

AUSTRAX STRUCTURAL CIVIL ENGINEERS

STORMWATER MANAGEMENT PLAN AND DETAIL

11 RAVEN CIRUIT, WARRIEWOOD NSW

LEGEND:

	STORMWATER LINE
	CHARGED LINE
	SUBSOIL LINE
	STORMWATER RISING MAIN
	OVERFLOW LINE
	AUTHORITY STORMWATER LINE
	AUTHORITY SEWER LINE
	AUTHORITY WATER LINE
	EXISTING STORMWATER LINE
	AUTHORITY ELECTRICITY LINE
	AUTHORITY UNDERGROUND ELECTRICITY LINE
	AUTHORITY COMMS LINE
	FENCE LINE
	GRATED SURFACE INLET PIT
	GRATED SURFACE INLET PIT WITH ENVIROPOD INSERT
	JUNCTION PIT
	KERB INLET PIT
	EXISTING GRATED SURFACE INLET PIT
	EXISTING JUNCTION PIT
	EXISTING KERB INLET PIT
	EXISTING TELSTRA PIT
	EXISTING HYDRANT
	EXISTING STOP VALVE
	EXISTING GAS VALVE
	EXISTING POWER POLE
	EXISTING BOUNDARY TRAP
	EXISTING SEWER MANHOLE

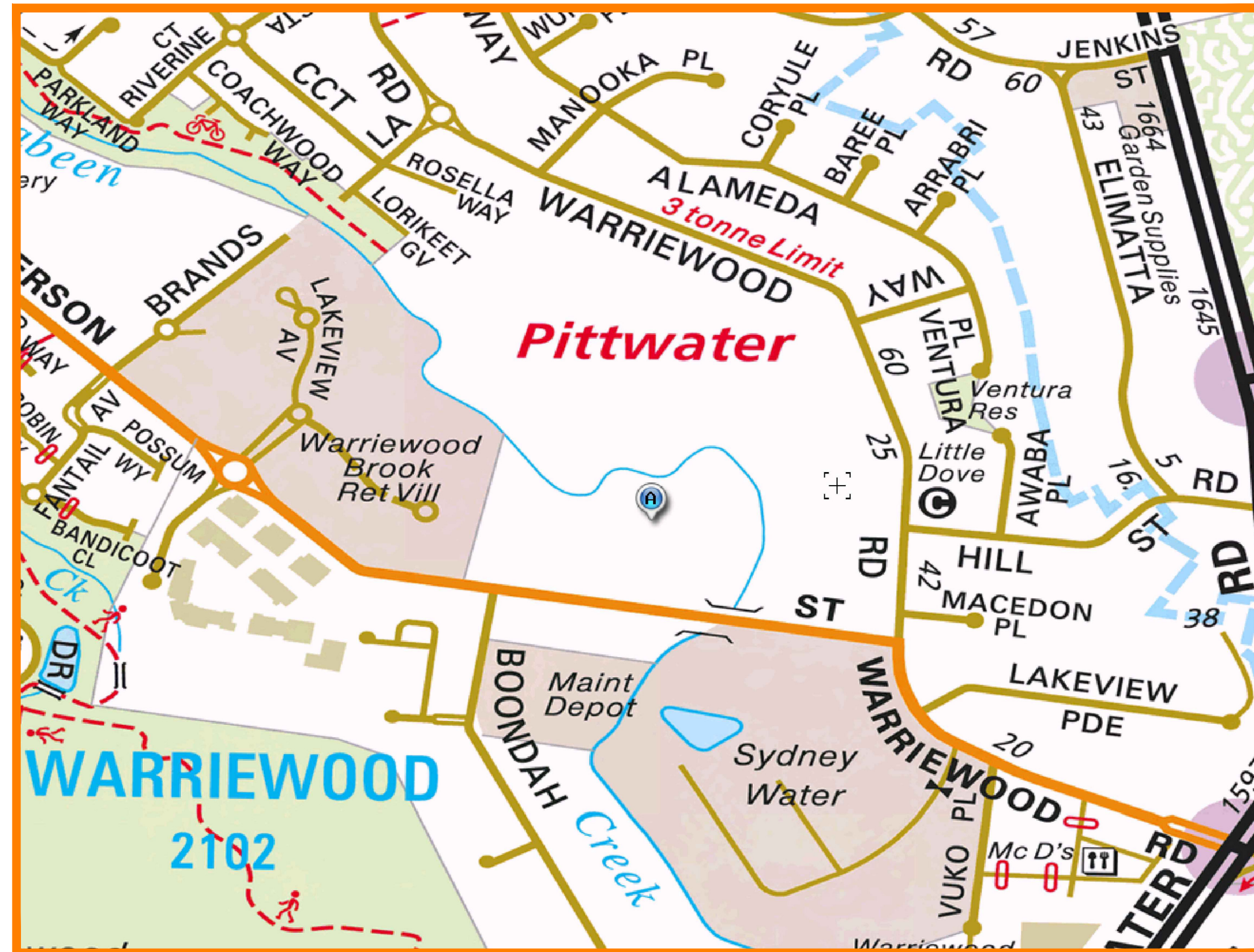
ABBREVIATIONS:

Ø or DIA	DIAMETER
CL	CENTER LINE
CO	CLEAR OUT
DGS	DENSE GRADED SUB-BASE
DP	DOWNPIPE
e	EXISTING
FFL	FINISHED FLOOR LEVEL
GTD	GRATED TRENCH DRAIN
GSIP	GRATED SURFACE INLET PIT
IL	INVERT LEVEL
K&G	KERB & GUTTER
OPF	OVERLAND FLOW PATH
OSD	ON-SITE DETENTION
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RL	REDUCED LEVEL
RW	RETAINING WALL
RWT	RAINWATER TANK
SMH	SEWER MAN HOLE
SW	STORMWATER
SV	STOP VALVE
TOK	TOP OF KERB
TOW	TOP OF WALL
TWL	TOP WATER LEVEL
UPVC	UNPLASTICISED POLYVINYL CHLORIDE
UNO	UNLESS NOTED OTHERWISE
FF	FIRST FLUSH DEVICE
TYP	TYPICAL
OPF	OVERLAND FLOW PATH
RWO	RAINWATER OUTLET
CO	CLEAR OUT POINT
FF	FIRST FLUSH
DDO	DISH DRAIN OUTLET
PD	PLANTER DRAIN
FW	FLOOR WASTE
J	CAPPING
(1.0)	PIT TAG/NUMBER
RH	RAINHEAD
DP	DOWNPIPE DROP
DP	DOWNPIPE
NRV	NON RETURN VALVE
WP	WALL PENETRATION
DP	DOWNPIPE SPREADER
RH	RAINHEAD
WL	WARNING LIGHT
0.00	SPOT LEVELS
BM	BENCHMARK

DIAL BEFORE YOU DIG SHOULD BE CONTACTED PRIOR TO ANY EXCAVATION ON SITE

TM: TRADE MARK OF THE ASSOCIATION OF DIAL BEFORE YOU DIG SERVICES LTD. USED UNDER LICENSE.

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



SITE LOCATION

DRAWING REGISTER

NUMBER	NAME	REVISION
SWDP01	COVER SHEET	A
SWDP02	EROSION SEDIMENT CONTROL PLAN	A
SWDP03	STORMWATER MANAGEMENT PLAN	A
SWDP04	STORMWATER DRAINAGE DETAILS	A

DRAINAGE NOTES:

ALL PIPES TO BE LAID ON 75mm SAND BED WITH THE BARRELS FULLY SUPPORTED

100mm AND 150mm DIAMETER PIPES TO BE LAID ON MINIMUM 1% GRADE

MINIMUM DEPTH OF COVER FOR PIPES NOT SUBJECT TO VEHICULAR LOADING TO BE 300mm

ALL DRAINAGE PIPES LAID UNDER PAVEMENT SHALL BE REINFORCED CONCRETE WITH RUBBER RING JOINTS

BACKFILL TRENCHES WITH COMPACTED SAND OR APPROVED AGGREGATE MATERIAL

ALL PITS TO HAVE 600x600mm INTERNAL DIMENSIONS (U.N.O.)

