

50 LAWRENCE STREET, FRESHWATER NSW STORMWATER DRAINAGE CONCEPT PLAN

AUTHORITY STORMWATER NOTES:

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

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

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 600 x 600mm INTERNAL DIMENSIONS (I.N.O).
- SILT ARRESTORS TO HAVE 900 x 900mm INTERNAL DIMENSIONS.
- HEAVY DUTY GRATES AND COVERS ARE TO BE PROVIDED IN TRAFFICABLE AREAS.
- PIT GRATE TO BE TYPE WELDLOK OR APPROVED EQUIVALENT.
- ALL PITS SHALL BE PROVIDED WITH A LOCKING LIP.
- 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 - ϕ 750
SKEW ENTRY - ϕ 525
- ϕ 100 SUBSOIL DRAINAGE PIPE 3000mm LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED ADJACENT TO INLET PIPES.
- COMPRESSIVE STRENGTH f_{ck} FOR CAST IN SITU CONCRETE TO BE A MINIMUM OF 32 MPa 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 MINIMUM CLEAR WIDTH OF 200mm.
- STORMWATER DRAINAGE CONNECTIONS TO THE MAIN SYSTEM SHALL BE TO THE REQUIREMENTS AND THE SATISFACTION OF LOCAL COUNCIL.
- THESE STORMWATER DRAWINGS SHALL BE IN ACCORDANCE WITH AS 3500.3 AND LOCAL COUNCIL REQUIREMENTS.



LOCALITY MAP (COURTESY OF SIX MAPS)

DRAWING REGISTER		
NO.	TITLE	REV.
SW 01	COVER SHEET	A
SW 02	STORMWATER DRAINAGE CONCEPT PLAN - GROUND LEVEL	A
SW 03	STORMWATER DRAINAGE CONCEPT PLAN - LEVEL ONE	A
SW 04	OSD TANK DETAILS	A
SW 05	STORMWATER DETAILS	A
SW 06	EROSION SOIL & SEDIMENT CONTROL PLAN	A
SW 07	EROSION SOIL & SEDIMENT CONTROL DETAILS	A

ABBREVIATIONS

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

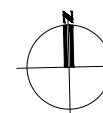
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A	FOR DA APPROVAL	SL	08.04.20

