenance of sediment and erosion control devices.

It is understood that this report will be utilised to fulfil Condition B16 & C23 of the Development Consent SSD 9579147, as outlined below:

Condition B16: The Applicant must prepare a Construction Soil and Water Management Sub-Plan (CSWMSP) and the plan must address, but not be limited to the following:

- a) Be prepared by a suitably qualified expert, in consultation with Council;*
- b) Measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;*
- 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';*
- d) Provide a plan of how all construction works will be managed in a wet-weather events (i.e., storage of equipment, stabilisation of the Site);*
- e) Detail all off-site flows from the site; and*
- 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.*

Condition B23: Adequate provisions must be made to collect and discharge stormwater drainage during construction to the Certifier. The prior written approval of Council must be obtained to connect or discharge site stormwater to Council's stormwater drainage system or street gutter.

Table 1. outlines the conditions mentioned above along references to how each individual condition has been addressed.

Condition	How the Condition has been met
B16 a) Be prepared by a suitably qualified expert, in consultation with Council.	The report and drawings have been prepared by Indesco who are suitably qualified civil engineers. Please refer to the CV of Oliver Walsh in Appendix B. This report will be provided to Council along with relevant drawings.
B16 b) Measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the Site.	Refer to Section 4.1.3
B16 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 Section 4.1 and Appendix A.
B16 d) Provide a plan of how all construction works will be managed in a wet-weather events (i.e., storage of equipment, stabilisation of the Site).	Refer to Sections 4 & 5.
B16 e) Detail all off-site flows from the site.	Refer to Section 5.2
B16 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.	Refer to Section 5.3
C23 Adequate provisions must be made to collect and discharge stormwater drainage during construction to the Certifier. The prior written approval of Council must be obtained to connect or discharge site stormwater to Council's stormwater drainage system or street gutter.	Refer to Section 5.2

Table 1. Consent Conditions.

2. SITE CHARACTERISTICS

2.1 SITE DESCRIPTION

The Site (Lot 101 on DP1141329) is located within the suburb of Toongabbie in the Parramatta City Council Local Government Area (LGA). The Site has an area of approximately 6.6 hectares and as shown in Figure 1. The Site, is bounded by the Binalong Road to the east, Illoca Place and Una Place to the west, and Cornock Avenue and Knox Street to the south.

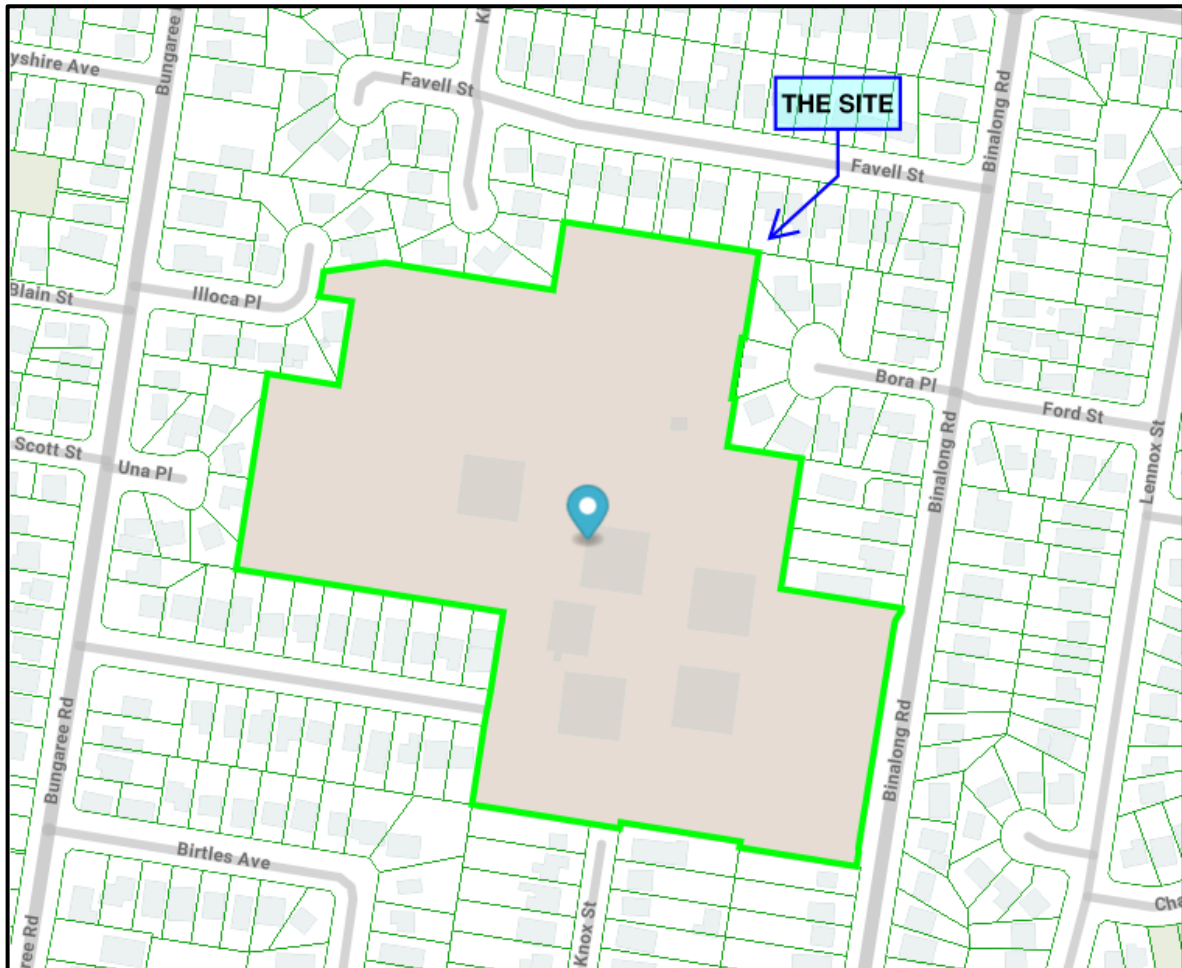


Figure 1. The Site

The Construction Area is limited to a smaller portion of the Site. The construction area comprises approximately 8,800 sq.m of the Site, fronting Binalong Road as shown below.



Figure 2 - Construction Area

2.2 SITE GRADING

As shown in Figure 3. Site Topography. the construction area generally falls to the east towards Binalong Road.