SILT ARRESTORS TO HAVE 900x900mm INTERNAL DIMENSIONS

HEAVY DUTY GRATES AND COVERS ARE TO BE PROVIDED IN TRAFFICABLE AREAS

PIT GRATE TO BE TYPE WELDLK OR APPROVED EQUIVALENT

ALL PITS SHALL BE PROVIDED WITH A LOCKING CLIP

ALL PITS SHALL BE MAINTAINED REGULARLY

TOP OF BENCHING SHALL BE TO THE HALF OF THE OUTLET PIPE DIAMETER

MAXIMUM FRONT ENTRY PIPE: -
STRAIGHT ENTRY - Ø750
SKEW ENTRY 45° - Ø525

Ø100 SUBSOIL DRAINAGE PIPE 3000mm LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED ADJACENT TO INLET PIPES

COMPRESSIVE STRENGTH f_c FOR CAST IN SITU CONCRETE TO BE A MINIMUM OF 20MPa AT 28 DAYS

PROVIDE CLEANING EYES TO ALL DOWNPIPES NOT DIRECTLY CONNECTED TO PITS

ISOLATED JOINTS TO BE PROVIDED TO ISOLATE CONCRETE PAVEMENTS FROM PITS

ALL TRENCH GRATES PROVIDED SHALL HAVE A MINIMUM CLEAR WIDTH OF 200mm

STORMWATER DRAINAGE CONNECTIONS TO THE MAIN SYSTEM SHALL BE TO THE REQUIREMENTS AND THE SATISFACTION OF LOCAL COUNCIL

STORMWATER PIPE BEDDING/PAVING NOTES:

WHERE TRENCH BASE IS ROCK A MINIMUM OF 75mm BEDDING TO BE PROVIDED UNDER PIPE COLLARS.

STORMWATER PIPE BEDDING DETAIL TO BE IN ACCORDANCE WITH LOCAL COUNCIL REQUIREMENTS. BEDDING DETAILS TO BE CONFIRMED UPON EXCAVATION & PRIOR TO INSTALLATION OF PIPEWORK.

FOOTPATH REINSTATEMENT NOTES:

REMOVE ALL SAND FILL WITHIN THE FOOTPATH AREA TO THE EXISTING SUBGRADE.

SUPPORT ALL AUTHORITY SERVICES TO STRUCTURAL ENGINEERS DETAILS DURING EXCAVATION.

REINSTATE FOOTPATH SUBGRADE.

THE CONTRACTOR SHALL PROVIDE CERTIFICATION OF COMPACTION FROM A NATA REGISTERED TESTING AUTHORITY. MINIMUM THREE TESTS PER LAYER AS FOLLOWS:
SELECT FILL 95% MODIFIED
SELECT FILL (LESS THAN 300mm BELOW BASE COURSE) 98% MODIFIED
BASE COURSE 100% MODIFIED

C	FOR CONSTRUCTION	21.04.2025	G.K.
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REV	DESCRIPTION	DATE	APP



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PH: 0423095373

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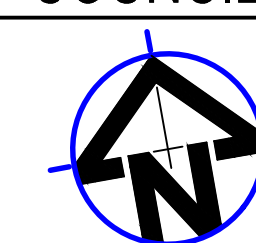
D PROJECTS

PROJECT

11 RAVEN CIRCUIT
WARRIEWOOD NSW

COUNCIL

NORTHERN
BEACHES
COUNCIL



TITLE

COVER SHEET
DRAWING
FOR APPROVAL

DATE

21.04.2025

SCALE

1:200-A3

DESIGNED:

G.K

PROJECT NO.

GCE.25115

ENGINEER:

G.K.

DRAWING NO.

SWDP01

CHECKED:

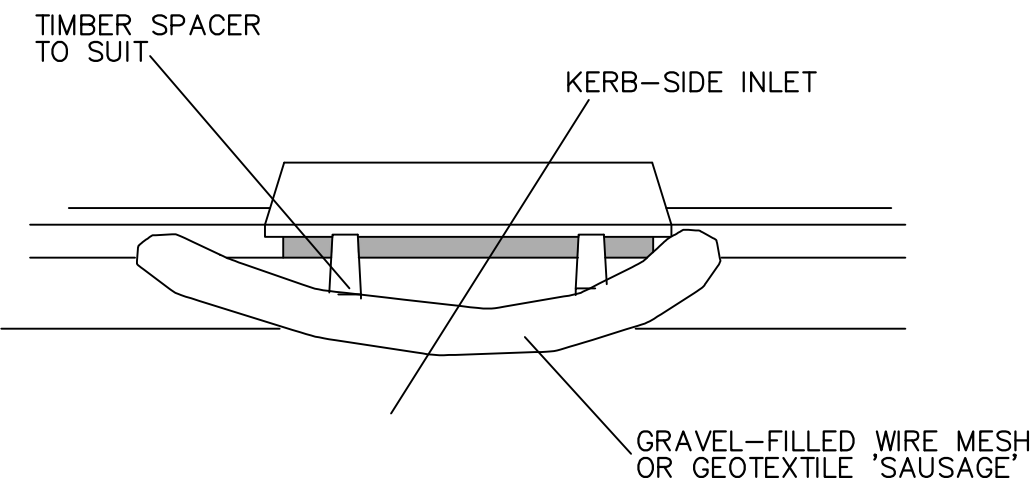
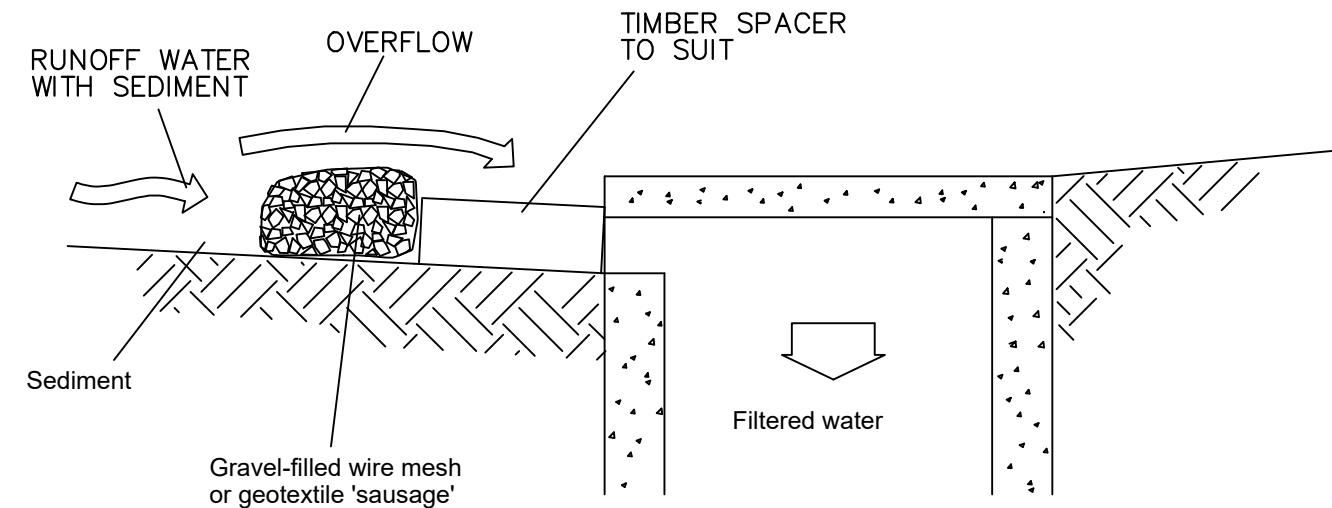
G.K.

REVISION NO.

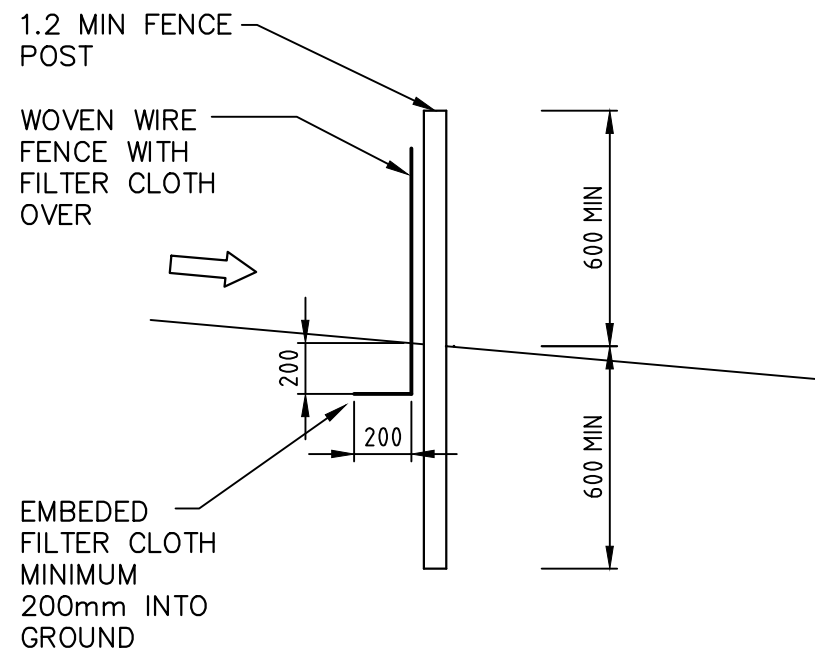
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SEDIMENTATION AND EROSION CONTROL PLAN

