

M & G Consulting Engineers Pty Ltd (ABN 65 094 064 990)
Level 3, 50 Berry Street, North Sydney NSW 2060
PO Box 1656, North Sydney NSW 2059
T: (02) 8666 7888 Internet: www.mg.com.au

24th March 2022

TSA
Level 15
207 Kent Street
Sydney NSW 2000

Attention: Mr Robert McKnight

By email:
< Robert.mcknight@tsamgt.com >

Dear Sir,

Re. New High School in Jerrabomberra SSD RFI
Our Ref. 5555

Reference is made to the response submissions from the Department of Planning, Industry and Environment (DPIE), - Queanbeyan - Palerang Regional Council and Transport for NSW (TfNSW) with respect to SSDA submission for the New High School in Jerrabomberra (Reference SSD – 24461956).

For any queries regarding this correspondence, please contact Nick Nishijima or the undersigned on (02) 8666 7888.

Yours sincerely

M+G Consulting



Simon Matthews

Principle
sm@mg.com.au
+61 401 690 745

Table 1 DPIE RtS Letter

DPIE Submissions		
No.	DPIE RtS Letter	Response
5	<p>Water quality</p> <p>As per the EPA advice, further information must be provided to demonstrate the capacity, sizing, design rain event, catchment, and management of the sediment for the proposed temporary sediment basin.</p>	<p>A conceptual Soil & Water Management Plan (SWMP), in accordance with the “Blue Book”, providing preliminary details of the sediment control measures, has been prepared and is detailed on M+G drawings JHS-CE-2005 & 2006, attached to this response in Appendix A.</p> <p>A detailed SWMP containing detailed design of the Sediment Control, Erosion Control and Site Stabilisation practices, including staging of the earthworks and these practices, will be prepared by the earthwork contractor, subsequently reviewed and approved by Hindmarsh/M+G prior to civil works commencing.</p>
EPA – Appendix A	<p><u>Construction</u></p> <p>The receiving waterway for the proposal is the Jerrabomberra Creek, which ultimately flows into Lake Burley Griffin which forms part of the high conservation value Murrumbidgee Catchment. The EIS does not consider the NSW Water Quality Objectives (WQOs) for the receiving waters. The WQOs and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality provide the general framework to assess the potential impact of discharge on the environmental values of the receiving waters.</p> <p>The EPA recommends consideration of the receiving environment and the relevant WQOs in relation to the proposal and how any discharge from the site will meet or improve the environmental values of the receiving waters.</p>	<p>To ensure that the receiving waters (Jerrabomberra Creek) are not polluted or significantly affected in terms of Water Quality during construction works for the proposed development, all civil works are to be undertaken in accordance with NSW Government Requirements “<i>Managing Urban Stormwater: Soils and Construction</i>” referred to as the “Blue Book”.</p> <p>The stormwater drainage system for the proposed development has been designed to incorporate Water Sensitive Urban Design (WSUD) elements; bioretention swale/basin and stormwater treatment system in the On-Site Detention (OSD) tank, to reduce the pollution load of the receiving waters to levels to acceptable Water Quality levels. MUSIC modelling of the pollutant loads has been undertaken to design these WSUD elements.</p>
EPA – Appendix A	<p><u>Construction</u></p> <p>The EIS identifies that, prior to any earthworks commencing onsite, soil and water management control measures that comply with the Managing Urban Stormwater – Soils and Construction will need to be</p>	<p>A conceptual Soil & Water Management Plan (SWMP), in accordance with the “Blue Book” has been prepared and is detailed on M+G drawings JHS-CE-2005 & 2006, attached to this response in the Appendix A.</p>

	<p>in place. The EPA acknowledges that a range of sediment and erosion control measures are discussed in the EIS, including the installation of a temporary sediment basin to capture site runoff. Details on the capacity, sizing, design rain event, catchment, and management of the sediment basin has not been provided. The EPA recommends further information to demonstrate the capacity, sizing, design rain event, catchment and management of the sediment be provided.</p> <p>The EPA recommends that a detailed Sediment and Erosion Control Management Plan is developed for the proposed construction prior to the commencement of works.</p>	<p>A detailed SWMP containing detailed design of the Sediment Control, Erosion Control and Site Stabilisation practices, including staging of the earthworks and these practices, will be prepared by the earthwork contractor and reviewed and approved by Hindmarsh/M+G prior to civil works commencing.</p> <p>This plan will include monitoring provisions that will allow the SWMP to be changed/modified during the works to ensure that the required Water Quality Objectives are achieved during the construction stage.</p>
<p>EPA – Appendix A</p>	<p><u>Pre-rainfall Procedures</u></p> <p>The EPA notes that the EIS and supporting documents outline that additional sediment and erosion controls are to be implemented during wet weather events. The EPA recommends that these additional controls are developed and implemented at a high standard to protect the receiving environment. Typical measures that can be implemented include covering high risk areas with geotechnical material and maintaining site traps and check dams.</p> <p>The EPA recommends these additional measures are captured as formal procedures and all relevant team members are aware of the procedures.</p>	<p>The SWMP requires, at times of wet weather, windy events and or extended dry periods that appropriate additional measures are taken to ensure that Water Quality Objectives of the SWMP are achieved.</p> <p>The SWMP will reference that prior to these significant high risk events which may lead to soil erosion across soil stockpiles, steep disturbed slopes etc. such areas will be covered with geotechnical material to reduce potential soil erosion.</p> <p>Sediment traps and check dams etc will be inspected and maintained as required prior to storm events.</p> <p>All erosion and sediment control measures will be required to be regularly inspected, particularly prior to and following wet weather events, repaired and/or maintained to ensure functionality across the system is not compromised.</p>
<p>EPA – Appendix A</p>	<p><u>Use of Flocculant</u></p> <p>The EPA notes that the EIS and associated document identify the potential use of flocculants as a means to manage prior to discharge from the site. All feasible and reasonable alternatives to the discharge of water collected onsite to the environment should be investigated with discharge to the environment used as a last resort.</p> <p>The EPA reminds the proponent the Section 120 of the Protection of</p>	<p>To ensure that the discharging waters from the site meet Water Quality requirements in terms of suspended solids, sediment basins will be detailed in the SWMP. These sediment basins will be sized so that the use of flocculants will not be required, or use minimised.</p> <p>Should flocculants be used to treat the water captured onsite, information on the product and details on the proposed chemicals to be used and potential impacts will be provided to the EPA for consideration and assessment.</p>

	<p>the Environment Operations Act 1997 (POEO Act) applies to any discharges from the proposal site, as such the proponent must ensure that any discharge does not pollute the receiving waterway. The EPA also notes that the receiving waters for the proposal flow into the Lake George catchment, as such the EPA considers a high standard of planning and implementation of sediment and erosion controls, including the use of</p> <p>flocculants will be required to protect the WQOs of the receiving environment.</p> <p>Where a chemical has the potential to have non-trivial impacts to the environment, it is the responsibility of the person using the chemical to ensure that the potential impacts are fully identified, managed and mitigated. Considering the potential water pollution risks associated with the use of flocculants, all components of a potential discharge from the sediment dam that may impact receiving waters assessed. This will include any chemical used to treat water captured onsite prior to discharge. Should flocculants be used to treat the water captured onsite, information on the product and details on the proposed chemicals to be used and potential impacts must be provided to the EPA for consideration and assessment. Such details should include, but need not be limited to:</p> <ul style="list-style-type: none"> • The dose concentration(s) of the proposed flocculant • A characterisation of the expected quality in terms of all pollutants present that pose a risk of non-trivial harm to the environment should they enter the receiving water • An assessment of the potential impact of discharges on the environmental values of the receiving waterway with reference to the Australian and New Zealand Guideline for Fresh and Marine Water Quality and the NSW Water Quality objectives • The degradation rate of the flocculant and the potential for accumulation in bed sediment of the receiving waterways. 	

Table 2 TfNSW RtS Letter

TfNSW Submissions		
No.	TfNSW RtS Letter	Response
1	No comments Received	
2	No comments Received	

Table 3 QPRC RtS Letter

QPRC Submissions		
No.	QPRC RtS Letter	Response
2	Utilities Further definition and coordination of water services required with Council	Noted
2.1	Comments The main Council facilities impacted by the development are shown in the extract image below. Red – Sewer “S” Blue – Water “W” Green – Stormwater “SW”	Noted

	Services Plans (not WAE) – 300 Lanyon Drive (to become 101 Environa Drive) Jerrabomberra	
2.1.1	<p><u>Water</u></p> <p>The high school development site is within the Jerrabomberra pressure zone and has connectivity to recently constructed 300mmØ D1CL potable water main in the eastern verge of Environa Drive and northern verge of the north road, associated with the Environa Drive project in 2021.</p>	Refer to NDY response
2.1.2	<p><u>Sewer</u></p> <p>The high school development site will be serviced by a recently constructed 225mmØ PVC local sewer main in the eastern verge of Environa Drive, associated with the Environa Drive project in 2021. Figure 4 in the plan shows sewer connection to manhole S112 near the Bus Zone. The sewer connection should be through a standard connection to the sewer main running towards the rear of the school block.</p>	Refer to NDY response
2.1.3	<p><u>Storm Water</u></p> <p>The high school development site can be serviced by a storm water connection to the recently constructed pit (G02) adjacent to the Bus Lane with a 600mmØ RCP drainage pipe connecting to the new infrastructure line in Environa Drive.</p> <p>The proposed development of the site will increase runoff, thus a stormwater management plan demonstrating the proposed development will not exceed pre-development runoff flow for both 20% and 1% storm events is required in accordance with Council's D5 Stormwater Drainage Design specification, and water quality in accordance with Council's D7 Erosion Control and Stormwater Management Design specification and corresponding computer modelling.</p>	Refer to response provided in Table 3, item 2.2

2.2	Recommendations	The stormwater disposal system, as detailed on M+G Consulting drawings is designed in accordance with Council's D5 Stormwater Drainage Design specification for both the 20% AEP and 1% AEP storm events using "Drains" computer modelling software.
	<p>That the consent authority imposes conditions requiring:</p> <ul style="list-style-type: none"> • Preparation of a hydraulic design plan providing details of the required sizing for all water, sewer and stormwater services required for the site. • The preparation of an on-site detention design to limit stormwater discharge from the site to pre-development flows. • That all connections and alterations to Council's utility services are inspected by Council staff prior to backfilling. 	<p>Water quality in accordance with Council's D7 Erosion Control and Stormwater Management Design specification.</p> <p>A SWEP has been prepared in accordance Landcom publication <i>"Managing Urban Stormwater: Soils and Construction"</i> ("Blue Book") as required specification D7.</p> <p>Water quality devices been incorporated into the stormwater disposal system using WSUD principles. "MUSIC" computer modelling software. Has been used to model these devices.</p> <p>An on-site detention (OSD) tank has been incorporated into the stormwater disposal system to accept stormwater from impermeable areas to reduce the peak flows as required for this development. Details of this are shown on M+G drawings JHS-CE-2032 & 2056, attached to this response in the Appendix A.</p> <p>All connections and alterations to Council's utility services will be inspected by Council staff prior to backfilling.</p>
3	Erosion and Sediment Control	
3.1	<p><i>Comment</i></p> <p>An Erosion and Sediment Control Plan (ESCP) will be required for any works causing surface cover disturbance. An ESCP will be required to be submitted prior to commencement. A Soil and Water Management Plan (SWMP) will be required to be implemented by the</p>	Noted

	property owner for any works causing surface cover disturbance. This requirement applies for all stages of development.	
3.2	<p><i>Recommendation</i></p> <p>That the consent authority imposes conditions requiring the preparation, implementation and maintenance of an erosion and sedimentation plan throughout the construction of the development.</p>	<p>As this site is more than 2500m² a SWMP is required in lieu of a ESCP as per Council Specification D7.</p> <p>A Soil & Water Management Plan (SWMP), in accordance with the “Blue Book” has been prepared and is detailed on M+G drawings JHS- CE-2005 & 2006, attached to this response in the Appendix A.</p>
10	Entrance and Access	
10.1	<p><i>Comments</i></p> <p>In accordance with the <i>Queanbeyan DCP 2012 Section 2.2</i>, the car park appears to demonstrate two way or separate access and egress allowing all vehicles to enter and leave in a forward direction.</p> <p>Vehicular access into the site will be provided via the north road. Only teachers, staff and waste collection/delivery vehicles will have access to the new access road that will be controlled via a boom gate with a security reader and intercom.</p> <p>The internal access has been designed based on passenger vehicle manoeuvrability and car park functionality for a standard B99 vehicle. The access off the north road must be designed for heavy rigid 10.5m vehicle manoeuvrability for garbage service.</p>	Noted
10.2	<p><i>Recommendation</i></p> <p>That the consent authority be requested to impose a condition requiring the carparking area to be designed in accordance with the appropriate Australian Standard.</p>	<p>All carparking areas have been designed in accordance with the appropriate Australian Standards including:</p> <ul style="list-style-type: none"> • AS2890.1-2004 - Off-street car parking • AS2890.2-2002 - Off-street commercial vehicle facilities • AS2890.6-2009 – Off-street parking for people with disabilities

Appendix A

12785-02C - NEW HIGH SCHOOL IN JERRABOMBERRA

ENVIRONA DRIVE, JERRABOMBERRA NSW 2619

CIVIL & STORMWATER

DRAWING No.	DESCRIPTION
JHS-CE-2001	DRAWING REGISTER AND LOCALITY PLAN
JHS-CE-2002	CONSTRUCTION NOTES
JHS-CE-2005	SEDIMENT & EROSION CONTROL PLAN
JHS-CE-2006	SEDIMENT & EROSION CONTROL PLAN - DETAILS
JHS-CE-2007	STORMWATER PRE DEVELOPMENT CATCHMENT PLAN
JHS-CE-2008	STORMWATER POST DEVELOPMENT CATCHMENT PLAN
JHS-CE-2009	BULK EARTHWORKS DETAIL PLAN
JHS-CE-2010	BULK EARTHWORKS LONGITUDINAL SECTIONS - SHEET 1
JHS-CE-2030	STORMWATER DRAINAGE GENERAL ARRANGEMENT PLAN
JHS-CE-2031	STORMWATER DRAINAGE PLAN - SHEET 1
JHS-CE-2032	STORMWATER DRAINAGE PLAN - SHEET 2
JHS-CE-2033	STORMWATER PIT SCHEDULE
JHS-CE-2051	STORMWATER DRAINAGE DETAILS - SHEET 1
JHS-CE-2052	STORMWATER DRAINAGE DETAILS - SHEET 2
JHS-CE-2053	STORMWATER DRAINAGE DETAILS - SHEET 3
JHS-CE-2054	STORMWATER DRAINAGE DETAILS - SHEET 4
JHS-CE-2061	SITEWORKS AND PAVEMENT PLAN - SHEET 1
JHS-CE-2062	SITEWORKS AND PAVEMENT PLAN - SHEET 2
JHS-CE-2063	SITEWORKS AND PAVEMENT DETAILS
JHS-CE-2065	RETAINING WALL DETAILS
JHS-CE-2071	SITEWORKS DETAILS - SHEET 1
JHS-CE-2091	PAVEMENT DETAILS



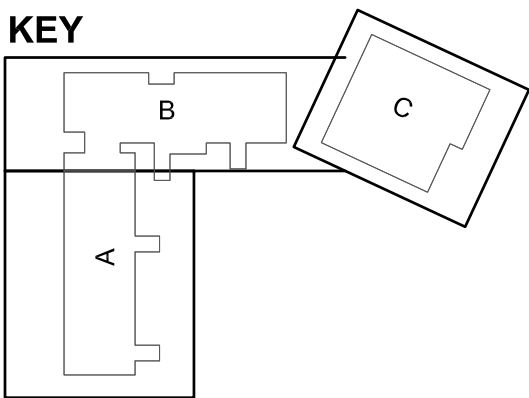
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

BUILDER
HINDMARSH
Hindmarsh Construction Australia Pty Ltd
Level 27, 100 Miller Street
North Sydney NSW 2060
T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

CLIENT
NSW GOVERNMENT
Education
School Infrastructure
NSW Department of Education |
School Infrastructure NSW
T+ 02 9561 8287

Project Managers
TSA Management
T+ 61 2 9276 1400
Architect
TKD Architects
T+ 61 2 9281 4399
Mechanical, Electrical, Hydraulic, ESD
Norman Disney & Young
T+ 61 2 9928 6800

Landscape Architecture
Context
T+ 61 2 8244 8900
Acoustic
Acoustic Logic
T+ 61 2 8339 9000



Rev	Date	Description	Chkd	Auth.
A	24.03.21	DRAFT SCHEMATIC DESIGN ISSUE		
B	16.04.21	SCHEMATIC DESIGN		
C	07.05.21	SCHEMATIC DESIGN		
D	12.05.21	SCHEMATIC DESIGN		
E	15.10.21	PRELIMINARY FOR DD		
F	12.11.21	ISSUED FOR DD		
G	24-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS		

Project
High School in Jerrabomberra

ENVIRONA DRIVE,
JERRABOMBERRA NSW 2619

Drawing Title
**DRAWING REGISTER AND
LOCALITY PLAN**

Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No.	Status	Date	Scale
5555	DD	OCT '21	AS NOTED AT B1
Drawing No.	Revision		
JHS-CE-2001	G		

NOT FOR CONSTRUCTION

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD ABN 65 094 064 990
Tel: +61 (0)2 8666 7888
L3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)
CONSULT AUSTRALIA
Member Firm
AUSTRALIAN STEEL INSTITUTE
ACSI

CIVIL NOTES

GENERAL NOTES

- G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS OR SKETCHES AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH WORK.
- G2 MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE SPECIFICATION, CURRENT SAA CODES, BUILDING REGULATIONS AND THE REQUIREMENTS OF ANY OTHER RELEVANT STATUTORY AUTHORITIES.
- G3 THESE DRAWINGS MUST NOT BE SCALED. ALL DIMENSIONS ARE IN METERS. ALL SET OUT DIMENSIONS AND LEVELS, INCLUDING THOSE SHOWN ON THESE DRAWINGS SHALL BE IN ACCORDANCE WITH THE ARCHITECT'S DRAWINGS AND VERIFIED ON SITE.
- G4 ALL SETOUT AND DIMENSIONS OF THE STRUCTURE INCLUDING KERBS AND RETAINING WALLS, AND BULK EARTHWORKS MUST BE TAKEN FROM THE ARCHITECT'S DRAWINGS. SETOUT OF THE STORMWATER PITS BY OTHERS, CONTRACTOR TO CONFIRM SETOUT OF SERVICE TRENCHING INCLUDING SUBSOIL ON SITE.
- G5 THE CONTRACTOR SHALL COMPLY WITH ALL REGULATIONS OF AUTHORITIES HAVING JURISDICTION VER THE WORKS. REFER TO GEOTECHNICAL REPORT BY 'DOUGLAS PARTNERS' ISSUED 23rd APRIL 2021.
- G6 ALL DIMENSIONS AND REDUCED LEVELS MUST BE VERIFIED ON SITE BEFORE THE COMMENCEMENT OF ANY WORK.
- G7 THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE SUPERINTENDENT BUT IS NOT AN AUTHORISATION OF A COST VARIATION. THE SUPERINTENDENT MUST APPROVE ANY COST VARIATION INVOLVED BEFORE ANY WORK STARTS.
- G8 ALL LEVELS SHOWN ARE TO THE AUSTRALIAN HEIGHT DATUM.
- G9 SERVICE INFORMATION SHOWN IS APPROXIMATE ONLY. PRIOR TO COMMENCEMENT OF ANY WORKS, THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND SERVICES AND COMPLY WITH ALL REQUIREMENTS OF THOSE AUTHORITIES.
- G10 EXISTING SURFACE CONTOURS, WHERE SHOWN, ARE INTERPOLATED AND MAY NOT BE ACCURATE.
- G11 UNLESS NOTED OTHERWISE, ALL VEGETATION SHALL BE STRIPPED TO A MINIMUM DEPTH OF 150mm UNDER ALL PROPOSED PAVEMENT AND BUILDING AREAS.
- G12 MAKE SMOOTH CONNECTION WITH ALL EXISTING WORKS.

SITWORKS NOTES

- S1 PRIOR TO THE PLACEMENT OF ANY PAVEMENTS, BUILDINGS OR DRAINS THE EXPOSED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD COMPACTION IN ACCORDANCE WITH TEST 'E11' OF A.S. 1289 FOR THE TOP 300mm. ANY SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH GRANULAR FILL TO THE ENGINEERS APPROVAL AND COMPACTED IN ACCORDANCE WITH THE COMPACTION REQUIREMENTS SET OUT BELOW. ON HIGHLY REACTIVE CLAY AREAS SITE EXCAVATED MATERIAL MAY BE USED WITH THE PRIOR AUTHORISATION OF THE ENGINEER.
- S2 ALL FILL AND PAVEMENT MATERIALS SHALL BE COMPACTED IN ACCORDANCE WITH GEOTECHNICAL REPORT BY DOUGLAS PARTNERS ISSUED 23rd APRIL 2021. MOISTURE CONTENT TO BE MAINTAINED AT +/- 2% OMC. MINIMUM COMPACTION REQUIREMENTS ARE DETAELED BELOW FOR [ALL REQUIREMENTS ARE TO BE VERIFIED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER]:
- LANDSCAPED AREAS 98% STD.
 - FILL UNDER ANY FOOTINGS AND FLOOR SLABS FOR ANY STRUCTURE TO SUBGRADE LEVEL:
 - FINE CRUSHED ROCK 98% STD.
 - SELECTED FILL WITHOUT CONSPICUOUS CLAY CONTENT 98% STD.
 - BUILDING BASECOURSE 98% MOD
 - FILL UNDER ROAD PAVEMENTS:
 - TO WITHIN 500mm OF FINISHED SUBGRADE LEVEL 98% STD.
 - UP TO FINISHED SUBGRADE LEVEL 98% STD.
 - ROAD PAVEMENT MATERIALS:
 - SUB BASE 98% MOD.
 - BASE COURSE 98% MOD.

THE MAXIMUM COMPACTION IS TO BE NO GREAT THAN 4% ON TOP OF THE ABOVE MENTION VALUES.

- S3 GRADE EVENLY BETWEEN FINISHED SURFACE SPOT LEVELS. FINISHED SURFACE CONTOURS ARE SHOWN FOR CLARITY. WHERE FINISHED SURFACE LEVELS ARE NOT SHOWN, THE SURFACE SHALL BE GRADED SMOOTHLY SO THAT IT WILL DRAIN AND MATCH ADJACENT SURFACES OR STRUCTURES.
- S4 ALL DIMENSIONS GIVEN ARE TO FACE OF KERB, CENTER OF PIPE OR EXTERIOR FACE OF BUILDING UNLESS NOTED OTHERWISE.
- S5 ANY STRUCTURES, PAVEMENTS OR SURFACES DAMAGED, DIRTIED OR MADE UNSERVICABLE DUE TO CONSTRUCTION WORK SHALL BE REINSTATED TO THE SATISFACTION OF THE ENGINEER.
- S6 ANY FILL REQUIRED SHALL BE APPROVED BY THE ENGINEER / GEOTECHNICAL CONSULTANT
- S7 CONTRACTOR IS TO ENSURE THAT ALL EXCAVATIONS ARE MAINTAINED IN A DRY CONDITION WITH NO WATER ALLOWED TO REMAIN IN THE EXCAVATIONS.
- S8 ALL FINISHES AND COLOURS TO BE IN ACCORDANCE WITH ARCHITECTURAL SPECIFICATIONS.
- S9 REFER TO STRUCTURAL DRAWINGS FOR CONCRETE, REINFORCEMENT AND RETAINING WALL DETAILS.
- S10 GENERALLY FOR TRENCHING WORKS THE CONTRACTOR MUST:
A) COMPLY WITH THE GENERAL PROVISIONS OF PART 3.1 'MANAGING RISKS TO HEALTH AND SAFETY' OF NSW WORK AND HEALTH AND SAFETY REGULATION 2011
B) COMPLY PART 6.3 DIVISION 3 'EXCAVATION WORK' OF NSW WORK HEALTH AND SAFETY REGULATION NSW 2011
- S11 PRIOR TO THE EXCAVATION OF ANY TRENCH DEEPER THAN 1.5 METRES THE CONTRACTOR MUST:
A) NOTIFY THE OCCUPATIONAL HEALTH AND SAFETY AUTHORITY ON THE APPROPRIATE FORM.

STORMWATER DRAINAGE NOTES

- SW1 UNLESS NOTED OTHERWISE BY HYDRAULIC ENGINEERS DRAWINGS, ALL DOWNPIPES & GRATED INLETS SHALL BE CONNECTED TO PITS OR MAIN STORMWATER DRAINS WITH 150 DIA. UPVC PIPES LAID AT A MINIMUM GRADE OF 1 IN 100. FOR SPYHONIC ROOF DRAINAGE SYSTEMS ALL DOWNPIPES CONNECTION DRAIN SIZES TO BE CONNECTED INTO MAIN STORMWATER DRAINS SHALL BE IN ACCORDANCE WITH HYDRAULIC ENGINEERS DRAWINGS.
- SW2 ALL MAIN STORMWATER DRAINS SHALL BE CONSTRUCTED USING MATERIALS AS SPECIFIED ON THE DRAWINGS IN ACCORDANCE WITH THE APPROPRIATE A.S. IF NOT SPECIFIED THEN CLASS 2 RRJ RCP SHALL BE USED FOR DIAMETERS > 225mm. SEWER CLASS SEH UPVC IN ACCORDANCE WITH AS1260 SHALL BE USED FOR Ø225mm OR SMALLER.
- SW3 ALL PIPEWORK TO BE INSTALLED IN ACCORDANCE WITH AS3725 FOR RCP AND AS2032 FOR PVC. ALL BEDDING TO BE TYPE H2 UNLESS NOTED OTHERWISE.
- SW4 FOR ALL PITS > 1.2m DEEP, STEP IRONS SHALL BE INSTALLED.
- SW5 PRECAST PITS MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY MEINHARDT-BONACCI GROUP.
- SW6 ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
- SW7 WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED UPVC SEWER GRADE PIPE IS TO BE USED.
- SW8 GRATES AND COVERS SHALL CONFORM WITH AS 3996 AND AS 1428.1 FOR ACCESS REQUIREMENTS.
- SW9 CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES ARE NOT TO BE REDUCED WITHOUT APPROVAL.
- SW10 AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
- SW11 ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

KERBING NOTES

- K1 ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 32 MPa U.N.O.
- K2 ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON 75mm GRANULAR BASECOURSE COMPACTED TO A MINIMUM 98% MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS1289 5.2.1.
- K3 EXPANSION JOINTS (EJ) TO BE FORMED FROM 10mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLAB.
- K4 WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLAB.
- K5 BROOMED FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.
- K6 IN THE REPLACEMENT OF KERBS:-
 - EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O. FROM THE LIP OF GUTTER, UPON COMPLETION OF THE NEW KERB AND GUTTER, NEW BASECOURSE AND SURFACE TO BE LAID 600mm WIDE U.N.O.
 - EXISTING KERBS ARE TO BE COMPLETELY REMOVED WHERE NEW KERBS ARE SHOWN.

OSD/INFILTRATON TANK SIGNAGE



CONFINED SPACE DANGER SIGN

A CONFINED SPACE DANGER SIGN SHALL BE POSITIONED IN A LOCATION AT ALL ACCESS POINTS, SUCH THAT IT IS CLEARLY VISIBLE TO PERSONS PROPOSING TO ENTER THE BELOW GROUND TANKS/S CONFINED SPACE.

COLOURS: 'DANGER' AND BACKGROUND - WHITE
ELLIPTICAL AREA - RED
RECTANGLE CONTAINING ELLIPSE - BLACK
OTHER LETTERING AND BORDER - BLACK

MINIMUM DIMENSIONS: 300mm x 450mm (LARGE ENTRIES, SUCH AS DOORS)
250mm x 180mm (SMALL ENTRIES SUCH AS GRATES & MANHOLES)

MATERIAL: COLOUR BONDED ALUMINIUM OR POLYPROPYLENE.

FIXING: USE SCREWS AT EACH CORNER AND/OR SUITABLE EPOXY GLUE/CEMENT.

SEDIMENT AND EROSION CONTROL NOTES

1. IT HAS BEEN ASSUMED THAT HOARDINGS/SILT FENCING WILL BE PROVIDED TO THE STAGE BOUNDARY SUFFICIENT TO PREVENT SEDIMENT RUNOFF FROM LEAVING SITE (EXCEPT IN THE CASE OF ENTRY/EXIT LOCATIONS WHERE TEMPORARY CONSTRUCTION ENTRY/EXIT SEDIMENT TRAP ARE PROVIDED). IF THIS IS NOT THE CASE, PROVIDE SEDIMENT FENCE TO STANDARD DETAIL BELOW AS REQUIRED TO PREVENT SEDIMENT FROM LEAVING SITE. DIRECT RUNOFF TO SEDIMENT BASIN.
2. ALL SEDIMENT CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH LANDCOM MANAGING URBAN STORMWATER 'BLUE BOOK'.

SEDIMENT CONTROL CONDITIONS

1. SEDIMENT FENCES WILL BE INSTALLED AS SHOWN AND ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER TO CONTAIN COARSER SEDIMENT FRACTIONS INCLUDING AGGREGATED FINES) AS NEAR AS POSSIBLE TO THEIR SOURCE.
2. SEDIMENT REMOVED FROM ANY TRAPPING DEVICE WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS & WATERWAYS CANNOT OCCUR.
3. STOCKPILES WILL BE PLACED WHERE SHOWN ON DRAWING OR ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER AND NOT WITHIN 5m OF HAZARD AREAS INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS & DRIVEWAYS.
4. WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM WITH INLET FILTERS (SEE DETAILS) UNLESS IT IS SEDIMENT FREE.
5. TEMPORARY SEDIMENT TRAPS WILL BE RETAINED UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
6. CONTRACTOR TO DESIGN/SIZE/CONSTRUCT TEMPORARY SEDIMENT BASIN. WATER SHOULD BE ALLOWED TO SETTLE BEFORE DISCHARGE. CONTRACTOR MUST VERIFY THAT WATER QUALITY MEETS AUTHORITIES REQUIREMENTS PRIOR TO DISCHARGE. ACCUMULATED SEDIMENT SHOULD THEN BE REMOVED & DISPOSED OF IN ACCORDANCE WITH ENVIRONMENTAL MANAGEMENT PROCEDURES.

SITE INSPECTION & MAINTENANCE CONDITIONS

THE SITE MANAGER WILL INSPECT THE SITE AT LEAST WEEKLY AND WILL:

1. ENSURE THAT DRAINS OPERATE PROPERLY & TO EFFECT ANY NECESSARY REPAIRS
2. REMOVE SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5m FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS & PAVED AREAS.
3. REMOVE TRAPPED SEDIMENT WHENEVER LESS THAN DESIGN CAPACITY REMAINS WITHIN THE STRUCTURE
4. ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS APPROPRIATE.
5. CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS.
6. MAINTAIN EROSION & SEDIMENT CONTROL MEASURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED.
7. REMOVE TEMPORARY SOIL CONSERVATION STRUCTURES AS THE LAST ACTIVITY IN THE REHABILITATION PROGRAM.

AS PART OF THE STATUTORY 'DILIGENCE OF CARE' RESPONSIBILITIES, THE SITE MANAGER WILL KEEP A LOGBOOK MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST RAIN AND AFTER RAINFALL. ENTRIES WILL INCLUDE:

1. THE VOLUME & INTENSITY OF ANY RAINFALL EVENTS
2. THE CONDITION OF ANY SOIL & WATER MANAGEMENT WORKS
3. THE CONDITION OF VEGETATION & ANY NEED TO IRRIGATE
4. THE NEED FOR DUST PREVENTION STRATEGIES
5. ANY REMEDIAL WORKS TO BE UNDERTAKEN

THE BOOK WILL BE KEPT ONSITE & MADE AVAILABLE TO ANY AUTHORISED PERSON ON REQUEST. IT WILL BE GIVEN TO THE PROJECT MANAGER AT THE CONCLUSION OF WORKS.

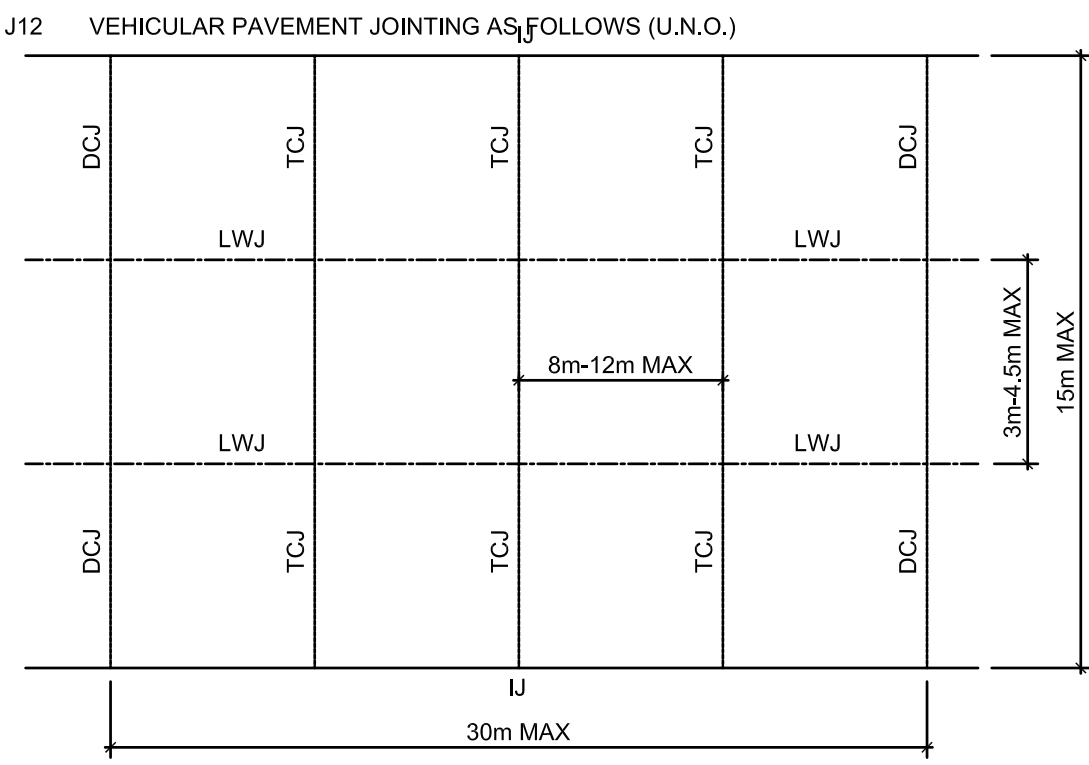
JOINTING NOTES

PEDESTRIAN FOOTPATH JOINTS

- J1 EXPANSION JOINTS (EJ) ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT 6m CENTRES.
- J2 SAWCUT JOINTS (SCJ) ARE TO BE LOCATED AT A MAX 1.5m x WIDTH OF PAVEMENT. THE TIMING OF THE SAWCUT IS TO BE CONFIRMED BY THE CONTRACTOR ON SITE. SITE CONDITIONS WILL DETERMINE HOW MANY HOURS AFTER THE CONCRETE POUR BEFORE THE SAW CUTS ARE COMMENCED.
- J3 WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND / OR ADJACENT PAVEMENT JOINTS.
- J4 PROVIDE 10mm WIDE FULL DEPTH EXPANSION JOINTS (EJ) BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVERS
- J5 ALL PEDESTRIAN FOOTPATH JOINTINGS AS FOLLOWS (U.N.O.).
-

VEHICULAR PAVEMENT JOINTS

- J6 ALL VEHICULAR PAVEMENTS TO BE JOINTED AS SHOWN ON DRAWINGS.
- J7 LONGITUDINAL WARPING JOINTS (LWJ) SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 3m TO 4.5m MAX CENTERS. ALL LWJs SHOULD BE TIED UP TO A MAXIMUM TOTAL WIDTH OF 30m.
- J8 TRANSVERSE CONTRACTION JOINTS (TCJ) SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 6m TO 12m MAX CENTERS. TCJ's CAN BE SPACED AT SUITABLE INTERVALS UP TO A RECOMMENDED MAXIMUM LENGTH OF 15m.
- J9 TRANSVERSE DOWELED CONSTRUCTION JOINTS (DCJ) TO BE PROVIDED FOR PLANNED INTERRUPTIONS SUCH AS AT THE END OF EACH DAY'S OPERATIONS (POUR BREAK), AT BLOCK OUTS FOR BRIDGES AND INTERSECTIONS OR FOR UNEXPECTED DELAYS WHEN THE SUSPENSION OF OPERATIONS IS LIKELY TO CREATE A JOINT.
- J10 ISOLATION JOINTS WITH SUB-GRADE BEAM (IJ) TO BE PROVIDED AT INTERSECTIONS OR AT THE JUNCTION OF A POUR BREAK.
- J11 ALL VEHICULAR PAVEMENTS TO BE JOINTED IN ACCORDANCE WITH AUSTRROADS AGPT02-12 GUIDE TO PAVEMENT TECHNOLOGY PART 2 STRUCTURAL PAVEMENT DESIGN AND SUPPLEMENT AP-T36-06 (PAVEMENT DESIGN FOR LIGHT TRAFFIC)
- J12 VEHICULAR PAVEMENT JOINTING AS FOLLOWS (U.N.O.).



BIORETENTION BASIN/SWALE NOTES

- B1. GENERAL:
THE FOLLOWING NOTES ARE INTENDED AS A SUMMARY ONLY TO ASSIST WITH THE CONSTRUCTION AND MAINTENANCE OF A BIORETENTION BASIN/SWALE. ALL WORKS ARE TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE RELEVANT INDUSTRY STANDARDS AND GUIDELINES INCLUDING BUT NOT LIMITED TO STORMWATER NEW SOUTH WALES GUIDELINES "FOR THE MAINTENANCE OF STORMWATER TREATMENT MEASURES" JANUARY 2020, WATER BY DESIGN - BIORETENTION TECHNICAL DESIGN GUIDELINES VERSION 1.1 OCT 2014.
- ALL PLANTING TO BIOFILTRATION BASIN/SWALE TO BE A CORE FUNCTIONAL BIORETENTION PLANT SPECIES WITH EFFECTIVE NUTRIENT REMOVAL PROPERTIES.