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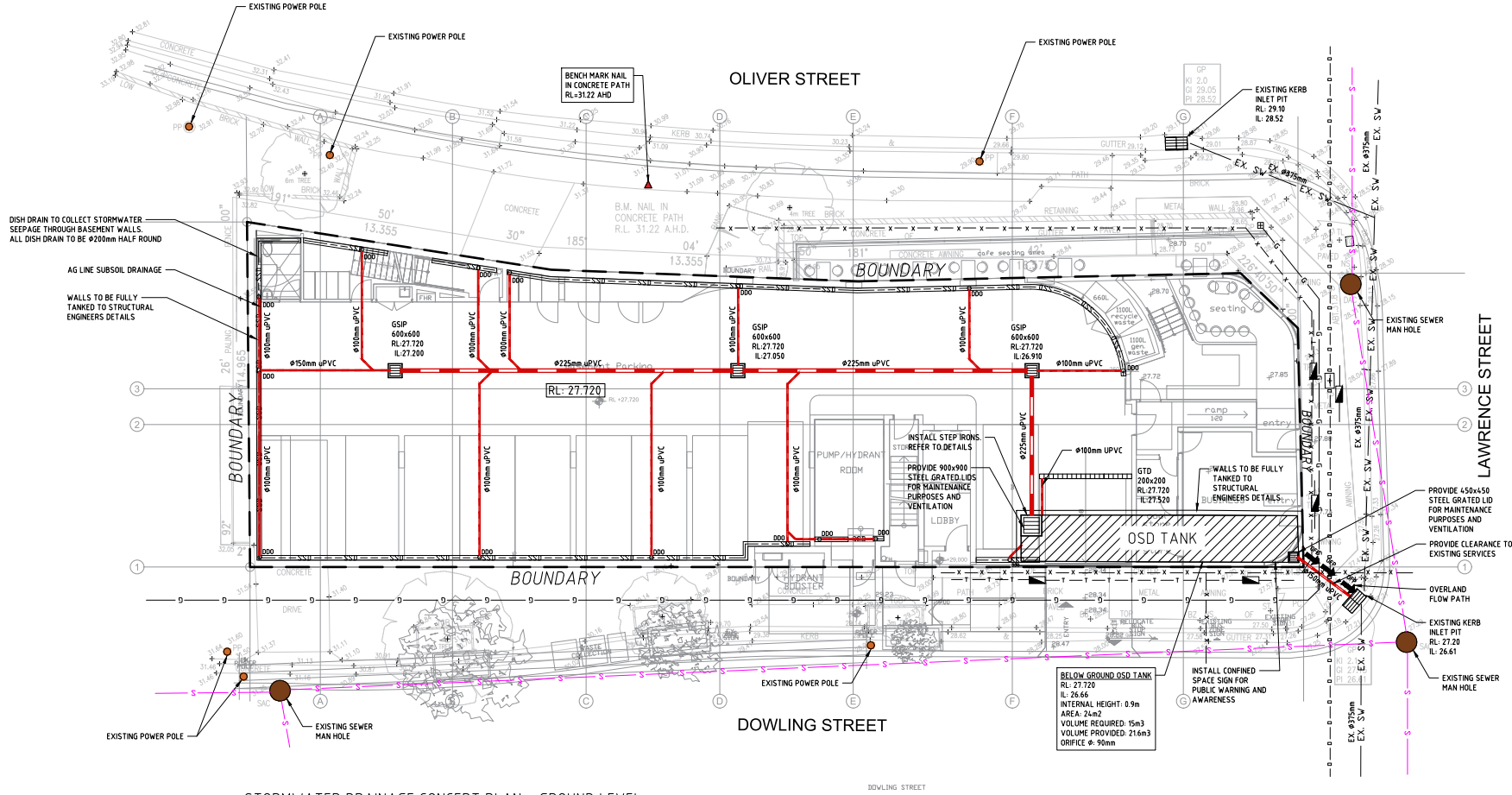
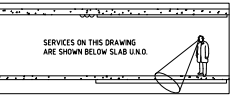
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PROJECT	
50 LAWRENCE STREET FRESHWATER NSW	
TITLE	
COVER SHEET	

SCALES	as noted @ A1	DATE	MAR. 2020
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		DRAWING No.	SW.01



DA ISSUE
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- LEGEND**
- S- AUTHORITY SEWER LINE
 - X-X-X- AUTHORITY UNDERGROUND ELECTRICAL LINE
 - T-T-T- TELSTRA LINE
 - D-D-D- AUTHORITY WATER LINE
 - V-V-V- AUTHORITY GAS LINE
 - G-G-G- SUBSOIL DRAINAGE LINE
 - SSD-SSD- STORMWATER LINE
 - EX. SW- EXISTING STORMWATER LINE
 - EX. SW- EXISTING STORMWATER LINE
 - GRATED SURFACE INLET PIT
 - TELPHONE PIT
 - DOWNPIPE
 - DISH DRAIN OUTLET
 - KERB INLET PIT

SERVICES SHOWN ON PLAN ARE INDICATIVE, EXACT DEPTH AND LOCATION TO BE CONFIRMED ON-SITE. 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 ON-SITE.

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

ALL EXISTING DRAINAGE IS TO BE INSPECTED BY A REGISTERED PLUMBER AND CERTIFY THAT IT IS IN GOOD WORKING CONDITION. OTHERWISE, ALLOW TO RECTIFY AND/OR REPLACE AS NECESSARY.

NOTE:
ALL DOWNPIPES, BALCONY AND ROOF DRAINAGE IS TO BE CONNECTED TO THE ON-SITE DETENTION TANK.