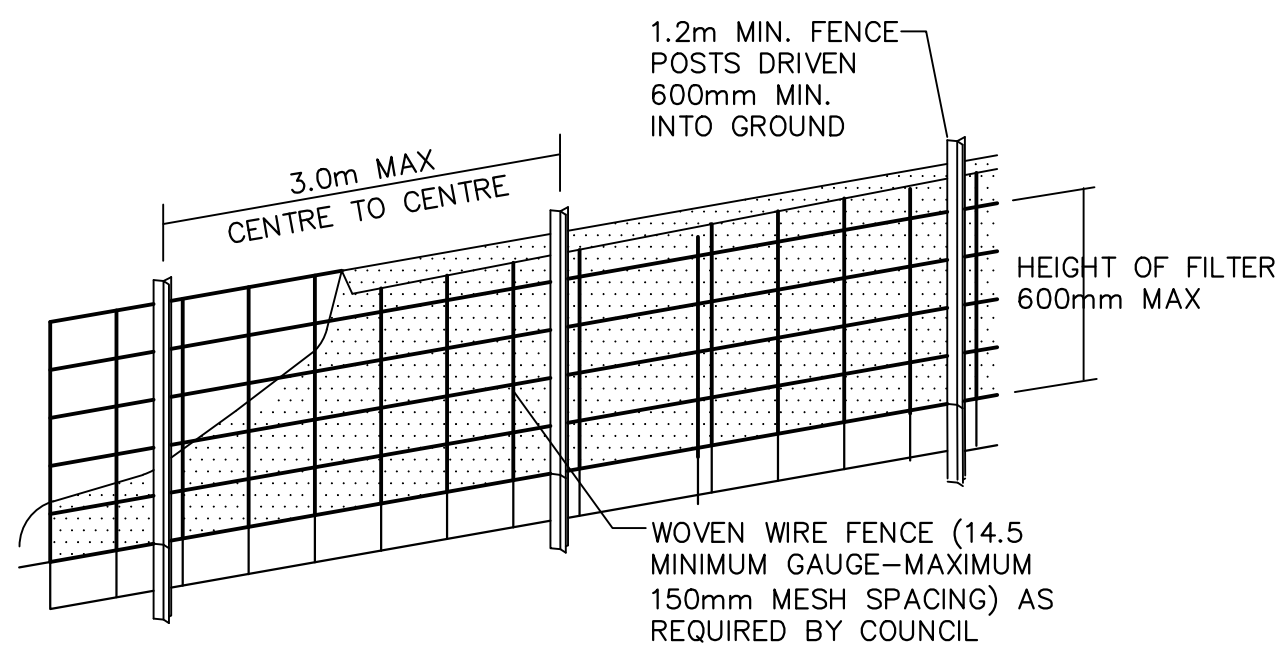
- SEDIMENTATION AND EROSION CONTROL NOTES
1. SELECTIVE CLEARING OF VEGETATION TO BE RESTRICTED TO NOMINATED AREAS WITH CLEARED VEGETATION WIND ROWED ON THE CONTOUR.
 2. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED PRIOR TO SITE DISTURBANCE.
 3. TOPSOIL FROM ALL AREAS THAT WILL BE DISTURBED TO BE STRIPPED AND STOCKPILED AT THE NOMINATED SITE.
 4. NO MORE THAN 150m OF TRENCH TO BE OPEN AT ANY ONE TIME.
 5. CUT AND FILL BATTER GRADIENTS OF 1:2 (MAXIMUM).
 6. A STRIP OF TURF 450mm WIDE IS TO BE PLACED IMMEDIATELY BEHIND THE KERB ON ALL NEW ROAD TO ACT AS A FILTER TRAP. REFER TO DETAIL.
 7. ALL SEDIMENT CONTROL STRUCTURES TO BE INSPECTED BY SITE SUPERVISOR AFTER EACH RAINFALL EVENT FOR STRUCTURAL DAMAGE AND ALL TRAPPED SEDIMENT TO BE REMOVED TO A NOMINATED STOCKPILE SITE.
 8. THE PROJECT MANAGER TO INFORM ALL CONTRACTORS AND SUB-CONTRACTORS OF THEIR OBLIGATIONS UNDER THE EROSION AND SEDIMENT CONTROL PLAN.
 9. NO DISTURBED AREA IS TO REMAIN DENUDED LONGER THAN 14 DAYS.
 10. ALL FILLS ARE TO BE LEFT WITH A LIP AT THE TOP OF THE SLOPE AT THE END OF EACH DAY'S OPERATION.
 11. THE CONTRACTOR MUST ENSURE THE SUITABILITY AND INTEGRITY OF ALL WORKS AT THE END OF EACH DAY'S WORK.
 12. ORANGE BARRIER TAPE TO BE AFFIXED TO TOP OF SEDIMENT CONTROL BARRIER TO IDENTIFY WORK AREA.
 13. ALL SEDIMENTATION & EROSION CONTROL MEASURES ARE TO STRICTLY COMPLY WITH THE GUIDELINES DETAILED IN THE DEPARTMENT OF HOUSING PUBLICATION, "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", 4TH EDITION.
 14. WATER TRUCKS TO BE USED AS REQUIRED TO PREVENT WIND EROSION.
 15. SUBGRADE MATERIAL TO BE CONSTRUCTED IMMEDIATELY FOLLOWING FILL.



DETAIL
SAND BAG DETAILS
NOT TO SCALE



TYPICAL SECTION

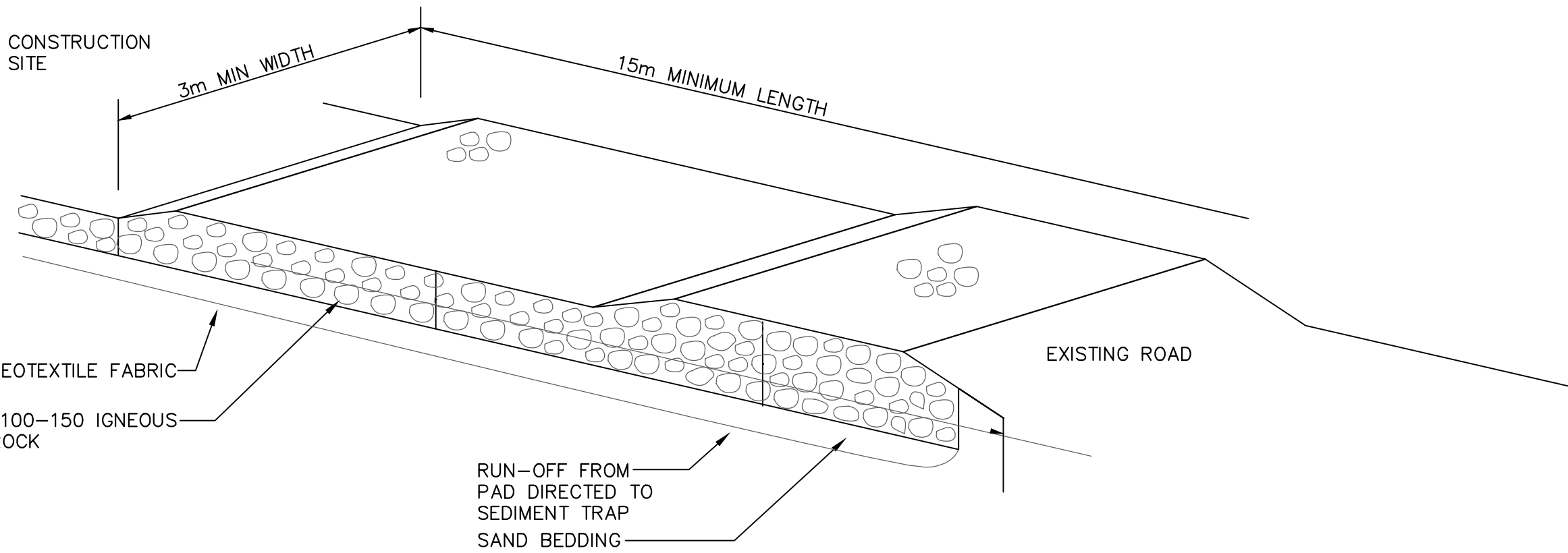
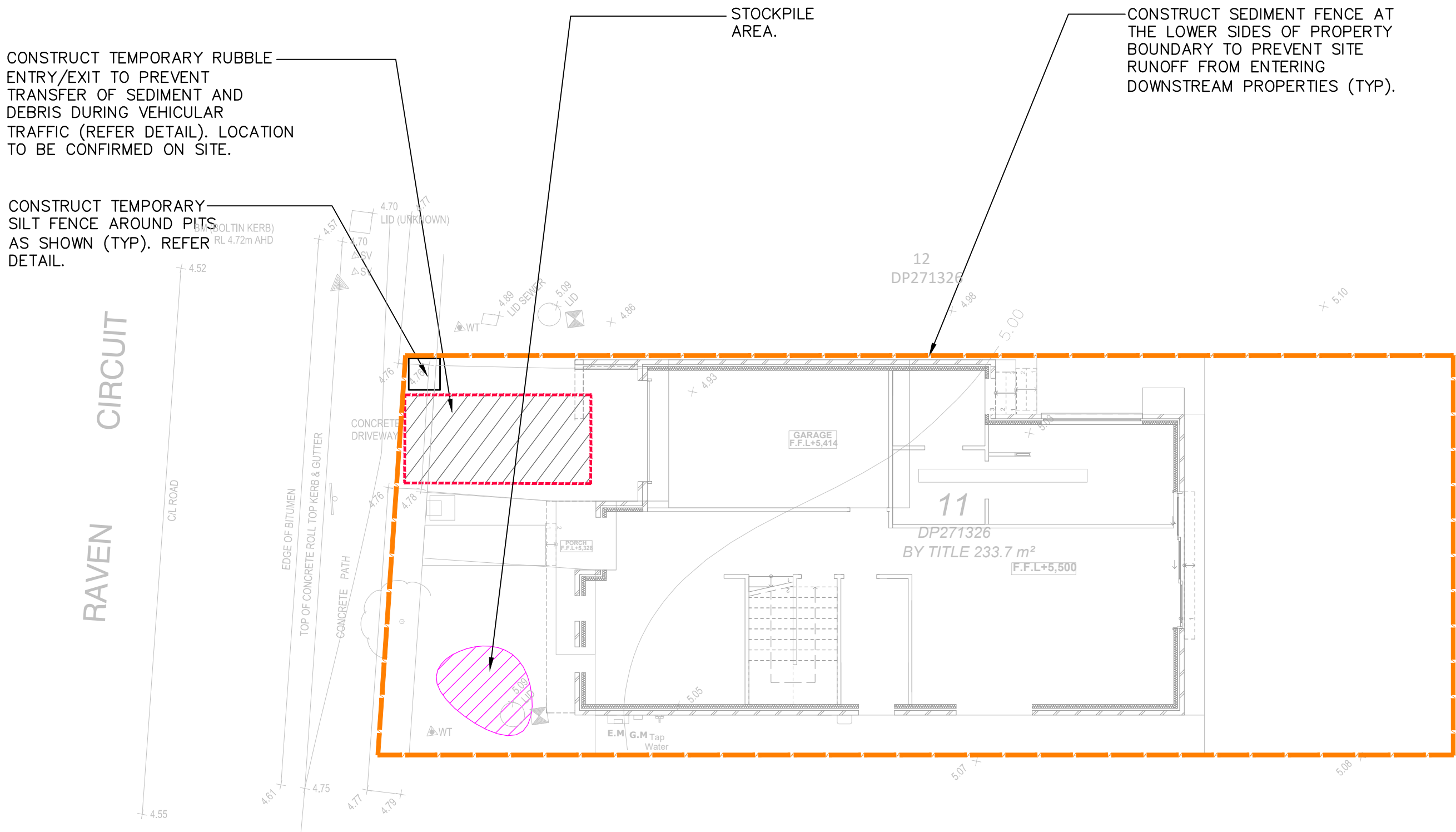


