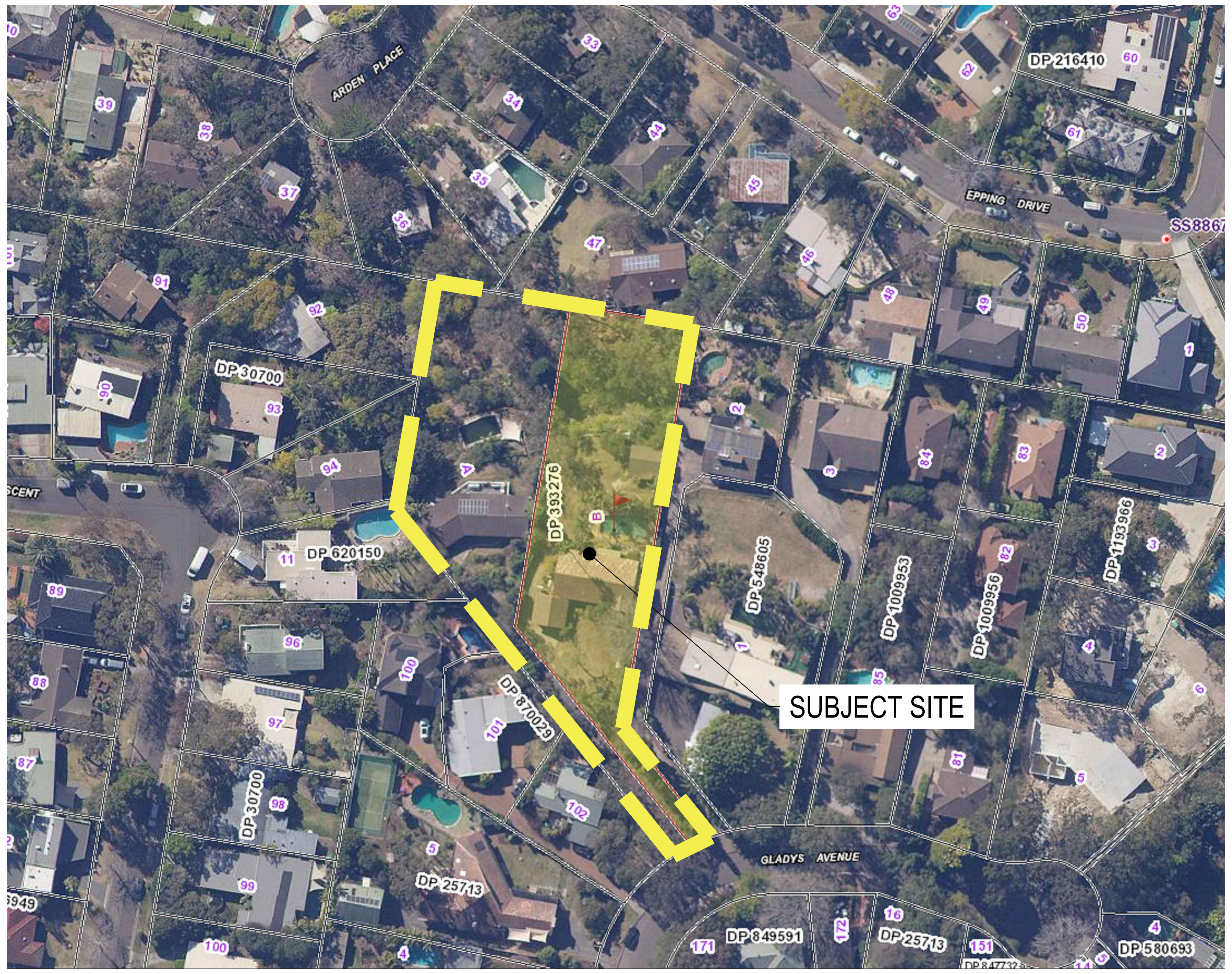
PROPOSED SUBDIVISION
No.12-14 GLADYS AVENUE, FRENCHS FOREST
STORMWATER MANAGEMENT CONCEPT PLAN



LOCATION PLAN

DRAWING REGISTER

DRAWING NO.	TITLE	REVISION
DA-SW100	COVERSHEET	9
DA-SW200	STORMWATER MANAGEMENT CONCEPT PLAN - GROUND FLOOR	9
DA-SW201	WSUD CATCHMENT PLAN & DETAILS	9
DA-SW300	STORMWATER DETAILS SHEET	9
DA-SW500	HGL ANALYSIS & EASEMENT PIT CONNECTION DETAIL	9
DA-SW501	DRAINS MODEL DATA & RESULTS - 1 & DETAILS	9
DA-SW502	DRAINS MODEL DATA & RESULTS - 2	9
DA-SW600	EROSION AND SEDIMENT CONTROL PLAN & DETAILS	9

GENERAL NOTES

1. THESE PLANS SHALL BE READ IN CONJUNCTION WITH OTHER RELEVANT CONSULTANTS' PLANS, SPECIFICATIONS, CONDITIONS OF DEVELOPMENT CONSENT AND CONSTRUCTION CERTIFICATE REQUIREMENTS. WHERE DISCREPANCIES ARE FOUND JCO CONSULTANTS MUST BE CONTACTED IMMEDIATELY FOR VERIFICATION

2. WHERE THESE PLANS ARE NOTED FOR DEVELOPMENT APPLICATION PURPOSES ONLY, THEY SHALL NOT BE USED FOR OBTAINING CONSTRUCTION CERTIFICATE NOR USED FOR CONSTRUCTION PURPOSES

3. SUBSOIL DRAINAGE SHALL BE DESIGNED AND DETAILED BY THE STRUCTURAL ENGINEER. SUBSOIL DRAINAGE SHALL NOT BE CONNECTED INTO THE STORMWATER SYSTEM IDENTIFIED ON THESE PLANS UNLESS APPROVED BY JCO CONSULTANTS

STORMWATER CONSTRUCTION NOTES

1. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH AS/NZS 3500 (CURRENT EDITION) AND THE REQUIREMENTS OF THE LOCAL COUNCIL'S POLICIES AND CODES

2. THE MINIMUM SIZES OF THE STORMWATER DRAINS SHALL NOT BE LESS THAN DN90 FOR CLASS 1 BUILDINGS AND DN100 FOR OTHER CLASSES OF BUILDING OR AS REQUIRED BY THE REGULATORY AUTHORITY

3. THE MINIMUM GRADIENT OF STORMWATER DRAINS SHALL BE 1%, UNLESS NOTED OTHERWISE

4. COUNCIL'S TREE PRESERVATION ORDER IS TO BE STRICTLY ADHERED TO. NO TREES SHALL BE REMOVED UNTIL PERMIT IS OBTAINED

5. PUBLIC UTILITY SERVICES ARE TO BE ADJUSTED AS NECESSARY AT THE CLIENT'S EXPENSE

6. ALL PITS TO BE BENCHED AND STREAMLINED. PROVIDE STEP IRONS FOR ALL PITS OVER 1.2m DEEP

7. MAKE SMOOTH JUNCTION WITH ALL EXISTING WORK

8. VEHICULAR ACCESS AND ALL SERVICES TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION

9. SERVICES SHOWN ON THESE PLANS HAVE BEEN LOCATED FROM INFORMATION SUPPLIED BY THE RELEVANT AUTHORITIES AND FIELD INVESTIGATIONS AND ARE NOT GUARANTEED COMPLETE NOR CORRECT. IT IS THE CLIENT & CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL PRIOR TO CONSTRUCTION

10. ANY VARIATION TO THE WORKS AS SHOWN ON THE APPROVED DRAWINGS ARE TO BE CONFIRMED BY JCO CONSULTANTS PRIOR TO THEIR COMMENCEMENT

RAINWATER RE-USE SYSTEM NOTES

1. RAINWATER SUPPLY PLUMBING TO BE CONNECTED TO OUTLETS WHERE REQUIRED BY BASIX CERTIFICATE (BY OTHERS)

2. TOWN WATER CONNECTION TO RAINWATER TANK TO BE TO THE SATISFACTION OF THE REGULATORY AUTHORITY. THIS MAY REQUIRE PROVISION OF: PERMANENT AIR GAP
3. BACKFLOW PREVENTION DEVICE

4. NO DIRECT CONNECTION BETWEEN TOWN WATER SUPPLY AND THE
5. RAIN WATER SUPPLY

6. AN APPROVED STOP VALVE AND/OR PRESSURE LIMITING VALVE AT THE RAINWATER TANK PROVIDE APPROPRIATE FLOAT VALVES AND/OR SOLENOID VALVES
7. TO CONTROL TOWN WATER SUPPLY INLET TO TANK IN ORDER TO
8. ACHIEVE THE TOP-UP INDICATED ON THE TYPICAL DETAIL

9. ALL PLUMBING WORKS ARE TO BE CARRIED OUT BY LICENSED PLUMBERS IN ACCORDANCE WITH AS/NZS3500.1 NATIONAL PLUMBING AND DRAINAGE CODE PRESSURE PUMP ELECTRICAL CONNECTION TO BE CARRIED OUT BY A LICENSED ELECTRICIAN

10. ONLY ROOF RUN-OFF IS TO BE DIRECTED TO THE RAINWATER TANK . SURFACE WATER INLETS ARE NOT TO BE CONNECTED PIPE MATERIALS FOR RAINWATER SUPPLY PLUMBING ARE TO BE APPROVED MATERIALS TO AS/NZS3500 PART 1 SECTION 2 AND TO BE CLEARLY AND PERMANENTLY IDENTIFIED AS 'RAINWATER'. THIS MAY
11. BE ACHIEVED FOR BELOW GROUND PIPES USING IDENTIFICATION TAPE (MADE IN ACCORDANCE WITH AS2648) OR FOR ABOVE GROUND PIPES BY USING ADHESIVE PIPE MARKERS (MADE IN ACCORDANCE WITH AS1345)

12. EVERY RAINWATER SUPPLY OUTLET POINT AND THE RAINWATER TANK ARE TO BE LABELED 'RAINWATER' ON A METALLIC SIGN IN ACCORDANCE WITH AS1319

13. ALL INLETS AND OUTLETS TO THE RAINWATER TANK ARE TO HAVE SUITABLE MEASURES PROVIDED TO PREVENT MOSQUITO AND VERMIN ENTRY

DIAL BEFORE YOU DIG

DIAL BEFORE YOU DIG®
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IMPORTANT: THE CONTRACTOR IS TO MAINTAIN A CURRENT SET OF "DIAL BEFORE YOU DIG" DRAWINGS ON SITE AT ALL TIMES.

PIT SIZES AND DESIGN:

DEPTH (mm)	MINIMUM PIT SIZE (mm)
UP TO 450mm	450 x 450
450mm TO to 600mm	600 x 600
600mm TO 900mm	600 x 900
900mm TO 1500mm	900 x 900 (WITH STEP IRONS)
1500mm TO 2000mm	1200 x 1200 (WITH STEP IRONS)

ALL PIPES SHOULD BE CUT FLUSH WITH THE WALL OF THE PIT.

PITS GREATER THAN 600mm DEEP SHALL HAVE A MINIMUM ACCESS OPENING OF 600 x 600mm

THE GRATED COVERS OF PITS LARGER THAN 600 x 600mm ARE TO BE HINGED TO PREVENT THE GRATE FROM FALLING INTO THE PIT.

THE BASE OF THE DRAINAGE PITS SHOULD BE AT THE SAME LEVEL AS THE INVERT OF THE OUTLET PIPE. RAINWATER SHOULD NOT BE PERMITTED TO POND WITHIN THE STORMWATER SYSTEM

- **TRENCH DRAINS:**
  CONTINUOUS TRENCH DRAINS ARE TO BE OF WIDTH NOT LESS THAN 150mm AND DEPTH NOT LESS THAN 100mm. THE BARS OF THE GRATING ARE TO BE PARALLEL TO THE DIRECTION OF SURFACE FLOW.
- **STEP IRONS:**
  PITS BETWEEN 1.2m AND 6m ARE TO HAVE STEP IRONS IN ACCORDANCE WITH AS1657. FOR PITS GREATER THAN 6m OTHER MEANS OF ACCESS MUST BE PROVIDED.
- **PVC PITS:**
  PVC PITS WILL ONLY BE PERMITTED IF THEY ARE NOT A GREATER SIZE THAN 450 x 450mm (MAXIMUM DEPTH 450mm) AND ARE HEAVY DUTY
- **IN-SITU PITS:**
  IN-SITU PITS ARE TO BE CONSTRUCTED ON A CONCRETE BED OF AT LEAST 150mm THICK. THE WALLS ARE TO BE DESIGNED TO MEET THE MINIMUM REQUIREMENTS OF CLAUSE 7.5.5.1 OF AS3500.3-2018. PITS DEEPER THAN 1.8m SHALL BE CONSTRUCTED WITH REINFORCED CONCRETE.
- **GRATES:**
  GRATES ARE TO BE GALVANISED STEEL GRID TYPE. GRATES ARE TO BE OF HEAVY-DUTY TYPE IN AREAS WHERE THEY MAY BE SUBJECT TO VEHICLE LOADING.

REV.	DATE	AMENDMENT	INT.	APP.
9	30/06/2023	ARCHITECTURAL & DRAINAGE REVISED	J.L	J.H
8	7/06/2023	REVISED PER ARBORIST REPORT	J.L	J.H
7	10/05/2023	RETAINING WALL REVISED	J.L	J.H
6	5/09/2022	RETAINING WALL REVISED	J.L	J.H
5	15/08/2022	ISSUED FOR DA	J.L	J.H
4	25/05/2022	ISSUED FOR REVIEW	J.L	J.L
3	19/05/2022	ISSUED FOR REVIEW	J.L	J.L

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Project
PROPOSED SUBDIVISION
12-14 GLADYS AVENUE
FRENCHS FOREST NSW 2030

Drawing Title
COVERSHEET

Design: J.L
Drawn: J.L
Validate: J.H

Job Number: 20220060
Drawing Number: DA-SW100
Scale: NTS
Date: 30/06/2023
Size: A1
Datum: A.H.D

North Point
N

Status
DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

Scale
0 0.02 0.04 0.06 0.08 0.1m
SCALE 1:1 @A1

DATE PLOTTED: 3 July 2023 9:57 AM

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GROUND FLOOR

PIT SCHEDULE

PIT No.	GRATED INLET	PIT SIZE	SURFACE LEVEL	INVERT LEVEL
SP1	GRATED INLET (CLASS C) WITH OCEANGUARD	450 x 450	156.16	155.70
SP2	GRATED INLET (CLASS C) WITH OCEANGUARD	450 x 450	155.36	154.90
SP3	GRATED INLET (CLASS C) WITH OCEANGUARD	450 x 450	154.50	154.05
SP4	GRATED INLET (CLASS C) WITH OCEANGUARD	450 x 450	152.34	151.85
SP5	GRATED INLET (CLASS C) WITH OCEANGUARD	450 x 450	149.70	149.20
SP6	GRATED INLET (CLASS C) WITH OCEANGUARD	600 x 600	148.75	147.90
SP7	GRATED INLET (CLASS C) WITH OCEANGUARD	600 x 600	147.50	146.80
SP8	GRATED INLET (CLASS C)	900 x 900	147.50	145.90
SP9	GRATED INLET (CLASS B)	900 x 900	136.40	135.40
SP10	GRATED INLET (CLASS B)	900 x 900	133.50	132.70
SP11	GRATED INLET (CLASS B)	600 x 600	131.30	130.50
SP12	GRATED INLET (CLASS B) WITH OCEANGUARD	450 x 450	153.50	153.05
SP13	GRATED INLET (CLASS B) WITH OCEANGUARD	450 x 450	153.10	152.65
SP14	GRATED INLET (CLASS B) WITH OCEANGUARD	600 x 600	148.75	148.20
SP15	GRATED INLET (CLASS B) WITH OCEANGUARD	450 x 450	149.40	148.60
SP16	GRATED INLET (CLASS B) WITH OCEANGUARD	450 x 450	147.50	146.95
SP17	GRATED INLET (CLASS B) WITH OCEANGUARD	450 x 450	149.50	149.05
SP18	GRATED INLET (CLASS B) WITH OCEANGUARD	900 x 900	150.50	148.80
SP19	GRATED INLET (CLASS B) WITH OCEANGUARD	450 x 450	148.95	148.50
SP20	GRATED INLET (CLASS B) WITH OCEANGUARD	450 x 450	147.50	147.25
SP21	GRATED INLET (CLASS B)	450 x 450	142.20	141.75
SP22	GRATED INLET (CLASS B)	450 x 450	141.95	141.50
SP23	GRATED INLET (CLASS B) WITH OCEANGUARD	900 x 900	137.70	136.70
SP27	GRATED INLET (CLASS B)	450 x 450	148.20	144.75
SP28	GRATED INLET (CLASS B)	900 x 900	137.80	136.90
SP29	GRATED INLET (CLASS B)	900 x 900	131.90	131.50

NOTE

1. ALL OUTLET PIPES FROM OSD TANKS TO BE 150mm AT 1% FALL (MIN)
2. ALL DOWNPIPE PIPES TO RAINWATER TANK TO BE 100mm DIA (UNO). FINAL DOWNPIPE LOCATIONS TO BE DESIGN IN CC STAGE
3. ALL OUTLET PIPES FROM GRATED TRENCHES TO BE 100mm DIA (UNO)

LEGEND

DRAINAGE PIPES VIA GRAVITY	— — — —
CHARGED DRAINAGE PIPES TO RWT/OSD	—— CSW ——
SUB SOIL DRAINAGE (AG. LINE)	—— SSD ——
EXISTING DRAINAGE PIPE	—— sw ——
○ RDP	Ø100mm ROOF DOWNPIPE
○ DP	Ø100mm DOWNPIPE
○ DDO	100mm DIA DISH DRAIN OUTLET
○ RWO	150mm DIA FLOOR WASTE
○ BO	100mm DIA FLOOR WASTE (BALCONY OUTLET)

ALL PIPES TO BE GRADED AT MIN. 1% (UNO)

OSD DESIGN SUMMARY

SITE AREA: 4704m2
EXISTING SITE NODE WAS MODELED AS FULLY UNDEVELOPED NATURAL SURFACE FOR PURPOSE OF MODELING.