Figure 3. Site Topography.

3. PROPOSED DEVELOPMENT

As shown in Figure 4. Proposed Development of Building H, the proposed development will comprise of north and south wings of Building H.

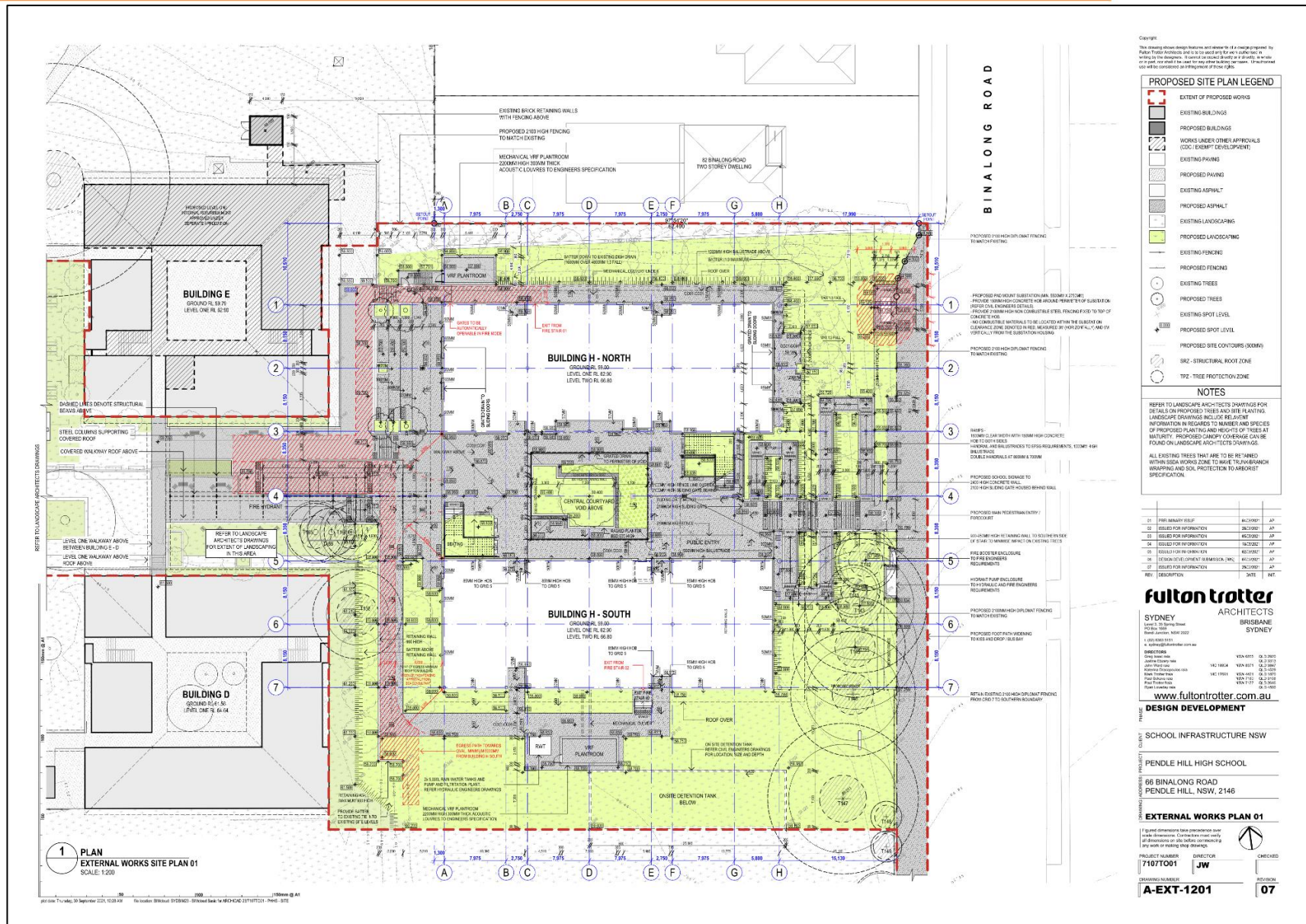


Figure 4. Proposed Development of Building H

4. DESIGN CRITERIA

4.1 EROSION & SEDIMENT CONTROL DEVICES

Erosion and sediment control is the process through which the soil that is disturbed during storm events is controlled and contained on a construction site. In the absence of appropriate measures, soil can be eroded to the detriment of the Site and downstream areas. Eroded sediment can enter waterways where fine particles may damage flora and fauna. A review of the sediment and erosion control plans prepared by Indesco proposes the following control devices be implemented;

4.1.1 Straw Bale Filters

Straw bales are blocks of straw that have been compacted, cut, and bound in a baling machine. These blocks are used as filters to stop sediments from entering into waterways and thus contaminating the local water network. Straw bales are proposed to be used along the open drain running on the northern verge of the Building H area. These will be placed immediately upstream from the collection sumps in order to prevent the sediments carried by overland runoff from entering the drain.

4.1.2 Sediment Fence

A barrier typically consisting of permeable material stretched between and attached to supporting posts and entrenched in the earth. The sediment fence works by filtering out sediment from stormwater and allowing the water to pass through. Refer to Appendix A for detail. As also shown in Appendix A, sediment fence is to be placed along the eastern boundary of the site on all downhill slopes to prevent runoff into Binalong Road.

4.1.3 Stabilised Site Access

Access to site should be stabilised to reduce the likelihood of vehicles tracking soil materials onto public roads and ensure all-weather entry/exit. Such areas should be at least 3 metres wide (or 2.4 metres per lane) and constructed with maximum 75 mm aggregate at least 15 metres long and 200 mm thick, underlain by needles-punched geotextile. Refer to Appendix A for detail. All entrances accessed by vehicles onto the site will have a stabilised site access. This will include the access along the south eastern corner of the Site into Binalong Road.

4.1.4 Stockpiles

Stockpiles are taken as the standard drawing in the “Blue Book” as Standard Drawing 4-1, refer to Appendix A for details which in this report incorporated all parts of managing the sediment run off for a stabilised stockpile. Typically, a stockpile is an area containing topsoil, excavated soil, or imported material placed in a mound on site. The material is to be appropriately placed on site and is required to be protected from erosion by covering and placement of sediment fences around the downstream edge.