DIAGRAMMATIC VIEW

DETAIL
SEDIMENT FENCE
NOT TO SCALE

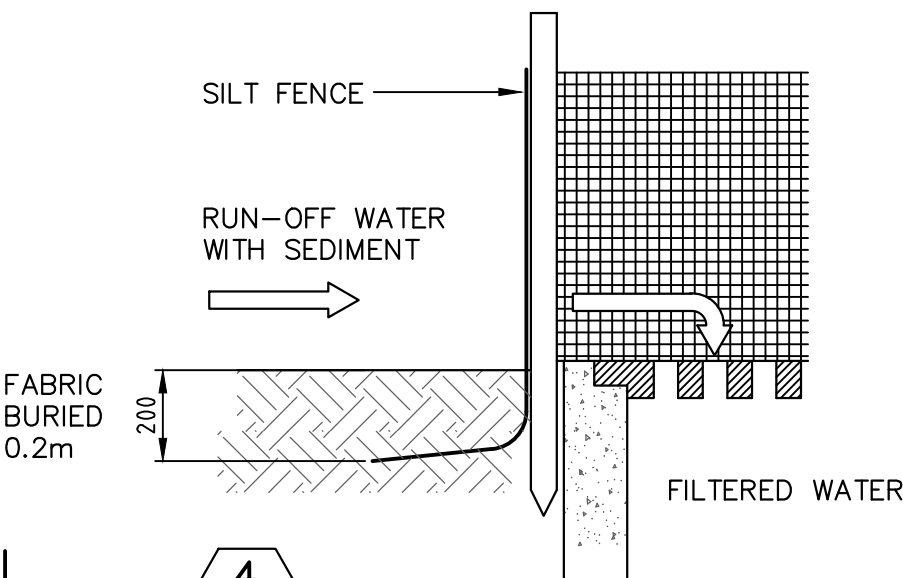
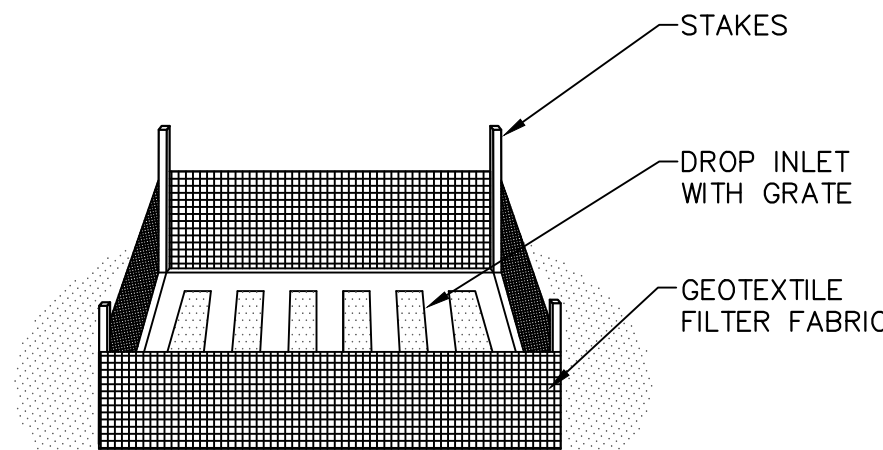
CONSTRUCT TEMPORARY RUBBLE ENTRY/EXIT TO PREVENT TRANSFER OF SEDIMENT AND DEBRIS DURING VEHICULAR TRAFFIC (REFER DETAIL). LOCATION TO BE CONFIRMED ON SITE.

CONSTRUCT TEMPORARY SILT FENCE AROUND PITS, AS SHOWN (TYP). REFER DETAIL.



RUBBLE ALTERNATIVE

DETAIL
TEMPORARY
CONSTRUCTION EXIT
NOT TO SCALE



DETAIL
SUMP SEDIMENT TRAP
NOT TO SCALE

LEGEND	
	DENOTES SEDIMENT FENCE, REFER TO DETAIL
	DENOTES MESH AND GRAVEL INLET FILTER, REFER TO DETAIL
	DENOTES GEOTEXTILE INLET FILTER, REFER TO DETAIL
	DENOTES STABILISED SITE ACCESS, REFER TO DETAIL

NOTE
THIS DRAWING HAS BEEN DEVELOPED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CENTRAL COAST COUNCIL, PLANNING FOR EROSION AND SEDIMENT CONTROL ON RESIDENTIAL ALLOTMENTS. AND THE REQUIREMENTS OUTLINED IN THE LANDCOM PUBLICATION "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION-2004".

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CLIENT		COUNCIL		TITLE			
D PROJECTS		NORTHERN BEACHES COUNCIL		EROSION SEDIMENT CONTROL PLAN DRAWING FOR APPROVAL			
PROJECT				DATE	DESIGNED:	ENGINEER:	CHECKED:
11 RAVEN CIRCUIT WARRIEWOOD NSW				21.04.2025	G.K	G.K.	G.K.
				SCALE	PROJECT NO.	DRAWING NO.	REVISION NO.
				1:200-A3	GCE.25115	SWDP02	C

OSD DESIGN PARAMETERS:

1. THE PRE/POST-DEVELOPMENT IMPERVIOUS AREA WAS MEASURED THROUGH AUTOCAD.
2. THE POST-DEVELOPMENT IMPERVIOUS AREA WAS DESIGNATED A VALUE OF 100% FOR A MORE CONSERVATIVE VALUE AND TO REPLICATE THE PROPOSED IMPERVIOUS AREA FOR SIZING OSD ON DRAINS.
3. THE RAINFALL DATA WAS CALCULATED AND OBTAINED BY THE BUREAU OF METEOROLOGY, AUSTRALIA FOR THE RESPECTIVE LOCATION OF THE SITE.
- LATITUDE: -33.68885
 - LONGITUDE: 151.29876

DESIGN NOTES:

THE SITE IS LOCATED IN NORTHERN BEACHES COUNCIL.

THE OSD STORAGE SYSTEM WILL BE BELOW GROUND.