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PROJECT
**50 LAWRENCE STREET
 FRESHWATER NSW**

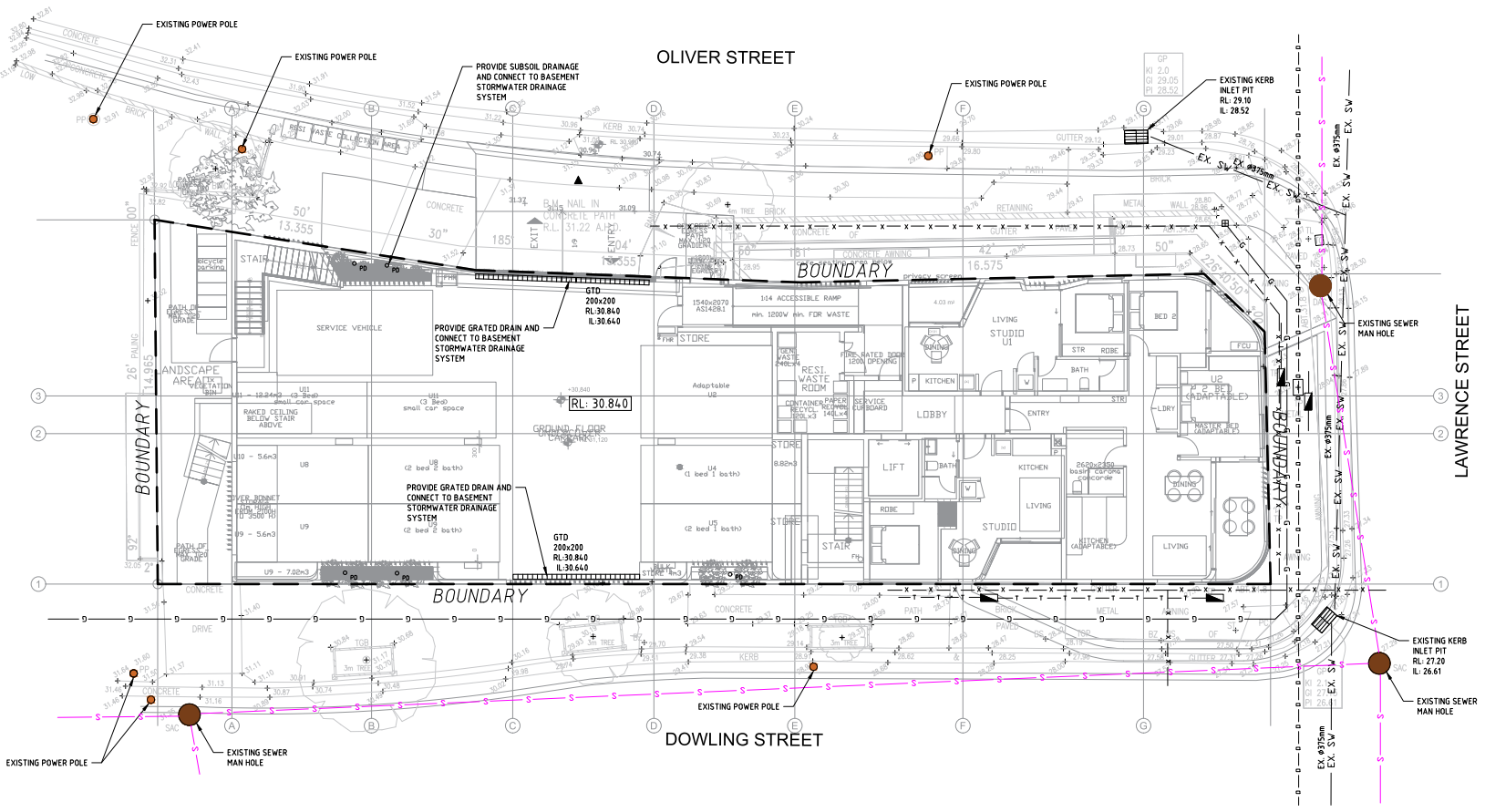
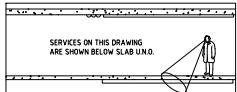
TITLE
**STORMWATER DRAINAGE CONCEPT
 PLAN - GROUND LEVEL**

SCALES	as noted @ A1	DATE	MAR. 2020
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APPROVED	S.L	DATE	

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STORMWATER DRAINAGE CONCEPT PLAN - GROUND LEVEL
 SCALE 1:100





- LEGEND**
- S- S- AUTHORITY SEWER LINE
 - X-X-X-X- AUTHORITY UNDERGROUND ELECTRICAL LINE
 - T-T-T-T- TELSTRA LINE
 - F-F-F-F- NBN LINE
 - W-W-W-W- AUTHORITY WATER LINE
 - G-G-G-G- AUTHORITY GAS LINE
 - SSD-SSD- SUBSOIL DRAINAGE LINE
 - - - STORMWATER LINE
 - - - EXISTING STORMWATER LINE
 - [Symbol] GRATED SURFACE INLET PIT
 - [Symbol] TELEPHONE PIT
 - [Symbol] DOWNPIPE
 - [Symbol] PLANTER DRAIN
 - [Symbol] KERB INLET PIT

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

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NOTE: ALL DOWNPIPES, BALCONY AND ROOF DRAINAGE IS TO BE CONNECTED TO THE ON-SITE DETENTION TANK.