5. ANALYSIS RESULTS

5.1 SEDIMENT & EROSION CONTROL DEVICES MAINTENANCE

The following practices will be put in place to maintain the measures outlined in Section 4.1;

5.1.1 Straw Bale Filters

- Ensure that they have their original structure and have not been damaged by vehicles or other elements present on-site; and
- Ensure sediment is not getting into the stormwater pit, adjust the filter if required;

5.1.2 Sediment Fence

- Remove any soil or backfill in the trench;
- Check to make sure all stakes are in place and installed correctly;
- Maintain a gap of 300mm between the top of the fence and accumulated sediment; and
- Ensure runoff water is running through the fence and not around, below, or between the fabric joins;

5.1.3 Stabilised Site Access

- Ensure adequate DGB 20 road base is maintained; and
- If sediment build-up is formed in the road base, locally remove and replace the road base.

5.1.4 Stockpiles

- Ensure that the stockpile is covered when not in use;
- Ensure all sediment in the stockpile does not leave the area through the use of sediment fence or equivalent methods.

5.2 OFF-SITE FLOWS FROM THE SITE

All stormwater runoff collected throughout the Site is to be directed into the proposed sediment collection sumps and subsequently pumped out to Council's pit in accordance with Condition C23, as required. In order to do so, the existing open drains located along the northern verge of the Building H site are to be maintained.

5.3 FLOOD & STORM MANAGEMENT

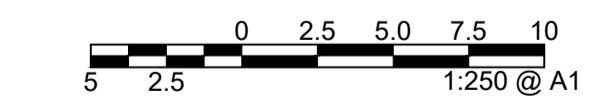
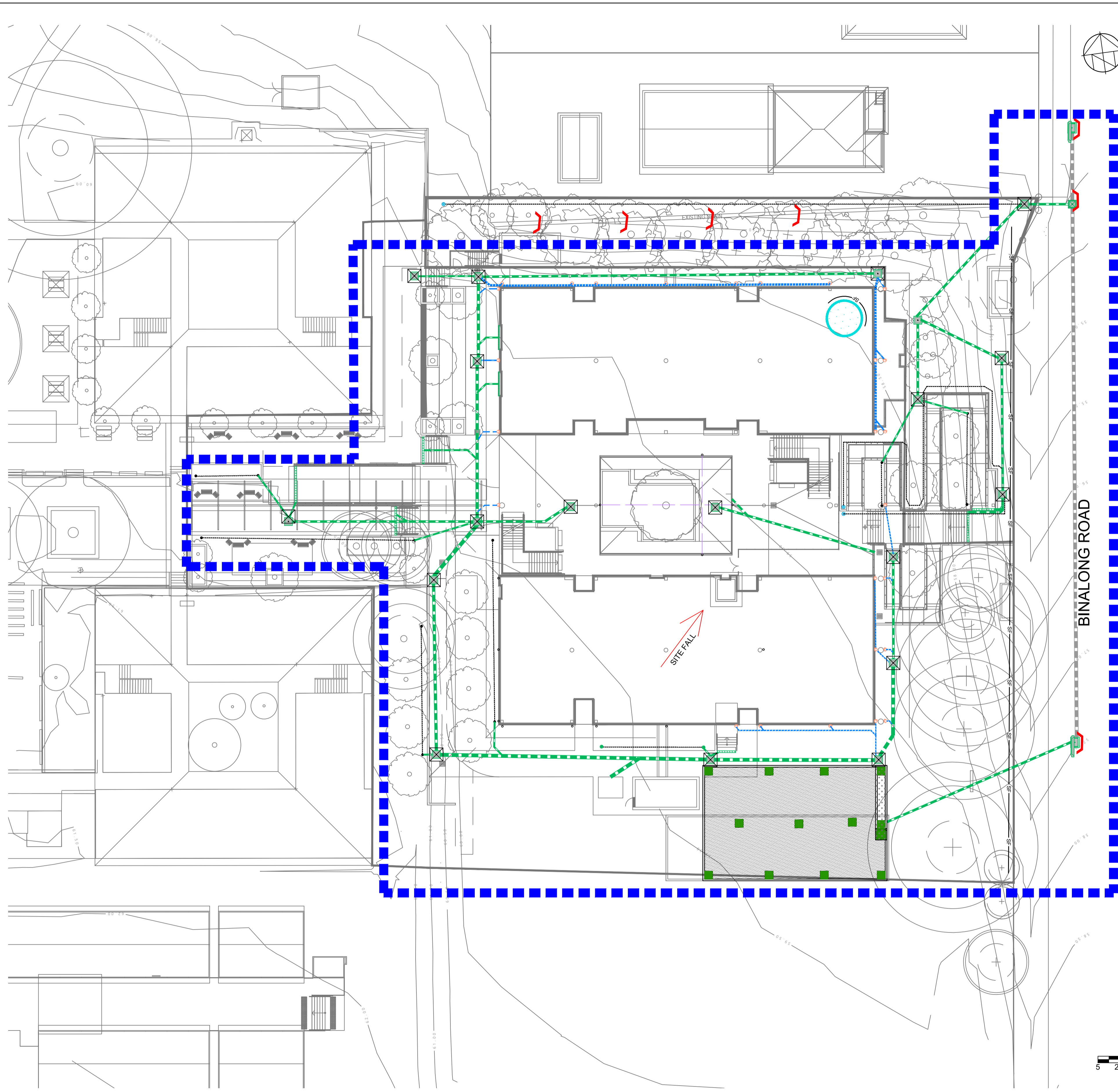
As per council's Local Environmental Plan (LEP) 2011, the Site has not been identified as flood affected. Therefore, it is understood that no measures are required to be put in place for the control of flood events.

6. CONCLUSION

As outlined in this report, the following key items have been identified:

- The Construction Area generally falls from west to east.
- The erosion and sediment control devices set in place throughout the Site are Straw Bale Filters, Sediment Fence, Stabilised Site Access, and Stockpiles;
- The above-mentioned control devices should be maintained through the measures outlined in section 5.1. The primary objective would be to ensure that the devices are installed correctly, and that any excess sediment is removed;
- The location of the proposed new buildings is not within the identified flood zone as per the LEP. Therefore, no flood flows are generated, and no control measure are necessary;
- All stormwater on site will travel to the open drain, which is then pumped out into council's pit, as required by Condition C23.