OSD WAS DESIGNED USING DRAINS. THE RESULTS ARE SHOWN BELOW:

DRAINS MODELLING PARAMETERS:

THE STORAGE CAPACITY AND PERMISSIBLE SITE DISCHARGE OF THE OSD WAS CALCULATED THROUGH A DRAINS MODEL WITH REGARDS TO NORTHERN BEACHES COUNCIL DCP REQUIREMENTS LISTED BELOW;

100YR POST-DEVELOPMENT FLOWS RESTRICTED TO THE 20YR(5%AEP) PRE-DEVELOPMENT FLOWS.

PRE-DEVELOPMENT CATCHMENT = 0% IMPERVIOUS, 100% PERVIOUS.

POST-DEVELOPMENT CATCHMENT = 60% IMPERVIOUS, 40% PERVIOUS.

TIME OF CONCENTRATION = 5min(s)

DRAINAGE NOTES:

ALL DOWNPIPES AND STORMWATER PIPES SHOWN ON PLAN ARE Ø100mm uPVC AND SLOPE AT 1% U.N.O (TYP).

PROPOSED DOWNPIPE LOCATIONS ARE NOMINAL AND TO BE CONFIRMED DURING CONSTRUCTION (TYP).

ALL STORMWATER OSD/PITS AND PIPES TO BE A MINIMUM OF 0.6m CLEAR FROM EXISTING SEWER LINE IF PRESENT ON SITE (TYP).

INSTALL CLEAR OUT FOR INSPECTION AND MAINTENANCE PURPOSES WHERE REQUIRED (TYP).

ALL DOWNPIPES AND STORMWATER PIPES SHOWN ON PLAN ARE Ø100mm uPVC AND SLOPE AT 1% U.N.O (TYP).

ALL PROPOSED STORMWATER SERVICES TO BE CONSTRUCTED AT MINIMUM 0.6m CLEAR DISTANCE FORM EXISTING SEWER PIPE.

EXISTING SERVICES SHOWN ON PLAN ARE INDICATIVE ONLY. CONTRACTOR TO DETERMINE EXACT SIZE, LOCATION AND DEPTH BEFORE COMMENCING ANY WORKS (TYP).

CONSTRUCTION OVER EASEMENTS LOCATED ON SITE IS PROHIBITED. CONTRACTOR TO ENSURE THERE ARE NO OBSTRUCTIONS (TYP).

PROVIDE SUBSOIL DRAINAGE WITHIN LANDSCAPED AREAS & BEHIND RETAINING WALLS TO PREVENT LONG TERM SATURATION DURING PROLONGED WET WEATHER.

OSD CALCULATIONS SUMMARY:

SSR = 8.6m³ OR AS CLOSE AS POSSIBLE

PSD = 3.23L/s

(VALUES TO BE CONFIRMED BY COUNCIL)

SITE AREA SUMMARY:

TOTAL SITE AREA = 240m²

TOTAL INTO OSD = 236.5m²

TOTAL BYPASS = 3.5m²

(1.45% OF TOTAL SITE AREA)

VOLUME CALCULATIONS:

OSD 1 VOLUME PROVIDED = 2.42m³

OSD 2 VOLUME PROVIDED = 1.85m³

OSD 3 VOLUME PROVIDED = 1.26m³

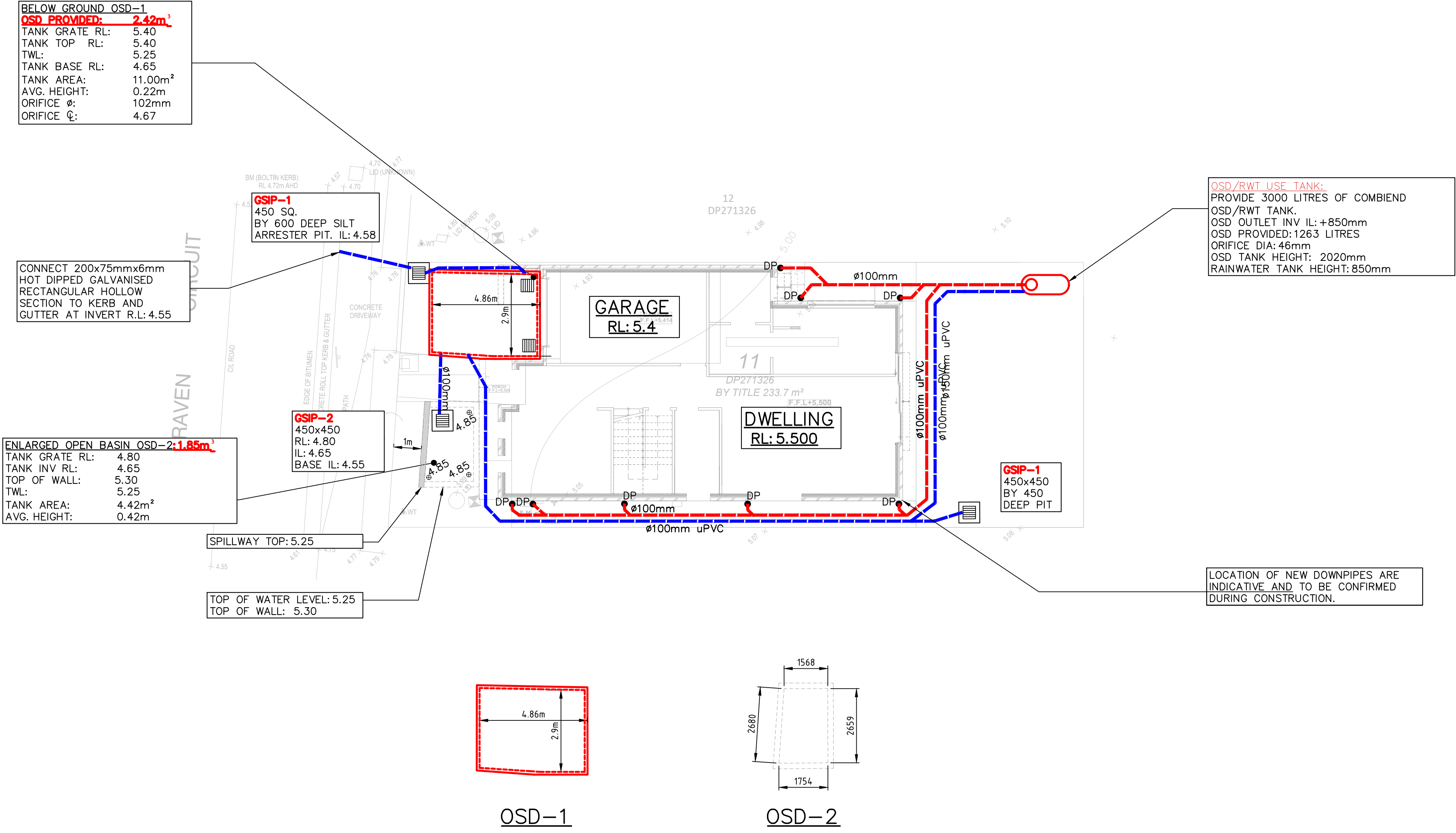
TOTAL VOLUME PROVIDED = 5.53m³

ORIFICE SIZING CALCULATIONS:

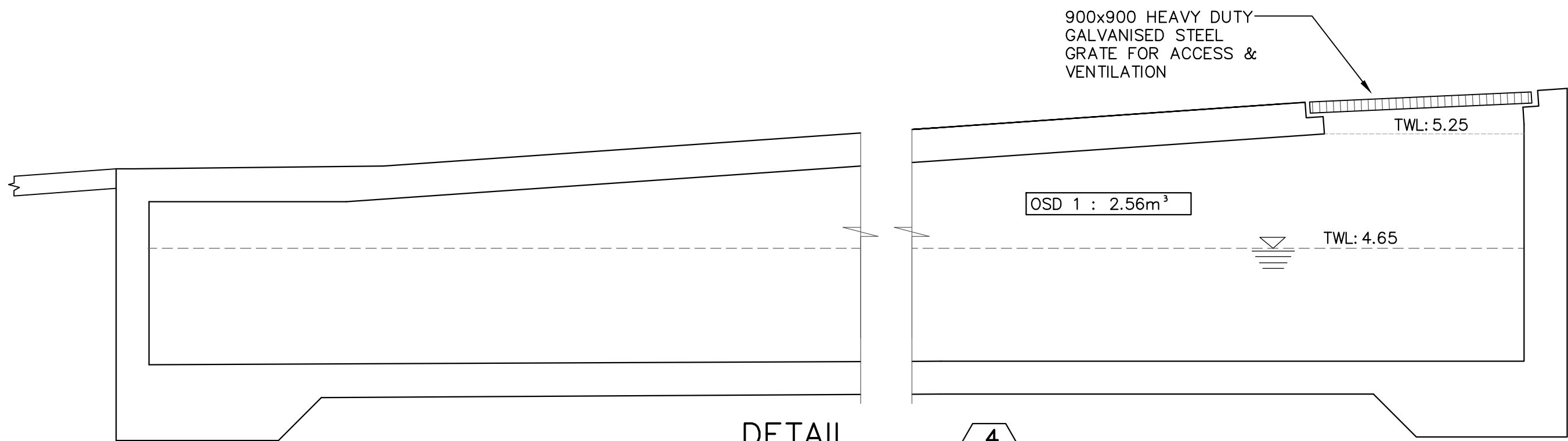
USING ORIFICE EQUATION

ORIFICEØ = 21.9 x (PSD/(H)0.5)0.5 = 3.23mm

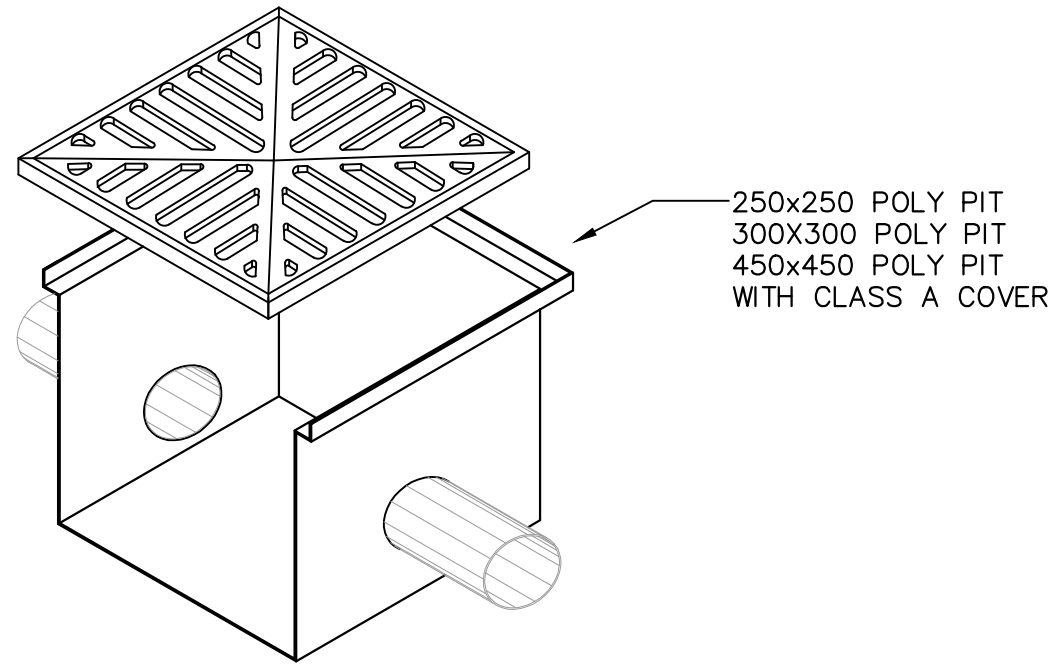
WHERE PSD = 3.23L/s, DEPTH TO ORIFICE CL = 0.5 (H), THEREFORE PROVIDE 45mm SHARP EDGED OPENING IN ORIFICE PLATE