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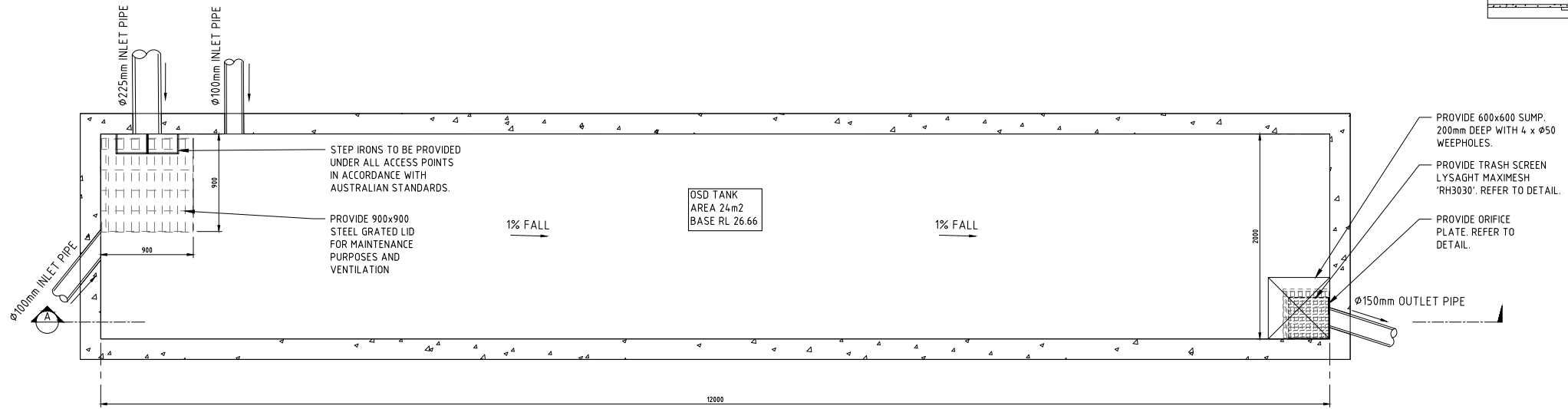
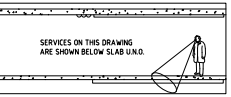
PROJECT
**50 LAWRENCE STREET
 FRESHWATER NSW**

TITLE
**STORMWATER DRAINAGE CONCEPT
 PLAN - LEVEL ONE**

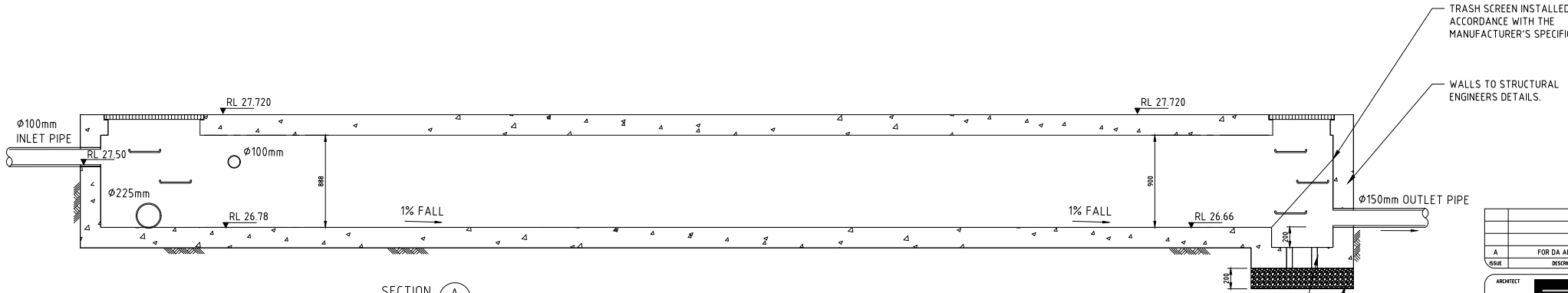
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STORMWATER DRAINAGE CONCEPT PLAN - LEVEL ONE
 SCALE 1:100