THE BIOFILTRATION BASIN SHALL BE INSTALLED ONLY AFTER ALL CONSTRUCTION AND LANDSCAPING UPSTREAM HAS BEEN COMPLETED. IF THE FILTER MEDIA IS INSTALLED BEFORE LANDSCAPING IS COMPLETED, THE UN-VEGETATED BASIN MUST BE COVERED WITH A LAYER OF GEOFABRIC UNTIL ALL BARE SOFT SURFACES UPSTREAM HAVE BEEN TURRED OR APPROPRIATELY COVERED AND CONSTRUCTION DEBRIS/SEDIMENT IS NO LONGER EXPECTED TO ENTER THE STORMWATER SYSTEM.

BIORETENTION BASINS REQUIRE AN ESTABLISHMENT PERIOD OF APPROXIMATELY TWO YEARS TO ALLOW THE FILTER MEDIA TO SETTLE AND THE VEGETATION TO BIOCURE ITS DESIGN CONDITIONS. REGULAR MAINTENANCE OF THE BASIN IS ESPECIALLY IMPORTANT DURING THIS INITIAL PERIOD TO ENSURE THE VEGETATION TAKES HOLD AND DOES NOT CHOKE FROM DEBRIS OR PERIODS OF MINIMAL RAINFALL.

ADEQUATE SCOUR PROTECTION IS TO BE PROVIDED AROUND ANY INLET ZONE(S), WITH CONSIDERATION GIVEN TO MINIMISING THE REQUIRED ON-GOING SYSTEM MAINTENANCE FOR THE END-CLIENT AND THE DAMAGING EFFECT OF HIGH VELOCITY STORMWATER.

B2. MEDIA PROPERTIES:

A TYPICAL BIORETENTION SYSTEM HAS 3 LAYERS: A DRAINAGE LAYER, A TRANSITION LAYER AND THE FILTER MEDIA LAYER. GEOFABRIC IS NOT TO BE PLACED BETWEEN THE LAYERS OF MEDIA, OR SOCKS PLACED ON SUB-SOIL DRAINAGE.

THE MEDIA SHOULD BE PLACED IN LIFTS NO DEEPER THAN 250mm THICK AND LIGHTLY COMPACTED. A MAXIMUM OF ONE PASS WITH A SMALL VIBRATING COMPACTOR OR EQUIVALENT EQUIPMENT SHOULD NOT BE USED FOR MEDIA PLACEMENT THAT WOULD INADVERTENTLY COMPACT THE LAYERS AND AFFECT THE INFILTRATION RATES OF WATER THROUGH THE MEDIA.

B3. FILTER MEDIA SPECIFICATIONS:

THE FILTER MEDIA IS THE TOP LAYER AND THE GROWING MEDIUM. MEDIA SHALL BE IN ACCORDANCE WITH THE PROPERTIES LISTED IN TABLE 3 ADOPTION GUIDELINES FOR STORMWATER BIOFILTRATION SYSTEMS (CRC FOR WSC, 2015), AS MODIFIED BELOW:

DEPTH	500mm TYP BUT VARIES DEPENDING ON SYSTEM SCALE AND SIZE
MATERIAL	EITHER AN ENGINEERED MATERIAL - A WASHED, WELL GRADED SAND - OR NATURALLY OCCURRING SAND, A MIXTURE IS PERMITTED. IT SHOULD BE FREE OF RUBBISH AND WEEDS AND NOT BE HYDROPHOBIC. AN APPROVED FILTER MEDIA IS THE (M165) MEDIA FROM BENEDICT SAND AND GRAVEL OR APPROVED EQUIVALENT.
HYDRAULIC CONDUCTIVITY	HYDRAULIC CONDUCTIVITY: A TARGET, AS BUILT, OR IN-SITU SATURATED HYDRAULIC CONDUCTIVITY RATE OF THE FILTER MEDIA SHALL BE A MINIMUM OF 100mmHr. THE EX-SITU (EX BIN) RATE SHALL BE A MINIMUM OF 250mmHr AND VERIFIED, WITH INDEPENDENT NATA REGISTERED LABORATORY TEST DATA NO LONGER THAN ONE MONTH OLD. FOR ALL MUSIC MODELS ADOPT THE IN-SITU RATE OF 100mmHr. TESTING OF MEDIA SHALL CONFORM TO ASTM-F1815-11. EVERY 100m3 OF MEDIA SHALL BE TESTED FOR COMPLIANCE WITH ALL SPECIFIED CRITERIA IN THIS TABLE
PH	5.5 - 7 AS SPECIFIED FOR 'NATURAL SOILS AND BLENDS' (PH : IN WATER)
ELECTRICAL CONDUCTIVITY	<1.2 DSM AS SPECIFIED FOR "NATURAL SOILS AND BLENDS"
NUTRIENT CONTENT	LOW NUTRIENT CONTENT TOTAL NITROGEN (TN) 1000 mg/kg NITROGEN DRAWDOWN > 0.5 (NDI) AVAILABLE PHOSPHATE (COLWELL) < 80mg/kg ORTHOPHOSPHATE < 40 mg/kg (IN BOTH STANDARD OR SATURATED SYSTEMS)
GRADING OF PARTICLES	SMOOTH GRADING - ALL PARTICLE SIZE CLASSES SHOULD BE REPRESENTED ACROSS SIEVE SIZES FROM THE 0.05mm TO THE 3.4mm SIEVE AS PER ASTM F 1652-03 (2010).
ACCEPTABLE RANGE	
(%)W/W	
CLAY & SILT	< 3% (< 0.05mm)
VERY FINE SAND	5-30% (0.05 - 0.15mm)
FINE SAND	10-30% (0.15 - 0.25mm)
MEDIUM SAND	40-60% (0.25 - 0.5mm)
COURSE SAND	< 25% (0.5 - 1.0mm)
VERY COURSE SAND	0-10% (1.0 - 2.0mm)
FINE GRAVEL	< 3% (2.0 - 3.4mm)
ORGANIC CONTENT	≤ 5%
IMMEDIATELY PRIOR TO DELIVERY TO SITE A PSD TEST (AS1141) SHALL BE UNDERTAKEN. IF THE PSD DOES NOT COMPLY A HYDRAULIC CONDUCTIVITY TEST SHALL BE UNDERTAKEN. DELIVERY SHALL NOT BE APPROVED UNTIL THE MEDIA IS APPROVED. THERE SHOULD BE NO GAP IN THE PARTICLE SIZE GRADING AND THE COMPOSITION SHOULD NOT BE DOMINATED BY A SMALL PARTICLE SIZE RANGE. ORGANIC MATTER CONTENT SHALL BE 5% TO 5% TO SUPPORT VEGETATION.	

- B3. TO AVOID MIGRATION OF THE FILTER MEDIA INTO THE TRANSITION LAYER THE PARTICLE SIZE DISTRIBUTION SHOULD BE ASSESSED TO MEET BRIDGING CRITERIA. THE SMALLEST 15% (D₁₅) OF THE TRANSITION LAYER PARTICLES MUST BE NO GREATER THAN 5 TIMES THE SIZE OF THE LARGEST 15% (D₈₅) OF THE FILTER MEDIA PARTICLES THAT IS:
D₁₅ (TRANSITION) ≤ 5 x D₈₅ (FILTER).
- ALTERNATIVE MEDIA MAY BE APPROVED AS A MINIMUM DETAILED MATERIAL TESTING AND DEMONSTRATED PERFORMANCE WILL BE REQUIRED. IF ANY RECYCLED MATERIAL IS TO BE USED IT MUST BE DEMONSTRATED AT THE CONTRACTOR'S EXPENSE THAT THE MATERIAL IS BOTH INERT AND FREE OF CONTAMINANTS.
- THE CONTRACTOR SHALL ARRANGE FOR IN-SITU TESTING OF THE SPECIFIED HYDRAULIC CONDUCTIVITY AT A RATE OF 2 TESTS PER 50m² OR PART OF & 1 TEST PER 200m² THEREAFTER OF FILTER MEDIA AREA FOR COMPLIANCE WITH THE ABOVE SPECIFICATION.

- B4. BATTERS:
BATTERS SHALL BE SCARIFIED WITH A ROTARY HOE TO LANDSCAPE ARCHITECTS REQUIREMENT.
ALTERNATIVELY REMOVE TOP 200mm OF TOPSOIL AND REPLACE WITH AN IMPORTED TOPSOIL COMPLIANT WITH AS4419.
- B5. TRANSITION LAYER (MIDDLE) SPECIFICATION:
THE PURPOSE OF THE TRANSITION LAYER IS TO PREVENT THE MIGRATION OF THE FILTER MEDIA INTO THE DRAINAGE LAYER. IT CREATES A LAYER BETWEEN THE FILTER MEDIA AND THE DRAINAGE LAYER. THE LAYER DEPTH IS TO BE A MIN OF 100mm NOM. THICK, IN A SATURATED SYSTEM. THE MATERIAL MUST BE CLEAN, WELL GRADED SAND/COARSE MATERIAL CONTAINING LITTLE OR NO FINES. USE OF WELL WASHED RECYCLED GLASS IS ACCEPTABLE. AN INDICATIVE PARTICLE SIZE DISTRIBUTION IS BETWEEN 0.5mm and 1.4mm. FINE PARTICLE CONTENT <2%. IN ADDITION TO BRIDGING CRITERIA, THE D₁₅ (TRANSITION) ≥ D₈₅ (FILTER) x 5. THIS CRITERIA ENSURES GREATER HYDRAULIC CONDUCTIVITY OF THE TRANSITION LAYER THAN THE MEDIA.

- THE CONTRACTOR SHALL ARRANGE FOR TESTING OF THE PSD & COMPLIANCE WITH BRIDGING CRITERIA & HYDRAULIC CONDUCTIVITY OF A RATE OF 1 TEST PER 1000m² OF FILTER MEDIA AREA.
- B6. DRAINAGE LAYER SPECIFICATION:
THIS LAYER COLLECTS STORES AND CONVEYS TREATED STORMWATER INTO A SLOTTED COLLECTION PIPE BEDDED INTO THE DRAINAGE LAYER. IT CONSISTS OF A CLEAN GRAVEL 57mm WASHED SCREENINGS (NOT SCORIA). THE LAYER DEPTH SHALL MAINTAIN A MINIMUM 50mm COVER OVER THE SUB SURFACE DRAINAGE PIPE. RECYCLED CONCRETE OR BRICK PRODUCTS WILL NOT BE ACCEPTED.

- B7. VEGETATION, SHADING AND MULCHING:
PLANTS ARE AN ESSENTIAL COMPONENT OF THE BIORETENTION SYSTEM, REMOVING POLLUTANTS AND MAINTAINING THE 'HYDRAULIC' CONDUCTIVITY OF THE FILTER MEDIA. PLANTS MUST BE CAPABLE OF SURVIVING IN THE FILTER MEDIA ENVIRONMENT (SANDY SOIL, DRY PERIODS WITH INTERMITTENT INUNDATION). A LIST OF SUITABLE SPECIES IS INCLUDED IN TABLE 1b OF WATER BY DESIGN - BIORETENTION TECHNICAL DESIGN GUIDELINES VERSION 1.1 OCT 2014.

- PLANTS IN 50mm TUBES OR HIKO CELLS ARE SUITABLE FOR PLANTING IN BIORETENTION SYSTEMS. ESTABLISHMENT WATERING WILL BE REQUIRED. PLANTS WILL NEED TO BE PRE-ORDERED EARLY IN THE DESIGN PROCESS TO ENSURE THEY ARE AVAILABLE AT THE DESIRED TIME. ALL PLANTS SHALL BE VIGOROUS AND HEALTHY AND FREE FROM ROOT BALLING AND WEEDS. THE PLANTS SHALL BE POTTED ON IF A DELAY OCCURS.
- DESIGNS MUST CONSIDER SUNLIGHT AVAILABILITY FOR THE PLANTS. THE ORIENTATION OR DEPTH OF THE SYSTEM CAN CAUSE EXCESSIVE PLANT SHADING, ESPECIALLY IN WINTER.
- BIORETENTION SYSTEMS SHALL NOT BE MULCHED. IF MULCH IS USED ON ADJACENT BATTERS IT SHALL BE PLACED SO THAT IT WILL NOT BE WASHED INTO THE BIORETENTION SYSTEM.
- DURING ESTABLISHMENT EROSION OF THE BOTTOM OF ACCESS RAMPS & AROUND ALL SURCHARGE PITS SHALL BE CONTROLLED USING JUTE.

B8. MAINTENANCE

- BIORETENTION TREATMENTS SHOULD BE INSPECTED REGULARLY AFTER COMPLETION OF SEEDING/PLANTING UNTIL THE VEGETATION IS ESTABLISHED. IN THE FIRST YEAR OF OPERATION INSPECTIONS SHOULD OCCUR ON A MONTHLY BASIS AND FOLLOWING SIGNIFICANT STORM EVENTS TO EVALUATE AN APPROPRIATE INSPECTION FREQUENCY FOR A PARTICULAR SITE.
- TYPICALLY AN AVERAGE INSPECTION FREQUENCY OF 1 TO 2 MONTHS FOLLOWING STABILISATION OF VEGETATION WOULD BE APPROPRIATE. THE INSPECTIONS COULD COINCIDE WITH A REGULAR MAINTENANCE ACTIVITY (EG. GRASS CUTTING, WEEDING, LITTER REMOVAL, ETC).
- QUARTERLY INSPECTIONS ARE RECOMMENDED FOR ESTABLISHED SYSTEMS.

ALL MAINTENANCE OF THE BIORETENTION BASINS/SWALES ARE TO BE IN ACCORDANCE WITH STORMWATER NEW SOUTH WALES GUIDELINES "FOR THE MAINTENANCE OF STORMWATER TREATMENT MEASURES" JANUARY 2020, WATER BY DESIGN - BIORETENTION TECHNICAL DESIGN GUIDELINES VERSION 1.1 OCT 2014.



DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

BUILDER

HINDMARSH

Hindmarsh Construction Australia Pty Ltd
Level 27, 100 Miller Street
North Sydney NSW 2060
T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

CLIENT

NSW Education
School Infrastructure

NSW Department of Education |
School Infrastructure NSW

T+ 02 9561 8287

Project Managers

TSA Management

T+ 61 2 9276 1400

Architect

TKD Architects

T+ 61 2 9281 4399

Mechanical, Electrical, Hydraulic, ESD

Norman Disney & Young

T+ 61 2 9928 8600

Landscape Architecture

Context

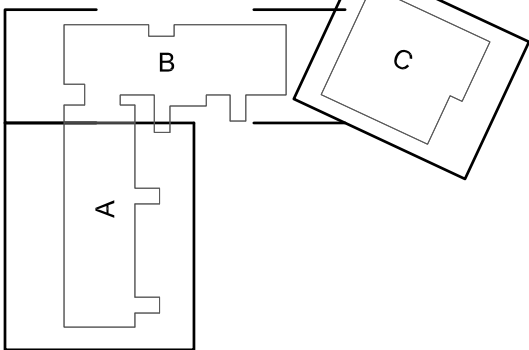
T+ 61 2 8244 8900

Acoustic

Acoustic Logic

T+ 61 2 8339 8000

KEY



WARNING
NO DRAINAGE WORKS SHALL COMMENCE UNTIL THE CONTRACTOR CONFIRMS THE I.L. OF ALL EXISTING DRAINS, AND CONFIRMS IN WRITING WITH THE ENGINEERING SUPERVISOR.

ALL EXISTING PROPERTY SERVICES' LOCATIONS AND DEPTHS ARE APPROXIMATE AND MUST BE VERIFIED ON SITE.
THE CONTRACTOR SHOULD SUPPLY PRECISE LOCATIONS AND DEPTHS TO THE ENGINEER FOR REVIEW PRIOR TO ANY WORKS THAT MAY AFFECT THESE SERVICES.

NOTES

1. SITE SURVEY SUPPLIED BY 'VERIS PTY LTD' (LAND DATA SURVEYS) PROJECT No. 17362.00 REV D. DATED 31st AUGUST 2018

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.

NOT FOR CONSTRUCTION

Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No.	Status	Date	Scale
5555	DD	OCT '21	AS NOTED AT B1
Drawing No.	Revision		
JHS-CE-2002	G		

M+G Consulting

M & G CONSULTING ENGINEERS PTY LTD ABN 65 094 064 990
Tel +61 (02) 8666 7888

L3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)

COAST AUSTRALIA
Member Firm

AUSTRALIAN INSTITUTE OF PROFESSIONAL ENGINEERS

SOIL AND WATER MANAGEMENT NOTES

INTRODUCTORY NOTES

1. THIS IS A CONCEPTUAL SOIL AND WATER MANAGEMENT PLAN (SWMP). IT IS INTENDED TO INDICATE THAT THE CIVIL WORKS REQUIRED FOR THE DEVELOPMENT OF THE SITE CAN BE UNDERTAKEN WITHOUT POLLUTION TO RECEIVING WATERS DURING THE CONSTRUCTION PHASE. THE LOCATIONS, SIZES AND TYPES OF CONTROL MEASURES SHOWN ARE SUGGESTED OPTIONS ONLY.
2. ALL REFERENCES OF DETAILS, TESTING AND PROCEDURES ARE TO BE FOLLOWED AS SPECIFIED IN THE DEPARTMENT OF HOUSING "MANAGING URBAN STORMWATER SOILS CONSTRUCTION" MANUAL, MARCH 2004, HERE IN REFERRED TO AS THE "BLUE BOOK".
3. THESE CONCEPT PLANS ARE TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS AND OTHER PLANS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED AND RELATING TO THE DEVELOPMENT OF THE SITE.
4. ALL CONTRACTORS SHALL FULLY RESEARCH AND UNDERSTAND THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSTREAM LANDS AND WATERWAYS. PROVIDE A DETAILED SWMP IN ACCORDANCE WITH "BLUE BOOK" INCLUDING STAGING OF WORKS.

EROSION CONTROL

1. CLEARLY VISIBLE BARRIER FENCING SHALL BE INSTALLED AT THE DISCRETION OF THE SUPERINTENDENT TO ENSURE TRAFFIC CONTROL AND PROHIBIT UNNECESSARY SITE DISTURBANCE. VEHICULAR ACCESS TO THE SITE SHALL BE LIMITED TO ONLY THOSE ESSENTIAL FOR CONSTRUCTION WORK AND THEY SHALL ENTER SITE ONLY THROUGH THE STABILISED ACCESS POINTS.
2. WHERE PRACTICAL, FOOT AND VEHICULAR TRAFFIC WILL BE KEPT AWAY FROM ALL RECENTLY STABILISED AREAS.
3. AT ALL TIMES, AND IN PARTICULAR DURING WINDY AND DRY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.

SEDIMENT CONTROL

1. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE (I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED/STABILISED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE). PROVIDE FLOCCULANT TO EARTH BASIN AS REQ'D.
2. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE STABILISED/REHABILITATED.
3. THE USE OF FLOCCULANTS SHALL BE MINIMISED. SHOULD FLOCCULANTS BE USED INFORMATION ON THE PRODUCT AND DETAILS ON THE PROPOSED CHEMICAL TO BE USED AND POTENTIAL IMPACTS TO BE PROVIDED TO THE EPA FOR CONSIDERATION AND ASSESMENT.

OTHER MATTERS

1. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
(A) PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE.
(B) ENSURING THAT NOTHING IS NAILED TO THEM.
(C) PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE.
2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED TO ENSURE THAT THEY OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN REGULARLY AND AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.
3. THE CONTRACTOR SHALL PROVIDE ALL MONITORING CONTROLS & TESTING.
4. SITE REVEGETATION AND REHABILITATION SHALL BE UNDERTAKEN AS SOON AS PRACTICABLE THROUGHOUT CONSTRUCTION OPERATIONS.
5. CONSTRUCTION SHALL BE PROGRAMMED SO THAT THE TIME OF EXPOSURE OF WORKING SURFACES IS MINIMISED.
6. ALL SPOIL DEPOSITED DURING CARTAGE OF MATERIALS FROM OR TO THE SITE SHALL BE REMOVED IMMEDIATELY TO THE SATISFACTION OF COUNCIL (PUBLIC ROADS) AND THE OWNER (PRIVATE ROADS).
7. WHERE REQUIRED GUTTERS AND ROADWORKS SHALL BE SWEEP REGULARLY TO MAINTAIN THEM FREE FROM SEDIMENT.

SOIL AND WATER MANAGEMENT LEGEND

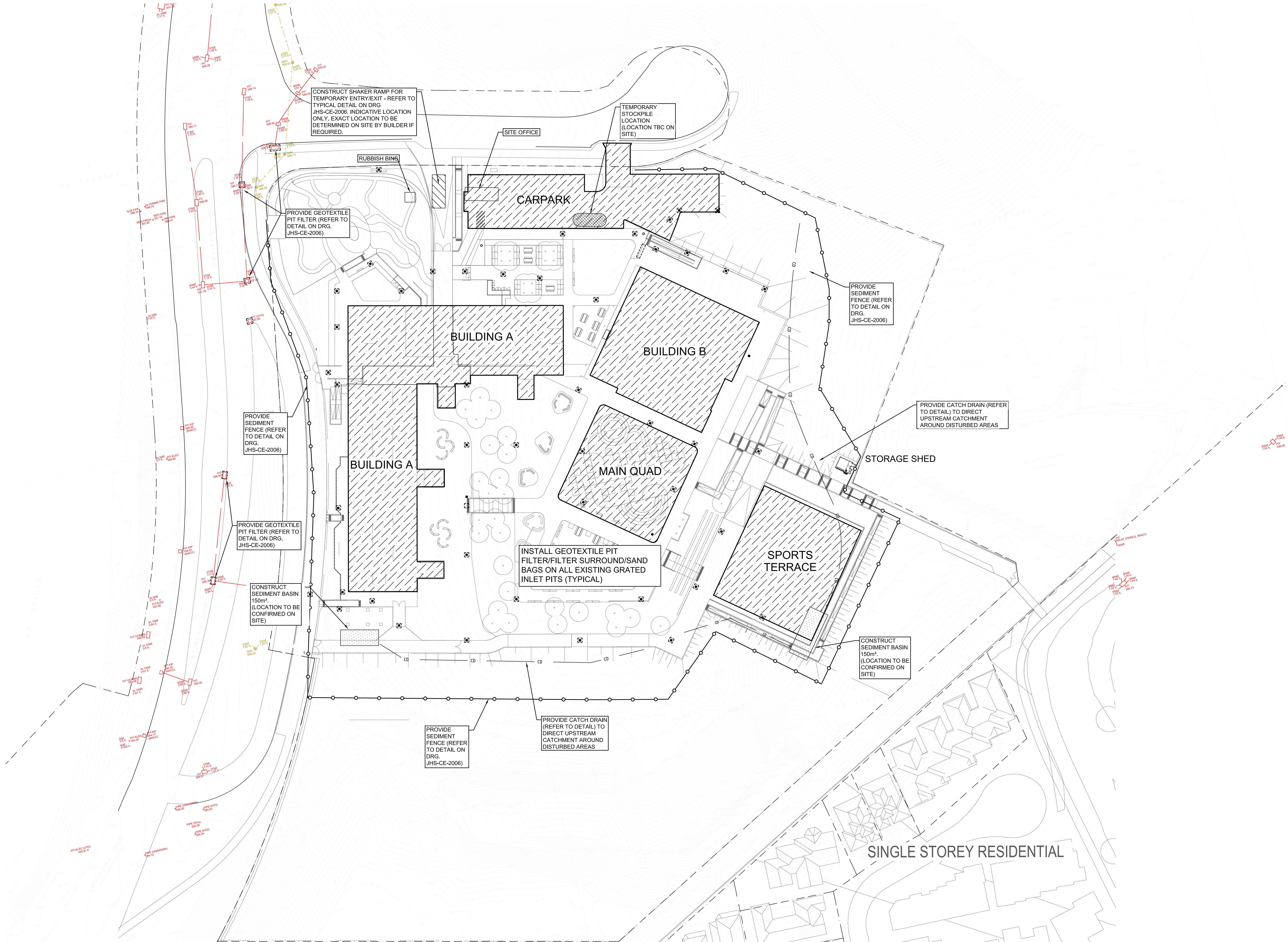
- SITE BOUNDARY
- SEDIMENT FENCE
- CD --- CATCH DRAIN
- OVERLAND FLOW
- TEMPORARY SHAKER RAMP FOR ENTRY/EXIT
- SEDIMENT BASIN (LOCATION TBC ON-SITE)
- TEMPORARY STOCKPILE (LOCATION TBC ON-SITE)
- GEOTEXTILE PIT FILTER / FILTER SURROUND INSTALLED ON EXISTING PIT
- SANDBAGS INSTALLED ON EXISTING PIT
- GEOTEXTILE PIT FILTER / FILTER SURROUND INSTALLED ON NEW PIT
- SANDBAGS INSTALLED ON NEW PIT

SURVEY LEGEND

- SITE BOUNDARY
- EX SURFACE LEVEL
- EX SURFACE CONTOUR
- EXISTING STORMWATER DRAINAGE LINE
- EXISTING SEWER LINE

NOTE:

REFER DRAWING JHS-CE-2006 FOR SEDIMENT CONTROL DETAILS.



SEDIMENT AND EROSION CONTROL PLAN

SCALE 1:500

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

NOT FOR CONSTRUCTION

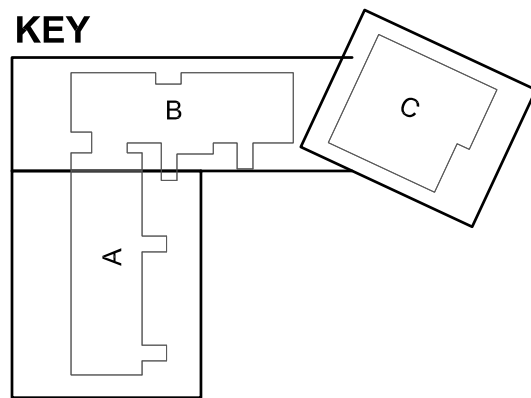
BUILDER
HINDMARSH
Hindmarsh Construction Australia Pty Ltd
Level 27, 100 Miller Street
North Sydney NSW 2060
T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

CLIENT
NSW GOVERNMENT
Education
School Infrastructure
NSW Department of Education |
School Infrastructure NSW
T+ 02 9561 8287

Project Managers
TSA Management
T+ 61 2 9276 1400
Architect
TKD Architects
T+ 61 2 9261 4399
Mechanical, Electrical, Hydraulic, ESD
Norman Disney & Young
T+ 61 2 9928 6800

Landscape Architecture
Context
T+ 61 2 8244 8900
Acoustic
Acoustic Logic
T+ 61 2 8339 9000

KEY



Rev	Date	Description	Chkd	Auth.
A	24.03.21	DRAFT SCHEMATIC DESIGN ISSUE		
B	16.04.21	SCHEMATIC DESIGN ISSUE		
C	07.05.21	SCHEMATIC DESIGN ISSUE		
D	12.05.21	SCHEMATIC DESIGN ISSUE		
E	15.10.21	PRELIMINARY FOR DD		
F	12.11.21	ISSUED FOR DD		
G	24-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS		

Project
High School in Jerrabomberra
ENVIRONA DRIVE,
JERRABOMBERRA NSW 2679
Drawing Title
SEDIMENT & EROSION
CONTROL PLAN

Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No.	Status	Date	Scale
5555	DD	OCT '21	1:500
Drawing No. JHS-CE-2005			Revision G

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD ABN 65 094 064 990
Tel: +61 (0)2 8666 7888
L3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)
MEMBER OF
AUSTRALIAN ENGINEERING COUNCIL
MEMBER OF
AUSTRALIAN CIVIL ENGINEERS



NOT TO SCALE



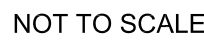
NOT TO SCALE

1. INSTALL THIS TYPE OF SEDIMENT FENCE WHEN USE OF SUPPORT POSTS IS NOT DESIRABLE OR NOT POSSIBLE. SUCH CONDITIONS MIGHT APPLY, FOR EXAMPLE, WHERE APPROVAL IS GRANTED FROM THE APPROPRIATE AUTHORITIES TO PLACE THESE FENCES IN HIGHLY SENSITIVE ESTUARINE AREAS.
2. USE BENT TRENCH MESH TO SUPPORT THE F82 WELDED MESH FACING AS SHOWN ON THE DRAWING ABOVE. ATTACH THE JUTE MESH TO THE WELDED MESH FACING USING SANDBAGS AND ROCK ANCHORS.
3. STABILISE THE WHOLE STRUCTURE WITH SANDBAG OR ROCK ANCHORING OVER THE TRENCH MESH AND THE LEADING EDGE OF THE JUTE MESH. THE ANCHORING SHOULD BE SUFFICIENTLY LARGE TO ENSURE STABILITY OF THE STRUCTURE IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.



CONTR

NOT TO SCALE



Do not scale drawings. Verify all dimensions on site.

ENVIRONA DRIVE,
JERRABOMBERRA NSW 2619

SEDIMENT & EROSION CONTROL DETAILS

3333 BB OCT 21 AS NOTED AT B1

Drawing No. _____

Revised

M+G Consulting

Tel: +61 (0)2 8666 7888

[illegible]

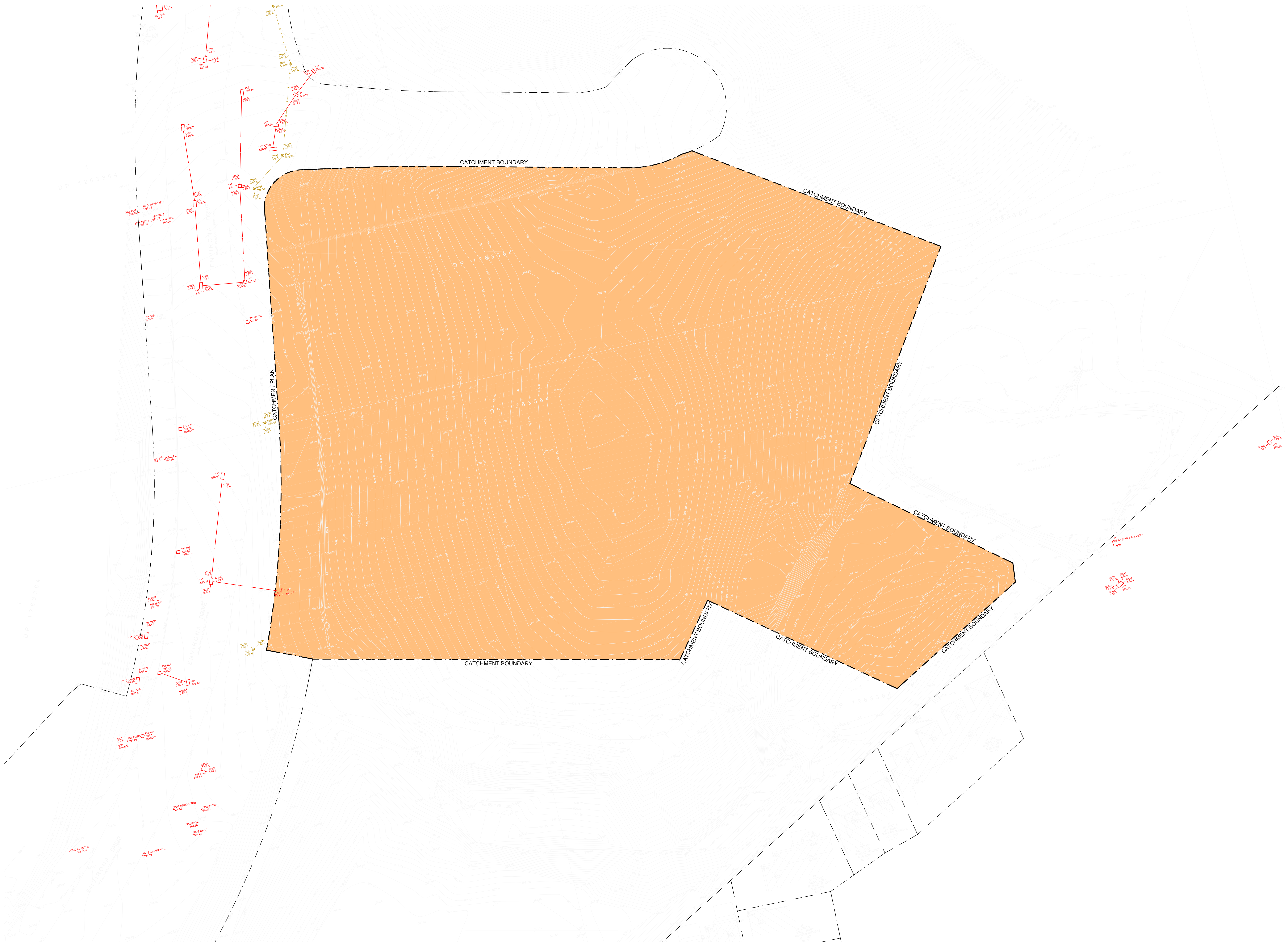
PRE-DEVELOPMENT CATCHMENT

TOTAL PERVIOUS 30 673m²
TOTAL CATCHMENT AREA..... 30 673m²

CATCHMENT LEGEND

PERVIOUS AREA

- DENOTES EXTENT OF PERVIOUS AREA



PRE-DEVELOPMENT CATCHMENT PLAN
SCALE 1:500

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

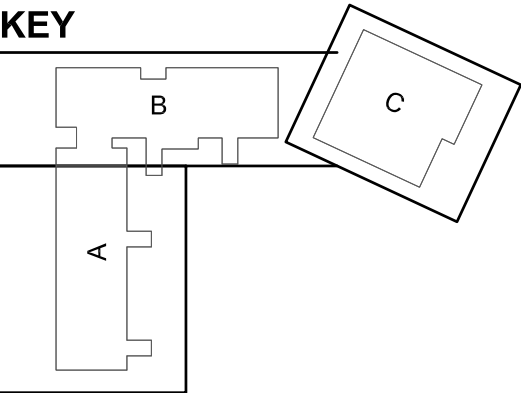
NOT FOR CONSTRUCTION

BUILDER
HINDMARSH
Hindmarsh Construction Australia Pty Ltd
Level 27, 100 Miller Street
North Sydney NSW 2060
T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

CLIENT
NSW GOVERNMENT
Education
School Infrastructure
NSW Department of Education |
School Infrastructure NSW
T+ 02 9561 8287

Project Managers
TSA Management
T+ 61 2 9276 1400
Architect
TKD Architects
T+ 61 2 9281 4399
Mechanical, Electrical, Hydraulic, ESD
Norman Disney & Young
T+ 61 2 9928 6800

Landscape Architecture
Context
T+ 61 2 8244 8900
Acoustic
Acoustic Logic
T+ 61 2 8339 9000



Rev	Date	Description	Chkd	Auth.
A	12.11.21	ISSUED FOR DD		
B	24-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS		

Project
High School in Jerrabomberra
ENVIRONA DRIVE,
JERRABOMBERRA NSW 2619
Drawing Title
STORMWATER
PRE-DEVELOPMENT
CATCHMENT PLAN

Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No.	Status	Date	Scale
5555	DD	OCT '21	1:500
Drawing No.	Revision		
JHS-CE-2007	B		

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD ABN 65 094 064 990
Tel: +61 (0)2 8666 7888
L3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)
CONSULT AUSTRALIA
Member Firm
AUSTRALIAN STEEL INSTITUTE
REGISTERED
AUSTRALIAN INSTITUTE

POST DEVELOPMENT CATCHMENT

IMPERVIOUS HARDSTAND AREA	11 689m ²
IMPERVIOUS ROOF AREA	5125m ²
TOTAL IMPERVIOUS AREA	16 814m ²
PERVIOUS AREA	13 859m ²
TOTAL CATCHMENT AREA	30 673m ²

TOTAL PERVIOUS AREA BYPASSING NEW	6916m ²
STORMWATER DRAINAGE SYSTEM	
TOTAL IMPERVIOUS AREA BYPASSING NEW	1879m ²
STORMWATER DRAINAGE SYSTEM	
TOTAL AREA BYPASSING NEW	8795m ²
STORMWATER DRAINAGE SYSTEM	

CATCHMENT LEGEND

PERVIOUS AREAS

 - DENOTES EXTENT OF PERVIOUS AREA

IMPERVIOUS AREAS

 - DENOTES EXTENT OF IMPERVIOUS HARDSTAND AREA

 - DENOTES EXTENT OF IMPERVIOUS ROOF CATCHMENT AREA

PERVIOUS AND IMPERVIOUS AREAS

 - DENOTES EXTENT OF PERVIOUS AND IMPERVIOUS AREAS BYPASSING NEW STORMWATER DRAINAGE SYSTEM



POST-DEVELOPMENT CATCHMENT PLAN
SCALE 1:500

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

NOT FOR CONSTRUCTION

BUILDER

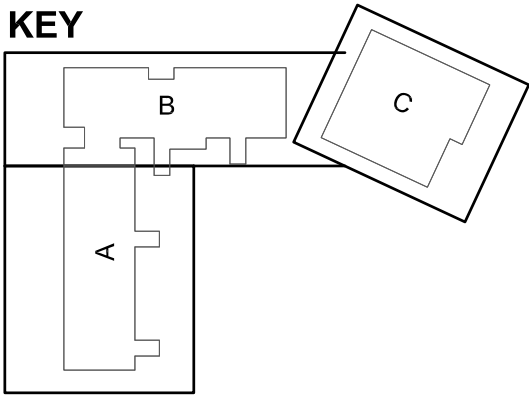
HINDMARSH
Hindmarsh Construction Australia Pty Ltd
Level 27, 100 Miller Street
North Sydney NSW 2060
T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