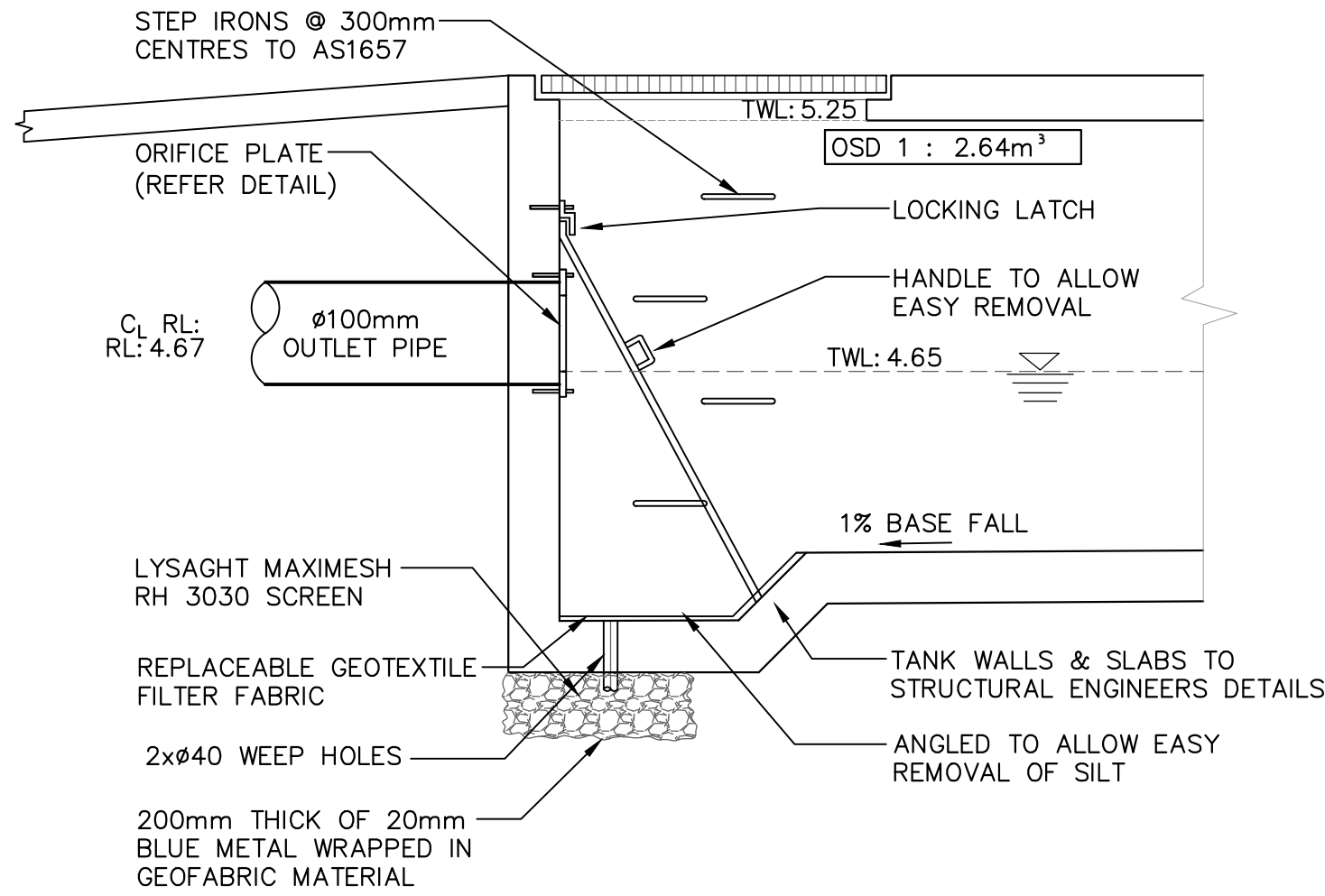
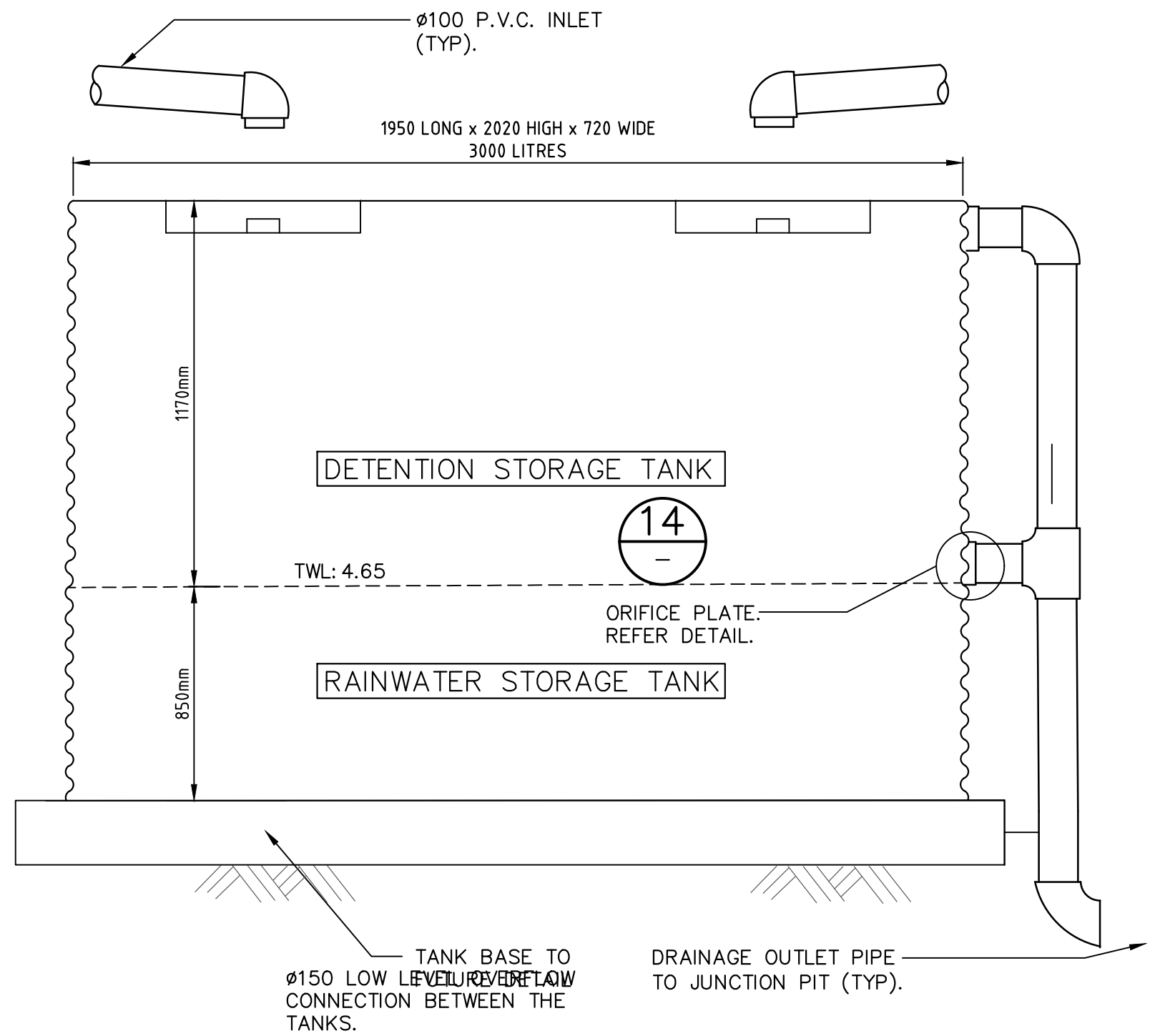
				<div><div>AUSTRAX STRUCTURAL CIVIL ENGINEERS PH: 0423095373 <small>2/4 COLONY CLOSE, TUGGERAH NSW 671 HUNTER STREET, NEWCASTLE NSW 38 STATION STREET, BONNELLS BAY NSW</small></div><div>Structural • Civil • Hydraulic • Flooding • Residential • Commercial Industrial • Land Development</div><div><small>©This drawing is copyright to Global Consulting Engineers, no part of this drawing shall be used for any other purpose without the prior written consent of Global Consulting Engineers.</small></div></div>	Sydney Newcastle Central Coast Hunter Valley New South Wales Victoria Queensland A.B.N. 91 620 485 716 www.globalceng.com.au E: info@globalceng.com.au	CLIENT D PROJECTS	COUNCIL NORTHERN BEACHES COUNCIL	TITLE STORMWATER DRAINAGE PLAN DRAWING FOR APPROVAL			
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B	FOR CONSTRUCTION	05.04.2025	G.K.		SCALE 1:200-A3	PROJECT NO. GCE.25115	DRAWING NO. SWDP03	REVISION NO. C			
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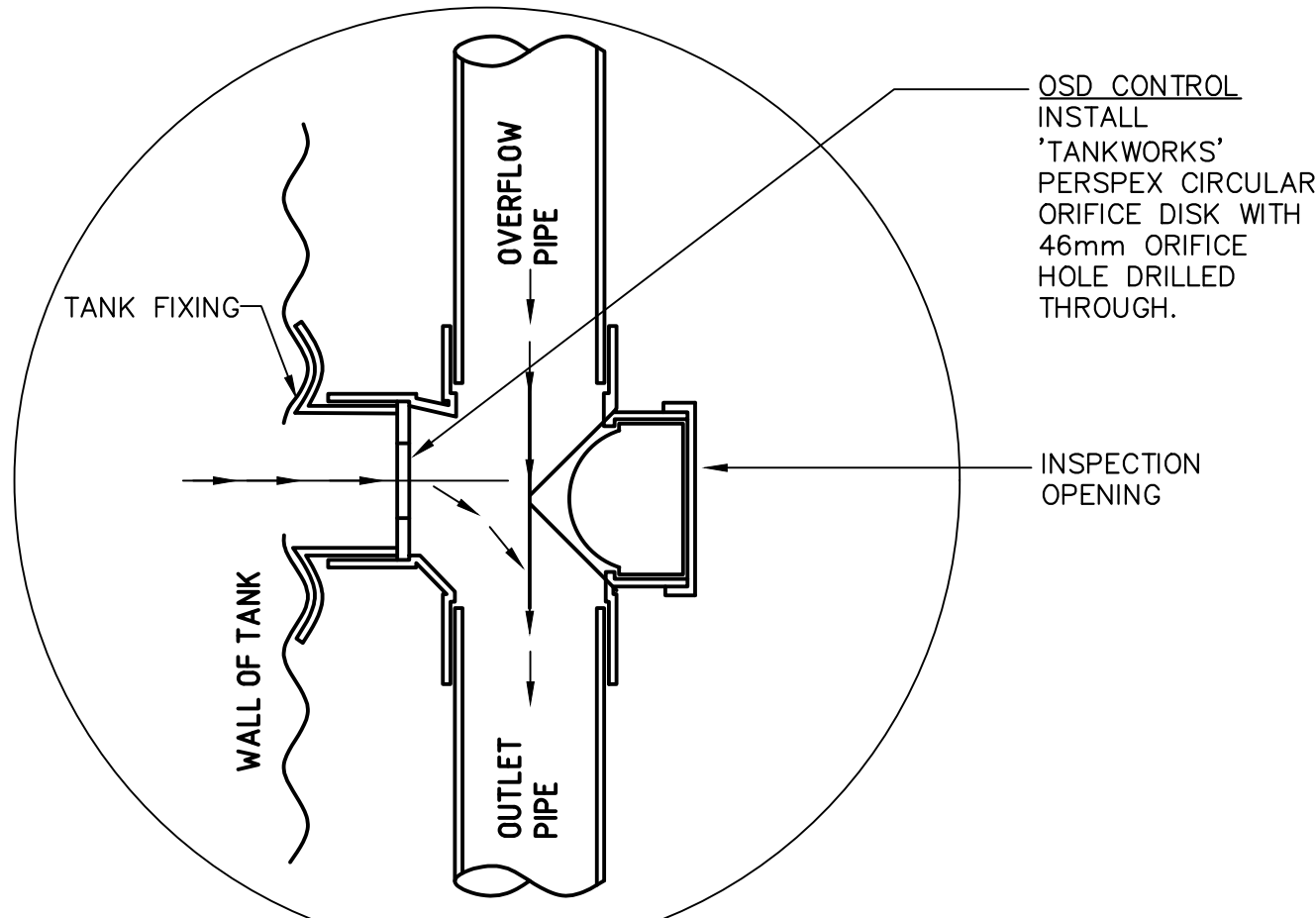
DETAIL 4
DCP - ONSITE
DETENTION TANK



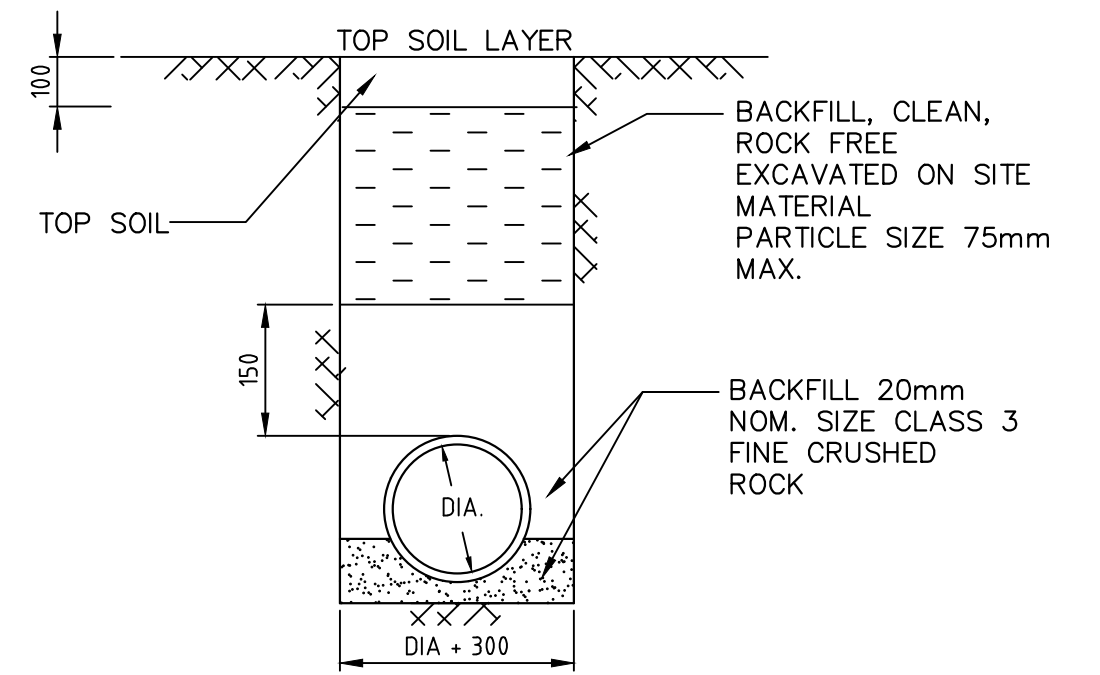
DETAIL 7
POLY PIT CLASS A
COVER
(FOR LANDSCAPED AND
BACKYARD AREAS ONLY)