POST DEVELOPMENT ROOF AREA TO ABOVE GROUND OSD STORAGE, THEN DISCHARGE TO DRIVEWAY COMMON OSD TANK, THEN THE OVERFLOW DRAINS TO THE LOWER OSD IN LOT 2. LOT 2 ABOVE GROUND OSD TO CAPTURE PART OF PART OF SURFACE RUNOFF AND ROOF RUNOFF TO MINIMISE OSD-2 VOLUME.

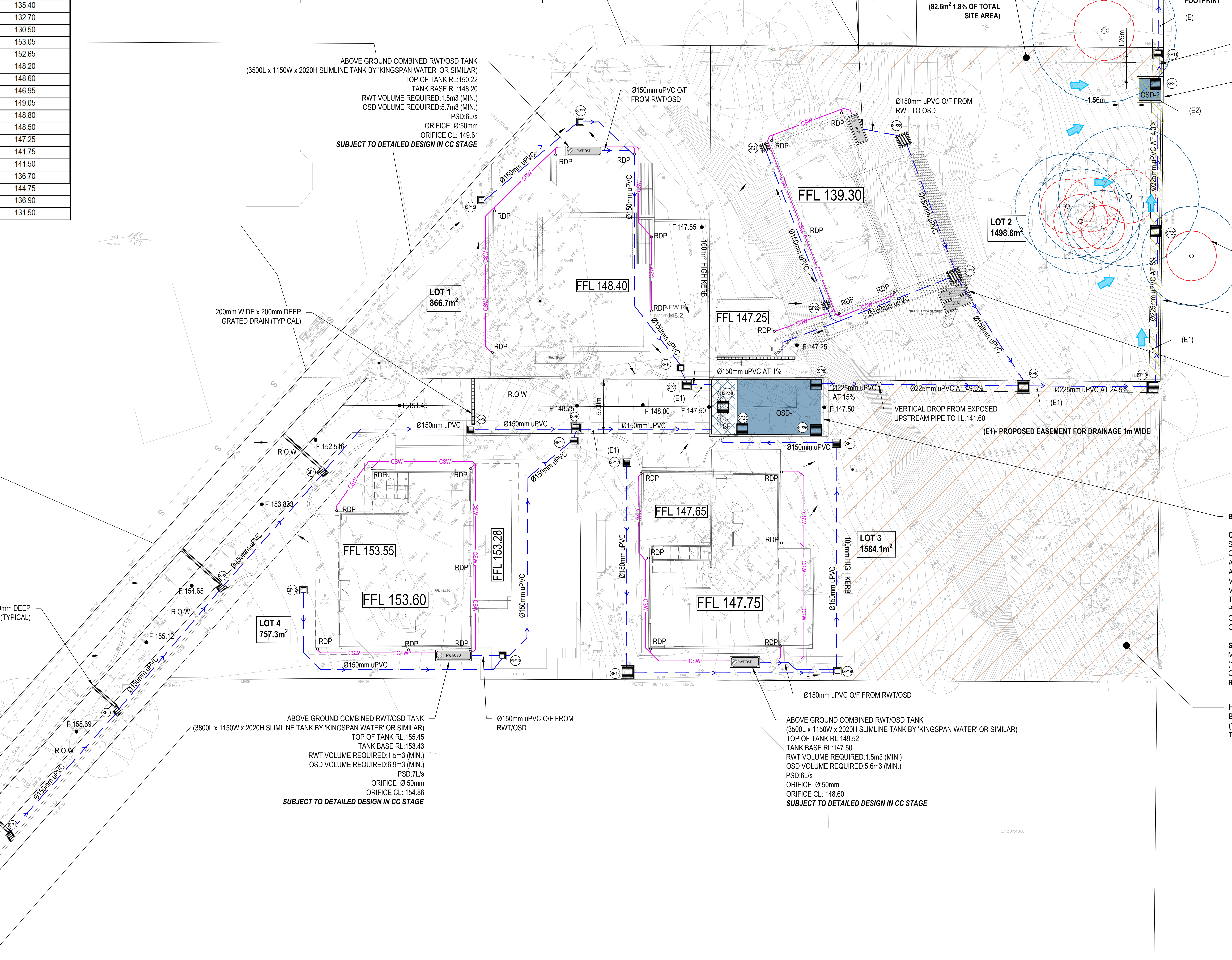
POST DEVELOPMENT BYPASS AREA = 880m2 (18% OF TOTAL SITE AREA)

5YR ARI PRE-DEVELOPMENT DISCHARGE = 88L/s
5YR ARI POST-DEVELOPMENT BYPASS = 17L/s
5YR ARI POST-DEVELOPMENT DISCHARGE = 47L/s

20YR ARI PRE-DEVELOPMENT DISCHARGE = 137L/s
20YR ARI POST-DEVELOPMENT BYPASS = 26L/s
20YR ARI POST-DEVELOPMENT DISCHARGE = 63L/s

100YR ARI PRE-DEVELOPMENT DISCHARGE = 206L/s
100YR ARI POST-DEVELOPMENT BYPASS = 38L/s
100YR ARI POST-DEVELOPMENT DISCHARGE = 82L/s

ABOVEGROUND OSD VOLUME FOR LOT 1 REQUIRED BY 'DRAINS' MODEL= 5.7m3
ABOVEGROUND OSD VOLUME FOR LOT 2 REQUIRED BY 'DRAINS' MODEL= 11.0m3
ABOVEGROUND OSD VOLUME FOR LOT 3 REQUIRED BY 'DRAINS' MODEL= 5.6m3
ABOVEGROUND OSD VOLUME FOR LOT 4 REQUIRED BY 'DRAINS' MODEL= 6.9m3
UNDERGROUND OSD - 1 VOLUME UNDER DRIVEWAY REQUIRED BY 'DRAINS' MODEL= 54.0m3
UNDERGROUND OSD - 2 VOLUME REQUIRED BY 'DRAINS' MODEL= 3.0m3



ABOVE GROUND COMBINED RWT/OSD TANK
(3500L x 1150W x 2020H SLIMLINE TANK BY 'KINGSPAN WATER' OR SIMILAR)
TOP OF TANK RL:150.22
TANK BASE RL:148.20
RWT VOLUME REQUIRED:1.5m3 (MIN.)
OSD VOLUME REQUIRED:5.7m3 (MIN.)
PSD:6L/s
ORIFICE Ø:50mm
ORIFICE CL: 149.61
SUBJECT TO DETAILED DESIGN IN CC STAGE

Ø150mm uPVC O/F
FROM RWT/OSD

ABOVE GROUND RWT TANK
(1200L x 1150W x 2020H SLIMLINE TANK BY 'KINGSPAN WATER' OR SIMILAR)
TOP OF TANK RL:141.32
TANK BASE:139.30
RWT VOLUME REQUIRED:1.5m3 (MIN.)
SUBJECT TO DETAILED DESIGN IN CC STAGE

Ø150mm uPVC O/F FROM RWT TO OSD

HATCHED AREA TO BYPASS OSD SYSTEM (82.6m² 1.8% OF TOTAL SITE AREA)

EXISTING PIT **(SP01245)**
RL:127.51
IL:126.59

REFER TO STORMWATER SYSTEM ASSESSMENT REPORT PREPARED BY 'NASTASI & ASSOCIATES CONSULTING ENGINEERS'. FOR DETAILED CAPACITY ASSESSMENT.

(E1)- PROPOSED EASEMENT FOR DRAINAGE 1m WIDE

(E2)- PROPOSED EASEMENT FOR DRAINAGE INCLUDING OSD FOOTPRINT

Ø225mm uPVC AT 2.5%
OSD OUTLET PIPE IL130.55

BELOW GROUND OSD TANK - 2

SURFACE RL:131.80
OUTLET PIPE IL:130.55
AVG. WATER PONDING: 0.89m
AREA:4m2 (INTERNAL)
VOLUME REQUIRED:3.0m3
VOLUME PROVIDED:3.56m3
STORAGE TWL:131.60
OVERFLOW TWL:131.80
PSD:83L/s
ORIFICE Ø:210mm
ORIFICE CL:130.66
REFER TO DRAWING DA-SW300 FOR DETAILS.

SRZ FROM ARBORIST REPORT

CONSTRUCT NEW RETAINING WALL ABOVE GROUND LEVEL TO DIVERT RUNOFF TO OSD 2. CONSTRUCT GRASS SWALE AT EASEMENT LOCATION (1m WIDE x 0.2m DEEP) TO CONVEY RUNOFF TO OSD 2.

OSD TANK UNDER DECKING
(2 OFF 3000L x 1150W x 1860H MODLINE TANK BY 'KINGSPAN WATER' OR SIMILAR)
TOP OF TANK RL:137.46
TANK BASE:135.60
OSD VOLUME REQUIRED:11.0m3 (MIN.)
PSD:18L/s
ORIFICE Ø:80mm
ORIFICE CL: 135.65
SUBJECT TO DETAILED DESIGN IN CC STAGE

VERTICAL DROP FROM EXPOSED UPSTREAM PIPE TO I.L.141.60

(E1)- PROPOSED EASEMENT FOR DRAINAGE 1m WIDE

BELOW GROUND OSD/STORMFILTER TANK - 1

ON-SITE DETENTION TANK (OSD)
SURFACE RL:147.50
OUTLET PIPE IL:145.99
AVG. WATER PONDING: 1.155m
AREA:50m2 (INTERNAL)
VOLUME REQUIRED:54m3
VOLUME PROVIDED:57.75m3
TWL:147.30
PSD:43L/s
ORIFICE Ø:137mm
ORIFICE CL:146.10

STORMFILTER TANK (SF)
MINIMUM SURFACE AREA: 10m2
(11 x TALL(690) PSORB CARTRIDGE STORMFILTER OR EQUIVALENT)
REFER TO DRAWING DA-SW300 FOR DETAILS.

HATCHED AREA TO BYPASS OSD SYSTEM (792.1m² 16.8% OF TOTAL SITE AREA)

200mm WIDE x 200mm DEEP GRATED DRAIN (TYPICAL)

200mm WIDE x 200mm DEEP GRATED DRAIN (TYPICAL)

Ø150mm uPVC O/F FROM RWT/OSD

ABOVE GROUND COMBINED RWT/OSD TANK
(3800L x 1150W x 2020H SLIMLINE TANK BY 'KINGSPAN WATER' OR SIMILAR)
TOP OF TANK RL:155.45
TANK BASE RL:153.43
RWT VOLUME REQUIRED:1.5m3 (MIN.)
OSD VOLUME REQUIRED:6.9m3 (MIN.)
PSD:7L/s
ORIFICE Ø:50mm
ORIFICE CL: 154.86
SUBJECT TO DETAILED DESIGN IN CC STAGE

Ø150mm uPVC O/F FROM
RWT/OSD

ABOVE GROUND COMBINED RWT/OSD TANK
(3500L x 1150W x 2020H SLIMLINE TANK BY 'KINGSPAN WATER' OR SIMILAR)
TOP OF TANK RL:149.52
TANK BASE RL:147.50
RWT VOLUME REQUIRED:1.5m3 (MIN.)
OSD VOLUME REQUIRED:5.6m3 (MIN.)
PSD:6L/s
ORIFICE Ø:50mm
ORIFICE CL: 148.60
SUBJECT TO DETAILED DESIGN IN CC STAGE

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Client
JACK ZHANG

Architect
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EMAIL: Jason@jcoconsultants.com.au

Project
PROPOSED SUBDIVISION
12-14 GLADYS AVENUE
FRENCHS FOREST NSW 2030

Drawing Title
STORMWATER MANAGEMENT CONCEPT PLAN - GROUND FLOOR

Design: J.L
Drawn: J.L
Validate: J.H

Job Number: 20220060
Drawing Number: DA-SW200
Scale: 1:200
Date: 30/06/2023
Size: A1
Datum: A.H.D

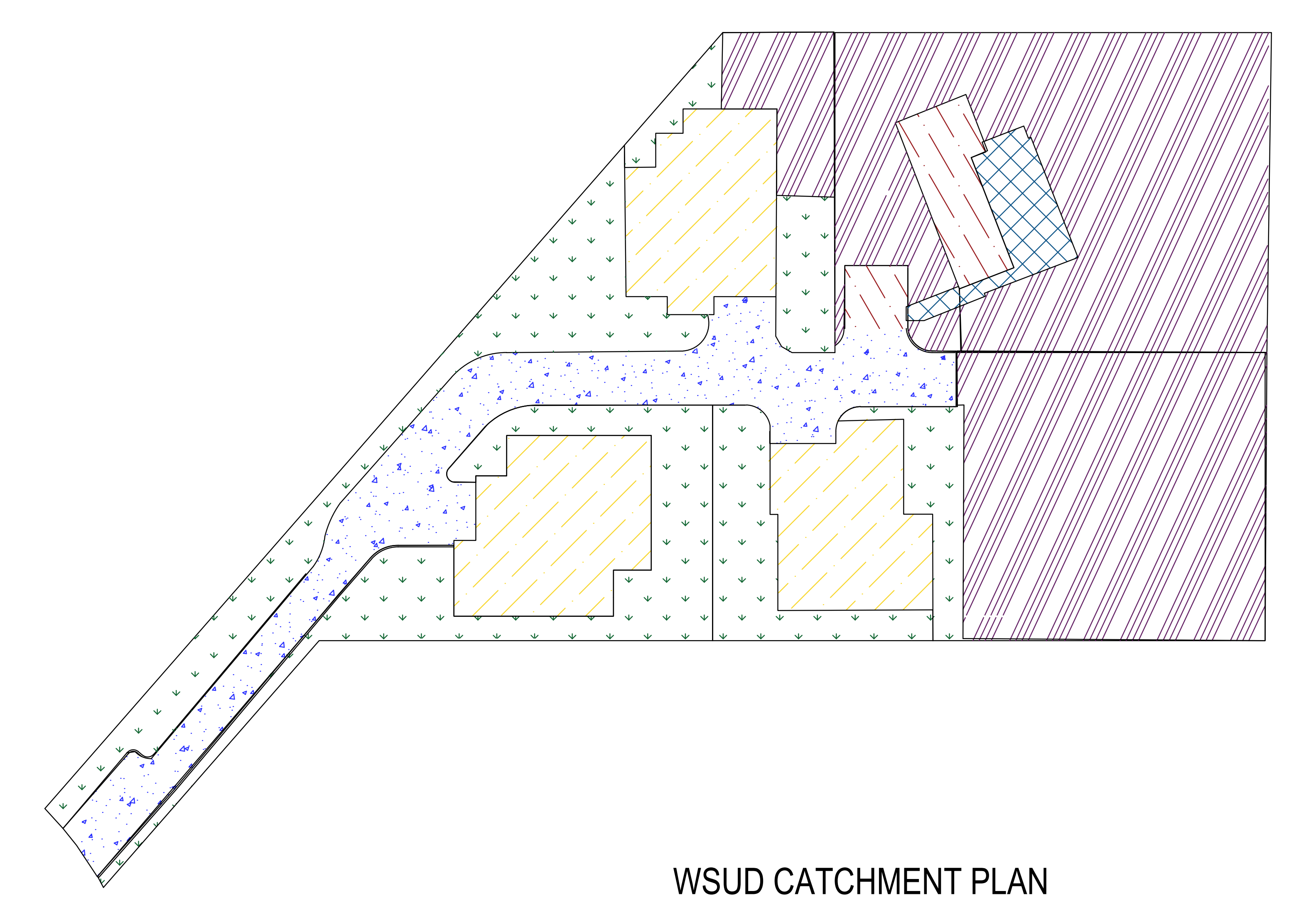
North Point
N

Status
DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

Scale
0 5 10 15 20m
SCALE 1:200 @A1

DATE PLOTTED: 3 July 2023 9:57 AM

CAD File: P:\2022\20220060-12-14 Gladys Avenue, Frenchs Forest\Civil\cad\DA-SW200.dwg

