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SERVICES INFRASTRUCTURE REPORT – STORMWATER *BIRZULIS REF:7855-SIR*

PACIFIC BROOK CHRISTIAN SCHOOL AT LOT 100 DP 1261496 72-74 MAITLAND STREET, MUSWELLBROOK NSW 2133

PREPARED BY: CAMERON AMRI
DATE: 15/09/2021
REVISION: **C**

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DOCUMENT VERIFICATION

| | |
|-----------------------|------------------------------------------------------|
| Project Title | Pacific Brook Christian School |
| Document Title | Service Infrastructure Report – Stormwater |
| Project No. | 7855 |
| Description | Existing Stormwater Infrastructure to be relied upon |
| Client Contact | NBRS Architecture |

| | Name | Signature |
|--------------------|----------------|-------------------------------------------------------------------------------------|
| Prepared by | Cameron Amri |  |
| Checked by | Michael Grogan |  |
| Issued by | Michael Grogan |  |

REPORT DELIVERABLES

DOCUMENT HISTORY

| Date | Revision | Issued to | Description |
|-------------|-----------------|------------------|--------------------|
| 20/11/20 | -A | NBRS | DRAFT Issue |
| 25/11/20 | -B | NBRS | DRAFT Issue |
| 15/09/21 | -C | NBRS | Final Issue |
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1 EXECUTIVE SUMMARY

Birzulis Associates have been commissioned by NBR Architecture to provide a stormwater infrastructure advice to support a development application for the redevelopment of the above-mentioned site.

This report has been prepared with reference to the existing architectural proposal and details the investigation of existing stormwater utilities in the vicinity of the development in the context of the proposed scheme, likely points of future connection to existing stormwater infrastructure (utilities) and the associated potential upgrades or augmentation works that may be required.

2 OVERVIEW OF PROPOSED MODIFICATIONS

Pacific Brook Christian School proposes the staged construction of a new school at 72-74 Maitland Street, Muswellbrook. This will involve site preparation work (including remediation), the removal of 96 trees (7 within Stage 1), civil works, infrastructure works, landscaping, signage and construction works in stages over the next 10 years. The masterplan will support high-quality educational outcomes to meet the needs of students within the local community as follows:

- Administration building and Library.
 - One (1) staff and student amenities block.
- Junior School facilities.
 - Ten (10) General Learning Areas (GLAs).
 - Two (2) Specialist classroom.
 - One (1) Store; and
 - Covered Outdoor Learning Area (COLA)
- Middle School facilities.
 - Seven (7) General Learning Areas (GLAs).
 - One (1) Science classroom; and
 - Covered Outdoor Learning Area (COLA)
- Senior School facilities.
 - Eight (8) General Learning Areas (GLAs).
 - One (1) Specialist classroom.
 - Three (3) TAS classrooms.
 - Two (2) Food Tech classrooms.
 - One (1) Art classroom.
 - One (1) Drama classroom.
 - Four (4) amenities block.
 - Three (3) Store; and
 - Covered Outdoor Learning Area (COLA)

- Hope School (special needs) facilities.
 - Four (4) General Learning Areas (GLAs).
 - One (1) Specialist classroom.
 - Four (4) Shared Withdrawal rooms.
 - One (1) Office.
 - One (1) Staff room.
 - One (1) Interview + Therapy room.
 - Three (4) amenities block.
 - Three (3) Store; and
 - Covered Outdoor Learning Area (COLA)
- Multi-Purpose Hall.
- Maximum student capacity of 656.
- Maximum 65 staff.
- Agricultural teaching facility.
- Maintenance and bus area.
- On-site Parking (67 spaces, inclusive of 1 accessible).
- Bike parking x 36.
- Internal pathways.
- Kiss and drop off areas.
- Bus stop.
- Waste Storage and collection area.
- Signage.
- Bush Chapel
- Removal of 96 trees (total).
- Landscaping (including Bush Chapel).
- Infrastructure works.
- Earthworks.
- Secondary emergency vehicle/ large vehicle access.
- Acoustic and safety fence; and
- Widening of existing vehicular access from Maitland Street

3 SITE DESCRIPTION

The site is located adjacent to Muswellbrook Golf Course and is approximately 2.432 ha and currently is partially developed with sparsely located and sized buildings with garden bed areas. See Figure 3.1.

The site has Muswellbrook Golf Course to the north-east, Maitland Street to south-west, residential development to the south-east.

The proposed construction will involve demolishing most of the existing structures under DA 2020-104 and staged construction of a new school facility. The proposed site Masterplan is shown below as Figure 3.2.

The first stage of works which our concept documentation has been based on is shown below in Figure 3.3. The overall intent is for the stormwater to be directed to the carparking areas where it can be treated and if necessary detained. The existing connection to the street drainage system will be utilised in this first stage of works.

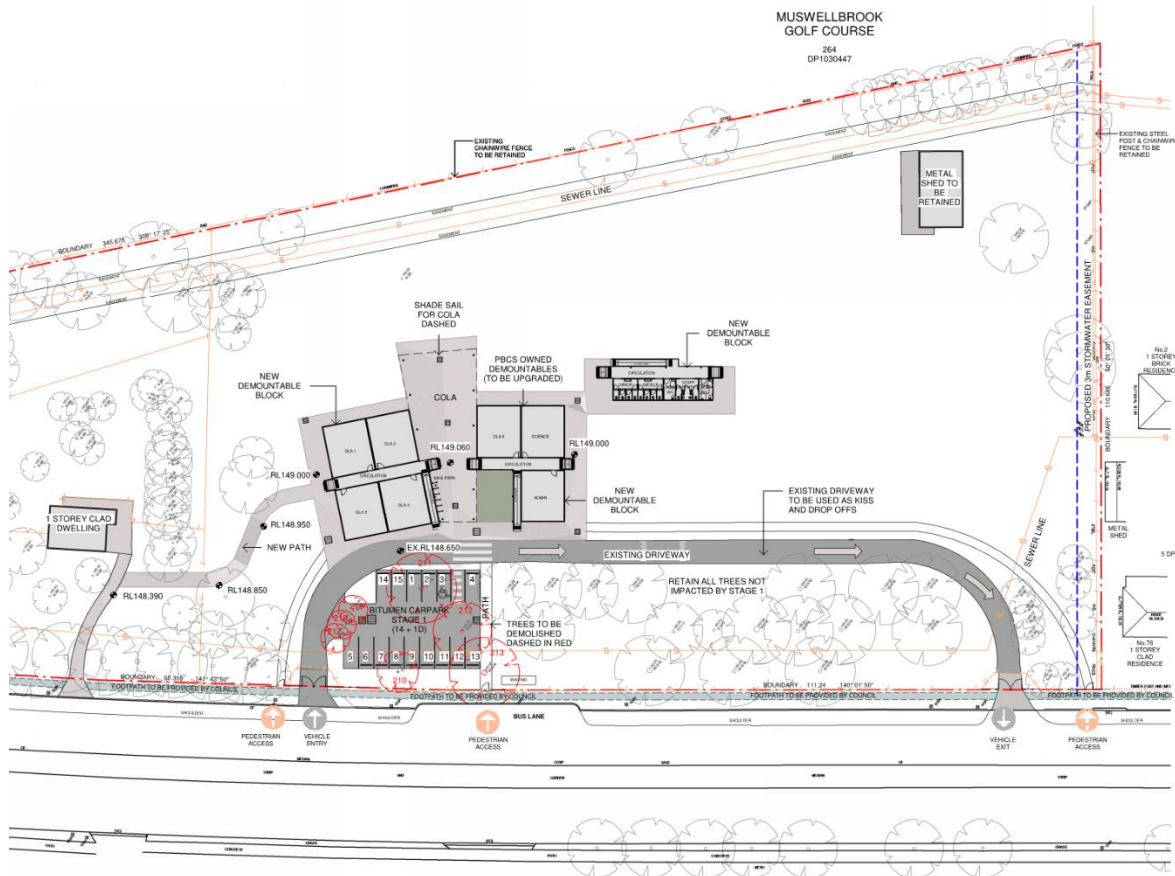


Figure 3.3 – Proposed Stage 1 Works Plan

4 METHODS OF INFORMATION GATHERING

The basis for the investigation of the existing utilities in the vicinity of the site was a 'Dial Before You Dig' enquiry that was undertaken on 20 November 2020. Figure 4.1 depicts the area subject to the DBYD enquiry. This report does not consider any utility infrastructure outside the enquiry boundary and its' potential relationship to, or impact on the supply of utility services to the site.

The following entities were identified as having interest in the DBYD enquiry area in the context of this report:

- Local Council

- Roads and Maritime Services (as Maitland Street is a Classified Road)

Also, a detailed site survey investigation was undertaken including below ground assets by LTS project reference number 50894 001DT dated 11/12/19.



Figure 4.1 – Proposed Overall Site Plan

5 UTILITY INFRASTRUCTURE

5.1 EXTERNAL STORMWATER DRAINAGE

A working trunk stormwater drainage system is located in Maitland Street to the south-west of the site with pipes ranging from 900mm diameter to 375mm diameter. This stormwater currently discharges at a multiple outlet headwall to the north-west of the site and flows to Muscle Creek. This trunk drainage system is also fed by kerb inlet pits and junction pits along the main line to the headwall. An overview of the external drainage infrastructure is best shown on the survey drawings which are Appendix A.

No significant change to this external stormwater strategy is being proposed. We anticipate some new connections to this network but there adequately spaced existing pits to connect to a pit and not construct any additional pits in the trunk drainage system. The existing system can be kept “live” for the duration of the works.

5.2 INTERNAL STORMWATER DRAINAGE

The current site has an existing easement “for pipeline” believed to be in favour of the upstream residential development. The survey notes a number of sewer rising mains in this easement. It does not show any stormwater in this easement.

The site has a known existing stormwater connection to the trunk drainage system in Maitland Street. This existing connection will be utilised as the discharge point for the carpark.

5.3 PROPOSED STORMWATER STRATEGY

The stormwater drainage system will comprise of a pit and pipe system with treatment targets to comply with Council guidelines. OSD is at the discretion of Council and has not been confirmed as required or not as yet. Should additional connections to the trunk drainage be required they shall be made through connections to the existing pits to keep the existing stormwater in the road “live”.

Other than the existing connection to the trunk drainage system all other onsite stormwater drainage will need to be new construction designed to meet require guidelines and Standards and or Legislation.

Concept drawings will be prepared showing the proposed stormwater design and how it integrates into the existing stormwater system. An extract of the concept drawings is shown below as Figure 5.1.

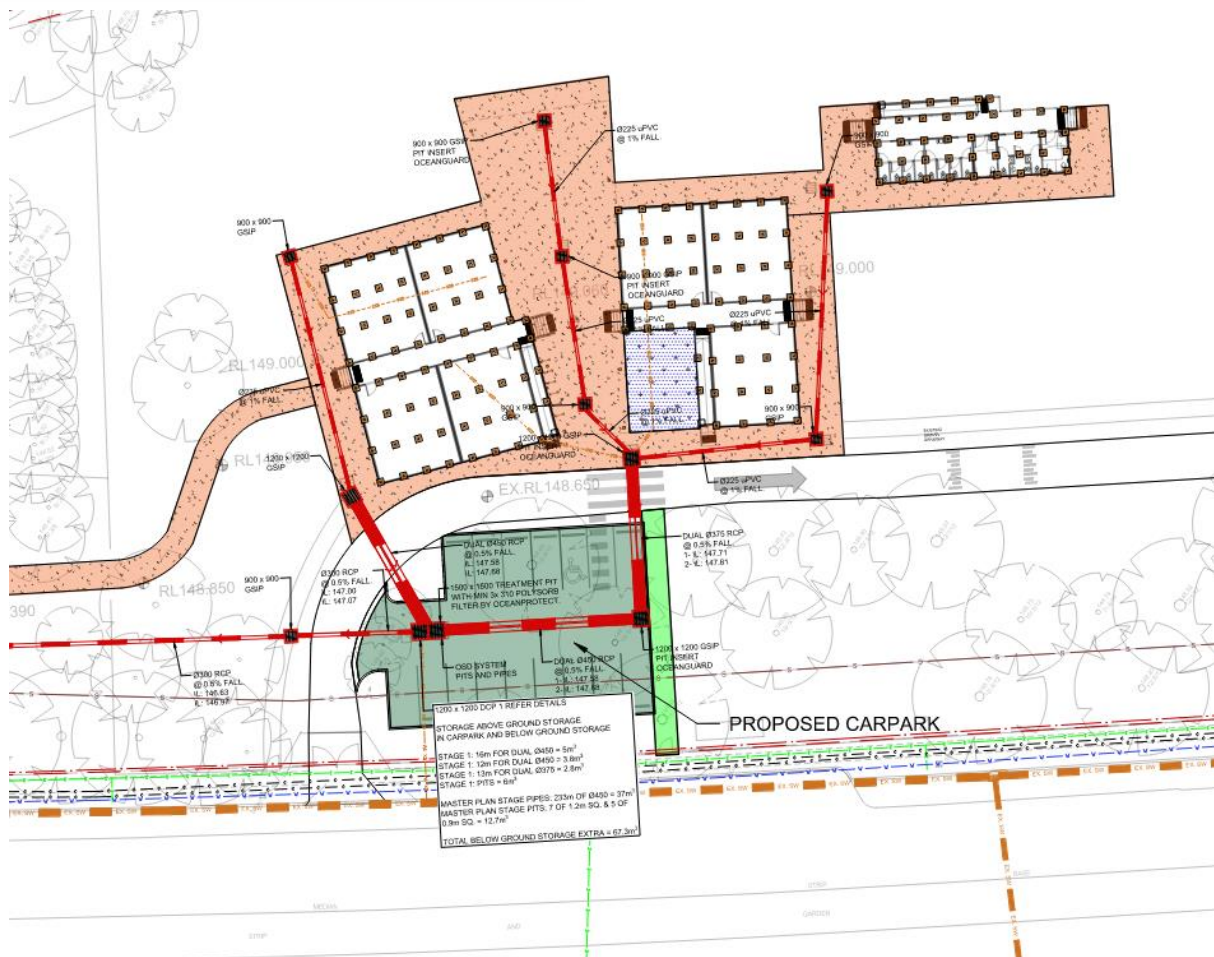


Figure 5.1 – Proposed Stage 1 Stormwater Plan

6 CONSTRUCTION

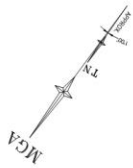
The completed design of stormwater management measures will result in no adverse impact on surrounding neighbours, downstream drainage, public spaces, existing overland flow capacity.

The internal drainage will be designed to convey the runoff up to and including the 1:20 year event below ground whilst providing water quality treatment as required by Council.

7 REFERENCES

- Guidelines for developments adjoining land managed by the Office of Environment (OEH, 2013)
- Managing Urban Stormwater: Council Handbook prepared by the NSW Environment Protection Agency
- Muswellbrook Shire Council DCP 2009

APPENDIX A – Survey Drawings



- NOTES**
1. THE BOUNDARIES HAVE NOT BEEN MARKED.
 2. ALL AREAS AND DIMENSIONS HAVE BEEN COMPILED FROM PLANS MADE AVAILABLE BY NSW GOVERNMENT RECORDS. ALL DIMENSIONS ARE APPROXIMATE AND SHOULD BE VERIFIED ON THE GROUND.
 3. GRADIENTS OF LEVELS ON A.I.D. IS TAKEN FROM PHOTZY REL. 1:21,915 (A.I.D.) IN MAITLAND STREET.
 4. INTERNAL S.S.
 5. CONTIGUES ARE INDICATIVE ONLY. SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
 6. LEVELS SHOWN ARE APPROXIMATE. SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
 7. FLOOR LEVELS SHOWN ARE THRESHOLD LEVELS. NO INVESTIGATION OF INTERNAL FLOOR LEVELS HAS BEEN UNDERTAKEN.
 8. RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE PLOTTED FROM RELEVANT AUTHORITIES INFORMATION AND HAVE NOT BEEN SUPPLIED. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE PLOTTED FROM RELEVANT AUTHORITIES INFORMATION AND HAVE NOT BEEN SUPPLIED.
 9. 8/1:47 DENOTES TREE SPREAD OF 8m, TRUNK DIAMETER OF 0.4m & APPROX. HEIGHT OF 7m.
 10. SHOWS APPROXIMATE POSITION OF ROAD, UNDERMINING AND IS INDICATIVE ONLY.
 11. NORTH.

LEGEND

| | |
|-------------------------|--------|
| BENCH MARK | ▲ |
| TELESTR PILLAR | ⊙ TP |
| CONCRETE PIT | ⊙ CM |
| TELESTR PIT | ⊙ TEL |
| ELECTRIC LIGHT POLE | ⊙ LP |
| ELECTRICITY BOX | ⊙ EL |
| POWER POLE | ⊙ PP |
| SERVICE PIT | ⊙ SP |
| PIT WITH CONCRETE LID | ⊙ CLID |
| PIT WITH METAL LID | ⊙ FLID |
| STREET SIGN | ⊙ SIGN |
| INSPECTION PIT | ⊙ IP |
| GRADED INLET PIT | ⊙ GIP |
| SEWER INLET PIT | ⊙ SIP |
| SEWER MANHOLE | ⊙ SM |
| STOP VALVE | ⊙ SV |
| HYDRANT | ⊙ HD |
| WATER METER | ⊙ WM |
| WATER TAP | ⊙ WT |
| PUMP | ⊙ P |
| VEHICLE CROSSING | ⊙ VC |
| FRANK CROSSING | ⊙ FC |
| WINDOW | ⊙ W |
| DOOR | ⊙ D |
| SEWER/EL | ⊙ S/E |
| GAS (BTD) | ⊙ G |
| COMMUNICATION (BTD) | ⊙ C |
| WATER (BTD) | ⊙ W |
| STORMWATER (BTD) | ⊙ S |
| SEWER (BTD) | ⊙ S |
| SEWER RISING MAIN (BTD) | ⊙ R |
| ELECTRIC (GROUND) (BTD) | ⊙ E |



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| U | 10/10/2019 | 00 |
| C | 10/10/2019 | 00 |
| B | 10/10/2019 | 00 |
| A | 10/10/2019 | 00 |

Drawn by: [Name]
Checked by: [Name]
Approved by: [Name]



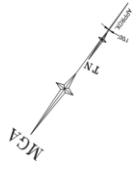
THIS IS THE PLAN REFERRED TO IN THE CONTRACT. ANY CHANGES TO THE PLAN MUST BE MADE BY A REGISTERED SURVEYOR.

Client: THE PACIFIC GROUP OF SCHOOLS
Drawing title: PLAN OF DETAIL AND LEVELS OVER LOT 62 IN DP 1208238
Maitland Street, MUSWELLBROOK

Drawn by: [Name]
Checked by: [Name]
Approved by: [Name]

Reference number: 50894.001DT
Drawing No: 2.432 Ho
Scale: 1:750 @ A1
Date: 11/12/2019
Sheet: 6 of 6
MUSWELLBROOK

(1) EXAMINED FOR DESIGN (ENGINE MARK) (SEE NOTE DP110352)
(1) EXAMINED FOR PRELIMINARY DESIGN (SEE NOTE DP138800)



264
DP 1030447

62
DP 1208238

SHEETS 3 of 6

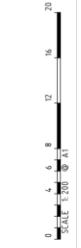
50894 001.DT
reference
date of survey
1:200 @ A1 11/12/2019
MUSWELLBROOK

Client: THE PACIFIC GROUP OF SCHOOLS
Drawing title: PLAN OF DETAIL AND LEVELS OVER LOT 62 IN DP 1208238,
MULLAND STREET, MUSWELLBROOK

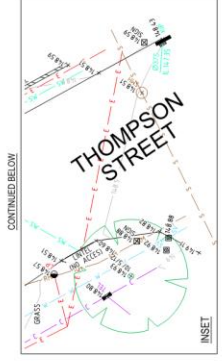
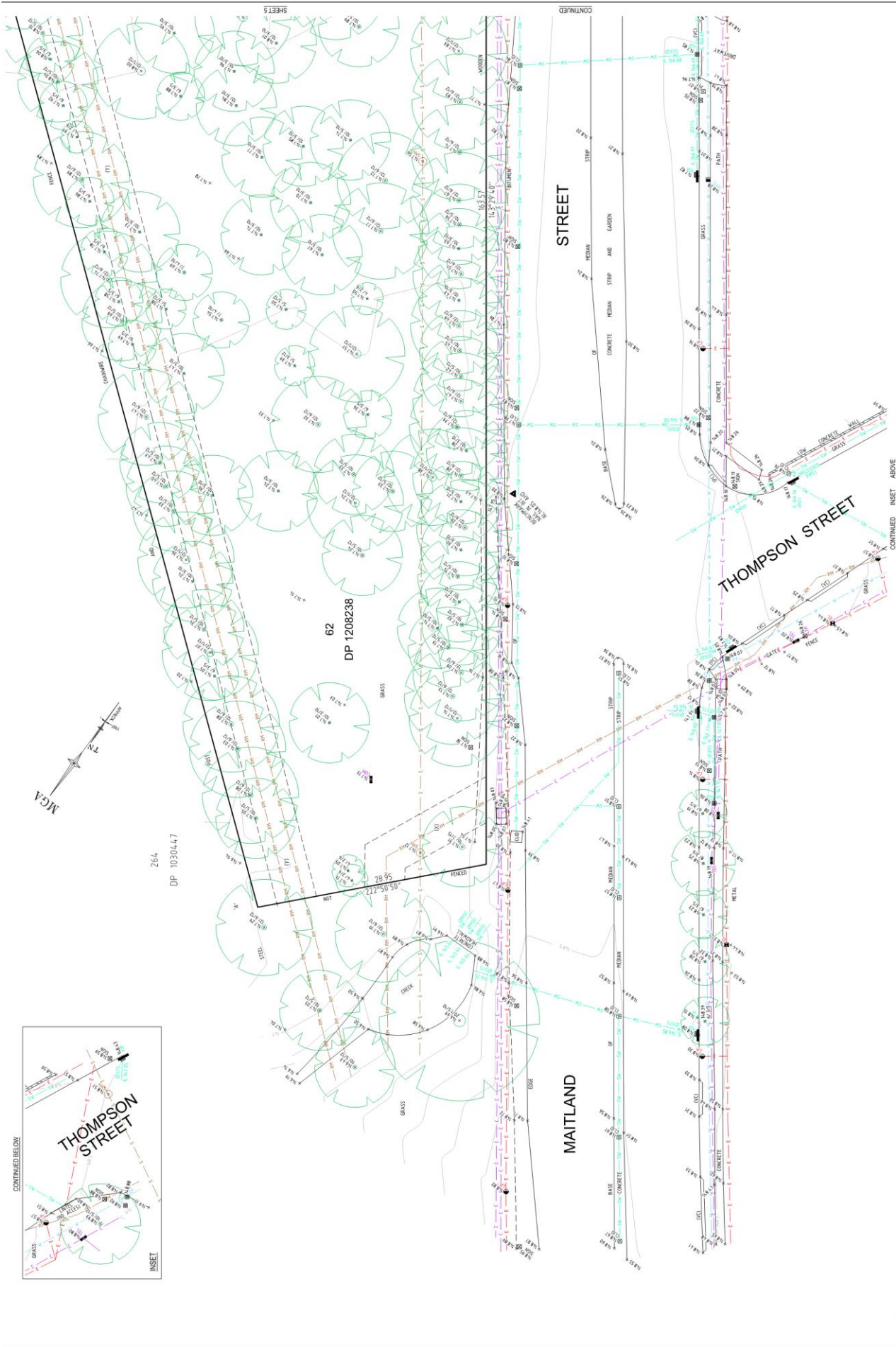
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DATE: 11/12/2019
DRAWN BY: [Name]
CHECKED BY: [Name]
REGISTERED SURVEYOR NO. [Number]

| NO. | DATE | DESCRIPTION | REFERENCE |
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| D | 02/02/2014 | | |
| C | 02/02/2014 | | |
| B | 02/02/2014 | | |
| A | 02/02/2014 | | |

DIAL BEFORE YOU DIG
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SEE SHEET 1 FOR NOTES AND LEGEND



SHEET 3 of 6



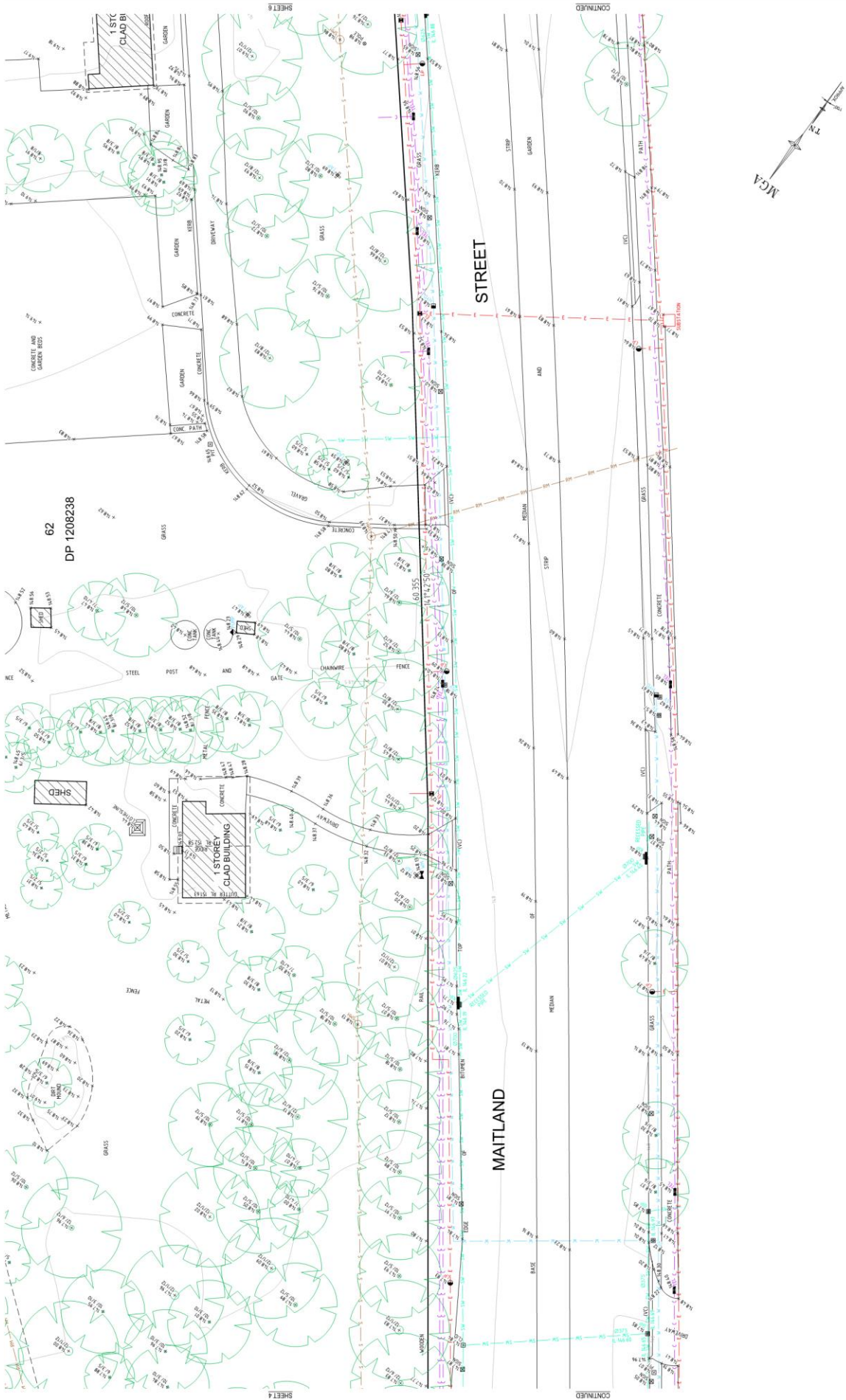
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PROJECT: PLAN OF DETAIL AND LEVELS OVER LOT 62 IN DP 1208238, MAITLAND STREET, MUSWELLBROOK
DATE: 11/12/2019
SCALE: 1:200 @ A1
REFERENCE: 50894 001 DT
DATE OF SURVEY: 17/12/2019
CODE: 2.432 HG
PROJECT: MUSWELLBROOK
SHEET: 4 OF 4

REVISIONS:
 D 06/02/20 -
 C 06/02/20 -
 B 06/02/20 -
 A 06/02/20 -
 Revision Date Description

LTS
 CONSULTANTS
 www.lts.com.au | 1 800 888 888
 Registered Surveyors NSW

ABDIE
 CONSULTANTS
 www.abdie.com.au | 1 800 888 888
 Registered Surveyors NSW

SCALE: 1:200 @ A1
 0 1m 2m 3m
 SEE SHEET FOR NOTES AND LEGEND



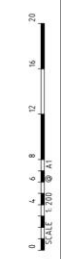
62
DP 1208238

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reference
date of issue
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MUSWELLBROOK
SHEET 5

CLIENT: THE PACIFIC GROUP OF SCHOOLS
Drawing title:
PLAN OF DETAIL AND LEVELS OVER LOT 62 IN DP 1208238,
MAITLAND STREET, MUSWELLBROOK



| NO. | DATE | DESCRIPTION |
|-----|------------|------------------------|
| D | 05/05/2019 | Issue for construction |
| C | 05/05/2019 | Issue for construction |
| B | 05/05/2019 | Issue for construction |
| A | 05/05/2019 | Issue for construction |



SEE SHEET 1 FOR NOTES AND LEGEND



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SEE SHEET FOR NOTES AND LEGEND

SCALE: 1:200 @ A1

0 2 4 6 8 10 12 14 16 18 20

| Revision | Date | Description | Reference |
|----------|----------|-------------|-----------|
| D | 10/07/02 | | |
| C | 10/07/02 | | |
| B | 10/07/02 | | |
| A | 10/07/02 | | |

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THE CLIENTS NAME: THE PACIFIC GROUP OF SCHOOLS
 CLIENT ADDRESS: 1208238 MAITLAND STREET, MUSWELLBROOK
 DATE: 11/12/2019
 REGISTERED SURVEYOR NSW

PROJECT NO: 50894 001DT
 SHEET NO: 6
 DATE OF SURVEY: 11/12/2019
 SCALE: 1:200 @ A1
 DRAWN BY: AHD
 CHECKED BY: MJS
 PROJECT: MUSWELLBROOK

Client: THE PACIFIC GROUP OF SCHOOLS
 Client Address: 1208238 MAITLAND STREET, MUSWELLBROOK
 Date: 11/12/2019
 Scale: 1:200 @ A1
 Drawing No: 50894 001DT
 Sheet No: 6
 Title: PLAN OF DETAIL AND LEVELS OVER LOT 62 IN DP 1208238, MAITLAND STREET, MUSWELLBROOK

APPENDIX B – Consultation with Council

Cameron Amri

From: Anup Halder <Anup.Halder@muswellbrook.nsw.gov.au>
Sent: Tuesday, 20 April 2021 9:46 AM
To: Cameron Amri
Cc: Peter Chambers; Hamish McTaggart
Subject: RE: Attention: Anup FW: 72-74-76 Maitland Street, Muswellbrook

Hi Cameron,

I have reviewed the documents and have the following comments:

- Community Infrastructure (CI) is not clear on the stage construction and how the developer will incorporate it with the Master Plan.
- Stormwater management for the site should include relevant detention measures suitable for the staging of the development, so that post-development discharge rates do not exceed pre-development discharge rates up to the 1% AEP rainfall-runoff event
- The building type proposed as demountable (portable) with RW tanks, and the capacity of the tanks are unknown.
- CI has reviewed flood mapping and determined that only a small part of the site is flood affected for the 1% AEP rainfall-runoff event.



Figure 1: Flood level Map 1%AEP

- Council are not able to indicate a preference for the options provided as long they are consistent with the Council's DCP requirements and supported by design documentations. The level of design detail provided appears to have a number of conflicts or missing data, so it is recommended to carefully consider the design details for the site including for drainage prior to submission of a DA.

The following DCP is relevant with the development

According to DCP 25.2.3 Flooding and Runoff Regimes

A - Replicating Natural Conditions

Controls

(i) Development is to be designed so that runoff from low intensity, common rainfall is equivalent to the runoff from a natural catchment. This can be achieved by intercepting and storing runoff in extended storage detention basins and discharging at greatly reduced rates.

B. Managing peak runoff

Runoff generated by more intense rainfall needs to be managed so that there is no downstream property damage or risk to public safety.

- CI prefers the proposed development should provide a stormwater detention tank system that reduces stormwater discharge from the developed site area to a pre-development condition for the purposes of stormwater calculations. Overflows from the tank and other discharge locations to be suitably managed to avoid adverse impacts to neighbouring properties and Council assets and prevent erosion.

According to DCP 25.2.5 Pollutants

Objectives

a) To ensure that stormwater generated from development does not result in pollution of water courses or receiving waters

Controls

i) Stormwater management systems are to be designed to capture and remove all litter larger than 5mm in size.

ii) Pollution reduction devices. The objective of pollution reduction devices e.g. Gross Pollutant Traps, is to remove contaminants such as oil, sediment and other pollutants before stormwater discharges into the receiving system beyond the site of the development.

- Suitable stormwater quality improvement device(s) should be proposed for the site to demonstrate pollutant removal performance accordance with the DCP. A MUSIC model also to be provided.