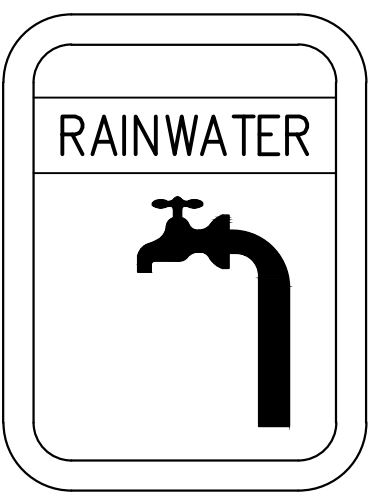
DETAIL 5
DCP - ONSITE
DETENTION TANK



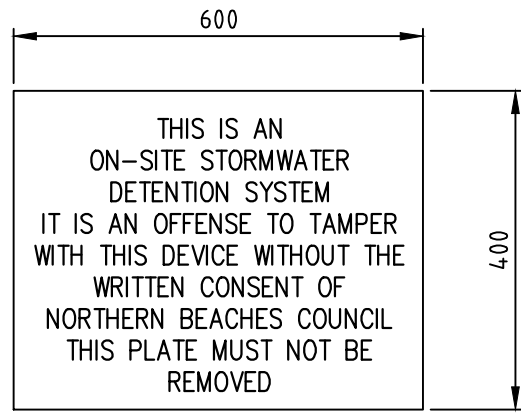
DETAIL 14
CLEANING EYE



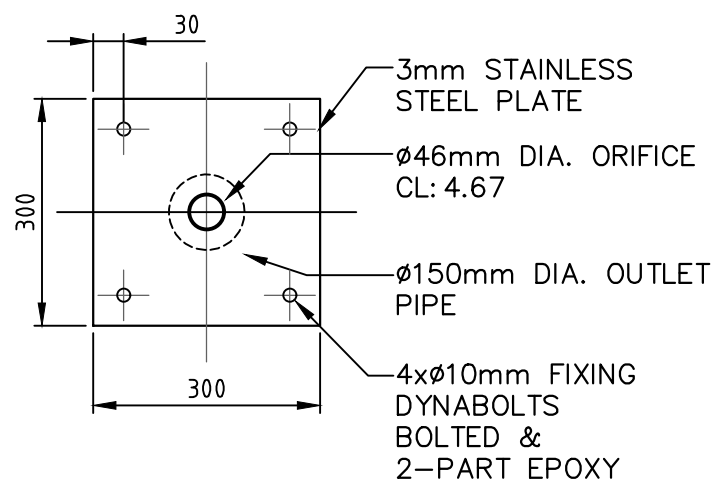
DETAIL 13
TRENCH FOR
PIPING
NOT UNDER
PAVEMENT



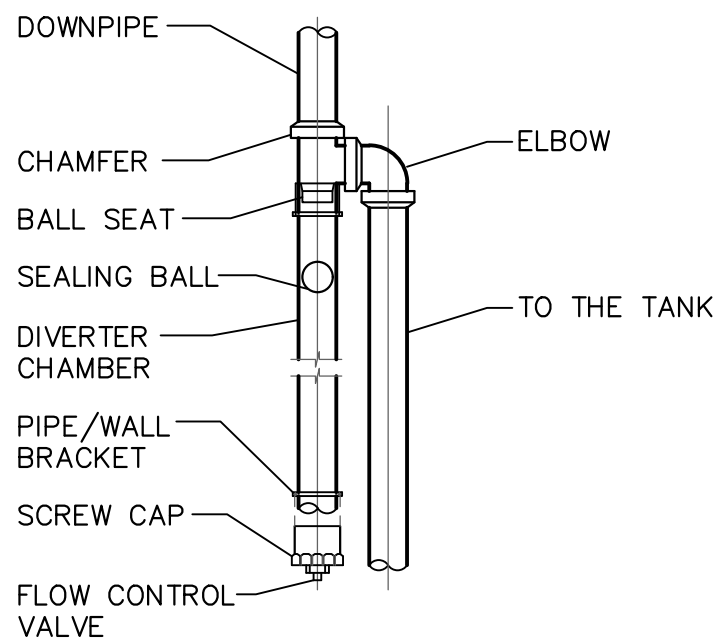
DETAIL 6
RAINWATER SIGN



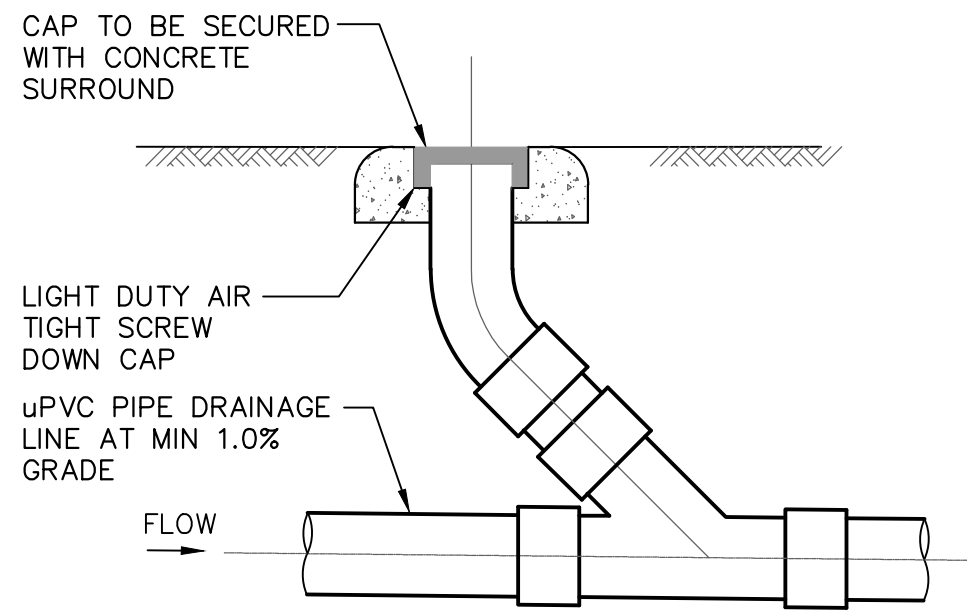
DETAIL 8
OSD SIGN



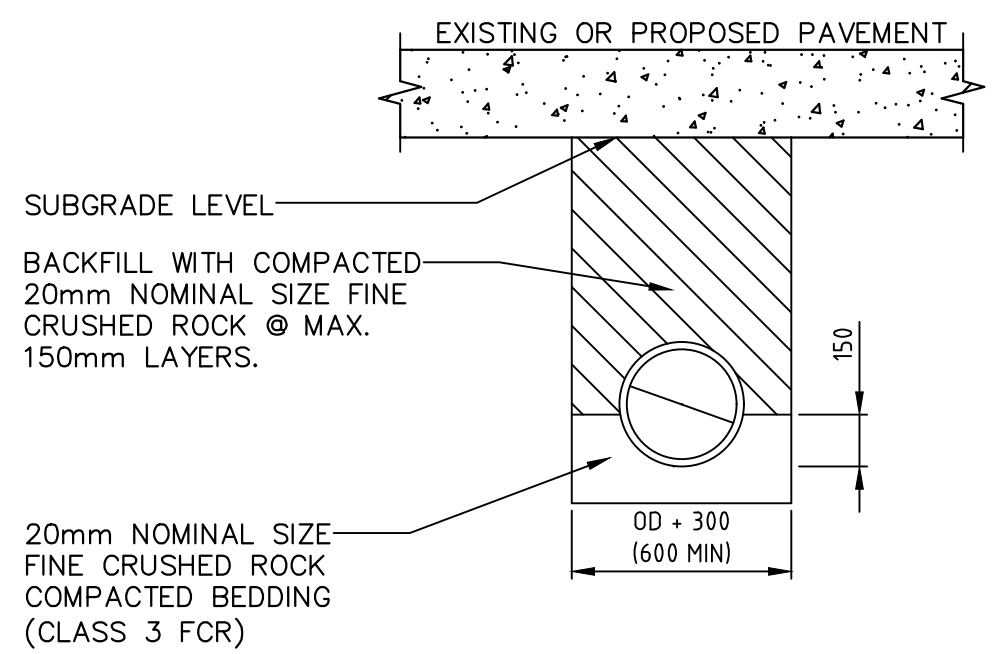
DETAIL 9
ORIFICE PLATE



DETAIL 10
RAINWATER
STORAGE TANK



DETAIL 11
CLEANING EYE



DETAIL 12
TRENCH FOR
PIPING UNDER
PAVEMENT

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PROJECT	11 RAVEN CIRCUIT WARRIEWOOD NSW			DATE	DESIGNED:	ENGINEER:	CHECKED:
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