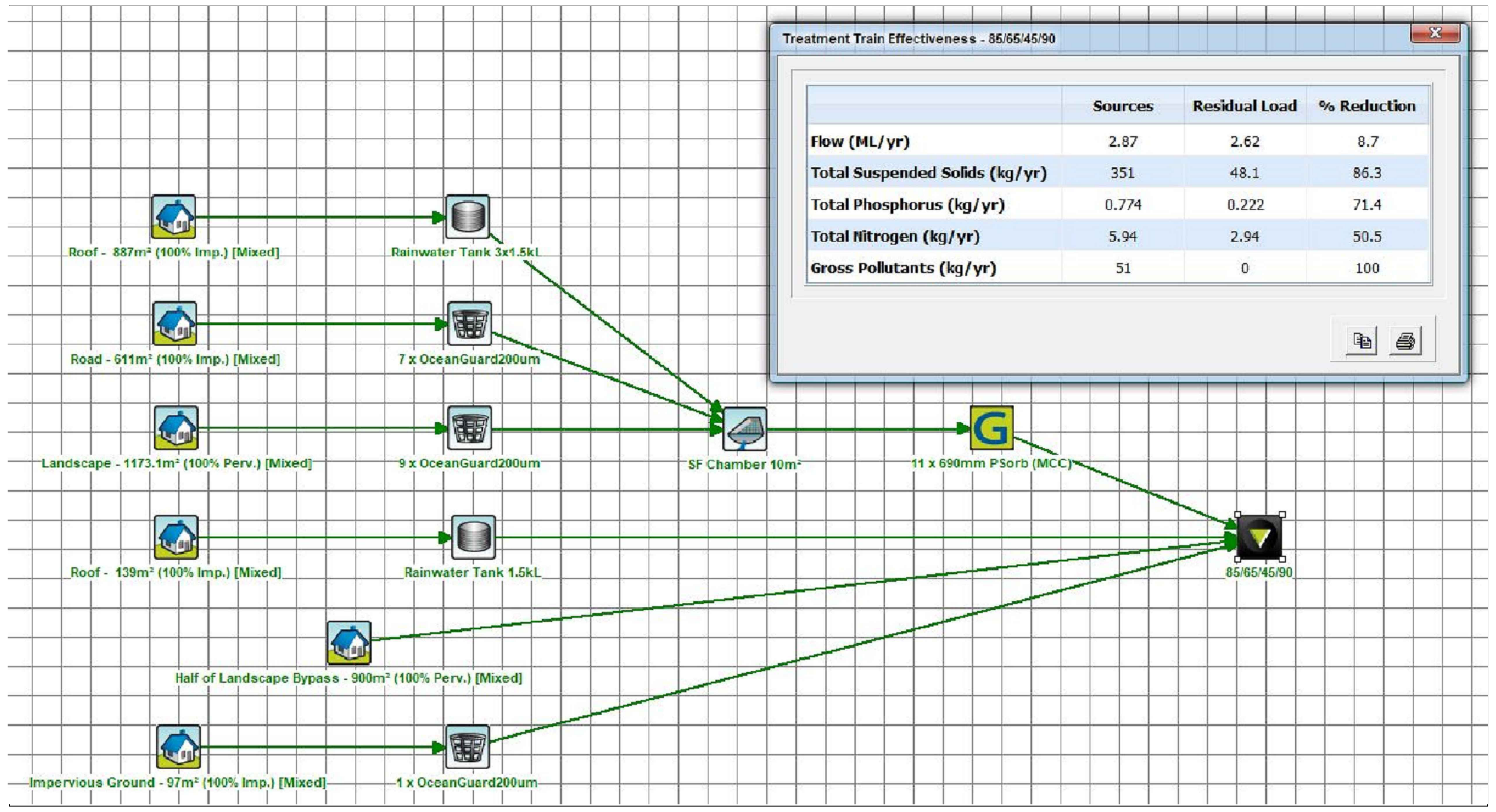


WSUD CATCHMENT PLAN
1:500(A1)

LEGEND

SITE AREA: 4706.5m²

▨	- UN-HABITABLE ROOF AREA DRAINING TO STORMFILTER TANK VIA RAINWATER TANK = 886.7m²
▨	- UN-HABITABLE ROOF AREA (LOT 2) DRAINING BYPASS STORMFILTER TANK = 138.6m²
░	- TRAFIICABLE AREA DRAINING TO STORMFILTER TANK VIA OCEANGUARD = 610.8m²
░	- PERVIOUS AREA TO STORMFILTER TANK VIA OCEANGUARD = 1173.1m²
▩	- IMPERVIOUS AREA BYPASS STORMFILTER TANK = 96.7m²
▨	- PERVIOUS AREA BYPASS STORMFILTER TANK = 1800.7m² (AREA REMAINS AS UNDEVELOPED)



Treatment Train Effectiveness - 85/65/45/90

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.87	2.62	8.7
Total Suspended Solids (kg/yr)	351	48.1	86.3
Total Phosphorus (kg/yr)	0.774	0.222	71.4
Total Nitrogen (kg/yr)	5.94	2.94	50.5
Gross Pollutants (kg/yr)	51	0	100

'MUSIC' MODELLING RESULT

STORMWATER TREATMENT SUMMARY

SITE AREA = 4706m^2

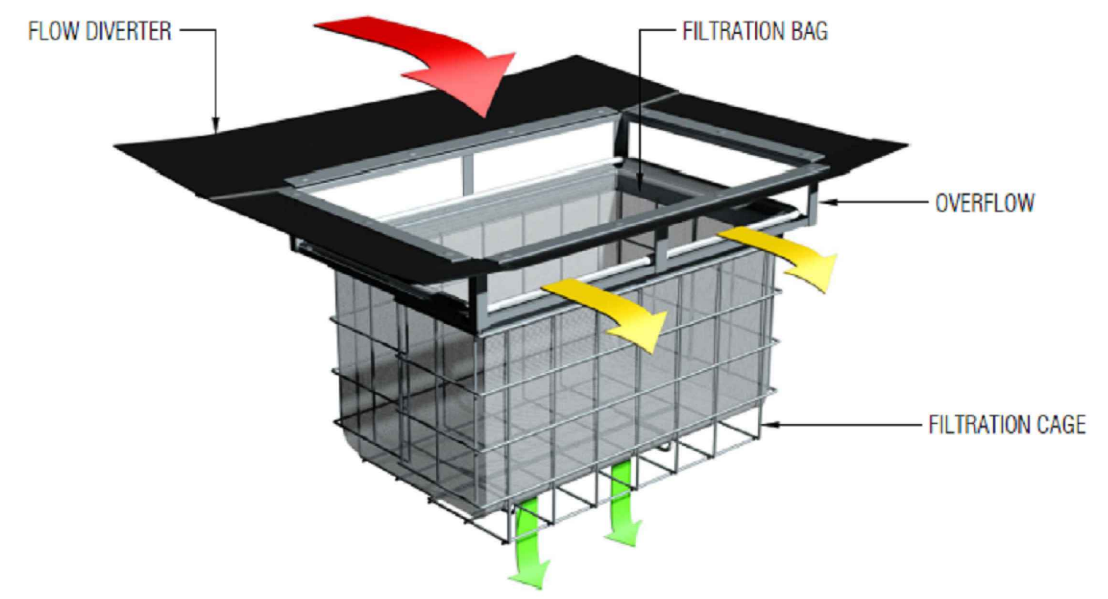
WE MODELLED WITH FOLLOWING PARAMETERS:
- MUSIC VERSION 6.3.0
- RAINFALL STATION 066037 SYDNEY AIRPORT, 6 MINUTE TIME STEP FROM 1979 TO 1988
- SYDNEY CATCHMENT MANAGEMENT AUTHORITY (CMA) UTILIZING MODIFIED % IMPERVIOUS AREA, RAINFALL THRESHOLD, SOIL PROPERTIES & POLLUTANT CONCENTRATION
- NO DRAINAGE ROUTING BETWEEN NODES.

WE HAVE MODELLED THE SYSTEMS TO MEET CURRENT NORTHERN BEACHES COUNCIL WATER MANAGEMENT FOR DEVELOPMENT POLICY. THESE ARE:
- 85% TOTAL SUSPENDED SOLIDS REDUCTION
- 65% TOTAL PHOSPHORUS REDUCTION
- 45% TOTAL NITROGEN REDUCTION
- 90% GROSS POLLUTANT REDUCTION

THE SYSTEM HAS BEEN MODELLED TO MEET THE NORTHERN BEACHES COUNCIL DCP TARGET

- 86% TOTAL SUSPENDED SOLIDS REDUCTION
- 71% TOTAL PHOSPHORUS REDUCTION
- 51% TOTAL NITROGEN REDUCTION
- 100% GROSS POLLUTANTS REDUCTION

TREATMENT DEVICES:
1. 4 x 1,500L OF RAINWATER TANK CONNECTED TO ALL TOILETS AND AT LEAST 1 OUTDOOR TAB FOR IRRIGATION
2. 17 x OCEANGUARDS WITH 200um MESH BAGS (OG-200) OR EQUIVALENT.
3. 11 x TALL(690) PSORB CARTRIDGE STORMFILTER SYSTEM WITHIN A 10m^2 STORMFILTER CHAMBER OR EQUIVALENT.



STORMFILTER DESIGN TABLE

· THE SIZE 4.5 x 2.1m STORMFILTER TREATMENT CAPACITY VARIES BY NUMBER OF FILTER CARTRIDGES INSTALLED AND BY REGION SPECIFIC INTERNAL FLOW CONTROLS. · THE STANDARD CONFIGURATION IS SHOWN. ACTUAL CONFIGURATION OF THE SPECIFIED STRUCTURE(S) PER CIVIL ENGINEER WILL BE SHOWN ON SUBMITTAL DRAWING(S). · ALL PARTS PROVIDED AND INTERNAL ASSEMBLY BY OCEANPROTECT UNLESS OTHERWISE NOTED.

CARTRIDGE HEIGHT	690		460		310	
SYSTEM HYDRAULIC DROP (H - REQ'D. MIN.)	930		700		550	
TREATMENT BY MEDIA SURFACE AREA L/S/m2	1.4	0.7	1.4	0.7	1.4	0.7
CARTRIDGE FLOW RATE (L/s)	1.42	0.71	0.95	0.47	0.63	0.32

GENERAL NOTES

1. INLET AND OUTLET PIPING SHALL BE SPECIFIED BY SITE CIVIL ENGINEER (SEE PLANS) AND PROVIDED BY CONTRACTOR. STORMFILTER IS PROVIDED WITH OPENINGS AT INLET AND OUTLET LOCATIONS. 2. IF THE PEAK FLOW RATE, AS DETERMINED BY THE SITE CIVIL ENGINEER, EXCEEDS THE PEAK HYDRAULIC CAPACITY OF THE PRODUCT, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED. PLEASE CONTACT OCEANPROTECT FOR OPTIONS. 3. THE FILTER CARTRIDGE(S) ARE SIPHON-ACTUATED AND SELF-CLEANING. THE STANDARD DETAIL DRAWING SHOWS THE MAXIMUM NUMBER OF CARTRIDGES. THE ACTUAL NUMBER SHALL BE SPECIFIED BY THE SITE CIVIL ENGINEER ON SITE PLANS OR IN DATA TABLE BELOW. CONCRETE STRUCTURE TO BE PROVIDED BY OTHERS. 4. SEE STORMFILTER DESIGN TABLE FOR REQUIRED HYDRAULIC DROP. FOR SHALLOW, LOW DROP OR SPECIAL DESIGN CONSTRAINTS, CONTACT OCEANPROTECT FOR DESIGN OPTIONS. 5. ALL WATER QUALITY PRODUCTS REQUIRE PERIODIC MAINTENANCE AS OUTLINED IN THE O&M GUIDELINES. PROVIDE MINIMUM CLEARANCE FOR MAINTENANCE ACCESS. 6. STRUCTURE AND ACCESS COVERS DESIGNED BY OTHERS. ACCESS COVERS TO BE A MINIMUM 900X900 ABOVE CARTRIDGES. 7. THE STRUCTURE THICKNESSES SHOWN ARE FOR REPRESENTATIONAL PURPOSES AND VARY REGIONALLY. 8. ANY BACKFILL DEPTH, SUB-BASE, AND OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY SITE CIVIL ENGINEER. 9. CARTRIDGE HEIGHT AND ASSOCIATED DESIGN PARAMETERS PER STORMFILTER DESIGN TABLE. 10. STORMFILTER BY OCEANPROTECT: SYDNEY (AU) PHONE: 1300 354 722 www.oceanprotect.com.au

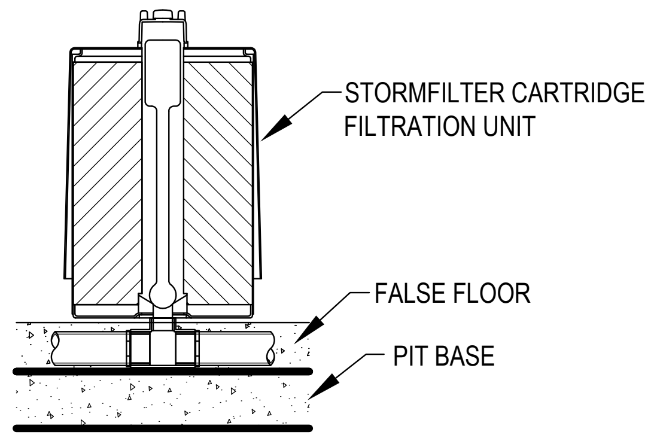
PLAN ID	MAXIMUM PIT PLAN DIMENSIONS
S	450mm x 450mm
M	600mm x 600mm
L	900mm x 900mm
XL	1200mm x 1200mm

DEPTH ID	BAG DEPTH	OVERALL DEPTH
1	170	270
2	300	450
3	600	700

		DEPTH ID		
		1	2	3
PLAN ID	S	▪	■	■
	M	▪	▪	■
	L	▪	▪	▪
	XL	▪	▪	▪

GENERAL NOTES

1. THE MINIMUM CLEARANCE DEPENDS ON THE CONFIGURATION (SEE NOTE 2) AND THE LOCAL COUNCIL REQUIREMENTS.
2. CLEARANCE FOR ANY PIT WITHOUT AN INLET PIPE (ONLY USED FOR SURFACE FLOW) CAN BE AS LOW AS 50mm. FOR OTHER PITS, THE RECOMMENDED CLEARANCE SHOULD BE GREATER OR EQUAL TO THE PIPE OBVERT SO AS NOT TO INHIBIT HYDRAULIC CAPACITY.
3. OCEAN PROTECT PROVIDES TWO FILTRATION BAG TYPES:- 200 MICRON BAGS FOR HIGHER WATER QUALITY FILTERING AND A COARSE BAG FOR TARGETING GROSS POLLUTANTS.
4. DRAWINGS NOT TO SCALE.