The designer should consider the following as part of a future DA submission for the proposed site:

- Waste collection provisions
- Size of the expected vehicle(s) entering and exiting the site
- A Traffic Management Plan that considers all relevant transport types including pedestrian access
- Overland flow paths during peak rainfall-runoff events
- Interaction between vehicles and students
- Signage
- Dedicated stop and ride versus passing traffic widths
- Internal footpaths

- Overflow routes for drainage during a significant event
- Issues to be confirmed by others including TfNSW
 - Number of entry/exits
 - Sight distance
 - Driveway widths
 - Internal Bus lane requirements
 - Internal vehicle Swept path
 - Turning off and on to the New England Highway

Kind regards



Muswellbrook Shire Council | Anup Halder | Development and Design Engineer | Administration Building

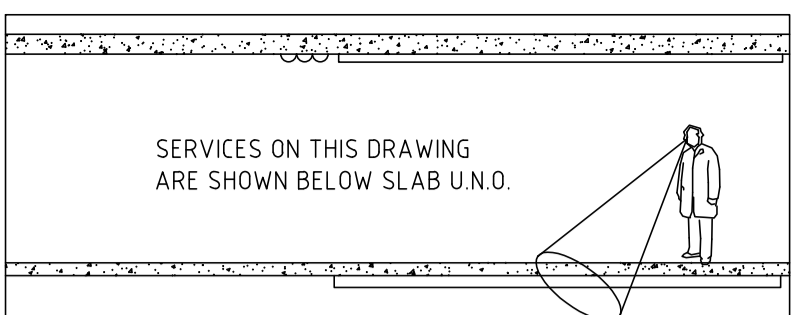
T: (02) 6549 3719 | **E:** Anup.Halder@muswellbrook.nsw.gov.au | **W:** www.muswellbrook.nsw.gov.au

The Muswellbrook Council Administration Centre has moved to Campbell's Corner 60-82 Bridge Street Muswellbrook NSW 2333

From: Cameron Amri <camri@birzulisassociates.com>

Sent: Monday, 19 April 2021 10:37 AM

APPENDIX C – Concept Stormwater Design Drawings



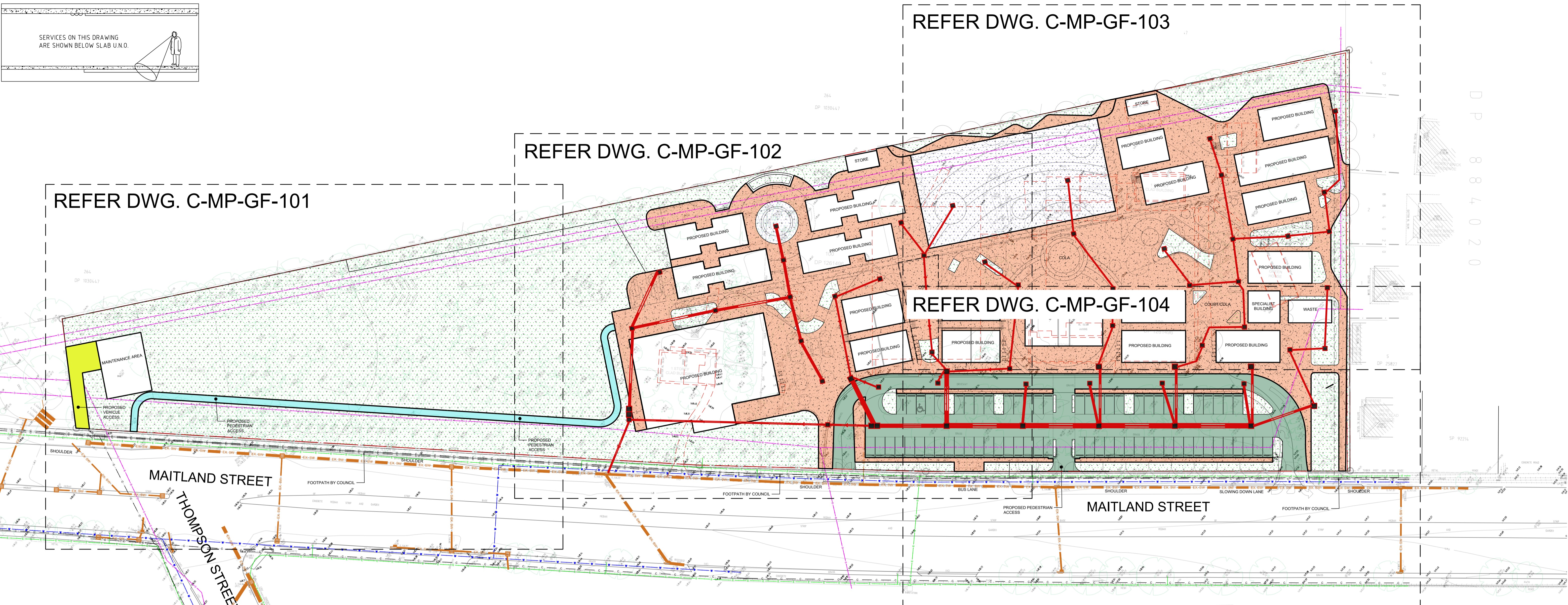
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REFER DWG. C-MP-GF-102

REFER DWG. C-MP-GF-101

REFER DWG. C-MP-GF-104

D.P. 884020



LEGEND

| | |
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| AAPT LINE | — AAPT — |
| COMMS LINE | — C — |
| ELECTRICAL LINE | — E — |
| FIRE LINE | — F — |
| GAS LINE | — GAS — |
| WATER LINE | — W — |
| NBN LINE | — NBN — |
| OPTUS LINE | — OP — |
| TPG LINE | — TPG — |
| TELECOMMUNICATION LINE | — T — |
| OVERFLOW PATH | — OFF — |
| SEWER LINE | — S — |
| SEWER EXISTING LINE | — EX.S — |
| SUBSOIL DRAINAGE LINE | — SSD — |
| SITE BOUNDARY | — — |
| DEMOLISHED | — — |
| EXISTING STORMWATER LINE | — EX. SW — |
| PROPOSED CONTOUR | — — |
| GRATED STORMWATER PIT | |
| KERB INLET PIT | |
| TELEPHONE PIT | |
| DOWN PIPE | • DP |
| FLOOR WASTE | • FW |
| | EXISTING DOWN PIPE |
| | NEW GRATED DRAIN |

CIVIL WORKS - SITE MASTER PLAN
SCALE 1:500

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

| ISSUE | DESCRIPTION | APPROVED | DATE |
|-------|------------------------|----------|----------|
| P2 | REVISIONS AS REQUESTED | | 16-09-21 |
| P1 | PRELIMINARY CONCEPT | | 16-08-21 |

ARCHITECT
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Sydney
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www.birzulisassociates.com

PROJECT
**Pacific Brook Christian School,
Muswellbrook - MASTER PLAN**
72 - 74 Maitland Street, Muswellbrook NSW

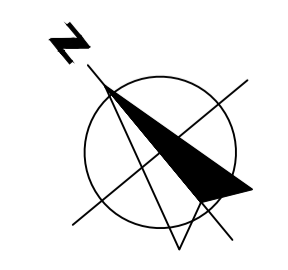
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SITE MASTER PLAN

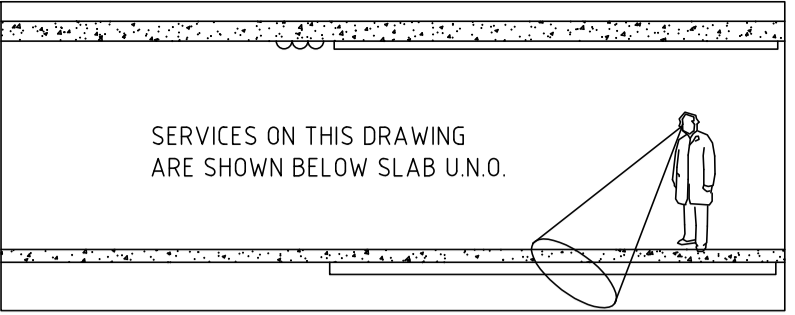
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| SCALES | as noted @ A1 | DATE | JULY 2021 |
| DRAWN | CA | DESIGN | CA |
| VERIFIED | | APPROVED | |

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| ISSUE | PROJECT No. | DRAWING No. |
| P2 | 7855 | C-MP-GF-100 |

| | |
|--|--------------------------------------------------------------------------------------------|
| | HATCH DENOTES CONCRETE SLAB TOP REFER TO DWG. C-0-GE-20 FOR TYPICAL SLAB JOINT DETAILS. |
| | HATCH DENOTES FLEXIBLE PAVEMENT REFER TO DWG. C-0-GE-21 FOR SPECIFICATION. |
| | HATCH DENOTES SOFT LANDSCAPE |
| | HATCH DENOTES ARTIFICIAL TURF |
| | HATCH DENOTES GRAVEL FOOTPATH |



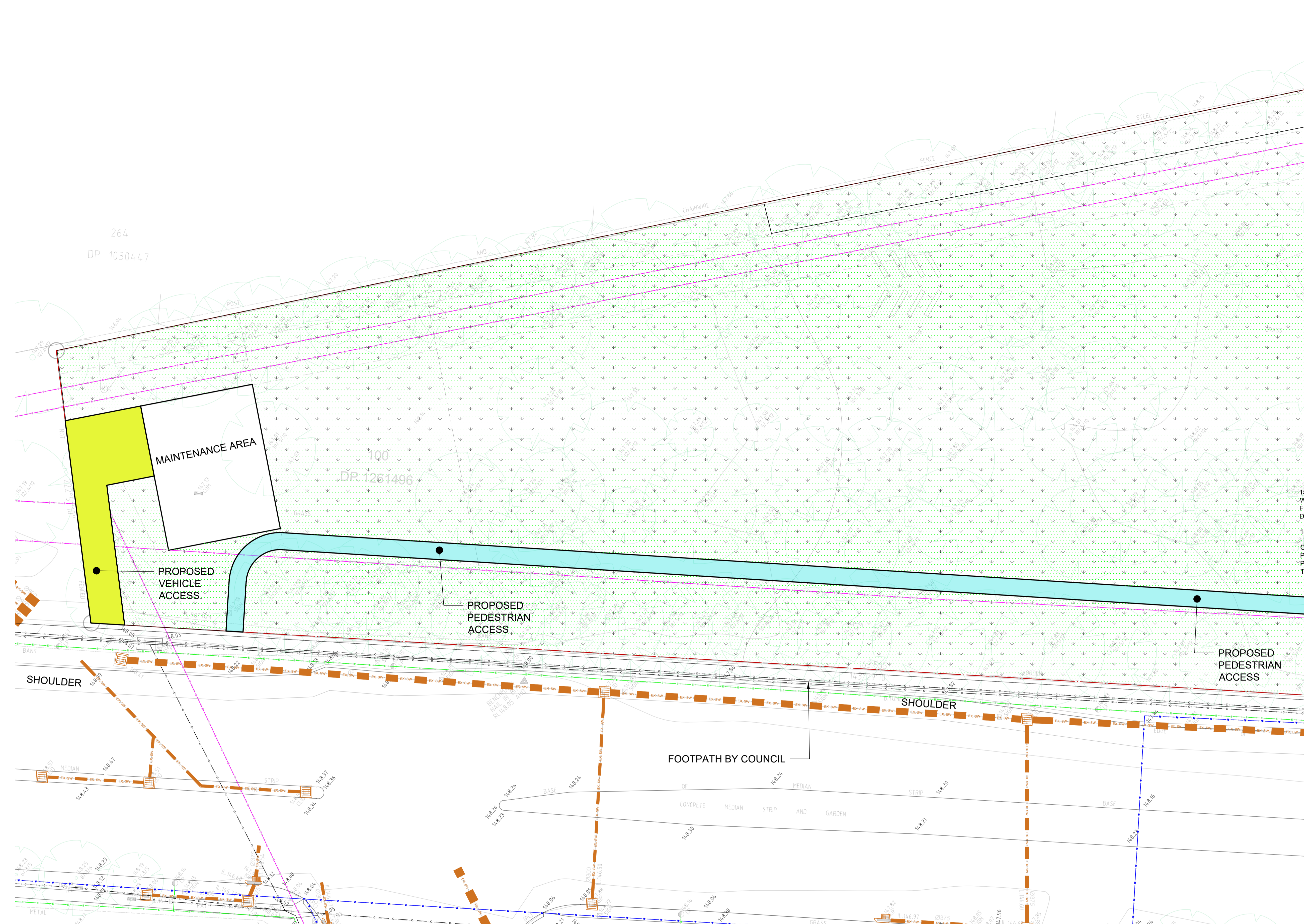


LEGEND

| | | | |
|--------------------------|------------|-------------------------|------------|
| AAPT LINE | — AAPT — | AAPT | — AAPT — |
| COMMS LINE | — C — | C | — C — |
| ELECTRICAL LINE | — E — | E | — E — |
| FIRE LINE | — F — | F | — F — |
| GAS LINE | — GAS — | GAS | — GAS — |
| WATER LINE | — W — | W | — W — |
| NBN LINE | — NBN — | NBN | — NBN — |
| OPTUS LINE | — OP — | OP | — OP — |
| TPG LINE | — TPG — | TPG | — TPG — |
| TELECOMMUNICATION LINE | — T — | T | — T — |
| OVERFLOW PATH | — OFP — | OFP | — OFP — |
| SEWER LINE | — S — | S | — S — |
| SEWER EXISTING LINE | — EX.S — | EX.S | — EX.S — |
| SUBSOIL DRAINAGE LINE | — SSD — | SSD | — SSD — |
| SITE BOUNDARY | — — | | — — |
| DEMOLISHED | — — | | — — |
| EXISTING STORMWATER LINE | — EX. SW — | EX. SW | — EX. SW — |
| PROPOSED CONTOUR | — — | | — — |
| GRATED STORMWATER PIT | | EXISTING STORMWATER PIT | |
| KERB INLET PIT | | | |
| TELEPHONE PIT | | | |
| DOWN PIPE | • DP | EXISTING DOWN PIPE | ○ Ex.DP |
| FLOOR WASTE | • FW | NEW GRATED DRAIN | |

SERVICES SHOWN ON PLAN ARE INDICATIVE. EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.

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- HATCH DENOTES FLEXIBLE PAVEMENT REFER TO DWG. C-0-GE-21 FOR SPECIFICATION.
- HATCH DENOTES SOFT LANDSCAPE
- HATCH DENOTES ARTIFICIAL TURF
- HATCH DENOTES GRAVEL FOOTPATH



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

| REV | DESCRIPTION | DATE |
|-----|------------------------|----------|
| P2 | REVISIONS AS REQUESTED | 16-09-21 |
| P1 | PRELIMINARY CONCEPT | 05-08-21 |

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PROJECT
Pacific Brook Christian School,
Muswellbrook - MASTER PLAN
72 - 74 Maitland Street, Muswellbrook NSW

TITLE
CIVIL WORKS MASTER PLAN
- SHEET 1

| | | | |
|----------|---------------|----------|-----------|
| SCALES | as noted @ A1 | DATE | JULY 2021 |
| DRAWN | CA | DESIGN | CA |
| VERIFIED | | APPROVED | |

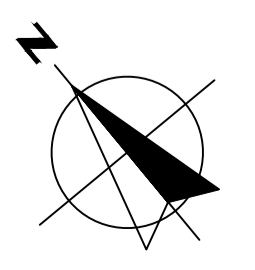
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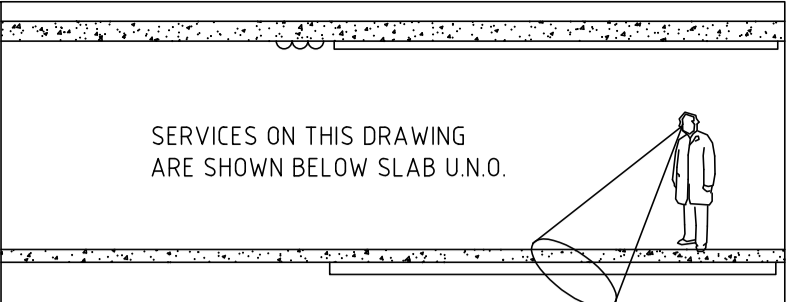
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|-------|-------------|-------------|
| ISSUE | PROJECT No. | DRAWING No. |
| P2 | 7855 | C-MP-GF-101 |

CIVIL WORKS MASTER PLAN - SHEET 1
SCALE 1:200

NOTE:

- ROOF DRAINAGE BY OTHERS
- ALL uPVC STORMWATER DRAINAGE LINES SHALL BE 'CLASS SH' SEWER GRADE UNLESS NOTED OTHERWISE
- UNLESS NOTED OTHERWISE DOWNPIPES SHALL CONNECT TO THE MAIN STORMWATER LINE DOWNSTREAM USING 150mm DIAMETER uPVC LINES WITH MINIMUM 1% FALL.
- UNLESS NOTED OTHERWISE GRATED DRAINS SHALL BE 150x150 AND CONNECTED TO THE DOWNSTREAM (NON-CHARGED) STORMWATER SYSTEM





LEGEND

| | | | |
|--------------------------|-----------|-------------------------|-----------|
| AAPT LINE | — AAPT — | AAPT | — AAPT — |
| COMMS LINE | — C — | C | — C — |
| ELECTRICAL LINE | — E — | E | — E — |
| FIRE LINE | — F — | F | — F — |
| GAS LINE | — GAS — | GAS | — GAS — |
| WATER LINE | — W — | W | — W — |
| NBN LINE | — NBN — | NBN | — NBN — |
| OPTUS LINE | — OP — | OP | — OP — |
| TPG LINE | — TPG — | TPG | — TPG — |
| TELECOMMUNICATION LINE | — T — | T | — T — |
| OVERFLOW PATH | — OFP — | OFP | — OFP — |
| SEWER LINE | — S — | S | — S — |
| SEWER EXISTING LINE | — EX.S — | EX.S | — EX.S — |
| SUBSOIL DRAINAGE LINE | — SSD — | SSD | — SSD — |
| SITE BOUNDARY | — — | | — — |
| DEMOLISHED | — — | | — — |
| EXISTING STORMWATER LINE | — EX.SW — | EX.SW | — EX.SW — |
| PROPOSED CONTOUR | — — | | — — |
| GRATED STORMWATER PIT | | EXISTING STORMWATER PIT | |
| KERB INLET PIT | | TELEPHONE PIT | |
| DOWN PIPE | • DP | EXISTING DOWN PIPE | ○ Ex.DP |
| FLOOR WASTE | • FW | NEW GRATED DRAIN | |

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- HATCH DENOTES SOFT LANDSCAPE
- HATCH DENOTES ARTIFICIAL TURF
- HATCH DENOTES GRAVEL FOOTPATH

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

| ISSUE | REVISIONS AS REQUESTED | APPROVED | DATE |
|-------|------------------------|----------|----------|
| P2 | PRELIMINARY CONCEPT | | 16-09-21 |
| P1 | | | 05-08-21 |

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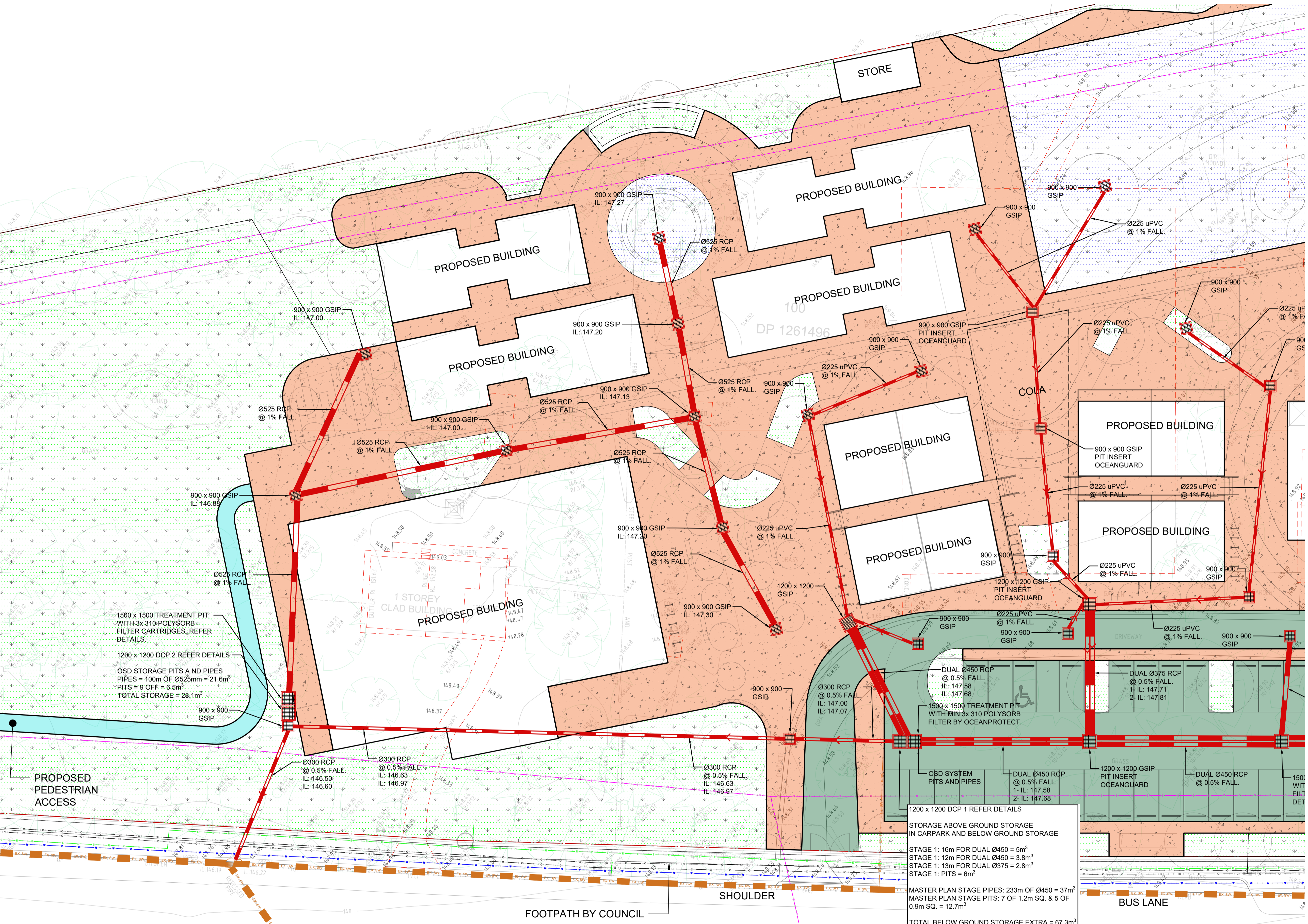
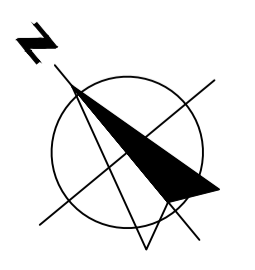
PROJECT
Pacific Brook Christian School, Muswellbrook - MASTER PLAN
72 - 74 Maitland Street, Muswellbrook NSW

TITLE
CIVIL WORKS MASTER PLAN - SHEET 2

| | | | |
|----------|---------------|----------|-----------|
| SCALES | as noted @ A1 | DATE | JULY 2021 |
| DRAWN | CA | DESIGN | CA |
| VERIFIED | | APPROVED | |

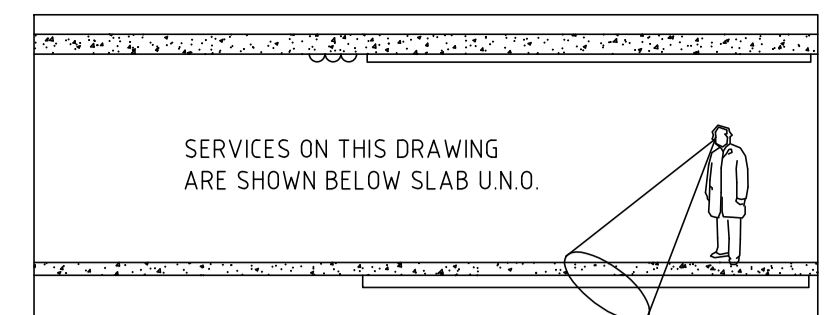
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| ISSUE | PROJECT No. | DRAWING No. |
| P2 | 7855 | C-MP-GF-102 |



CIVIL WORKS MASTER PLAN - SHEET 2

- SCALE 1:200
- NOTE:
- ROOF DRAINAGE BY OTHERS
 - ALL uPVC STORMWATER DRAINAGE LINES SHALL BE 'CLASS SH' SEWER GRADE UNLESS NOTED OTHERWISE
 - UNLESS NOTED OTHERWISE DOWNPIPES SHALL CONNECT TO THE MAIN STORMWATER LINE DOWNSTREAM USING 150mm DIAMETER uPVC LINES WITH MINIMUM 1% FALL.
 - UNLESS NOTED OTHERWISE GRATED DRAINS SHALL BE 150x150 AND CONNECTED TO THE DOWNSTREAM (NON-CHARGED) STORMWATER SYSTEM



LEGEND

| | | | |
|--------------------------|------------|-------------------------|------------|
| AAPT LINE | — AAPT — | AAPT | — AAPT — |
| COMMS LINE | — C — | C | — C — |
| ELECTRICAL LINE | — E — | E | — E — |
| FIRE LINE | — F — | F | — F — |
| GAS LINE | — GAS — | GAS | — GAS — |
| WATER LINE | — W — | W | — W — |
| NBN LINE | — NBN — | NBN | — NBN — |
| OPTUS LINE | — OP — | OP | — OP — |
| TPG LINE | — TPG — | TPG | — TPG — |
| TELECOMMUNICATION LINE | — T — | T | — T — |
| OVERFLOW PATH | — OFP — | OFP | — OFP — |
| SEWER LINE | — S — | S | — S — |
| SEWER EXISTING LINE | — EX.S — | EX.S | — EX.S — |
| SUBSOIL DRAINAGE LINE | — SSD — | SSD | — SSD — |
| SITE BOUNDARY | — — | | — — |
| DEMOLISHED | — — | | — — |
| EXISTING STORMWATER LINE | — EX. SW — | EX. SW | — EX. SW — |
| PROPOSED CONTOUR | — — | | — — |
| GRATED STORMWATER PIT | | EXISTING STORMWATER PIT | |
| KERB INLET PIT | | EXISTING DOWN PIPE | |
| TELEPHONE PIT | | NEW GRATED DRAIN | |
| DOWN PIPE | • DP | EXISTING DOWN PIPE | ○ Ex.DP |
| FLOOR WASTE | • FW | NEW GRATED DRAIN | |

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- HATCH DENOTES ARTIFICIAL TURF
- HATCH DENOTES GRAVEL FOOTPATH

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

| | | | |
|------------------------|---------------------|----------|----------|
| REVISIONS AS REQUESTED | PRELIMINARY CONCEPT | APPROVED | DATE |
| P2 | | | 16-09-21 |
| P1 | | | 05-08-21 |
| ISSUE | DESCRIPTION | APPROVED | DATE |

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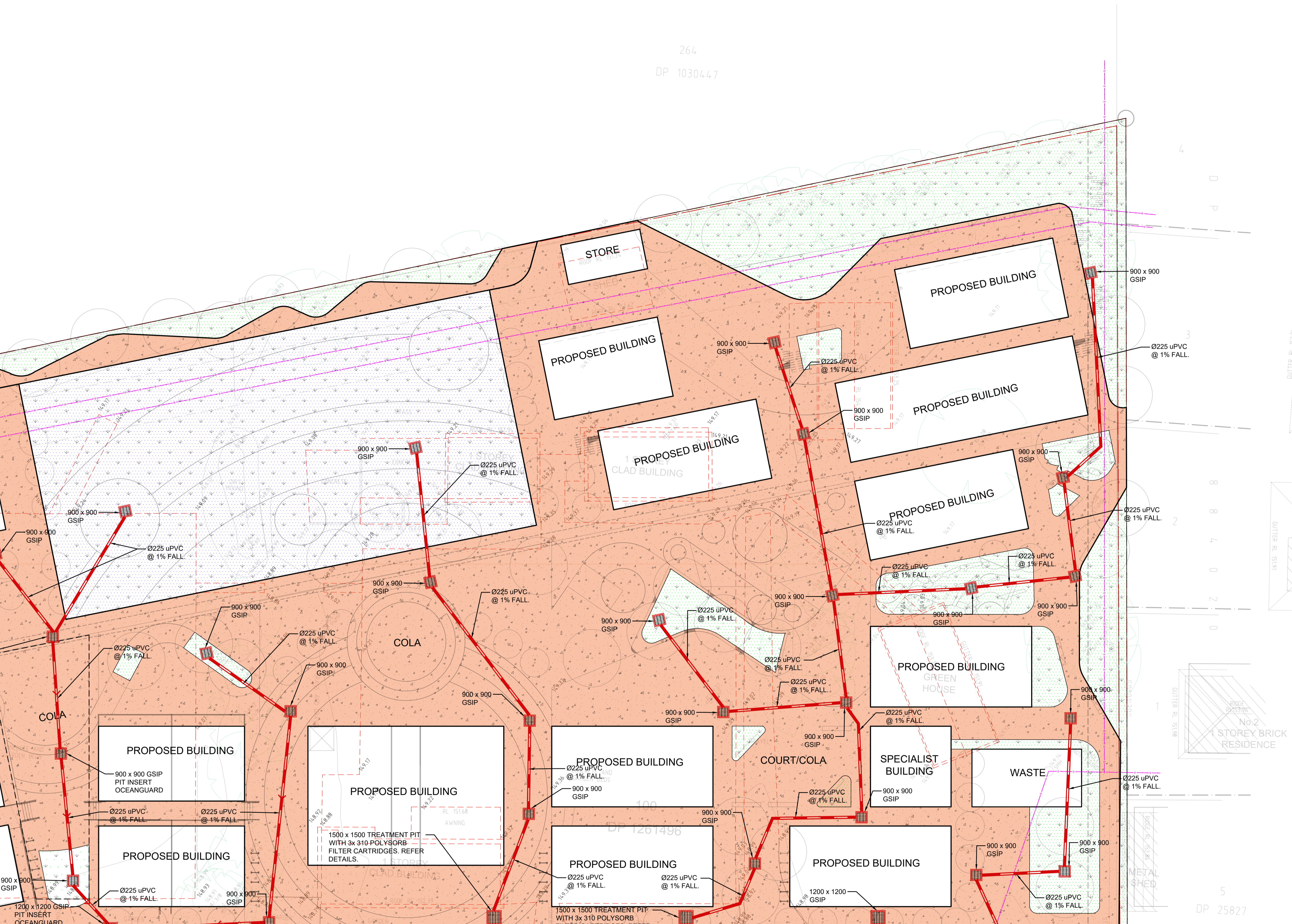
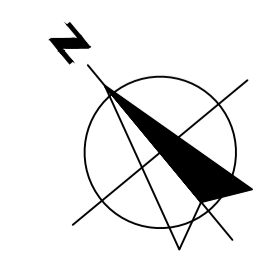
PROJECT
Pacific Brook Christian School,
Muswellbrook - MASTER PLAN
72 - 74 Maitland Street, Muswellbrook NSW

TITLE
CIVIL WORKS MASTER PLAN - SHEET 3

| | | | |
|----------|---------------|----------|-----------|
| SCALES | as noted @ A1 | DATE | JULY 2021 |
| DRAWN | CA | DESIGN | CA |
| VERIFIED | | APPROVED | |

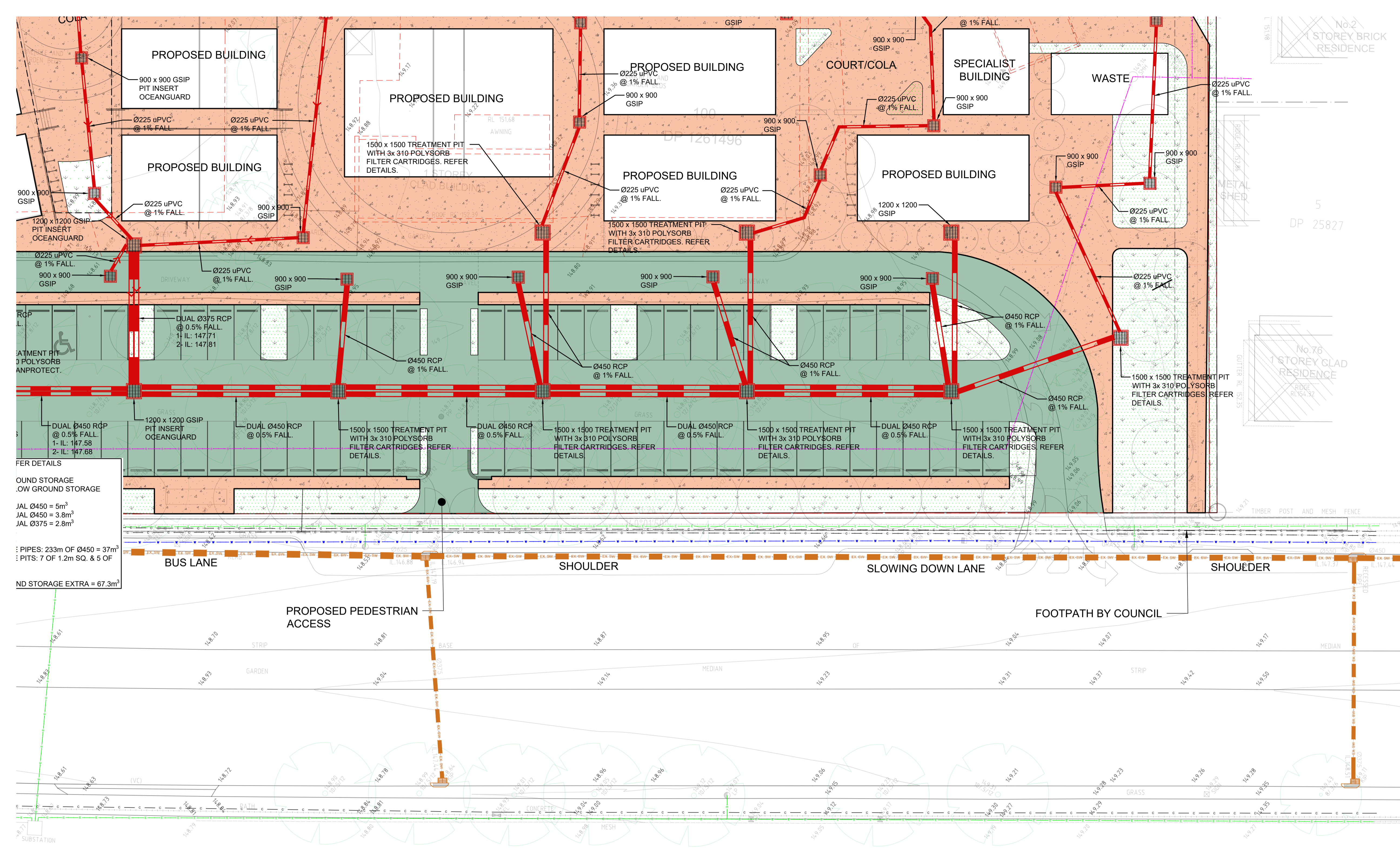
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| ISSUE | PROJECT No. | DRAWING No. |
| P2 | 7855 | C-MP-GF-103 |



CIVIL WORKS MASTER PLAN - SHEET 3

- SCALE 1:200
NOTE:
- ROOF DRAINAGE BY OTHERS
 - ALL uPVC STORMWATER DRAINAGE LINES SHALL BE 'CLASS SH' SEWER GRADE UNLESS NOTED OTHERWISE
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SERVICES ON THIS DRAWING ARE SHOWN BELOW SLAB U.N.O.