CLIENT

Education
School Infrastructure
NSW Department of Education |
School Infrastructure NSW
T+ 02 9561 8287

Project Managers
TSA Management
T+ 61 2 9276 1400
Architect
TKD Architects
T+ 61 2 9281 4399
Mechanical, Electrical, Hydraulic, ESD
Norman Disney & Young
T+ 61 2 9928 6800

Landscape Architecture
Context
T+ 61 2 8244 8900
Acoustic
Acoustic Logic
T+ 61 2 8339 8000



Do not scale drawings. Verify all dimensions on site.				
Rev	Date	Description	Chkd Auth.	
A	12.11.21	ISSUED FOR DD		
B	23-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS		

Project
High School in Jerrabomberra

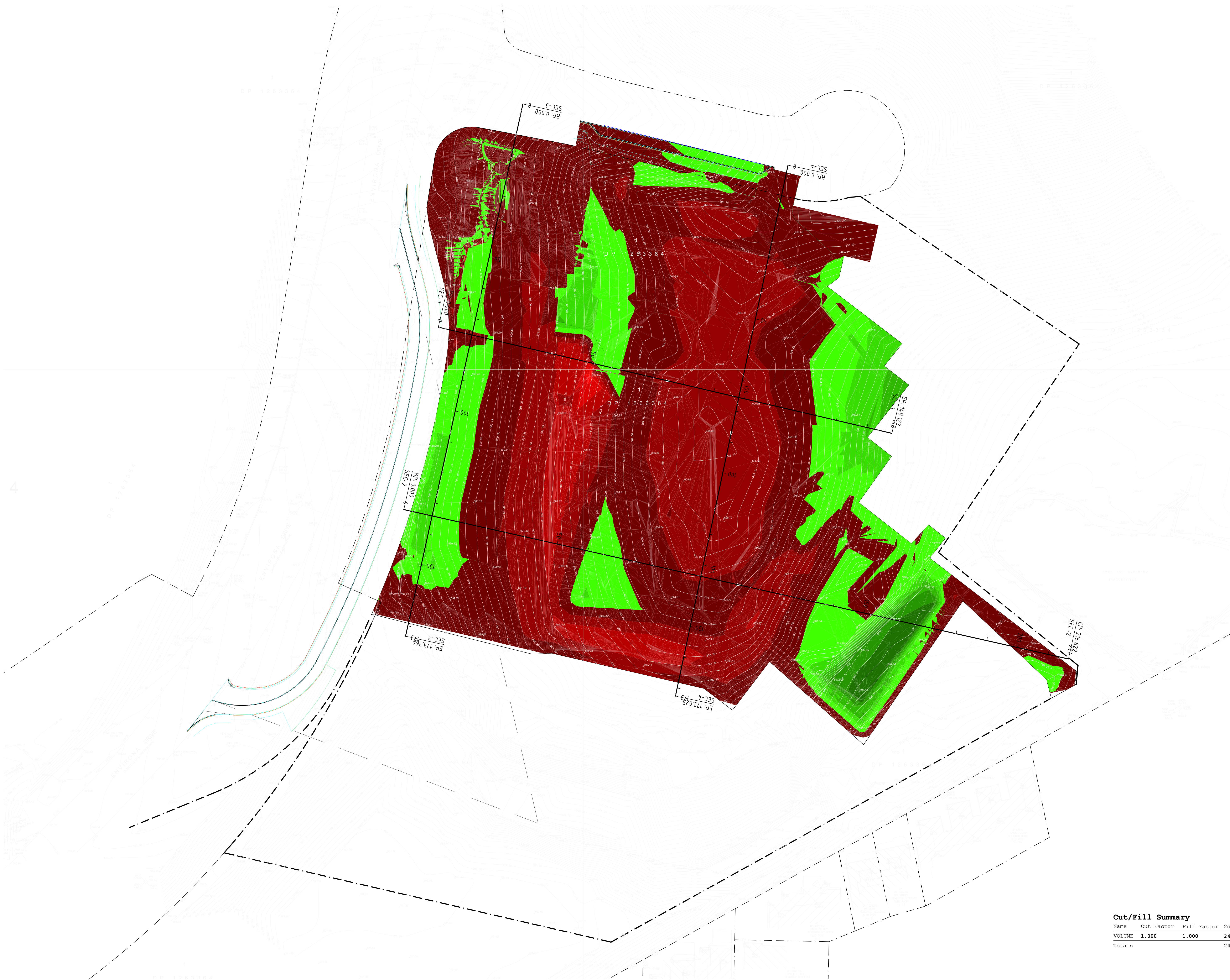
ENVIRONA DRIVE,
JERRABOMBERRA NSW 2619
Drawing Title
STORMWATER
POST-DEVELOPMENT
CATCHMENT PLAN

Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No.	Status	Date	Scale
5555	DD	OCT '21	1:500
Drawing No. JHS-CE-2008			

Revision
B

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD
Tel: +61 (0)2 8666 7888
ABN 65 094 064 990
L3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)



Surface Analysis: Elevation Ranges			
Number	Color	Minimum Elevation (m)	Maximum Elevation (m)
1	Red	-5.000	-4.000
2	Red	-4.000	-3.000
3	Red	-3.000	-2.000
4	Red	-2.000	-1.000
5	Red	-1.000	0.000
6	Green	0.000	1.000
7	Green	1.000	2.000
8	Green	2.000	3.000
9	Green	3.000	4.000
10	Green	4.000	5.000

EXCAVATION NOTES

- E1 VOLUMES ARE APPROXIMATE ONLY AND DO NOT INCORPORATE BULKING FACTORS AND OVER EXCAVATION. VOLUMES HAVE BEEN CALCULATED BETWEEN 150mm STRIPPED SURFACE LEVELS AND BULK EARTHWORKS SURFACE AS NOTED IN GEOTECHNICAL REPORT.
- E2 GROUND WATER SEEPAGE MAY OCCUR IN EXCAVATED AREAS. DE-WATERING MAY BE REQUIRED IN THIS INSTANCE.
- E3 THIS DRAWING ONLY DETAILS EXCAVATION ASSOCIATED WITH THE BUILDING SLAB (IGNORING STRUCTURAL FOOTINGS, BEAMS AND COLUMNS). IN ADDITION TO MAKING NO ALLOWANCE FOR TRENCH BACKFILL, TREE ROOTBALLS OR DETAILED EXCAVATION.
- E4 PROVIDE TEMPORARY MAXIMUM 1 IN 1 BATTERS U.N.O. GEOTECH TO CONFIRM BATTER ACCEPTABILITY DURING CONSTRUCTION.
- E5 THE EXCAVATED MATERIAL IS TO BE TEMPORARILY STOCKPILED WITHIN THE LANDSCAPED AREAS (TO BE CONFIRMED ON-SITE) AND RE-USED USING VALIDATED MATERIALS AS LANDSCAPING SOIL BUILD-UP/BACKFILL IN ACCORDANCE WITH LANDSCAPE ARCHITECTS SPECIFICATIONS.
- E6 REFER TO ARBORIST REPORT FOR TREE PROTECTION MEASURES IF REQUIRED.
- E7 500mm ZONE OFFSET FROM BUILDING HAS BEEN ALLOWED FOR FORM WORK.
- E8 SITE SURVEY SUPPLIED BY 'PROJECT SURVEYORS' PTY LTD JOB REFERENCE No. B04901 DRAWING No. B04901-JPS-1 REVISION B DATED 8/7/21.

NOTE:
EXCESS FILL TO BE REUSED ON SITE

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
VOLUME	1.000	1.000	24673.739sq.m	16762.388 Cu. M.	5650.673 Cu. M.	11111.716 Cu. M.<Cut>
Totals			24673.739sq.m	16762.388 Cu. M.	5650.673 Cu. M.	11111.716 Cu. M.<Cut>

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

BUILDER
HINDMARSH
Hindmarsh Construction Australia Pty Ltd
Level 27, 100 Miller Street
North Sydney NSW 2060
T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

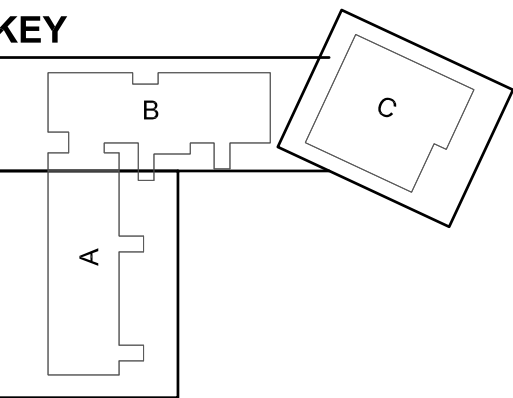
CLIENT
NSW GOVERNMENT
Education
School Infrastructure
NSW Department of Education |
School Infrastructure NSW
T+ 02 9561 8287

Project Managers
TSA Management
T+ 61 2 9276 1400
Architect
TKD Architects
T+ 61 2 9281 4399
Mechanical, Electrical, Hydraulic, ESD
Norman Disney & Young
T+ 61 2 9928 6800

Landscape Architecture
Context
T+ 61 2 8244 8900
Acoustic
Acoustic Logic
T+ 61 2 8339 8000

BULK EARTHWORKS PLAN

SCALE 1:200



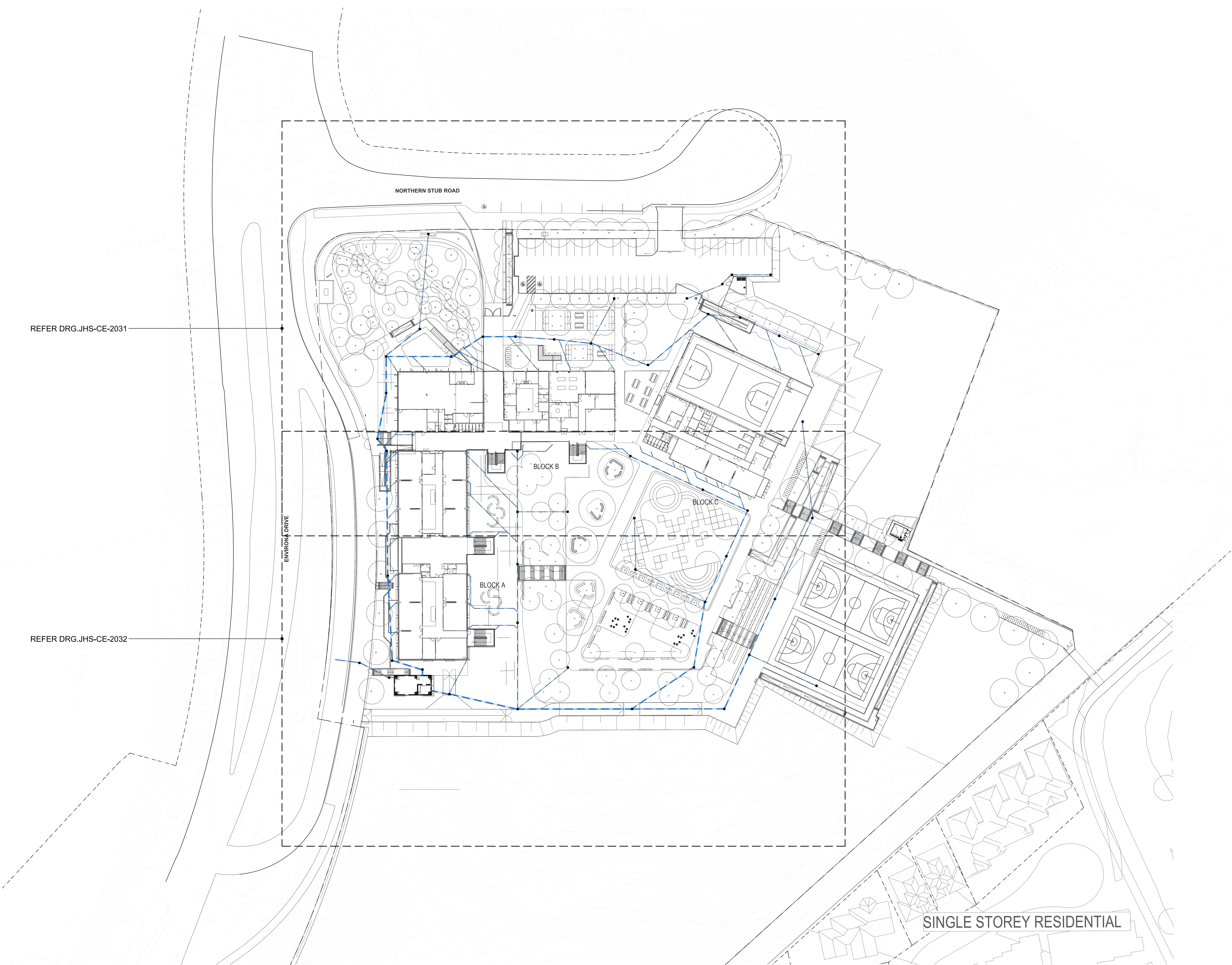
Rev	Date	Description	Chkd	Auth.
A	23.03.21	DRAFT SCHEMATIC DESIGN ISSUE		
B	16.04.21	SCHEMATIC DESIGN ISSUE		
C	07.05.21	SCHEMATIC DESIGN ISSUE		
D	11.05.21	SCHEMATIC DESIGN ISSUE		
E	15.10.21	PRELIMINARY FOR DD		
F	12.11.21	ISSUED FOR DD		
G	19.11.21	KISS A DROP BAY ADDED, BUS BAY REMOVED		
H	23.11.21	BE NEAR BUS BAY REVISD		
I	02.12.21	SECTION NUMBERS ADDED		
J	23-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS		

Project
High School in Jerrabomberra
ENVIRONA DRIVE,
JERRABOMBERRA NSW 2619
Drawing Title **BULK EARTHWORKS PLAN**

Designed MW	Reviewed SCM	Drawn MW	Sheet B1
Job No. 5555	Status DD	Date OCT '21	Scale 1:200
Drawing No. JHS-CE-2009			Revision J

NOT FOR CONSTRUCTION

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD ABN 65 094 064 990
Tel: +61 (0)2 8666 7888
L3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)
CONSIST AUSTRALIA
Member Firm
AUSTRALIAN STEEL INSTITUTE
ACI



DRAINAGE LEGEND

- EXISTING SURFACE/PAVEMENT LEVEL
- + 8.05 PROPOSED SURFACE/PAVEMENT LEVEL
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING STORMWATER PIPE AND PIT
- PROPOSED UPVC STORMWATER PIPE AND JUNCTION PIT
- PROPOSED UPVC STOMWATER PIPE AND SURFACE INLET PIT
- PROPOSED 1000 SUBSOIL PIPE
- DP PROPOSED DOWNPIPE
- IL INVERT LEVEL OF PIPE
- OF GUTTER OVERFLOW (SPITTER) INTO COURTYARD
- FP PROPOSED FLUSHING POINT
- SP PROPOSED SUMP POINT
- OVERLAND FLOW PATH
- GRATED DRAIN
- DIRECTION OF FALL
- FFL FINISHED FLOOR LEVEL
- RWO RAINWATER OUTLET
- C.O.S CONFIRM ON SITE
- PROPOSED SEDIMENT FENCE
- GEOTEXTILE FABRIC TO PIT

REFER DRG.JHS-CE-2031

REFER DRG.JHS-CE-2032

GENERAL ARRANGEMENT PLAN
SCALE 1:500

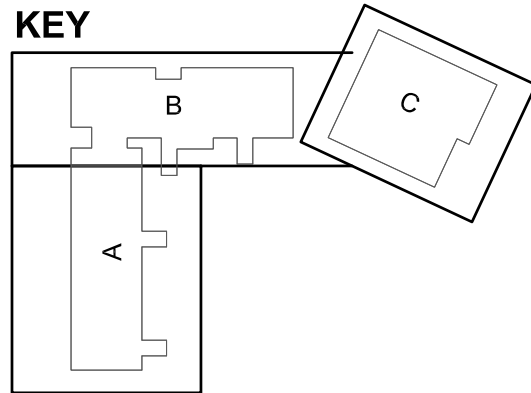
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

BUILDER
HINDMARSH
Hindmarsh Construction Australia Pty Ltd
Level 27, 100 Miller Street
North Sydney NSW 2060
T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

CLIENT
NSW GOVERNMENT
Education
School Infrastructure
NSW Department of Education |
School Infrastructure NSW
T+ 02 9561 8287

Project Managers
TSA Management
T+ 61 2 9276 1400
Architect
TKD Architects
T+ 61 2 9281 4399
Mechanical, Electrical, Hydraulic, ESD
Norman Disney & Young
T+ 61 2 9928 6800

Landscape Architecture
Context
T+ 61 2 8244 8900
Acoustic
Acoustic Logic
T+ 61 2 8339 9000



Do not scale drawings. Verify all dimensions on site.			
Rev	Date	Description	Chkd Auth.
A	24.03.21	DRAFT SCHEMATIC DESIGN ISSUE	
B	16.04.21	SCHEMATIC DESIGN ISSUE	
C	07.05.21	SCHEMATIC DESIGN ISSUE	
D	12.05.21	SCHEMATIC DESIGN	
E	15.10.21	PRELIMINARY FOR DD	
F	12.11.21	ISSUED FOR DD	
G	23-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS	

Project
High School in Jerrabomberra

ENVIRONA DRIVE,
JERRABOMBERRA NSW 2619

Drawing Title
STORMWATER DRAINAGE
GENERAL ARRANGEMENT
PLAN

Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1

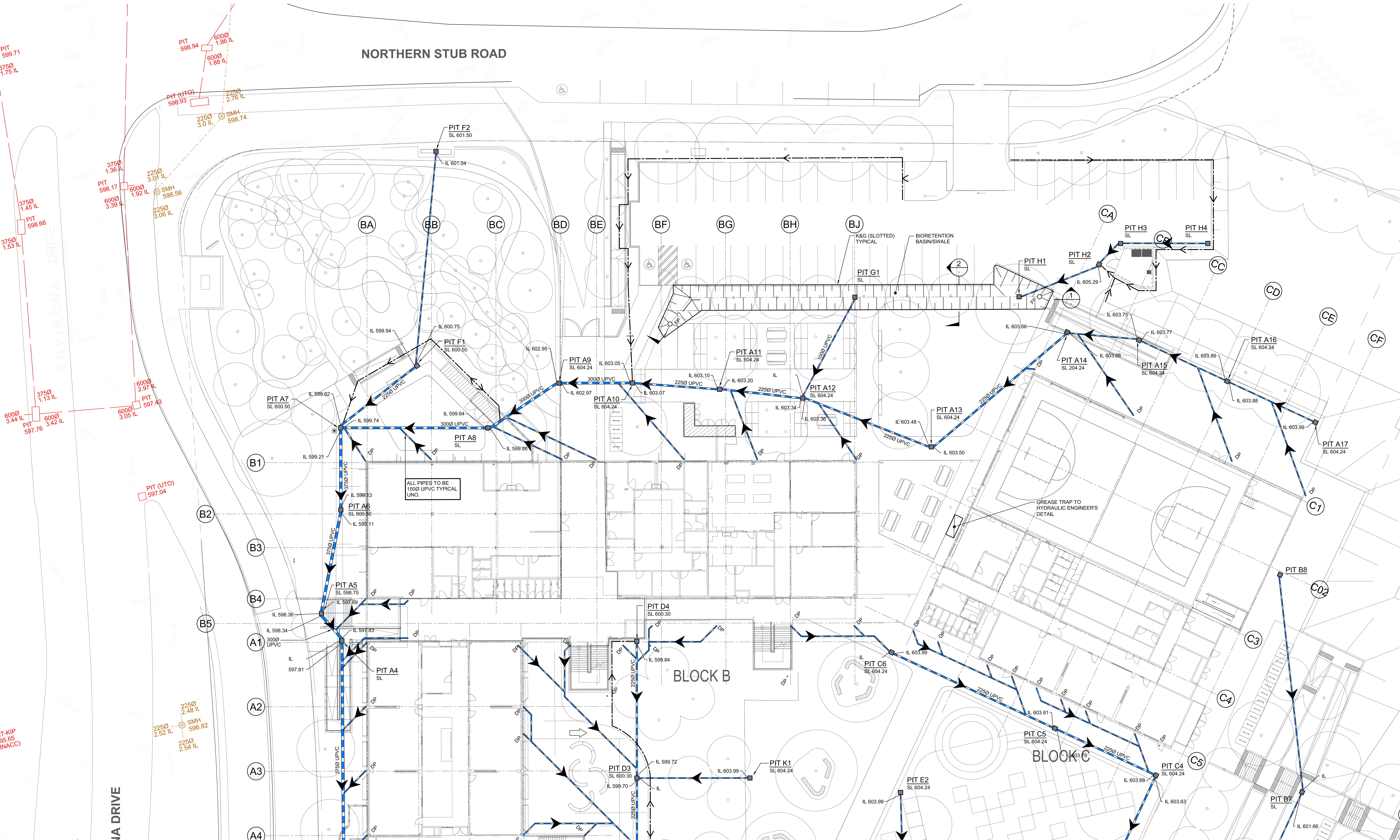
Job No.	Status	Date	Scale
5555	DD	OCT '21	1:500

Drawing No.
JHS-CE-2030

Revision
G

NOT FOR CONSTRUCTION

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD ABN 65 094 064 990
Tel: +61 (0)2 8666 7888
L3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)
CONCRETE AUSTRALIA
Member Firm
AUTOMATIC STEEL INSTITUTE
ACI
AUSTRALIAN INSTITUTE



FOR CONTINUATION REFER DRG. JHS-CE-2032

STORMWATER DRAINAGE PART PLAN

SCALE 1:200

* DENOTES PIT TO BE FITTED WITH OCEAN GUARD LITTER BASKET BY OCEAN PROTECT.

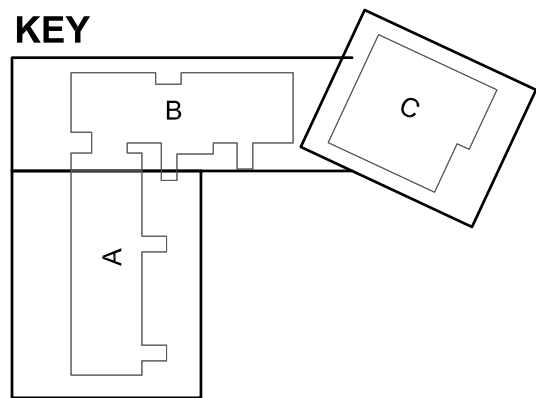
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

BUILDER
HINDMARSH
Hindmarsh Construction Australia Pty Ltd
Level 27, 100 Miller Street
North Sydney NSW 2060
T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

CLIENT
NSW Education
NSW Department of Education |
School Infrastructure NSW
T +61 2 9561 8287
F +61 2 9561 8287

Project Managers
TSA Management
T+ 61 2 9276 1400
Architect
TKD Architects
T+ 61 2 9281 4399
Mechanical, Electrical, Hydraulic, ESD
Norman Disney & Young
T+ 61 2 9928 6800

Landscape Architecture
Context
T+ 61 2 8244 8900
Acoustic
Acoustic Logic
T+ 61 2 8339 8000



Rev	Date	Description	Chkd	Auth.
A	24.03.21	DRAFT SCHEMATIC DESIGN ISSUE		
B	16.04.21	SCHEMATIC DESIGN ISSUE		
C	07.05.21	SCHEMATIC DESIGN ISSUE		
D	12.05.21	SCHEMATIC DESIGN		
E	15.10.21	PRELIMINARY FOR DD		
F	12.11.21	ISSUED FOR DD		
G	23-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS		

Project
High School in Jerrabomberra

ENVIRONA DRIVE,
JERRABOMBERRA NSW 2619

Drawing Title
**STORMWATER DRAINAGE
PLAN - SHEET 1**

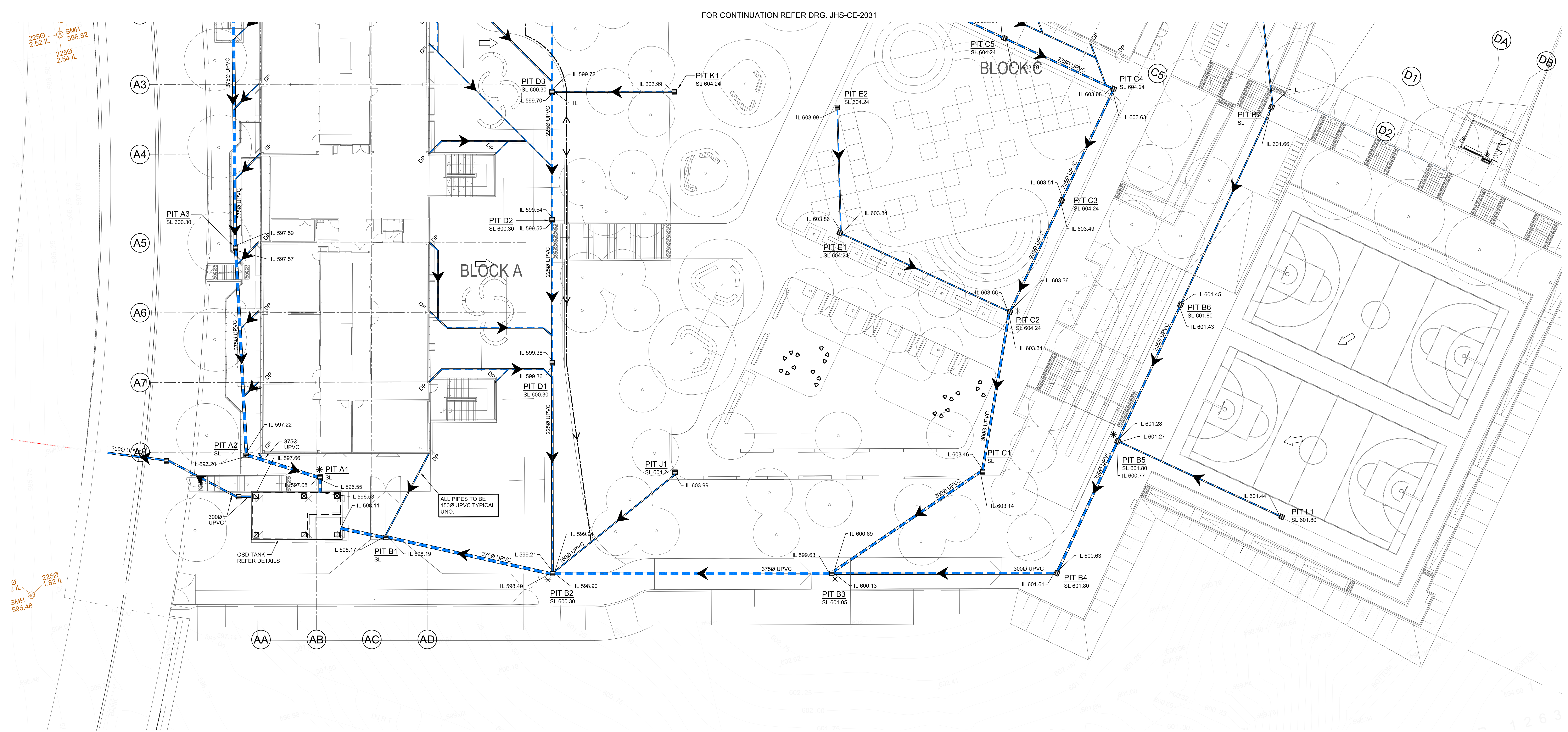
Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No.	Status	Date	Scale
5555	DD	OCT '21	1:200

Drawing No.
JHS-CE-2031

Revision
G

NOT FOR CONSTRUCTION

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD ABN 65 094 064 990
Tel: +61 (0)2 8666 7888
L3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)



STORMWATER DRAINAGE PART PLAN

SCALE 1:200

* DENOTES PIT TO BE FITTED WITH OCEAN GUARD LITTER BASKET BY OCEAN PROTECT.

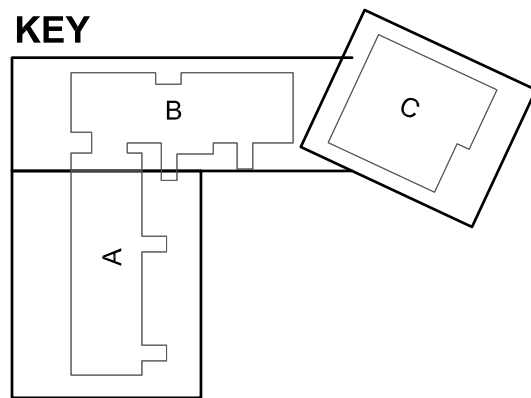
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

BUILDER
HINDMARSH
Hindmarsh Construction Australia Pty Ltd
Level 27, 100 Miller Street
North Sydney NSW 2060
T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

CLIENT
NSW GOVERNMENT
Education
School Infrastructure
NSW Department of Education |
School Infrastructure NSW

Project Managers
TSA Management
T+ 61 2 9276 1400
Architect
TKD Architects
T+ 61 2 9281 4399
Mechanical, Electrical, Hydraulic, ESD
Norman Disney & Young
T+ 61 2 9928 6800

Landscape Architecture
Context
T+ 61 2 8244 8900
Acoustic
Acoustic Logic
T+ 61 2 8339 9000



Do not scale drawings. Verify all dimensions on site.

Rev	Date	Description	Chkd	Auth.
A	24.03.21	DRAFT SCHEMATIC DESIGN ISSUE		
B	16.04.21	SCHEMATIC DESIGN ISSUE		
C	07.05.21	SCHEMATIC DESIGN ISSUE		
D	12.05.21	SCHEMATIC DESIGN		
E	15.10.21	PRELIMINARY FOR DD		
F	12.11.21	ISSUED FOR DD		
G	23-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS		

Project
High School in Jerrabomberra
ENVIRONA DRIVE,
JERRABOMBERRA NSW 2619
Drawing Title
STORMWATER DRAINAGE
PLAN - SHEET 2

Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No.	Status	Date	Scale
5555	DD	OCT '21	1:200

Drawing No.
JHS-CE-2032

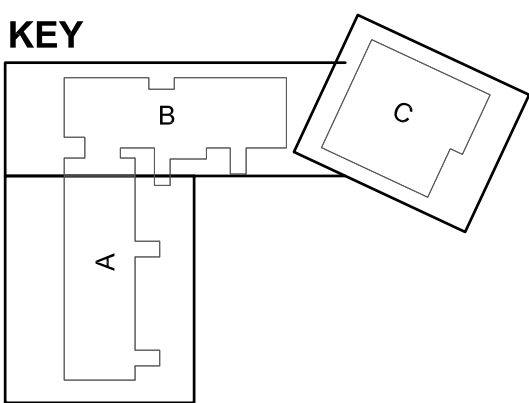
NOT FOR CONSTRUCTION
M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD ABN 65 094 064 990
Tel: +61 (0)2 8666 7888
L3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)
CONCRETE AUSTRALIA
Member Firm
AUTOMATIC STEEL INSTITUTE
ACI
Revised
G

PIT SCHEDULE		
PIT No.	SIZE	LID TYPE (TO AS.3996)
A1	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'A' WITH 'OCEAN GUARD' FILTRATION BAG BY OCEAN PROTECT
A2	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A3	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A4	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A5	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A6	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A7	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B' WITH 'OCEAN GUARD' FILTRATION BAG BY OCEAN PROTECT
A8	600 x 600	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A9	600 x 600	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A10	600 x 600	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A11	600 x 600	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A12	600 x 600	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A13	600 x 600	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A14	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A15	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A16	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
A17	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
B1	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
B2	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B' WITH 'OCEAN GUARD' FILTRATION BAG BY OCEAN PROTECT
B3	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B' WITH 'OCEAN GUARD' FILTRATION BAG BY OCEAN PROTECT
B4	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
B5	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B' WITH 'OCEAN GUARD' FILTRATION BAG BY OCEAN PROTECT
B6	600 x 600	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
B7	600 x 600	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
B8	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
C1	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
C2	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B' WITH 'OCEAN GUARD' FILTRATION BAG BY OCEAN PROTECT
C3	600 x 600	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
C4	600 x 600	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
C5	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
C6	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
D1	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
D2	600 x 600	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
D3	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
D4	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
E1	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
E2	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
F1	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
F2	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
G1	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
H1	600 x 600	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
H2	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'D'
H3	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'D'
H4	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'D'
J1	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
K1	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'
L1	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'B'

PIT NOTES:

1. PITS DEEPER THAN 1000 TO HAVE STEP IRONS.
2. ALL GRATES TO BE CAST INTO NEW SLABS.
3. ALL OSD/PIT/TRENCH DRAIN LIDS AND GRATES TO BE TO AS 3996, REFER TO PLANS/SECTIONS FOR CLASS OF PIT/GRATE.
4. ALL GRATED TRENCH DRAINS TO BE 250mm (W) x 150mm (D) MIN (CLEAR DIMENSIONS UNO.) & HAVE A STEEL TROWELLED FINISH.
5. ALL PIT SURFACE LEVELS TO BE CONFIRMED ON SITE. ANY SIGNIFICANT VARIATIONS FROM PROVIDED SURFACE LEVELS, ENGINEER TO BE ADVISED FOR ANY CHANGES TO THE PIPE INVERT LEVELS.

KEY



BUILDER



HINDMARSH

Hindmarsh Construction Australia Pty Ltd

Level 27, 100 Miller Street
North Sydney NSW 2060

T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

CLIENT



Education
SCHOOL INFRASTRUCTURE

NSW Department of Education |
School Infrastructure NSW

T+ 02 9561 8287

Project Managers

TSA Management
T+ 61 2 9276 1400

Architect

TKD Architects
T+ 61 2 9281 4399

Mechanical, Electrical, Hydraulic, ESD

Norman Disney & Young
T+ 61 2 9928 6800

Landscape Architecture

Context
T+ 61 2 8244 8900

Acoustic

Acoustic Logic
T+ 61 2 8339 9000

Project

High School in Jerrabomberra

ENVIRONA DRIVE,
JERRABOMBERRA NSW 2619

Drawing Title

**STORMWATER DRAINAGE
PIT SCHEDULE**

Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No.	Status	Date	Scale
5555	DD	OCT '21	1:500

Drawing No.