STORMFILTER CARTRIDGE DETAIL
NTS

REV.	DATE	AMENDMENT	INT.	APP.
9	30/06/2023	ARCHITECTURAL & DRAINAGE REVISED	J.L	J.H
8	7/06/2023	REVISED PER ARBORIST REPORT	J.L	J.H
7	10/05/2023	RETAINING WALL REVISED	J.L	J.H
6	5/09/2022	RETAINING WALL REVISED	J.L	J.H
5	15/08/2022	ISSUED FOR DA	J.L	J.H
4	25/05/2022	ISSUED FOR REVIEW	J.L	J.L
3	19/05/2022	ISSUED FOR REVIEW	J.L	J.L

Client
JACK ZHANG

Architect
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JCO CONSULTANTS PTY LTD
SUITE 801C, No.1 RIDER BOULEVARD, RHODES NSW 2138
EMAIL: Jason@jcoconsultants.com.au

Project
PROPOSED SUBDIVISION
12-14 GLADYS AVENUE
FRENCHS FOREST NSW 2030

Drawing Title
WSUD CATCHMENT PLAN & DETAILS

Design J.L
Drawn J.L
Validate J.H

Job Number
20220060

Drawing Number
DA-SW201

Scale 1:500
Date 30/06/2023
Size A1
Datum A.H.D

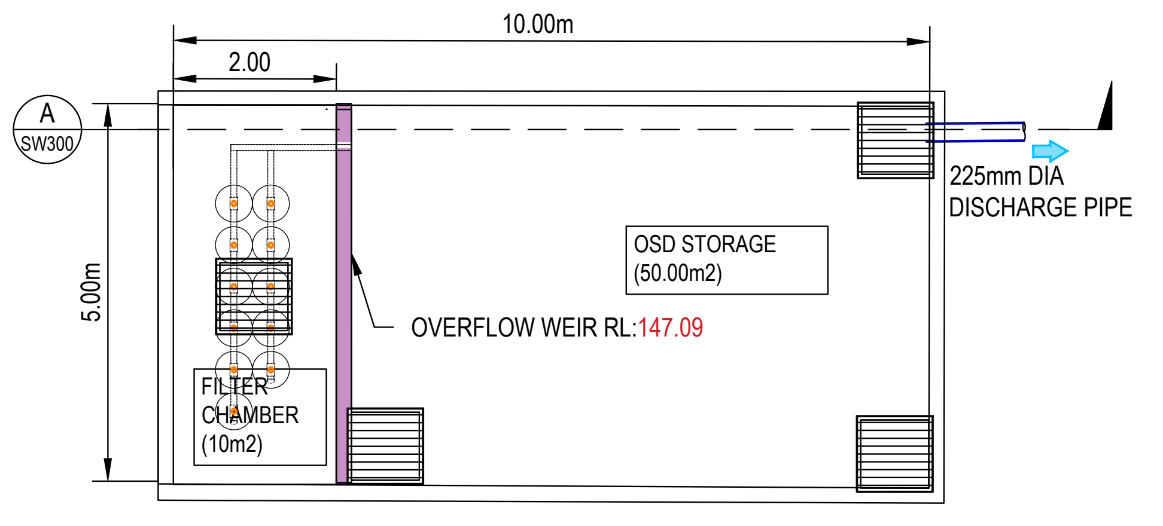
North Point
N

Status
DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

Scale
0 10 20 30 40 50m
SCALE 1:500 @A1

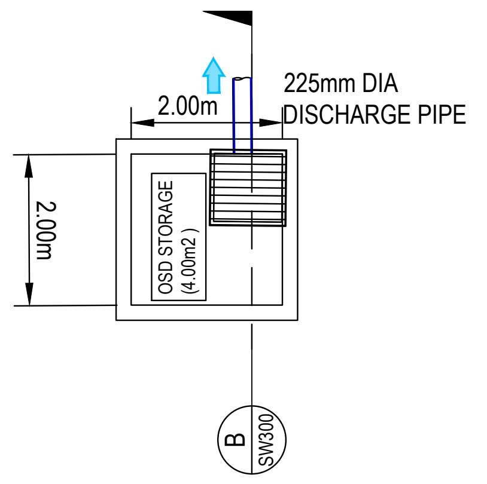
DATE PLOTTED: 3 July 2023 9:57 AM

CAD File: P:\2022\20220060-12-14 Gladys Avenue, Frenchs Forest\Civil\cad\DA-SW201.dwg



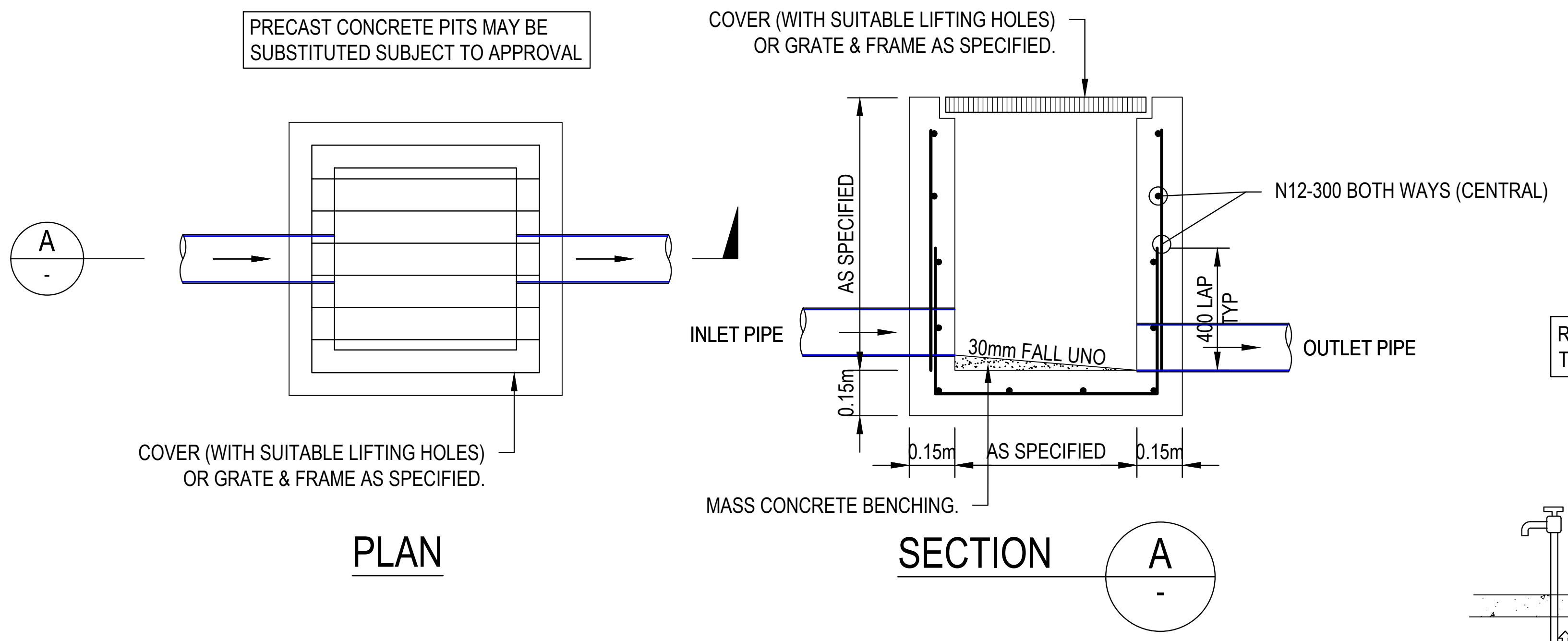
OSD-1 PLAN VIEW

1:100 (A1)



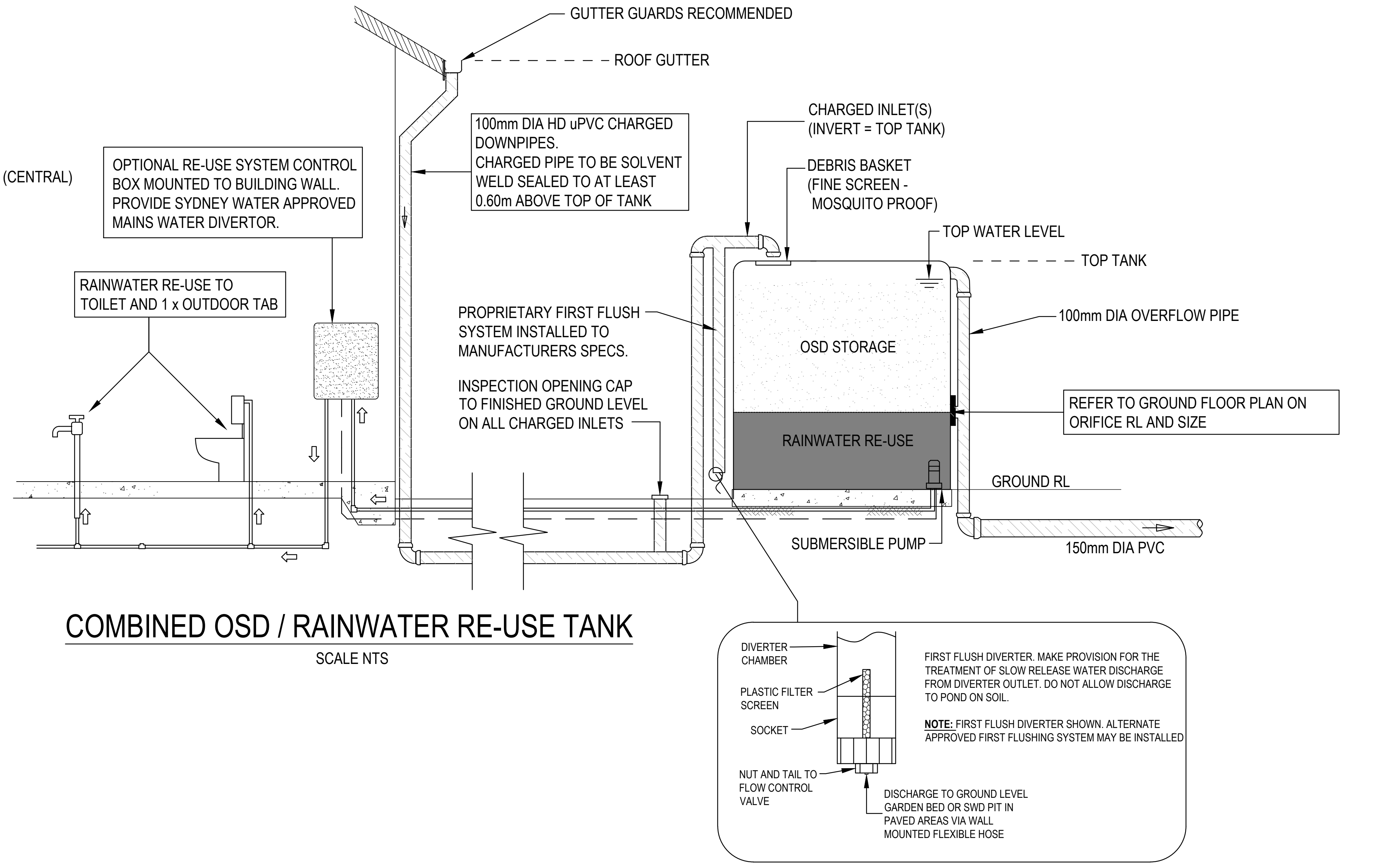
OSD-2 PLAN VIEW

1:100 (A1)



TYPICAL SURFACE INLET PIT (GSIP)

SCALE 1:20



FIRST FLUSH DIVERTER. MAKE PROVISION FOR THE TREATMENT OF SLOW RELEASE WATER DISCHARGE FROM DIVERTER OUTLET. DO NOT ALLOW DISCHARGE TO POND ON SOIL.

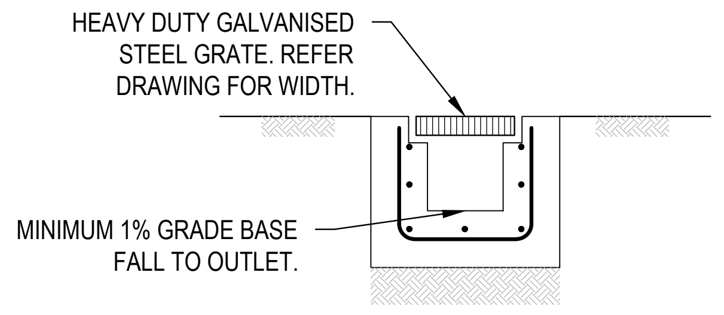
NOTE: FIRST FLUSH DIVERTER SHOWN. ALTERNATE APPROVED FIRST FLUSHING SYSTEM MAY BE INSTALLED