LEGEND

| | | | |
|--------------------------|------------|-------------------------|------------|
| AAPT LINE | — AAPT — | AAPT | — AAPT — |
| COMMS LINE | — C — | C | — C — |
| ELECTRICAL LINE | — E — | E | — E — |
| FIRE LINE | — F — | F | — F — |
| GAS LINE | — GAS — | GAS | — GAS — |
| WATER LINE | — W — | W | — W — |
| NBN LINE | — NBN — | NBN | — NBN — |
| OPTUS LINE | — OP — | OP | — OP — |
| TPG LINE | — TPG — | TPG | — TPG — |
| TELECOMMUNICATION LINE | — T — | T | — T — |
| OVERFLOW PATH | — OFP — | OFP | — OFP — |
| SEWER LINE | — S — | S | — S — |
| SEWER EXISTING LINE | — EX.S — | EX.S | — EX.S — |
| SUBSOIL DRAINAGE LINE | — SSD — | SSD | — SSD — |
| SITE BOUNDARY | — — — | | — — — |
| DEMOLISHED | — — — | | — — — |
| EXISTING STORMWATER LINE | — EX. SW — | EX. SW | — EX. SW — |
| PROPOSED CONTOUR | — — — | | — — — |
| GRATED STORMWATER PIT | | EXISTING STORMWATER PIT | |
| KERB INLET PIT | | | |
| TELEPHONE PIT | | | |
| DOWN PIPE | • DP | EXISTING DOWN PIPE | • Ex.DP |
| FLOOR WASTE | • FW | NEW GRATED DRAIN | |

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HATCH DENOTES SOFT LANDSCAPE

HATCH DENOTES ARTIFICIAL TURF

HATCH DENOTES GRAVEL FOOTPATH

GROUND STORAGE
LOW GROUND STORAGE

JAL Ø450 = 5m³
JAL Ø450 = 3.8m³
JAL Ø375 = 2.8m³

PIPES: 233m OF Ø450 = 37m³
PITS: 7 OF 1.2m SQ. & 5 OF

ND STORAGE EXTRA = 67.3m³

CIVIL WORKS MASTER PLAN - SHEET 4
SCALE 1:200

NOTE:

- ROOF DRAINAGE BY OTHERS
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PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

| ISSUE | REVISIONS AS REQUESTED | APPROVED | DATE |
|-------|------------------------|----------|----------|
| P2 | PRELIMINARY CONCEPT | | 16-09-21 |
| P1 | | | 05-08-21 |

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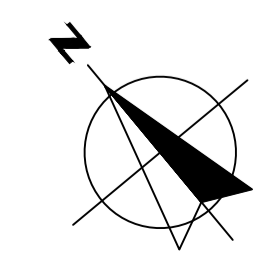
PROJECT
Pacific Brook Christian School,
Muswellbrook - MASTER PLAN
72 - 74 Maitland Street, Muswellbrook NSW

TITLE
CIVIL WORKS MASTER PLAN - SHEET 4

| | | | |
|----------|---------------|----------|-----------|
| SCALES | as noted @ A1 | DATE | JULY 2021 |
| DRAWN | CA | DESIGN | CA |
| VERIFIED | | APPROVED | |

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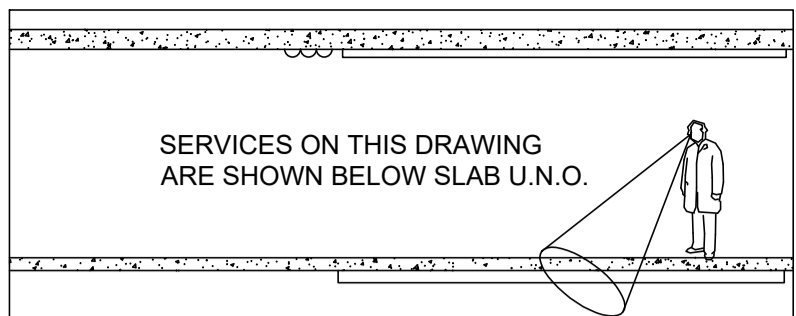
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| ISSUE | PROJECT No. | DRAWING No. |
| P2 | 7855 | C-MP-GF-104 |



Pacific Brook Christian School, Muswellbrook

72 - 74 Maitland St, Muswellbrook NSW 2333

STORMWATER DRAINAGE AND CIVIL WORKS PLAN FOR DA APPROVAL - STAGE 1



LOCALITY MAP. (COURTESY OF SIX MAPS)

| DRAWING REGISTER | |
|------------------|-------------------------------------------|
| NO. | TITLE |
| C-0-GE-00 | COVER SHEET |
| C-0-GE-01 | CONSTRUCTION NOTES - SHEET 01 |
| C-0-GE-02 | CONSTRUCTION NOTES - SHEET 02 |
| C-0-GE-10 | STORMWATER DRAINAGE DETAILS - SHEET 01 |
| C-0-GE-11 | STORMWATER DRAINAGE DETAILS - SHEET 01 |
| C-0-GE-20 | CIVIL EXTERNAL WORK DETAILS - SHEET 01 |
| C-0-GE-21 | CIVIL EXTERNAL WORK DETAILS - SHEET 02 |
| C-0-GE-30 | SOIL EROSION AND SEDIMENT CONTROL DETAILS |
| C-1-GF-00 | OVER ALL SITE PLAN |
| C-1-GF-01 | STORMWATER AND EXTERNAL WORKS - SHEET 01 |
| C-1-GF-02 | STORMWATER AND EXTERNAL WORKS - SHEET 02 |
| C-1-GF-30 | SEDIMENT AND EROSION CONTROL PLAN |

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

| ISSUE | DESCRIPTION | APPROVED | DATE |
|-------|----------------------------|----------|----------|
| P3 | REVISIONS AS REQUESTED | - | 16/09/21 |
| P2 | STAGING UPDATED TO STAGE 1 | - | 05/07/21 |
| P1 | INFORMATION | - | 21/05/21 |

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PROJECT
**Pacific Brook Christian School,
 Muswellbrook - STAGE 1**
 72 - 74 Maitland Street, Muswellbrook NSW

TITLE
COVER SHEET

SCALES
 as noted @ A1
 DATE
 APR, 2021

| DRAWN | DESIGN | VERIFIED | APPROVED |
|-------|--------|----------|----------|
| C.KE | C.A | - | - |

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| ISSUE | PROJECT No. | DRAWING No. |
|-------|-------------|-------------|
| P3 | 7855 | C-0-GE-00 |

GENERAL NOTES

- THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT CONSULTANTS DRAWINGS, THE ARCHITECTURAL DRAWINGS "ISSUED FOR CONSTRUCTION", AND ALL OTHER SPECIFICATION SUCH AS WRITTEN INSTRUCTIONS ISSUED DURING CONSTRUCTION, CHECKLISTS, APPROVING AUTHORITY SPECIFICATIONS. ANY DISCREPANCIES IN THESE DOCUMENTS SHALL BE REFERRED TO THE RELEVANT PARTIES AND NOT LESS THAN THE PROJECT MANAGER, THE ENGINEER AND THE SUPERINTENDENT FOR A DECISION PRIOR TO CONTINUING WITH THE WORKS.
- ALL EXISTING DRAINAGE SHOWN ON THE PLANS AND PROPOSED TO BE RE-USED ARE TO BE INSPECTED BY A LICENCED PLUMBER AND CERTIFIED THAT IT IS IN GOOD WORKING CONDITION, OTHERWISE ALLOW FOR RECTIFY AND OR REPLACEMENT.
- PROVIDE HELLGUARD OR EQUIVALENT TO ALL PIT LIDS AND GRATED DRAINS IN PEDESTRIAN AREAS.
- THE CONTRACTOR OR PRINCIPLE CONTRACTOR SHALL CHECK ALL DIMENSIONS ONSITE FOR CORRECTNESS. WHERE RELEVANT THIS CAN BE FOR NCC (BCA) COMPLIANCE, EFS&G COMPLIANCE, RMS COMPLIANCE IFNSW COMPLIANCE, LEPS, DCPs, AND SEPPs. ANY DISCREPANCY SHALL BE REPORTED TO THE SUPERINTENDENT AND ALSO NOT LESS THAN THE PROJECT MANAGER AS SOON AS PRACTICABLE. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING OFF THE PLANS.
- IT IS THE RESPONSIBILITY OF THE BUILDER AND CONTRACTOR TO ENSURE THAT DURING WORKS THE STABILITY OF EXISTING STRUCTURES SHALL BE MAINTAINED WITHOUT UNDUE DISTURBANCE DURING THE PROCESS OF DISTURBANCE SUCH AS EXCAVATION, SERVICE MODIFICATION, UNDERPINNING, PILING, COMPACTION, VIBRATION, DEMOLITION, REWORKING STORMWATER, PARKING OF HEAVY MACHINERY OR STOCKPILING OF MATERIALS, DUST, EXCESSIVE NOISE. NO PART OF AN EXISTING STRUCTURE OR BUILDING SHALL BE OVERSTRESSED DURING CONSTRUCTION.
- WORKS SHALL NOT BEGIN WITHOUT THE WRITTEN APPROVAL OF THE RELEVANT CERTIFYING AUTHORITY.
- INSPECTIONS ARE REQUIRED TO CONFIRM AND CERTIFY THE STANDARD OF CONSTRUCTION BY BIRZULIS ASSOCIATES. WE REQUIRED TO BE PROVIDED WITH 48 HOURS NOTICE PRIOR TO ALL STORMWATER ELEMENTS BEING BACKFILLED OR CONCEALED TO INSPECT. THIS DOES NOT REMOVE THE NEEDS FOR OTHER AUTHORITIES SUCH AS CERTIFIERS TO CONDUCT INSPECTIONS. ADDITIONAL INSPECTIONS OF PAVEMENT MATERIALS AND LAYOUTS MAY ALSO BE REQUIRED. REFER TO PAVEMENT OR SUB-GRADE SPECIFIC NOTES AND RELEVANT SPECIFICATION.
- WHERE SHOWN, EXISTING SERVICES ARE BASED ON INFORMATION PROVIDED TO BIRZULIS ASSOCIATES AND ARE NOT A SUBSTITUTE FOR ONSITE TESTING AND CONFIRMATION. IT IS THE RESPONSIBILITY OF CONTRACTORS WORKING IN VICINITY OF THESE SERVICES TO BE CONFIRM THEIR LOCATION.
- ALL SERVICE TRENCHES SHALL BE BACKFILLED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARD CORRESPONDING TO THE TYPE OF PIPING IN THE TRENCH OR RMS STANDARDS IF WORKING ON A RMS MANAGED ROAD.
- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LEGAL OR RELEVANT REQUIREMENTS OF CURRENT AUSTRALIAN STANDS, NATIONAL CONSTRUCTION CODES, RELEVANT SPECIFICATIONS. IF IN DOUBT ALL RFIs (REQUESTS FOR INFORMATION) SHALL BE SUBMITTED IN WRITING AND RFIs SHALL BE IN ACCORDANCE WITH THE BEST PRACTICE AND STANDARDS.
- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LEGAL OR RELEVANT REQUIREMENTS OF CURRENT AUSTRALIAN STANDARDS, NATIONAL CONSTRUCTION CODES, SAA CODES, REQUIREMENTS OR STIPULATIONS OF RELEVANT CERTIFYING AUTHORITY, AND RELEVANT SPECIFICATIONS. IF IN DOUBT ALL RFIS (REQUESTS FOR INFORMATION) SHALL BE SUBMITTED IN WRITING AND RFIS SHALL BE IN ACCORDANCE WITH BEST PRACTICE AND STANDARDS.
- NO CHANGES TO THE WORKS AS REFLECTED ON THE DESIGN ENGINEERING DRAWINGS SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
- UNO OR U.N.O DENOTES "UNLESS NOTED OTHERWISE" ON THESE DRAWINGS.
- ALL PROPRIETARY PRODUCTS SHALL BE CHECKED FOR BUILDING CODE COMPLIANCE WITH THE CERTIFYING AUTHORITY AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND IF REQUIRED BY AN APPROVED CONTRACTOR ENDORSED BY THE MANUFACTURER.
- IT IS THE RESPONSIBILITY OF THE PRINCIPLE CONTRACTOR OR EQUIVALENT TO OBTAIN ALL PERMITS AND AUTHORITY APPROVALS.
- IT IS RECOMMENDED A DILAPIDATION REPORT OF ELEMENTS IN VICINITY OF THE DEVELOPMENT BE UNDERTAKEN PRIOR TO WORKS COMMENCING.
- EXISTING DOWNPIPES WHICH ARE BEING RECONFIGURED SHOULD BE CONNECTED TO FLEXIBLE HOISING AND DISCHARGED IN A SAFE LOCATION IN ACCORDANCE WITH REQUIREMENTS OF SEDIMENT AND EROSION CONTROL. THE TOP OF EXCAVATIONS SHALL BE PROTECTED FROM OVERLAND FLOW AND IF NECESSARY OVERLAND FLOW PATHS SHOULD BE REDIRECTED DURING PHASES IN THE CONSTRUCTION PARTICULARLY BULK EXCAVATION AND SITE WORKS.
- IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE ALL SAFETY FENCES, WARNING LIGHTS, TEMPORARY BARRIERS AROUND EXCAVATIONS/TRENCHES, TRAFFIC DIVERSIONS AND THE LIKE DURING CONSTRUCTION. ALL WORKS TO COMPLY WITH WORK COVER AND OH&S REGULATION, AND OTHER RELEVANT SAFETY REQUIREMENTS.
- NO TREES SHALL BE REMOVED/DESTABILISED/CUT BACK OR RELOCATED WITHOUT THE WRITTEN INSTRUCTION FROM THE SUPERINTENDENT.

STORMWATER DRAINAGE NOTES

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3500.3 AND OTHER RELEVANT CODES WHERE OTHER MATERIALS ARE USED.
- FOR DOWNPIPE LOCATIONS REFER ARCHITECTURAL DRAWINGS AND THE HYDRAULIC ENGINEERS DRAWINGS.
- ESTABLISH AND LOCATE EXISTING INVERT LEVELS OF EXISTING SERVICES PRIOR TO COMMENCING WORKS AND CONFIRM WITH ENGINEERS THE DESIGN ARE BASED ON AN ASSUMPTION IN THE LEVELS.
- PIPES SHALL HAVE A MINIMUM FALL OF 1% UNLESS NOTED OTHERWISE. A MINIMUM OF 1:60 FALL SHALL BE PROVIDED FOR DOWNPIPES CONNECTING TO DRAINAGE LINES.
- RESPONSIBILITY OF ROOF DRAINAGE IS BY OTHERS UNLESS SPECIFICALLY NOTED OTHERWISE.
- ALL UPVC STORMWATER DRAINAGE LINES SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF AS1254 AND SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST VERSION OF AS3500.3, AS 2032 & AS2566 UNLESS NOTED OTHERWISE.
- ALL REINFORCED CONCRETE STORMWATER DRAINAGE PIPE WORK (RCP) SHALL BE IN ACCORDANCE WITH AS1342, RMS STANDARDS (NOW TRANSPORT FOR NSW) REQUIREMENTS AND SPECIFICATIONS AND SHALL BE INSTALLED IN ACCORDANCE WITH AS 3725 OR THE PREVIOUS RELEVANT STANDARD/SPECIFICATION WHICHEVER IS THE GREATER OR MORE APPROPRIATE. THE PIPES SHALL BE OF THE FOLLOWING MINIMUM CLASSES IN ACCORDANCE WITH AS 1342 UNLESS NOTED OTHERWISE:
 - CLASS 4 UNDER FLEXIBLE PAVEMENTS WITH MIN 600MM COVER
 - CLASS 2 IN OTHER AREAS WITH NO FLEXIBLE PAVEMENT OVER AND HEAVY MACHINERY/TRUCKS DOES NOT NEED TO PASS OVER AND NOT SURCHARGED BY VEHICLES LOADS OR GREATER.
- SUBSOIL DRAINAGE FOR FLEXIBLE PAVEMENTS SHALL BE IN ACCORDANCE WITH RMS REQUIREMENTS (NOW TRANSPORT FOR NSW).
- SUBSOIL DRAINAGE (MINIMUM 100mm DIAMETER WRAPPED IN A GEO SOCK SHALL BE PROVIDED BEHIND AND AT THE BASE OF ALL RETAINING WALLS, UPTURN WALLS WITH THE EXCEPTION OF UNDERPINNING AND CONTIGUOUS/SOLDIER PILING) AND SHALL BE BACKFILLED IN ACCORDANCE WITH CRUSHED ROCK WITH 10% CEMENT. THE WALL SHALL ALSO BE WATERPROOFED AND A LAYER OF CORFLUTE APPLIED BETWEEN THE WATERPROOFING AND THE BACKFILL. THE BACKFILL SHALL BE WRAPPED IN A GEOFABRIC. THE SUBSOIL DRAIN SHALL CONNECT TO THE DOWNSTREAM STORMWATER SYSTEM AND HAVE SUFFICIENT CLEAN OUT POINTS TO BE ADEQUATELY MAINTAINED.
- SUBSOIL DRAINAGE SHALL BE PROVIDED IN POORLY DRAINED LAWN STYLE AREAS IN ACCORDANCE WITH BEST PRACTICE.
- STEP DOWNS IN FLOORING FROM INTERNAL TO EXTERNAL SHALL BE IN ACCORDANCE WITH THE NATIONAL CONSTRUCTION CODE UNLESS NOTED OTHERWISE.
- FALLS IN PAVEMENTS SHALL BE MINIMUM 1% FOR EXTERNAL AREAS AND 0.5% FOR EXTERNAL AREAS PROTECTED BY A ROOF OR UNDERCOVER. SUFFICIENT SURFACE DRAINAGE SHALL BE PROVIDED TO FACILITATE THESE FALLS.
- SUBSOIL DRAINAGE FOR FLEXIBLE PAVEMENTS SHALL BE IN ACCORDANCE WITH RMS REQUIREMENTS (NOW TRANSPORT FOR NSW).
- ALL DRAINAGE TRENCHES SHALL NOT UNDERMINE EXISTING STRUCTURES AND SHALL BE IN SOUND MATERIAL. IF SOFT SPOTS EXIST THEY SHOULD BE REMOVED AND BACKFILLED WITH A COMPACTED ROADBASE DGB20 OR 40 AND COMPACTED TO MINIMUM 98% SOLID DRY DENSITY AT PLUS OR MINUS 2% OPTIMUM MOISTURE CONTENT.
- ALL STORMWATER PITS SHALL HAVE:
 - HAVE STEP IRONS INSTALLED (WHERE DEEPER THAN 900mm)
 - HAVE A LID AS PER SPECIFICATION OR A PIT SCHEDULE
 - HAVE BEDDING AS REQUIRED
 - HAVE ANY PROOF LOCKS OR BETTER CHILD PROTECTION AS REQUIRED BY COUNCIL OR OTHER CONSULTANT SPECIFICATIONS
 - HAVE BENCHING AS REQUIRED
- COVER FOR STORMWATER PIPES SHALL BE:
 - RCP: 600mm UNDER FLEXIBLE PAVEMENTS OR AREAS OF VEHICULAR LOADING
 - RCP: 300mm UNDER LANDSCAPE AREAS OR RIGID PAVEMENTS.
 - UPVC: 300mm NOT SUBJECT TO VEHICULAR LOADING
 - UPVC: 600mm SUBJECT TO VEHICULAR LOADING WITH SEALED FLEXIBLE CARRIAGEWAYS.
 - IF NOT NOTED IN THE ABOVE THE MINIMUM COVERS SHALL BE OBTAINED FROM THE RELEVANT AUSTRALIAN STANDARD:
 - AS 1762 FOR CORRUGATED METAL STORMWATER PIPES
 - AS 2032 FOR PVC STORMWATER PIPES
 - AS.NZS 2566.1 FOR FLEXIBLE STORMWATER PIPES
 - AS 3725 FOR REINFORCED CONCRETE STORMWATER PIPES
 - AS 2033 FOR POLYETHYLENE STORMWATER PIPES.
- LIDS OF STORMWATER PITS SHALL HAVE THE FOLLOWING CLASS LIDS UNLESS NOTED OTHERWISE:
 - CLASS A FOR AREAS ACCESSED STRICTLY BY ONLY PEDESTRIANS
 - CLASS C FOR AREAS RESIDENTIAL ROADS AND CAR PARKS AND AREAS SUBJECT TO VEHICLE LOADS BUT NOT HEAVY VEHICLE LOADS.
 - CLASS E FOR AREAS WHERE HEAVY VEHICLES CAN ACCESS AND USE
- MINIMUM PIT SIZES REGARDLESS OF WHAT IS SHOWN ON THE DRAWINGS SHALL BE IN ACCORDANCE WITH TABLE 7.5.2.1 OF AS/NZS 3500.3
- WHERE SITE HAVE A HIGH WATER TABLE A MINIMUM OF 1.5 TIMES THE DIAMETER OVER uPVC OR LIGHTWEIGHT PIPES SHALL BE PROVIDED AS COVER TO PREVENT BUOYANCY.
- ALL SET OUT IS TO THE FACE OF THE KERB, CENTRELINE OF FENCE/BOLLARD/PIPE.
- SMOOTH ALL TRANSITION BETWEEN NEW AND EXISTING STORMWATER DRAINAGE WORKS IN LEVEL AND ALIGNMENT.

AUTHORITY STORMWATER NOTES

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK ALL SET OUT AND LEVEL PRIOR TO COMMENCEMENT OF WORKS AND TO REPORT ANY DISCREPANCIES FOUND TO THE SUPERINTENDENT.
- ALL SET OUT DIMENSIONS ARE TO FACE OF KERB, CENTRELINE OF FENCE/BOLLARD/PIPE.
- SMOOTH ALL TRANSITION BETWEEN NEW AND EXISTING WORK IN BOTH LEVEL AND ALIGNMENT.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL SAFETY FENCES, WARNING SIGNS, TRAFFIC DIVERSIONS AND THE LIKE DURING CONSTRUCTION. ALL WORKS TO COMPLY WITH OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS AND OTHER RELEVANT AUTHORITY SAFETY REQUIREMENTS.
- NO TREES SHALL BE REMOVED, CUTBACK OR RELOCATED WITHOUT THE WRITTEN INSTRUCTION FROM THE SUPERINTENDENT.
- THE CONTRACTOR SHALL PROVIDE CERTIFICATION AND COMPACTIONS AND PAVEMENT THICKNESS FROM A NATA REGISTERED TESTING AUTHORITY MINIMUM THREE TESTS PER LAYER AS FOLLOWS

| | |
|-------------------------------|------------------|
| PIPE BACKFILL | DENSITY INDEX 75 |
| SELECT FILL | 95% STANDARD |
| SELECT FILL (LESS THAN 300mm) | |
| FOLLOW BASE COURSE) | 98% MODIFIED |
| BASE COURSE | 100% MODIFIED |
- THE AUSPEC SPECIFICATION SHALL BE THE SPECIFICATION FOR THESE WORKS.

SURVEY NOTES

- THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY THE SURVEYOR SPECIFIED IN THE TITLE BLOCK.
- THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. BIRZULIS ASSOCIATES DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.
- SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT BIRZULIS ASSOCIATES. THE FOLLOWING NOTES HAVE BEEN TAKEN DIRECTLY FROM ORIGINAL SURVEY DOCUMENTS.

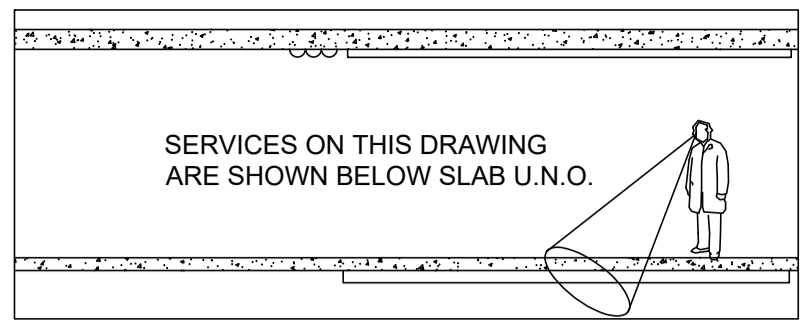
ABBREVIATIONS

| | |
|-----------|--------------------------|
| Ø OR DIA | DIAMETER |
| CNR | CALIFORNIA BEARING RATIO |
| CH | CHAINAGE |
| CL | CENTRE LINE |
| CO | CLEAR OUT |
| DD | DISH CROSSING |
| DDO | DISH DRAIN OUTLET |
| DEJ | DOWELLED EXPANSION JOINT |
| DGB | DENSE GRADED BASECOURSE |
| DGS | DENSE GRADED SUB-BASE |
| DP | DOWNPIPE |
| e | EXISTING |
| FFL | FINISHED FLOOR LEVEL |
| GTD | GRATED TRENCH DRAIN |
| GSP | GRATED SURFACE INLET PIT |
| HYD | HYDRANT |
| IJ | ISOLATING JOINT |
| IK | INTEGRAL KERB |
| IL | INVERT LEVEL |
| IP | INTERSECTION POINT |
| KIP | KERB INLET PIT |
| KO | KERB ONLY |
| K&G | KERB & GUTTER |
| KR | KERB RETURN |
| LS | LONGITUDINAL SECTION |
| NGL | NATURAL GROUND LEVEL |
| OFF | OVERLAND FLOW PATH |
| OSD | ON-SITE DETENTION |
| R | RADIUS |
| RCP | REINFORCED CONCRETE PIPE |
| RK | ROLL KERB & GUTTER |
| RL | REDUCED LEVEL |
| RW | RETAINING WALL |
| RWT | RAINWATER TANK |
| SJ | SAWN CONTROL JOINT |
| SMH | SEWER MAN HOLE |
| SW | STORMWATER |
| SWP | STORMWATER PIT |
| SWRM | STORMWATER RISING MAIN |
| SWS | STORMWATER SUMP |
| SV | STOP VALVE |
| TOK | TOP OF KERB |
| TOW | TOP OF WALL |
| TP | TANGENT POINT |
| UPVC | UNPLASTICISED POLYVINYL |
| CHRLORIDE | |
| UNO | UNLESS NOTED OTHERWISE |
| WPJ | WEAKENED PLANE JOINT |

LEGEND

| | |
|--------------------------|-----------------|
| AAPT INE | — AAPT — AAPT — |
| COMMS LINE | — C — C — |
| ELECTRICAL LINE | — E — E — |
| FIRE LINE | — F — F — |
| GAS LINE | — G — G — |
| WATER LINE | — W — W — |
| NBN LINE | — NBN — NBN — |
| OPTUS LINE | — OP — OP — |
| TPG LINE | — TPG — TPG — |
| TELECOMMUNICATION LINE | — T — T — |
| OVERFLOW LINE | — OFF — OFF — |
| SEWER LINE | — S — S — |
| SEWER EXISTING LINE | — EX.S — EX.S — |
| SUBSOIL DRAINAGE LINE | — SSD — SSD — |
| GRATED SURFACE INLET PIT | |
| KERB INLET PIT | |
| TELEPHONE PIT | |
| DOWN PIPE | • DP |
| FLOOR WASTE | • FW |

SERVICES SHOWN ON PLAN ARE INDICATIVE. EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.



PRELIMINARY ISSUE NOT FOR CONSTRUCTION

| | | | |
|-------|----------------------------|----------|----------|
| P3 | REVISIONS AS REQUESTED | - | 16/09/21 |
| P2 | STAGING UPDATED TO STAGE 1 | - | 05/07/21 |
| P1 | INFORMATION | - | 21/05/21 |
| ISSUE | DESCRIPTION | APPROVED | DATE |

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PROJECT
**Pacific Brook Christian School,
 Muswellbrook - STAGE 1**
 72 - 74 Maitland Street, Muswellbrook NSW

TITLE CONSTRUCTION NOTES - SHEET 01

| | | | | |
|-------------------------------------------------------------------------------------------------|---------------|-------------|----------|-----------|
| SCALES | as noted @ A1 | | DATE | APR, 2021 |
| DRAWN | DESIGN | VERIFIED | APPROVED | |
| C.KE | C.A | - | - | |
| REPRODUCTION OF THIS DRAWING IS PROHIBITED WITHOUT THE CONSENT OF BIRZULIS ASSOCIATES PTY. LTD. | | | | |
| ISSUE | PROJECT No. | DRAWING No. | | |
| P3 | 7855 | C-0-GE-01 | | |

CHEMICAL AND MASONRY ANCHORS

- ALL ANCHORS SHALL BE SUBJECT TO THE APPROVAL OF THE SUPERINTENDENT.
- CHEMICAL ANCHORS SHALL CONSIST OF A THREADED MILD STEEL ROD OF THE SIZE NOMINATED ON THE DRAWINGS EMBEDDED IN AND CHEMICALLY BONDED TO THE CONCRETE. THE CHEMICALS USED SHALL BE SUCH THAT THEY DO NOT DETRIMENTALLY AFFECT THE SURROUNDING CONCRETE. THE ROD SHALL BE HOT DIP GALVANISED UNLESS NOTED OTHERWISE.
- MASONRY ANCHOR SIZES GIVEN ON THE STRUCTURAL DRAWINGS REFER TO THE BAR DIAMETER REQUIRED.
- ALL ANCHORS SHALL BE CAPABLE OF DEVELOPING A WORKING LOAD CAPACITY IN SHEAR AND TENSION AT LEAST 80% OF THE MAXIMUM PERMISSIBLE VALUES FOR THE THREADED ROD OR BOLT SIZE NOMINATED.
- ALL ANCHORS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.
- HOLES DRILLED FOR ANCHORS SHALL NOT PENETRATE REINFORCEMENT IN SUSPENDED CONCRETE SLABS, BEAMS, COLUMNS AND WALLS. ANY HOLES WHICH ARE FOUND TO CLASH WITH SUCH REINFORCEMENT SHALL BE RELOCATED AS NECESSARY AND THE INITIAL HOLE SHALL BE PATCHED TO THE APPROVAL OF THE SUPERINTENDENT.

MASONRY FLEXIBLE ANCHORS

- ALL ANCHORS SHALL BE SUBJECT TO THE APPROVAL OF THE SUPERINTENDENT.
- ALL ANCHORS SHALL BE MANUFACTURED FROM HOT DIP GALVANISED STEEL PLATE.
- ALL ANCHORS SHALL PERMIT HORIZONTAL AND VERTICAL MOVEMENT IN THE PLANE OF THE WALL BUT SHALL RESIST MOVEMENT IN A PERPENDICULAR DIRECTION TO THE PLANE OF THE WALL, UNLESS NOTED OTHERWISE.
- THE ANCHORS SHALL HAVE THE FOLLOWING MINIMUM LATERAL WORKING LOAD CAPACITIES TO RESIST FORCES IN A PERPENDICULAR DIRECTION TO THE PLANE OF THE WALL:

| | |
|----------------------------|-----------|
| AT VERTICAL CONTROL JOINTS | - 0.30 kN |
| ALL OTHER ANCHORS | - 0.40 kN |

MASONRY RETAINING WALLS

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3700. MASONRY UNITS SHALL COMPLY WITH AS 4455. WALL TIES SHALL COMPLY WITH AS 2699.
- CONCRETE MASONRY BLOCKS SHALL BE OF A MINIMUM COMPRESSIVE STRENGTH GRADE 15 IN ACCORDANCE WITH AS 2733.
- MORTAR FOR STRUCTURAL CONCRETE MASONRY WALLS SHALL CONSIST OF A 1 PART OF CEMENT TO 0.25 PARTS OF HYDRATED LIME TO 3 PARTS WELL-GRADED SAND. ALL MORTAR SHALL CONFORM TO THE REQUIREMENTS OF AS 3700. MORTAR ADMIXTURES SHALL NOT BE USED WITHOUT THE WRITTEN APPROVAL OF THE SUPERINTENDENT.
- NO CHASES OR RECESSES ARE PERMITTED IN LOAD BEARING AND STRUCTURAL MASONRY WITHOUT THE WRITTEN APPROVAL OF THE SUPERINTENDENT.
- ALL LOAD BEARING AND STRUCTURAL MASONRY SHALL BE LAID ON FULL BEDS OF MORTAR AND ALL PERPENDS SHALL BE SOLIDLY FILLED WITH MORTAR.
- PROVIDE VERTICAL CONTROL JOINTS AT 8m MAXIMUM CENTRES, AND 5M MAXIMUM FROM CORNERS IN MASONRY WALLS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- CORE FILL CONCRETE FOR CONCRETE MASONRY WALLS SHALL BE IN ACCORDANCE WITH AS 3700 WITH A MINIMUM CHARACTERISTIC COMPRESSIVE STRENGTH OF MINIMUM 25 MPa UNLESS NOTED OTHERWISE ON THE DRAWINGS. THE CONCRETE CORE FILL SHALL HAVE A SLUMP OF 230mm +/- 30mm AND THE MAXIMUM SIZE OF AGGREGATE SHALL BE 10mm. CONCRETE SHALL HAVE A MINIMUM CEMENT CONTENT OF 300 kg/m³.
- REINFORCEMENT FOR CONCRETE MASONRY WALLS SHALL BE SECURELY TIED IN POSITION. PROVIDE 50mm COVER TO THE REINFORCEMENT FROM THE RETAINING FACE OF THE WALL UNLESS NOTED OTHERWISE.
- CONCRETE MASONRY WALLS WHICH ARE TO BE CORE FILL CONCRETE SHALL HAVE CORES CLEANED OF ALL MORTAR PROTRUSIONS AND SHALL BE FILLED WITH CORE FILL CONCRETE IN LIFTS OF NOT MORE THAN 3000mm IN HEIGHT. CORE FILL CONCRETE SHALL BE THOROUGHLY COMPACTED IN PLACE BY INTERNAL VIBRATORS. ALL CORES ARE TO BE FILLED WITHOUT THE FORMATION OF VOIDS. CLEAN-OUT HOLES SHALL BE PROVIDED IN THE BACK-FILLED SIDE AT THE BASE OF RETAINING WALLS.
- DO NOT BACKFILL RETAINING WALLS UNTIL AT LEAST 14 DAYS HAVE ELAPSED AFTER THE COMPLETION OF THE CORE CONCRETE FILLING OF THE WALLS UNLESS OTHERWISE APPROVED BY THE SUPERINTENDENT.
- DO NOT BACKFILL RETAINING WALLS (OTHER THAN CANTILEVER WALLS) UNTIL A MINIMUM OF SEVEN DAYS HAVE ELAPSED FROM THE TIME OF COMPLETION OF THE FLOOR CONSTRUCTION AT THE TOP AND BOTTOM OF THE WALL.
- BACKFILL TO RETAINING WALLS SHALL BE A HIGHLY PERMEABLE GRANULAR MATERIAL. PROVIDE A SUBSOIL DRAIN AT THE BASE OF THE WALL CONNECTED TO THE DRAINAGE SYSTEM UNLESS NOTED OTHERWISE.

CONCRETE

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
- CONCRETE QUALITY:

| | |
|--------------------------------------------------|-------------------------------------------------------|
| CLASS | = NORMAL |
| SLUMP | = 80mm |
| MAXIMUM SIZE OF AGGREGATE IN STRUCTURAL CONCRETE | = 20mm U.N.O. |
| CEMENT TYPE | = SL |
| ADMIXTURES | = NIL, UNLESS NOTED OTHERWISE OR APPROVED IN WRITING. |

FOR CONCRETE CAST IN CONTACT WITH GROUND PROVIDE THE FOLLOWING ADDITIONAL PROPERTIES:
 MINIMUM CEMENT CONTENT = 330 kg/m³
 MAXIMUM WATER/CEMENT RATIO = 0.50

CONCRETE SHALL HAVE A CHARACTERISTIC COMPRESSIVE STRENGTH AT 28 DAYS (F_C) AS SHOWN IN THE FOLLOWING TABLE, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

| ELEMENT | f _c MPa (28 Days) |
|-----------------|---------------------------------|
| BORED PIERS | 32 |
| FOOTINGS | 32 |
| BLOCKWORK WALLS | 32 |
| | |

- PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 3600.
- CLEAR CONCRETE COVER IN MM TO THE REINFORCEMENT SHALL BE AS FOLLOWS (UNLESS NOTED OTHERWISE ON THE DRAWINGS):

| EXPOSURE CLASSIFICATION TO AS3600 | CAST AGAINST FORMWORK | | | CAST AGAINST GROUND | |
|-----------------------------------|-----------------------|----------|---------------------|-----------------------|-------------|
| | INTERIOR | EXTERIOR | CONTACT WITH GROUND | PROTECTED BY MEMBRANE | NO MEMBRANE |
| A1 | 20 | | | 30 | |
| A2 | 25 | 30 | 30 | | 50 |
| B1 | | 40 | | | |
| B2 | | 45 | | | |

EXPOSURE CLASSIFICATION FOR EXTERIOR CONCRETE - B1
 EXPOSURE CLASSIFICATION FOR INTERIOR CONCRETE - A2

- ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1 METRE CENTRES BOTH WAYS. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS. IN EXPOSURE CONDITIONS GREATER THAN B1 USE ONLY PLASTIC CHAIRS.
- CONCRETE SIZES SHOWN DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
- DEPTHS OF BEAMS ARE GIVEN FIRST AND INCLUDE SLAB THICKNESS.
- FOR CHAMFERS, DRIP GROOVES, REGLETS, ETC., REFER TO ARCHITECT'S DETAILS, MAINTAIN COVER TO REINFORCEMENT AT THESE DETAILS.
- NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE SUPERINTENDENT.
- THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENOUS MASS, COMPLETELY FILLING THE FORMWORK THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE INCLUDING SLABS ON GROUND AND FOOTINGS SHALL BE COMPACTED WITH MECHANICAL VIBRATORS.
- CONCRETE CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE SUPERINTENDENT.
- CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 7 DAYS, AND PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 14 DAYS FOLLOWED BY GRADUAL DRYING OUT. APPROVED SPRAYED ON CURING COMPOUNDS MAY BE USED WHERE NO FLOOR FINISHES ARE PROPOSED. POLYTHENE SHEETING OR WET HESSIAN MAY BE USED IF PROTECTED FROM WIND AND TRAFFIC.
- CONSTRUCTION SUPPORT PROPPING IS TO BE LEFT IN PLACE WHERE NEEDED TO AVOID OVERSTRESSING THE STRUCTURE DUE TO CONSTRUCTION LOADING. NO MASONRY OR PARTITION WALLS ARE TO BE CONSTRUCTED ON SUSPENDED LEVELS UNTIL ALL PROPPING IS REMOVED AND THE MEMBER HAS ABSORBED ITS DEAD LOAD DEFLECTION.
- THE SUPERINTENDENT SHALL BE GIVEN 48 HOURS NOTICE FOR REINFORCEMENT INSPECTION AND CONCRETE SHALL NOT BE DELIVERED UNTIL FINAL APPROVAL OBTAINED.
- CONDUITS, PIPES ETC., SHALL ONLY BE LOCATED IN THE MIDDLE ONE THIRD OF SLAB DEPTH AND SPACED AT NOT LESS THAN 3 DIAMETERS. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE COVER TO THE REINFORCEMENT.
- REINFORCEMENT SYMBOLS:

| | |
|--------|------------------------------------------------------------|
| S | DENOTES GRADE 230 S HOT ROLLED DEFORMED BARS TO AS 1302 |
| N | DENOTES GRADE 500 N DEFORMED BARS TO AS 4671 |
| R | DENOTES GRADE 230 R HOT ROLLED PLAIN BARS TO AS 1302 |
| SL/R/L | DENOTES GRADE 500 L DEFORMED RIBBED WELDED MESH TO AS 4671 |

THE FIGURES FOLLOWING THE SYMBOL ARE THE NUMBER OF MILLIMETRES IN THE BAR DIAMETER. THE FIGURES FOLLOWING THE MESH SYMBOL SL, RL, L IS THE REFERENCE NUMBER FOR MESH TO AS 4671.

- REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.
- SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN OR OTHERWISE APPROVED IN WRITING BY THE SUPERINTENDENT. LAPS SHALL BE IN ACCORDANCE WITH AS 3600 AND NOT LESS THAN 1.25 TIMES THE DEVELOPMENT LENGTH FOR EACH BAR.
- MESH REINFORCEMENT SHALL HAVE SPLICES MADE SO THAT THE OVERLAP, MEASURED BETWEEN THE OUTERMOST TRANSVERSE WIRES OF EACH SHEET OF MESH, IS NOT LESS THAN THE SPACING OF THOSE WIRES PLUS 50mm.
- WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE SUPERINTENDENT.
- JOGGLES TO BARS SHALL BE 1 BAR DIAMETER OVER A LENGTH OF 12 BAR DIAMETERS.
- BUNDLED BARS SHALL BE TIED TOGETHER AT 30 BAR DIAMETER CENTRES WITH THREE WRAPS OF TIE WIRE.
- WHERE TRANSVERSE TIE BARS ARE NOT SHOWN PROVIDE N12 AT 400mm DISTRIBUTION BARS UNLESS NOTED OTHERWISE. SPLICE DISTRIBUTION BARS 500mm WHERE NECESSARY AND PROVIDE 500mm SPLICE LENGTH WITH MAIN BARS UNLESS NOTED OTHERWISE.
- ALL DOWELS PLACED IN JOINTS IN CONCRETE SLABS SHALL BE PLACED WITHIN THE FOLLOWING TOLERANCES:

| | |
|----------|--------------|
| LEVEL | +/- 1 DEGREE |
| LINE | +/- 1 DEGREE |
| POSITION | +/- 5 mm |
- SLIDING BEARING STRIPS SUPPORTING CONCRETE SLABS SHALL BE COMPOSED OF TWO LAYERS OF 0.4mm THICK GALVANISED STEEL PLATE WITH AN INTERMEDIATE LAYER OF GREASE (UNLESS NOTED OTHERWISE). THE STRIPS SHALL BE THE SAME WIDTH AS THE BEARING SURFACE.

SPECIFICATION FOR CONSTRUCTION OF TRAFFICABLE PAVEMENTS

- ALL WORK TO BE IN ACCORDANCE WITH THE SPECIFICATION.

- EARTHWORKS SHALL BE CARRIED OUT UNDER THE LEVEL OF CONTROL AS SPECIFIED BY THE GEOTECHNICAL ENGINEER.

SUBGRADE

- CLEAR THE AREA TO BE OCCUPIED BY THE PAVEMENT AND ITS ADJUNCTS. BREAK UP AND REMOVE FOUNDATIONS, SLABS, PAVING ETC. FOUND ON THE SURFACE OR WITHIN 300mm OF THE BASECOURSE. REMOVE ALL TOPSOIL AND ORGANIC MATTER AND GRUB OUT ALL ROOTS AND STUMPS. REMOVE ALL RUBBLE REMAINING FROM EXCAVATIONS.
- THE SUBGRADE MATERIAL (NATURAL GROUND BELOW EXCAVATIONS) SHALL BE THOROUGHLY COMPACTED BY PROOF ROLLING WITH A MINIMUM OF 8 PASSES OF A 10 TONNE DEAD WEIGHT STATIC SMOOTH DRUM ROLLER. THIS PROOF ROLLING SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEERING CONSULTANT, TO DETERMINE THE EXTENT OF REPLACEMENT OF ANY UNSUITABLE MATERIAL ENCOUNTERED. THE COST OF ALL SUCH WORK SHALL BE DEEMED TO BE INCLUDED IN THE CONTRACTORS TENDER.
- ANY SOFT, YIELDING, ORGANIC OR OTHER UNSUITABLE MATERIAL IN THE SUBGRADE SHALL BE REMOVED FOR A DEPTH OF AT LEAST 300mm AND HOLES SO FORMED SHALL BE FILLED WITH APPROVED FILLING COMPACTED IN 150mm LAYERS AS SPECIFIED BELOW.
- BRING ALL FILLING ON TO THE SITE UNLESS IT CAN BE PROVIDED FROM SPOIL RECOVERED FROM THE SITE. FILLING SHALL BE SOUND CLEAN STABLE MATERIAL, FREE OF PERISHABLE MATERIAL OR ANY OTHER MATERIAL THAT WILL NOT FORM STABLE FILL. THE FILL MATERIAL SHALL BE CAPABLE OF CONSOLIDATION SO THAT IT IS FIRM AND UNYIELDING THROUGHOUT ITS DEPTH.

- PLACE FILLING IN LAYERS NOT EXCEEDING 200mm THICK WHEN MEASURED LOOSE. BRING FILLING TO OPTIMUM MOISTURE CONTENT (+/- 2%) BY WATERING AND COMPACT EACH LAYER THOROUGHLY AND UNIFORMLY WITH A VIBRATING ROLLER.
- CONSOLIDATE EACH LAYER OF FILLING TO OBTAIN A UNIFORM DENSITY OF NOT LESS THAN 100% OF THE STANDARD MAXIMUM DRY DENSITY OF THE MATERIAL AS DETERMINED BY AS1289.5.1.1.

TESTING

- THE CONTRACTOR SHALL ALLOW FOR TESTING AT THE RATE OF ONE TEST PER 200 SQUARE METRES OF SURFACE AREA FOR EACH OF THE FOLLOWING FINISHED SURFACES, WITH A MINIMUM OF THREE TESTS FOR EACH COMPACTED LAYER.
 - SUBGRADE
 - SUB-BASECOURSE
 - BASECOURSE
- THE CONTRACTOR SHALL ALLOW FOR TESTING AT THE RATE OF ONE TEST PER 30 CUBIC METRES FOR THE FILLING, WITH A MINIMUM OF THREE TESTS FOR EACH COMPACTED LAYER.
- THE LOCATION OF ALL TESTS SHALL BE TO THE APPROVAL OF THE SUPERINTENDENT. TESTING SHALL NOT BE LESS THAN AS SPECIFIED IN TABLE 8.1 OF AS3798.
- THE CONTRACTOR SHALL OBTAIN FROM A REGISTERED N.A.T.A. TESTING AUTHORITY DOCUMENTED TEST EVIDENCE PROVING THAT THE COMPACTION FIGURES AS REQUIRED FOR THE MATERIALS SPECIFIED HEREIN HAVE BEEN OBTAINED. THE COST OF SUCH WORK SHALL BE DEEMED TO BE INCLUDED IN THE CONTRACTOR'S TENDER. TEST RESULTS FOR EACH STAGE (I.E. SUBGRADE, SUBBASE, BASECOURSE AND FILL WHERE APPLICABLE) TO BE SUBMITTED TO THE SUPERINTENDENT PRIOR TO PROCEEDING TO THE NEXT STAGE OF THE WORKS.

SPECIFICATIONS FOR FLEXIBLE TRAFFICABLE PAVEMENTS

- ASPHALTIC CONCRETE (ACXX) SHALL BE IN ACCORDANCE WITH DOCUMENTS SUCH AS "GOOD ASPHALTIC PAVING PRACTICE" AS DESCRIBED IN AS2150 AND CURRENT RMS SPECIFICATIONS.
- TACK COATS SHALL BE APPLIED TO THE RELEVANT SUBSTRATE TO LEAVE A RESIDUAL BITUMEN CONTENT OF 0.1 TO 0.2 LITRES PER SQUARE METER, BRUSH AWAY POOL BITUMEN MIX. JOINTS SHALL BE KEPT TO A MINIMUM AND THE DENSITY AND SURFACE FINISH AT JOINTS SHALL BE SIMILAR TO THAT OF THE LAYER. COMAPCTION SHALL BE IN ACCORDACNE WITH THE REQUIREMENTS OF AS2734 AND ALL COMPACTION SHALL BE UNDERTAKEN USING SELF-PROPELLED ROLLERS WHERE INITIAL ROLLING SHALL BE UNDERTAKEN BEFORE THE MID-DEPTH TEMPERATURE HAS DROPPED BELOW 105 DEGREES, THE SECONDARY ROLLING SHALL BE COMPLETED BEFORE THE MID-DEPTH TEMPERATURE HAS DROPPED BELOW 80 DEGREES. THE FINISHED AS WEARING SURFACE SHALL BE SMOOTH, DENSE, HAVE CORRECT FALLS, AND SHALL NOT VARY MORE THAN
 - 3mm IN VERTICAL LEVEL AS REQUIRED,
 - 3mm WHEN MEASURED USING A 3m LONG STRAIGHT EDGE LAID TRANSVERSELY
 - 5mm WHEN MEASURED USING A 3m LONG STRAIGHT EDGE LAID LONGITUDINALLY
 - MINUS 0mm TO PLUS 2mm ADJACENT TO ELEMENTS SUCH AS KERBS TO AVOID LOCALISED POOLING OF WATER
 - MINUS 0mm FROM THE SPECIFIED THICKNESS

WE ALSO RECOMMEND MARKING PAINT IS APPLIED AFTER CURING HAS OCCURED AND NOT LESS THAN BEFORE AS REQUIRED BY THE MANUFACTURER OF THE MARKING PAINT. WE DO NOT RECOMMEND PLANT OR EQUIVALENT HEAVY MACHINERY IS STORED ON THE NEWLY LAID FLEXIBLE PAVEMENT UNTIL PRACTICAL COMPLETION.

SUB-BASE

- THE SUB-BASECOURSE LAYER SHALL CONSIST OF COMPACTED THICKNESS OF CRUSHED ROCK IN ACCORDANCE WITH RTA QA SPECIFICATION 3051 AND RTA QA SPECIFICATION R7.1. THE MATERIAL USED FOR THIS COURSE SHALL BE A CLASS 2 DGS 20 IN ACCORDANCE WITH THE FOREMENTIONED STANDARDS.
 - DESIGN ORIGINAL SUBGRADE CBR = 3.0%
 - DESIGN TRAFFIC LOADING = 1 X ??? ESA

BASE

- THE BASECOURSE LAYER SHALL CONSIST OF COMPACTED THICKNESS OF CRUSHED ROCK IN ACCORDANCE WITH RTA QA SPECIFICATION 3051 AND RTA QA SPECIFICATION R7.1. THE MATERIAL USED FOR THIS COURSE SHALL BE CLASS 1 DGB 20 IN ACCORDANCE WITH THE FOREMENTIONED STANDARDS.

WEARING SURFACE

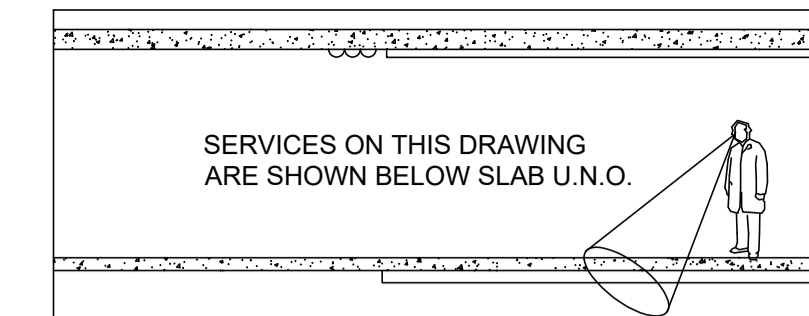
- THE WEARING SURFACE OF COMPACTED ASPHALTIC CONCRETE SHALL BE PROVIDED OVER A PRIME AND 7MM HOT BITUMEN TYPE SEAL IN ACCORDANCE WITH RTA QA SPECIFICATION R106.

SPECIFICATIONS FOR RIGID TRAFFICABLE PAVEMENTS

SUB-BASE

- THE SUB-BASECOURSE LAYER SHALL CONSIST OF COMPACTED THICKNESS OF CRUSHED ROCK IN ACCORDANCE WITH RTA QA SPECIFICATION 3051 AND RTA QA SPECIFICATION R7.1. THE MATERIAL USED FOR THIS COURSE SHALL BE A CLASS 1 DGS 20 IN ACCORDANCE WITH THE FOREMENTIONED STANDARDS. THE SUB-BASE SHALL BE TOPPED WITH AN APPROVED SEAL COMMENSURATE FOR THE SUBSTRATE.
 - DESIGN ORIGINAL SUBGRADE CBR = 3.0%
 - DESIGN TRAFFIC LOADING = 1 X ??? ESA

- THE SPECIFIED BASE SHALL BE IN ACCORDANCE WITH RMS SPECIFICATIONS FOR THE ELEMENT.



PRELIMINARY ISSUE NOT FOR CONSTRUCTION

| ISSUE | DESCRIPTION | APPROVED | DATE |
|-------|----------------------------|----------|----------|
| P3 | REVISIONS AS REQUESTED | - | 16/09/21 |
| P2 | STAGING UPDATED TO STAGE 1 | - | 05/07/21 |
| P1 | INFORMATION | - | 21/05/21 |

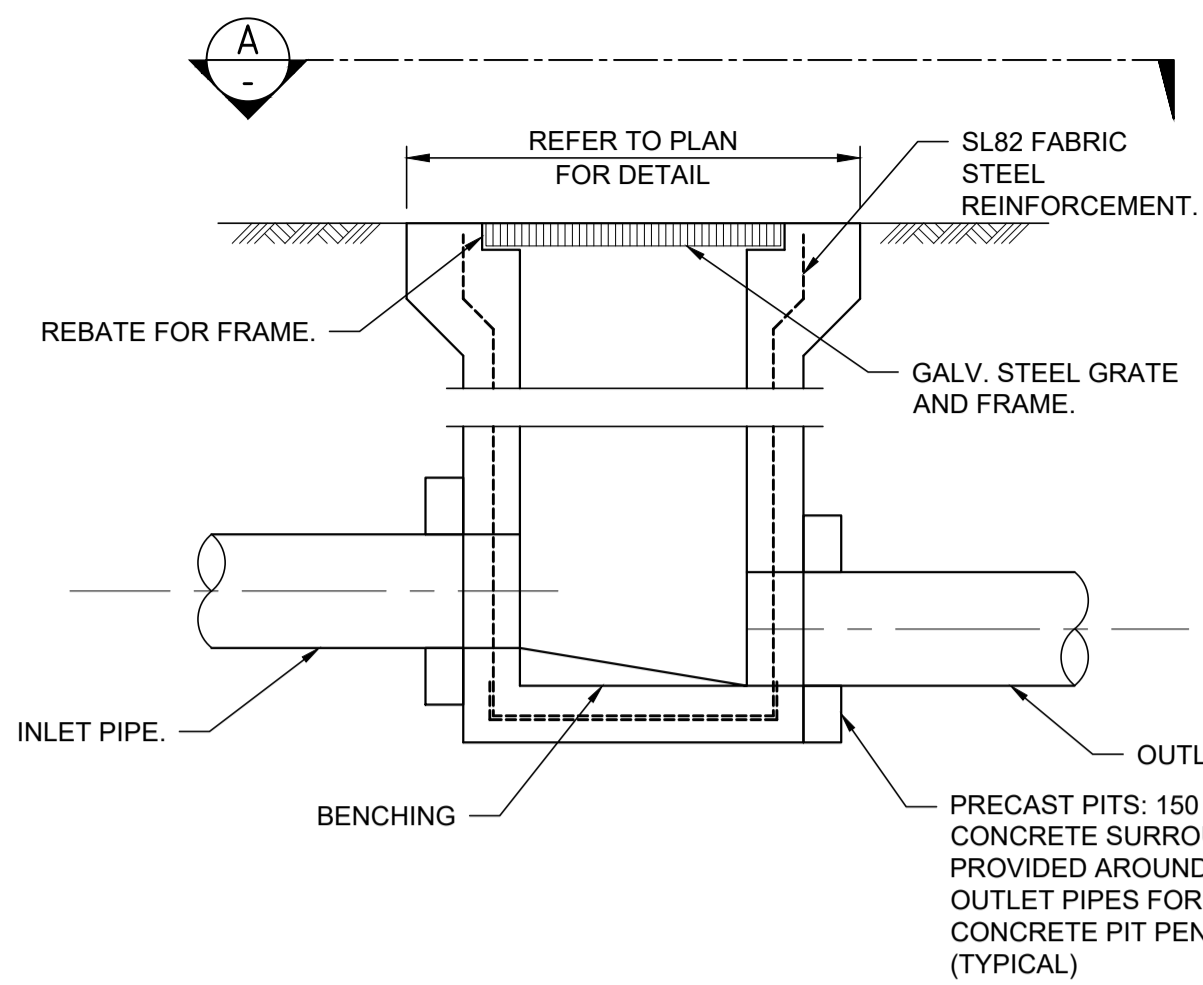
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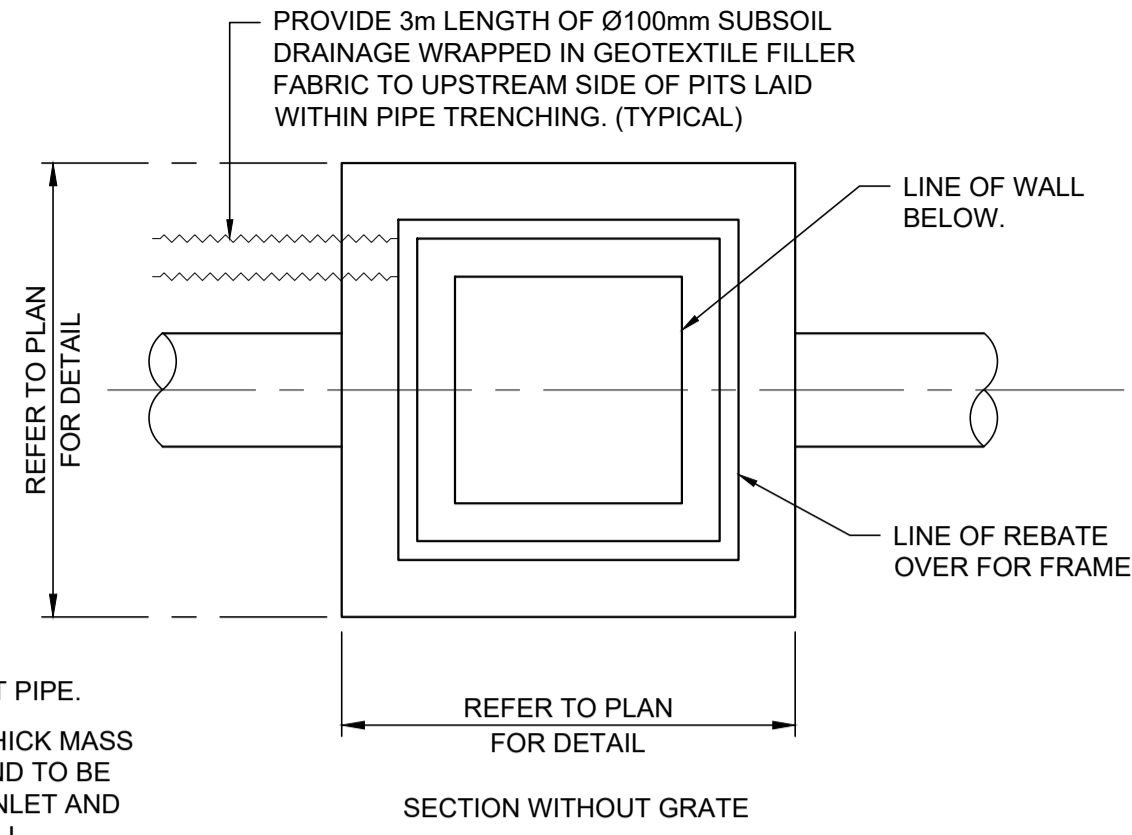
PROJECT
**Pacific Brook Christian School,
 Muswellbrook - STAGE 1**
 72 - 74 Maitland Street, Muswellbrook NSW

TITLE
**CONSTRUCTION NOTES
 - SHEET 02**

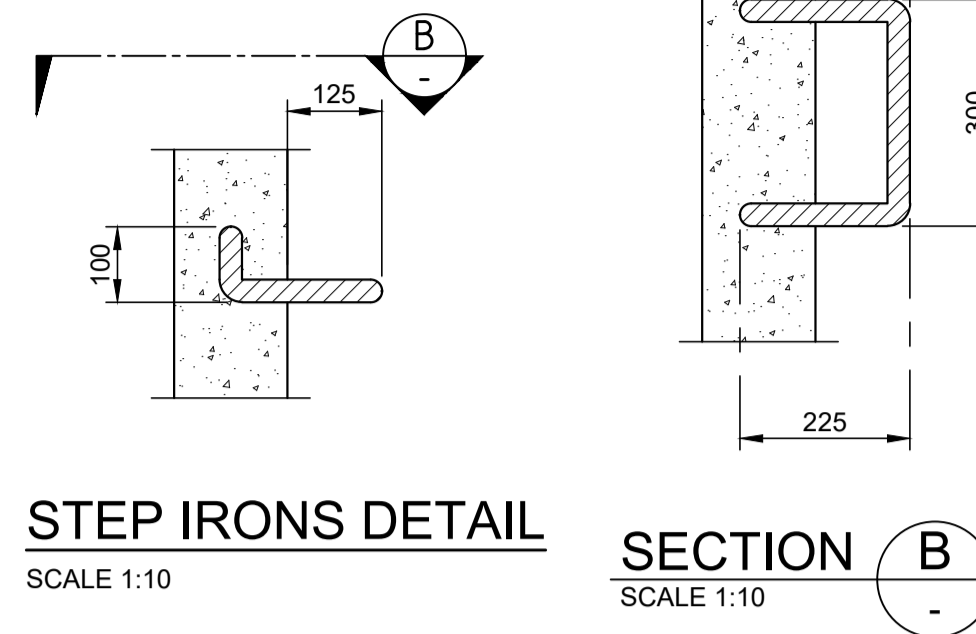
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|-------------------------------------------------------------------------------------------------|---------------|-------------|-----|----------|-----------|
| SCALES | as noted @ A1 | | | DATE | APR, 2021 |
| DRAWN | C.KE | DESIGN | C.A | VERIFIED | - |
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| P3 | 7855 | C-0-GE-02 | | | |



STORMWATER PIT DETAIL
SCALE 1:10



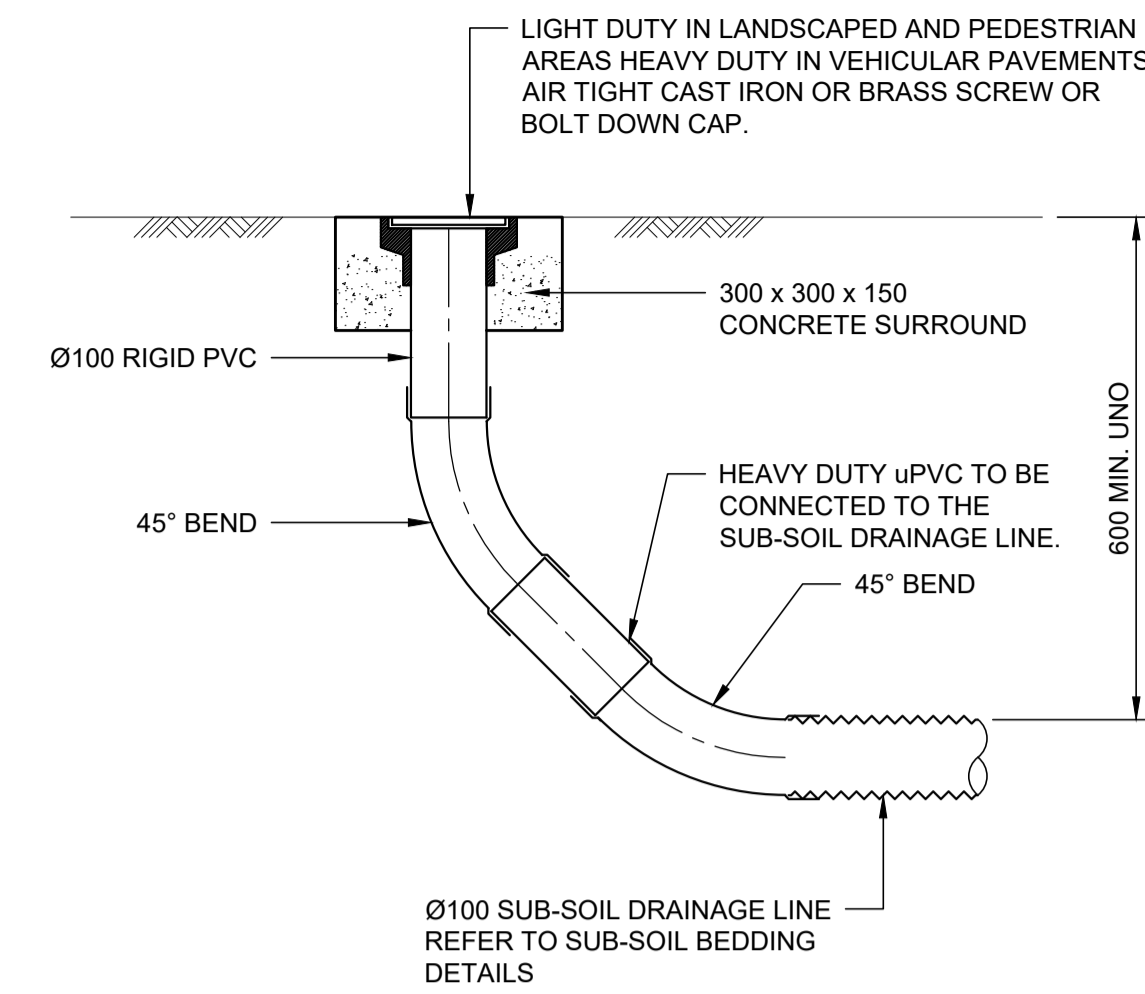
SECTION A
SCALE 1:10



STEP IRONS DETAIL
SCALE 1:10

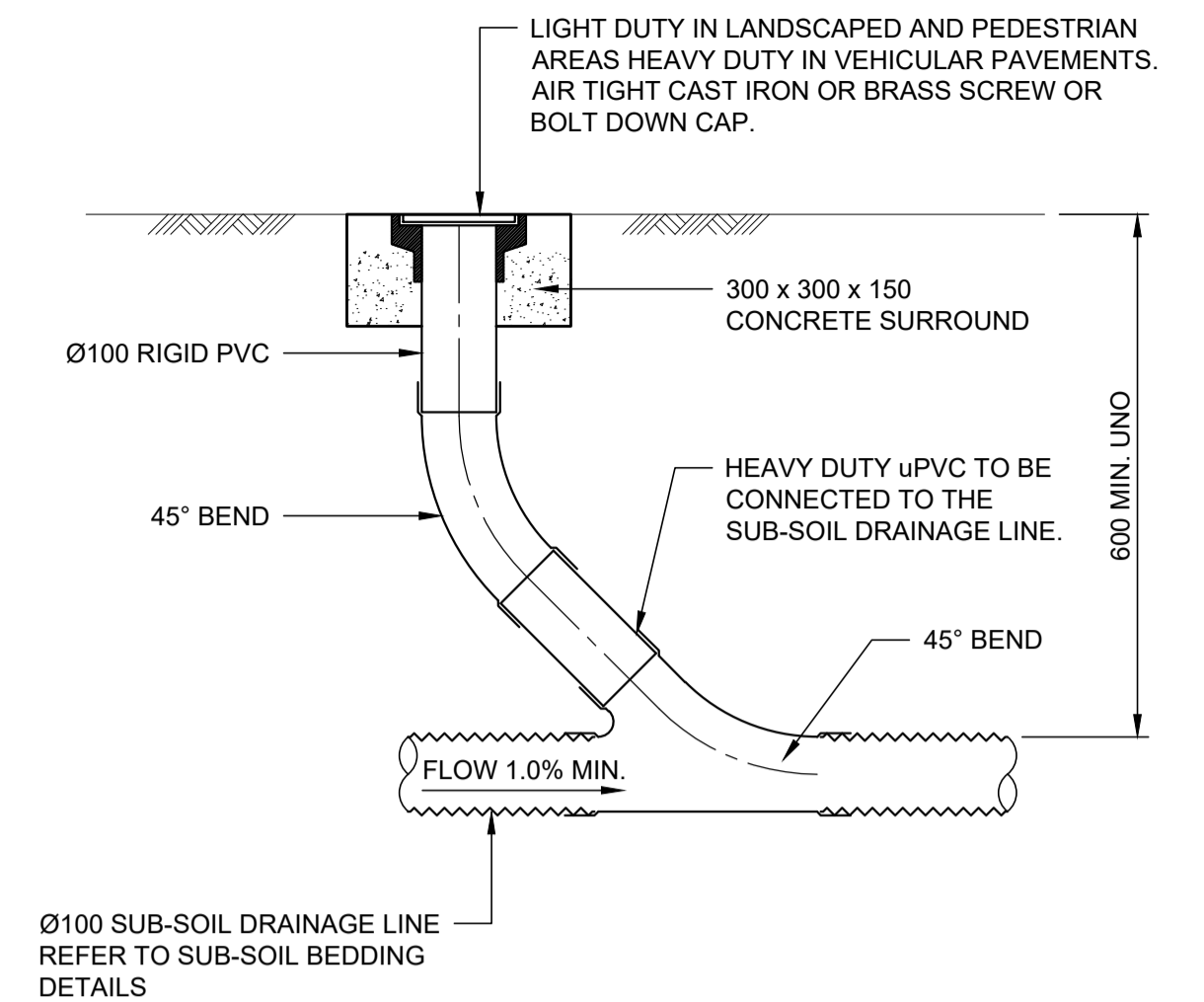


SECTION B
SCALE 1:10



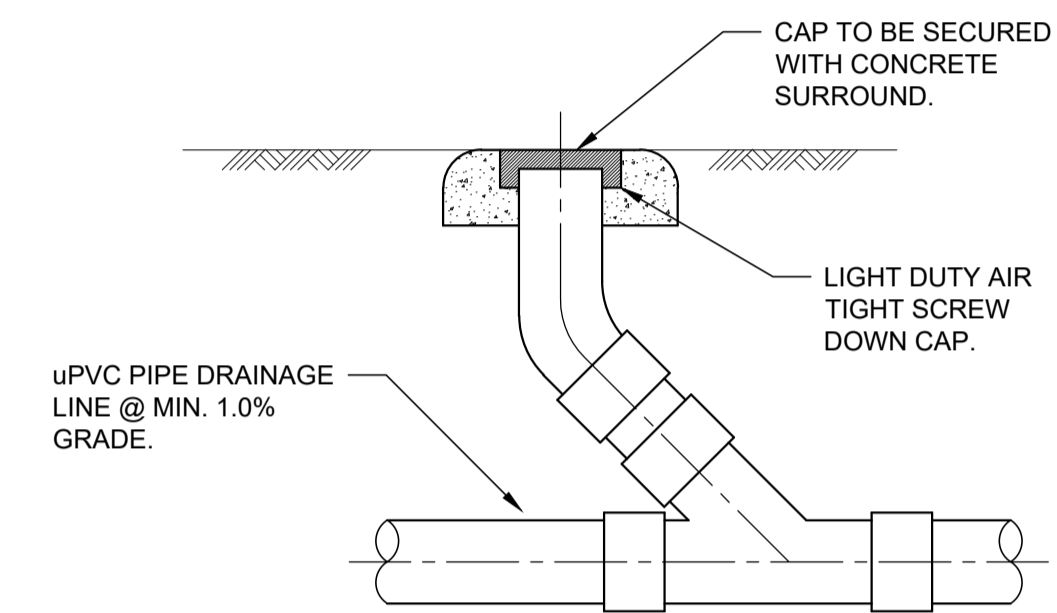
FLUSHING POINT (FP)

SCALE 1:10
NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED

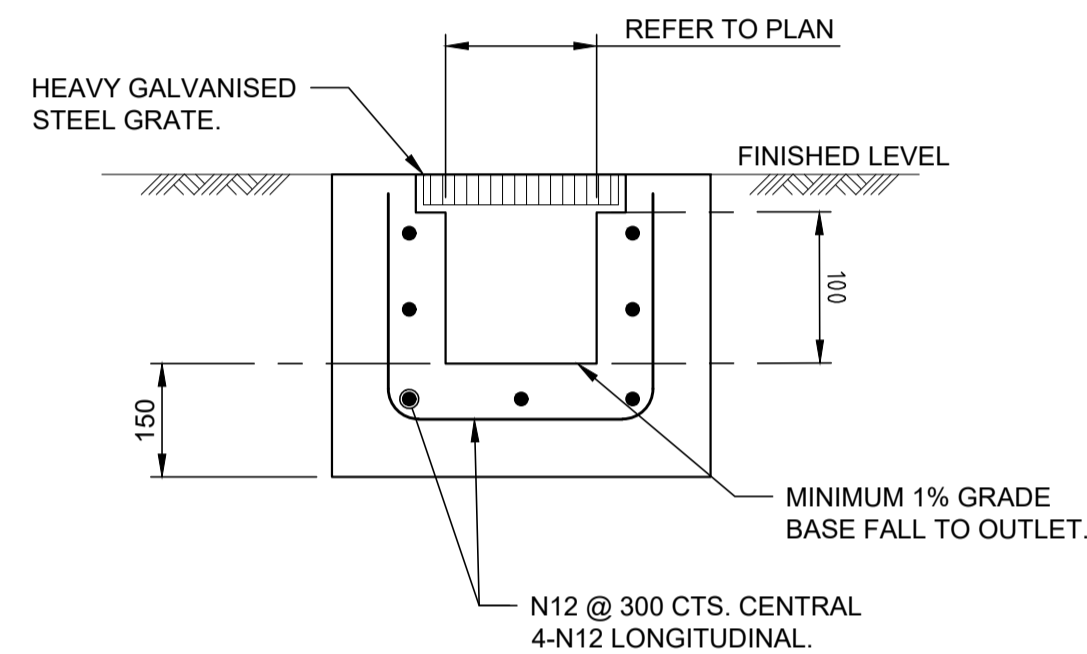


INTERMEDIATE RISER (IR)

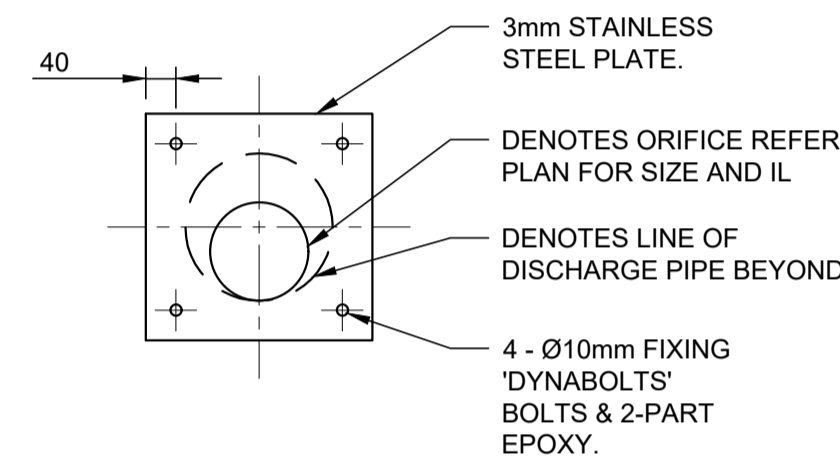
SCALE 1:10
NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED



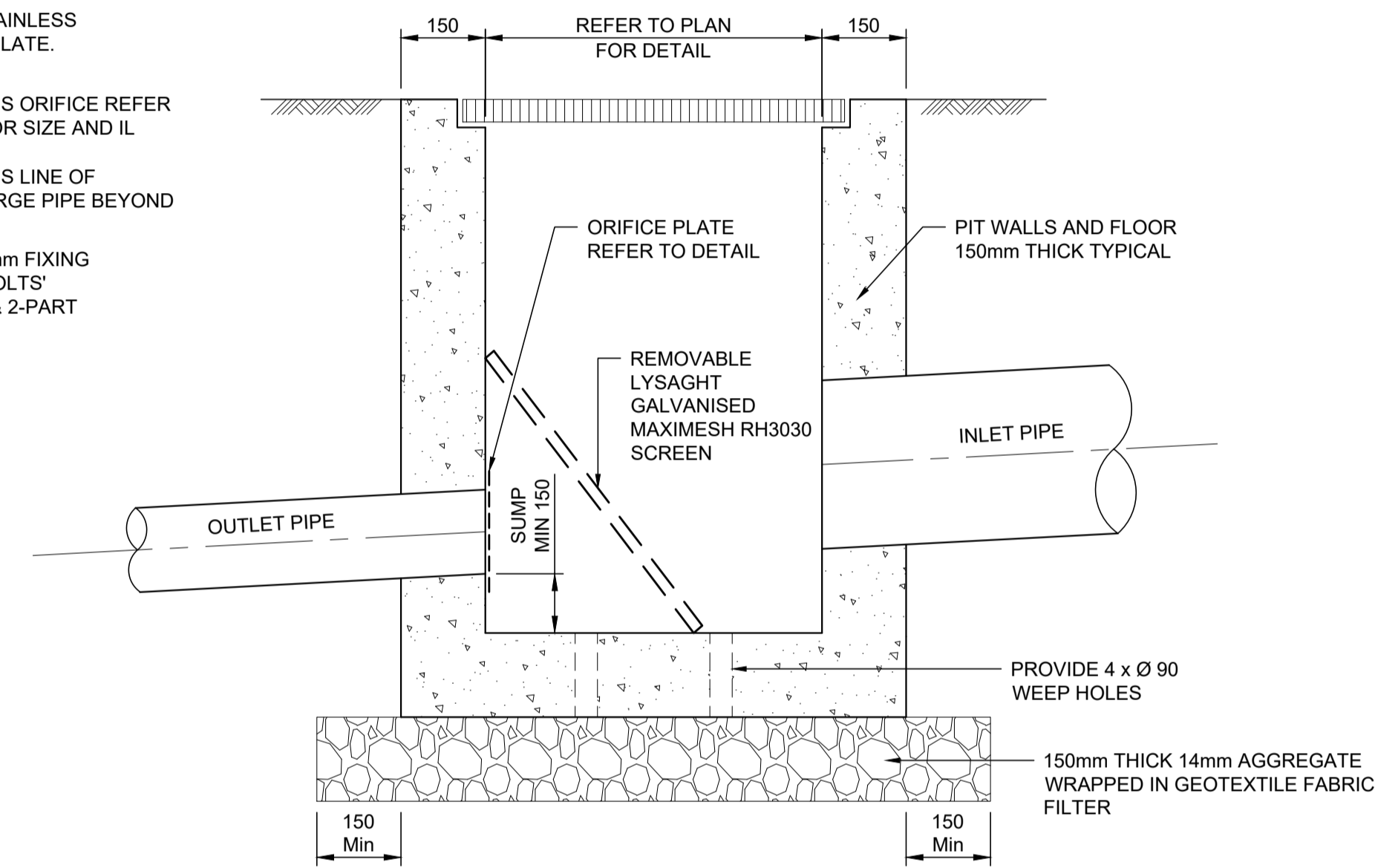
CLEANING EYE DETAIL
SCALE 1:10



TYPICAL GRATED DRAIN DETAIL
NOT TO SCALE



ORIFICE PLATE DETAIL
SCALE 1:10

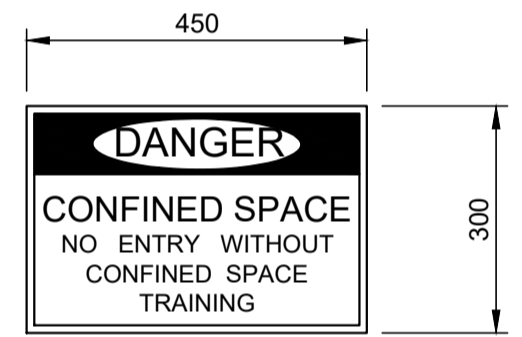


OSD DISCHARGE CONTROL PIT DETAILS

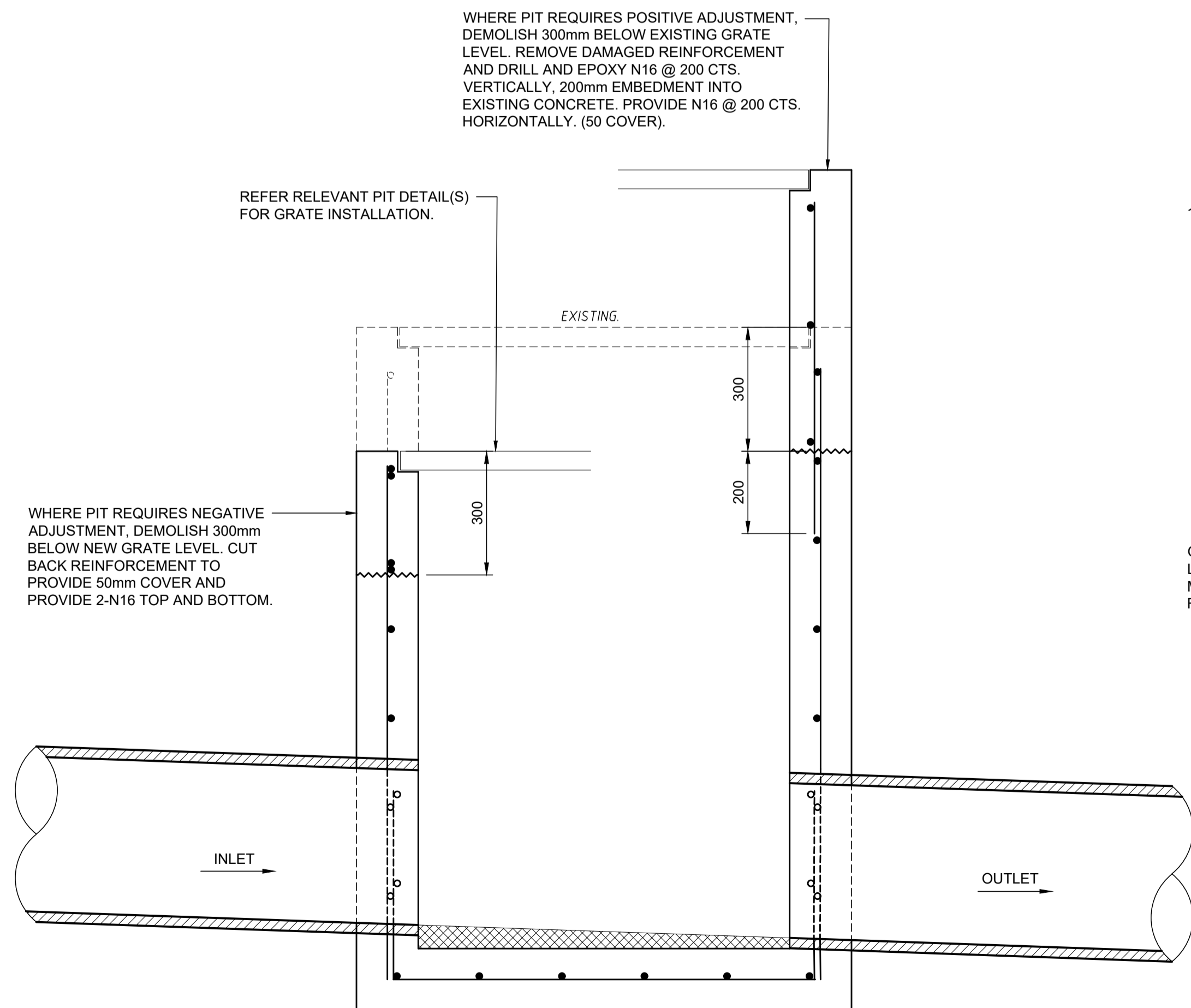
SCALE 1:10

THIS IS AN ON-SITE STORMWATER DETENTION SYSTEM REQUIRED BY LOCAL COUNCIL. IT IS AN OFFENCE TO REDUCE THE VOLUME OF THE TANK OR BASIN OR TO INTERFERE WITH ORIFICE PLATE THAT CONTROLS THE OUTFLOW. THE BASE OF THE OUTLET CONTROL PIT AND THE SCREENS MUST BE CLEANED BY THE OWNER ON A REGULAR BASIS BY THE OWNER. THIS PLATE MUST NOT BE REMOVED.

OSD SIGN DETAIL
NOT TO SCALE

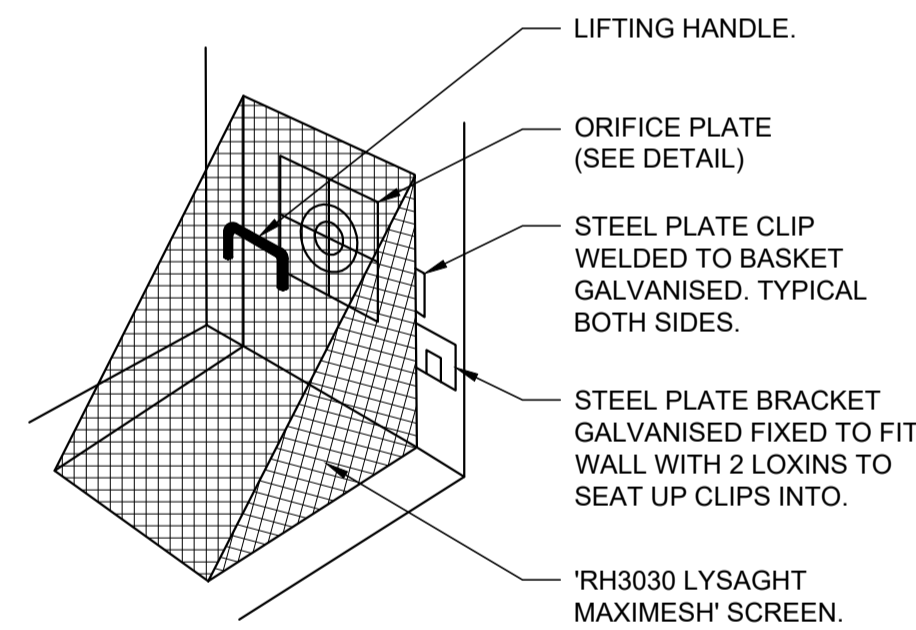


CONFINED SPACE SIGN DETAIL
SCALE 1:10



DRAINAGE PIT - LEVELS ADJUSTMENTS

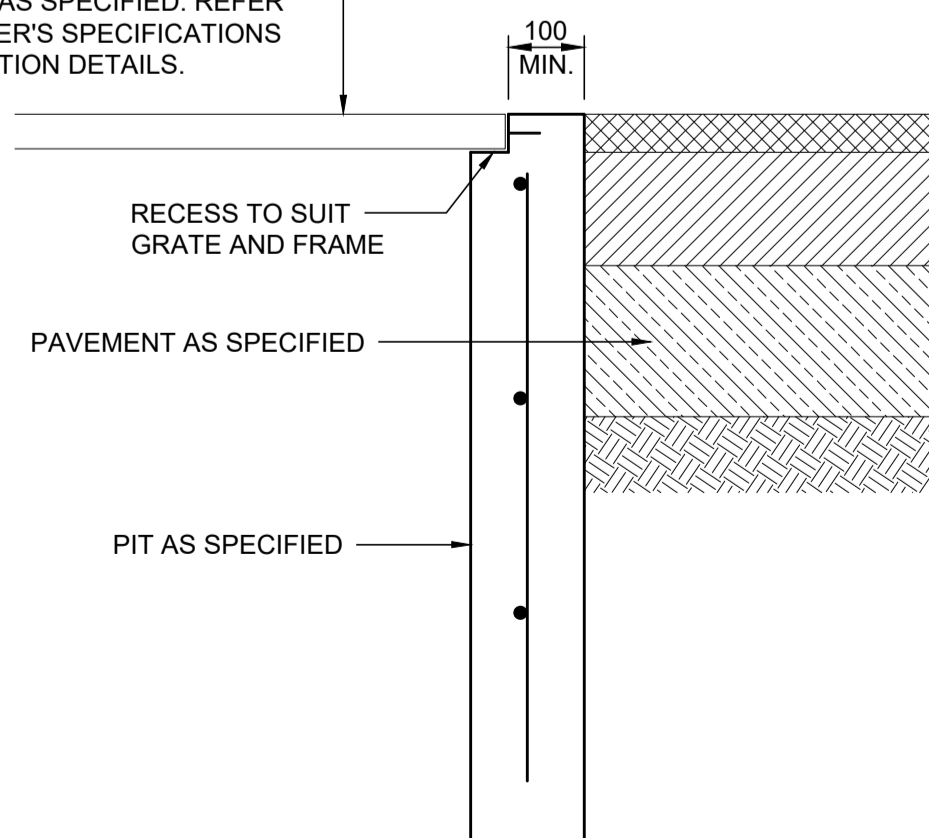
ENSURE NEAT FINISH IS ACHIEVE AT INTERFACE WITH EXISTING. REFER RELEVANT PIT DETAIL(S) FOR GRATE INSTALLATION.



DEBRIS SCREEN DETAIL

NOT TO SCALE

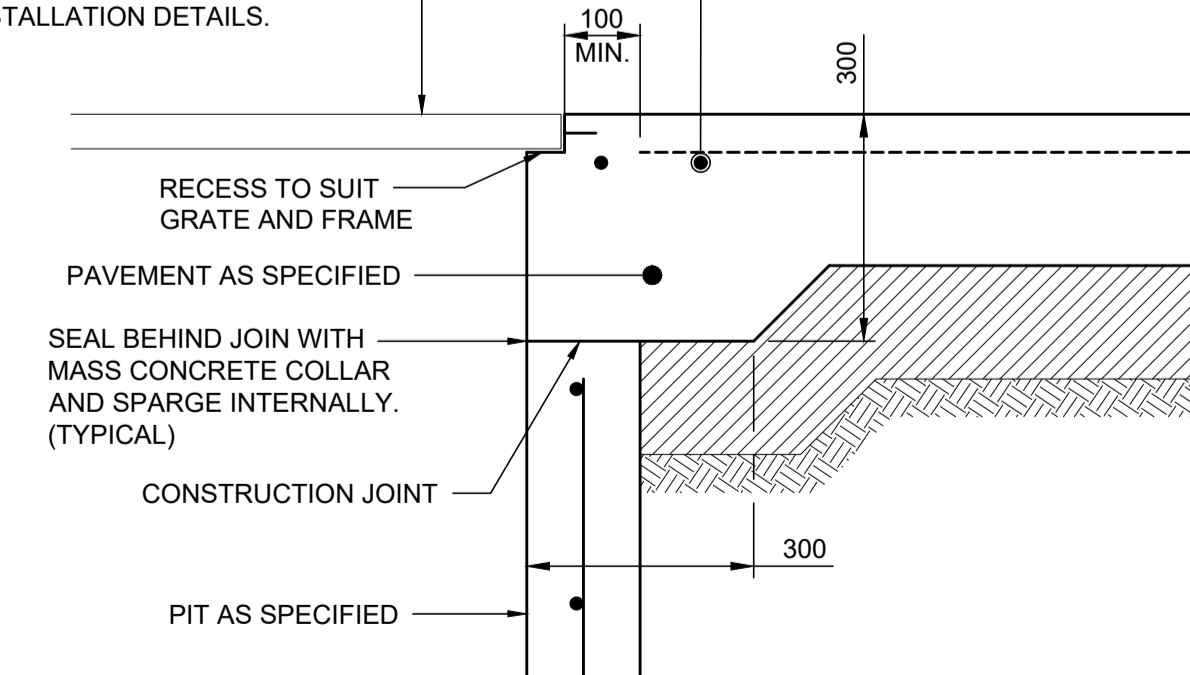
GRATE AND FRAME WITH SUITABLE LIFTING LUGS AS SPECIFIED. REFER MANUFACTURER'S SPECIFICATIONS FOR INSTALLATION DETAILS.



PIT INTERFACE - DETAIL 'A'

2-N16 MIN. 1500mm LONG TO EACH SIDE. (DO NOT CROSS CONSTRUCTION/POUR JOINTS).

GRATE AND FRAME WITH SUITABLE LIFTING LUGS AS SPECIFIED. REFER MANUFACTURER'S SPECIFICATIONS FOR INSTALLATION DETAILS.



PIT INTERFACE - DETAIL 'B'

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

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| P1 | INFORMATION | - | 21/05/21 |

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PROJECT
Pacific Brook Christian School, Muswellbrook - STAGE 1
72 - 74 Maitland Street, Muswellbrook NSW

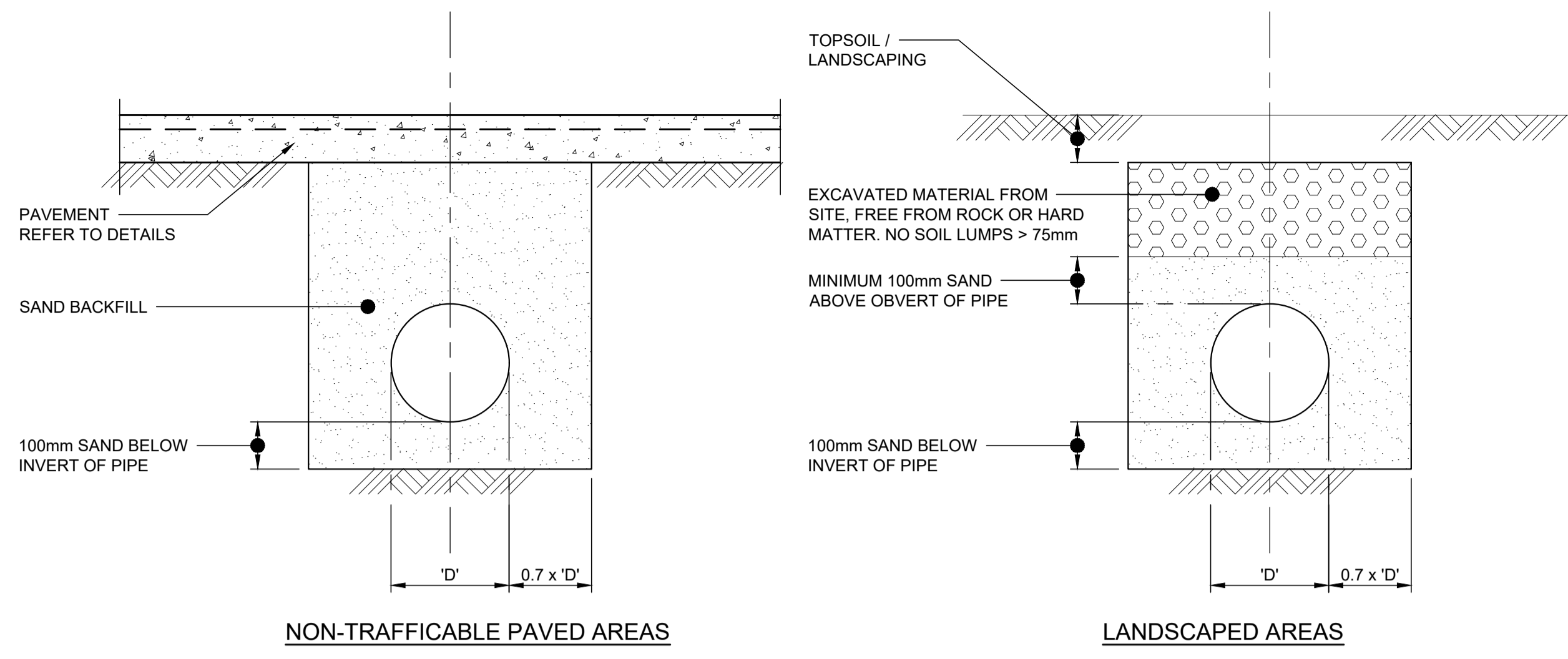
TITLE
STORMWATER DRAINAGE DETAILS - SHEET 01

SCALES: as noted @ A1 DATE: APR, 2021

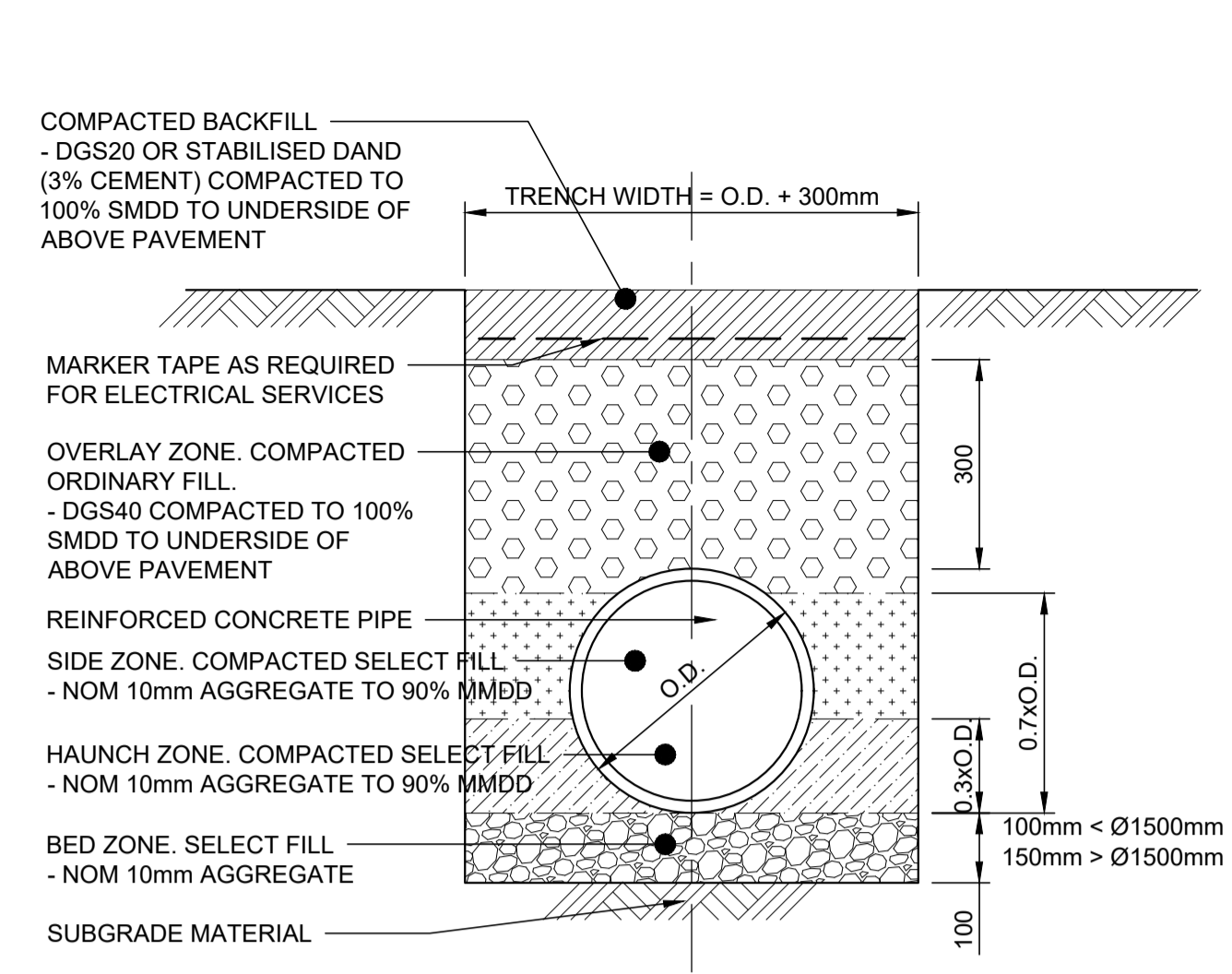
DRAWN: C.KE DESIGN: C.A VERIFIED: - APPROVED: -

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ISSUE: P3 PROJECT No: 7855 DRAWING No: C-0-GE-10

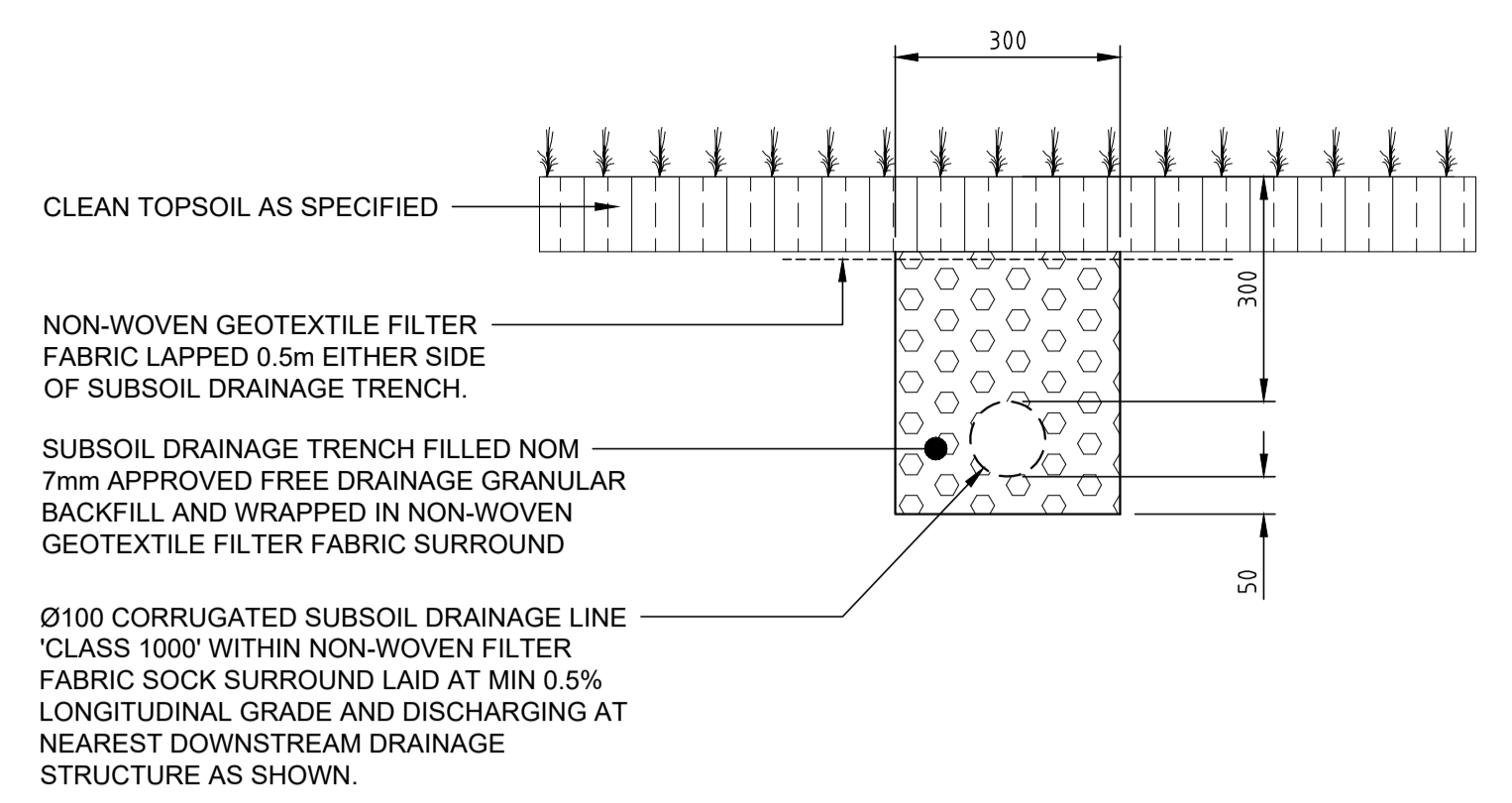


PIPE BACKFILLING DETAIL
NOT TO SCALE

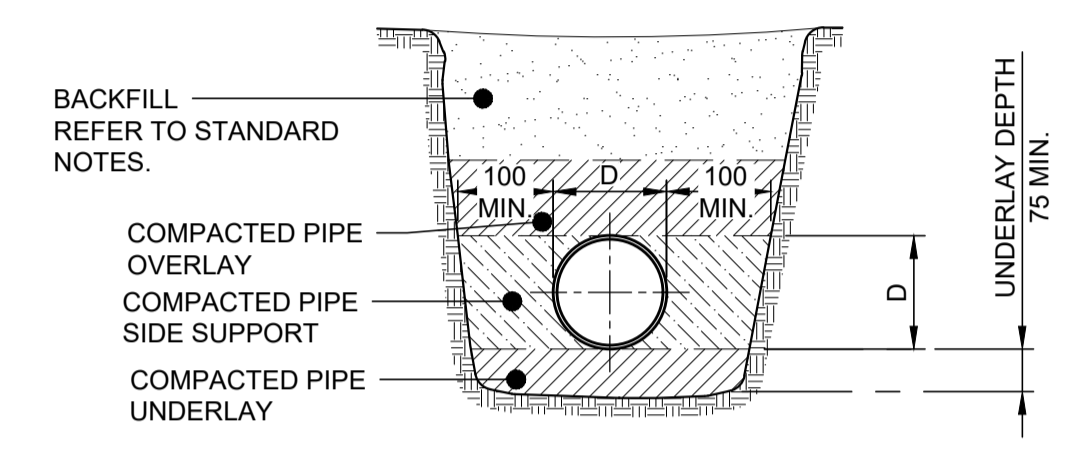


TYPICAL PIPE TRENCH - UNDER ROADS
NOT TO SCALE

- TRENCH WIDTH MAY NEED TO BE INCREASED SUBJECT TO ACHIEVING COMPACTION ENSURE MINIMUM 300mm CLEARANCE BETWEEN. WHEN USING MULTIPLE PIPES TO ACHIEVE ADEQUATE COMPACTION.
- MINIMUM PIPE COVER UNDER ROADS TO BE 600mm U.N.O. FOR CLASS '2' PIPES.
- THE CONTRACTOR SHALL ENSURE THAT SHORING OF TRENCHES IS INSTALLED AS REQUIRED BY STATUTORY REQUIREMENTS.
- ENSURE BACKFILLING COMPACTION MEETS THE FOLLOWING STANDARDS.
 - TRENCHES UNDER PAVED AREAS / BUILDING - 100% SMDD.



SUBSOIL DRAINAGE TRENCH - LANDSCAPING 'SSD'
CLEAROUT TO BE INSTALLED @ MAX. 30m CENTRES AND DISCHARGING TO DRAINAGE STRUCTURES @ MAX. 60m CENTRES.



uPVC STORMWATER LINE TRENCH DETAIL
SCALE 1:20
'D' - DIAMETER

DEVELOPMENT SITE INFORMATION SUMMARY

TOTAL SITE AREA = 24211 m²
 PRE - DEVELOPMENT IMPERVIOUS AREA = 1589 m²
 POST - DEVELOPMENT IMPERVIOUS AREA = 2237 m²

ON-SITE DETENTION DESIGN SUMMARY

DRAINS MODEL HAS BEEN PREPARED FOR CALCULATION OF PRE & POST DEVELOPMENT FLOWS.

DEVELOPMENT SITE AREA DRAINING TO OSD = 1812 m²
 DEVELOPMENT AREA BYPASSING OSD = 425 m²
 UN-DEVELOPED AREA = 21974 m²
 TOTAL OSD VOLUME REQUIRED = 12.1 m³
 TOTAL OSD VOLUME PROVIDED = 17.6 m³

PRE & POST DEVELOPMENT FLOWS SUMMARY

| AVERAGE RECURRENCE INTERVAL (ARI) | 5 YEAR | 10 YEAR | 20 YEAR | 100 YEAR |
|------------------------------------|--------|---------|---------|----------|
| PRE - DEVELOPMENT FLOW (l/s) | 171 | 235 | 328 | 522 |
| POST - DEVELOPMENT FLOW (l/s) | 168 | 234 | 324 | 515 |
| STORAGE REQUIRED (m ³) | 5.4 | 6.7 | 8.2 | 12.1 |

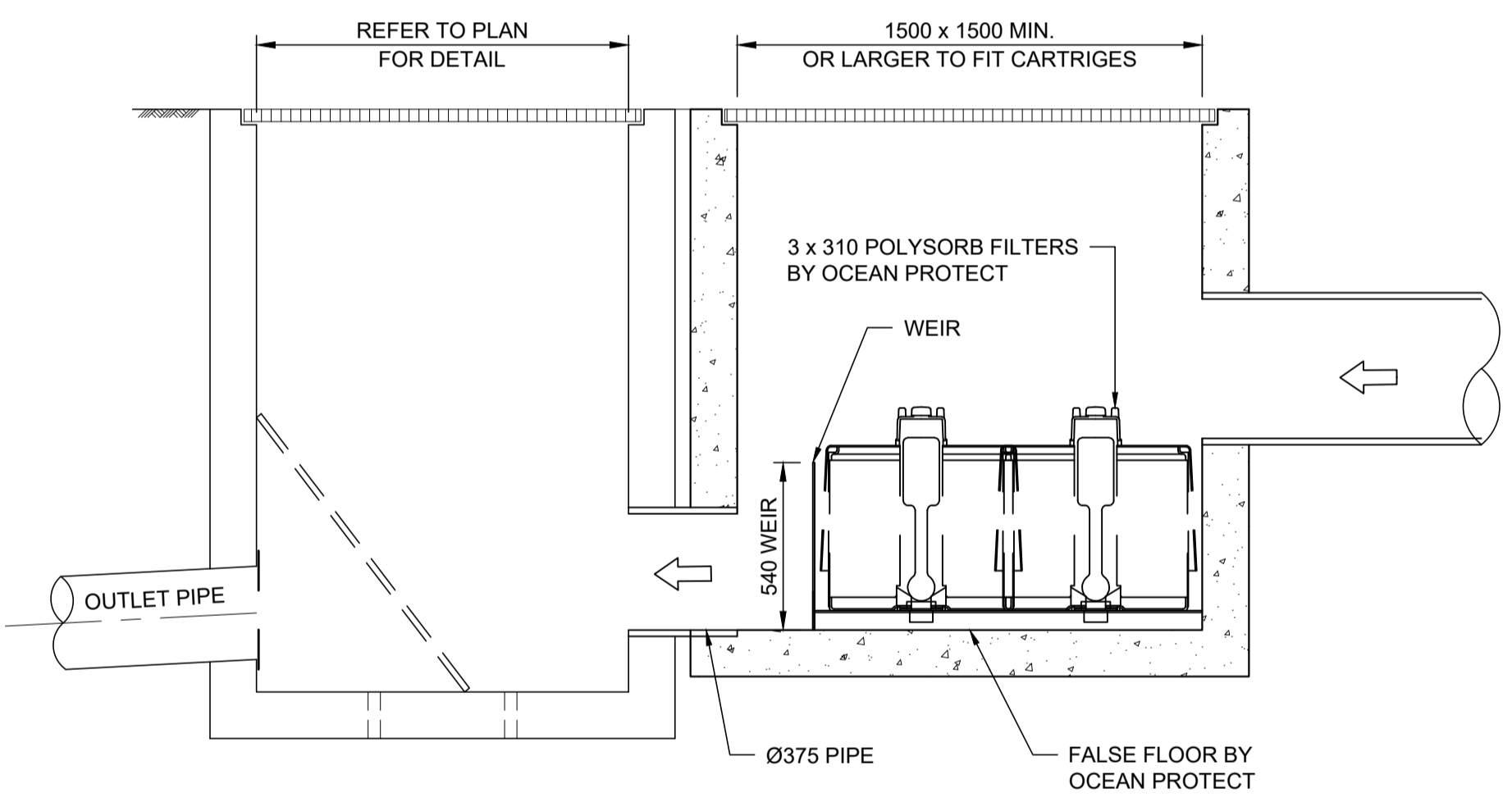
WATER QUALITY DESIGN SUMMARY

A MUSIC MODEL HAS BEEN PREPARED TO DETERMINE THE EFFECTIVENESS OF WATER QUALITY TREATMENT DEVICES FOR THE DEVELOPMENT.