APPENDIX A – INDESCO DRAWINGS



LEGEND	
KERB INLET SANDBAG	
GRATED SURFACE INLET FILTER	
STOCKPILES	
SILT FENCE	

REV.	DESCRIPTION	DRAWN	DESIGNED	VERIFIED	APPROVED	DATE
A	ISSUED FOR CONSTRUCTION	AR	SZ	OW	OW	28.10.21

CLIENT

TAYLOR

INDESCO
www.indesco.com.au
ABN: 37 008 581 066

PROJECT TITLE

PENDLE HILL HIGH SCHOOL BUILDING H & EXTERNAL WORKS

CLIENT
TAYLOR

DRAWING STATUS
FOR CONSTRUCTION

SCALE
AS SHOWN

COORDINATE SYSTEM
GDA2020

DATUM
AHD

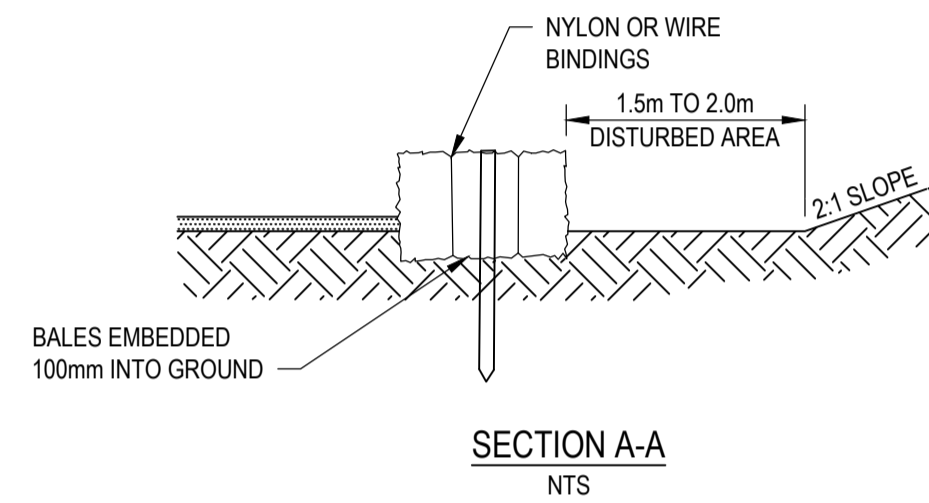
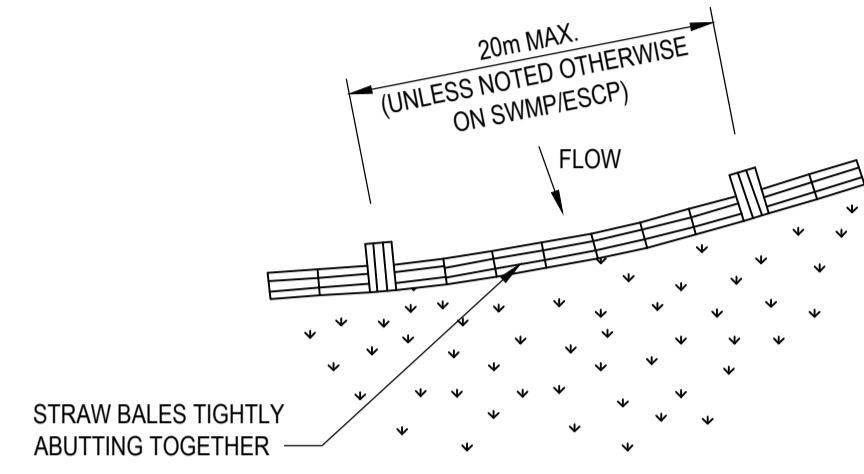
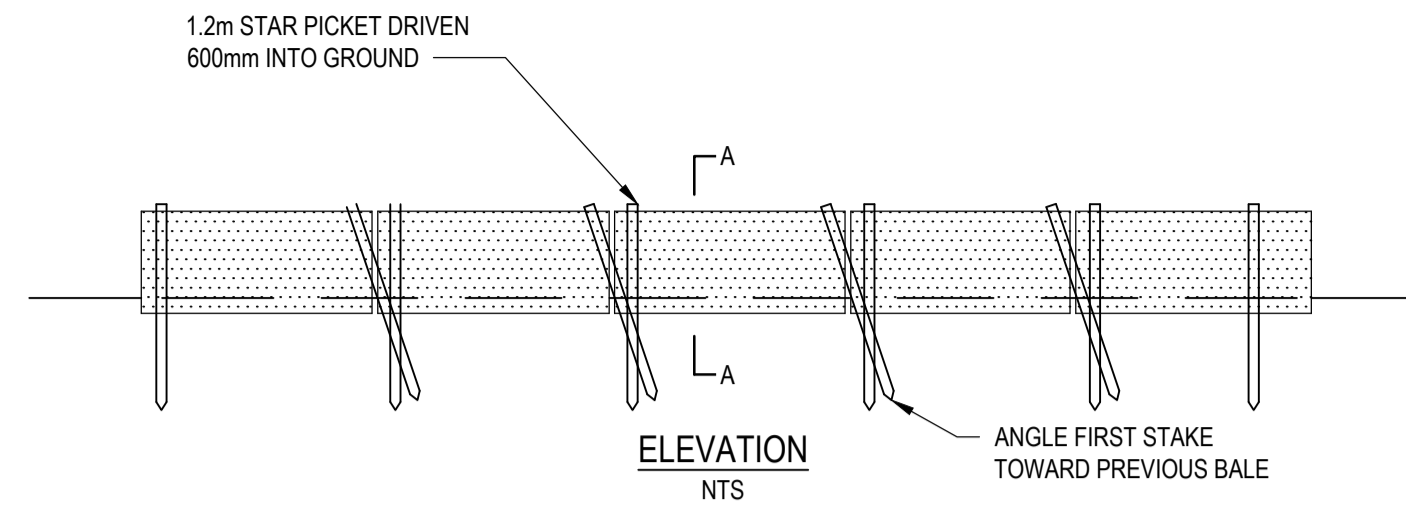
SHEET SIZE
A1