JHS-CE-2033

Revision

B

NOT FOR CONSTRUCTION



M+G Consulting

M & G CONSULTING ENGINEERS PTY LTD

ABN 65 094 064 990

Tel: +61 (0)2 8666 7888

L3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)

CONSULT AUSTRALIA

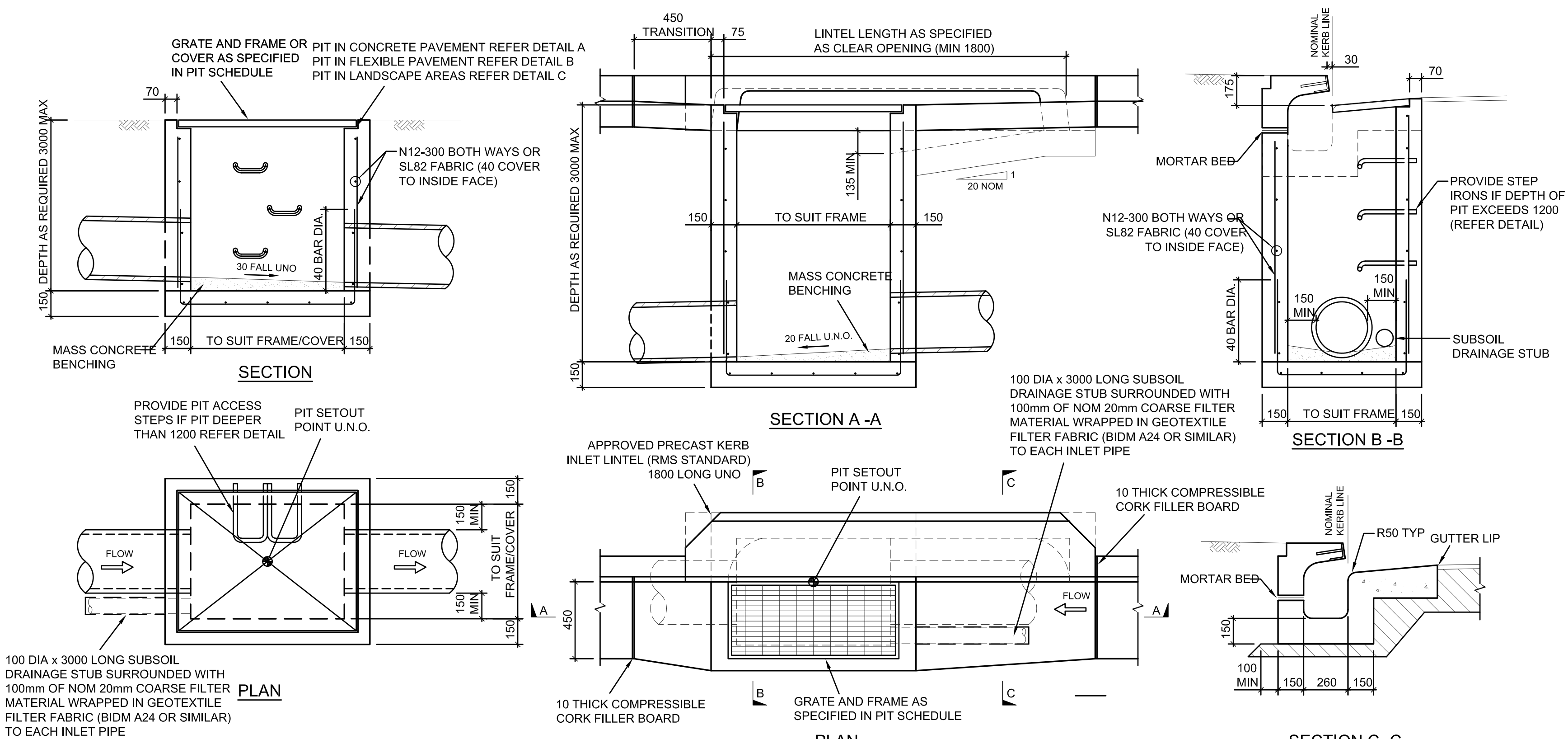
Member Firm

AUSTRALIAN STEEL INSTITUTE

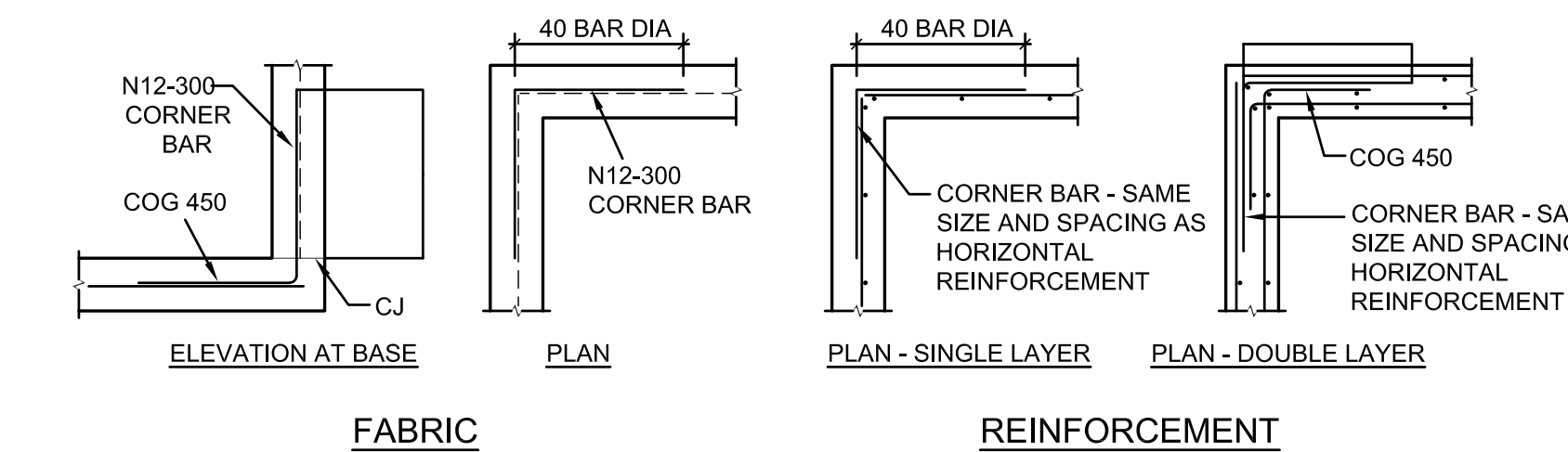
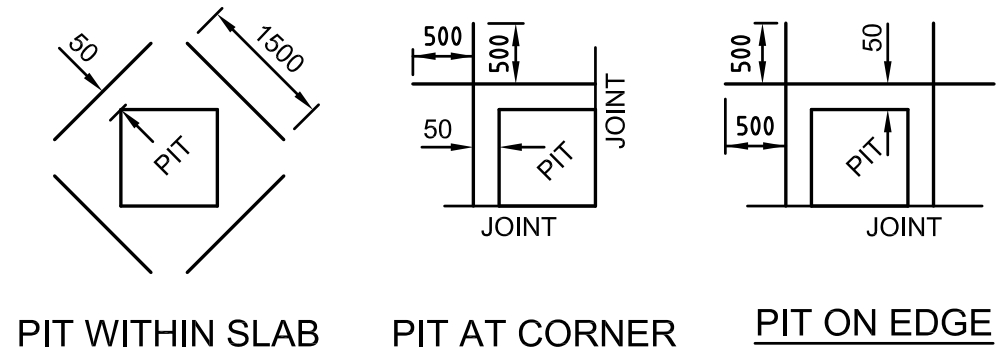
MEMBER OF

ACIP

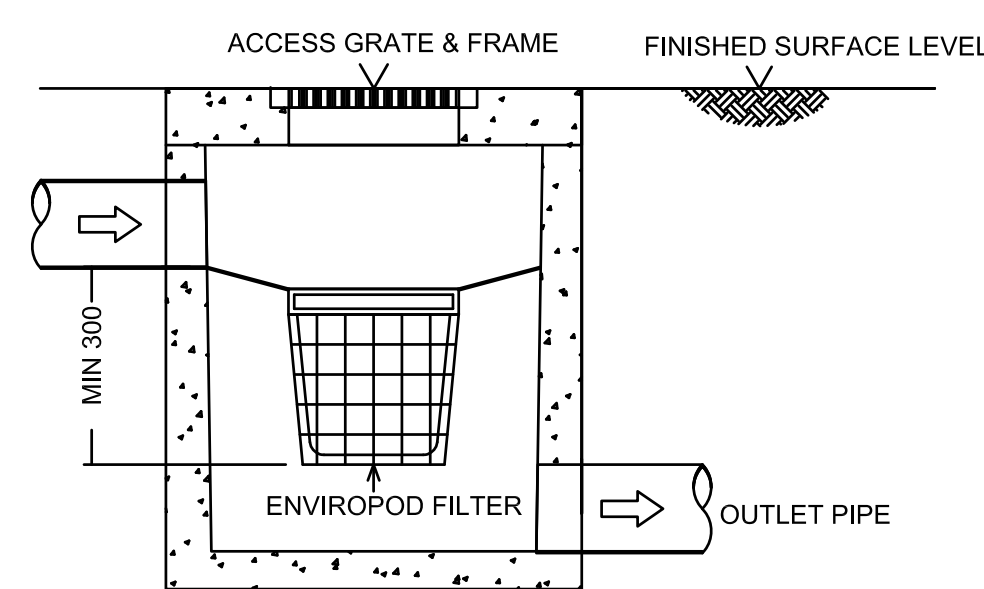
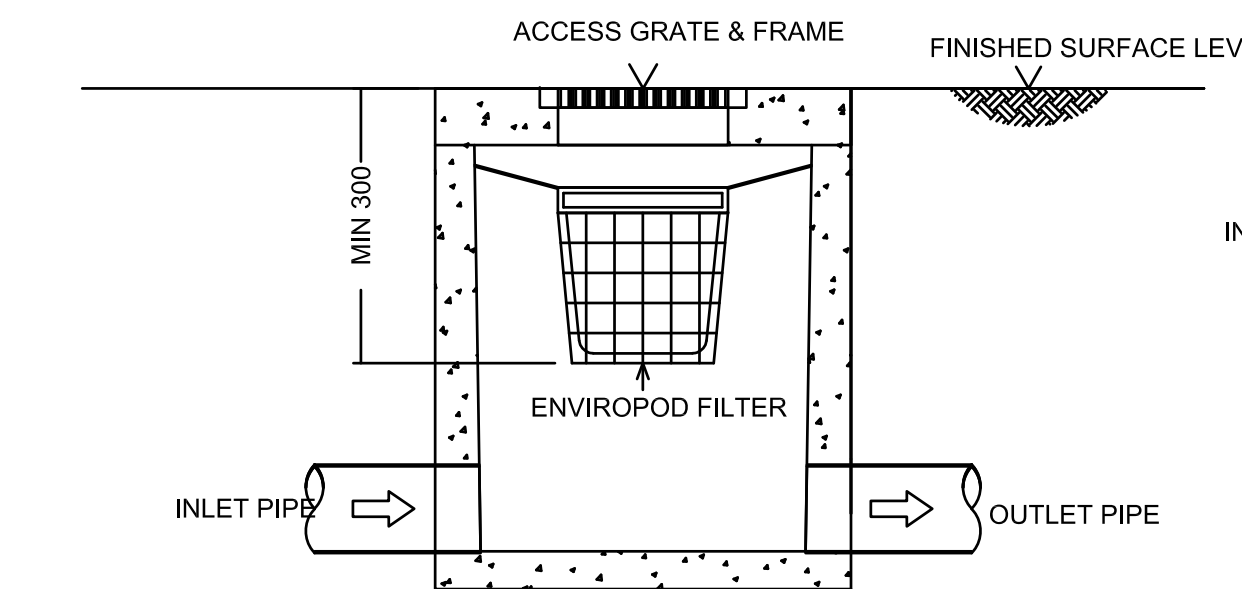
REGISTERED



- STORMWATER PIT NOTES**
1. CONCRETE TO HAVE A MIN. COMPRESSIVE STRENGTH (F_c) OF 25 MPa AT 28 DAYS.
 2. REINFORCEMENT NOT REQUIRED IF DEPTH OF PIT IS LESS THAN 1000mm. PITS GREATER THAN 3000mm DEEP TO HAVE WALL AND BASE 200mm THICK REINFORCED WITH N12-250 EACH WAY EACH FACE WITH CONCRETE STRENGTH $F_c = 40$ MPa.
 3. PROVIDE STEP IRONS AT MAX 350mm CTRS IF DEPTH OF PIT EXCEEDS 1200mm.
 4. IF REINFORCING FABRIC IS TO BE USED REFER TO WALL AND CORNER DETAILS
 5. PRECAST PITS ARE TO GENERALLY COMPLY WITH THESE DETAILS.
 6. PRECAST PIT MAY BE USED SUBJECT TO ENGINEERS APPROVAL.
 7. ALL PITS TO BE LOCKABLE.
 8. FINAL INTERNAL PIT DIMENSIONS ARE TO COMPLY WITH AS 3500.



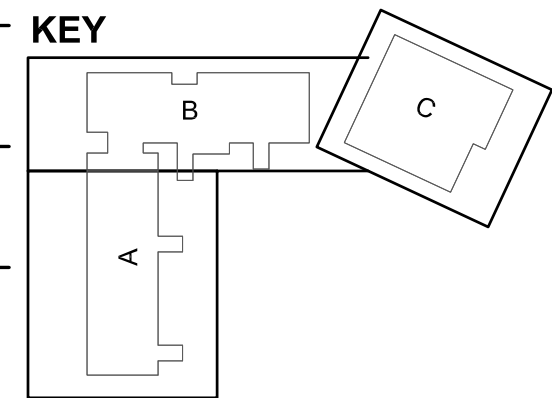
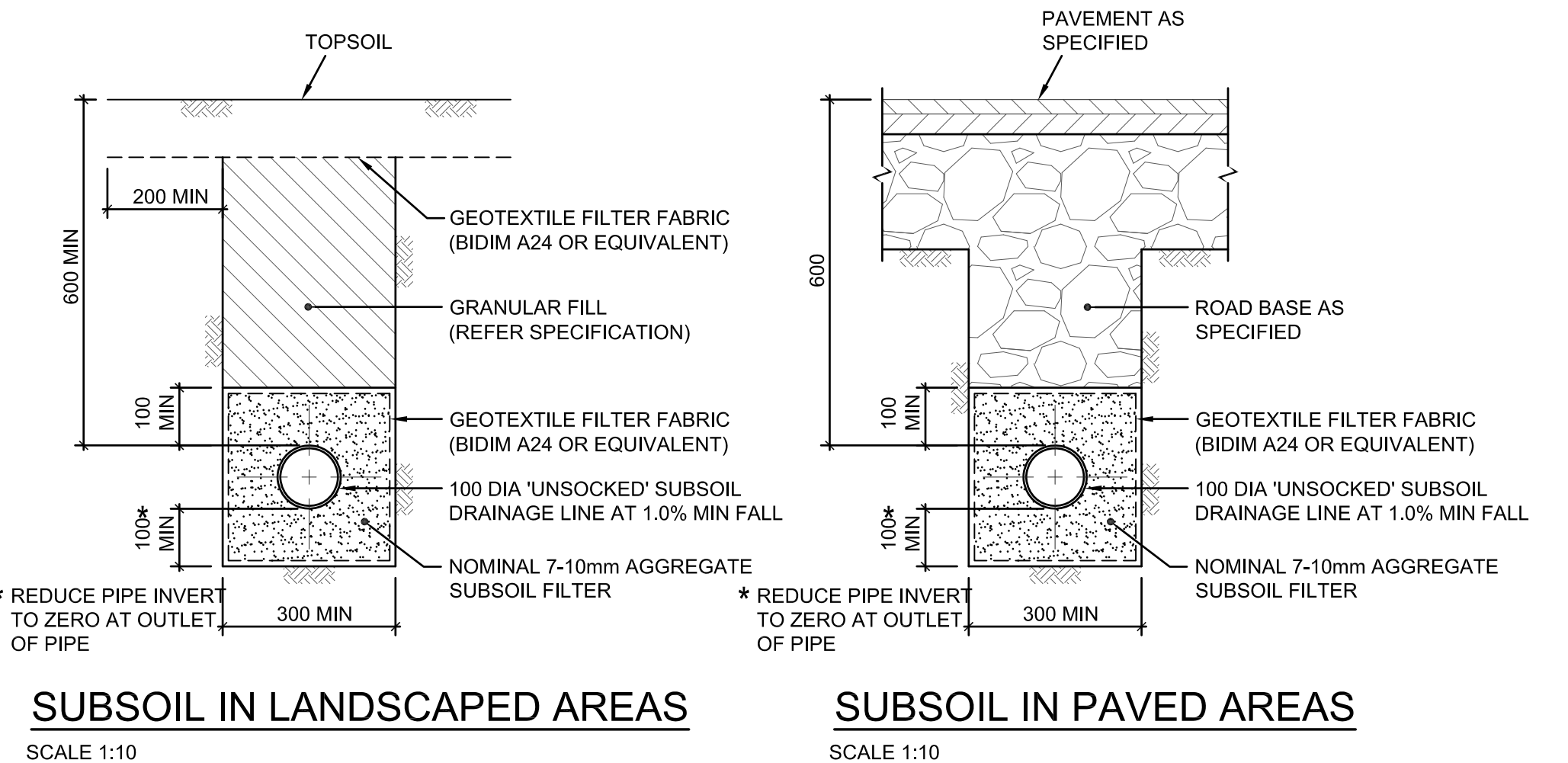
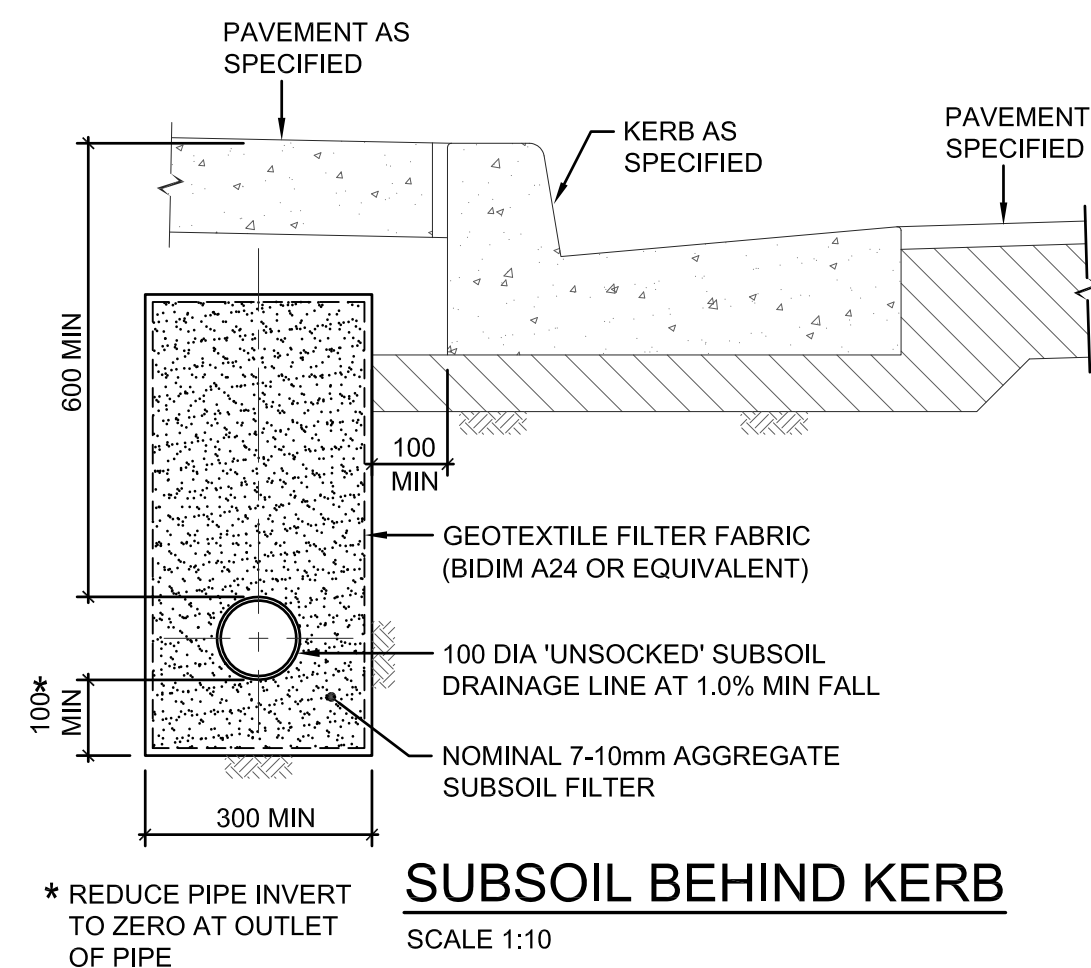
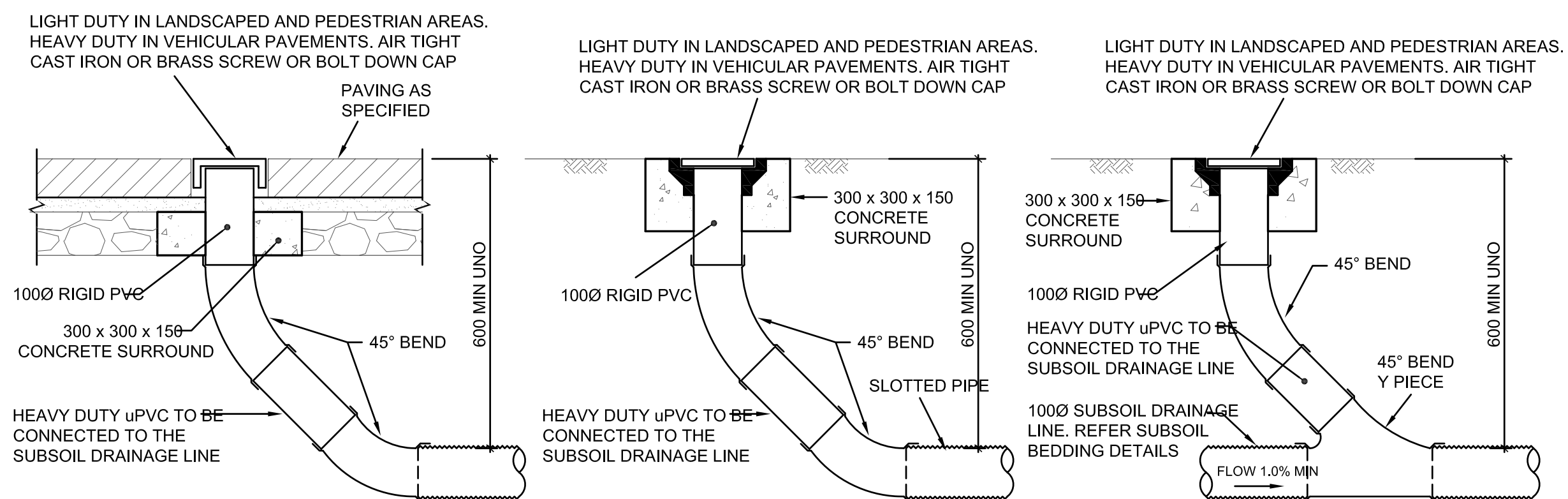
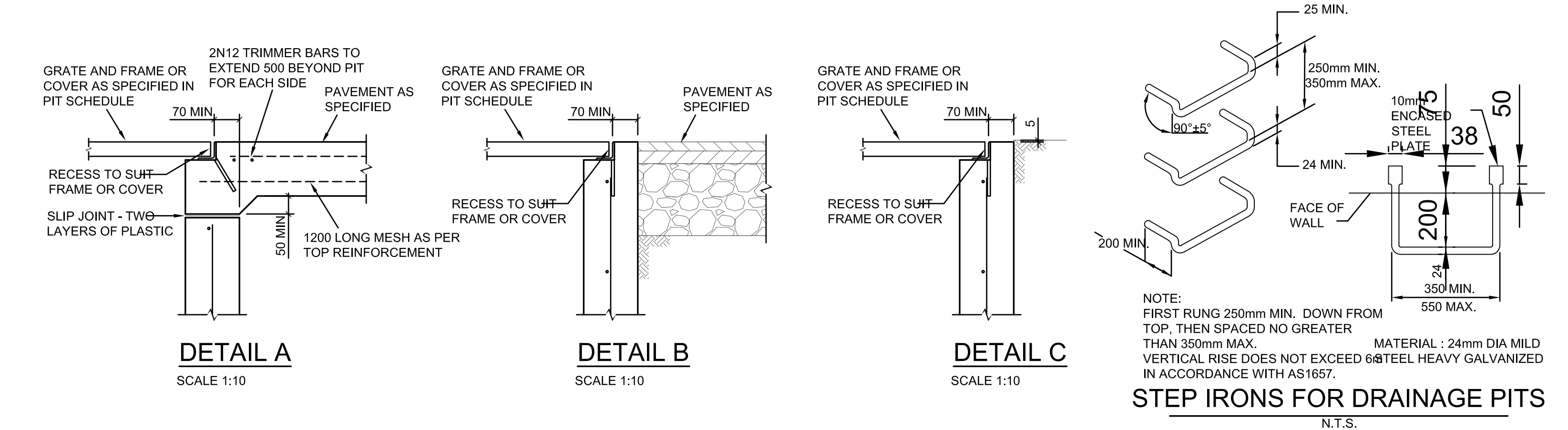
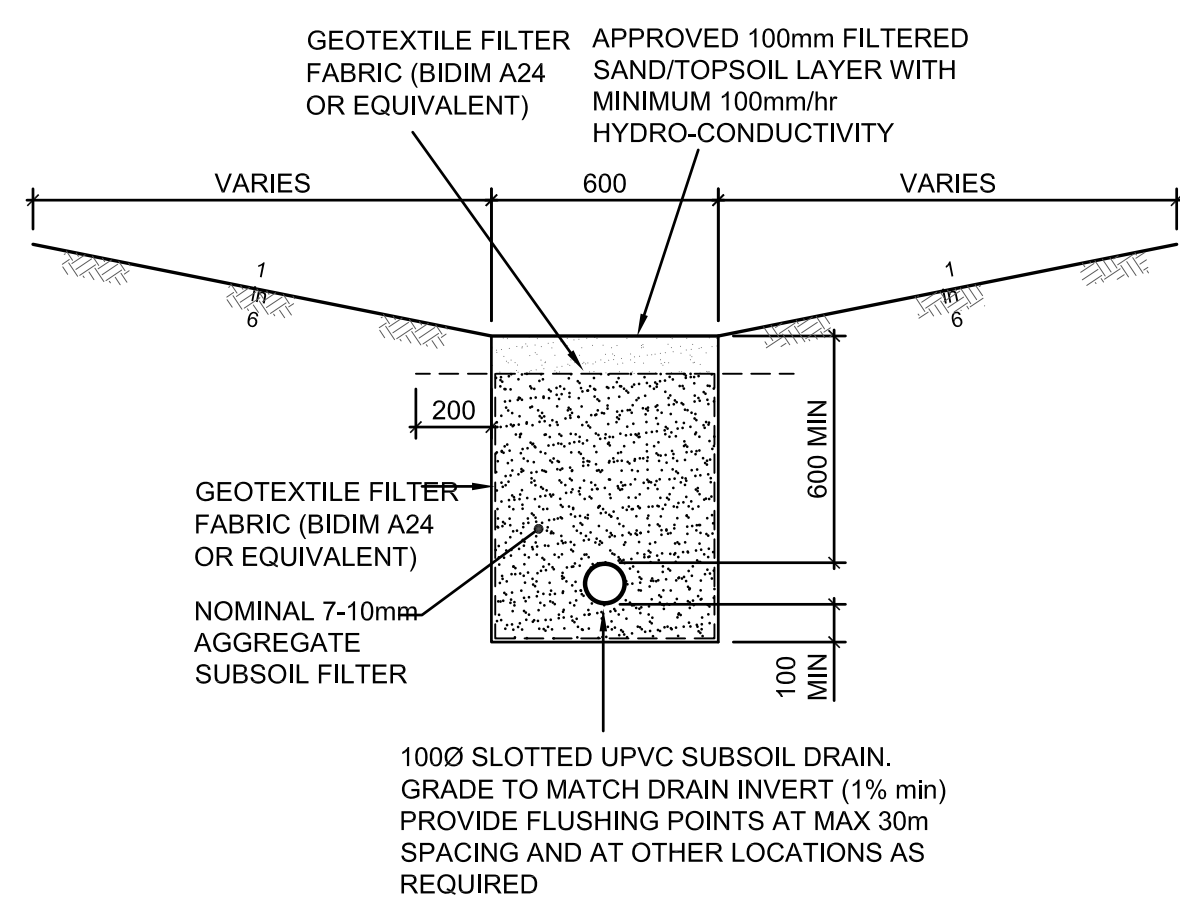
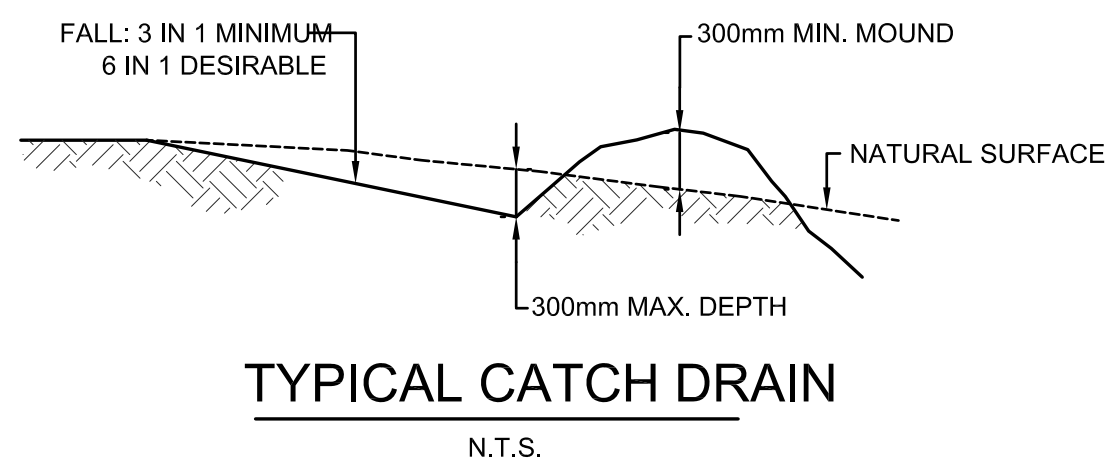
NOTE: DESIGNER TO VERIFY EXTENT OF DETAILING



FINISHED SURFACE LEVEL

FINISHED SURFACE LEVEL

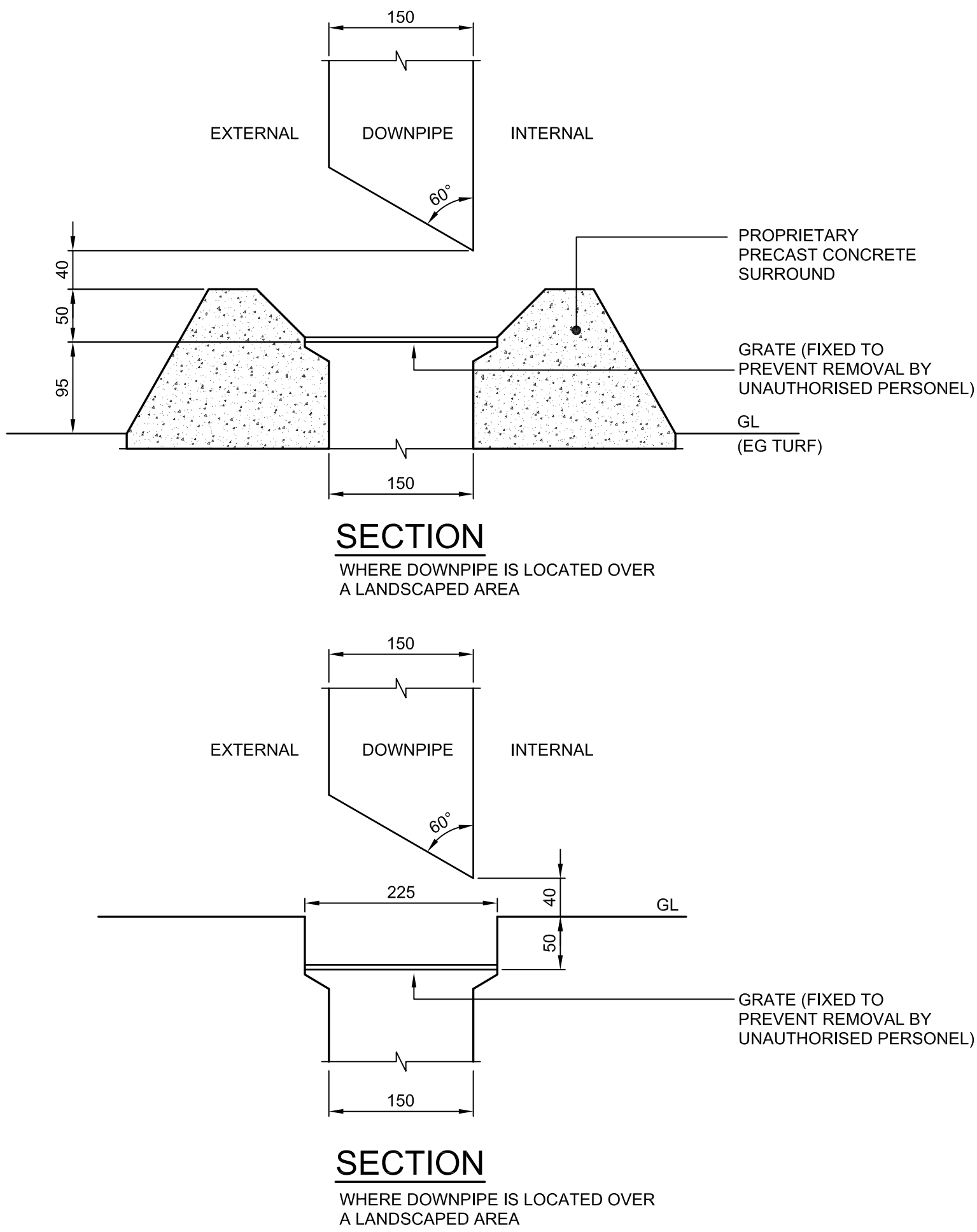
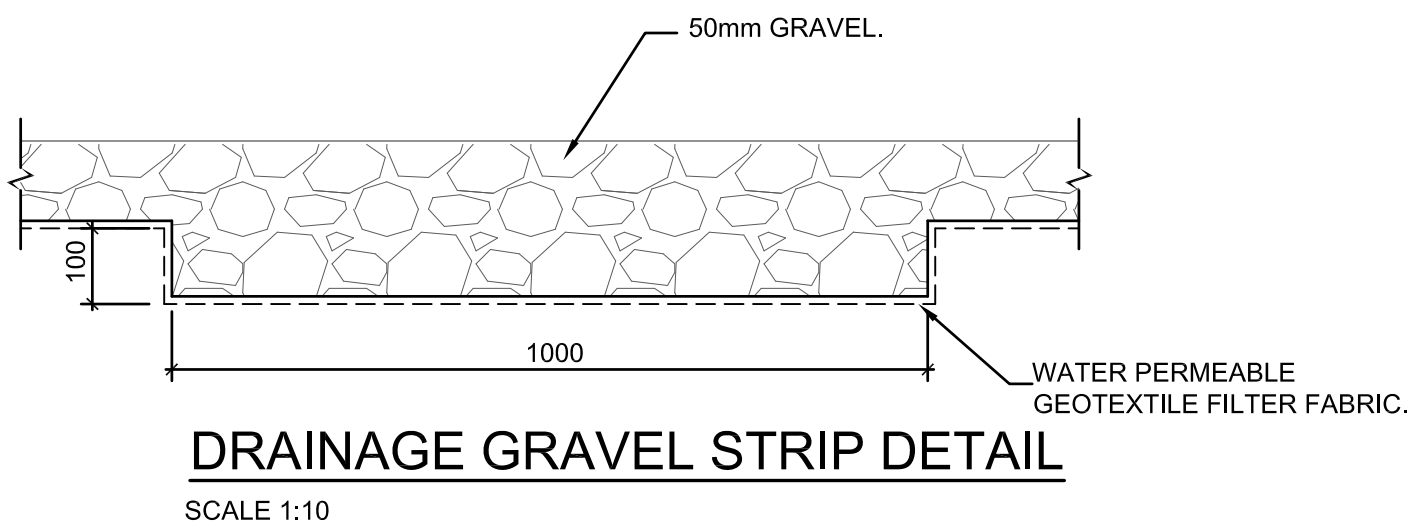
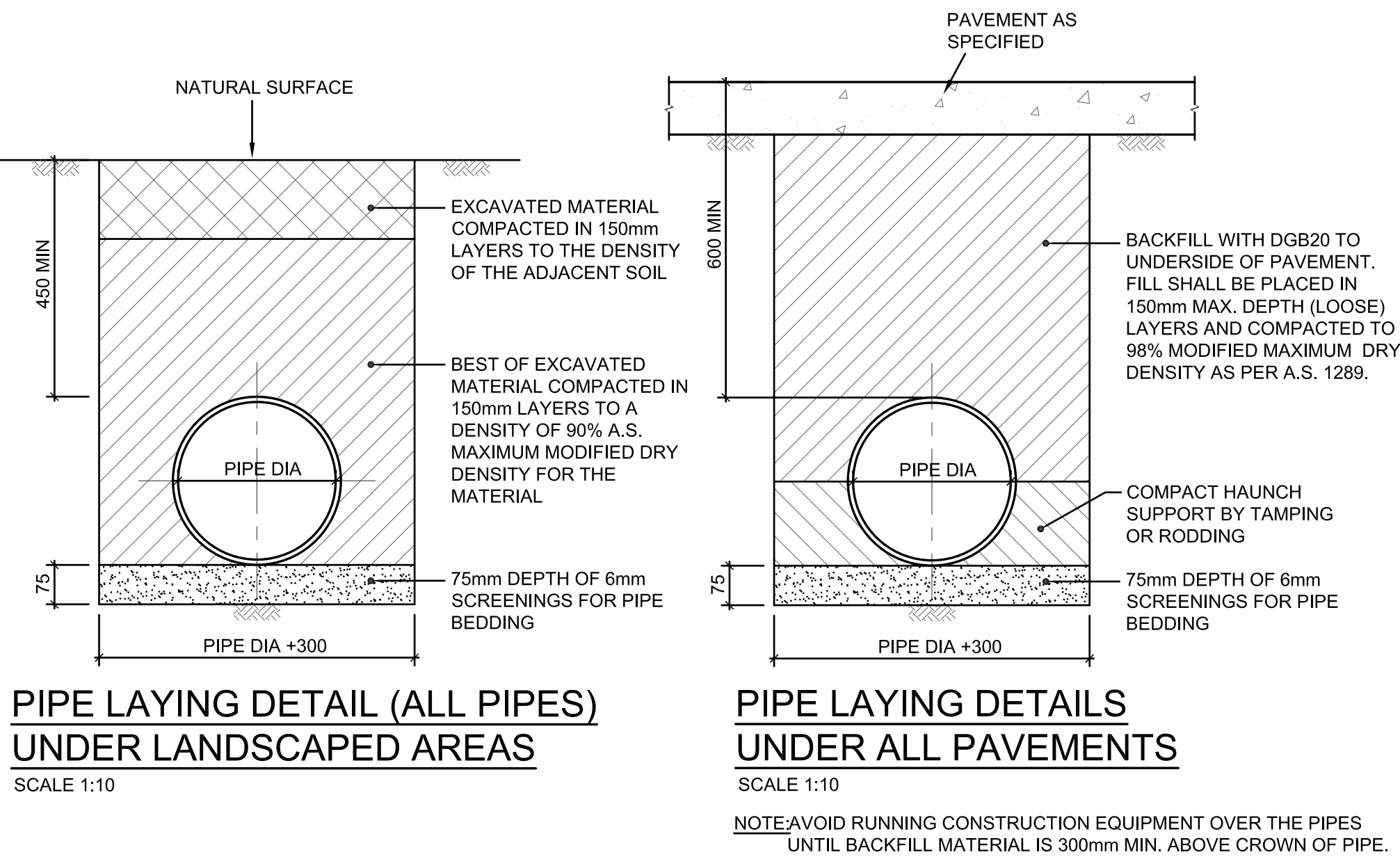
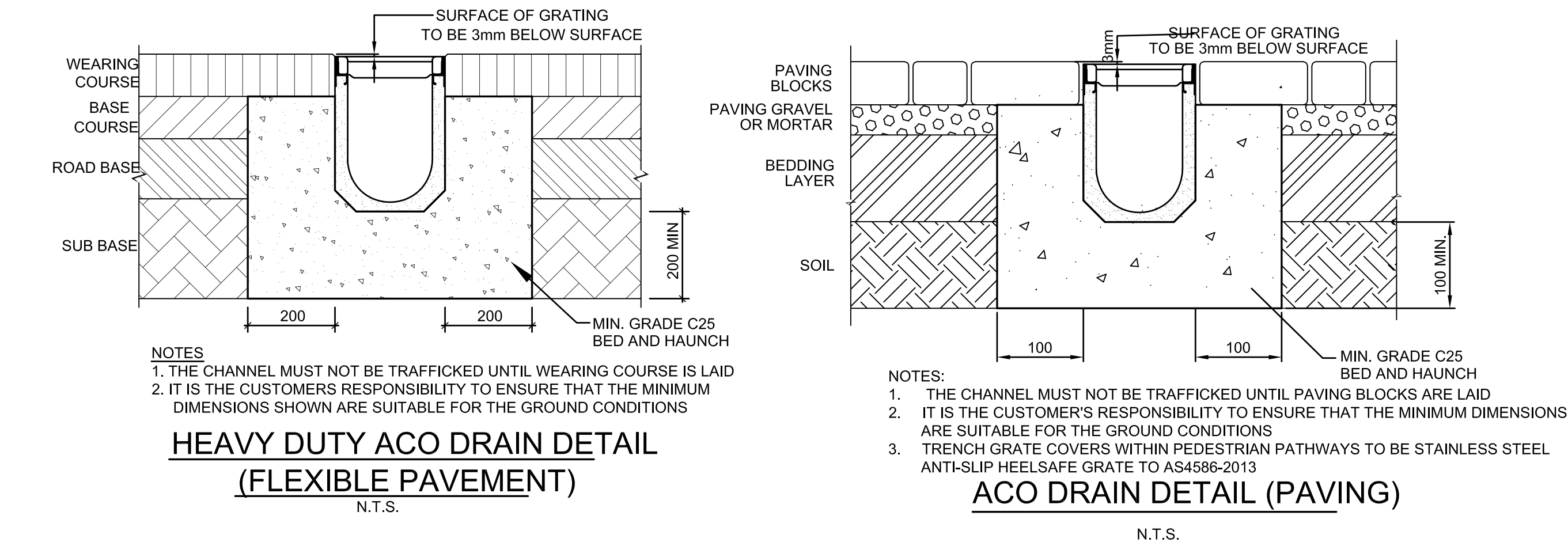
TYPICAL ENVIROPOD OCEAN PROTECT PIT DETAILS