COMBINED OSD / RAINWATER RE-USE TANK

SCALE NTS

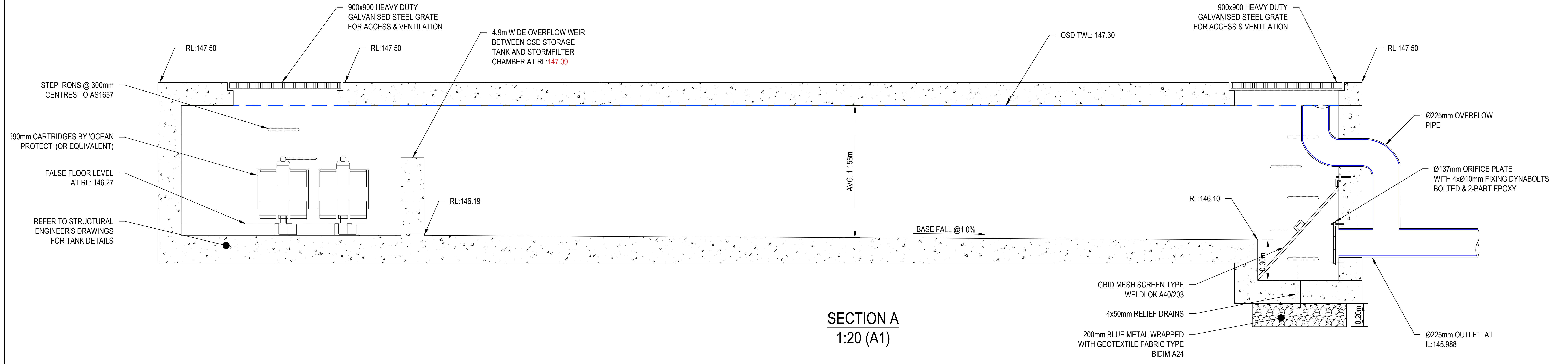
TYPICAL WARNING SIGN

NOT TO SCALE



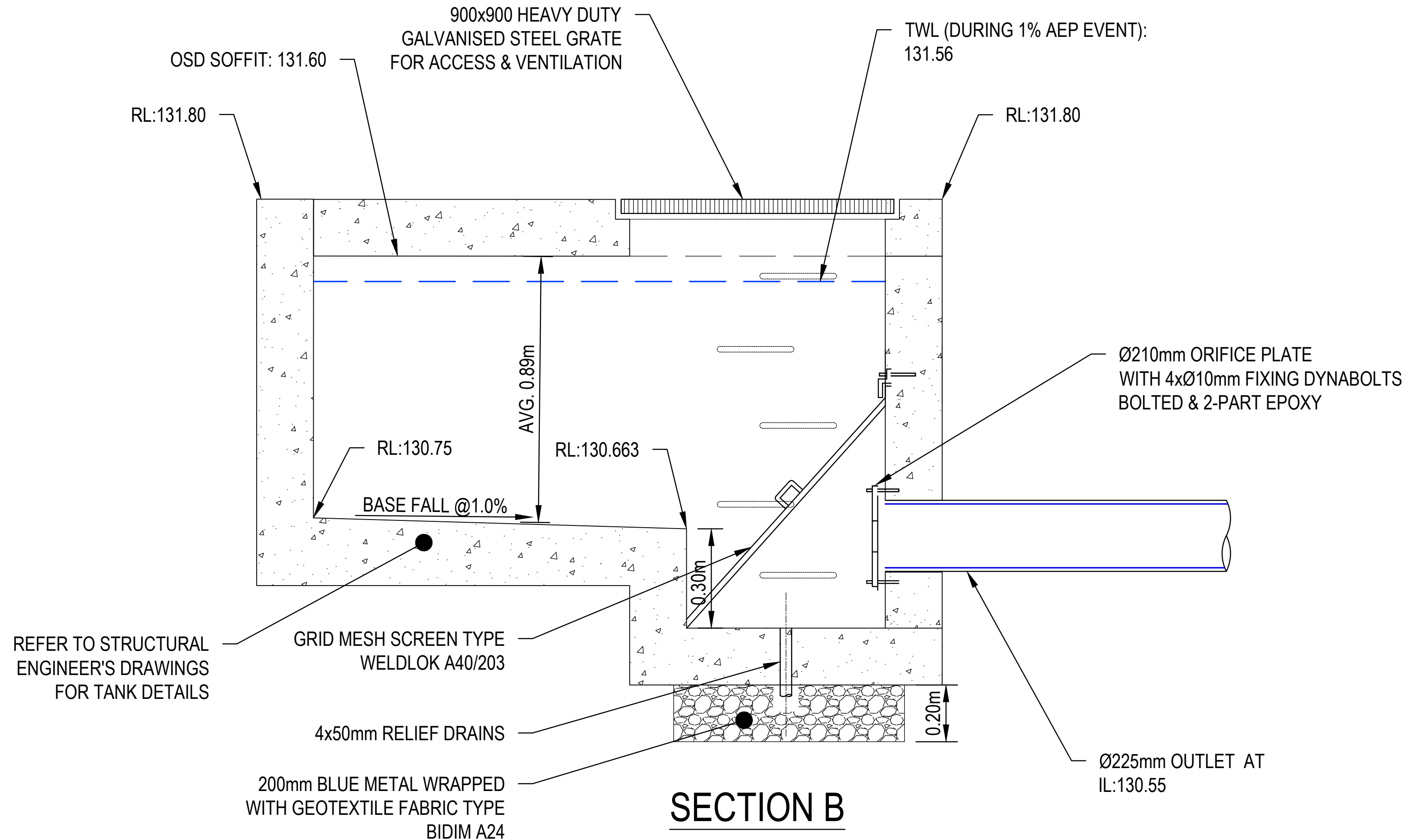
GRATED TRENCH DRAIN

SCALE 1:20



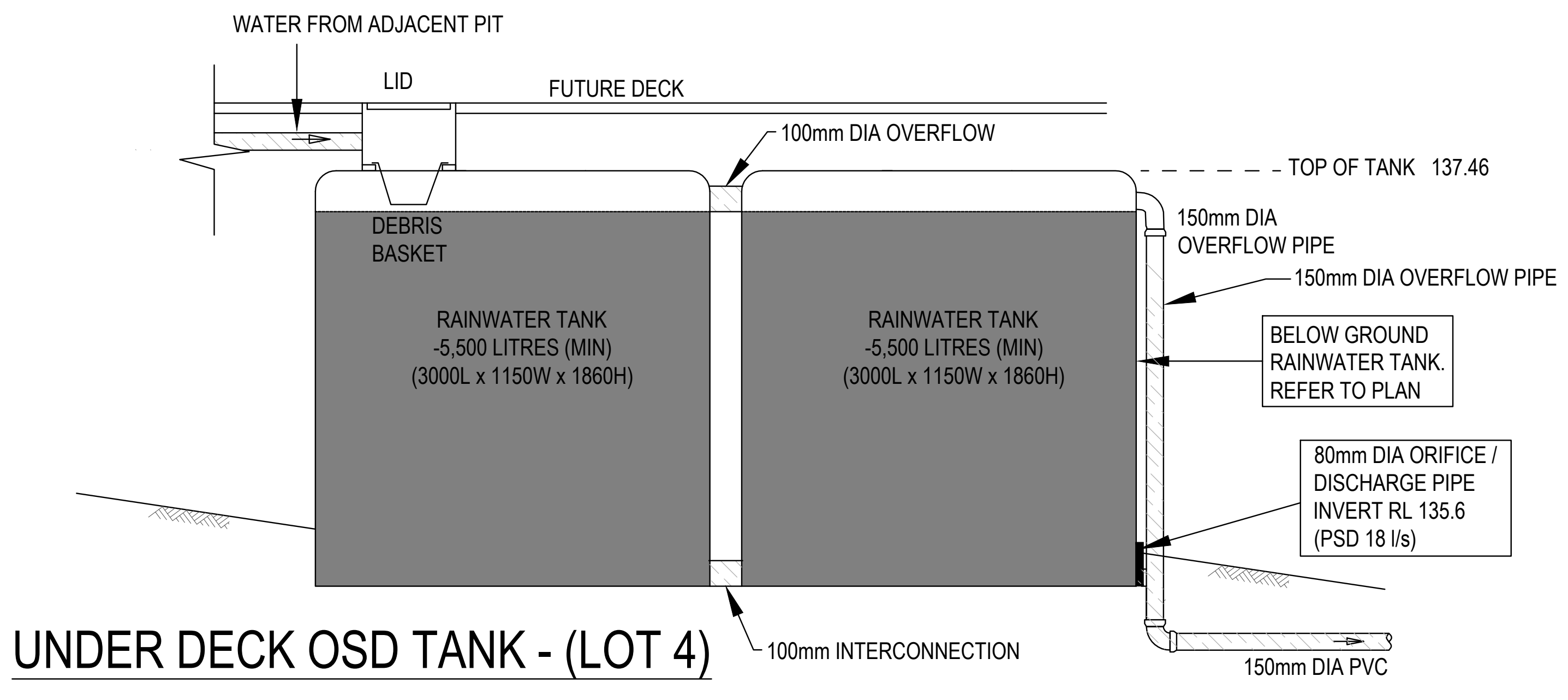
SECTION A

1:20 (A1)



SECTION B

1:20 (A1)



UNDER DECK OSD TANK - (LOT 4)

NTS

REV.	DATE	AMENDMENT	INT.	APP.
9	30/06/2023	ARCHITECTURAL & DRAINAGE REVISED	J.L	J.H
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6	5/09/2022	RETAINING WALL REVISED	J.L	J.H
5	15/08/2022	ISSUED FOR DA	J.L	J.H
4	25/05/2022	ISSUED FOR REVIEW	J.L	J.L
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Client
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Project
PROPOSED SUBDIVISION
12-14 GLADYS AVENUE
FRENCHS FOREST NSW 2030

Drawing Title
STORMWATER DETAILS SHEET

Design: J.L
Drawn: J.L
Validate: J.H

Job Number
20220060

Drawing Number
DA-SW300

Scale: AS NOTED
Date: 30/06/2023
Size: A1
Datum: A.H.D

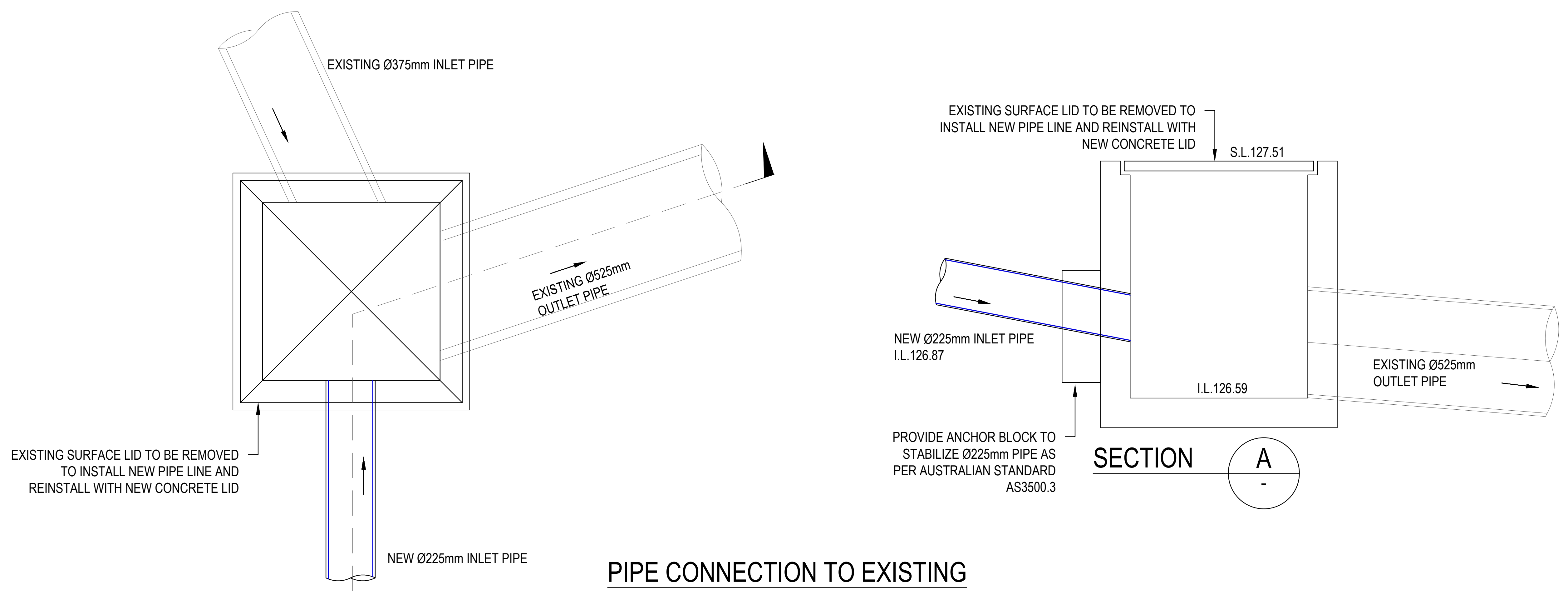
North Point

Status
DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

Scale

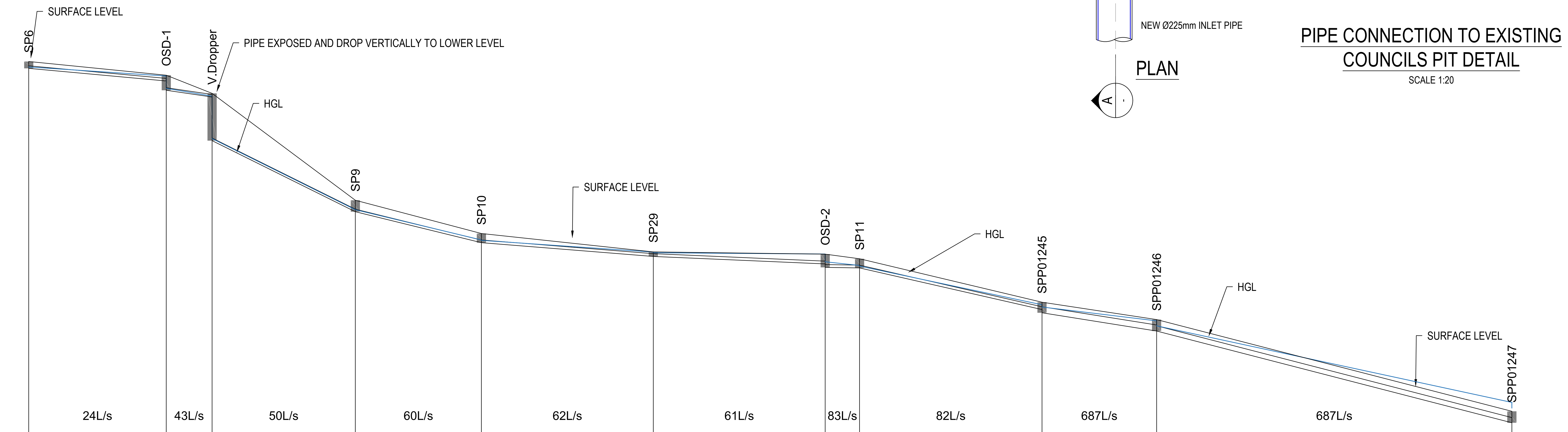
DATE PLOTTED: 3 July 2023 9:57 AM

CAD File: P:\2022\20220060-12-14 Gladys Avenue, Frenchs Forest\Civil\cad\DA-SW300.dwg



PIPE CONNECTION TO EXISTING COUNCILS PIT DETAIL

SCALE 1:20



Chainage	Flow	Size	Grade	HGL (start)	HGL (end)	Invert Level (start)	Invert Level (end)
0 – 12.00	24L/s	225mm	9.17%	148.024	147.234	147.900	146.800
12.00 – 16.00	43L/s	225mm	14.70%	146.161	145.477	145.988	145.400
16.00 – 28.50	50L/s	225mm	49.60%	141.775	135.575	141.600	135.400
28.50 – 39.50	60L/s	225mm	24.55%	135.575	132.942	135.400	132.700
39.50 – 54.50	62L/s	225mm	8.00%	132.902	131.881	132.700	131.500
54.50 – 69.50	61L/s	225mm	4.33%	131.826	131.714	131.500	130.850
69.50 – 72.50	83L/s	225mm	1.67%	131.035	130.720	130.550	130.500
72.50 – 88.42	82L/s	225mm	22.80%	130.658	127.291	130.500	126.870
88.42 – 98.42	687L/s	525mm	15.90%	127.091	125.886	126.590	125.000
98.42 – 129.42	687L/s	450mm	25.81%	125.450	118.774	125.000	117.000

Datum El. 109

Chainage	Surface Level
0	148.5
12.00	147.300
16.00	145.72
28.50	136.4
39.50	133.5
54.50	131.9
69.50	131.700
72.50	131.3
88.42	127.51
98.42	126
129.42	118

HORIZONTAL SCALE 1:250 (A1)
VERTICAL SCALE 1:250 (A1)

REV.	DATE	AMENDMENT	INT.	APP.
9	30/06/2023	ARCHITECTURAL & DRAINAGE REVISED	J.L	J.H
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Project
PROPOSED SUBDIVISION
12-14 GLADYS AVENUE
FRENCHS FOREST NSW 2030

Drawing Title
HGL ANALYSIS & EASEMENT PIT CONNECTION DETAIL

Design	Drawn	Validate
J.L	J.L	J.H

Job Number
20220060

Drawing Number
DA-SW500

Scale
AS NOTED

Date
30/06/2023

Size
A1

Datum
A.H.D

North Point

Status
DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

Scale

DATE PLOTTED: 3 July 2023 9:57 AM

CAD File: P:\2022\20220060-12-14 Gladys Avenue, Frenchs Forest\Civil\cad\DA-SW500.dwg

NOTE

THE STORMWATER PLANS IS TO BE READ IN CONJUNCTION WITH THE STORMWATER SYSTEM ASSESSMENT REPORT PREPARED BY 'NASTASI & ASSOCIATES CONSULTING ENGINEERS'.

ACCORDING TO THE DOWNSTREAM PIPE CAPACITY CALCULATION FROM STORMWATER SYSTEM ASSESSMENT REPORT
'THE ESTIMATED MAXIMUM DISCHARGE RATE FROM 12-14 GLADYS AVE TO PIT SPP01245 SHALL BE 85 L/S FOR 100-YEAR ARI EVENT.'

THE POST DEVELOPMENT TOTAL SITE DISCHARGE TOWARDS THE EXISTING SPP01245 IS ONLY 79L/s WHICH IS LESS THAN THE PERMITTED DISCHARGED FLOW RATE 85L/s. HENCE, THE EXISTING DOWNSTREAM PIPE SYSTEM WILL HAVE ADDITIONAL CAPACITY TO CATER FOR FUTURE DEVELOPMENT WITHIN THE SUBJECT SITE, SUCH AS A GRANNY FLAT.

OSD DESIGN SUMMARY

SITE AREA: 4704m2
EXISTING SITE NODE WAS MODELED AS FULLY UNDEVELOPED NATURAL SURFACE FOR PURPOSE OF MODELING.

POST DEVELOPMENT ROOF AREA TO ABOVE GROUND OSD STORAGE, THEN DISCHARGE TO DRIVEWAY COMMON OSD TANK, THEN THE OVERFLOW DRAINS TO THE LOWER OSD IN LOT 2. LOT 2 ABOVE GROUND OSD TO CAPTURE PART OF PART OF SURFACE RUNOFF AND ROOF RUNOFF TO MINIMISE OSD-2 VOLUME.