PROJECT NUMBER
7817-BLKH-CC

DRAWING TITLE
SEDIMENT AND EROSION CONTROL PLAN

DRAWING NUMBER
060

REVISION
A

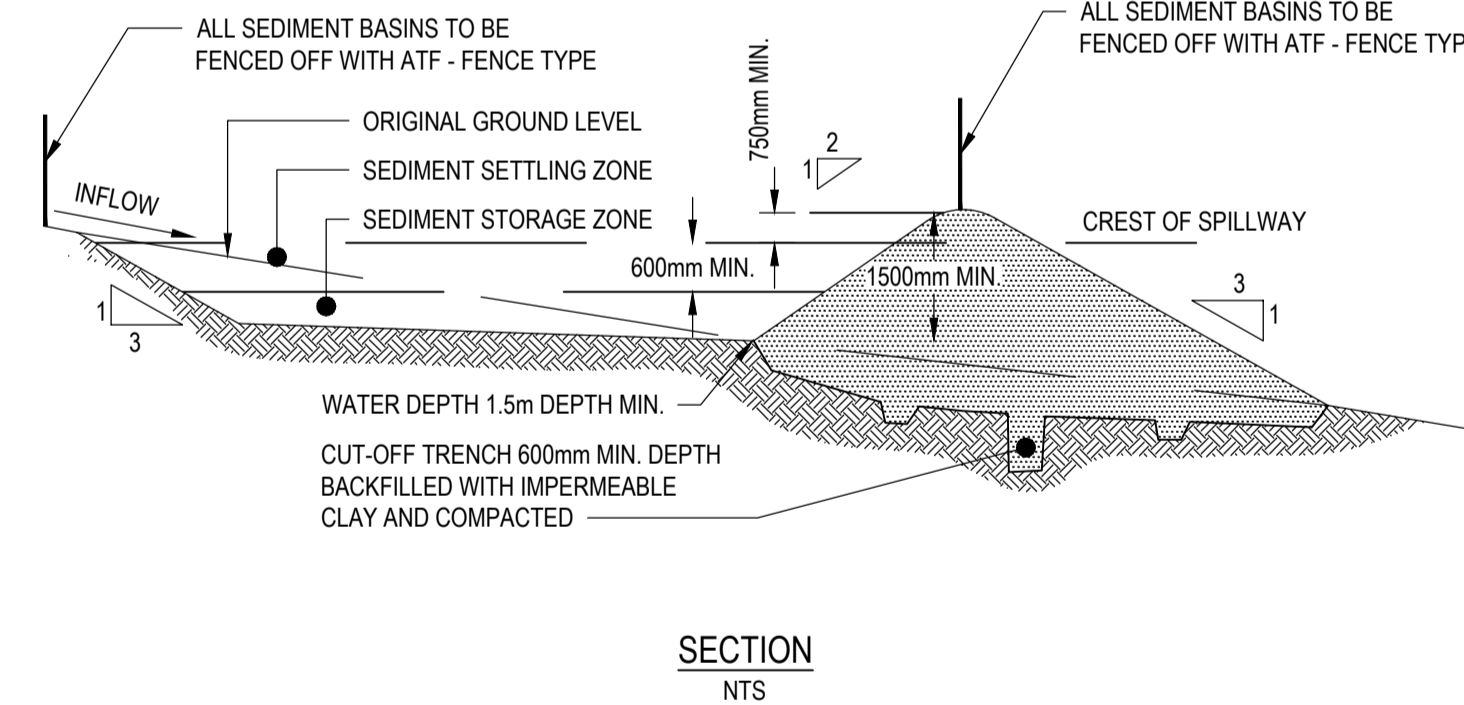
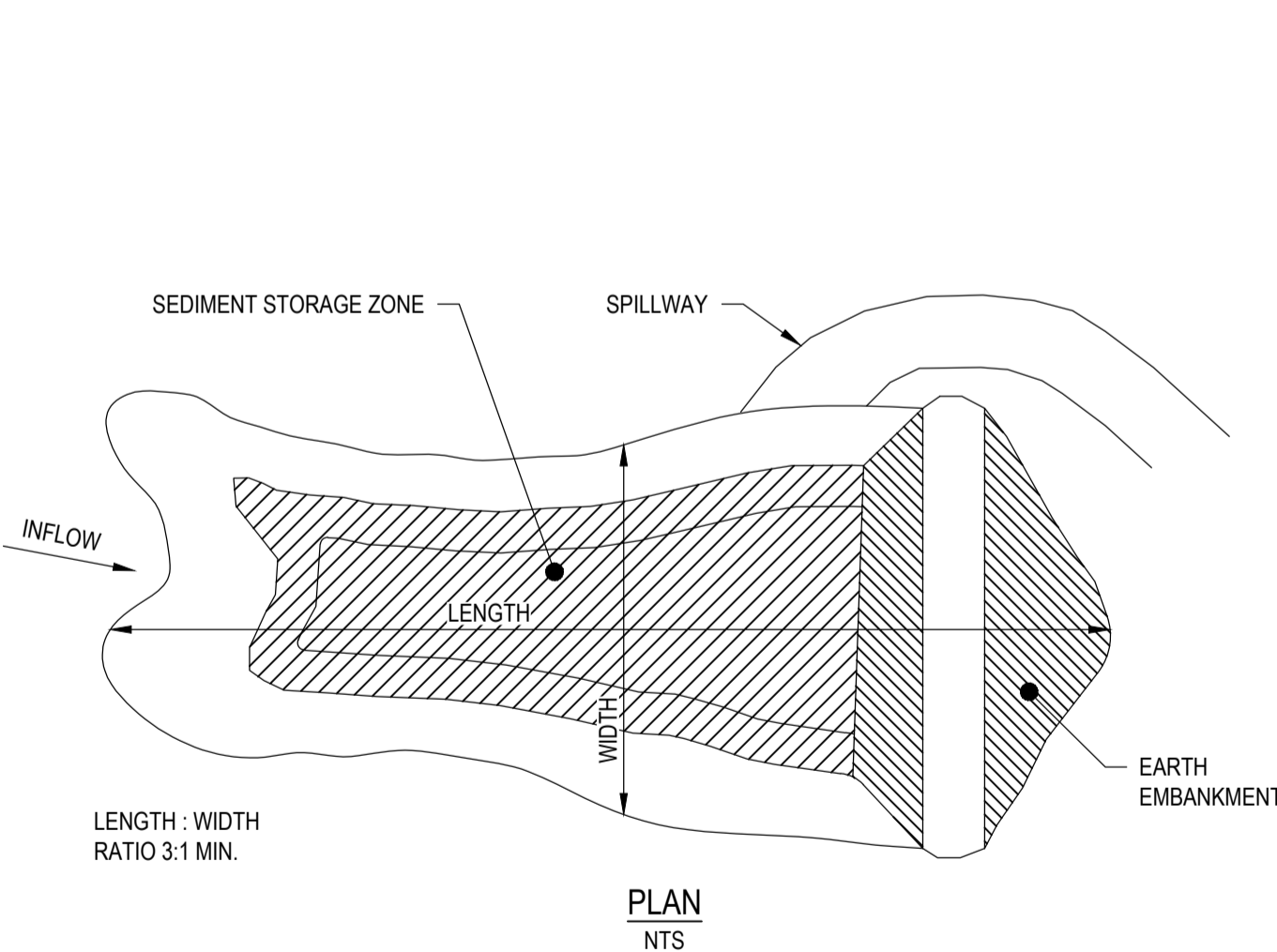