Rev	Date	Description	Chkd	Auth.
A	24.03.21	DRAFT SCHEMATIC DESIGN ISSUE		
B	16.04.21	SCHEMATIC DESIGN		
C	07.05.21	SCHEMATIC DESIGN		
D	12.05.21	SCHEMATIC DESIGN		
E	15.10.21	PRELIMINARY FOR DO		
F	12.11.21	ISSUED FOR DO		
G	24-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS		

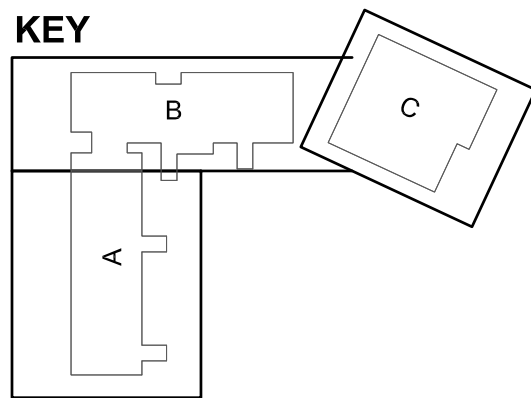
Project
High School in Jerrabomberra
ENVRONA DRIVE,
JERRABOMBERRA NSW 2619
Drawing Title
STORMWATER DRAINAGE DETAILS
SHEET 1 OF 4

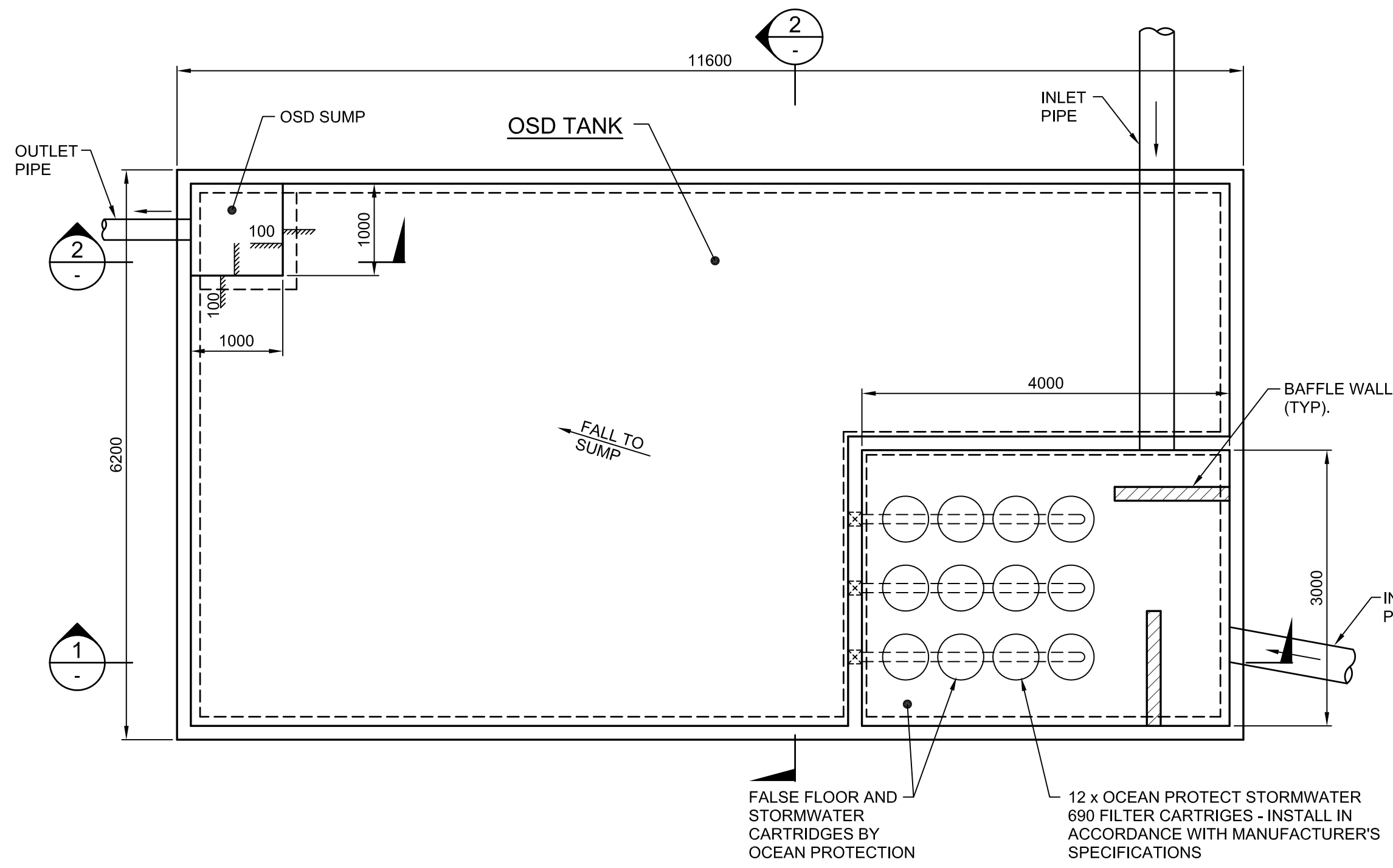
Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No.	Status	Date	Scale
5555	DD	OCT '21	AS NOTED AT B1
Drawing No.	Revision		
JHS-CE-2051	G		



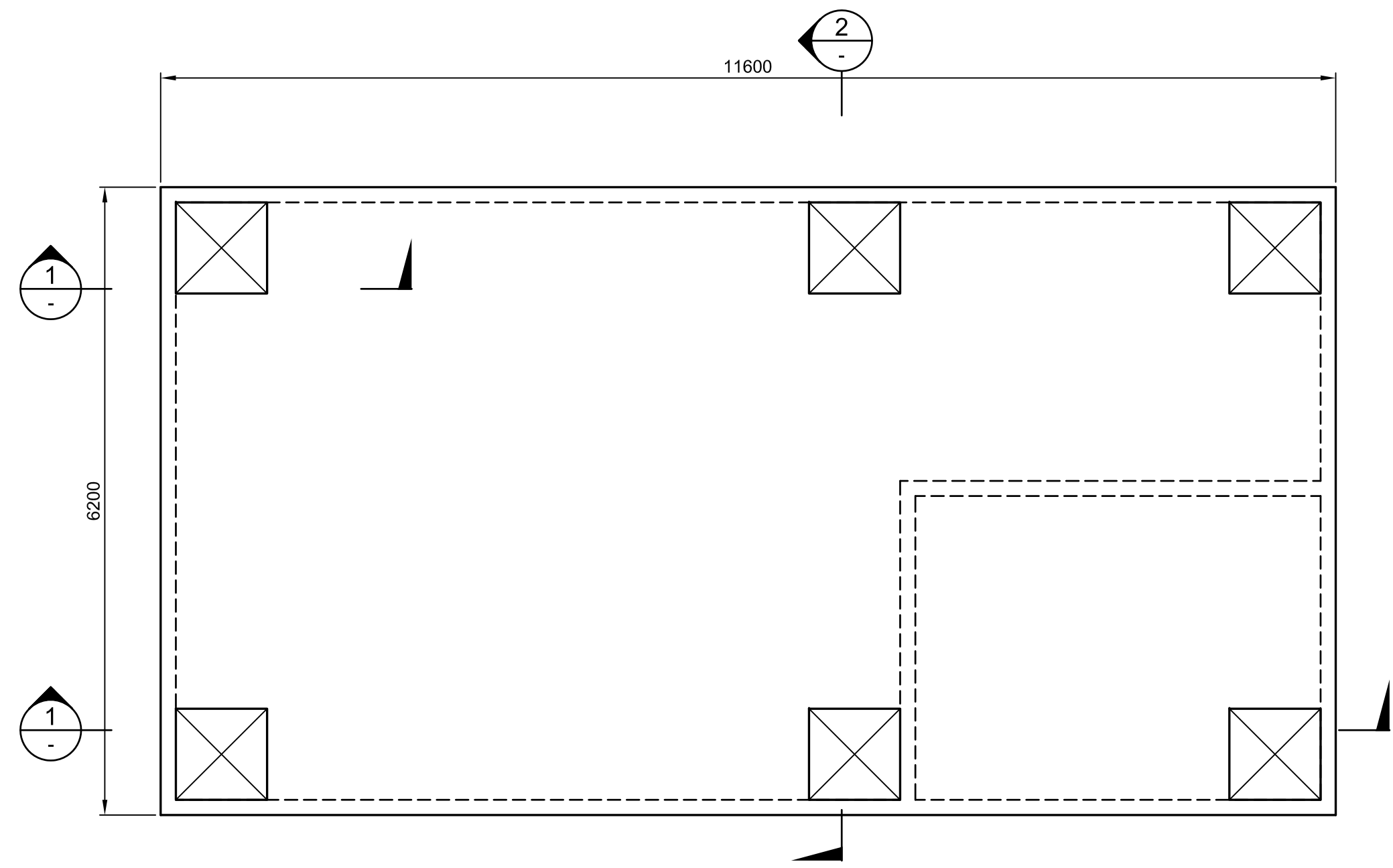
DOWNPIPE OUTLET DETAILS

NOT TO SCALE

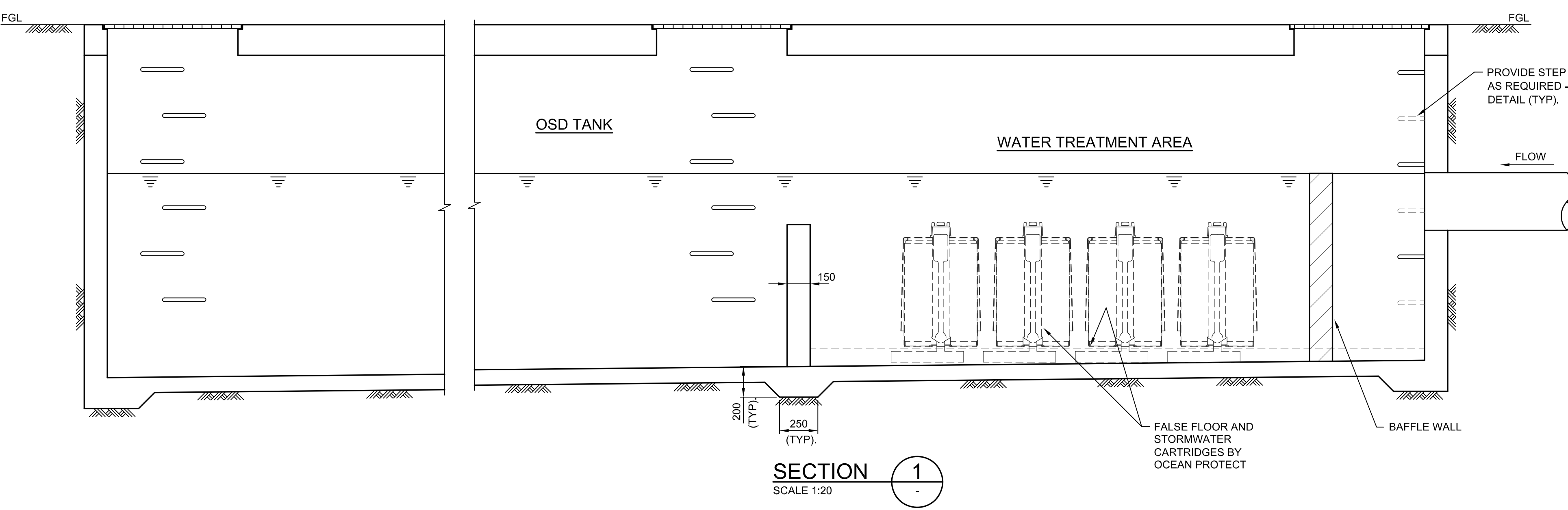




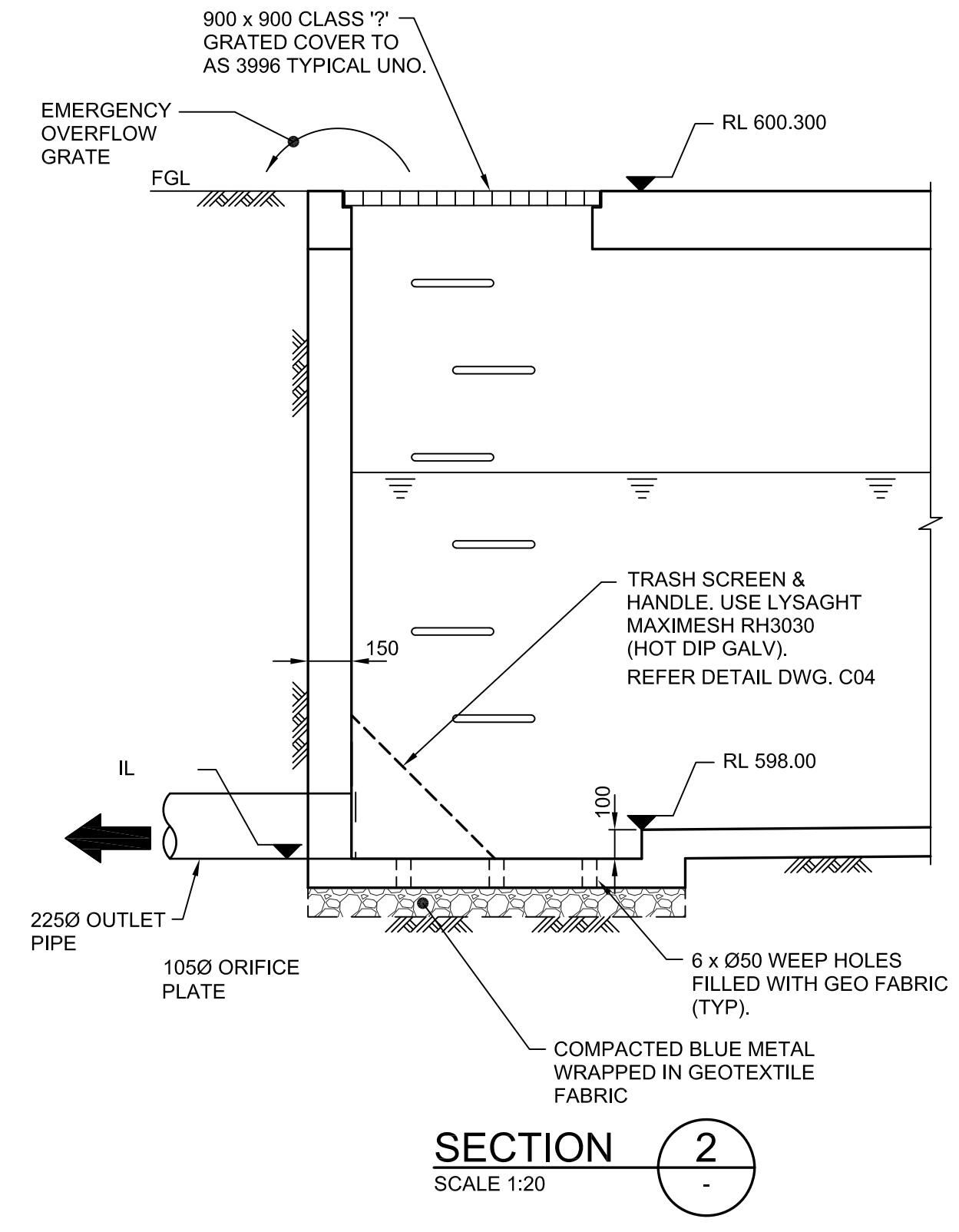
OSD TANK BASE SLAB PLAN
SCALE 1:50



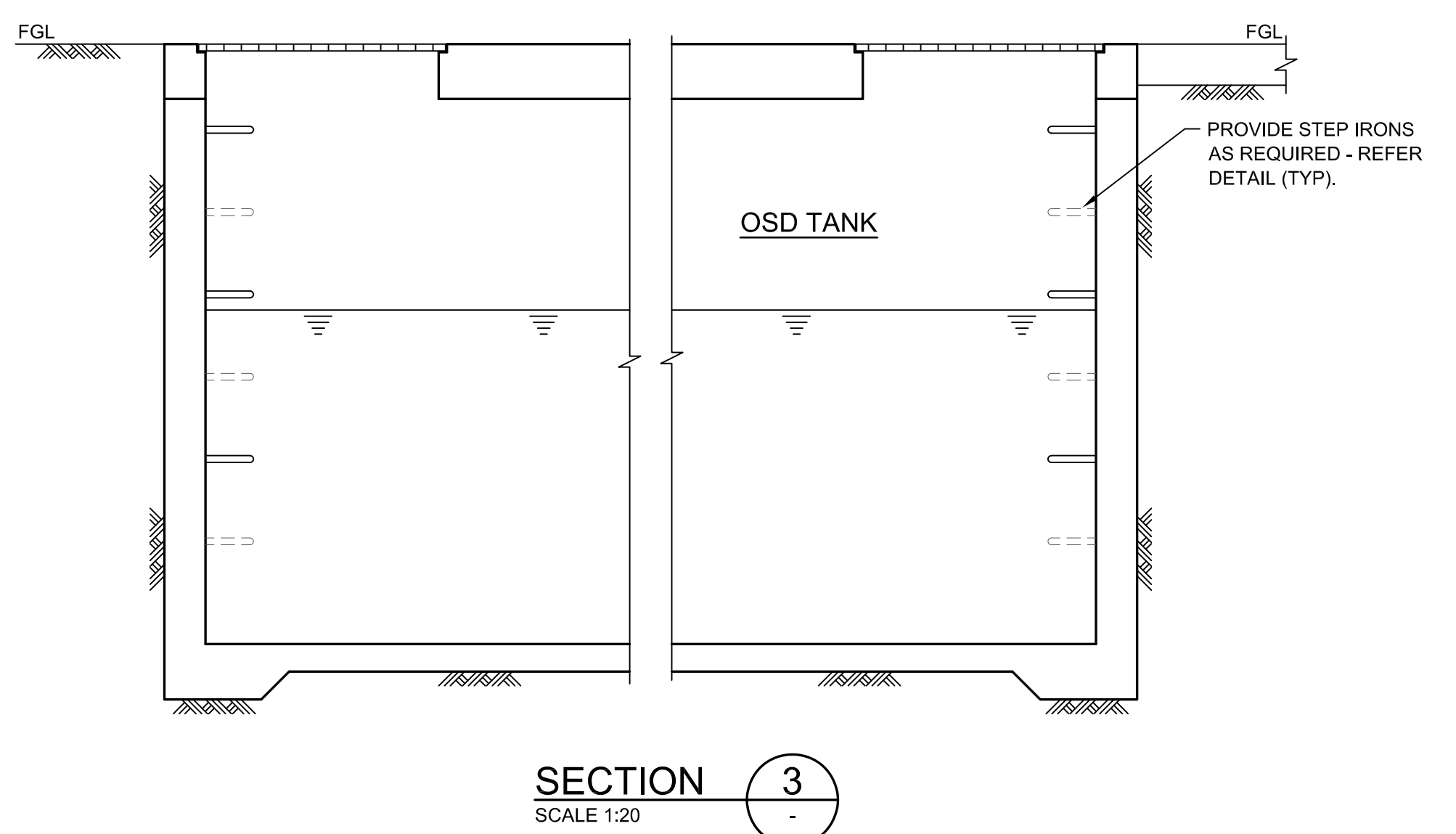
OSD TANK ROOF SLAB PLAN
SCALE 1:50



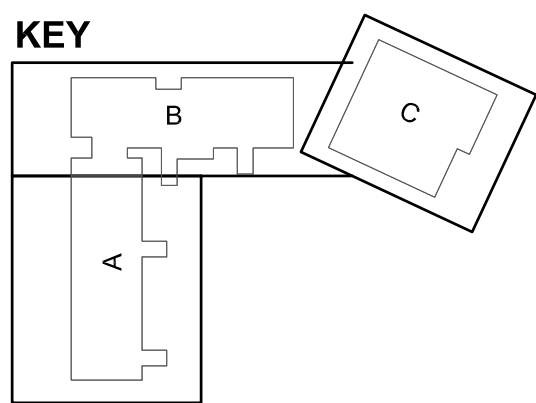
SECTION 1
SCALE 1:20

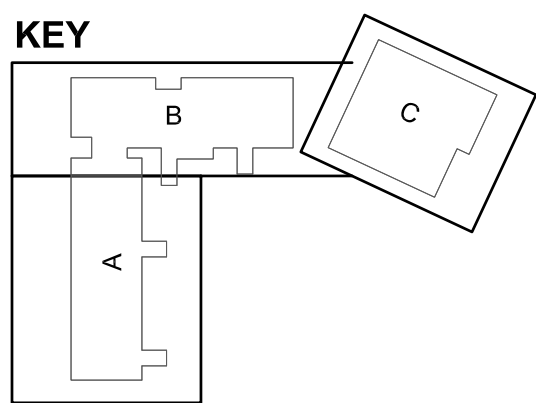
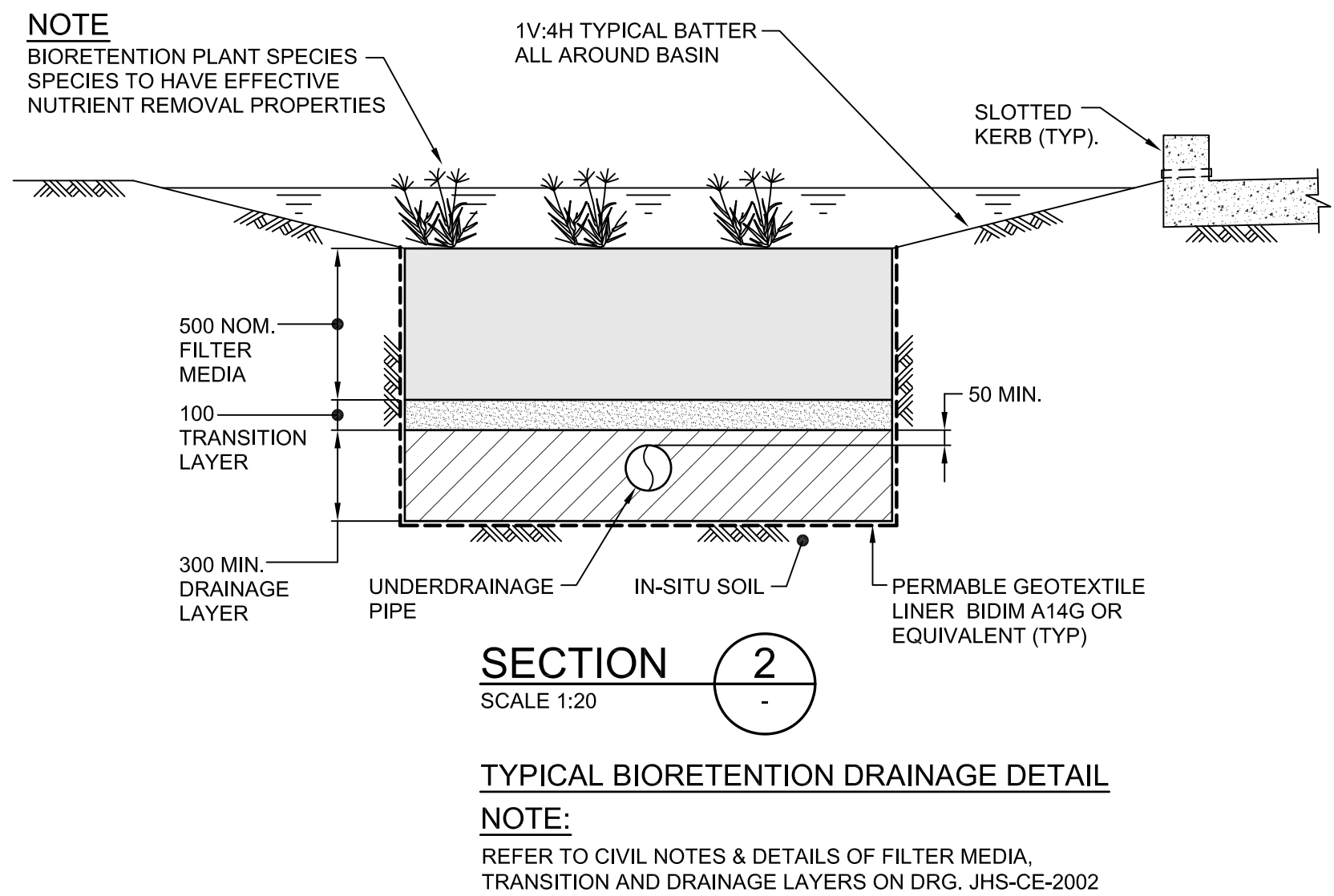
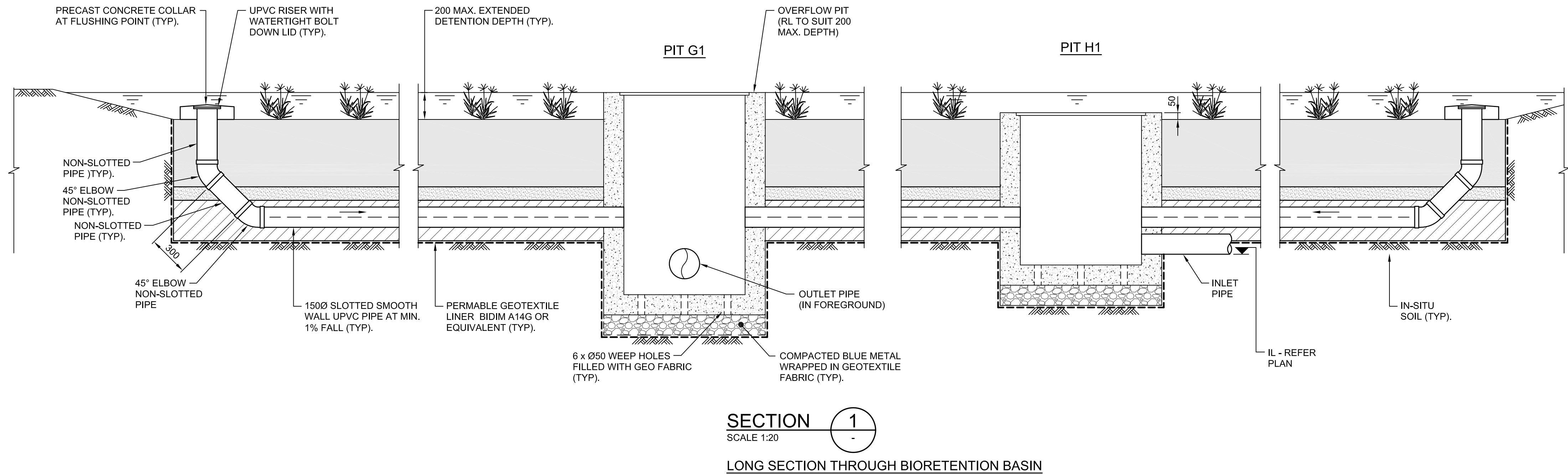


SECTION 2
SCALE 1:20



SECTION 3
SCALE 1:20



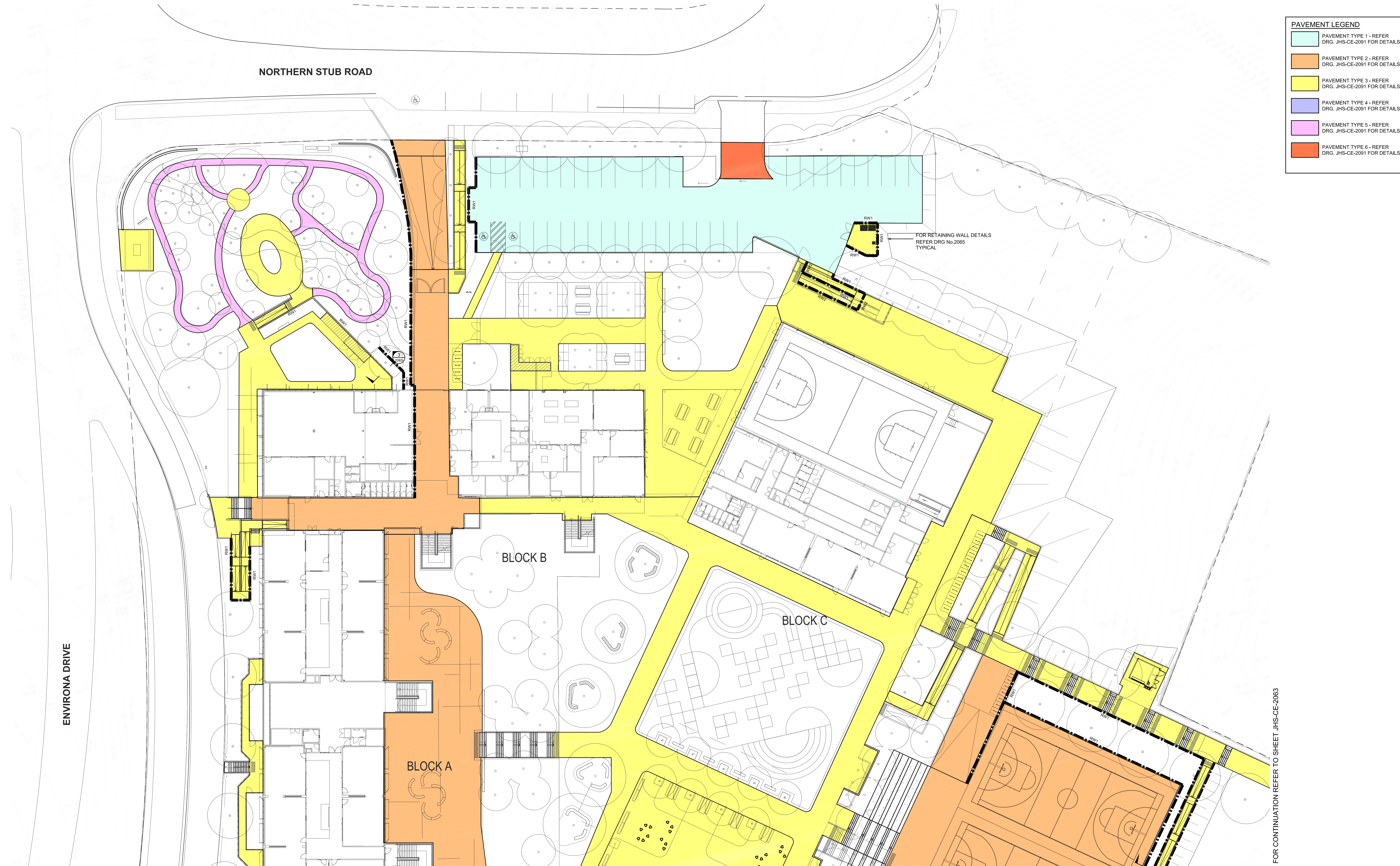


Do not scale drawings. Verify all dimensions on site.

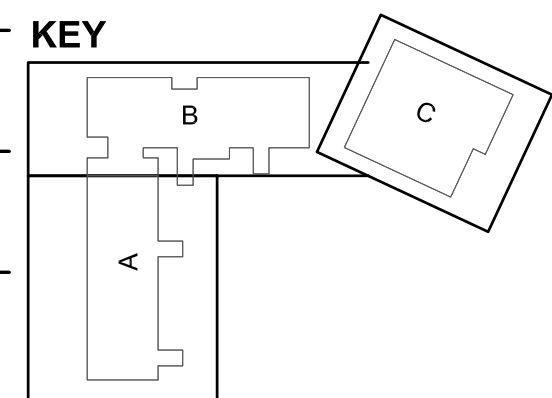
Rev	Date	Description	Chkd	Auth.
A	12.11.21	ISSUED FOR DD		
B	24-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS		

Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No.	Status	Date	Scale
5555	DD	OCT '21	AS NOTED AT B1
Drawing No.	Revision		
JHS-CE-2054	B		

NOT FOR CONSTRUCTION



FOR CONTINUATION REFER TO SHEET JHS-CE-2062
PAVEMENT PART PLAN
SCALE 1:250



DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

BUILDER

HINDMARSH

Hindmarsh Construction Australia Pty Ltd
Level 27, 100 Miller Street
North Sydney NSW 2060
T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

CLIENT

NSW GOVERNMENT

Education School Infrastructure

NSW Department of Education |
School Infrastructure NSW

T+ 02 9561 8287

Project Managers
TSA Management
T+ 61 2 9276 1400

Architect
TKD Architects
T+ 61 2 9281 4399

Mechanical, Electrical, Hydraulic, ESD
Norman Disney & Young
T+ 61 2 9928 6800

Landscape Architecture
Context
T+ 61 2 9244 8900

Acoustic
Acoustic Logic
T+ 61 2 9339 8000

Do not scale drawings. Verify all dimensions on site.