OSD TANK PLAN
SCALE 1:20



SECTION A
SCALE 1:20

PROVIDE 600x600 SUMP. 200mm DEEP WITH 4 x ϕ 50 WEEPHOLES.
 PROVIDE TRASH SCREEN LYSAGHT MAXIMESH 'RH3030'. REFER TO DETAIL.
 PROVIDE ORIFICE PLATE. REFER TO DETAIL.
 TRASH SCREEN INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
 WALLS TO STRUCTURAL ENGINEERS DETAILS.

PROVIDE 600x600 SUMP. 200mm DEEP WITH 4 x ϕ 50 WEEPHOLES.
 PROVIDE 200mm BLUE METAL AGGREGATE.

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PROJECT
 50 LAWRENCE STREET
 FRESHWATER NSW

TITLE
 OSD TANK DETAILS

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DESIGN NOTES:

THE SITE IS LOCATED IN THE MUNICIPAL OF NORTHERN BEACHES COUNCIL.

SITE AREA = 590m²

OSD WAS DESIGNED USING DRAINS. THE RESULTS ARE SHOWN IN THE 'POST-DEVELOPMENT OSD REQUIREMENTS' TABLE.

DRAINS MODELLING PARAMETERS:

THE STORAGE CAPACITY AND PERMISSIBLE SITE DISCHARGE OF THE OSD WAS CALCULATED THROUGH A DRAINS MODEL IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL'S ON-SITE STORMWATER DETENTION TECHNICAL SPECIFICATIONS.

POST-DEVELOPMENT FLOWS RESTRICTED TO THE PRE-DEVELOPMENT FLOWS IN ACCORDANCE WITH COUNCILS DCP.

PRE-DEVELOPMENT CATCHMENT = **61%** IMPERVIOUS.

39% PERVIOUS.

POST-DEVELOPMENT CATCHMENT = **100%** IMPERVIOUS.

0% PERVIOUS.

TIME OF CONCENTRATION (PAVED) = 5min(s)
TIME OF CONCENTRATION (GRASSED) = 10min(s)

OSD DESIGN PARAMETERS:

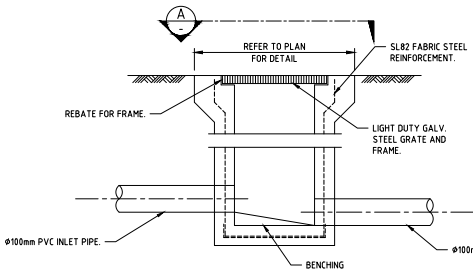
1. THE PRE/POST-DEVELOPMENT IMPERVIOUS AREA WAS MEASURED THROUGH AUTOCAD.

2. THE RAINFALL DATA WAS CALCULATED AND OBTAINED BY THE BUREAU OF METEOROLOGY, AUSTRALIA FOR THE RESPECTIVE LOCATION OF THE SITE.

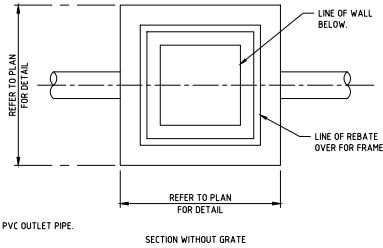
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- LONGITUDE: 150.283598

POST-DEVELOPMENT OSD REQUIREMENTS.