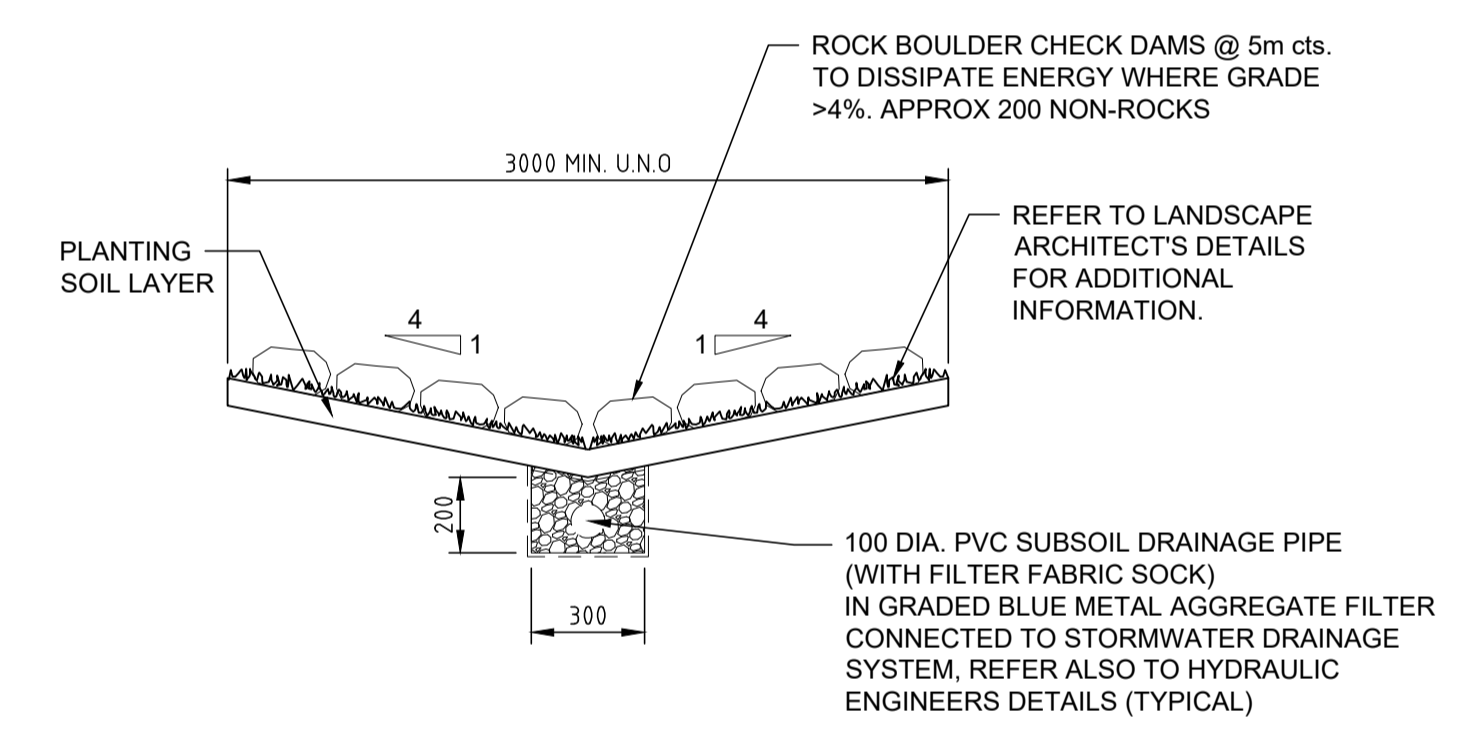
TREATMENT EFFECTIVENESS SUMMARY

| | SOURCES | RESIDUAL LOAD | % REDUCTION | % TARGET |
|--------------------------------|---------|---------------|-------------|----------|
| TOTAL SUSPENDED SOLIDS (kg/yr) | 226 | 38 | 83.2 | 80 |
| TOTAL PHOSPHORUS (kg/yr) | 0.402 | 0.158 | 60.6 | 45 |
| TOTAL NITROGEN (kg/yr) | 2.05 | 1.1 | 46.1 | 45 |
| GROSS POLLUTANTS (kg/yr) | 28.5 | 1.72 | 94 | 70 |

- STORMWATER DRAINAGE STRATEGY**
- ALL PITS & PIPES ARE DESIGNED TO ACCEPT A 20 YEAR ARI STORM EVENT
 - PITS AS NOTED ON PLAN SHALL HAVE OCEANGUARD INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION
 - ON-SITE DETENTION HAS BEEN PROVIDED FOR THE DEVELOPMENT IN ACCORDANCE WITH MUSWELLBROOK SHIRE COUNCIL (REFER TO OSD DESIGN SUMMARY)
 - STORMWATER QUALITY MEASURES HAVE BEEN IMPLEMENTED TO MEET MUSWELLBROOK SHIRE COUNCIL REQUIREMENTS (REFER TO TREATMENT EFFECTIVENESS SUMMARY)



STORMWATER TREATMENT PIT DETAIL
N.T.S.



TYPICAL VEGETATED SWALE DETAIL
N.T.S.

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

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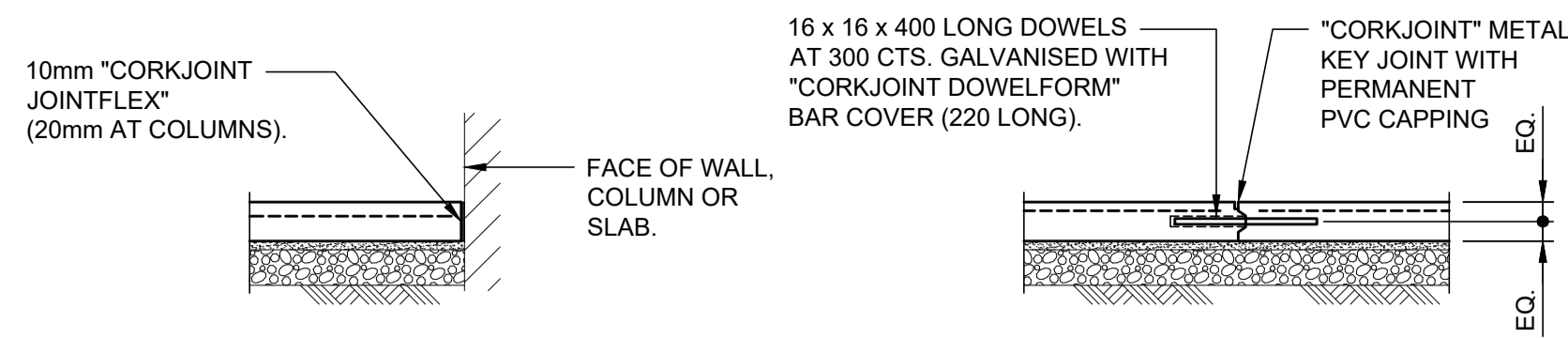
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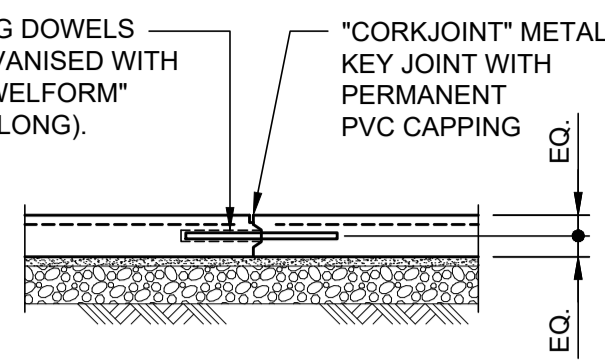
PROJECT
**Pacific Brook Christian School,
 Muswellbrook - STAGE 1**
 72 - 74 Maitland Street, Muswellbrook NSW

TITLE
**STORMWATER DRAINAGE
 DETAILS - SHEET 02**

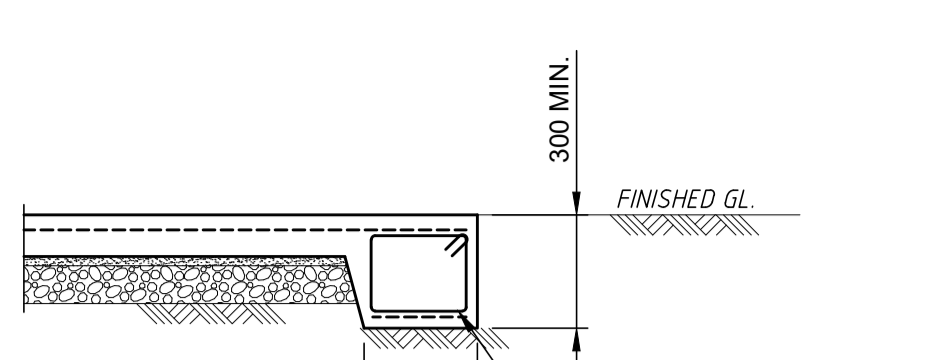
| SCALE | as noted @ A1 | DATE | APR, 2021 |
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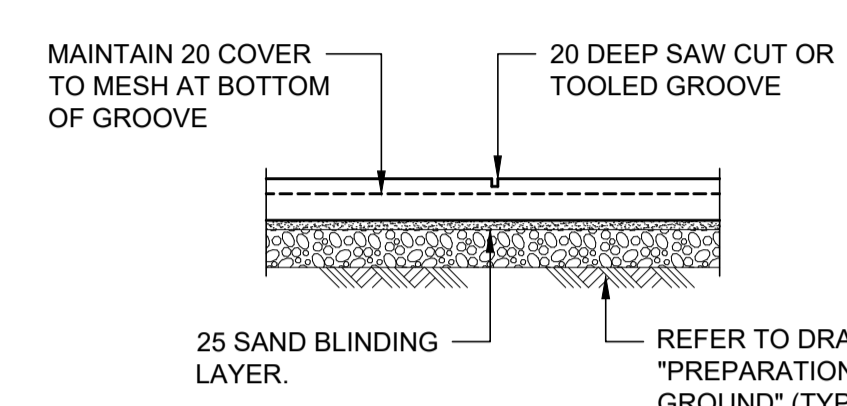
ISOLATION JOINT DETAIL
SHOWN THUS ON PLAN IJ



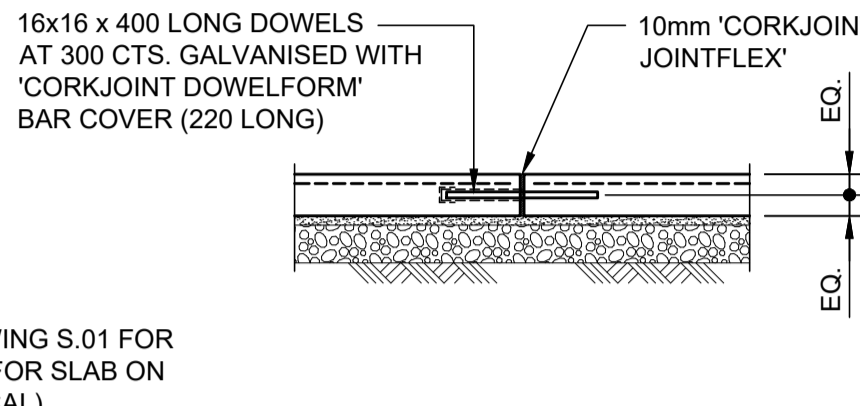
DOWELLED KEY JOINT DETAIL
SHOWN THUS ON PLAN DKJ



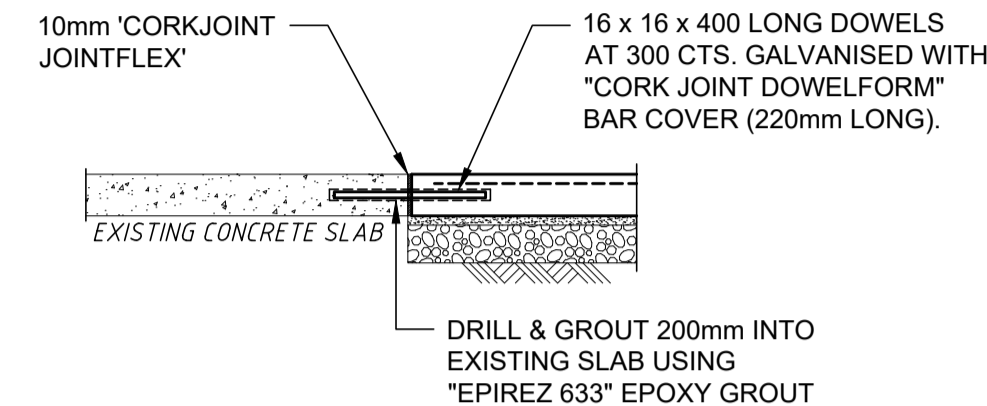
TYPICAL CONCRETE PAVING EDGE THICKENING DETAIL (ET)
SHOWN THUS ON PLAN ET



SAWN/TOOLED JOINT DETAIL
SHOWN THUS ON PLAN SJ



EXPANSION JOINT DETAIL
SHOWN THUS ON PLAN EJ

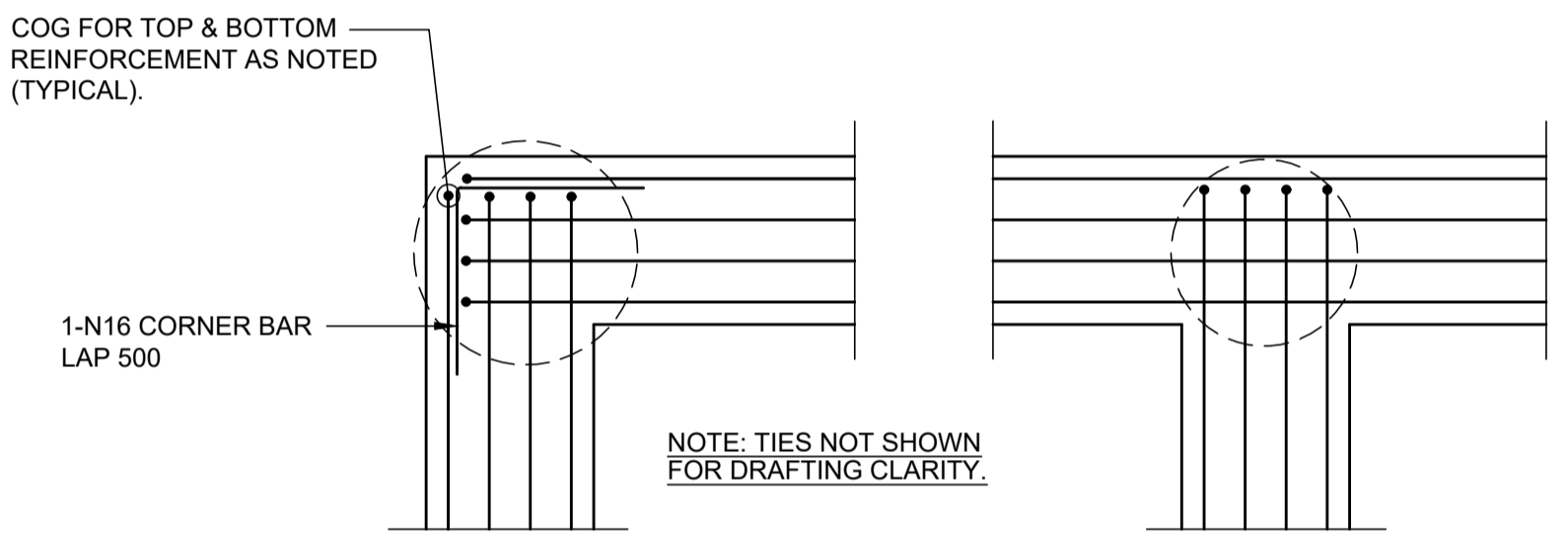
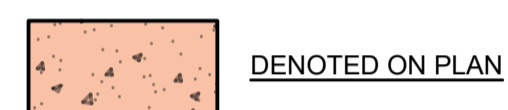


TYPICAL JUNCTION WITH EXISTING PAVEMENT
SHOWN THUS ON PLAN EJX

TYPICAL EXTERNAL CONCRETE FOOTPATH PAVEMENT JOINT DETAILS

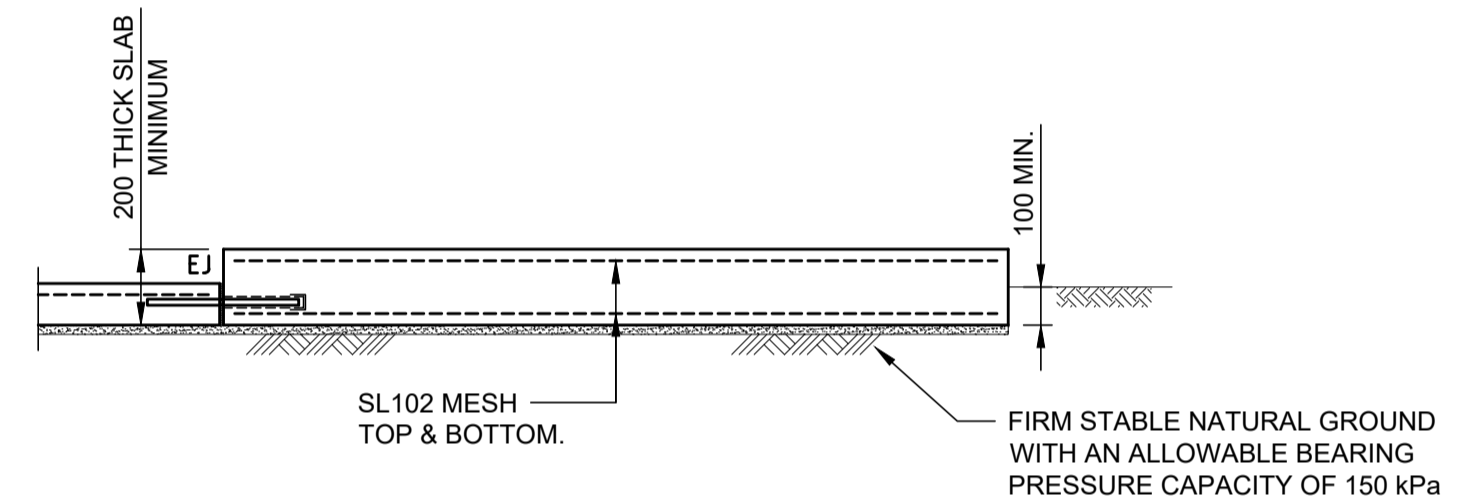
SCALE 1:20

110mm THICK PAVING SLABS WITH SL102 MESH TOP THROUGHOUT U.N.O.



TYPICAL FOOTING BEAM INTERSECTION DETAILS

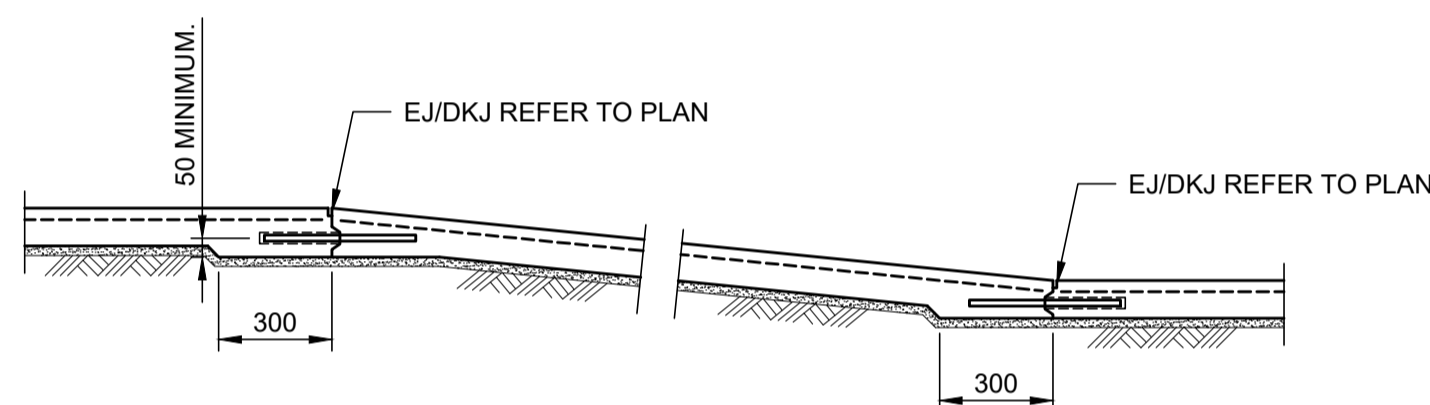
SCALE 1:20



TYPICAL SECTION THROUGH SERVICES PLINTH

SCALE 1:20

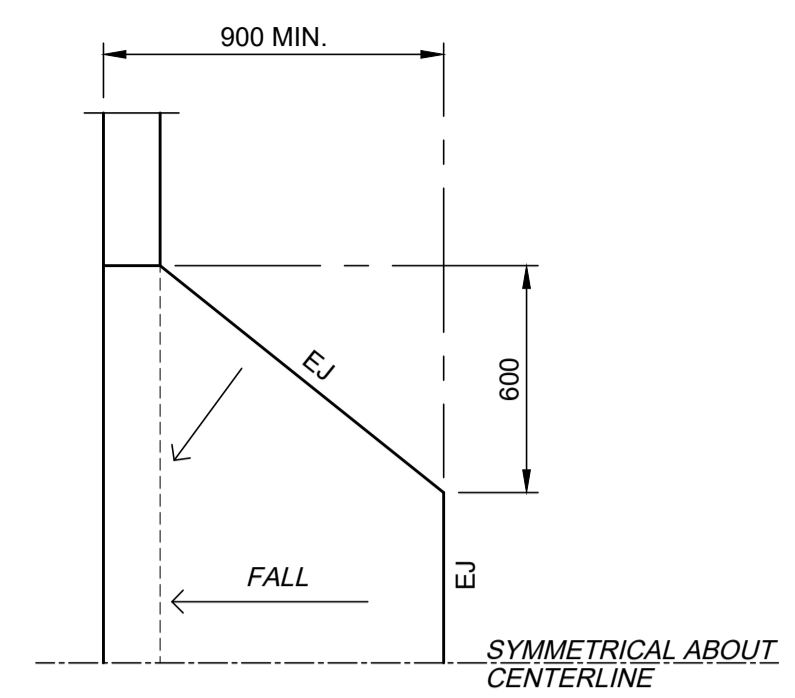
SHOWN ON PLAN THUS - (S1)
REFER TO ARCHITECTS PLANS FOR LOCATIONS
200mm THICK SLAB ON GROUND (F^c = 32MPa)
PROVIDE SL102 MESH TOP & BOTTOM THROUGHOUT U.N.O.



TYPICAL SECTION THROUGH RAMP

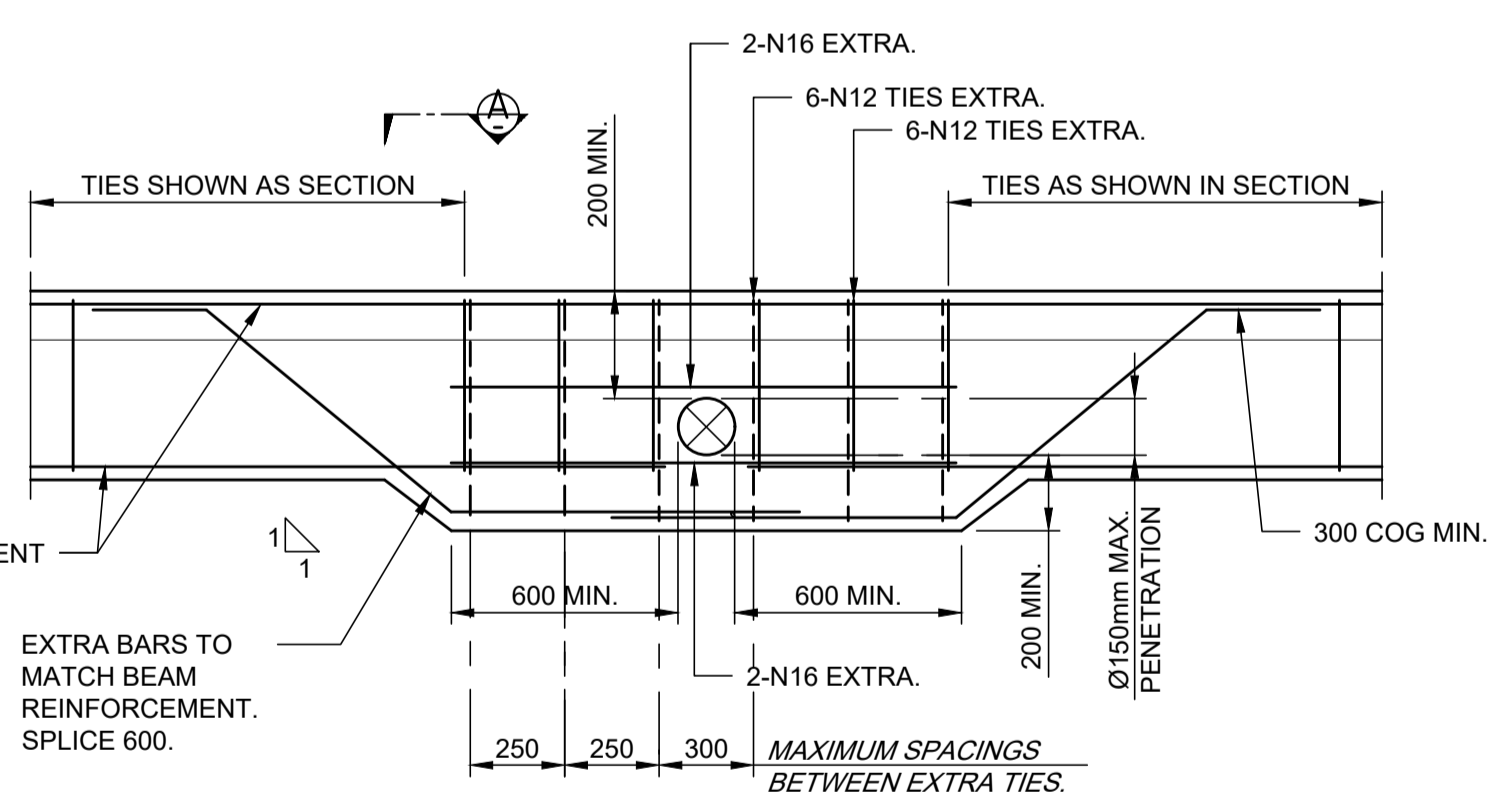
SCALE 1:20

| SAW CUTTING TABLE | |
|--------------------------|--------------------------------|
| DAILY MAXIMUM TEMP. (°C) | LATEST TIME FOR SAWING (HOURS) |
| < 10 | 48 |
| 10 - 20 | 36 |
| 20 - 30 | 24 |
| > 30 | 12 |



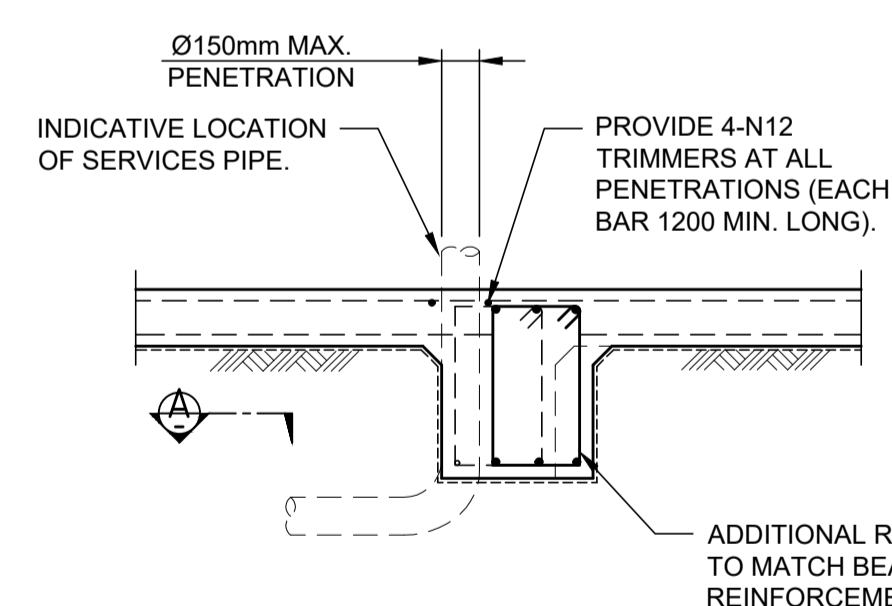
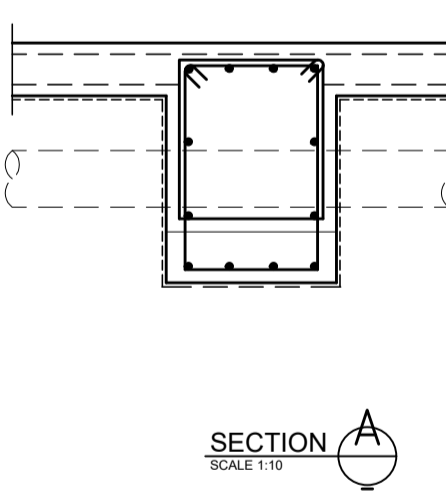
TYPICAL PEDESTRIAN ACCESS RAMP (PRAM RAMP) DETAILS

SCALE 1:20



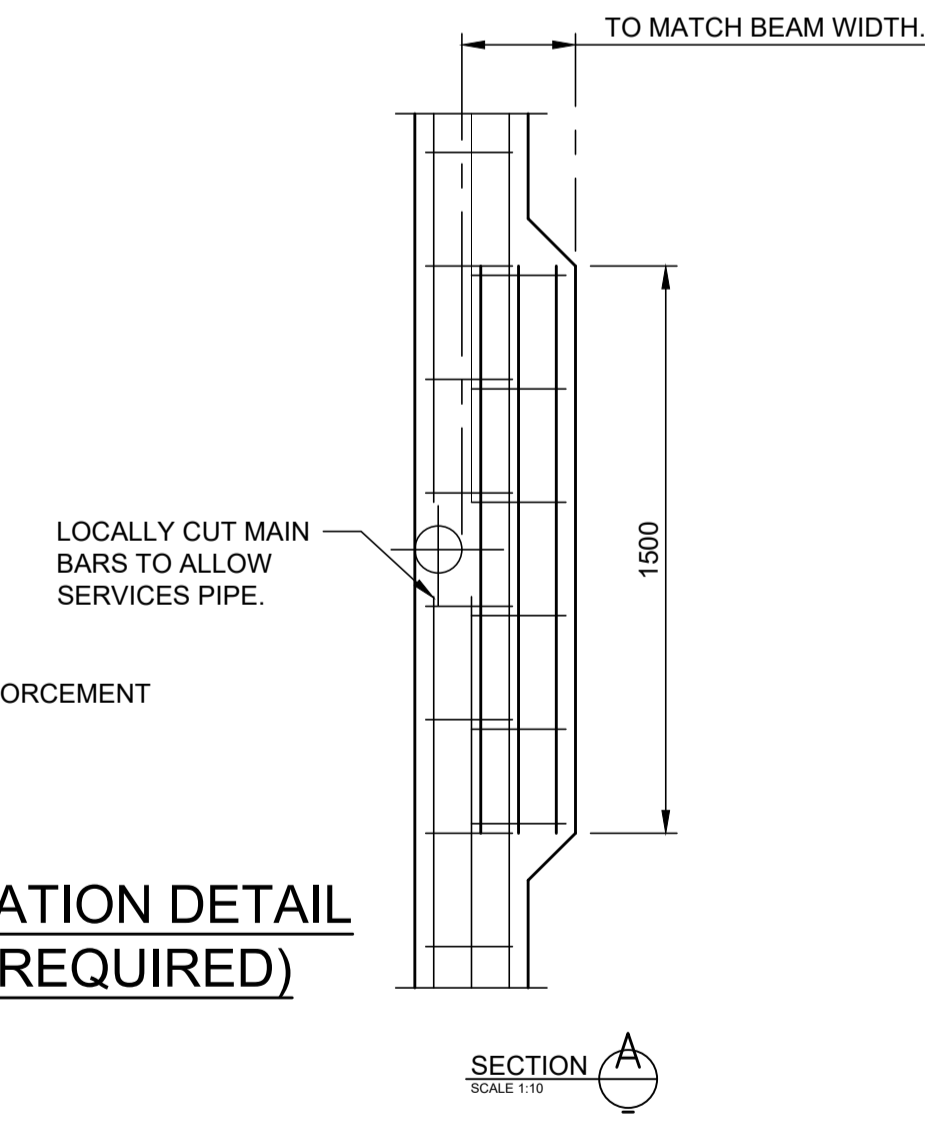
HORIZONTAL SERVICES PIPE PENETRATION DETAIL IN EDGE AND INTERNAL BEAMS (IF REQUIRED)

SCALE 1:20



VERTICAL SERVICES PIPE PENETRATION DETAIL IN EDGE AND INTERNAL BEAMS (IF REQUIRED)

SCALE 1:20



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

| ISSUE | DESCRIPTION | APPROVED | DATE |
|-------|----------------------------|----------|----------|
| P3 | REVISIONS AS REQUESTED | - | 16/09/21 |
| P2 | STAGING UPDATED TO STAGE 1 | - | 05/07/21 |
| P1 | INFORMATION | - | 21/05/21 |

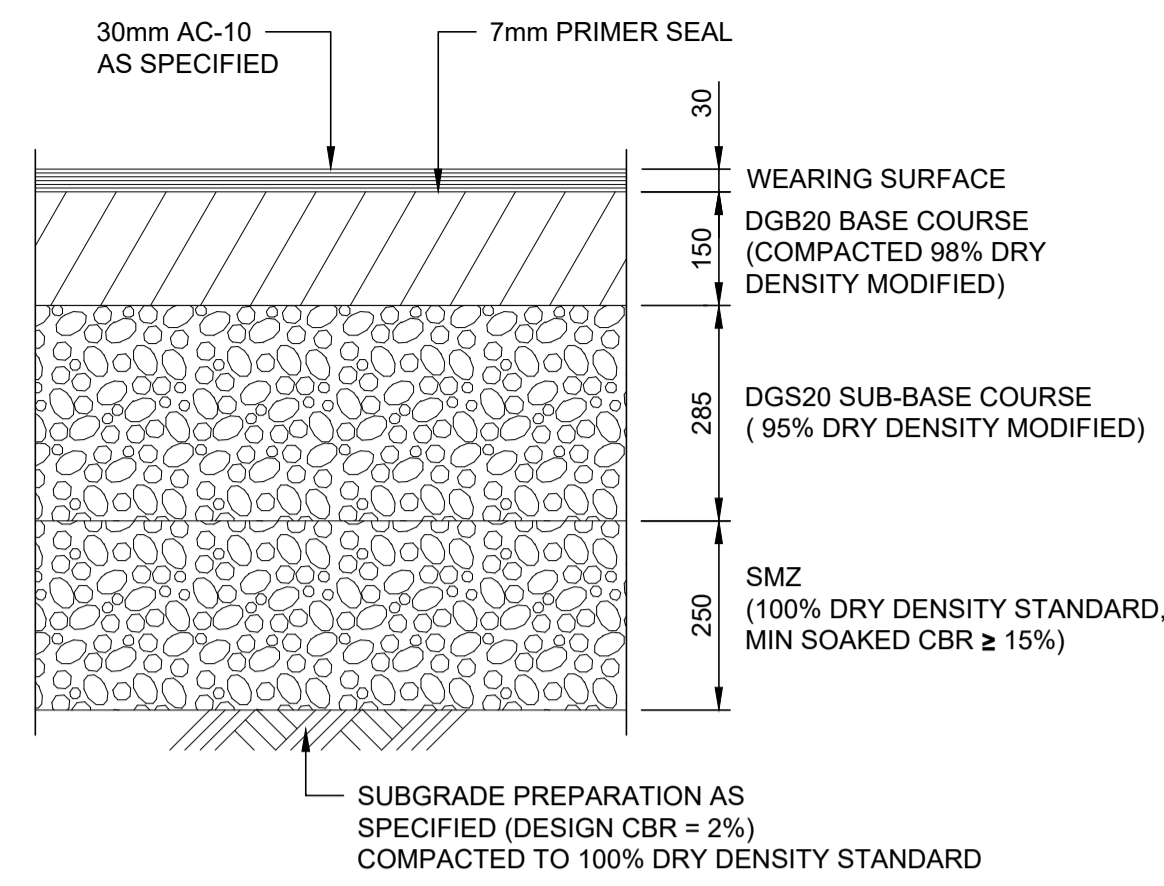
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PROJECT
Pacific Brook Christian School, Muswellbrook - STAGE 1
72 - 74 Maitland Street, Muswellbrook NSW