Rev	Date	Description	Chkd	Auth.
A	24.03.21	DRAFT SCHEMATIC DESIGN ISSUE		
B	16.04.21	SCHEMATIC DESIGN ISSUE		
C	07.05.21	SCHEMATIC DESIGN ISSUE		
D	11.05.21	SCHEMATIC DESIGN ISSUE		
E	15.10.21	PRELIMINARY FOR DD		
F	12.11.21	ISSUED FOR DD		
G	02.12.21	PAVEMENT EXTENTS REVISED		
H	23-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS		

Project
High School in Jerrabomberra

ENVIRONA DRIVE,
JERRABOMBERRA NSW 2619

Drawing Title **SITE WORK AND PAVEMENT
PLAN - SHEET 1**

Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No.	Status	Date	Scale
5555	DD	OCT '21	1:250

Drawing No.
JHS-CE-2061

NOT FOR CONSTRUCTION

M+G Consulting

M & G CONSULTING ENGINEERS PTY LTD ABN 65 094 064 990
Tel: +61 (0)2 8666 7888

L3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)

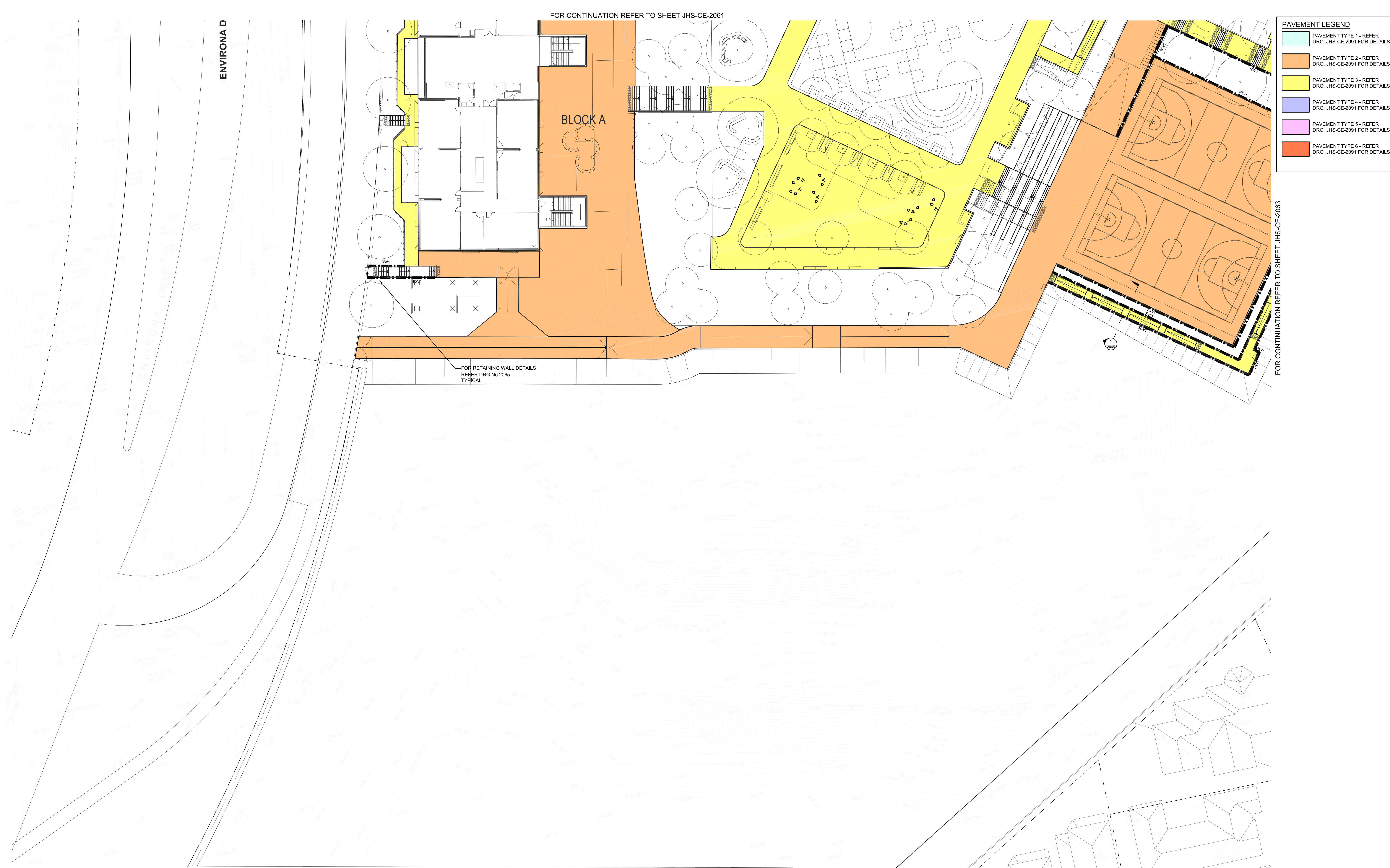
CONSULT AUSTRALIA

Member Firm

AUSTRALIAN STEEL INSTITUTE

ACI

Revision
H



PAVEMENT LEGEND	
<div></div>	PAVEMENT TYPE 1 - REFER DRG. JHS-CE-2091 FOR DETAILS
<div></div>	PAVEMENT TYPE 2 - REFER DRG. JHS-CE-2091 FOR DETAILS
<div></div>	PAVEMENT TYPE 3 - REFER DRG. JHS-CE-2091 FOR DETAILS
<div></div>	PAVEMENT TYPE 4 - REFER DRG. JHS-CE-2091 FOR DETAILS
<div></div>	PAVEMENT TYPE 5 - REFER DRG. JHS-CE-2091 FOR DETAILS
<div></div>	PAVEMENT TYPE 6 - REFER DRG. JHS-CE-2091 FOR DETAILS

FOR RETAINING WALL DETAILS
REFER DRG No.2065
TYPICAL

FOR CONTINUATION REFER TO SHEET JHS-CE-2061

FOR CONTINUATION REFER TO SHEET JHS-CE-2063

PAVEMENT PART PLAN
SCALE 1:250

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

BUILDER

HINDMARSH

Level 27, 100 Miller Street
North Sydney NSW 2060

T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

CLIENT

Education
School Infrastructure

NSW Department of Education |
School Infrastructure NSW

T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

Project Managers

TSA Management

T+ 61 2 9276 1400

Architect

TKD Architects

T+ 61 2 9281 4399

Mechanical, Electrical, Hydraulic, ESD

Norman Disney & Young

T+ 61 2 9928 6800

Landscape Architecture

Context

T+ 61 2 8244 8900

Acoustic

Acoustic Logic

T+ 61 2 8339 9000

KEY

Rev	Date	Description	Chkd	Auth.
A	24.03.21	DRAFT SCHEMATIC DESIGN ISSUE		
B	16.04.21	SCHEMATIC DESIGN ISSUE		
C	07.05.21	SCHEMATIC DESIGN ISSUE		
D	11.05.21	SCHEMATIC DESIGN ISSUE		
E	15.10.21	PRELIMINARY FOR DD		
F	12.11.21	ISSUED FOR DD		
G	02.12.21	PAVEMENT EXTENTS REVISED		
H	23-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS		

Project

High School in Jerrabomberra

Enviro Drive,
Jerrabomberra NSW 2619

Drawing Title **SITE WORK AND PAVEMENT
PLAN - SHEET 2**

Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No.	Status	Date	Scale
5555	DD	OCT '21	1:250
Drawing No.		Revision	
JHS-CE-2062		H	

NOT FOR CONSTRUCTION

M+G Consulting

M & G CONSULTING ENGINEERS PTY LTD

ABN 65 094 064 990

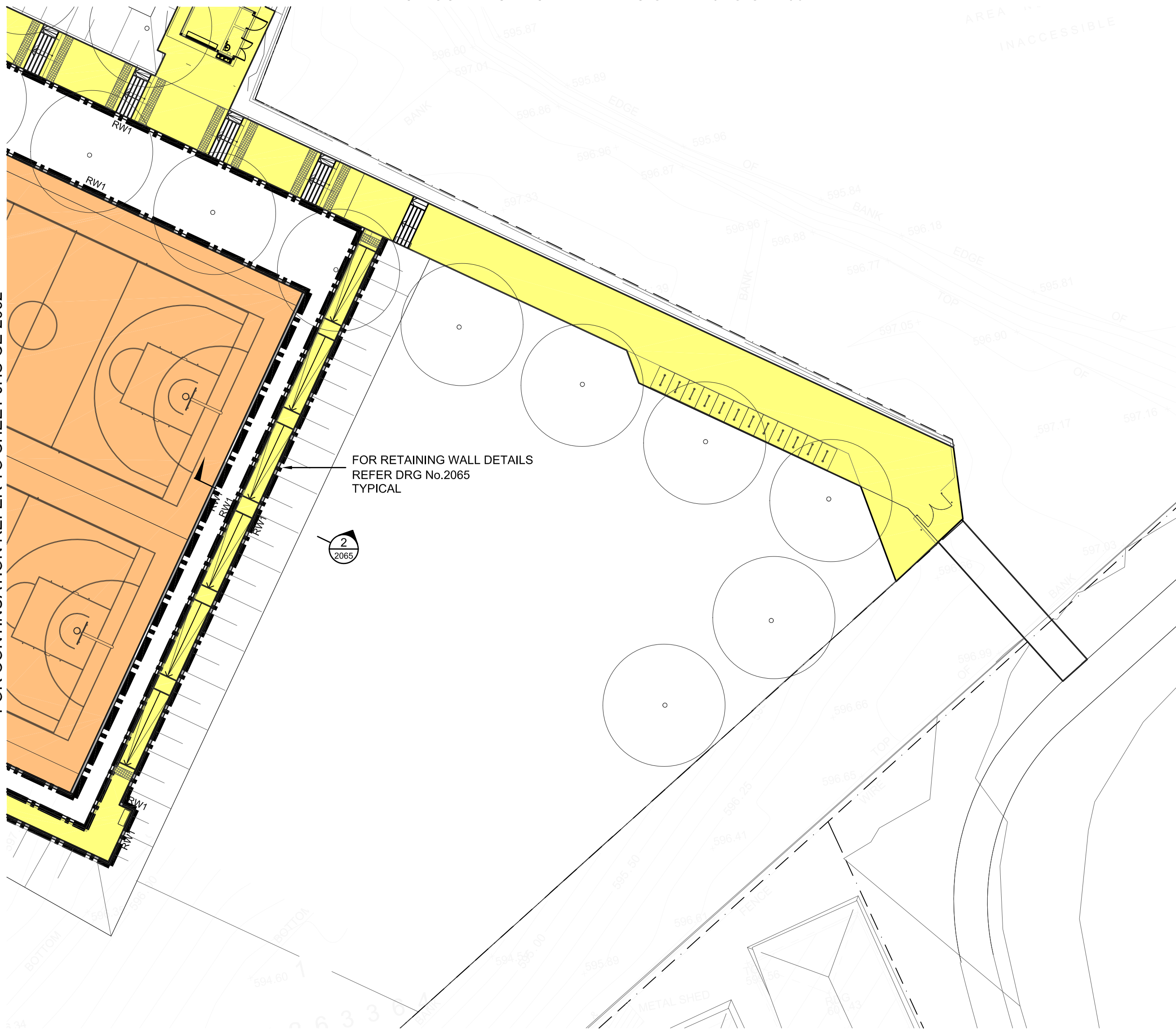
Tel: +61 (0)2 8666 7888

Level 3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)

CONCRETE AUSTRALIA
MEMBER FIRM
AUSTRALIAN STEEL INSTITUTE
MEMBER FIRM

FOR CONTINUATION REFER TO SHEET JHS-CE-2061

FOR CONTINUATION REFER TO SHEET JHS-CE-2062



PAVEMENT PART PLAN
SCALE 1:250

PAVEMENT LEGEND

- PAVEMENT TYPE 1 - REFER
DRG. JHS-CE-2091 FOR DETAILS
- PAVEMENT TYPE 2 - REFER
DRG. JHS-CE-2091 FOR DETAILS
- PAVEMENT TYPE 3 - REFER
DRG. JHS-CE-2091 FOR DETAILS
- PAVEMENT TYPE 4 - REFER
DRG. JHS-CE-2091 FOR DETAILS
- PAVEMENT TYPE 5 - REFER
DRG. JHS-CE-2091 FOR DETAILS
- PAVEMENT TYPE 6 - REFER
DRG. JHS-CE-2091 FOR DETAILS

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

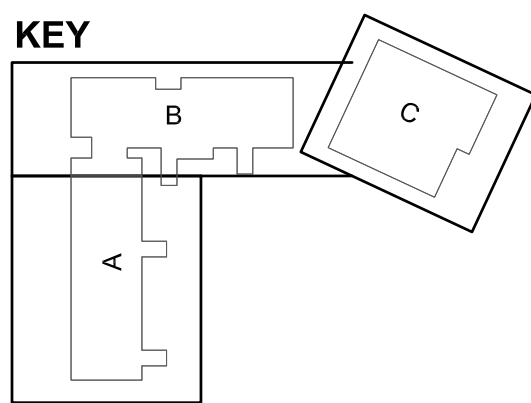
BUILDER
HINDMARSH
Hindmarsh Construction Australia Pty Ltd
Level 27, 100 Miller Street
North Sydney NSW 2060
T +61 2 9274 1100
F +61 2 6274 8898
www.hindmarsh.com.au

CLIENT
NSW GOVERNMENT
Education
School Infrastructure
NSW Department of Education |
School Infrastructure NSW
T+ 02 9561 8287

Project Managers
TSA Management
T+ 61 2 9276 1400
Architect
TKD Architects
T+ 61 2 9281 4399
Mechanical, Electrical, Hydraulic, ESD
Norman Disney & Young
T+ 61 2 9928 6800

Landscape Architecture
Context
T+ 61 2 8244 8900
Acoustic
Acoustic Logic
T+ 61 2 8339 8000

KEY



Rev	Date	Description	Chkd	Auth.
A	12.11.21	ISSUED FOR DD		
B	23-03-22	ISSUED FOR RESPONSE TO SUBMISSIONS		

Project
High School in Jerrabomberra

ENVIRONA DRIVE,
JERRABOMBERRA NSW 2619

Drawing Title **SITE WORK AND PAVEMENT
PLAN - SHEET 3**

Designed	Reviewed	Drawn	Sheet
MW	SCM	MW	B1
Job No. 5555	Status DD	Date OCT '21	Scale 1:250

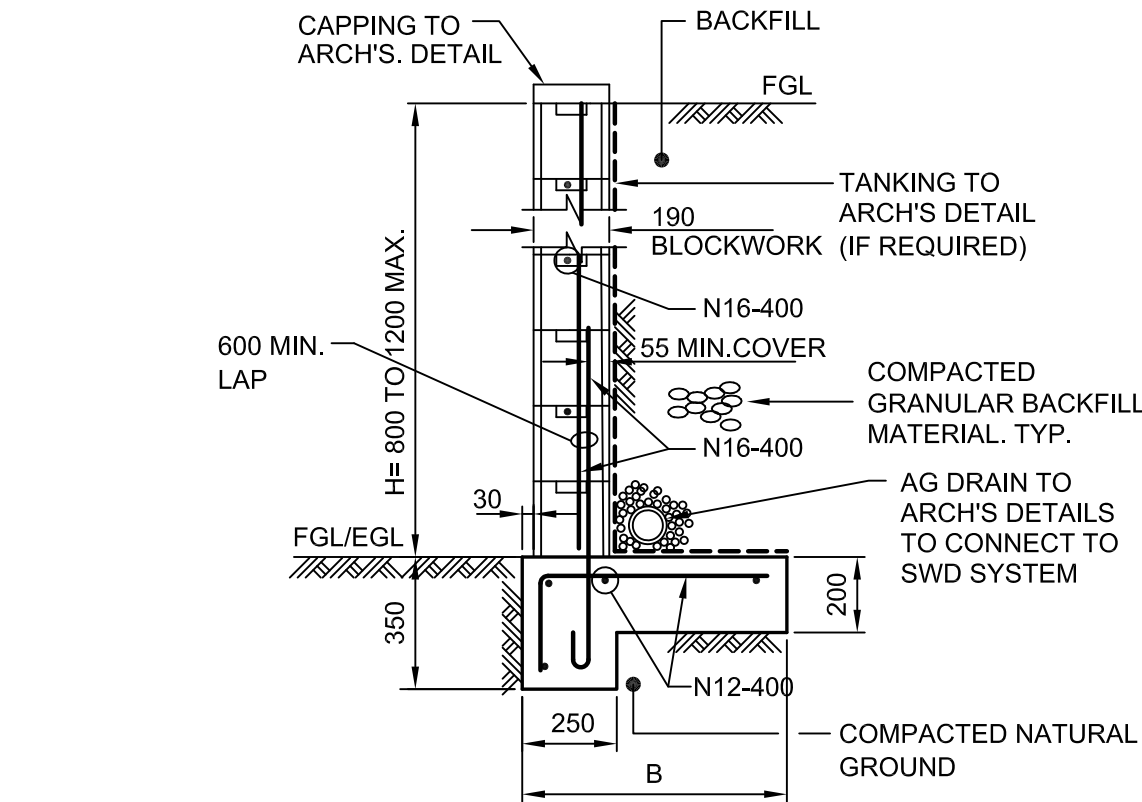
Drawing No.
JHS-CE-2063



Revision
B

NOT FOR CONSTRUCTION

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD ABN 65 094 064 990
Tel: +61 (0)2 8666 7888
L3, 50 Berry Street
North Sydney NSW 2060
(PO Box 1656, NSW 2059)
CONSIST AUSTRALIA
Member Firm
AUSTRALIAN STEEL INSTITUTE
AUSTRALIAN INSTITUTE OF BUILDING SURVEYORS

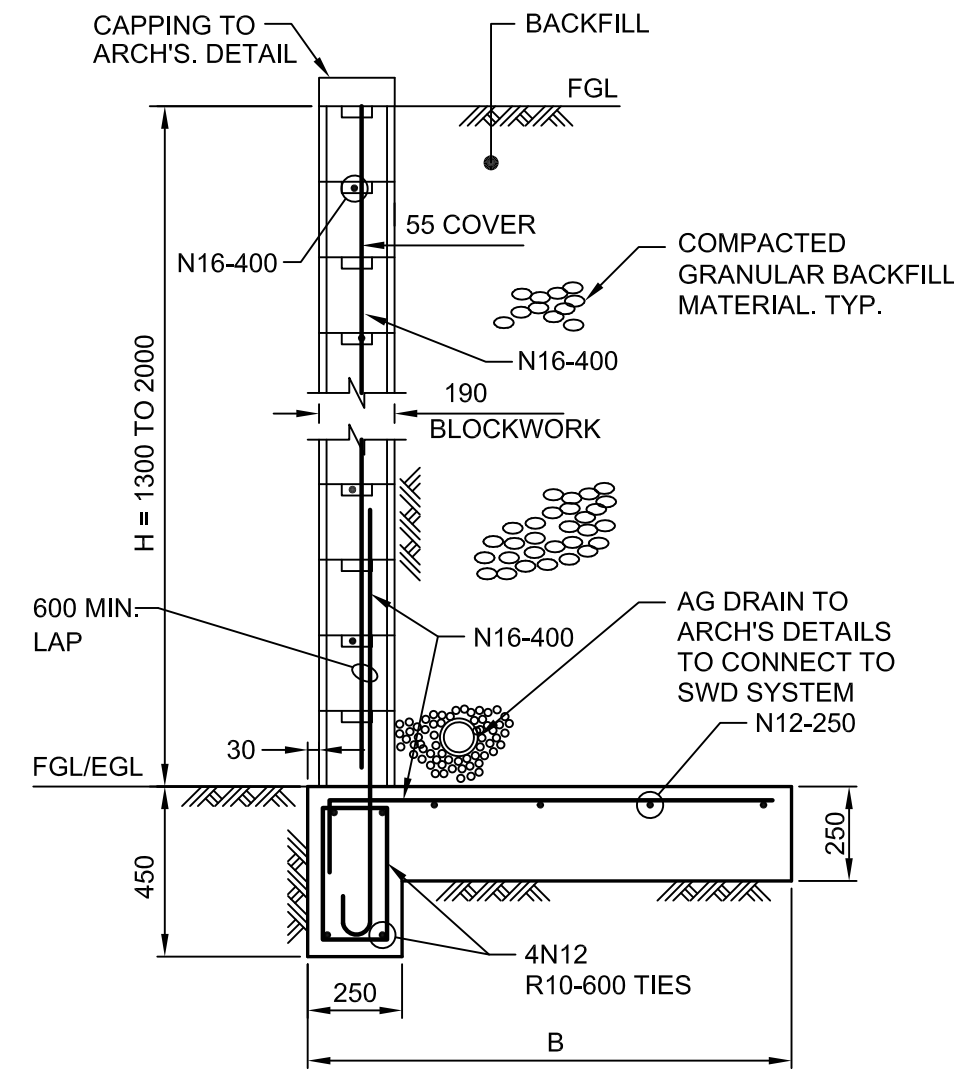


TYPICAL RETAINING WALL DETAIL

H = 800 TO 1200 MAX

SCALE 1:20

BASE DIMENSIONS	
H	B
800	600
1000	700
1200	800

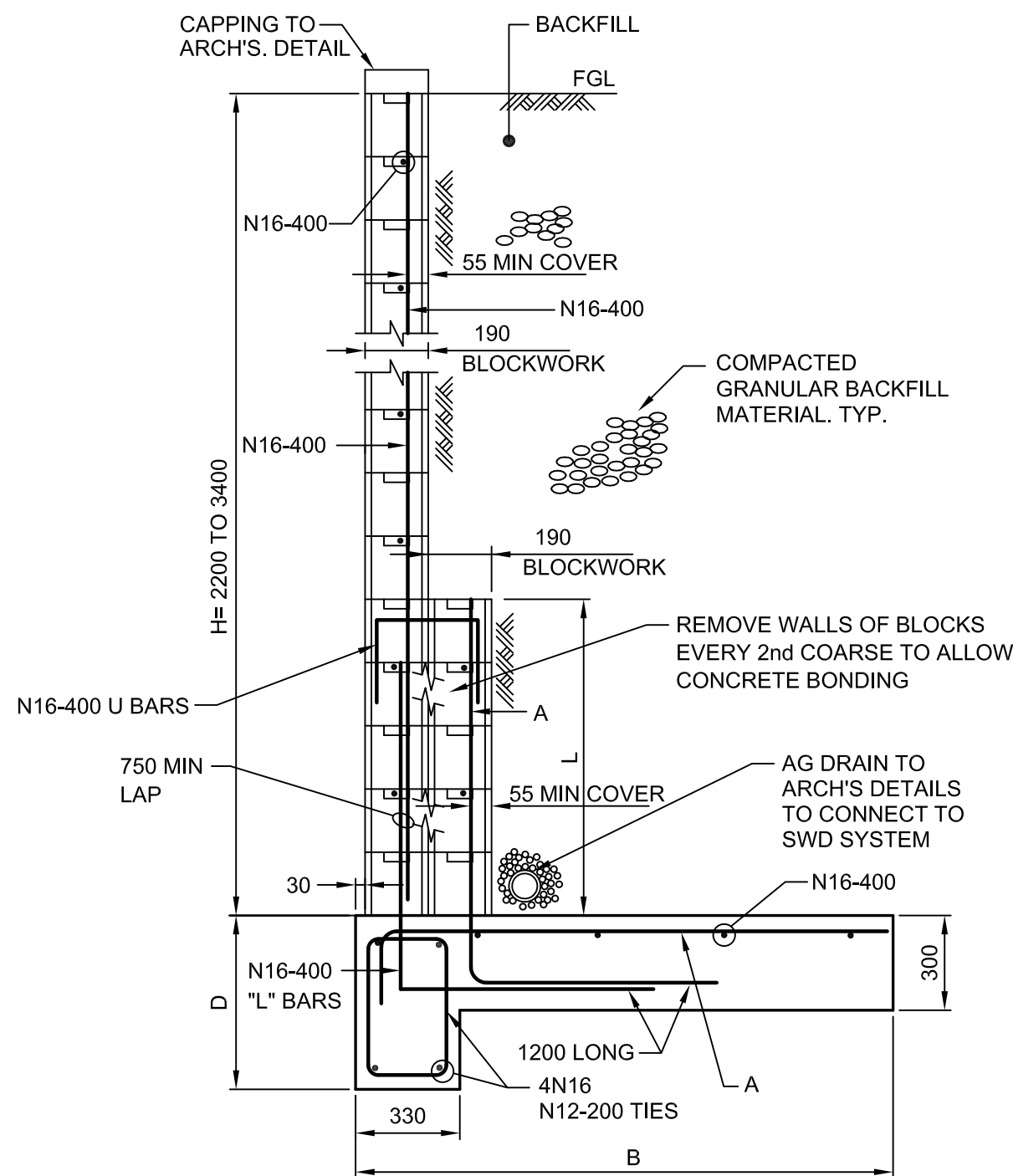


TYPICAL RETAINING WALL DETAIL

H = 1300 TO 1600 MAX

SCALE 1:20

BASE DIMENSIONS	
H	B
1400	1000
1600	1100
1800	1200

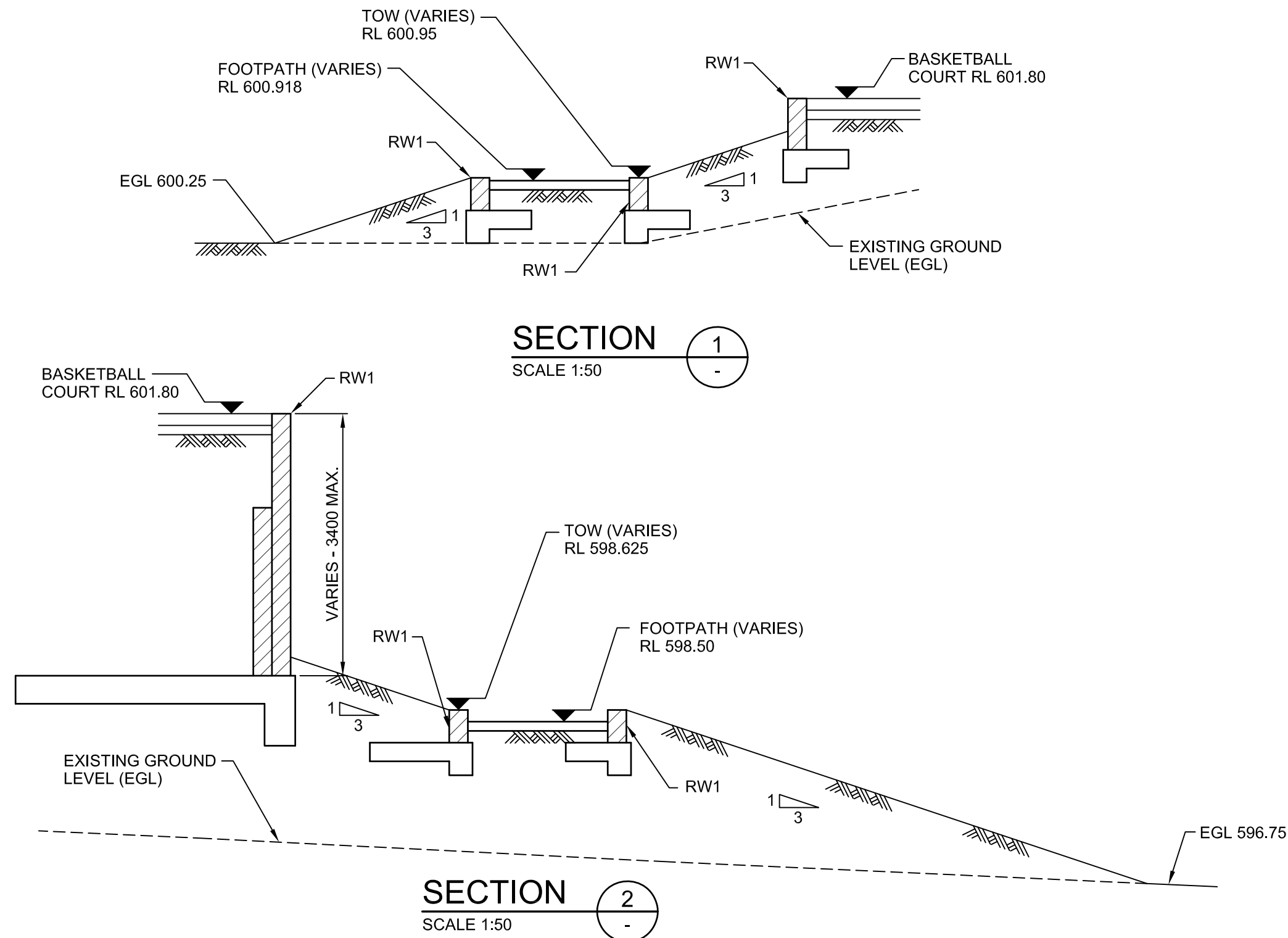


TYPICAL RETAINING WALL DETAIL

H = 2200 TO 3400 MAX

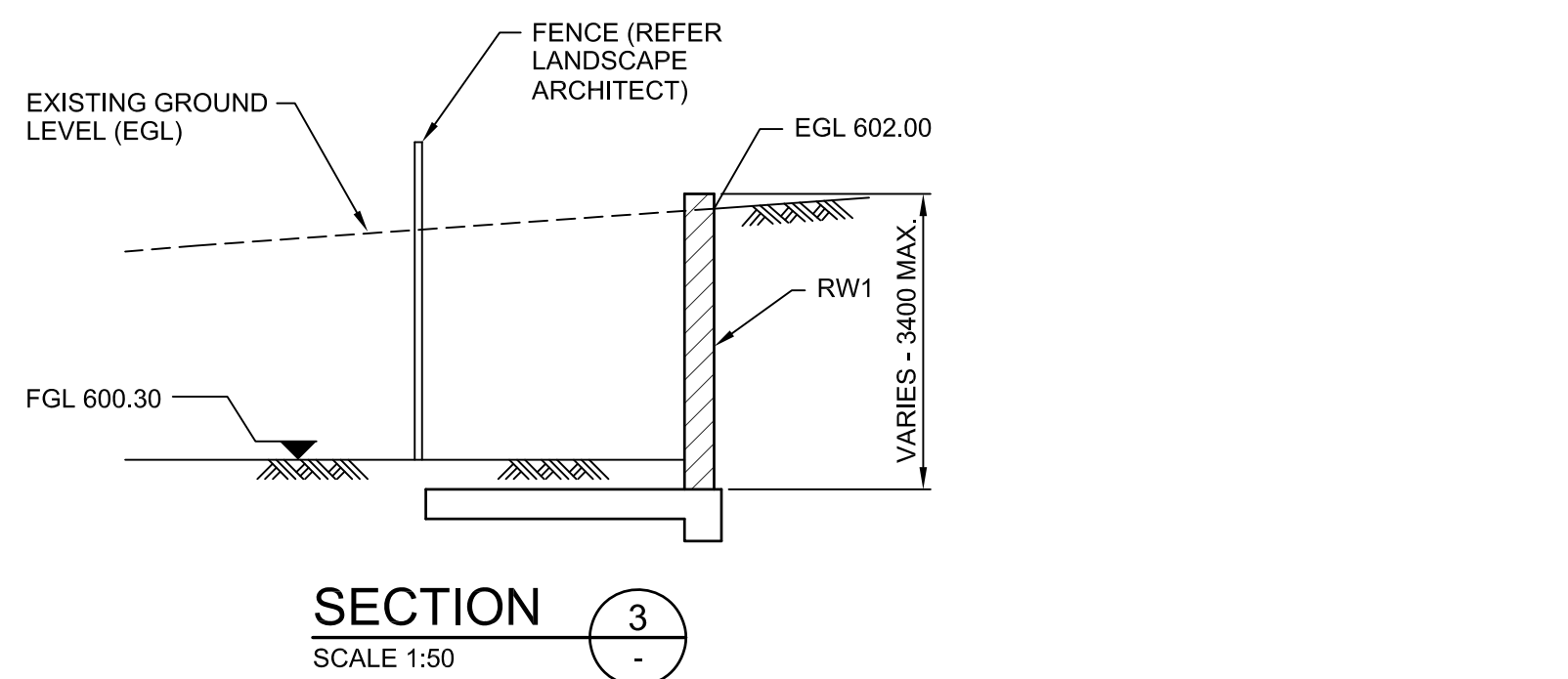
SCALE 1:20

BASE DIMENSIONS				
H	B	L	A	D
2200	1400	600	N16-400	550
2400	1600	800	N16-400	550
2600	1800	1000	N16-400	550
2800	2000	1200	N16-400	550
3000	2300	1400	N20-400	750
3200	2600	1600	N20-400	750
3400	3000	1800	N20-400	750



SECTION 1
SCALE 1:50

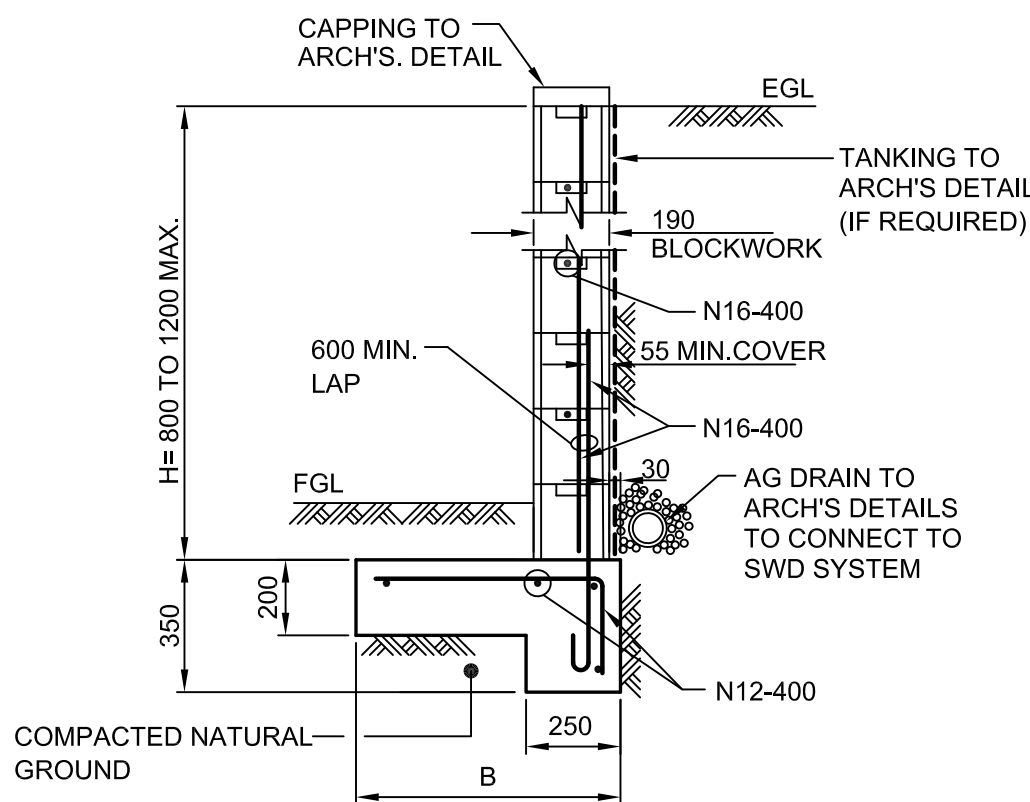
SECTION 2
SCALE 1:50



SECTION 3
SCALE 1:50

BLOCKWORK NOTES:

- ALL BLOCKS TO BE 140 OR 190 DOUBLE "U" BLOCKS. PROVIDE CLEAN OUT HOLES TO BTM. COURSE. FILL ALL CORES WITH CONCRETE: 10mm AGG. 15 MPa 225 SLUMP.
- 50 MIN. COVER TO ALL BASE REINFORCEMENT.
- BACKFILL TO BE COMPACTED CLEAN GRANULAR FREE DRAINING MATERIAL.