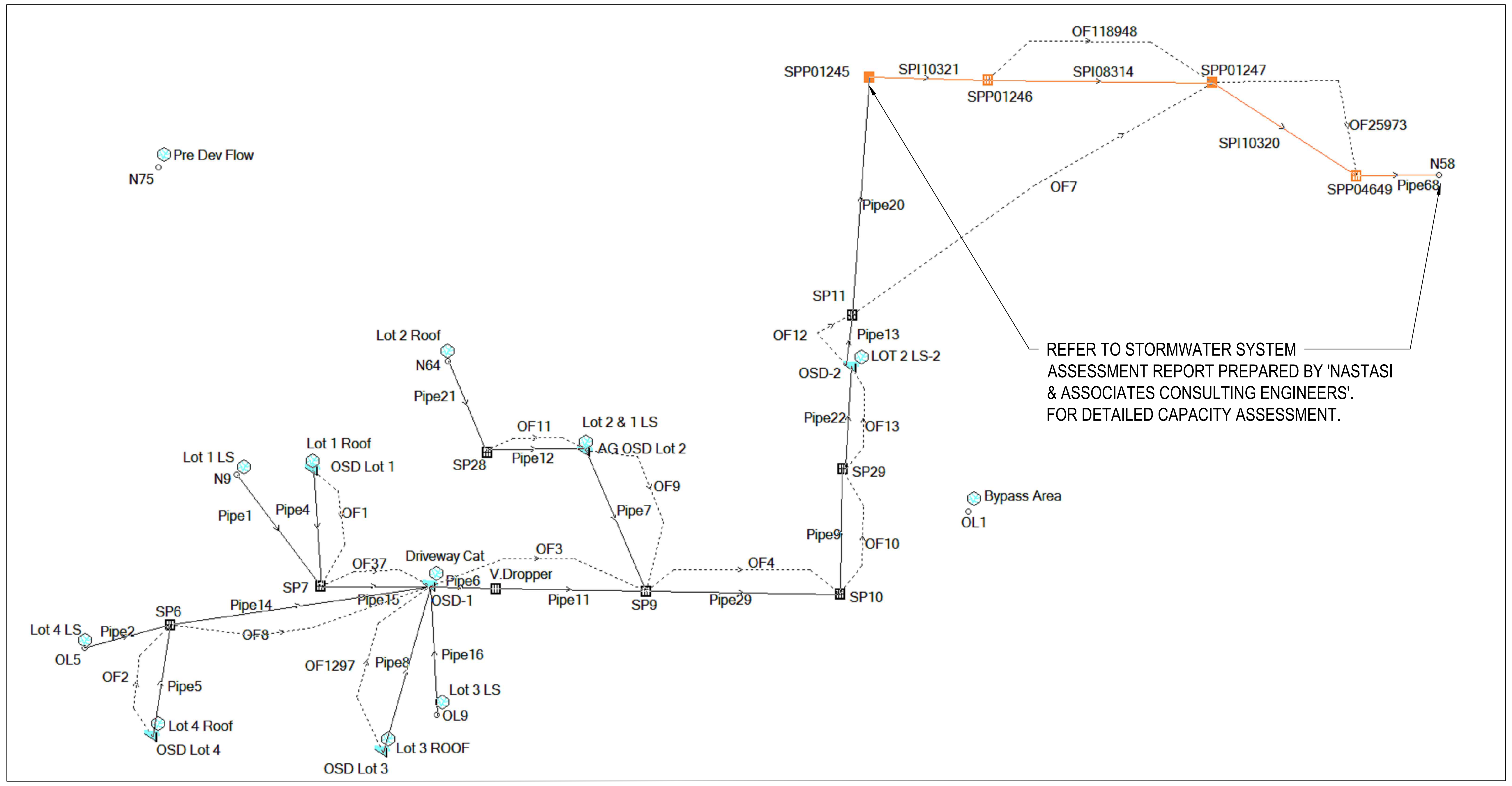
POST DEVELOPMENT BYPASS AREA = 880m2 (18% OF TOTAL SITE AREA)

5YR ARI PRE-DEVELOPMENT DISCHARGE = 88L/s
5YR ARI POST-DEVELOPMENT BYPASS = 17L/s
5YR ARI POST-DEVELOPMENT DISCHARGE = 47L/s

20YR ARI PRE-DEVELOPMENT DISCHARGE = 137L/s
20YR ARI POST-DEVELOPMENT BYPASS = 26L/s
20YR ARI POST-DEVELOPMENT DISCHARGE = 63L/s

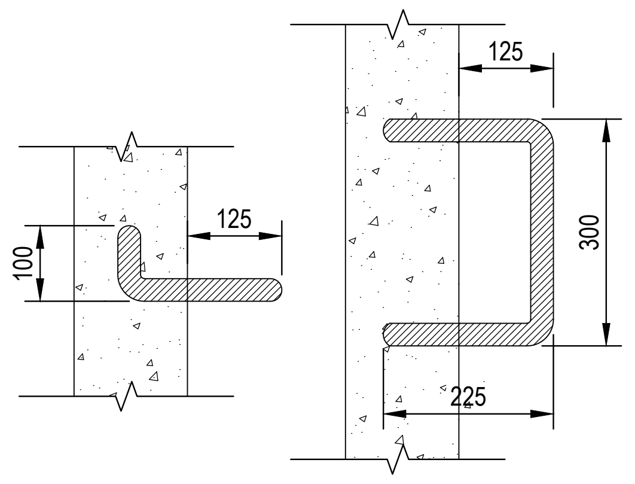
100YR ARI PRE-DEVELOPMENT DISCHARGE = 206L/s
100YR ARI POST-DEVELOPMENT BYPASS = 38L/s
100YR ARI POST-DEVELOPMENT DISCHARGE = 82L/s

ABOVEGROUND OSD VOLUME FOR LOT 1 REQUIRED BY 'DRAINS' MODEL= 5.7m3
ABOVEGROUND OSD VOLUME FOR LOT 2 REQUIRED BY 'DRAINS' MODEL= 11.0m3
ABOVEGROUND OSD VOLUME FOR LOT 3 REQUIRED BY 'DRAINS' MODEL= 5.6m3
ABOVEGROUND OSD VOLUME FOR LOT 4 REQUIRED BY 'DRAINS' MODEL= 6.9m3
UNDERGROUND OSD - 1 VOLUME UNDER DRIVEWAY REQUIRED BY 'DRAINS' MODEL= 54.0m3
UNDERGROUND OSD - 2 VOLUME REQUIRED BY 'DRAINS' MODEL= 3.0m3



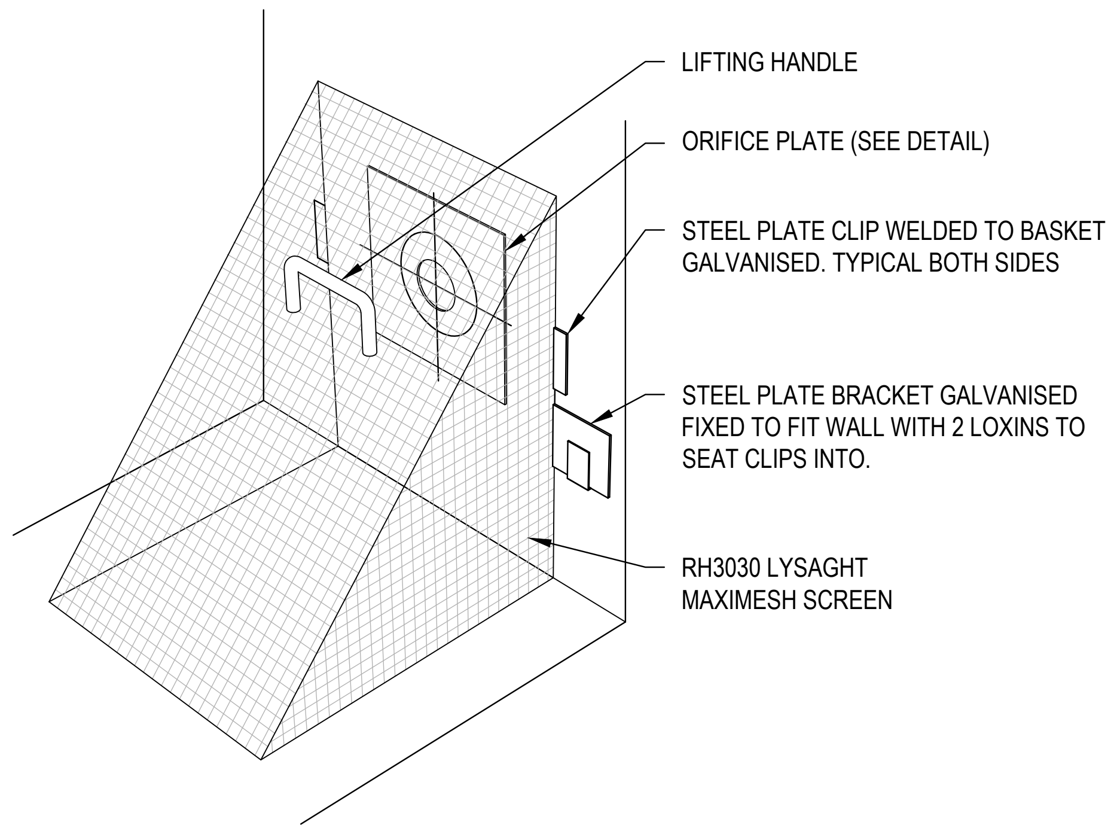
REFER TO STORMWATER SYSTEM ASSESSMENT REPORT PREPARED BY 'NASTASI & ASSOCIATES CONSULTING ENGINEERS'. FOR DETAILED CAPACITY ASSESSMENT.

1%AEP DRAINS LAYOUT



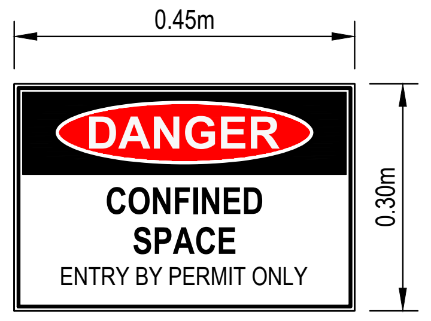
STEP IRONS

SCALE 1:10



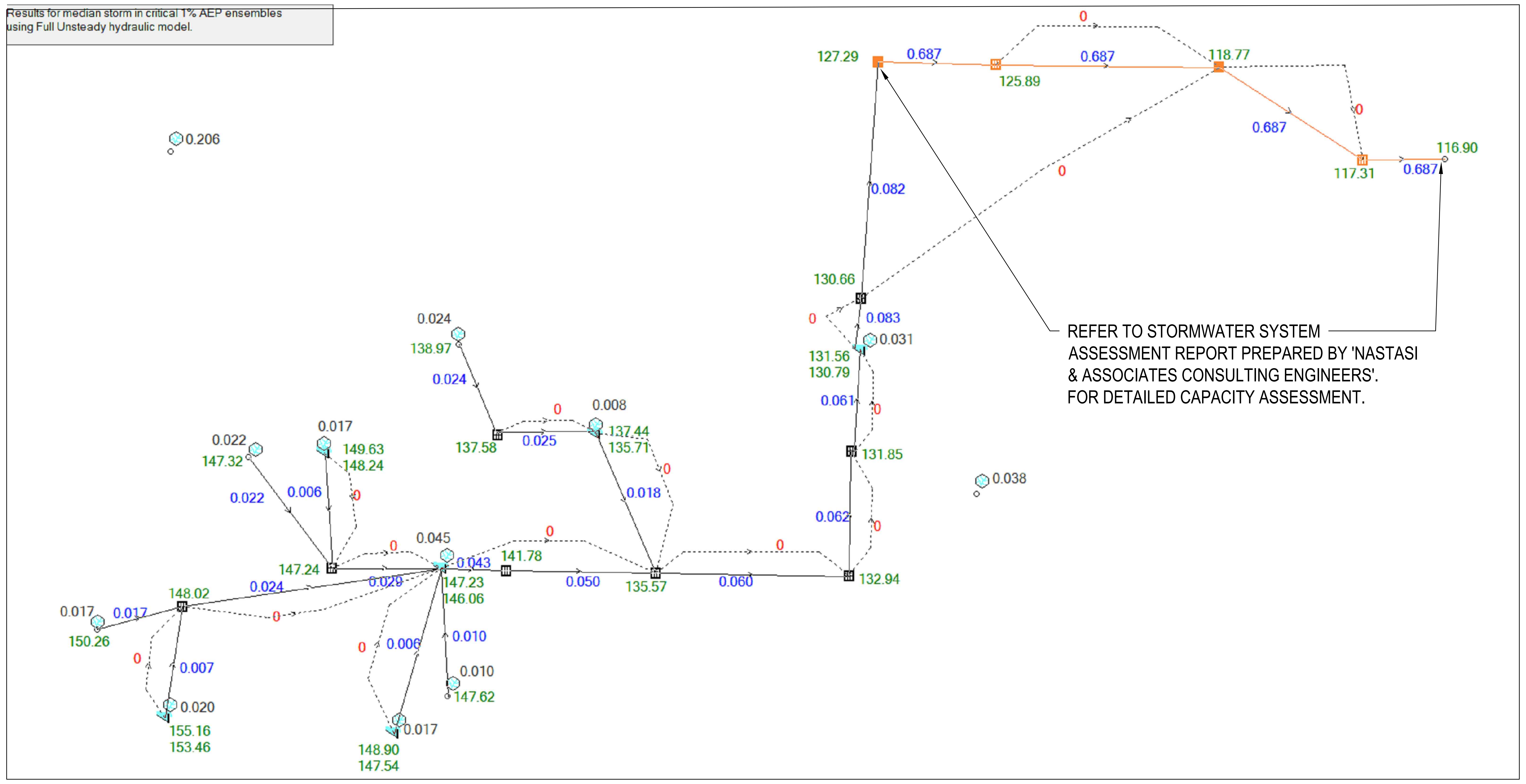
DEBRIS SCREEN

SCALE 1:10



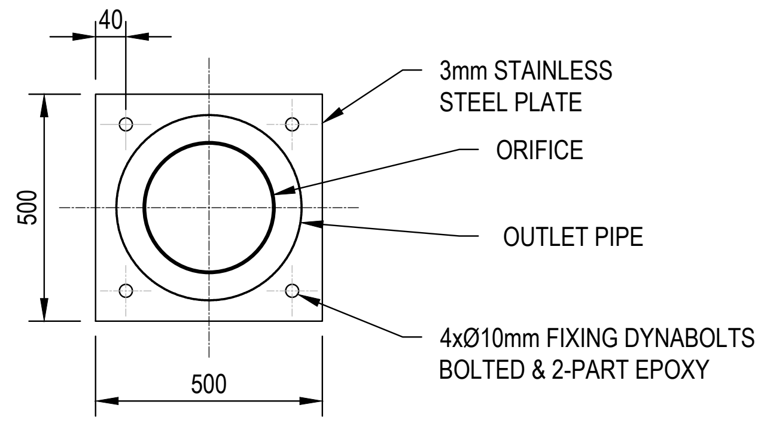
CONFINED SPACE SIGN

SCALE 1:10



REFER TO STORMWATER SYSTEM ASSESSMENT REPORT PREPARED BY 'NASTASI & ASSOCIATES CONSULTING ENGINEERS'. FOR DETAILED CAPACITY ASSESSMENT.

1%AEP DRAINS RESULTS



ORIFICE PLATE

NTS

THIS IS AN

ON-SITE STORMWATER DETENTION SYSTEM

REQUIRED BY YOUR LOCAL COUNCIL

IT IS AN OFFENSE TO REDUCE THE VOLUME OF THE TANK OR BASIN OR INTERFERE WITH THE ORIFICE PLATE THAT CONTROLS THE OUTFLOW

THE BASE OF THE OUTLET CONTROL PIT AND THE DEBRIS SCREEN MUST BE CLEANED OF DEBRIS AND SEDIMENT ON A REGULAR BASIS BY THE OWNER

THIS PLATE MUST NOT BE REMOVED

OSD SIGN

NOT TO SCALE

REV.	DATE	AMENDMENT	INT.	APP.
9	30/06/2023	ARCHITECTURAL & DRAINAGE REVISED	J.L	J.H
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EMAIL: Jason@jcoconsultants.com.au

Project
PROPOSED SUBDIVISION
12-14 GLADYS AVENUE
FRENCHS FOREST NSW 2030

Drawing Title
DRAINS MODEL DATA & RESULTS - 1 & DETAILS

Design: J.L
Drawn: J.L
Validate: J.H

Job Number: 20220060
Drawing Number: DA-SW501
Scale: NTS
Date: 30/06/2023
Size: A1
Datum: A.H.D
North Point
Status: DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION
Scale

DATE PLOTTED: 3 July 2023 9:57 AM

CAD File: P:\2022\20220060-12-14 Gladys Avenue, Frenchs Forest\Civil\cad\DA-SW501.dwg