GENERAL CONSTRUCTION NOTES:

1. CONSTRUCTION STRAW BALE FILTER AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE OR THE TOE OF A SLOPE
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STAIRS TO BE PLACED PARALLEL TO GROUND
3. MAXIMUM HEIGHT OF FILTER IS ONE BALE
4. ON SOFT MATERIALS, EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2 STAR PICKETS. ANGLE THE FIRST STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE STAKES 600mm INTO THE GROUND AND FLUSH WITH THE TOP OF THE BALES
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM THE TOE OF THE BATTER

STRAW BALE FILTER SD 6-6

NTS

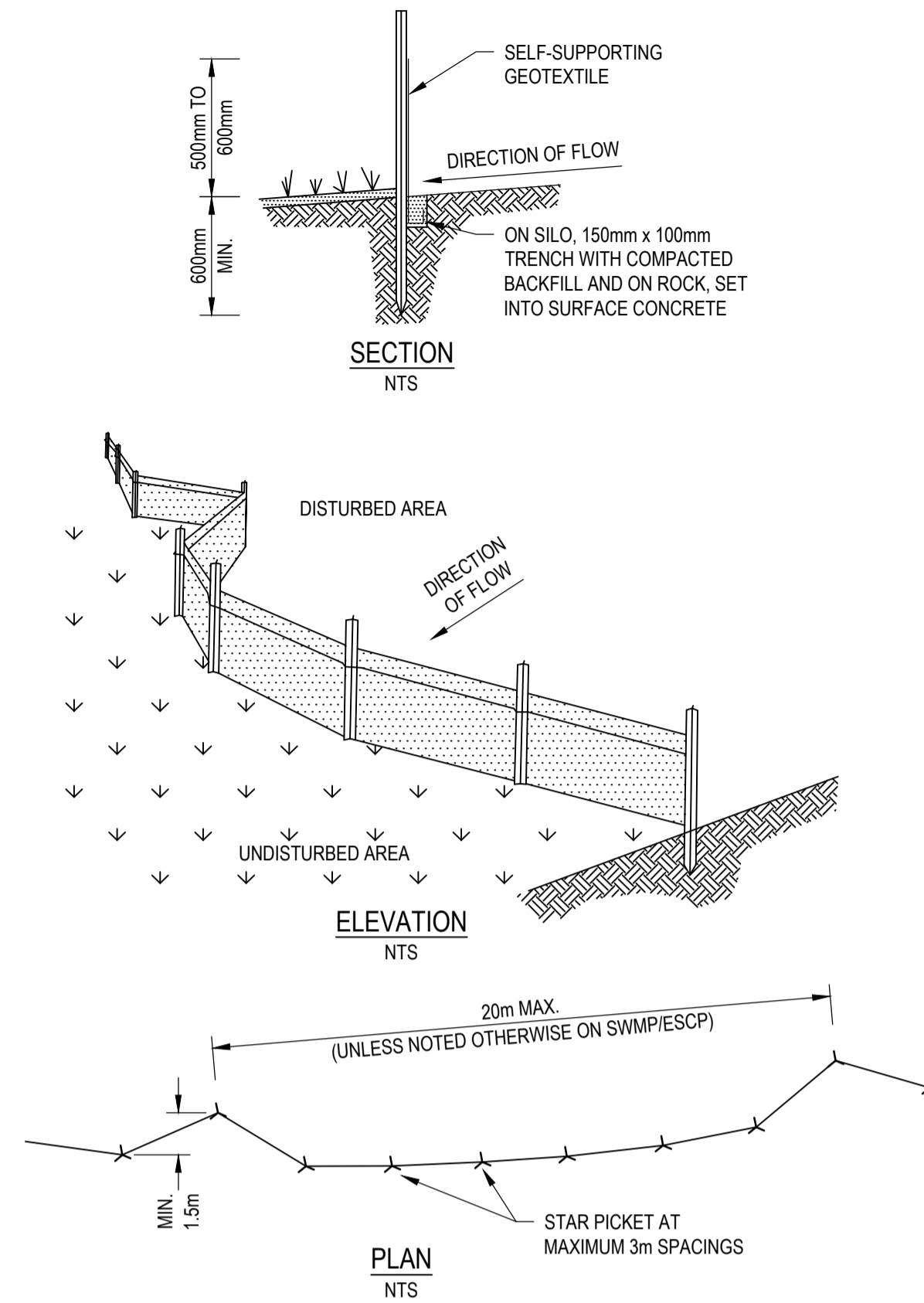


GENERAL CONSTRUCTION NOTES

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA
2. CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1,200mm WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95% STANDARD PROCTOR DENSITY
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE
6. SPREAD THE FILL IN 100mm TO 150mm LAYER AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP
7. CONSTRUCT THE EMERGENCY SPILLWAY
8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP

EARTH BASIN SD 6-4

NTS

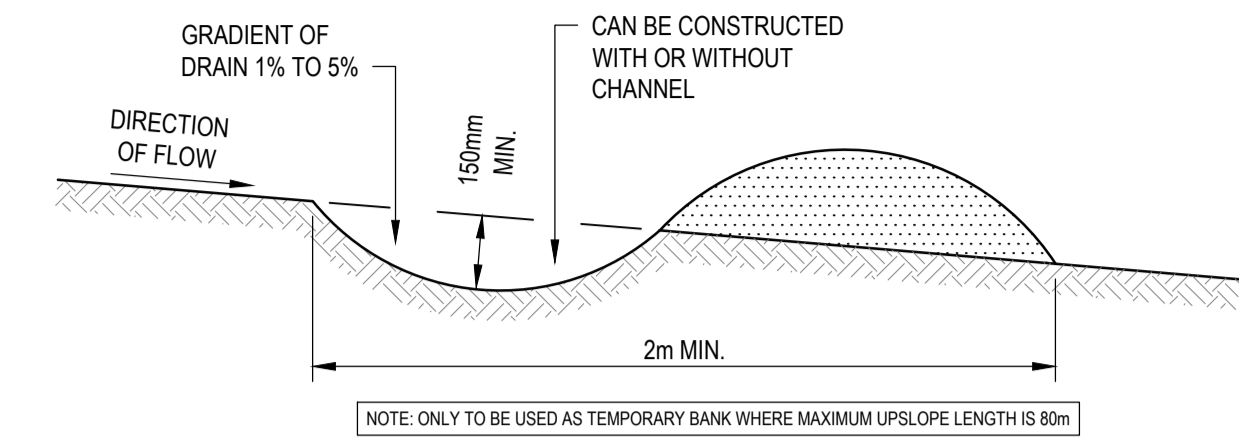
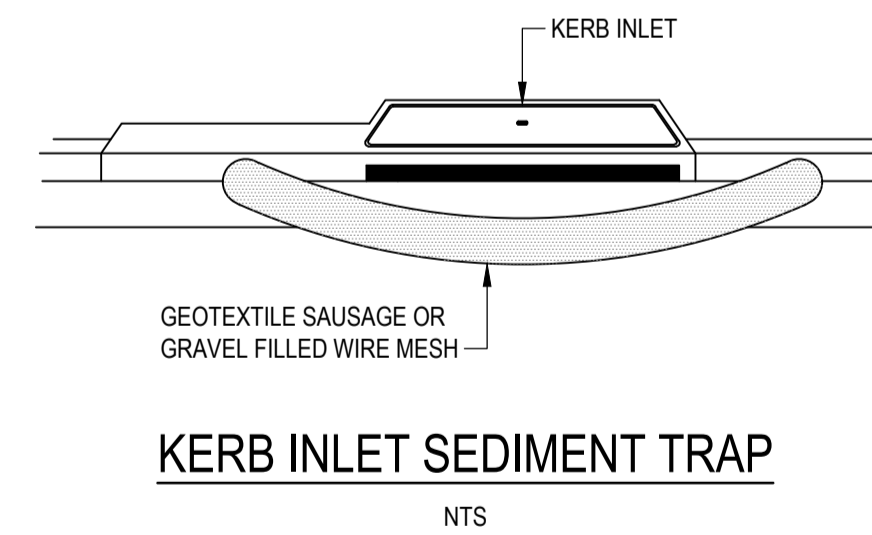


GENERAL CONSTRUCTION NOTES

1. CONSTRUCTION SEDIMENT FENCES AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE
2. DIVE 1.5m LONG STAR PICKETS INTO GROUND, 3m APART
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED
4. BACKFILL TRENCH OVER BASE OF FABRIC
5. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER
6. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP

SEDIMENT FENCE SD 6-7

NTS

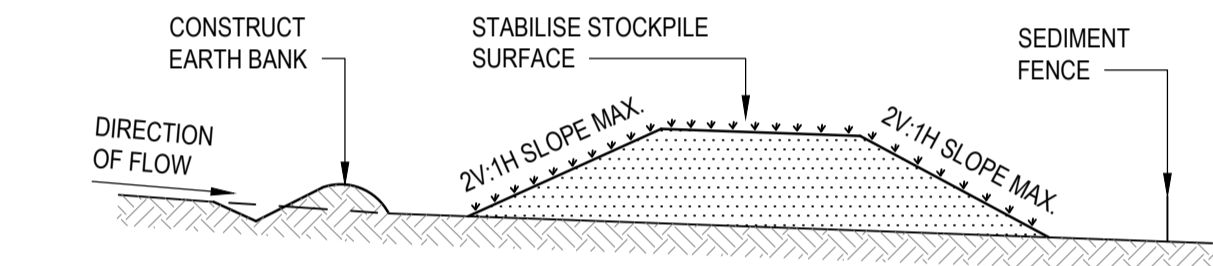


GENERAL CONSTRUCTION NOTES

1. CONSTRUCT WITH GRADIENT OF 1% TO 5%
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE
3. DRAINS TO BE CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V-SHAPED
4. EARTH BANKS TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE
5. PERMANENT OR TEMPORARY STABILISATION OF THE EARTH BANK TO BE COMPLETED WITHIN 10 DAYS OF CONSTRUCTION
6. ALL OUTLETS FROM DISTURBED LANDS ARE TO FEED INTO A SEDIMENT BASIN OR SIMILAR
7. DISCHARGE RUNOFF COLLECTED FROM UNDISTURBED LANDS ONTO EITHER A STABILISED OR AN UNDISTURBED DISPOSAL SITE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED
8. COMPACT BANK WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS
9. EARTH BANKS TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDED NORMAL FLOW