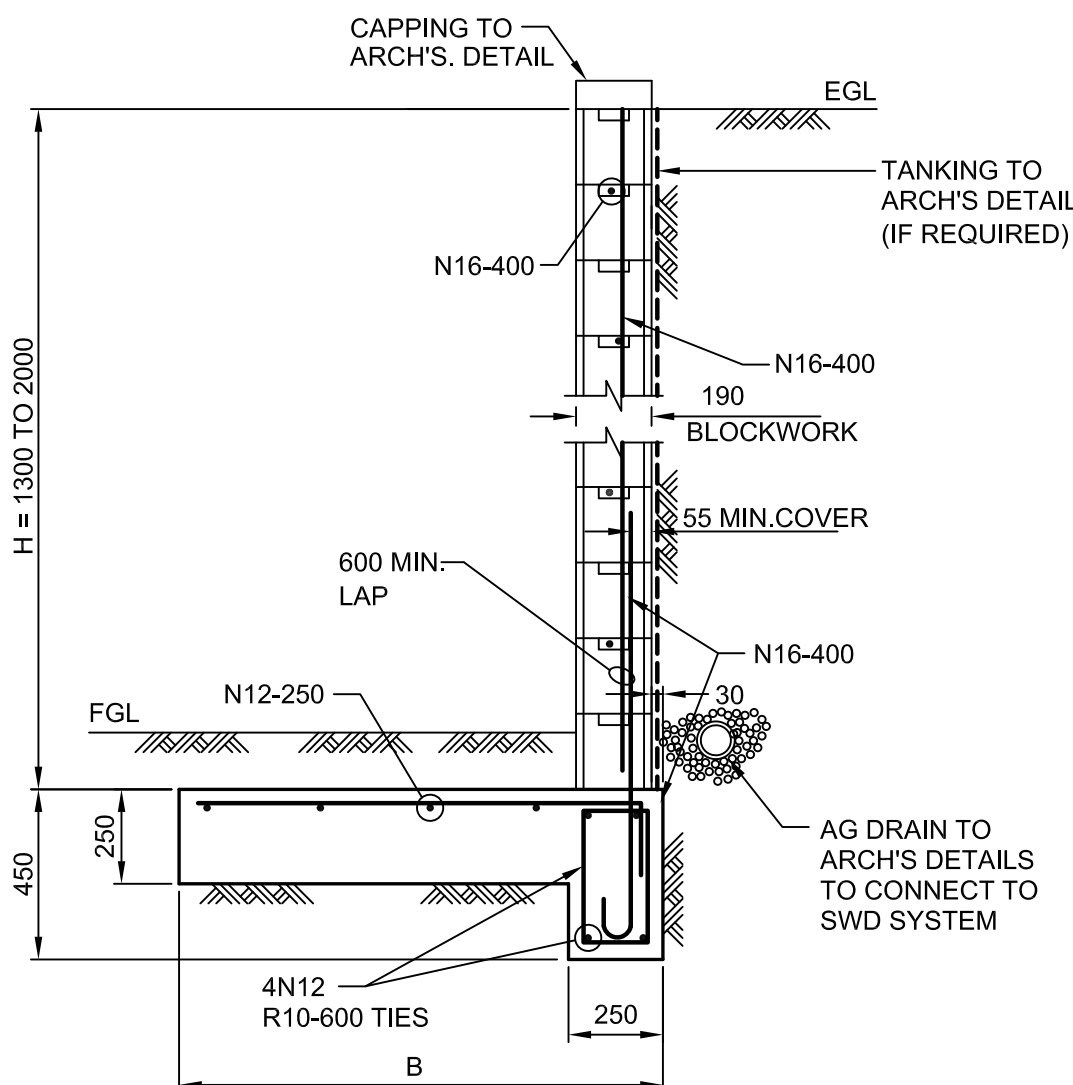


TYPICAL RETAINING WALL DETAIL

H = 800 TO 1200 MAX

SCALE 1:20

BASE DIMENSIONS	
H	B
800	600
1000	700
1200	800

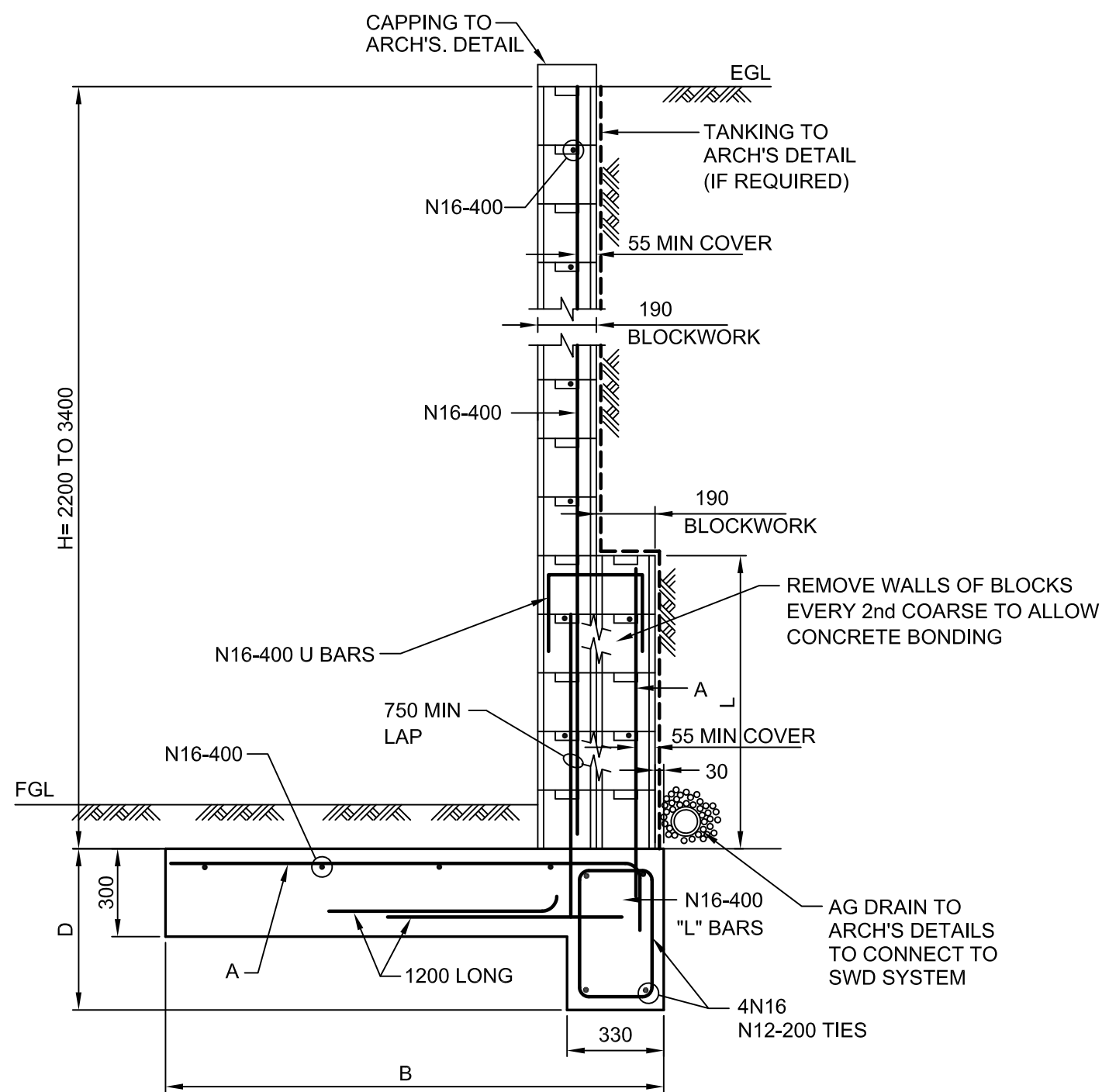


TYPICAL RETAINING WALL DETAIL

H = 1300 TO 1600 MAX

SCALE 1:20

BASE DIMENSIONS	
H	B
1400	1000
1600	1100
1800	1200



TYPICAL RETAINING WALL DETAIL

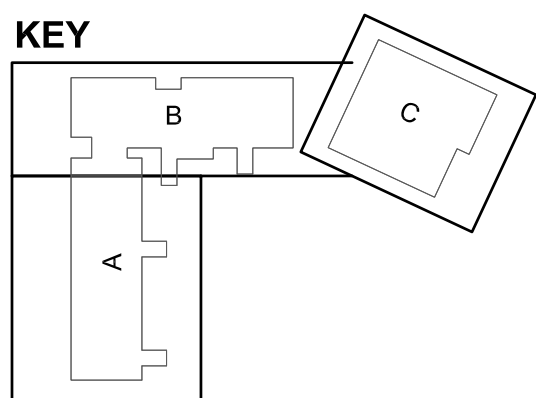
H = 2200 TO 3400 MAX

SCALE 1:20

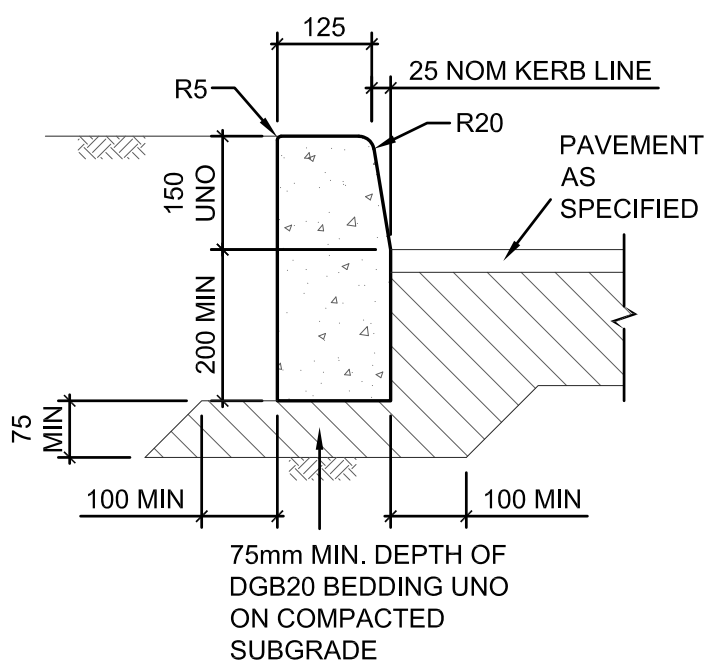
BASE DIMENSIONS				
H	B	L	A	D
2200	1400	600	N16-400	550
2400	1600	800	N16-400	550
2600	1800	1000	N16-400	550
2800	2000	1200	N16-400	550
3000	2300	1400	N20-400	750
3200	2600	1600	N20-400	750
3400	3000	1800	N20-400	750

TYPICAL RETAINING WALL DETAILS IN CUT

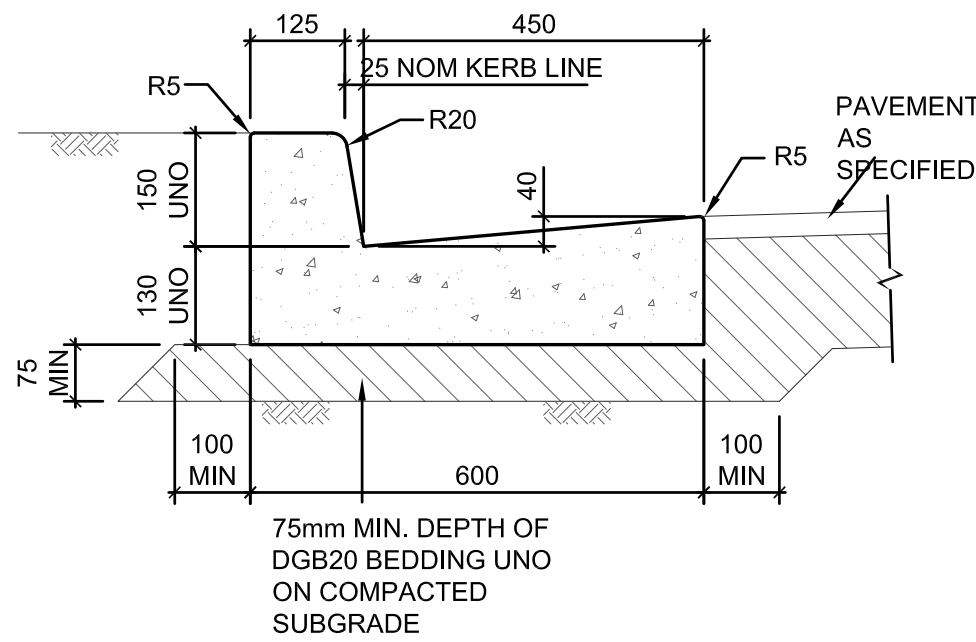
DENOTED RW1 ON PLANS



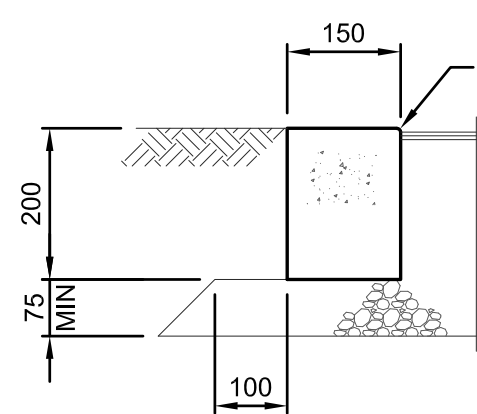
NOT FOR CONSTRUCTION



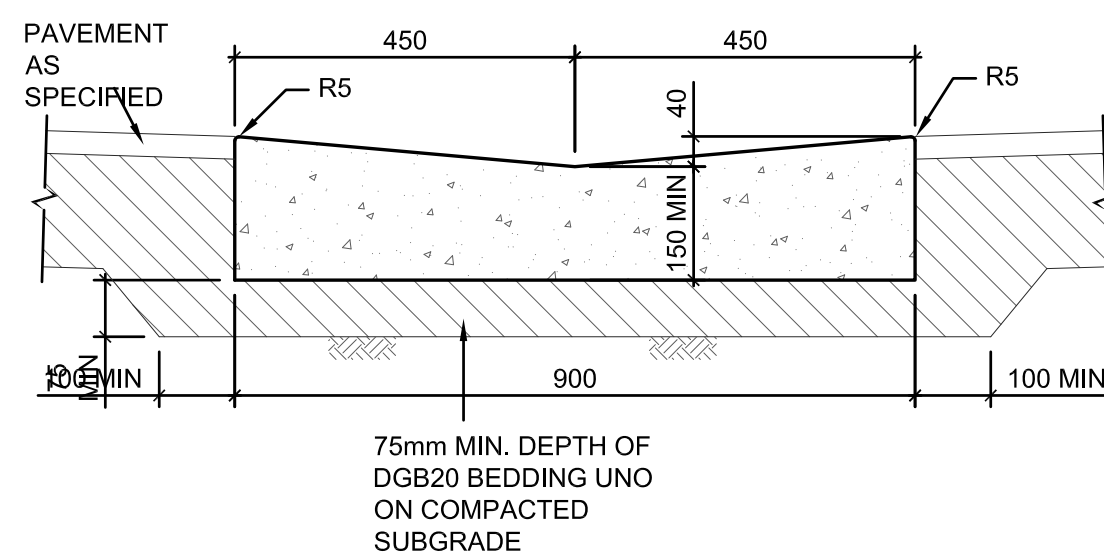
KERB ONLY (KO)
SCALE 1:10



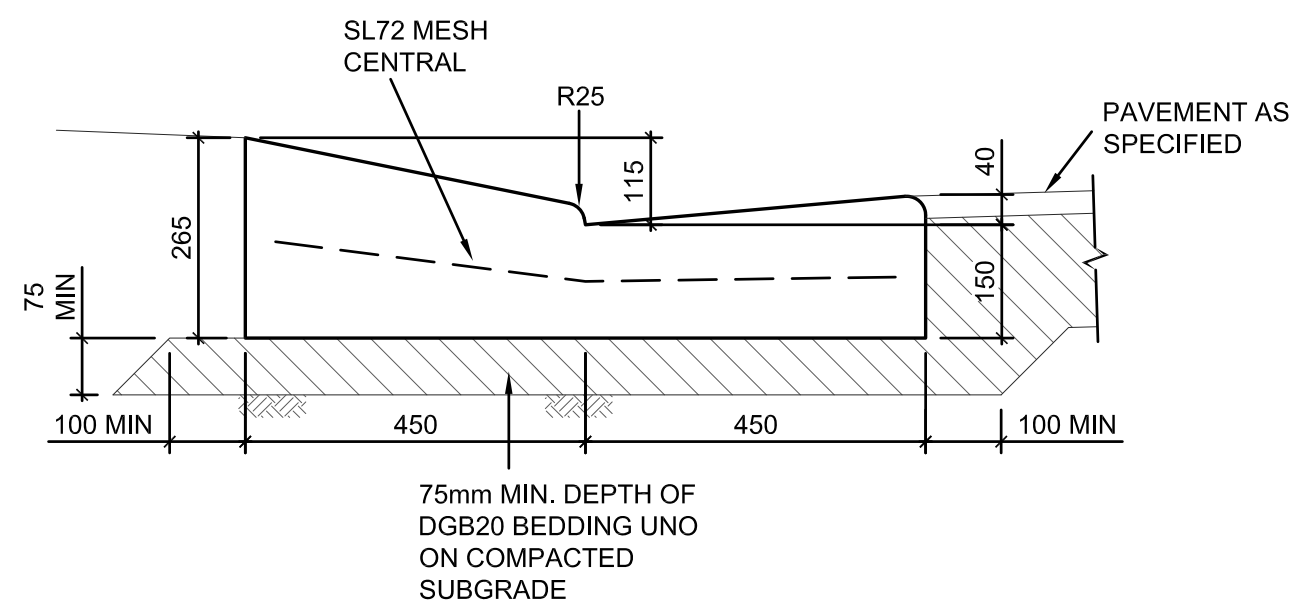
KERB AND GUTTER (K&G)
SCALE 1:10



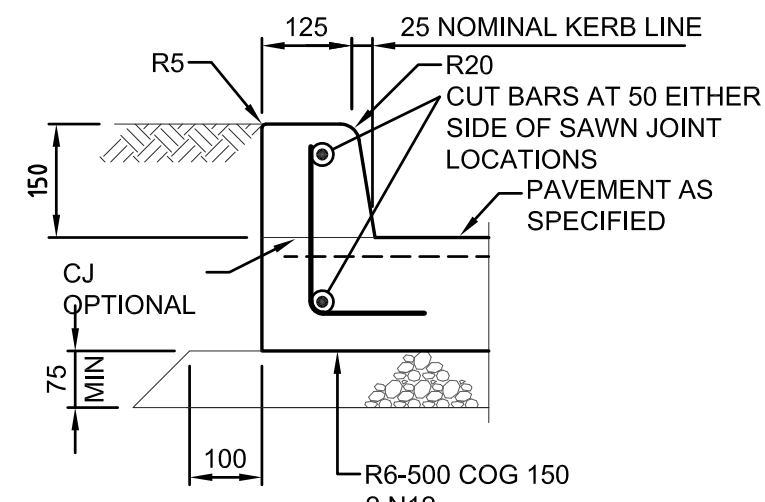
FLUSH KERB (FK)
SCALE 1:10



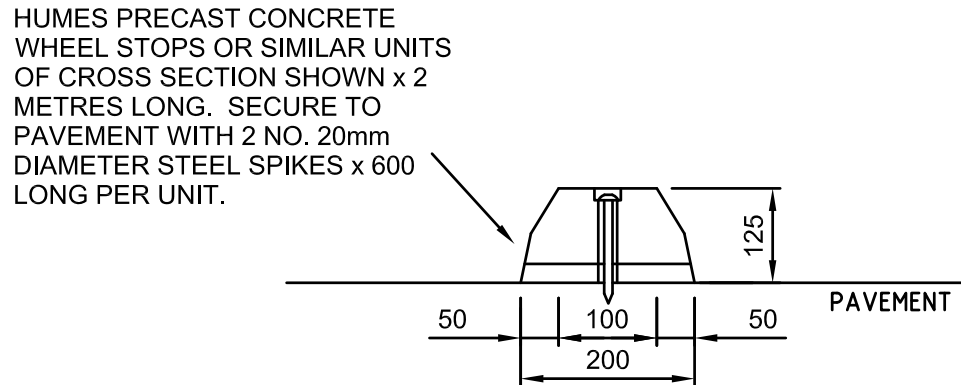
DISH DRAIN (DD1)
SCALE 1:10



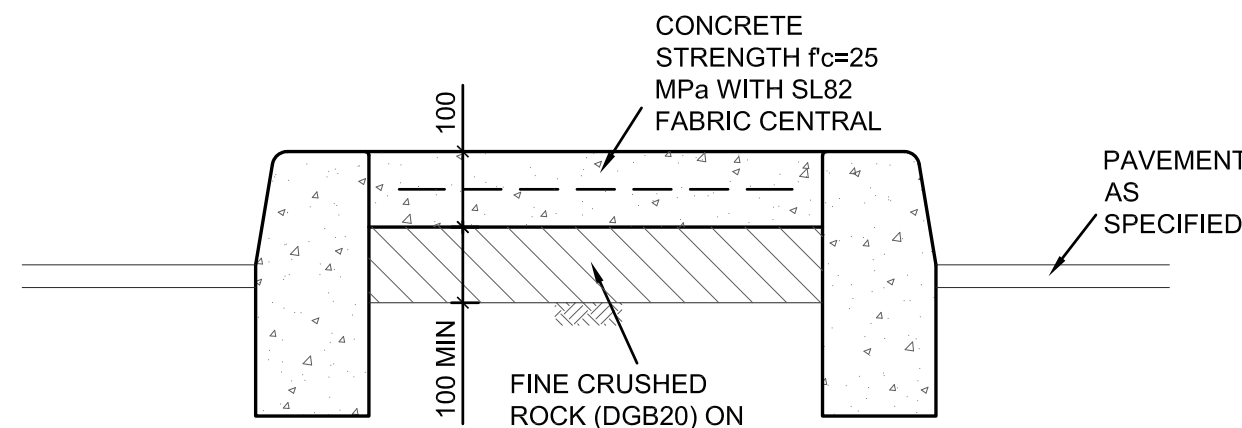
VEHICULAR CROSSING (VC)
SCALE 1:10



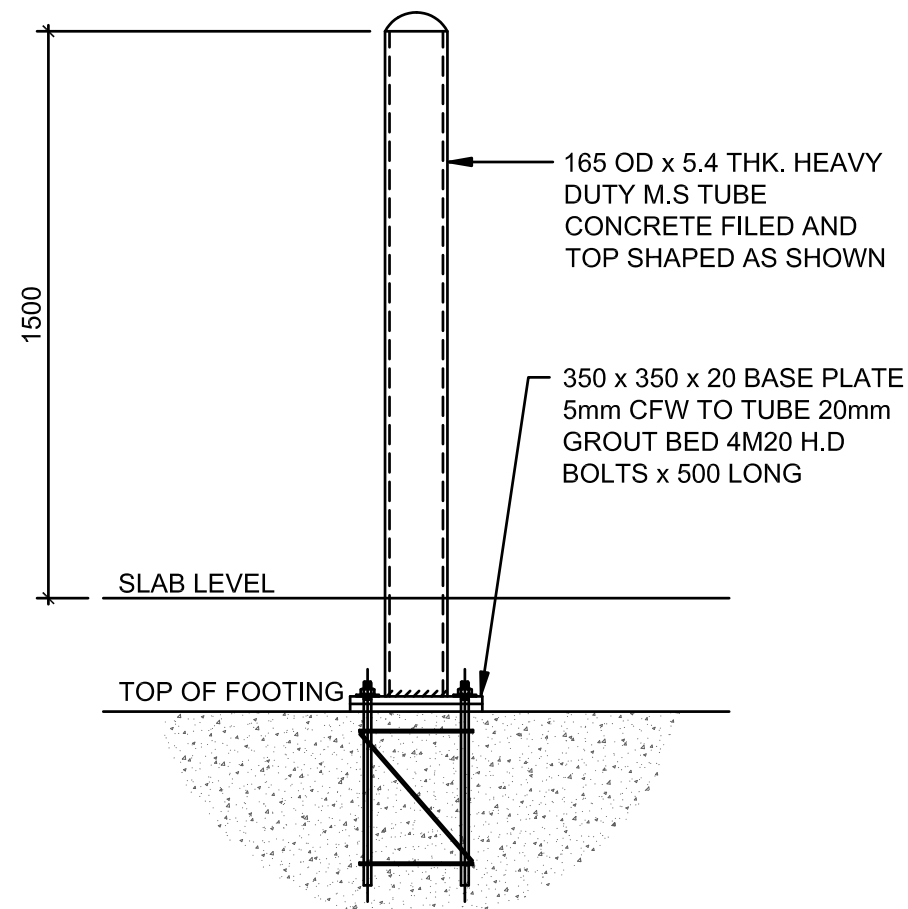
INTERGRAL KERB (IK)
SCALE 1:10



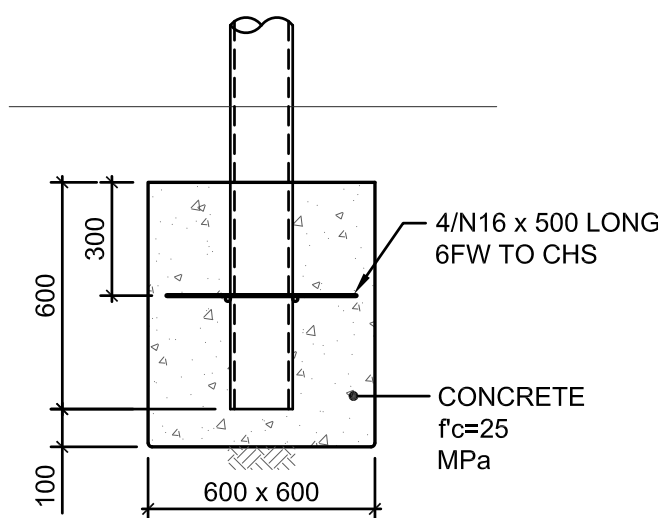
PRECAST WHEEL STOP
N.T.S.



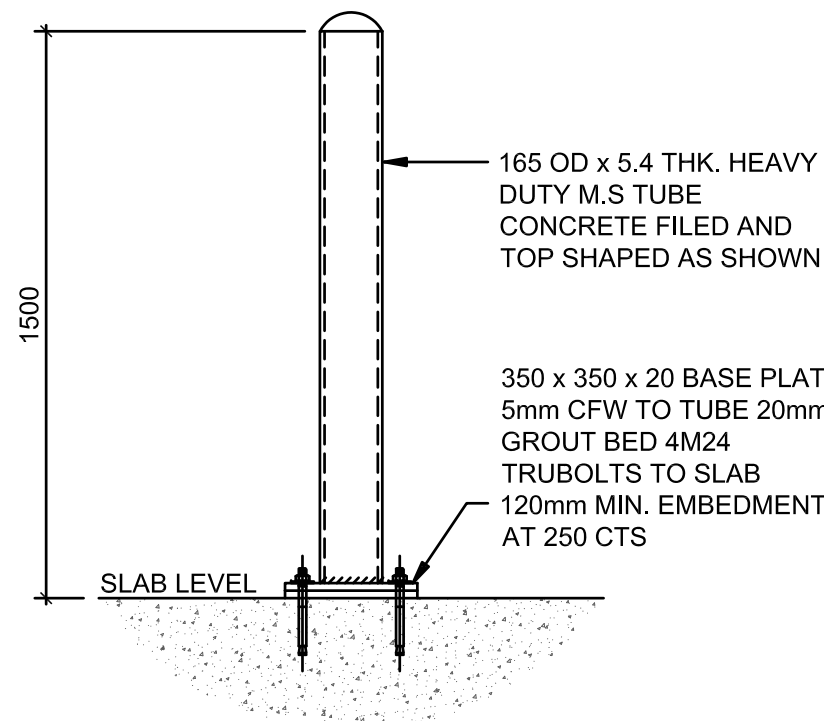
CONCRETE ISLAND INFILL
SCALE 1:10



BOLLARD DETAIL TYPE 1 (FOOTING)

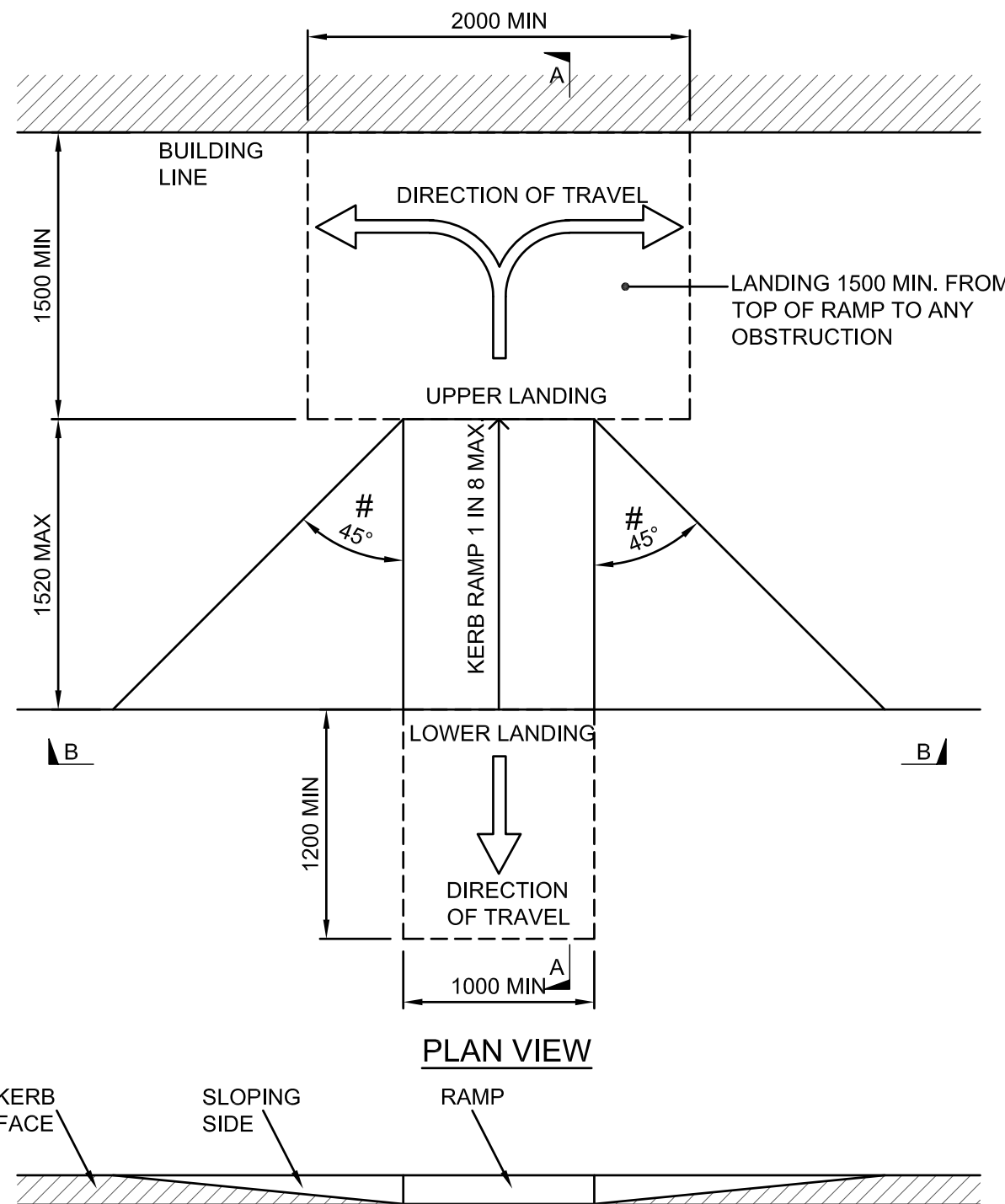


BOLLARD FOOTING DETAIL

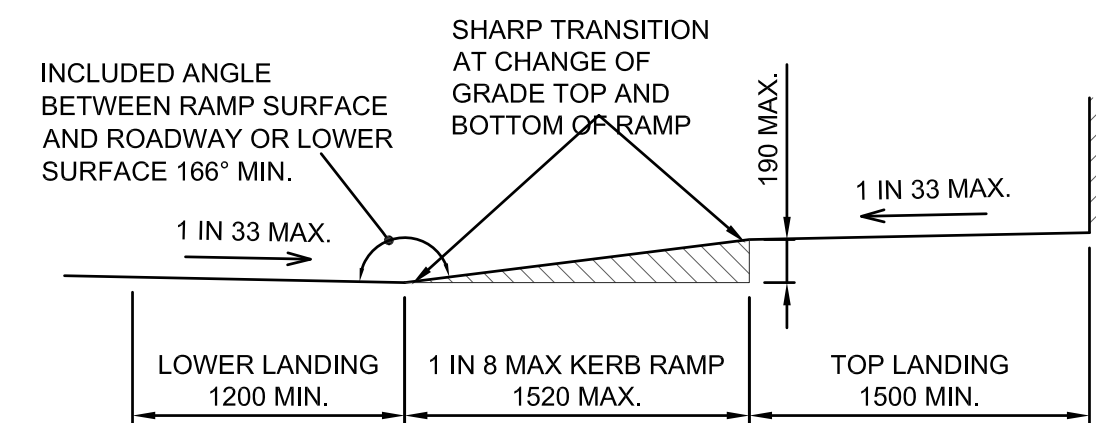


BOLLARD DETAIL TYPE 2 (SLAB)

TYPICAL BOLLARD DETAILS
SCALE 1:20



SECTION B - B



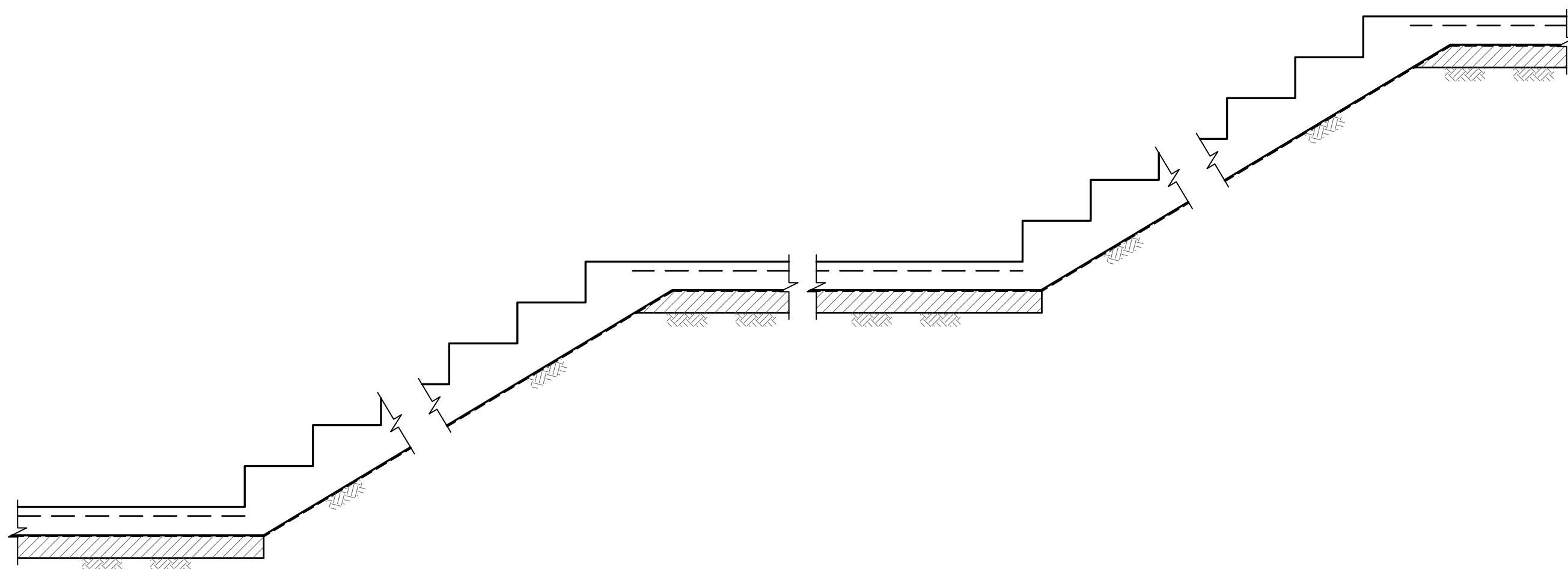
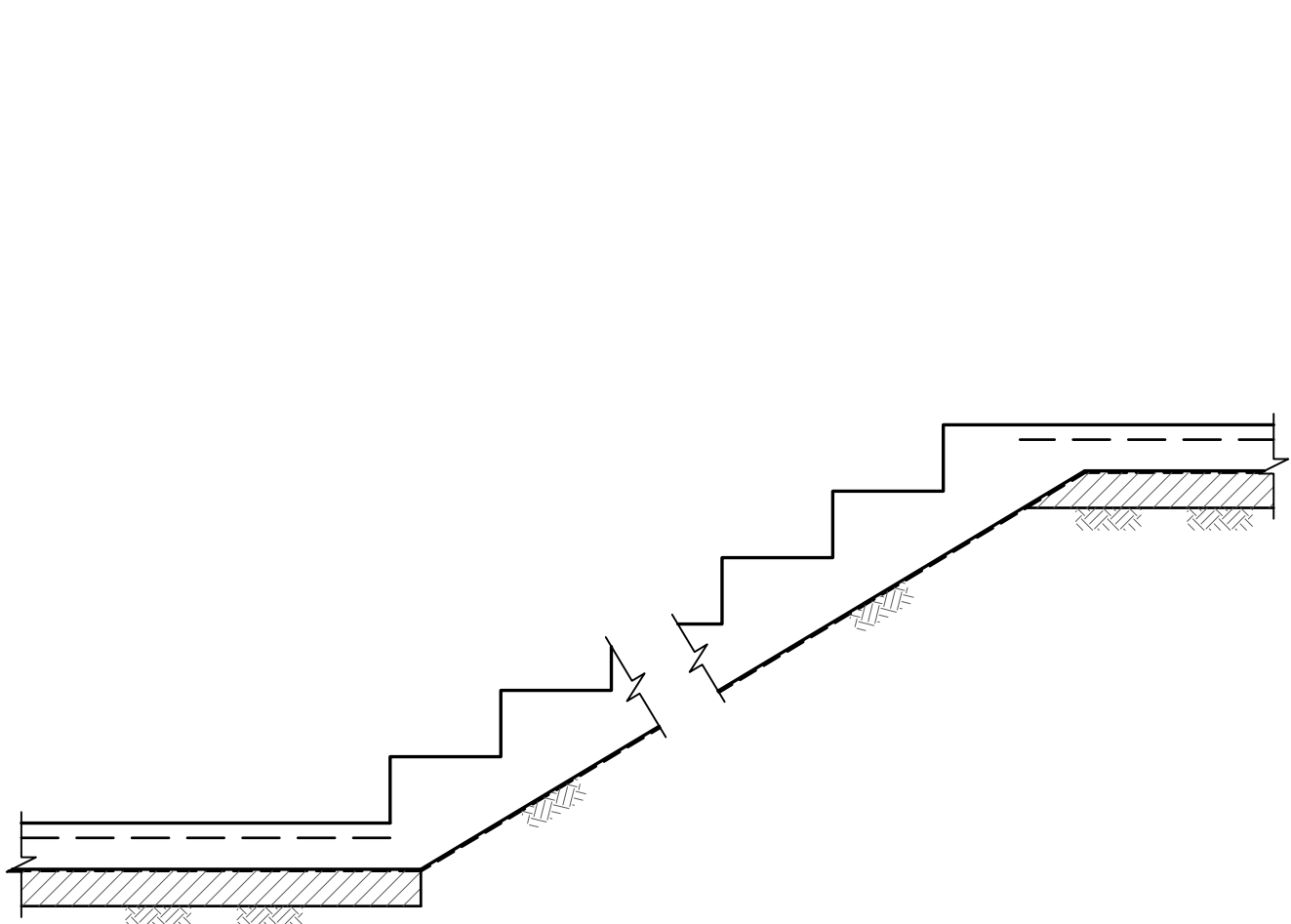
SECTION A - A

PRAM RAMP DETAIL

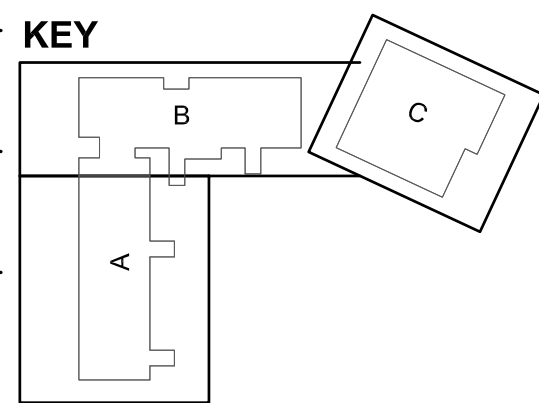
NTS

NOTES

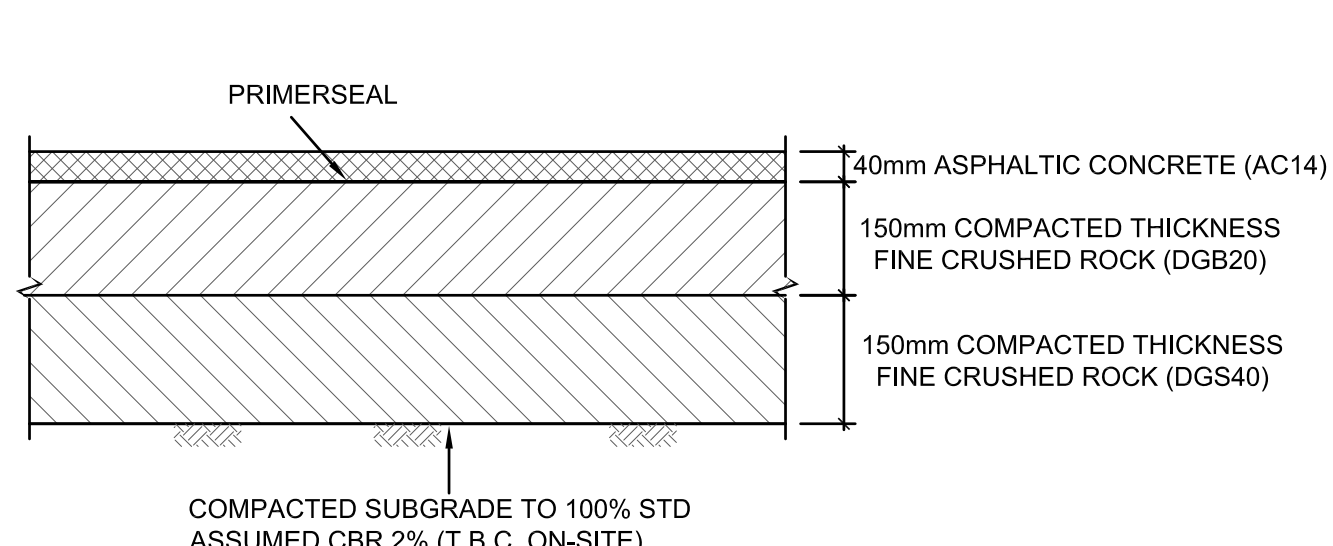
1. THE RAMP AND SLOPING SIDES SHOULD BE SLIP RESISTANT AND OF A COLOUR THAT CONTRASTS WITH THE ADJOINING SURFACES.
2. A TACTILE INDICATOR, AS SPECIFIED IN AS1428.4 SHOULD BE INTEGRATED AND EXTENDED FOR 200mm AWAY FROM THE RAMP AT THE SHARP TRANSITION AT THE TOP AND BOTTOM OF THE RAMP. THIS COULD TAKE THE FORM OF ROUGH BROOMING OR SIMILAR TEXTURE WHICH WILL AID ORIENTATION FOR PEOPLE WITH A VISUAL IMPAIRMENT.
3. # WHERE CONSTRAINTS DICTATE THE ANGLE MAY BE REDUCED TO 30° IN ACCORDANCE WITH RMS STANDARD DRAWING No. R0300-11.
4. MINIMUM 125mm THICKNESS OF CONCRETE REINFORCED WITH SL82 MESH BOTTOM, 40mm COVER