PIT / NODE DETAILS — Version 15

Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-dowr lid	id	Part Full Shock Los	Inflow Hydrograph	Pit is	Internal Width (mm)	Inflow is Misaligne	Minor Saf Pond Dep (m)	Major Safe Pond Depth (m)
SP7	OnGrade	NWS Pits	GSIP 600x600		1.5	147.55		0	0.5	724.742	-176.915	No	48416352	1 x Ku	No	New		No		
V.Dropper	OnGrade	Downpipe	Downpipe		3	145.72		0	0	761.431	-177.319	No	84502735	1 x Ku	No	New		No		
SP9	OnGrade	NWS Pits	GSIP 900x900		0.6	136.4		0	0.5	792.865	-177.917	No	47	1 x Ku	No	New		No		
SP10	OnGrade	NWS Pits	GSIP 900x900		1.8	133.5		0	0.5	833.565	-178.498	No	128	1 x Ku	No	New		Yes		
SP29	OnGrade	NWS Pits	GSIP 900x900		1.8	131.9		0	0.5	834.269	-152.071	No	1.98E+08	1 x Ku	No	New				
SP11	OnGrade	NWS Pits	GSIP 600x600		0.2	131.3		0	0.5	836.084	-119.961	No	66	1 x Ku	No	New		No		
SPP01245	OnGrade	Junction Pit or Manhole	Junction Pit or Manhole		1.3	127.51		0.605	0	839.712	-70.005	Yes	72	1 x Ku	No	Existing		Yes		
SPP01246	OnGrade	NWS Pits	GSIP 900x900		0.9	126		0	0.5	864.551	-70.563	No	95	1 x Ku	No	Existing		No		
SPP01247	OnGrade	Junction Pit or Manhole	Junction Pit or Manhole		1	118		0	0	911.715	-71.121	Yes	179	1 x Ku	No	Existing		Yes		
SPP04649	OnGrade	NSW Dept. of Housing R	RM7		0.3	117.8		0	0.5	941.856	-90.657	No	190	1 x Ku	No	Existing		No		
N58	Node					117.5		0		959.275	-90.51		184		No					
SP6	OnGrade	NWS Pits	GSIP 600x600		1.1	148.5		0	0.5	693.055	-184.894	No	48416247	1 x Ku	No	New		No		
N9	Node					150		0		707.009	-153.497		39		No					
N75	Node							0		690.683	-88.983		371		No					
OL1	Node							0		860.504	-161.172		18076853		No					
Pit90275	OnGrade	Junction Pit or Manhole	Junction Pit or Manhole		1.5	127.51		0.601	0	839.573	-27.678	Yes	54972897	1 x Ku	No	Existing				
Pit90368	OnGrade	NWS Pits	GSIP 900x900		0.9	126		0	0.5	865.853	-26.98	No	54972990	1 x Ku	No	Existing		No		
Pit90460	OnGrade	Junction Pit or Manhole	Junction Pit or Manhole		1	118		0	0	909.343	-28.841	Yes	54973082	1 x Ku	No	Existing		Yes		
Pit90553	OnGrade	NSW Dept. of Housing R	RM7		1.4	117.8		0	0.5	939.344	-40.469	No	54973175	1 x Ku	No	Existing		Yes		
N207083	Node					117.5		0		979.579	-43.957		54973275		No					
OL9	Node					148		0		749.065	-203.887		70001733		No					
OL5	Node					150.5		0		675.031	-189.739		92071704		No					
N64	Node					139		0		751.273	-129.699		1.84E+08		No					
SP28	OnGrade	NWS Pits	GSIP 900x900		1.5	137.8		0	0	759.69	-148.726	No	1.12E+08	1 x Ku	No	New				

DETENTION BASIN DETAILS

Name	Elev	Surf. Area	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Leng	id
OSD Lot 1	148.2	4		Orifice		50	148.25			723.056	-152.567	No			13
	150.22	4													
OSD-1	145.9	0.81		Orifice		137	146.013			747.634	-176.845	No			92068988
	146.1	0.81													
	146.11	48													
	147.3	48													
OSD-2	130.55	3		Orifice		210	130.67			836.053	-130.829	No			16
	131.7	3													
OSD Lot 3	147.5	4		Orifice		50	147.55			737.63	-211.639	No			24
	149.52	4													
OSD Lot 4	153.43	4		Orifice		50	153.48			689.373	-208.344	No			26
	155.45	4													
AG OSD Lot 2	135.6	6		Orifice		80	135.675			780.14	-148.629	No			1.64E+08
	137.46	6													

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area (ha)	Paved Area %	Grass Area %	Supp Area %	Paved Time (min)	Grass Time (min)	Supp Time (min)	Paved Length (m)	Grass Length (m)	Supp Length (m)	Paved Slope(%) %	Grass Slope %	Supp Slope %	Paved Rough	Grass Rough	Supp Rough	Lag Time or Factor	Gutter Length (m)	Gutter Slope %	Gutter FlowFacto	Rainfall Multiplier
Lot 1 Roof	OSD Lot 1	0.0238	100	0	0	5	10	2										0				1
Driveway Cat	OSD-1	0.061	100	0	0	5	10	2										0				1
LOT 2 LS-2	OSD-2	0.07	0	100	0	5	12	2										0				1
Lot 3 ROOF	OSD Lot 3	0.0234	100	0	0	5	10	2										0				1
Lot 4 Roof	OSD Lot 4	0.0276	100	0	0	5	10	2										0				1
Lot 1 LS	N9	0.0494	0	100	0	5	12	2										0				1
Pre Dev Flow	N75	0.4704	0	100	0	5	13	2										0				1
Bypass Area	OL1	0.088	10	90	0	5	13	2										0				1
Lot 3 LS	OL9	0.0229	0	100	0	5	12	2										0				1
Lot 4 LS	OL5	0.0388	0	100	0	5	12	2										0				1
Lot 2 Roof	N64	0.047	34	66	0	5	10	2										0				1
Lot 2 & 1 LS	AG OSD Lot 2	0.0167	20	80	0	5	10	2										0				1

PIPE DETAILS

Name	From	To	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Type	Dia (mm)	I.D. (mm)	Rough	Pipe Is	No. Pipes	Chg From	At Chg	Chg (m)	RI (m)	Chg (m)	RL (m)	etc (m)
Pipe4	OSD Lot 1	SP7	25	148.2	146.8	5.6	Concrete,	150	150	0.013	NewFixec	1	OSD Lot 1	0					
Pipe15	SP7	OSD-1	2	146.8	146.7	5	Concrete,	225	225	0.013	NewFixec	1	SP7	0					
Pipe6	OSD-1	V.Dropper	4	145.988	145.4	14.7	Concrete,	225	225	0.013	NewFixec	1	OSD-1	0					
Pipe11	V.Dropper	SP9	12.5	141.6	135.4	49.6	Concrete,	225	225	0.013	NewFixec	1	V.Droppe	0					
Pipe29	SP9	SP10	11	135.4	132.7	24.55	Concrete,	225	225	0.013	NewFixec	1	SP9	0					
Pipe9	SP10	SP29	15	132.7	131.5	8	uPVC, not	225	242	0.012	NewFixec	1	SP10	0					
Pipe22	SP29	OSD-2	15	131.5	130.85	4.33	uPVC, not	225	242	0.012	NewFixec	1	SP29	0					
Pipe13	OSD-2	SP11	3	130.55	130.5	1.67	uPVC, not	225	242	0.012	NewFixec	1	OSD-2	0					
Pipe20	SP11	SPP01245	15.92	130.5	126.87	22.8	uPVC, not	225	242	0.012	NewFixec	1	SP11	0					
SPI10321	SPP01245	SPP01246	10	126.59	125	15.9	Concrete,	525	525	0.013	Existing	1	SPP01245	0					
SPI08314	SPP01246	SPP01247	31	125	117	25.81	Concrete,	450	450	0.013	Existing	1	SPP01246	0					
SPI10320	SPP01247	SPP04649	38	117	116.5	1.32	Concrete,	525	525	0.013	Existing	1	SPP01247	0					
Pipe68	SPP04649	N58	10	116.5	116.4	1	Concrete,	525	525	0.013	Existing	1	SPP04649	0					
Pipe8	OSD Lot 3	OSD-1	22	147.5	146	6.82	Concrete,	150	150	0.013	NewFixec	1	OSD Lot 3	0					
Pipe5	OSD Lot 4	SP6	25	153.43	148	21.72	Concrete,	150	150	0.013	NewFixec	1	OSD Lot 4	0					
Pipe14	SP6	OSD-1	12	147.9	146.8	9.17	Concrete,	225	225	0.013	NewFixec	1	SP6	0					
Pipe1	N9	SP7	10	147	146.8	2	Concrete,	150	150	0.013	NewFixec	1	N9	0					
P156602	Pit90275	Pit90368	10	126.59	125	15.9	Concrete,	525	525	0.013	Existing	1	Pit90275	0					
P156698	Pit90368	Pit90460	31	125	117	25.81	Concrete,	450	450	0.013	Existing	1	Pit90368	0					
P156792	Pit90460	Pit90553	38	117	116.5	1.32	Concrete,	525	525	0.013	Existing	1	Pit90460	0					
P156886	Pit90553	N207083	10	116.5	116.4	1	Concrete,	525	525	0.013	Existing	1	Pit90553	0					
Pipe16	OL9	OSD-1	30	146.8	146.5	1	uPVC, not	100	105	0.012	NewFixec	1	OL9	0					
Pipe2	OL5	SP6	25	150.2	147.9	9.2	uPVC, not	150	154	0.012	New	1	OL5	0					
Pipe21	N64	SP28	10	138.6	137.4	12	uPVC, not	100	105	0.012	NewFixec	1	N64	0					
Pipe12	SP28	AG OSD Lot 2	13	137.4	136.7	5.38	uPVC, not	150	154	0.012	NewFixec	1	SP28	0					
Pipe7	AG OSD Lot 2	SP9	10	135.6	135.4	2	Concrete,	150	150	0.013	NewFixec	1	AG OSD Lc	0					

OVERFLOW ROUTE DETAILS

Name	From	To	Travel Time (min)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Dept Major Stoi (m)	SafeDeptl Minor Sto (m)	Safe DxV (sq.m/sec	Bed Slope (%)	D/S Area Contributing %		id	U/S IL	D/S IL	Length (m)
OF1	OSD Lot 1	SP7	0.1	150.22	0.9	1.7	4 m wide	0.3	0.15	0.4	11.08	0		1160623	150.22	147.55	25
OF37	SP7	OSD-1	0.1				4 m wide	0.3	0.15	0.4	0.5	0		48416388	147.55	147.5	10
OF3	OSD-1	SP9	0.1	147.5	0.9	1.7	4 m wide	0.3	0.15	0.4	55.5	0		1160625	147.5	136.4	20
OF4	SP9	SP10	0.1				Swale wit	0.45	0.3	1	25.68	0		1160626	136.4	133.5	18.11
OF10	SP10	SP29	0.1				4 m wide	0.3	0.15	0.4	11.33	0		1.98E+08	133.5	131.9	15
OF13	SP29	OSD-2	0.1				4 m wide	0.3	0.15	0.4	0.67	0		1.98E+08	131.9	131.8	15
OF12	OSD-2	SP11	0.1	131.7	0.9	1.7	Swale wit	0.45	0.3	1	10	0		1.17E+08	131.7	131.3	3
OF7	SP11	SPP01247	0.2				4 m wide	0.3	0.15	0.4	26.6	0		1160629	131.3	118	50
OF118948	SPP01246	SPP01247	0.1				4 m wide	0.3	0.15	0.4	25.81	0		61130854	126	118	31
OF25973	SPP01247	SPP04649	0.3				4 m wide	0.3	0.15	0.4	1	0		17659894	118	117.8	38
OF1297	OSD Lot 3	OSD-1	0.1	149.52	0.9	1.7	4 m wide	0.3	0.15	0.4	30.2	0		2316612	149.52	147.5	22
OF2	OSD Lot 4	SP6	0.1	155.45	0.1	1.7	4 m wide	0.3	0.15	0.4	27.4	0		1160624	155.45	148.5	25
OF8	SP6	OSD-1	0.1				4 m wide	0.3	0.15	0.4	8.75	0		48416381	148.5	147.5	12
OF118945	Pit90368	Pit90460	0.1				4 m wide	0.3	0.15	0.4	25.81	0		61130851	126	118	31
OF107558	Pit90460	Pit90553	0.3				4 m wide	0.3	0.15	0.4	1	0		54973840	118	117.8	38
OF11	SP28	AG OSD Lot 2	0.1				4 m wide	0.3	0.15	0.4	0.77	0		1.26E+08	137.8	137.7	13
OF9	AG OSD Lot 2	SP9	0.1	137.46	0.9	1.7	4 m wide	0.3	0.15	0.4	10.6	0		1160632	137.46	136.4	10

PIPE COVER DETAILS

Name	Type	Dia (mm)	Safe Cove	Cover (m)
Pipe4	Concrete, not under roads, 0.5% minimum slope	150	0.45	-0.18
Pipe15	Concrete, not under roads, 0.5% minimum slope	225	0.45	-1.06
Pipe6	Concrete, not under roads, 0.5% minimum slope	225	0.45	-0.34
Pipe11	Concrete, not under roads, 0.5% minimum slope	225	0.45	0.74
Pipe29	Concrete, not under roads, 0.5% minimum slope	225	0.45	0.54
Pipe9	uPVC, not under roads, 1% minimum slope	242	0.3	0.15
Pipe22	uPVC, not under roads, 1% minimum slope	242	0.3	-0.55
Pipe13	uPVC, not under roads, 1% minimum slope	242	0.3	-0.25
Pipe20	uPVC, not under roads, 1% minimum slope	242	0.3	0.39
SPI10321	Concrete, not under roads, 0.5% minimum slope	525	0.45	0.35
SPI08314	Concrete, not under roads, 0.5% minimum slope	450	0.45	0.51
SPI10320	Concrete, not under roads, 0.5% minimum slope	525	0.45	0.43
Pipe68	Concrete, not under roads, 0.5% minimum slope	525	0.45	0.53
Pipe8	Concrete, not under roads, 0.5% minimum slope	150	0.45	-0.28
Pipe5	Concrete, not under roads, 0.5% minimum slope	150	0.45	-0.18
Pipe14	Concrete, not under roads, 0.5% minimum slope	225	0.45	-1.16
Pipe1	Concrete, not under roads, 0.5% minimum slope	150	0.45	0.57
P156602	Concrete, not under roads, 0.5% minimum slope	525	0.45	0.35
P156698	Concrete, not under roads, 0.5% minimum slope	450	0.45	0.51
P156792	Concrete, not under roads, 0.5% minimum slope	525	0.45	0.43
P156886	Concrete, not under roads, 0.5% minimum slope	525	0.45	0.53
Pipe16	uPVC, not under roads, 1% minimum slope	105	0.3	-0.71
Pipe2	uPVC, not under roads, 1% minimum slope	154	0.3	0.14
Pipe21	uPVC, not under roads, 1% minimum slope	105	0.3	0.29
Pipe12	uPVC, not under roads, 1% minimum slope	154	0.3	-1.26
Pipe7	Concrete, not under roads, 0.5% minimum slope	150	0.45	-0.18

This model has no pipes with non-return valves

DRAINS DATA

DRAINS results prepared from Version 2022.012

PIT / NODE DETAILS — Version 8

Name	Max HGL	Max Pond HGL	Max Surfa Flow Arriv (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboarc (m)	Overflow (cu.m/s)	Constraint
SP7	147.24		0		0.31	0	None
V.Dropper	141.78		0		3.94		None
SP9	135.57		0.014		0.83	0	None
SP10	132.94		0		0.56	0	None
SP29	131.85		0		0.05	0	None
SP11	130.66		0		0.64	0	None
SPP01245	127.29		0		0.22		None
SPP01246	125.89		0		0.11	0	None
SPP01247	118.77		0		0	0	Outlet System
SPP04649	117.31		0		0.49		None
N58	116.9		0				
SP6	148.02		0		0.48	0	None
N9	147.32		0.024				
Pit90275	127.23		0		0.28		None
Pit90368	125.69		0		0.31	0	None
Pit90460	118.77		0		0	0	Outlet System
Pit90553	117.64		0		0.16		None
N207083	116.89		0				
OL9	147.62		0.011				
OL5	150.26		0.019				
N64	138.97		0.031				
SP28	137.58		0		0.22	0	None

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
Lot 1 Roof	0.017	0.017	0	5	10	2	1% AEP, 5 min burst, Storm 1
Driveway Cat	0.045	0.045	0	5	10	2	1% AEP, 5 min burst, Storm 1
LOT 2 LS-2	0.031	0	0.031	5	12	2	1% AEP, 15 min burst, Storm 8
Lot 3 ROOF	0.017	0.017	0	5	10	2	1% AEP, 5 min burst, Storm 1
Lot 4 Roof	0.02	0.02	0	5	10	2	1% AEP, 5 min burst, Storm 1
Lot 1 LS	0.022	0	0.022	5	12	2	1% AEP, 15 min burst, Storm 8
Pre Dev Flow	0.206	0	0.206	5	13	2	1% AEP, 15 min burst, Storm 8
Bypass Area	0.038	0.005	0.035	5	13	2	1% AEP, 15 min burst, Storm 8
Lot 3 LS	0.01	0	0.01	5	12	2	1% AEP, 15 min burst, Storm 8
Lot 4 LS	0.017	0	0.017	5	12	2	1% AEP, 15 min burst, Storm 8
Lot 2 Roof	0.024	0.01	0.014	5	10	2	1% AEP, 10 min burst, Storm 7
Lot 2 & 1 LS	0.008	0.002	0.006	5	10	2	1% AEP, 10 min burst, Storm 7