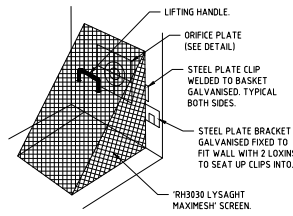
LOT AREA (m ²)	PRE-DEV. IMPERVIOUS (%)	POST-DEV. IMPERVIOUS (%)	STORM (YR)	PRE-DEV. FLOW (m ³ /s)	POST-DEV. FLOW (m ³ /s)	PIPE OUTFLOW (m ³ /s)	WEIR OUTFLOW (m ³ /s)	TOTAL PSD (m ³ /s)	OSD VOLUME (m ³)
590	61	100	5	0.012	0.023	0.011	0.000	0.011	15
			10	0.015	0.027	0.012	0.000	0.012	
			20	0.020	0.031	0.014	0.000	0.014	
			50	0.024	0.037	0.015	0.000	0.015	
			100	0.027	0.041	0.017	0.000	0.017	



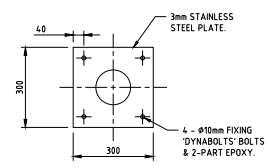
STORMWATER PIT DETAIL
SCALE 1:10



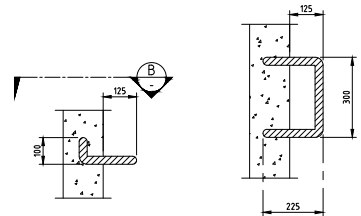
SECTION A
SCALE 1:10



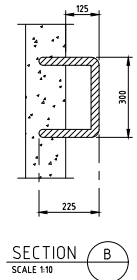
DEBRIS SCREEN DETAIL
NOT TO SCALE



ORIFICE PLATE DETAIL
SCALE 1:10



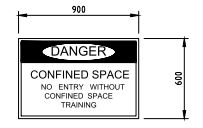
STEP IRONS DETAIL
SCALE 1:10



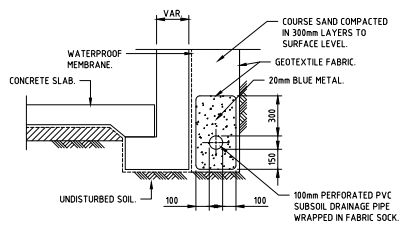
SECTION B
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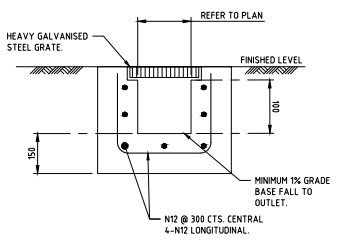
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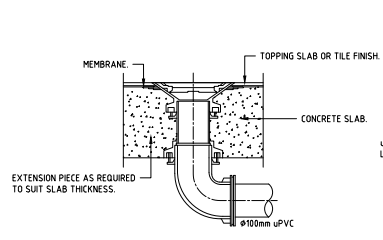
CONFINED SPACE SIGN DETAIL
NOT TO SCALE



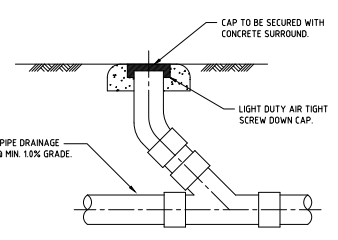
TYPICAL SUBSOIL DRAINAGE DETAIL
SCALE 1:20



TYPICAL GRATED DRAIN DETAIL
NOT TO SCALE



RAINWATER OUTLET DETAIL
NOT TO SCALE



CLEANING EYE DETAIL
SCALE 1:10

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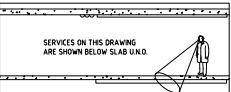
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PROJECT
50 LAWRENCE STREET FRESHWATER NSW
TITLE
STORMWATER DETAILS

SCALES	as noted @ A1	DATE	MAR. 2020
DRAWN	S.L	DESIGN	S.L
ISSUE	A	PROJECT No.	1037
		DRAWING No.	SW.05



GENERAL NOTES.