TYPICAL EXTERNAL STAIR DETAILS
SCALE 1:20

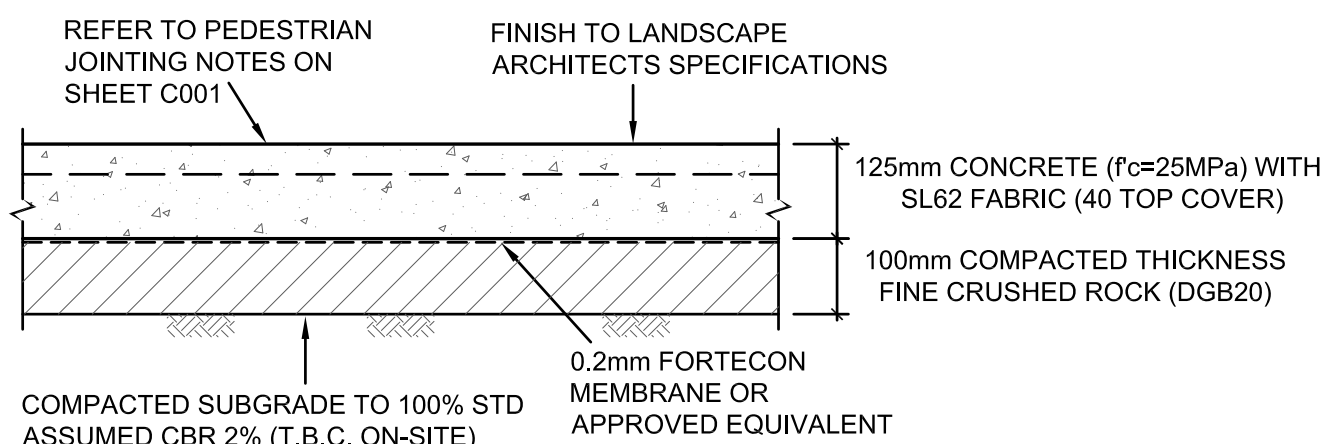
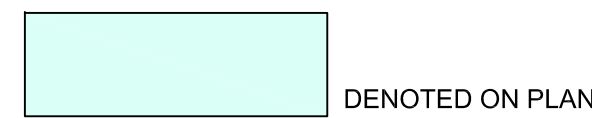


NOT FOR CONSTRUCTION



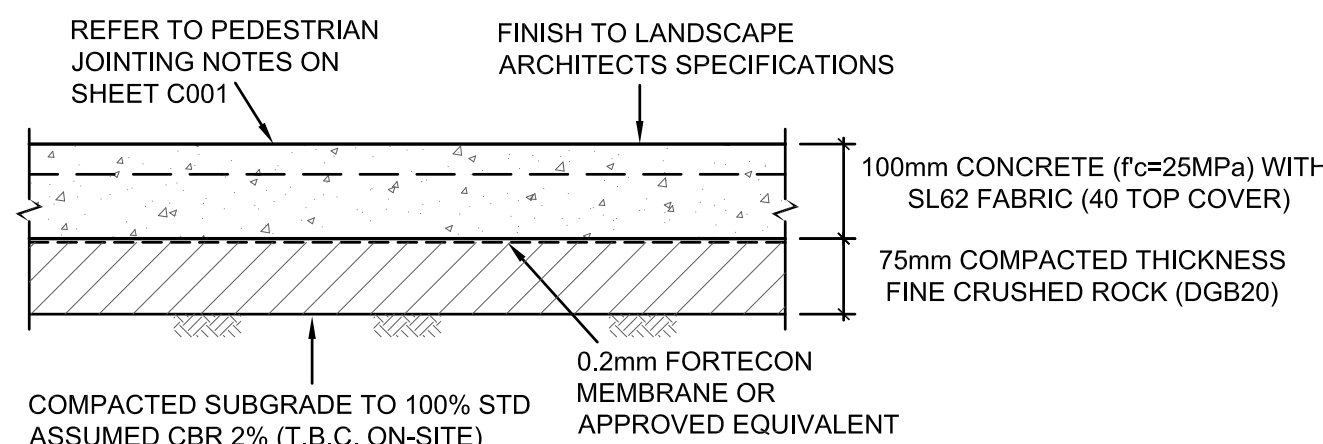
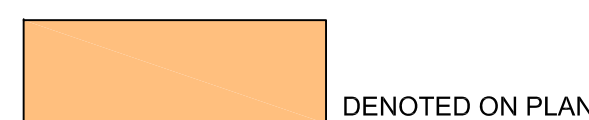
PAVEMENT TYPE 1 MEDIUM DUTY ASPHALT PAVEMENT

SCALE 1:10



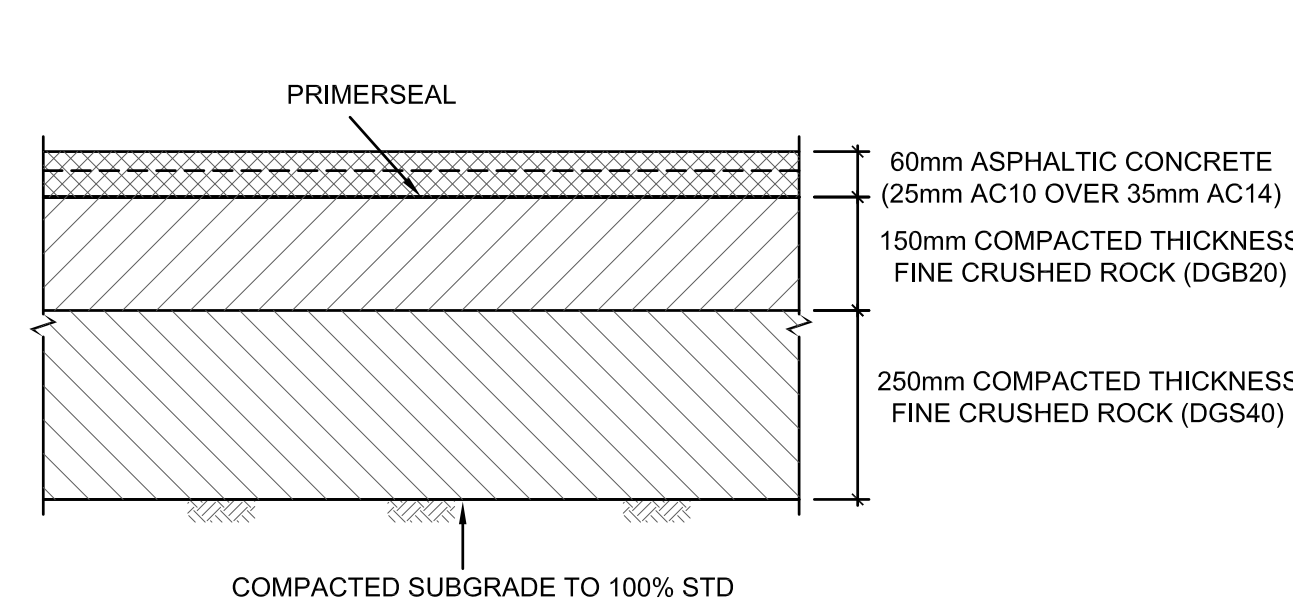
PAVEMENT TYPE 2 HEAVY DUTY CONCRETE PAVEMENT PEDESTRAIN AND LIGHT VEHICLE

SCALE 1:10



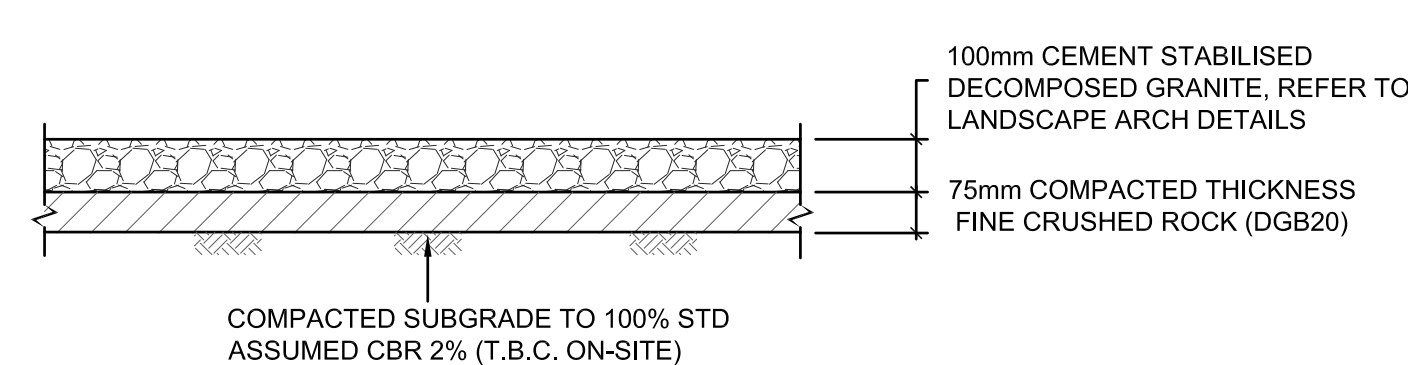
PAVEMENT TYPE 3 CONCRETE FOOTPATH PAVEMENT PEDESTRAIN ONLY

SCALE 1:10



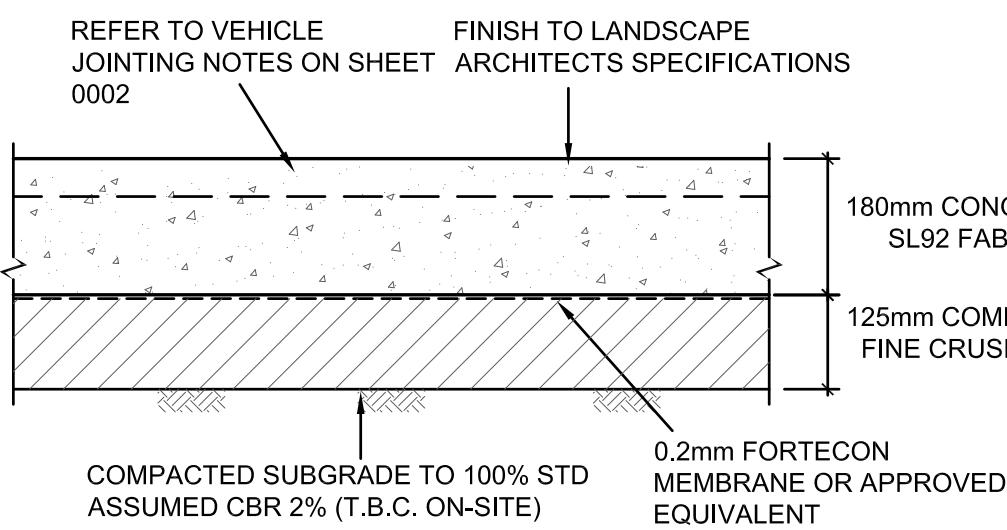
PAVEMENT TYPE 4 HEAVY DUTY ASPHALT PAVEMENT

SCALE 1:10



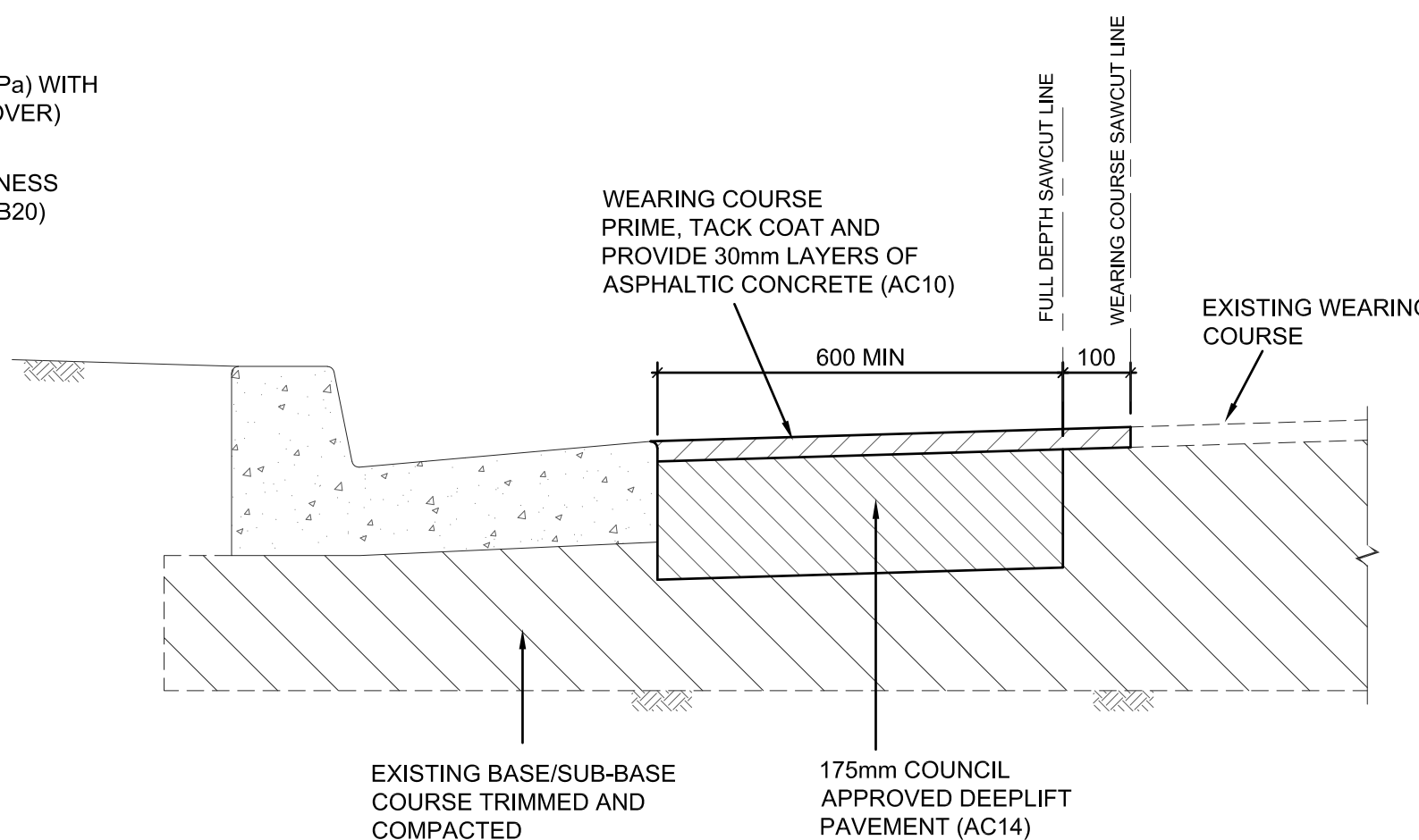
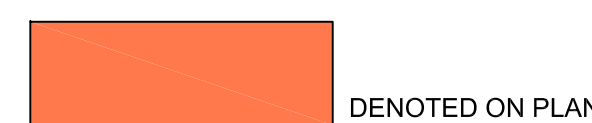
PAVEMENT TYPE 5

SCALE 1:10



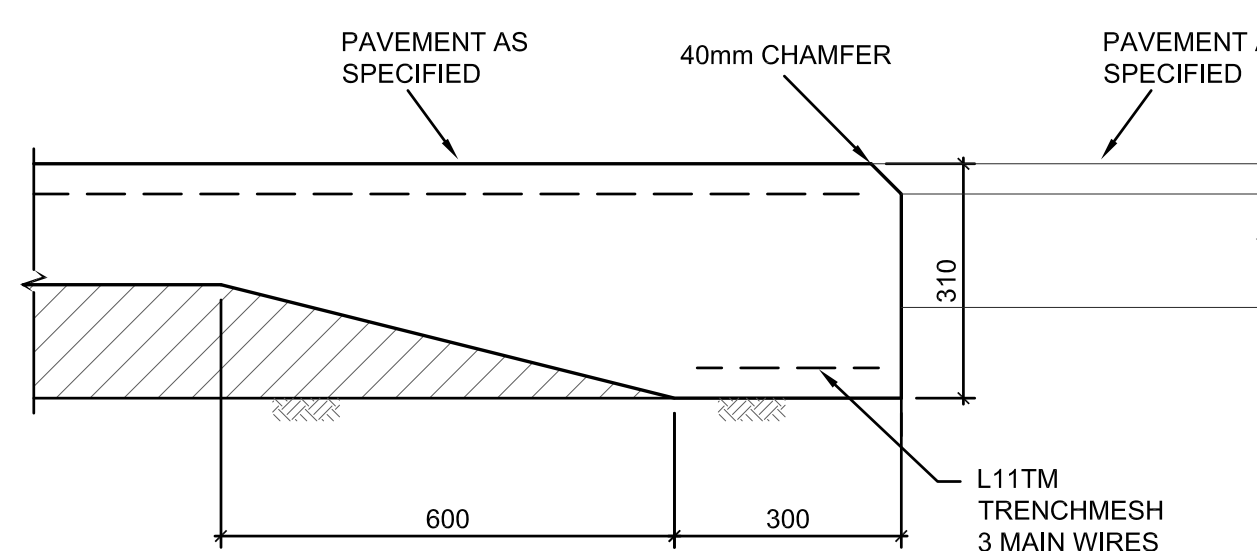
PAVEMENT TYPE 6 HEAVY DUTY CONCRETE PAVEMENT

SCALE 1:10



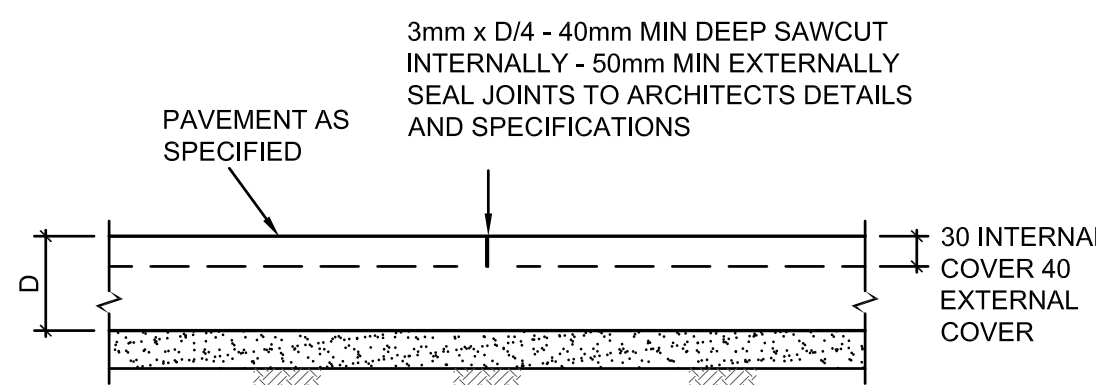
PAVEMENT - DEEPLIFT

SCALE 1:10



EDGE THICKENING (ET)

SCALE 1:10

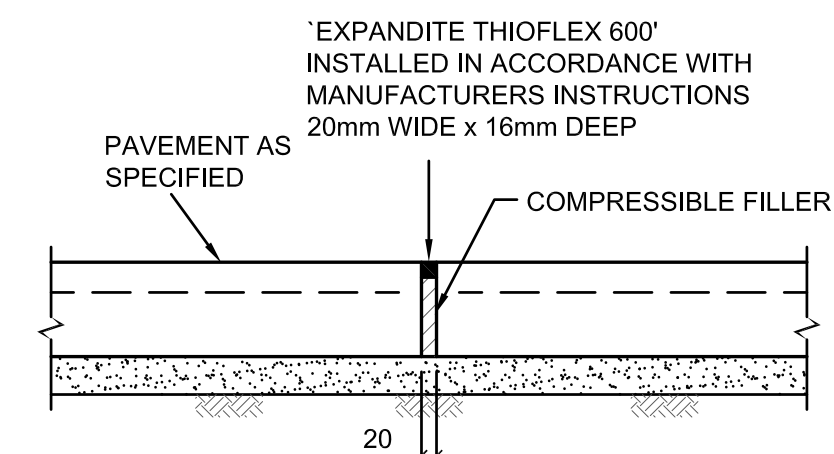


SAWCUT JOINT (SJ)

SCALE 1:10

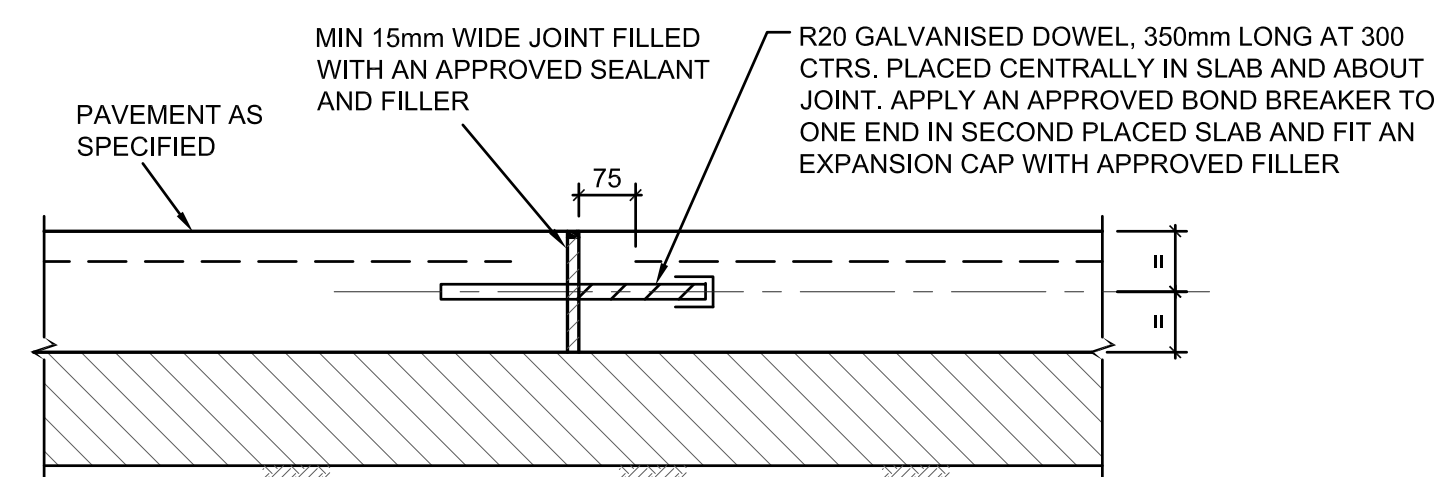
NOTES

1. SLAB MUST BE SAWCUT AS SOON AS PRACTICABLE AFTER FINISHING OF THE SLAB WITHOUT CAUSING DAMAGE TO THE SAWCUT EDGES - USUALLY 12-24 HOURS.
2. SLABS MUST NOT BE POURED IF TEMPERATURE EXCEEDS 32°
3. HOT WEATHER PLACING (25° AND OVER) MAY REQUIRE SLABS TO BE SAWCUT AS SOON AS 5-6 HOURS AFTER POURING.
4. ANY SLAB BAY IN WHICH SHRINKAGE CRACKS OCCUR DUE TO LATE SAWCUTTING MUST BE REMOVED AND REPLACED BY THE BUILDER/CONTRACTOR.



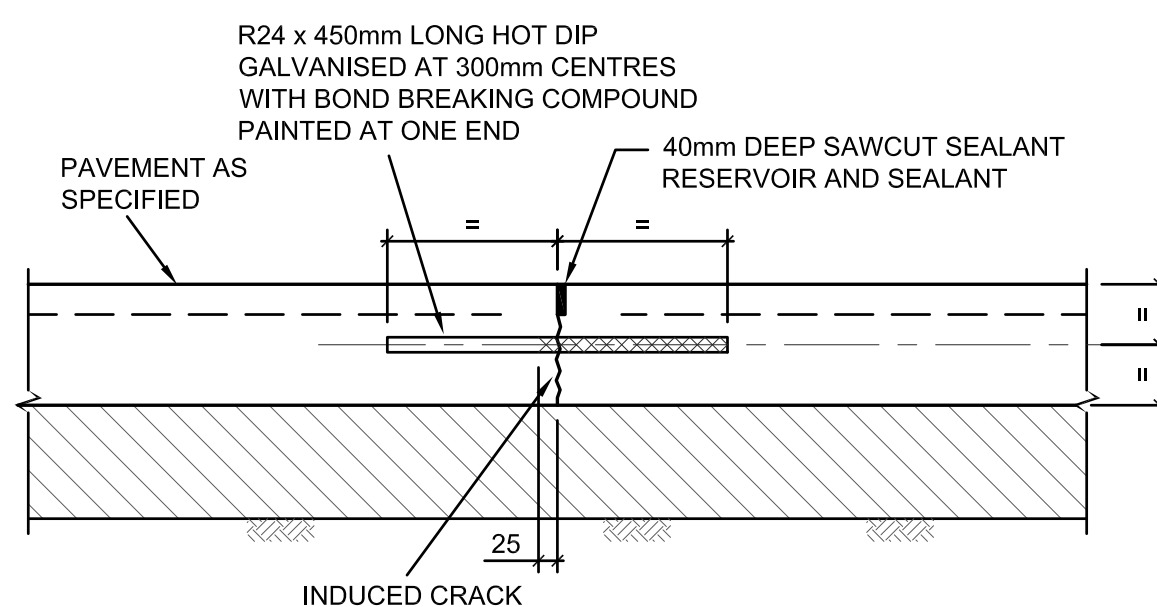
EXPANSION JOINT (EJ)

SCALE 1:10



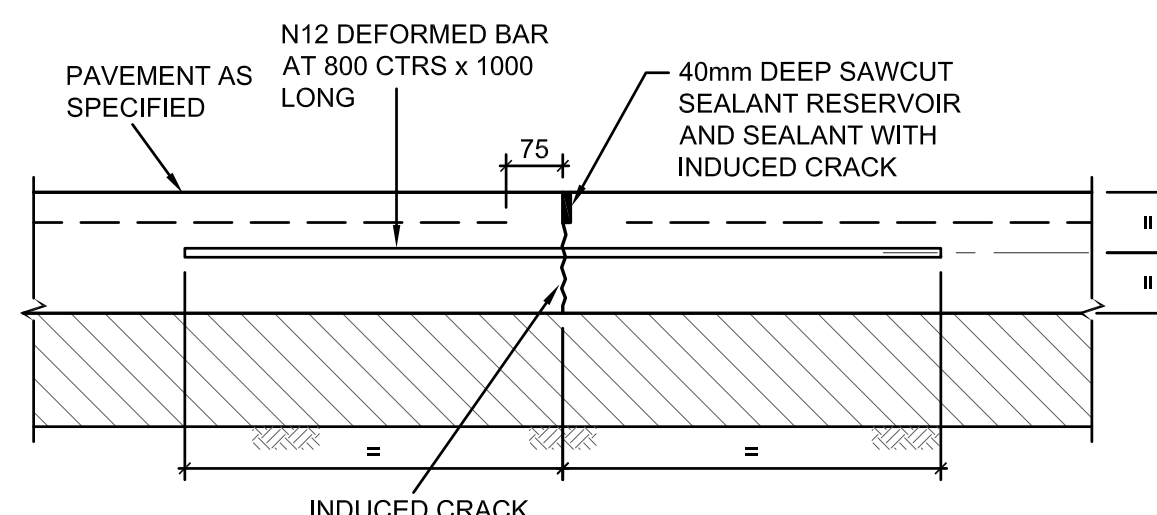
DOWELLED EXPANSION JOINT (DEJ)

SCALE 1:10



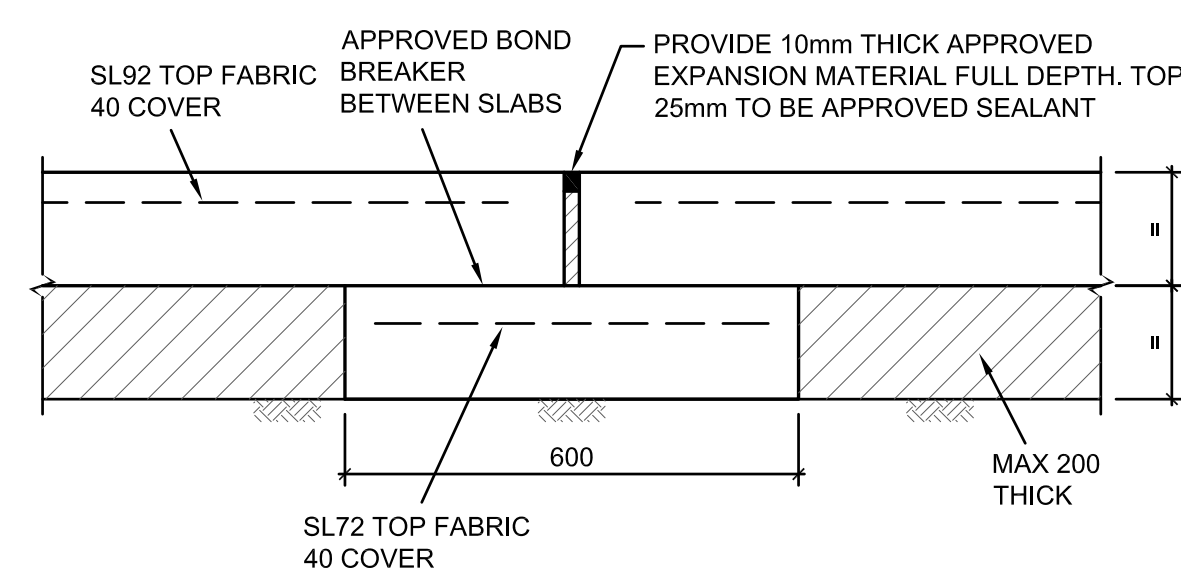
TRANSVERSE CONTRACTION JOINT (TCJ)

SCALE 1:10



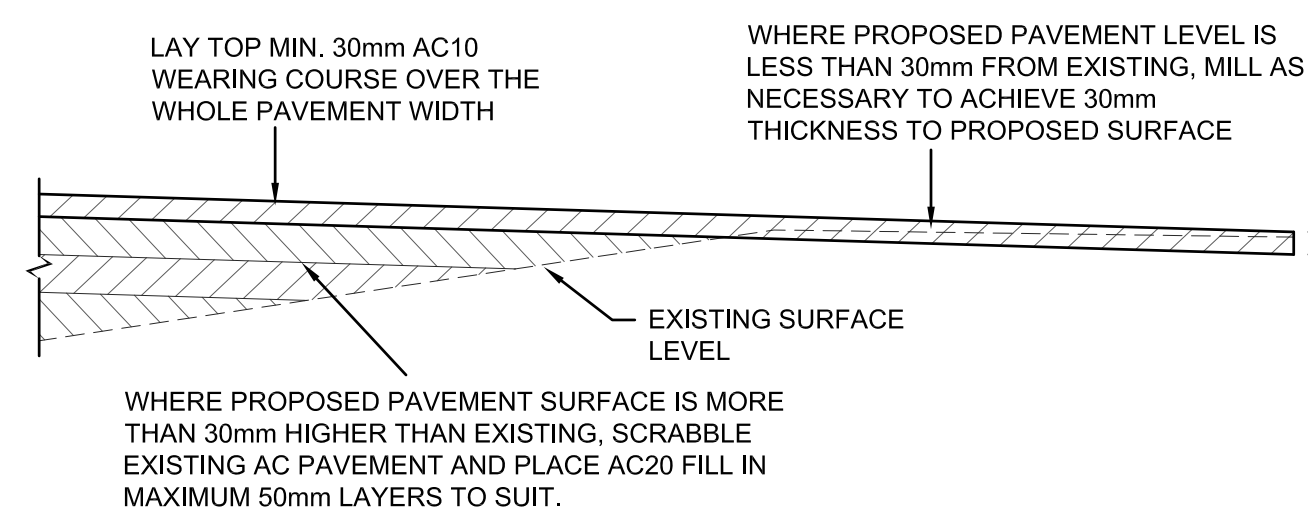
LONGITUDINAL WARPING JOINT (LWJ)

SCALE 1:10



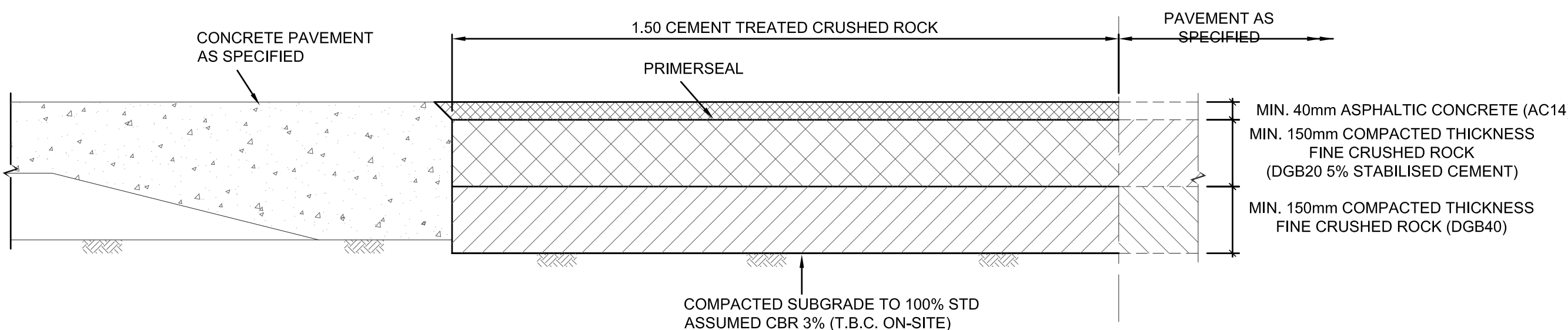
ISOLATION JOINT (IJ) WITH SUBGRADE BEAM

SCALE 1:20



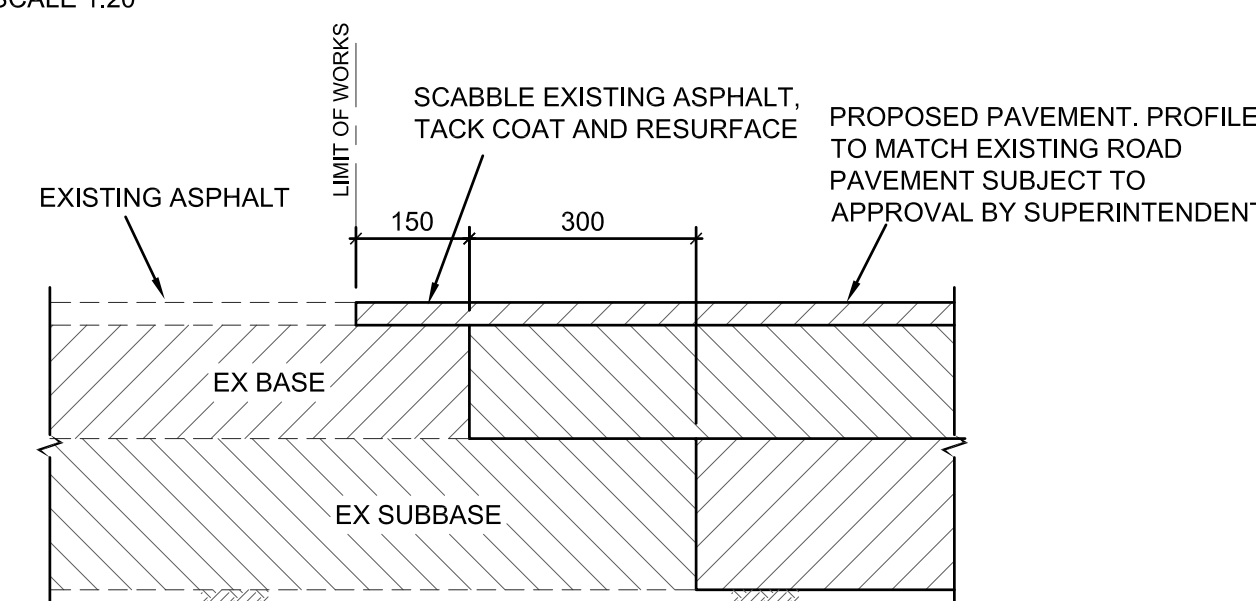
MILL RE-SHEET/SCRABBLE AND FILL DETAIL

SCALE 1:10



CONCRETE CONNECTION TO ASPHALT PAVEMENT

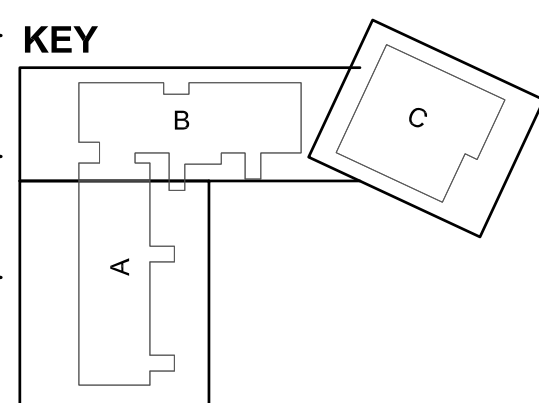
SCALE 1:10



ASPHALT CONNECTION TO EXISTING PAVEMENT

SCALE 1:10

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR



NOT FOR CONSTRUCTION