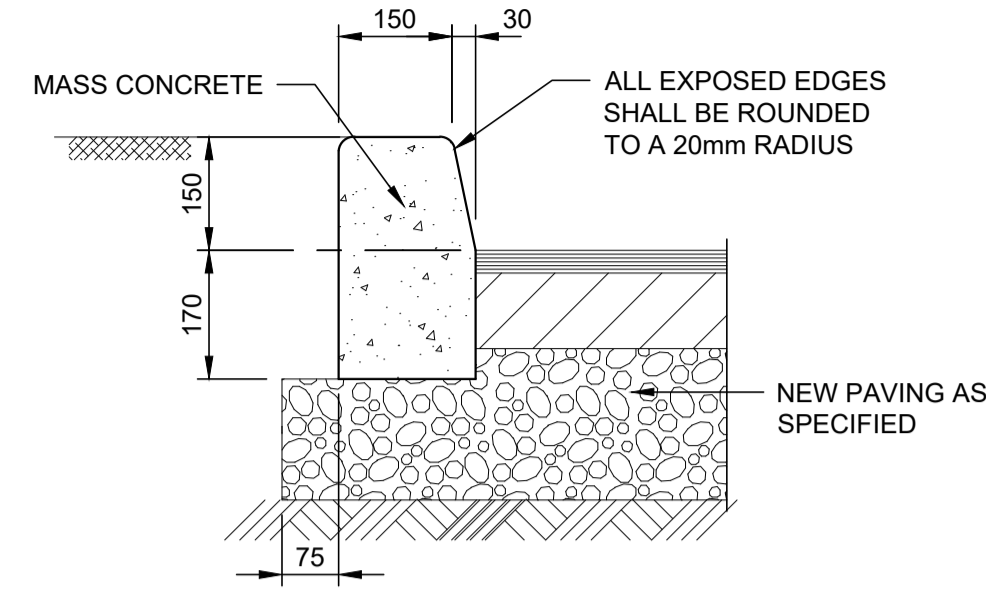
TITLE
CIVIL EXTERNAL WORK DETAILS - SHEET 01

| SCALES | DATE |
|-------------------------------------------------------------------------------------------------|---------------------|
| as noted @ A1 | APR, 2021 |
| DRAWN C.KE | DESIGN C.A |
| VERIFIED - | APPROVED - |
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| ISSUE P3 | DRAWING No. 7855 |
| PROJECT No. C-0-GE-20 | |



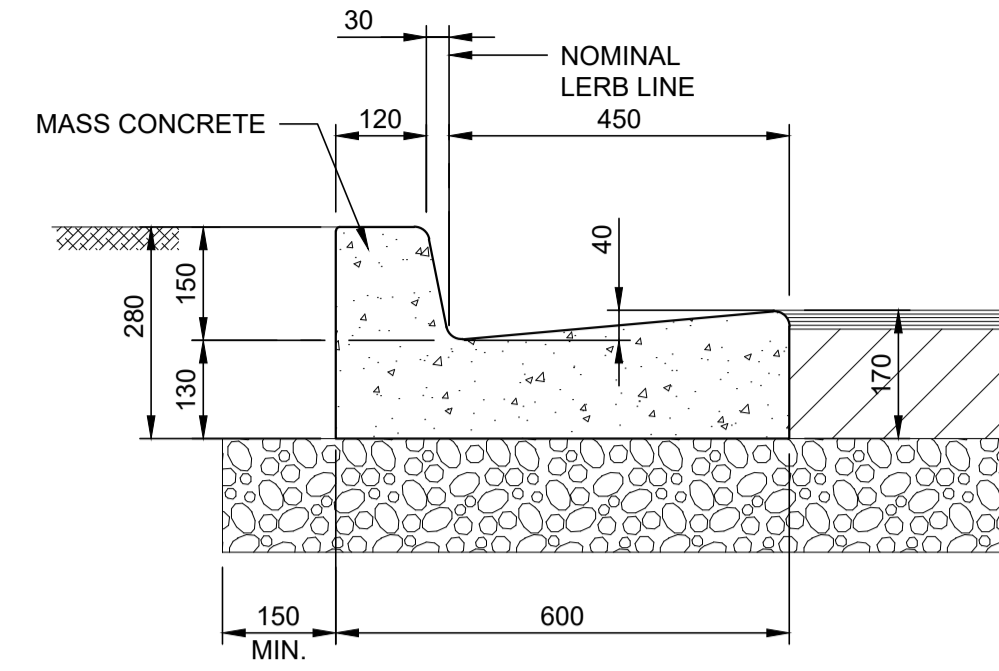
TYPICAL FLEXIBLE PAVEMENT SECTION

SCALE 1:10
DESIGN TRAFFIC LOADING = 4x10⁶ ESA



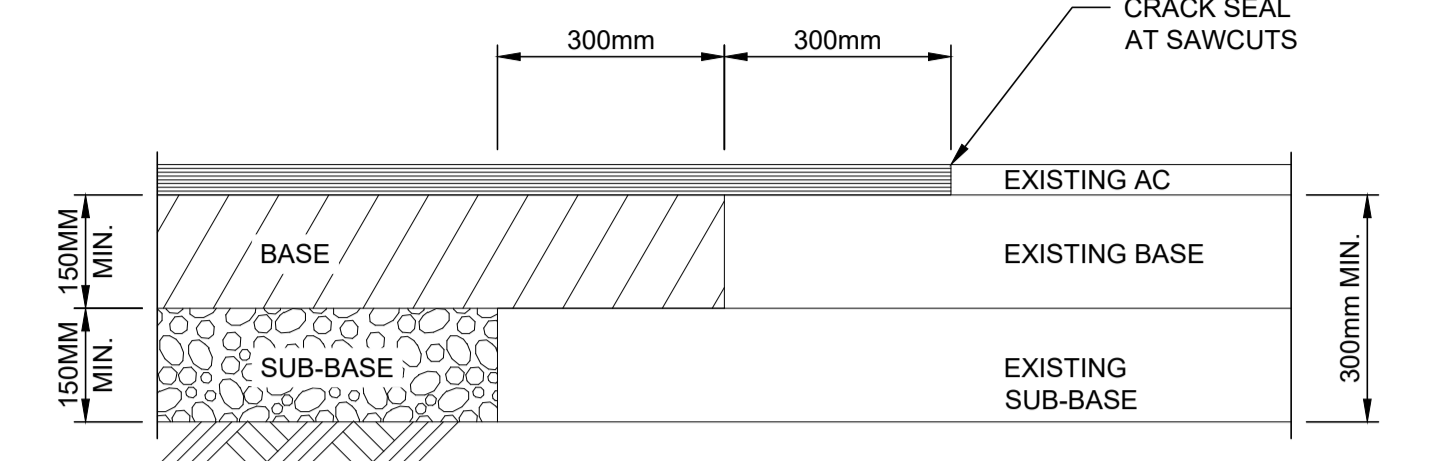
TYPICAL 'KO' KERB ONLY DETAIL

SCALE 1:10



TYPICAL 'K&G' KERB & GUTTER DETAIL

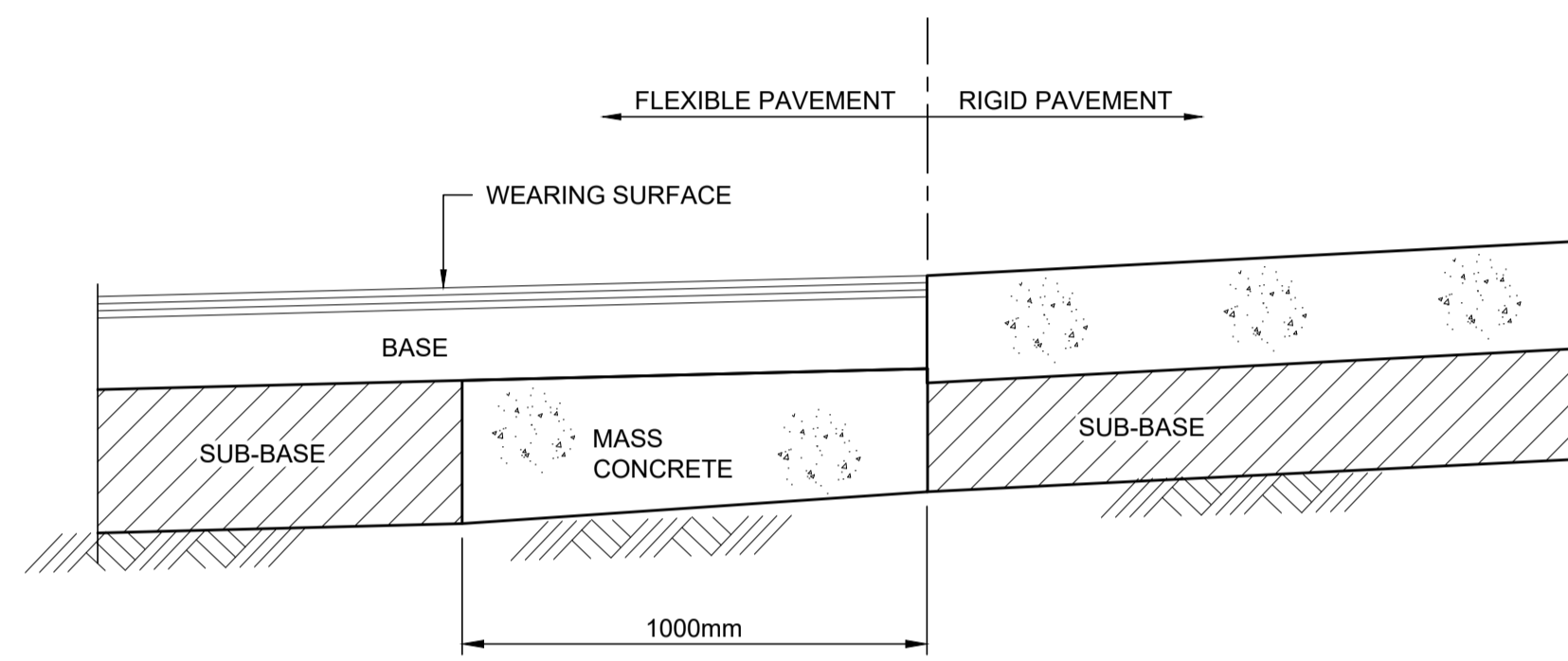
SCALE 1:10
DENOTED 'K&G' ON PLAN
PROVIDE FULL DEPTH 12mm BITUMEN IMPREGNATED FIBREBOARD JOINTS AT 6 METER MAXIMUM CENTERS



REMOVE A STRIP OF THE EXISTING PAVEMENT AT LEAST 300 WIDE FOR ITS FULL DEPTH TRIM THE NEW EDGE TO AN ANGLE OF APPROXIMATELY 45° IN STEPS OF MAXIMUM HEIGHT 150mm THEN PLACE NEW PAVEMENT MATERIAL TRIM THE SEAL TO A NEAT EDGE USING PNEUMATIC TOOLS OR OTHER SUITABLE MEANS

DETAIL OF NEW TO EXISTING PAVEMENT

SCALE 1:10



DETAIL - FLEXIBLE TO RIGID PAVEMENT

NOT TO SCALE

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

| ISSUE | DESCRIPTION | APPROVED | DATE |
|-------|----------------------------|----------|----------|
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| P2 | STAGING UPDATED TO STAGE 1 | - | 05/07/21 |
| P1 | INFORMATION | - | 21/05/21 |

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PROJECT
**Pacific Brook Christian School,
Muswellbrook - STAGE 1**
72 - 74 Maitland Street, Muswellbrook NSW

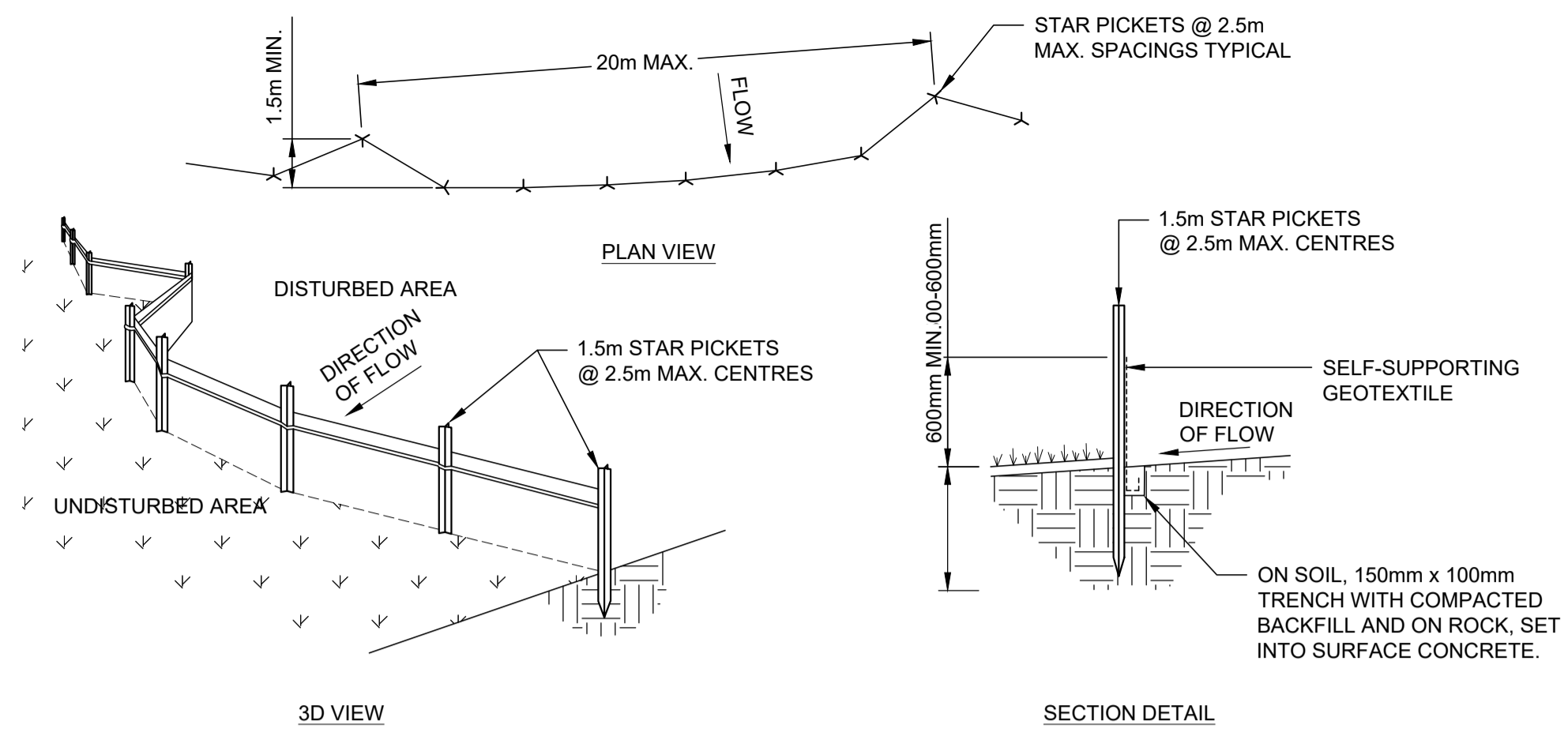
TITLE
**CIVIL EXTERNAL WORK
DETAILS - SHEET 02**

SCALES: as noted @ A1 DATE: APR, 2021

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| DRAWN C.KE | DESIGN C.A | VERIFIED - | APPROVED - |
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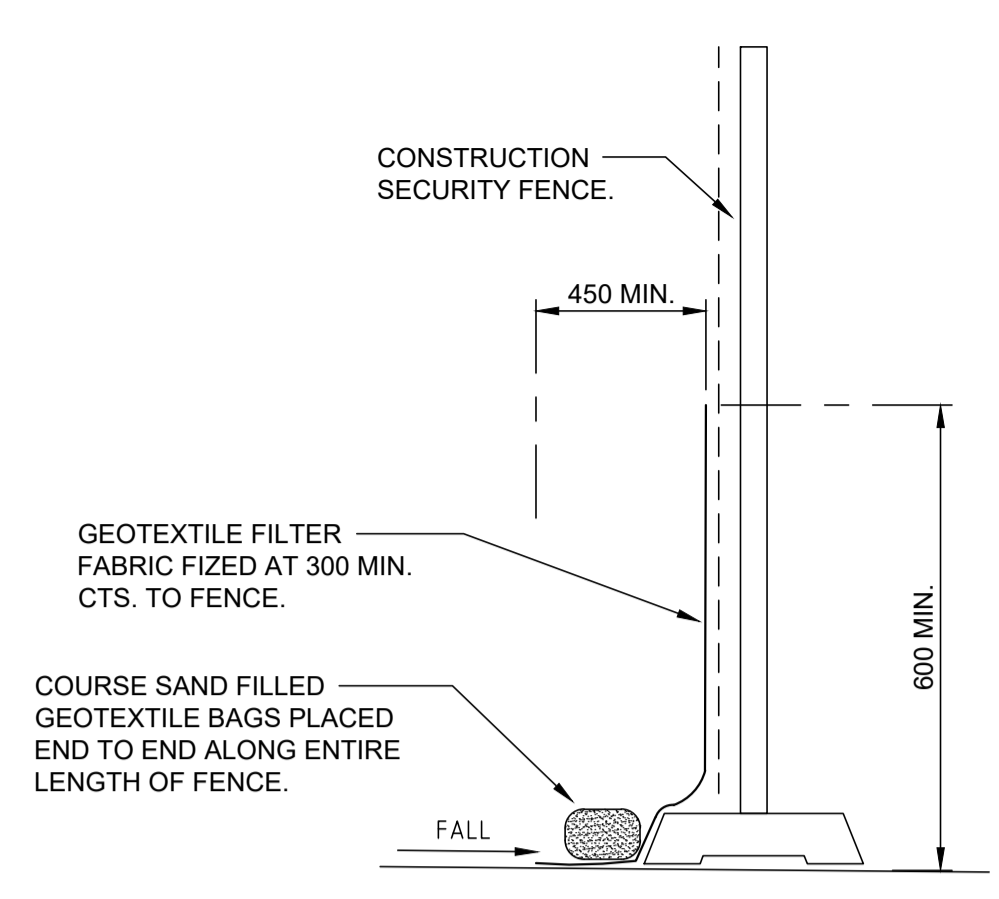
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| ISSUE P3 | PROJECT No. 7855 | DRAWING No. C-0-GE-21 |
|-------------|---------------------|--------------------------|

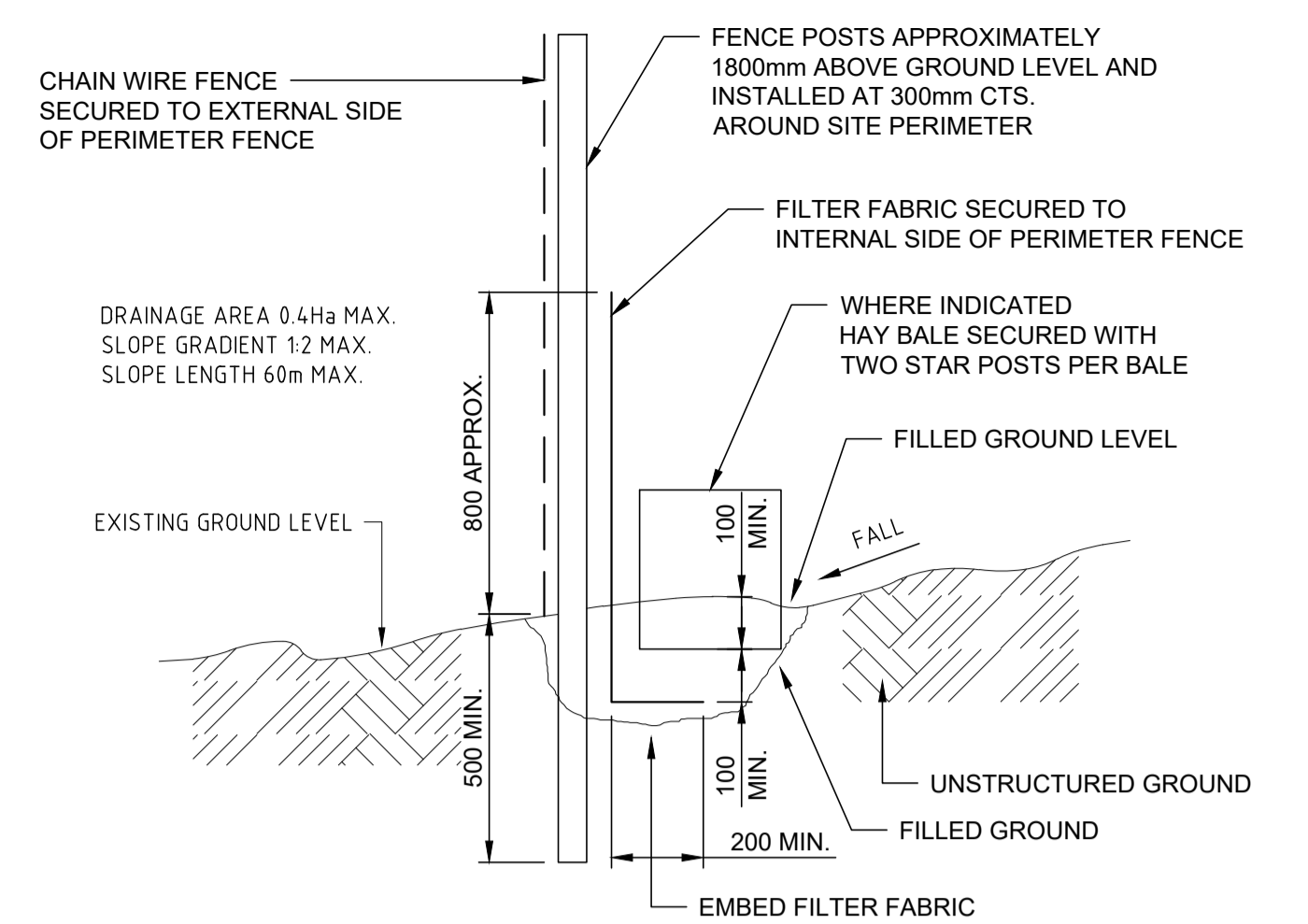


SEDIMENT FENCE DETAILS
(NOT TO SCALE)

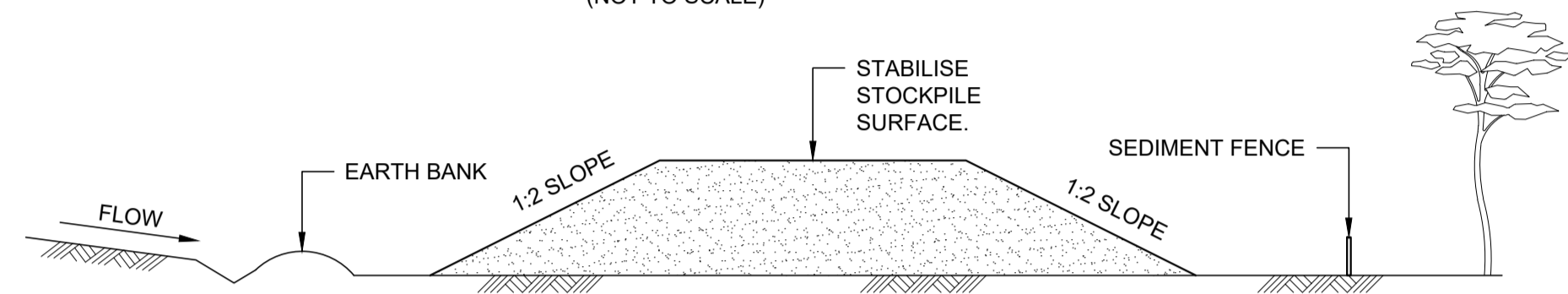
- SEDIMENT FENCE CONSTRUCTION NOTES:**
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
 2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
 3. DRIVE 1.5m LONG STAR PICKETS INTO GROUND @ 2.5m INTERVALS (MAX.) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
 4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
 5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
 6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



SEDIMENT FENCE ON PAVED SURFACE
NOT TO SCALE

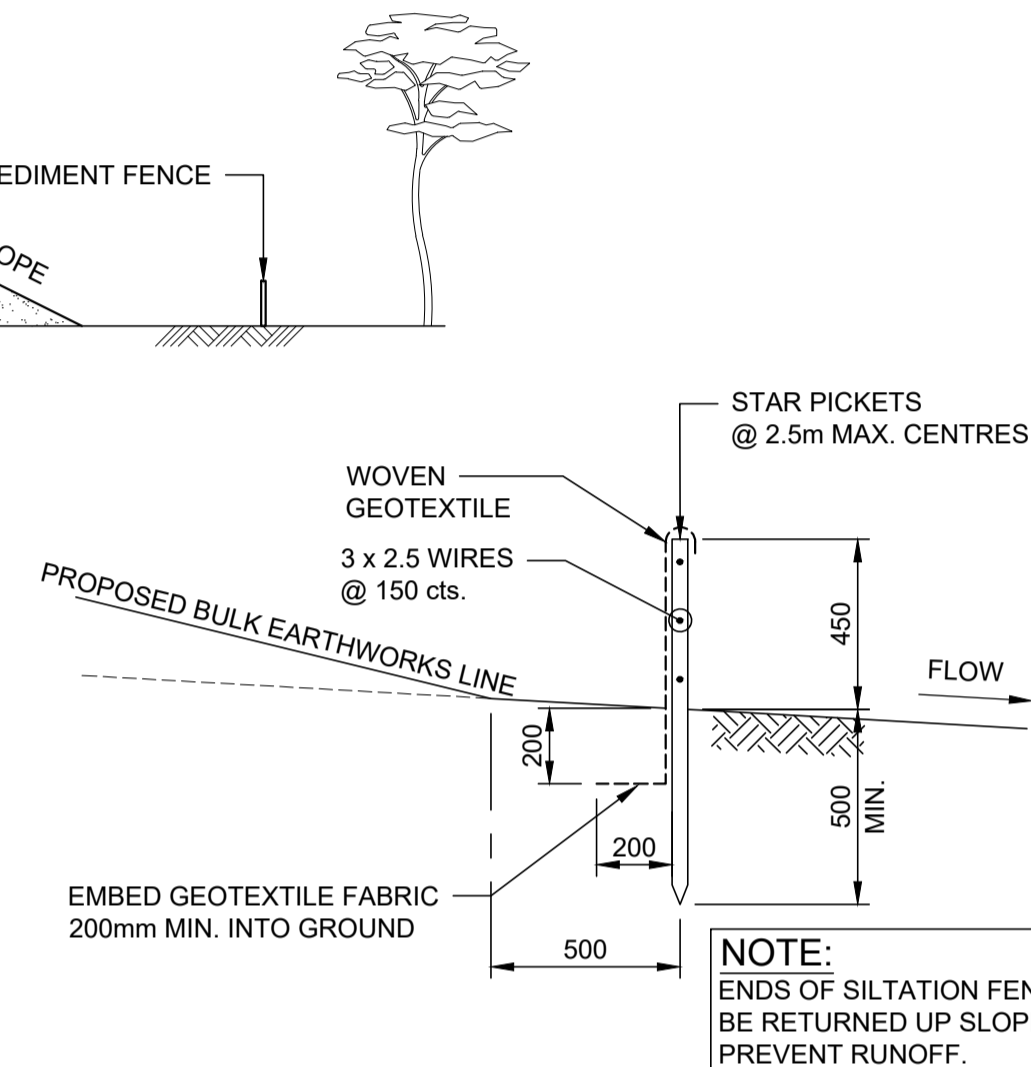


HAY BALE BARRIER AND SILT FENCE DETAIL
NOT TO SCALE

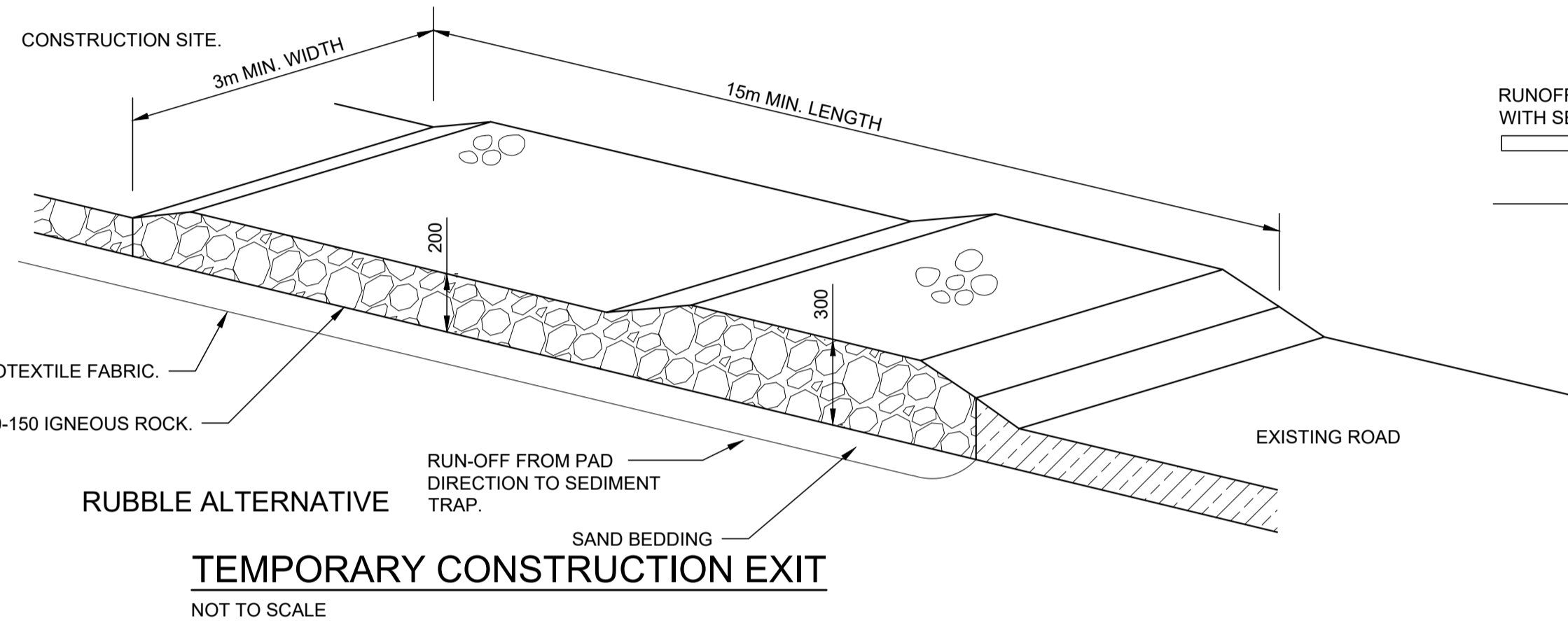


STOCKPILES DETAIL
NOT TO SCALE

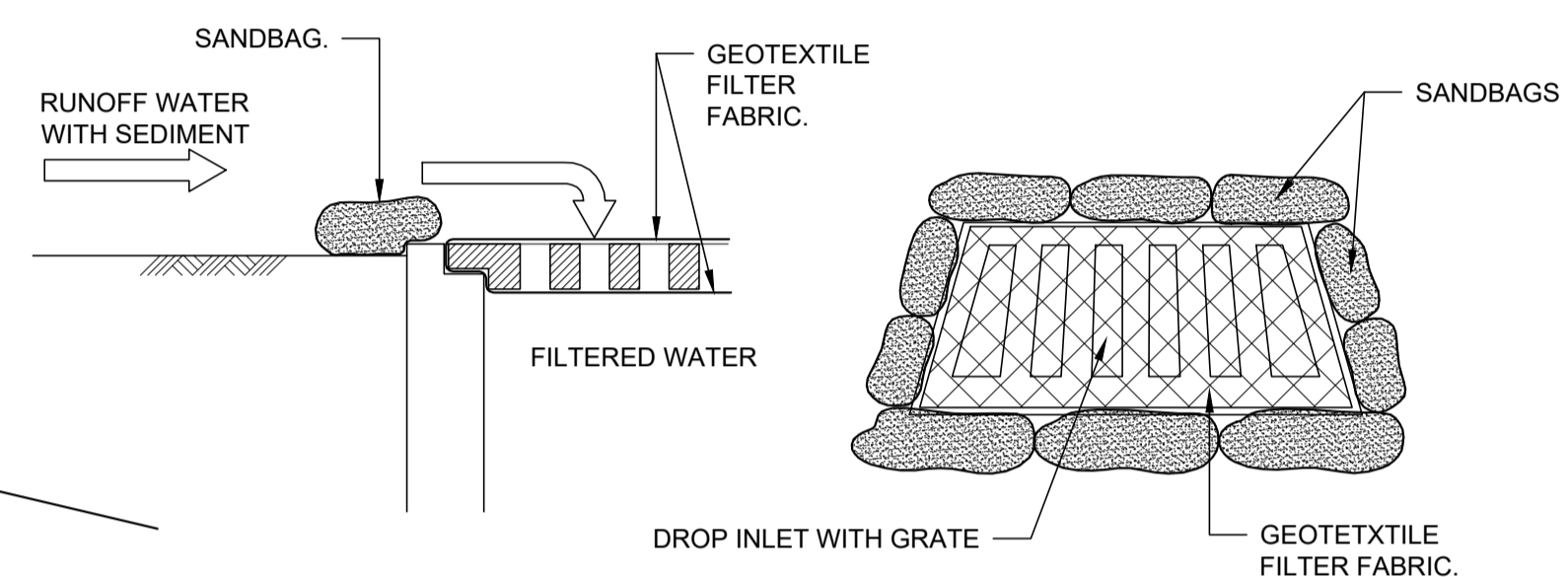
- STOCKPILE CONSTRUCTION NOTES:**
1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
 2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
 3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
 4. WHERE THEY ARE TO BE PLACED FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED E.S.C.P. OR S.W.M.P. TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
 5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.