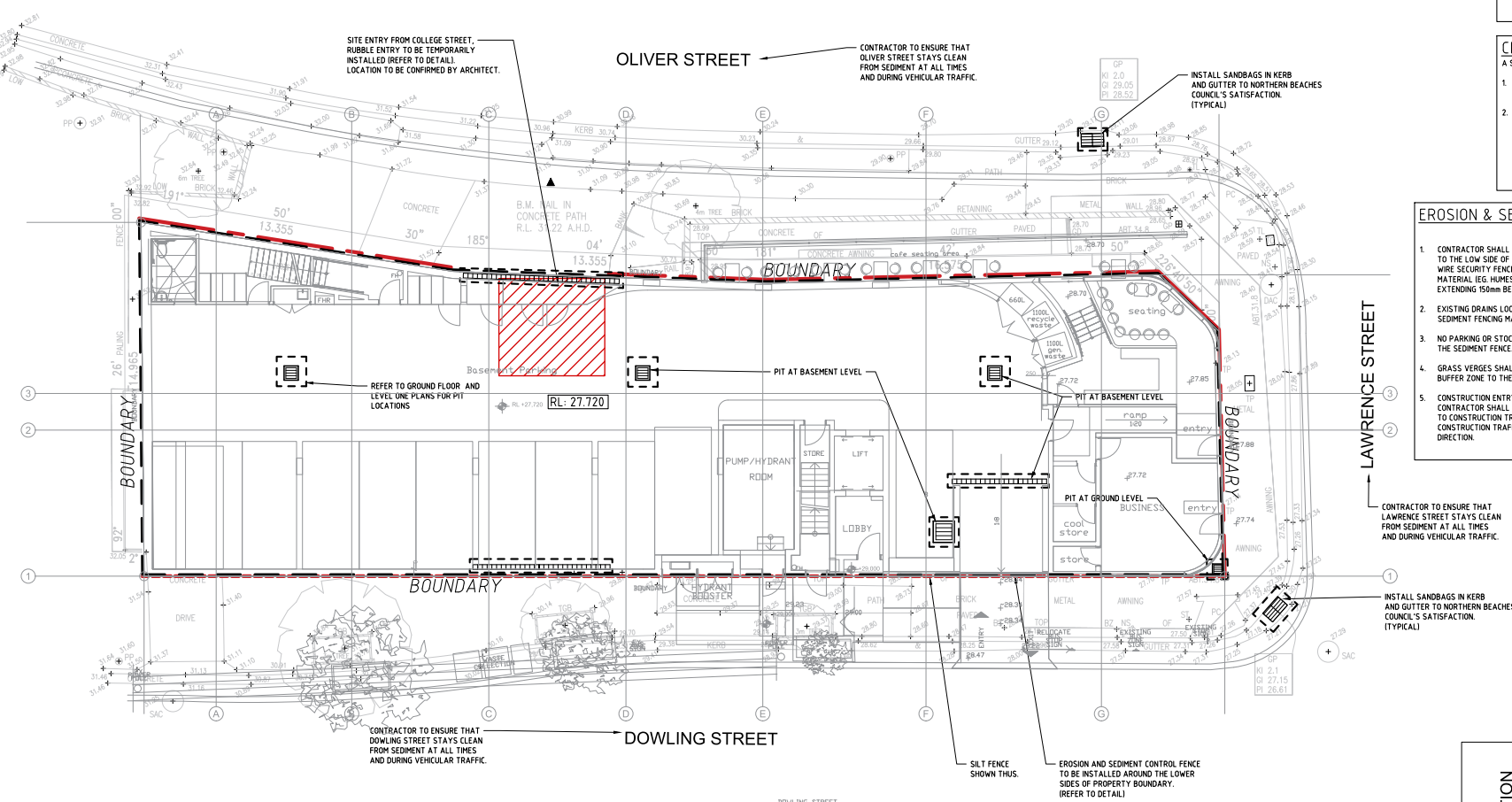
1. THIS PLAN IS A CONCEPT PLAN ONLY FOR STORMWATER DISPOSAL & EROSION CONTROL. IT IS NOT SUITABLE FOR CONSTRUCTION. THIS PLAN SHOULD BE ADAPTED BY THE BUILDER DURING DEMOLITION, EXCAVATION & CONSTRUCTION PHASES TO ENSURE ADEQUATE PERFORMANCE.
2. ALL DRAINAGE LAYOUT & DETAILS ARE DIAGRAMMATIC & INDICATIVE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

CLAY SOILS

- A SYSTEM SHALL BE INSTALLED TO EITHER:
1. TRANSPORT STORMWATER RUNOFF WITH SUSPENDED SOLIDS FROM SITE VIA PUMP TRUCKS.
 2. TREAT THE STORMWATER RUNOFF WITH SUSPENDED SOLIDS SO THE DISCHARGE WATER QUALITY TO COUNCIL STORMWATER DRAINAGE SYSTEM HAS A MAXIMUM CONCENTRATION OF SUSPENDED SOLIDS THAT DOES NOT EXCEED 50 MILLIGRAMS PER LITRE IN ACCORDANCE WITH THE PROTECTION OF THE ENVIRONMENT OPERATION ACT (POED 1997) AND SHALL BE APPROVED BY THE LOCAL COUNCIL.