EARTH BANK (LOW FLOW) SD 5-2

NTS

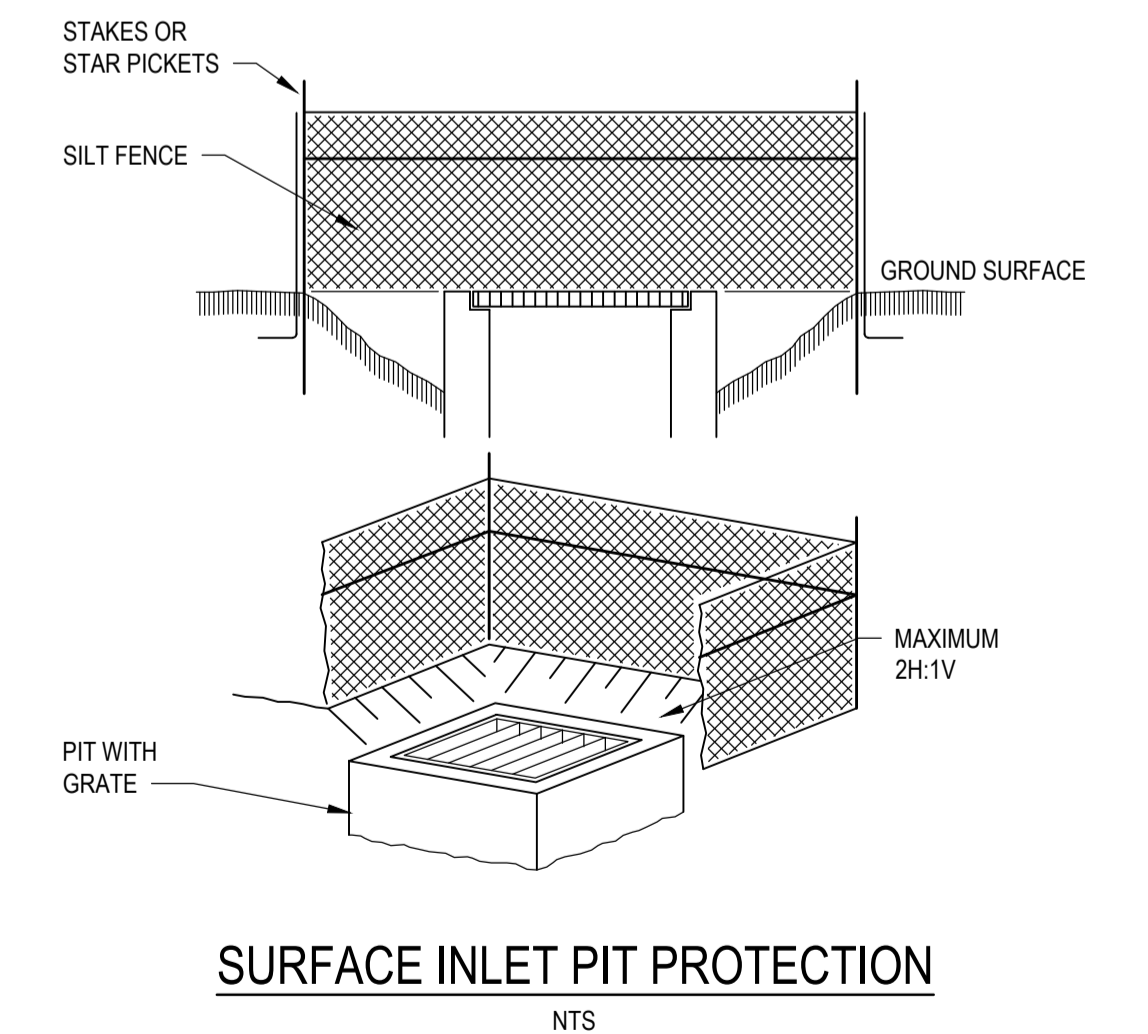


GENERAL CONSTRUCTION NOTES

1. LOCATE STOCKPILE AT LEAST 5m FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS AND HAZARD AREAS
2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT, ELONGATED MOUND
3. WHERE THERE IS SUFFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ESCP
5. CONSTRUCT EARTH BANK (SD 5-2) ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (SD 6-7) 1 TO 2m DOWNSLOPE OF STOCKPILE

STOCKPILES SD 4-1

NTS



REV.	DESCRIPTION	DRAWN	DESIGNED	VERIFIED	APPROVED	DATE
A	ISSUED FOR CONSTRUCTION	AR	SZ	OW	OW	28.10.21

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ABN: 37 008 581 066

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CLIENT

TAYLOR

DRAWING STATUS

FOR CONSTRUCTION

SCALE: AS SHOWN

COORDINATE SYSTEM: GDA2021

DATUM: AHD

SHEET SIZE: A1

PROJECT NUMBER: 7817-BLKH-CC

DRAWING TITLE

SEDIMENT AND EROSION AND DETAILS

DRAWING NUMBER: 061

REVISION: A

APPENDIX B – OLIVER WALSH CURRICULUM VITAE



Oliver Walsh

Principal Civil Engineer

Phone: 02 9633 2273

Email: Oliver.Walsh@indesco.com.au

Web: www.indesco.com.au

Qualifications

Bachelor of Engineering (Civil) (Hons)

Accredited Mediator (NMAAS)

Bachelor of Commerce (Investment Finance and Corporate Finance)

Memberships and Affiliations

Chartered Professional Engineer (CPEng)

National Engineering Register (NER)

Member of Engineers Australia (MIEAust)

Professional Experience

Over 12 years' experience specialising in Civil Engineering

Profile

Oliver's expertise is in civil project management, design, documentation and construction phase services. He has extensive experience in the project management, engineering design and superintendence of bulk earthworks, roadworks, sewer reticulation, stormwater drainage, retaining walls, water, gas and underground power reticulation for civil engineering projects.

Oliver has a detailed understanding of the holistic development process and is capable of adding value to a project throughout its life cycle, from rezoning and master planning through to detailed design and construction.

Key areas of expertise

- Masterplanning and Strategic Concept Design
- Concept and Detailed Design
- Cost and Programme Control
- Stakeholder Liaison/Negotiation
- Project Management and Co-ordination

Key Projects

Built Form

Caddens Corner Retail Facility for Western Sydney University

District-level facility on greenfield site, incorporating a new Woolworths and multiple new retail tenancies. The project included extensive external road upgrades

Kellyville and Bella Vista Station Precincts for Landcom

Master planning, utility servicing, water cycle management for new precinct spanning between two new metro stations that will incorporate over 5,000 dwellings and 30,000 m² of commercial GFA.

East Coast Aged Care Rollout for Lendlease

Concept and detailed design of 9 aged care facilities (RACF and seniors living) in NSW, Vic, Qld

St Hedwig Village, Blacktown for Catholic Healthcare

Client-side peer review and watching brief for detailed design and construction of a major aged care facility upgrade.

Fairwater Estate, Various stages for Frasers Property, Australia

200+ lots in multiple stages within masterplanned residential subdivision

Leppington Town Centre for CDMA

Master planning, utility servicing, water cycle management for Leppington Town Centre which will incorporate over 9,000 apartments dwellings and 50,000 m² of commercial GFA.

Warners Avenue, Willoughby for Metro Property Development

Civil engineering for 8 boutique townhouses in premium area in Sydney Metro area.

Tallawong Road, Rouse Hill for CDMA

Civil engineering for 914 apartments in north west growth Centre.

NSW Group Home Rollout for DPN Casa Capace

Civil engineering for +1,000 group home program at various locations in NSW.

Various Expert Witness Engagements

Expert witness before the Land and Environment Court

Career History

- 2020 – Present Principal Civil Engineer Indesco Pty Limited
- 2009 – 2020 Civil Project Engineer/Associate Wood and Grieve Engineers