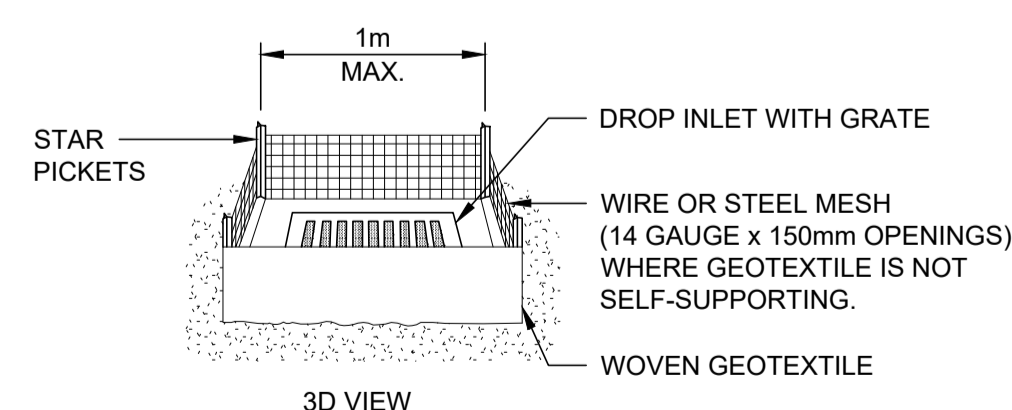
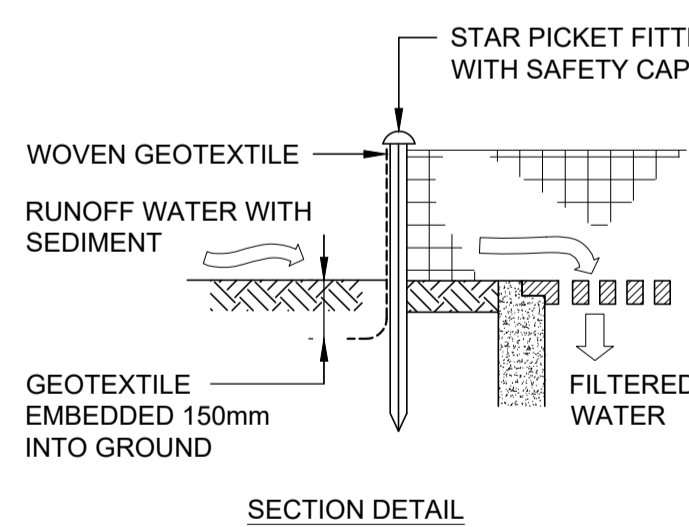
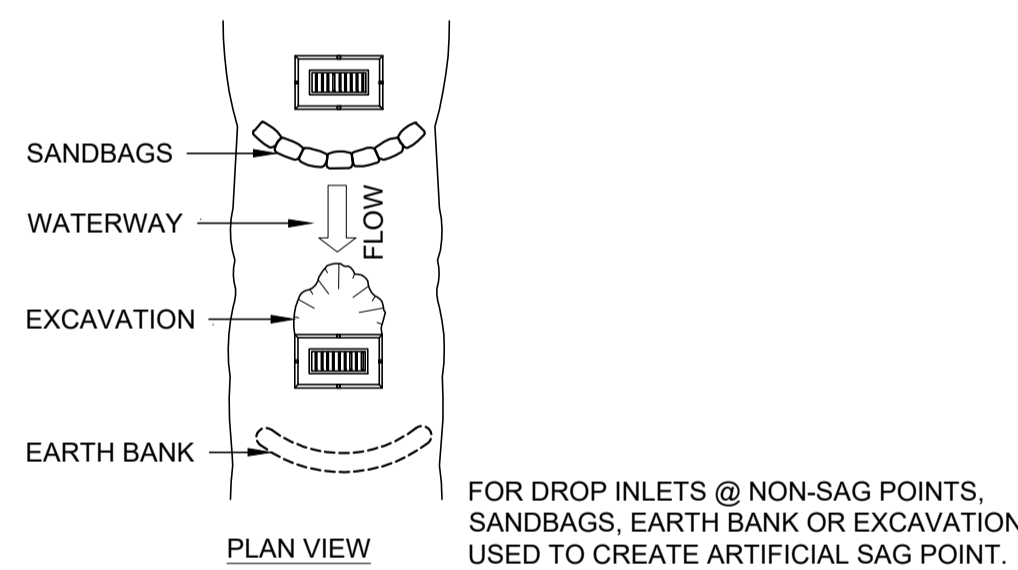
SILTATION FENCE DETAIL
(NOT TO SCALE)



TEMPORARY CONSTRUCTION EXIT
NOT TO SCALE

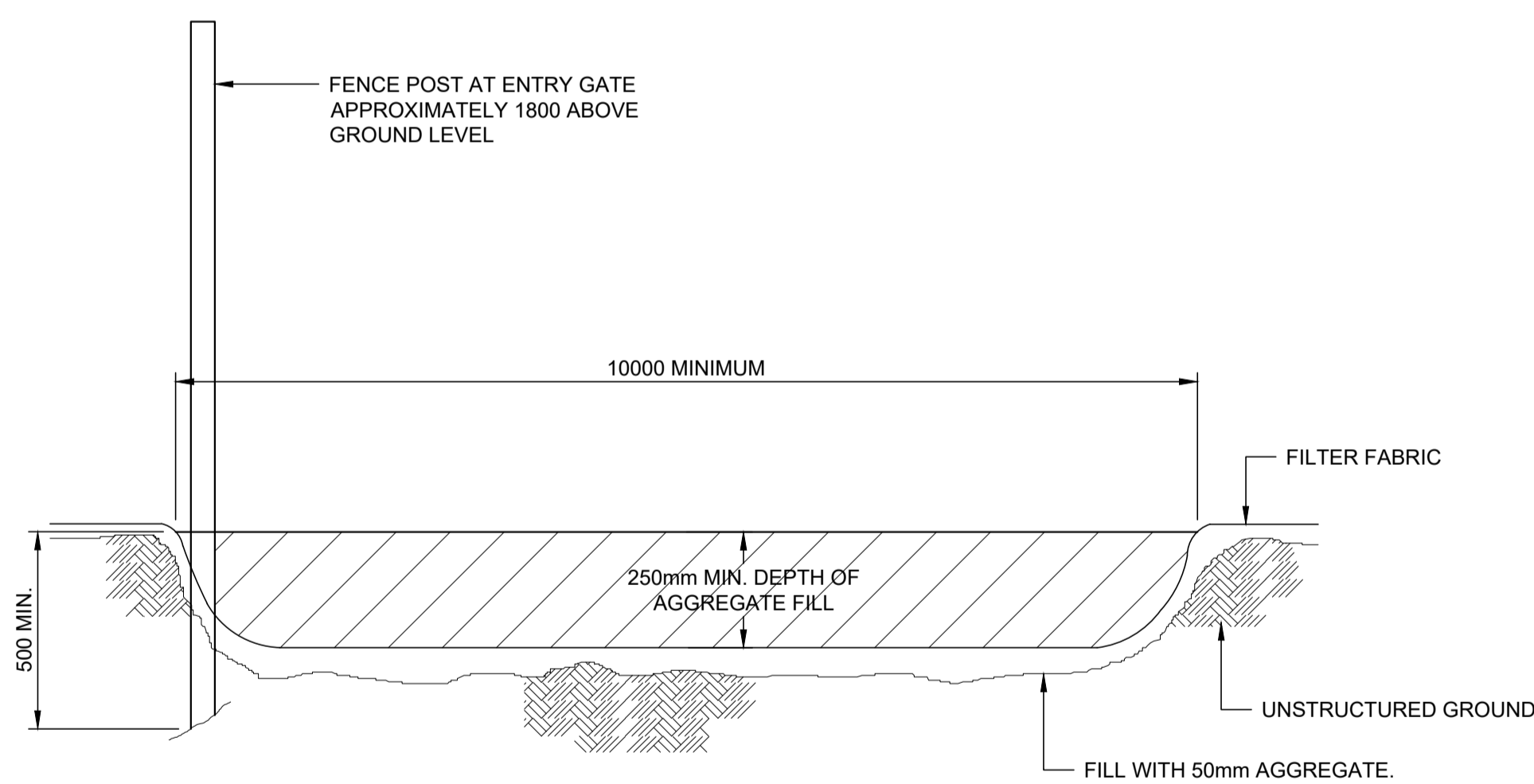


GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP
NOT TO SCALE

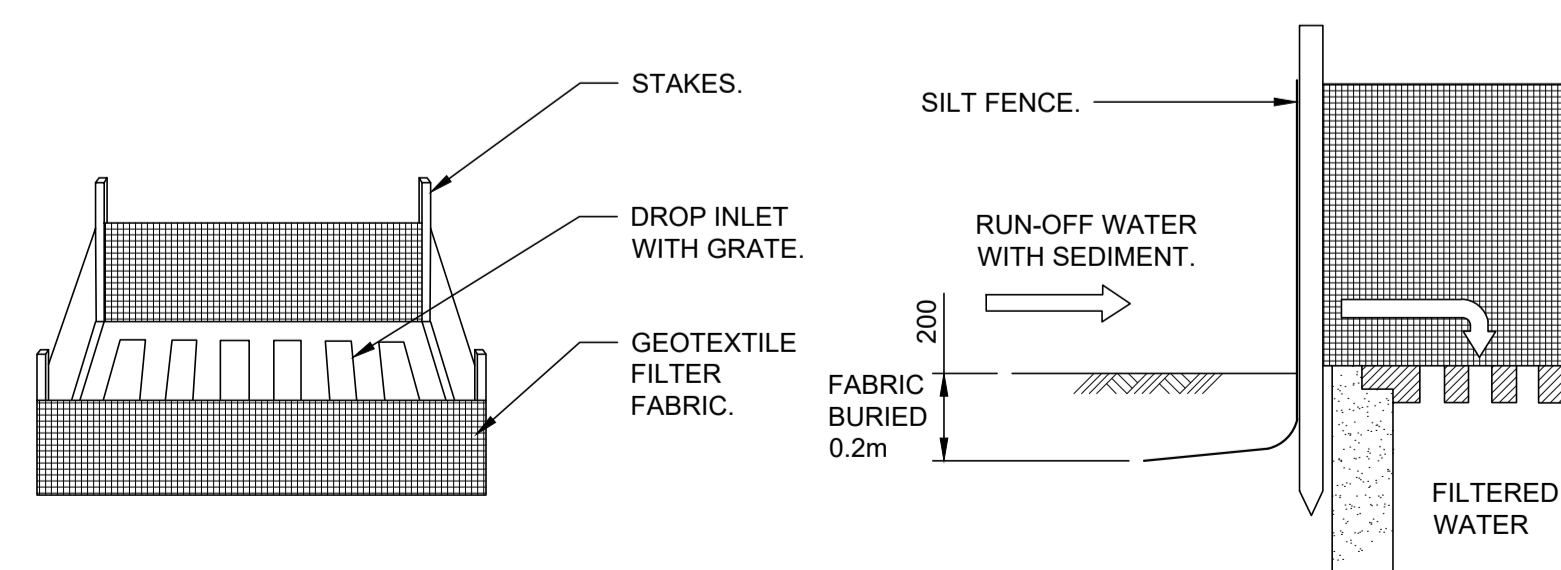


GEOTEXTILE INLET FILTER DETAILS
(NOT TO SCALE)

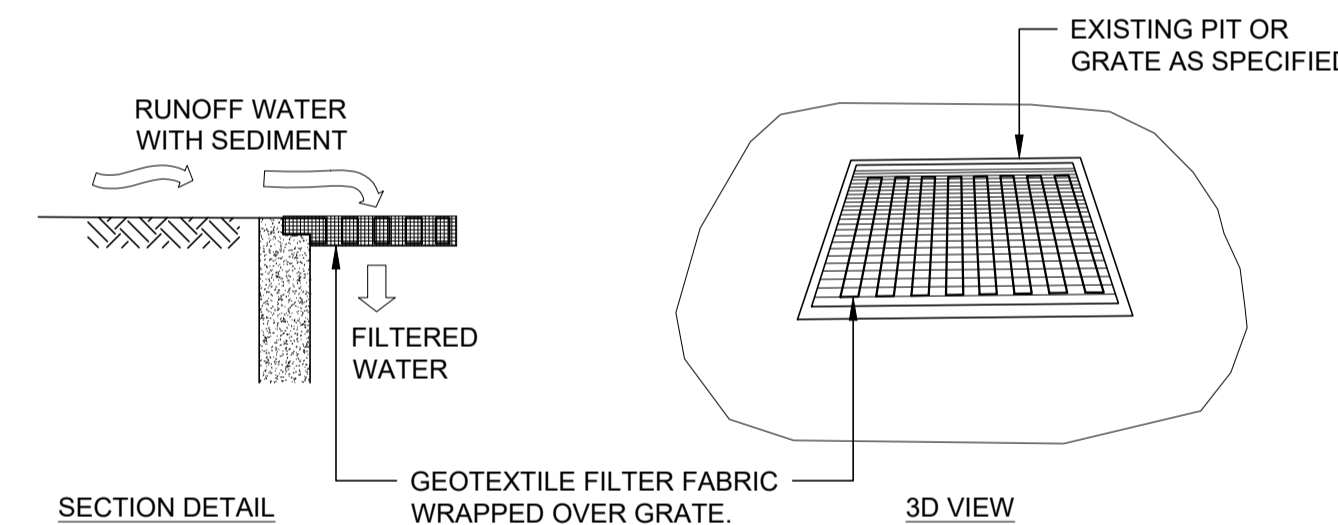
- GEOTEXTILE INLET FILTER CONSTRUCTION NOTES:**
01. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE.
 02. PICKET SPACING TO BE MAXIMUM 1m.
 03. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
 04. DO NOT COVER THE INLET WITH GEOTEXTILES UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.



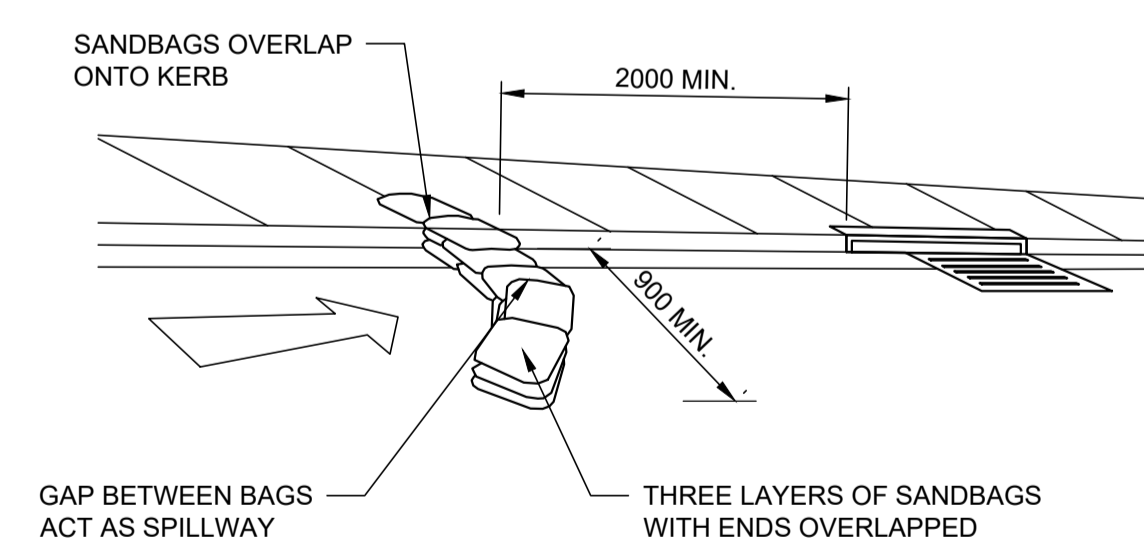
CROSS-SECTION OF CONSTRUCTION ENTRY/EXIT DETAIL
NOT TO SCALE



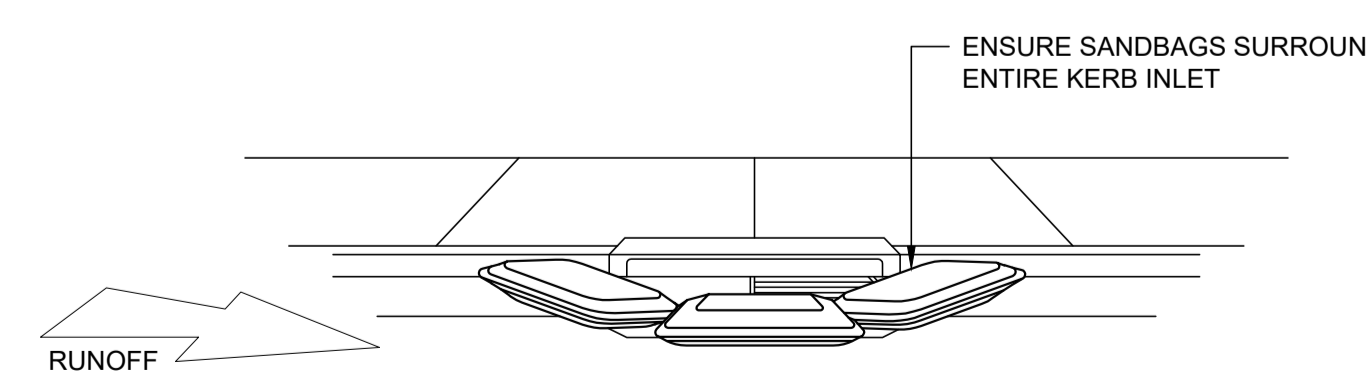
SUMP SEDIMENT TRAP DETAIL
NOT TO SCALE



GEOTEXTILE PIT FILTER DETAILS
(NOT TO SCALE)



SANDBAG SEDIMENT TRAP FOR KERB INLET ON GRADE
NOT TO SCALE



SANDBAG KERB INLET SEDIMENT TRAP DETAIL
(NOT TO SCALE)

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

| ISSUE | DESCRIPTION | APPROVED | DATE |
|-------|----------------------------|----------|----------|
| P3 | REVISIONS AS REQUESTED | - | 16/09/21 |
| P2 | STAGING UPDATED TO STAGE 1 | - | 05/07/21 |
| P1 | INFORMATION | - | 21/05/21 |

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PROJECT
Pacific Brook Christian School, Muswellbrook - STAGE 1
72 - 74 Maitland Street, Muswellbrook NSW

TITLE
SOIL EROSION AND SEDIMENT CONTROL DETAILS

| SCALE | as noted @ A1 | DATE | APR, 2021 |
|-------|---------------|-------------|-----------|
| DRAWN | C.KE | DESIGN | C.A |
| ISSUE | P3 | PROJECT No. | 7855 |
| | | DRAWING No. | C-0-GE-30 |

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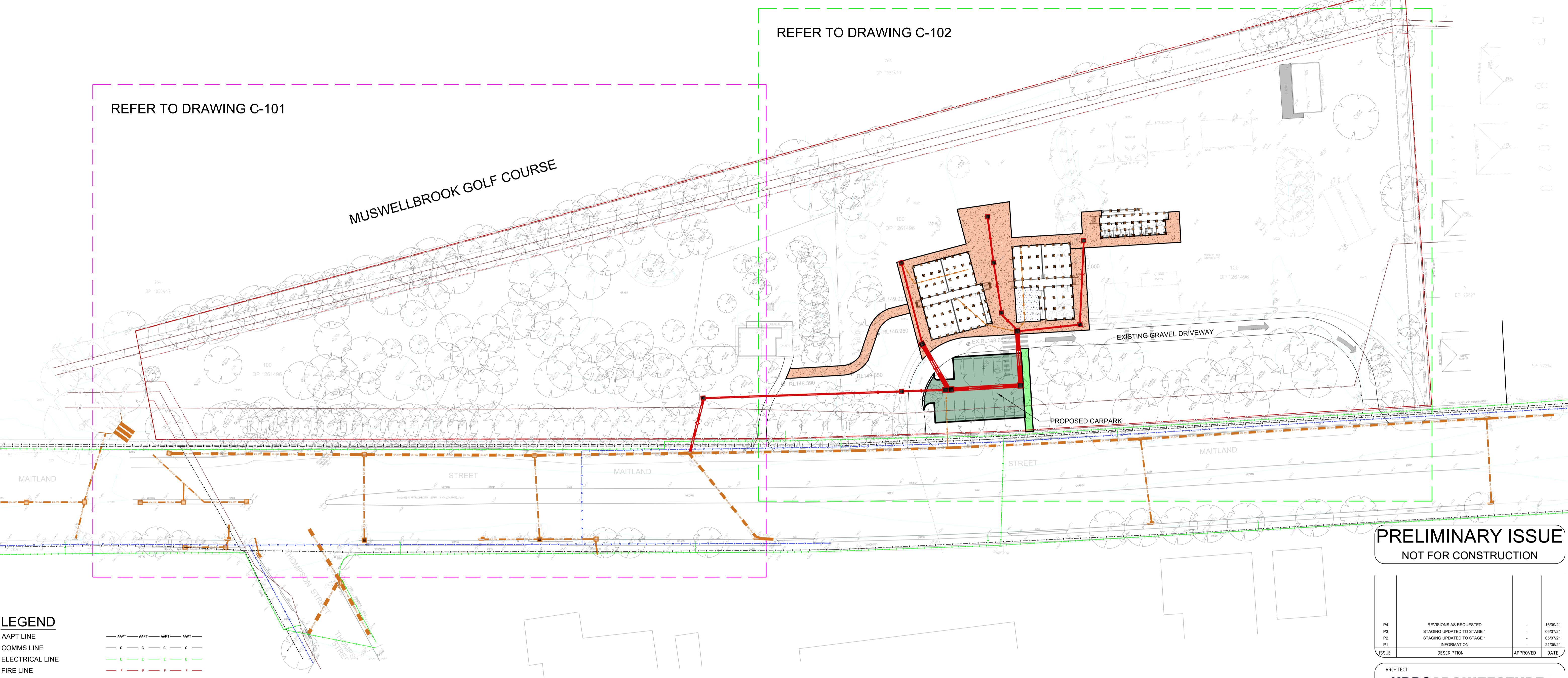
SERVICES ON THIS DRAWING ARE SHOWN BELOW SLAB U.N.O.

D.P. 834.02.0

REFER TO DRAWING C-101

REFER TO DRAWING C-102

MUSWELLBROOK GOLF COURSE



LEGEND

- AAPT LINE
- COMMS LINE
- ELECTRICAL LINE
- FIRE LINE
- GAS LINE
- WATER LINE
- NBN LINE
- OPTUS LINE
- TPG LINE
- TELECOMMUNICATION LINE
- OVERFLOW PATH
- SEWER LINE
- SEWER EXISTING LINE
- SUBSOIL DRAINAGE LINE
- SITE BOUNDARY
- DEMOLISHED
- EXISTING STORMWATER LINE
- PROPOSED CONTOUR
- GRATED STORMWATER PIT
- DOWN PIPE
- EXISTING STORMWATER PIT
- EXISTING DOWN PIPE
- KERB INLET PIT
- FLOOR WASTE
- NEW GRATED DRAIN
- OCEAN GUARD INSTALLED (FROM OCEAN PROTECT)
- TELEPHONE PIT
- HATCH DENOTES CONCRETE SLAB TOP REFER TO DWG. C-0-GE-20 FOR TYPICAL SLAB JOINT DETAILS.
- HATCH DENOTES FLEXIBLE PAVEMENT REFER TO DWG. C-0-GE-21 FOR SPECIFICATION.
- HATCH DENOTES ARTIFICIAL TURF

STAGE 1 - OVERALL SITE PLAN
SCALE 1:500

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

| ISSUE | DESCRIPTION | APPROVED | DATE |
|-------|----------------------------|----------|----------|
| P4 | REVISIONS AS REQUESTED | - | 16/09/21 |
| P3 | STAGING UPDATED TO STAGE 1 | - | 06/07/21 |
| P2 | STAGING UPDATED TO STAGE 1 | - | 05/07/21 |
| P1 | INFORMATION | - | 21/05/21 |

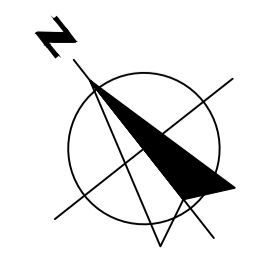
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PROJECT
**Pacific Brook Christian School,
Muswellbrook - STAGE 1**
72 - 74 Maitland Street, Muswellbrook NSW

TITLE
**STAGE 1
- OVERALL SITE PLAN**

| SCALE | DATE |
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| as noted @ A1 | APR, 2021 |
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| DRAWING No. C-1-GF-00 | |



SERVICES SHOWN ON PLAN ARE INDICATIVE, EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.

SERVICES ON THIS DRAWING ARE SHOWN BELOW SLAB U.N.O.

LEGEND

- AAPT LINE --- AAPT --- AAPT --- AAPT --- AAPT ---
- COMMS LINE --- C --- C --- C --- C ---
- ELECTRICAL LINE --- E --- E --- E --- E ---
- FIRE LINE --- F --- F --- F --- F ---
- GAS LINE --- G --- G --- G --- G ---
- WATER LINE --- W --- W --- W --- W ---
- NBN LINE --- NBN --- NBN --- NBN --- NBN ---
- OPTUS LINE --- OP --- OP --- OP --- OP ---
- TPG LINE --- TPG --- TPG --- TPG --- TPG ---
- TELECOMMUNICATION LINE --- --- --- --- ---
- OVERFLOW PATH --- --- --- --- ---
- SEWER LINE --- S --- S --- S --- S ---
- SEWER EXISTING LINE --- EX.S --- EX.S --- EX.S --- EX.S ---
- SUBSOIL DRAINAGE LINE --- --- --- --- ---
- SITE BOUNDARY --- --- --- --- ---
- DEMOLISHED --- --- --- --- ---
- EXISTING STORMWATER LINE --- EX. SW --- EX. SW --- EX. SW --- EX. SW ---
- PROPOSED CONTOUR --- --- --- --- ---
- GRATED STORMWATER PIT ■ DOWN PIPE ● DP
- EXISTING STORMWATER PIT ■ EXISTING DOWN PIPE ● Ex.DP
- KERB INLET PIT ■
- FLOOR WASTE ■ FF
- TELEPHONE PIT ■
- NEW GRATED DRAIN ---
- OCEAN GUARD INSTALLED (FROM OCEAN PROTECT) ○ OG

SERVICES SHOWN ON PLAN ARE INDICATIVE, EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.

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- HATCH DENOTES FLEXIBLE PAVEMENT REFER TO DWG. C-0-GE-21 FOR SPECIFICATION.
- HATCH DENOTES ARTIFICIAL TURF

PRELIMINARY ISSUE
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|-------|----------------------------|----------|----------|
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| P3 | STAGING UPDATED TO STAGE 1 | - | 06/07/21 |
| P2 | STAGING UPDATED TO STAGE 1 | - | 05/07/21 |
| P1 | INFORMATION | - | 21/05/21 |

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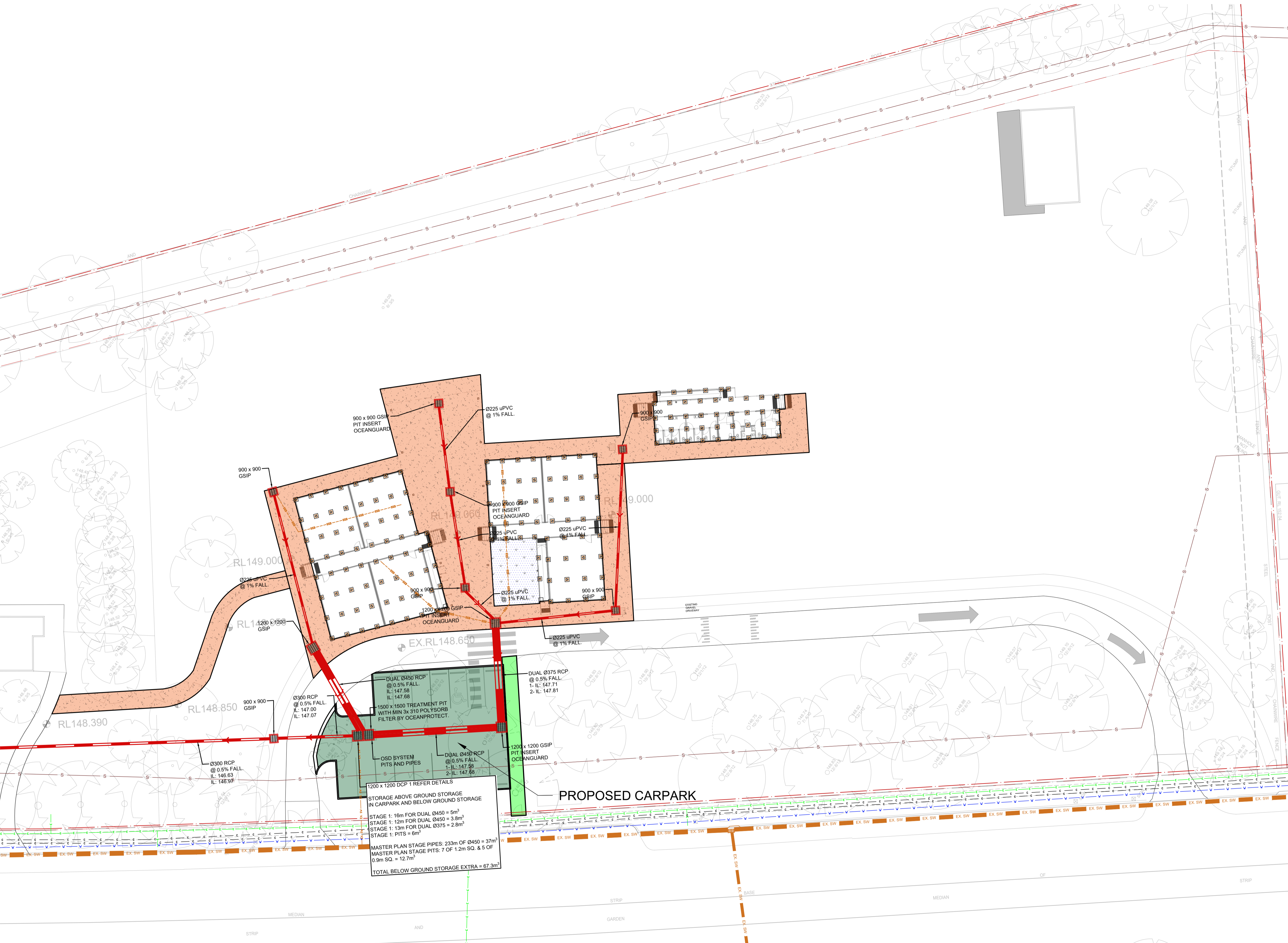
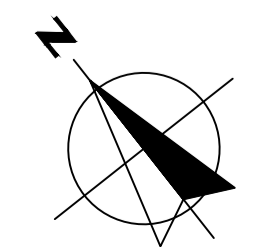
PROJECT
**Pacific Brook Christian School,
Muswellbrook - STAGE 1**
72 - 74 Maitland Street, Muswellbrook NSW

TITLE
**STORMWATER AND EXTERNAL
WORKS - SHEET 02**

| SCALE | DATE |
|-------------------------------------------------------------------------------------------------|---------------------|
| as noted @ A1 | APR, 2021 |
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| PROJECT No. | C-1-GF-02 |

STORMWATER AND EXTERNAL WORKS - SHEET 02



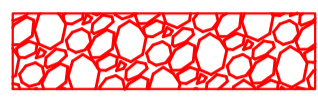

- SCALE 1:250
- UNLESS NOTED OTHERWISE, NON-CHARGED DOWNPIPES SHALL CONNECT TO MAIN STORMWATER DRAINAGE LINE AT 1% MIN. FALL
 - UNLESS NOTED OTHERWISE, DOWNPIPES SHALL BE Ø100mm SEALED.
 - ROOF DRAINAGE BY OTHERS
 - ALL uPVC STORMWATER DRAINAGE LINES SHALL BE 'CLASS SH' SEWER GRADE. U.N.O.
 - CONFIRM EXISTING DRAINAGE SYSTEM ONSITE BY PLUMBER.

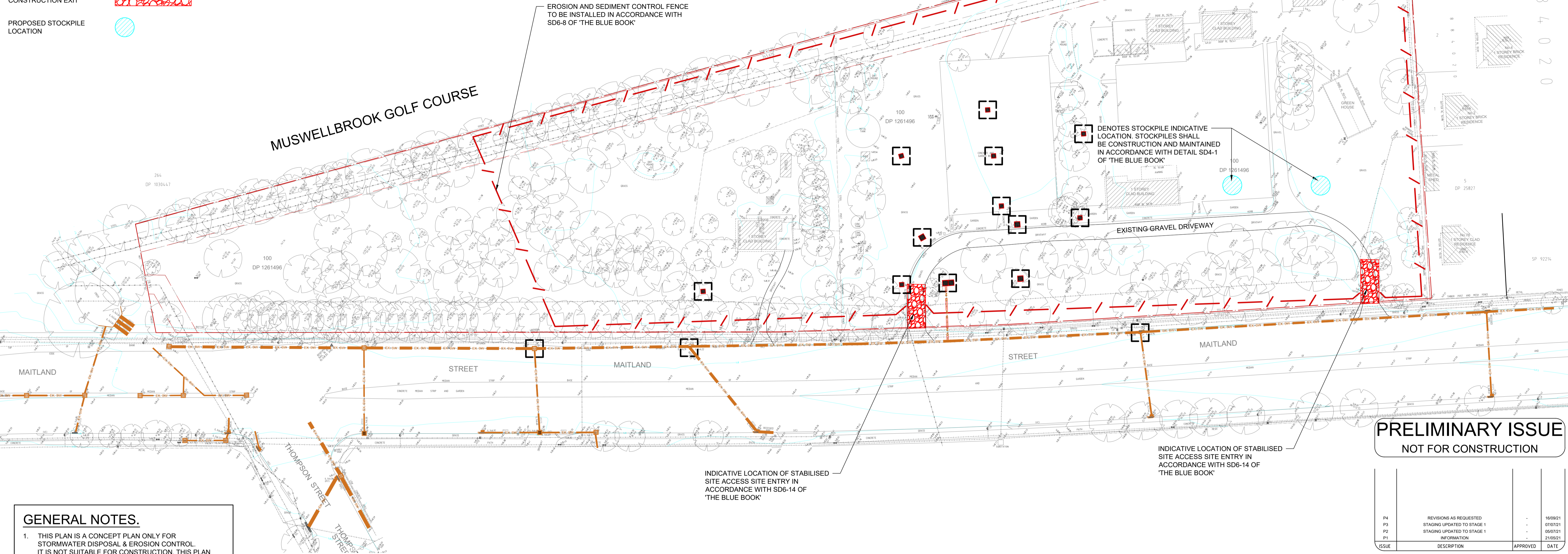


1200 x 1200 DCP 1 REFER DETAILS
STORAGE ABOVE GROUND STORAGE IN CARPARK AND BELOW GROUND STORAGE
STAGE 1: 16m FOR DUAL Ø450 = 5m³
STAGE 1: 12m FOR DUAL Ø450 = 3.8m³
STAGE 1: 13m FOR DUAL Ø375 = 2.8m³
STAGE 1: PITS = 6m³
MASTER PLAN STAGE PIPES: 233m OF Ø450 = 37m³
MASTER PLAN STAGE PITS: 7 OF 1.2m SQ. & 5 OF 0.9m SQ. = 12.7m³
TOTAL BELOW GROUND STORAGE EXTRA = 67.3m³

SERVICES ON THIS DRAWING ARE SHOWN BELOW SLAB U.N.O.

SOIL EROSION AND SEDIMENT CONTROL LEGEND

- SEDIMENT CONTROL FENCE 
- INLET TRAP 
- TEMPORARY STABILISED CONSTRUCTION EXIT 
- PROPOSED STOCKPILE LOCATION 



GENERAL NOTES.

1. THIS PLAN IS A CONCEPT PLAN ONLY FOR STORMWATER DISPOSAL & EROSION CONTROL. IT IS NOT SUITABLE FOR CONSTRUCTION. THIS PLAN SHOULD BE ADAPTED BY THE BUILDER DURING DEMOLITION, EXCAVATION & CONSTRUCTION PHASES TO ENSURE ADEQUATE PERFORMANCE.
2. ALL DRAINAGE LAYOUT & DETAILS ARE DIAGRAMMATIC & INDICATIVE ONLY. ACTUAL LOCATION, SIZES, LEVELS & GRADES MAY LATER WHEN DETAIL DESIGN WORKS ARE DOCUMENTED.

EROSION & SEDIMENTATION CONTROL NOTES

1. CONTRACTOR SHALL PROVIDE SEDIMENT FENCING MATERIAL DURING CONSTRUCTION TO THE LOW SIDE OF THE WORKS. TIE SEDIMENT FENCING MATERIAL TO CYCLONE WIRE SECURITY FENCE. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (EG. HUMES PROPEX SILT STOP) STANDING 300mm ABOVE GROUND & EXTENDING 150mm BELOW GROUND.
2. EXISTING DRAINS LOCATED WITHIN THE SITE SHALL ALSO BE ISOLATED BY SEDIMENT FENCING MATERIAL.
3. NO PARKING OR STOCKPILING OF MATERIAL IS PERMITTED ON THE LOWER SIDE OF THE SEDIMENT FENCE.
4. GRASS VERGES SHALL BE MAINTAINED AS MUCH AS PRACTICAL TO PROVIDE A BUFFER ZONE TO THE CONSTRUCTION SITE.
5. CONSTRUCTION ENTRY/EXIT SHALL BE VIA THE LOCATION NOTED ON THE DRAWING. CONTRACTOR SHALL ENSURE ALL DROPPABLE SOIL & SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXITING SITE. CONTRACTOR SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING & LEAVING THE SITE DO SO IN A FORWARD DIRECTION.

STAGE 1 - SEDIMENT AND EROSION CONTROL PLAN

SCALE 1:500

DEMOLISH LINE 

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

| ISSUE | DESCRIPTION | APPROVED | DATE |
|-------|----------------------------|----------|----------|
| P4 | REVISIONS AS REQUESTED | - | 16/09/21 |
| P3 | STAGING UPDATED TO STAGE 1 | - | 07/07/21 |
| P2 | STAGING UPDATED TO STAGE 1 | - | 05/07/21 |
| P1 | INFORMATION | - | 21/05/21 |

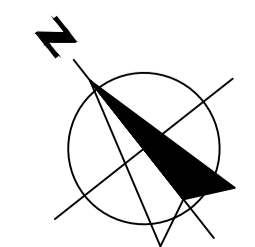
ARCHITECT
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PROJECT
**Pacific Brook Christian School,
Muswellbrook - STAGE 1**
72 - 74 Maitland Street, Muswellbrook NSW

TITLE
**STAGE 1
- SEDIMENT AND EROSION
CONTROL PLAN**

| SCALES | DATE |
|-------------------------------------------------------------------------------------------------|---------------------|
| as noted @ A1 | APR, 2021 |
| DRAWN C.A | DESIGN C.A |
| VERIFIED - | APPROVED - |
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