EROSION & SEDIMENT CONTROL NOTES

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



EROSION SOIL AND SEDIMENT CONTROL PLAN
SCALE 1:100

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ARCHITECT

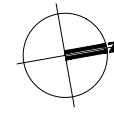
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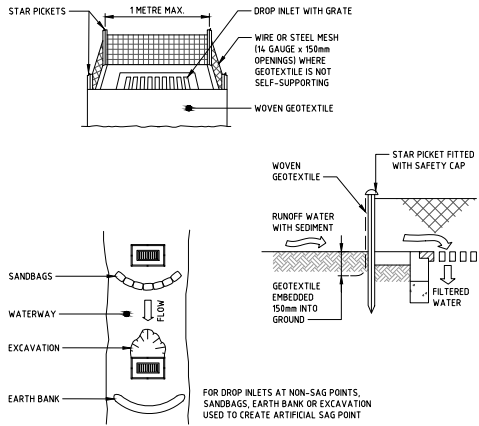
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PROJECT
50 LAWRENCE STREET
 FRESHWATER NSW

TITLE
EROSION SOIL & SEDIMENT
CONTROL PLAN

SCALES	as noted @ A1	DATE	MAR. 2020
DRAWN	S.L.	DESIGN	S.L.
		APPROVED	S.L.
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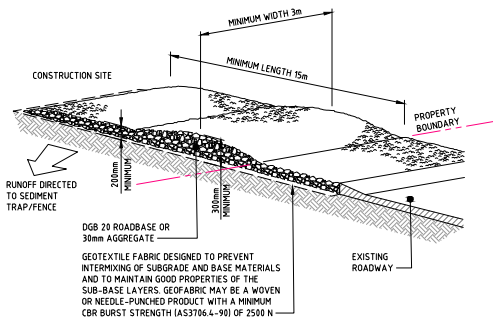




CONSTRUCTION NOTES

- FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
- FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOTEXTILE. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
- IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
- DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

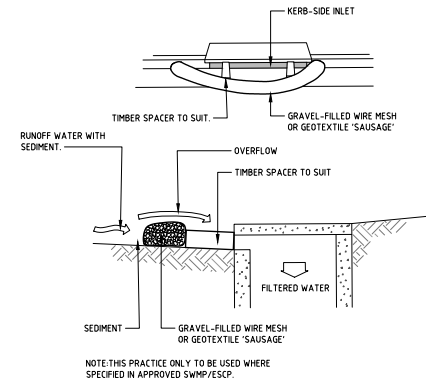
GEOTEXTILE INLET FILTER TRAPS



CONSTRUCTION NOTES

- STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
- COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
- CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
- ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
- WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

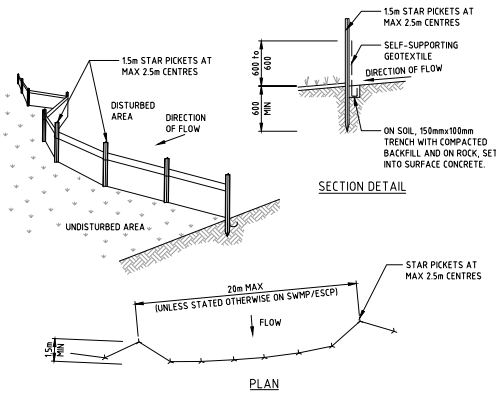
STABILISED SITE ACCESS



CONSTRUCTION NOTES

- INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
- FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
- FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
- PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
- FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
- SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

WIRE MESH AND GRAVEL SEDIMENT FILTER



CONSTRUCTION NOTES

- CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
- CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
- DRIVE 15 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
- FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
- JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
- BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE

DA ISSUE
NOT FOR CONSTRUCTION

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PROJECT
**50 LAWRENCE STREET
 FRESHWATER NSW**

TITLE
**EROSION SOIL & SEDIMENT
 CONTROL DETAILS**

SCALES	as noted @ A1	DATE	MAR. 2020
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