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
Pipe4	0.006	0.35	149.463	147.243	1% AEP, 25 min burst, Storm 1
Pipe15	0.029	0.73	147.231	147.228	1% AEP, 15 min burst, Storm 3
Pipe6	0.043	3.61	146.161	145.476	1% AEP, 45 min burst, Storm 2
Pipe11	0.05	1.51	141.775	135.575	1% AEP, 25 min burst, Storm 6
Pipe29	0.06	1.8	135.575	132.942	1% AEP, 25 min burst, Storm 3
Pipe9	0.062	1.51	132.902	131.852	1% AEP, 25 min burst, Storm 1
Pipe22	0.061	1.45	131.707	131.564	1% AEP, 25 min burst, Storm 10
Pipe13	0.083	1.89	131.035	130.72	1% AEP, 20 min burst, Storm 4
Pipe20	0.082	2.59	130.658	127.291	1% AEP, 20 min burst, Storm 4
SPI10321	0.687	3.23	127.091	125.886	1% AEP, 20 min burst, Storm 4
SPI08314	0.687	4.32	125.45	118.774	1% AEP, 20 min burst, Storm 4
SPI10320	0.687	3.17	118.278	117.314	1% AEP, 20 min burst, Storm 4
Pipe68	0.687	3.22	117.159	116.904	1% AEP, 20 min burst, Storm 4
Pipe8	0.006	0.35	148.766	147.228	1% AEP, 25 min burst, Storm 1
Pipe5	0.007	2.81	154.661	148.03	1% AEP, 25 min burst, Storm 1
Pipe14	0.024	1.06	148.024	147.228	1% AEP, 20 min burst, Storm 7
Pipe1	0.022	1.25	147.317	147.243	1% AEP, 15 min burst, Storm 8
P156602	0.601	2.89	127.073	125.688	1% AEP, 5 min burst, Storm 1
P156698	0.601	3.78	125.45	118.774	1% AEP, 5 min burst, Storm 1
P156792	0.601	2.78	118.38	117.642	1% AEP, 5 min burst, Storm 1
P156886	0.601	2.86	117.085	116.89	1% AEP, 5 min burst, Storm 1
Pipe16	0.01	1.18	147.619	147.228	1% AEP, 15 min burst, Storm 8
Pipe2	0.017	2.57	150.26	148.024	1% AEP, 15 min burst, Storm 8
Pipe21	0.024	2.78	138.968	137.582	1% AEP, 10 min burst, Storm 7
Pipe12	0.025	1.43	137.537	137.441	1% AEP, 10 min burst, Storm 3
Pipe7	0.018	1.01	137.144	135.575	1% AEP, 20 min burst, Storm 9

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)			Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Widt	Max V	Due to Storm
OF1	0	0	1.362	0	0	0	0	
OF37	0	0	1.497	0	0	0	0	
OF3	0	0	1.228	0	0	0	0	
OF4	0	0	0.983	0	0	0	0	
OF10	0	0	1.346	0	0	0	0	
OF13	0	0	1.497	0	0	0	0	
OF12	0	0	1.292	0	0	0	0	
OF7	0	0	1.302	0	0	0	0	
OF118948	0	0	1.283	0	0	0	0	
OF25973	0	0	1.479	0	0	0	0	
OF1297	0	0	1.26	0	0	0	0	
OF2	0	0	1.281	0	0	0	0	
OF8	0	0	1.383	0	0	0	0	
OF118945	0	0	1.283	0	0	0	0	
OF107558	0	0	1.479	0	0	0	0	
OF11	0	0	1.49	0	0	0	0	
OF9	0	0	1.363	0	0	0	0	

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
OSD Lot 1	149.63	5.7	0.006	0.006	0
OSD-1	147.23	54	0.043	0.043	0
OSD-2	131.56	3	0.083	0.083	0
OSD Lot 3	148.9	5.6	0.006	0.006	0
OSD Lot 4	155.16	6.9	0.007	0.007	0
AG OSD Lot 2	137.44	11	0.018	0.018	0

Run Log for 220060v9.drn run at 15:04:25 on 30/6/2023 using version 2022.012

No water upwelling from any pit.

Freeboard was less than 0.15m at SP29, SPP01246

Flows were safe in all overflow routes.

1%AEP DRAINS RESULTS

REV.	DATE	AMENDMENT	INT.	APP.
9	30/06/2023	ARCHITECTURAL & DRAINAGE REVISED	J.L	J.H
8	7/06/2023	REVISED PER ARBORIST REPORT	J.L	J.H
7	10/05/2023	RETAINING WALL REVISED	J.L	J.H
6	5/09/2022	RETAINING WALL REVISED	J.L	J.H
5	15/08/2022	ISSUED FOR DA	J.L	J.H
4	25/05/2022	ISSUED FOR REVIEW	J.L	J.L
3	19/05/2022	ISSUED FOR REVIEW	J.L	J.L

Client
JACK ZHANG

Architect
NKP ARCHITECURE

JCO CONSULTANTS PTY LTD
SUITE 801C, No.1 RIDER BOULEVARD, RHODES NSW 2138
EMAIL: Jason@jcoconsultants.com.au

Project
PROPOSED SUBDIVISION
12-14 GLADYS AVENUE
FRENCHS FOREST NSW 2030

Drawing Title
DRAINS MODEL DATA & RESULTS - 2

Design J.L
Drawn J.L
Validate J.H

Job Number
20220060

Drawing Number
DA-SW502

Scale NTS
Date 30/06/2023
Size A1
Datum A.H.D

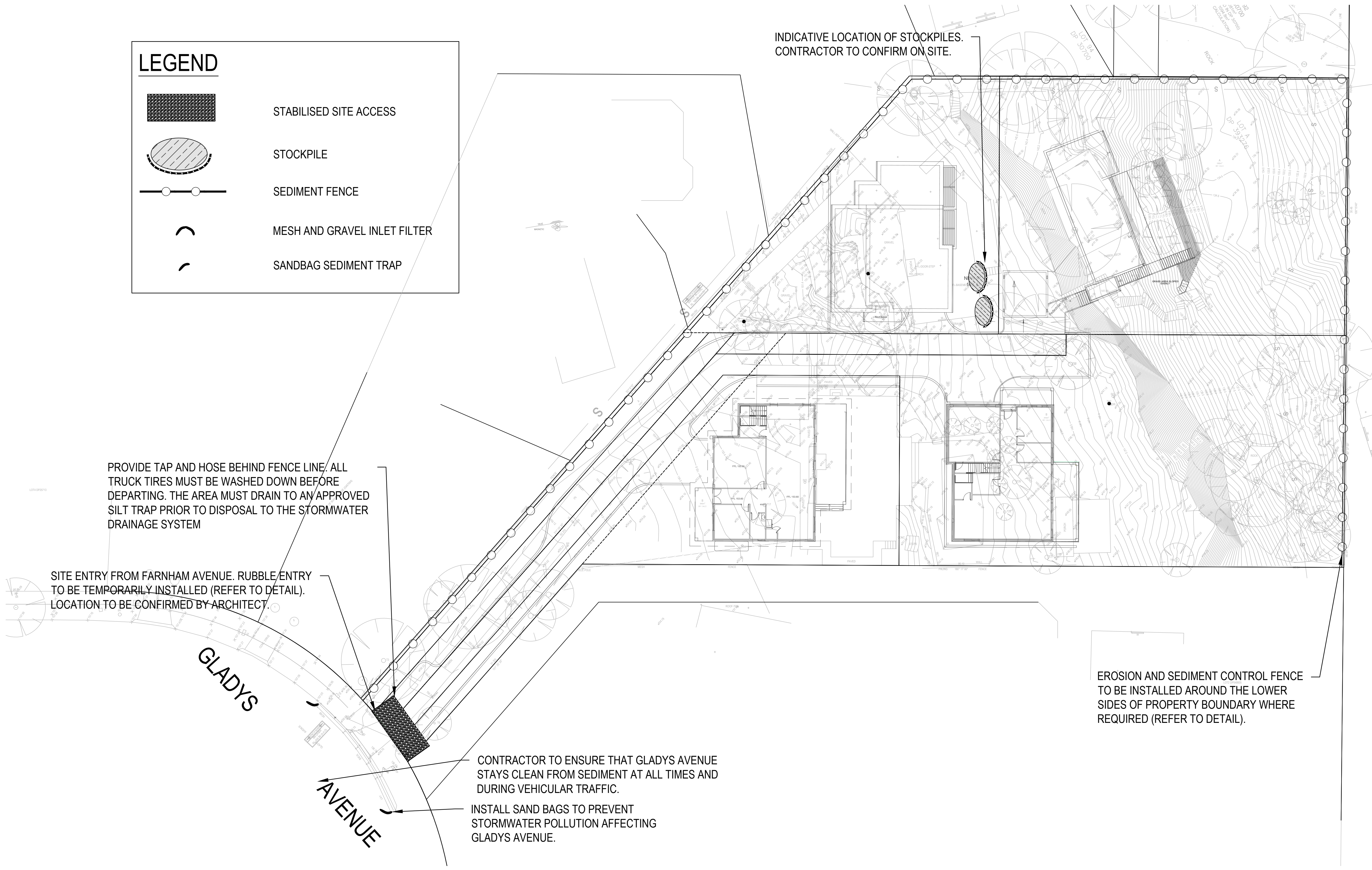
North Point

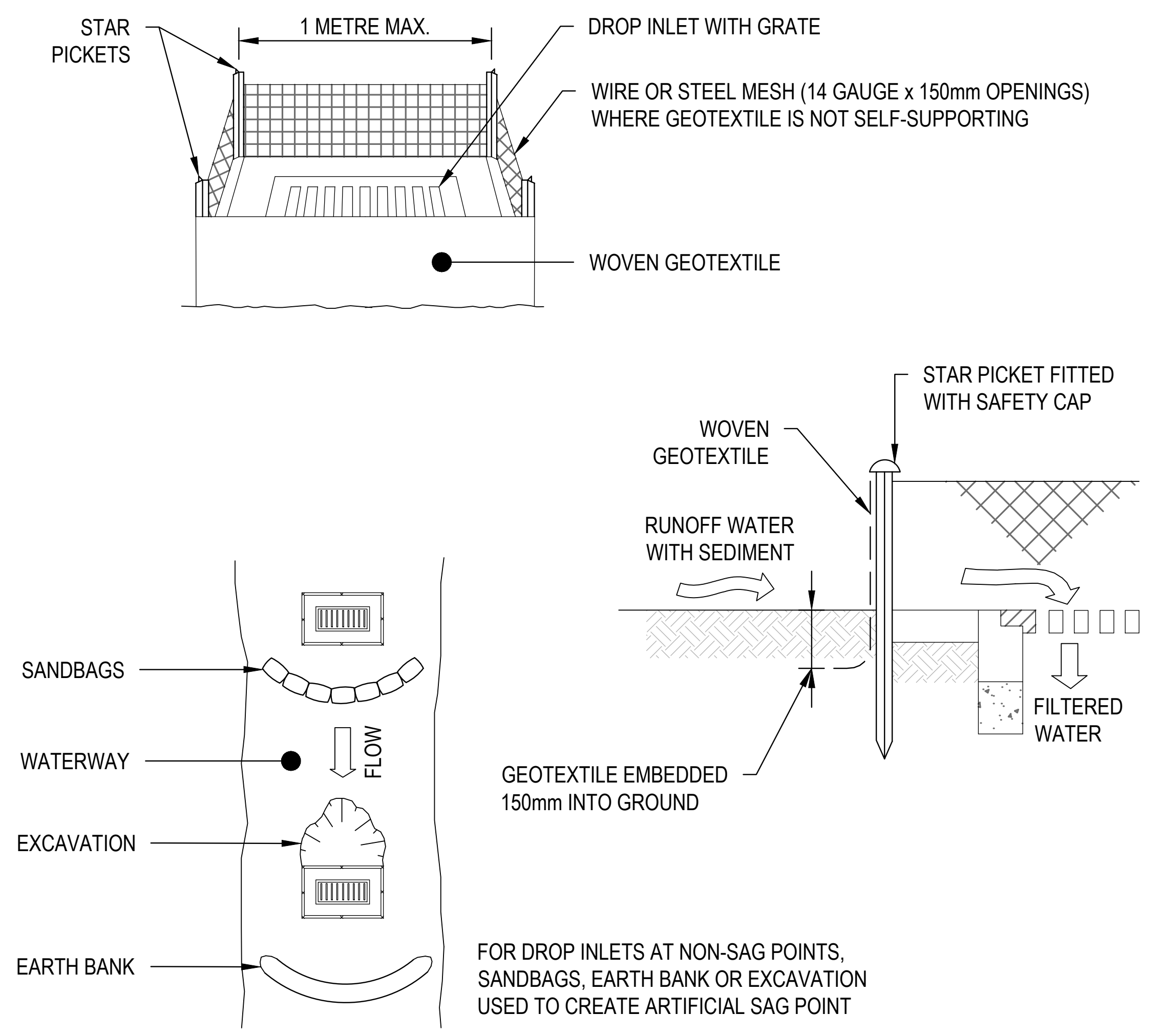
Status
DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

Scale

DATE PLOTTED: 3 July 2023 9:57 AM

CAD File: P:\2022\20220060-12-14 Gladys Avenue, Frenchs Forest\Civil\cad\DA-SW502.dwg

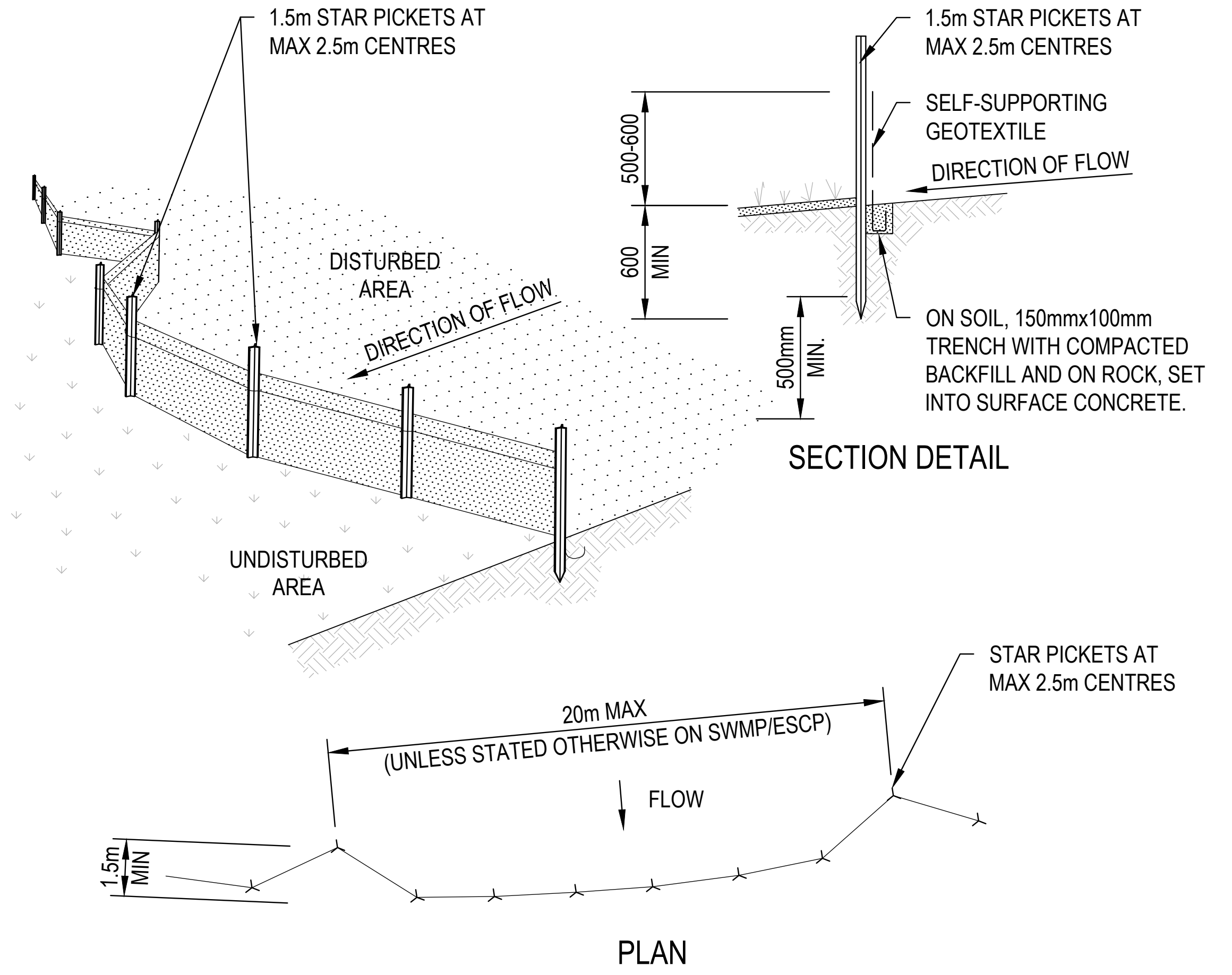




CONSTRUCTION NOTES

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

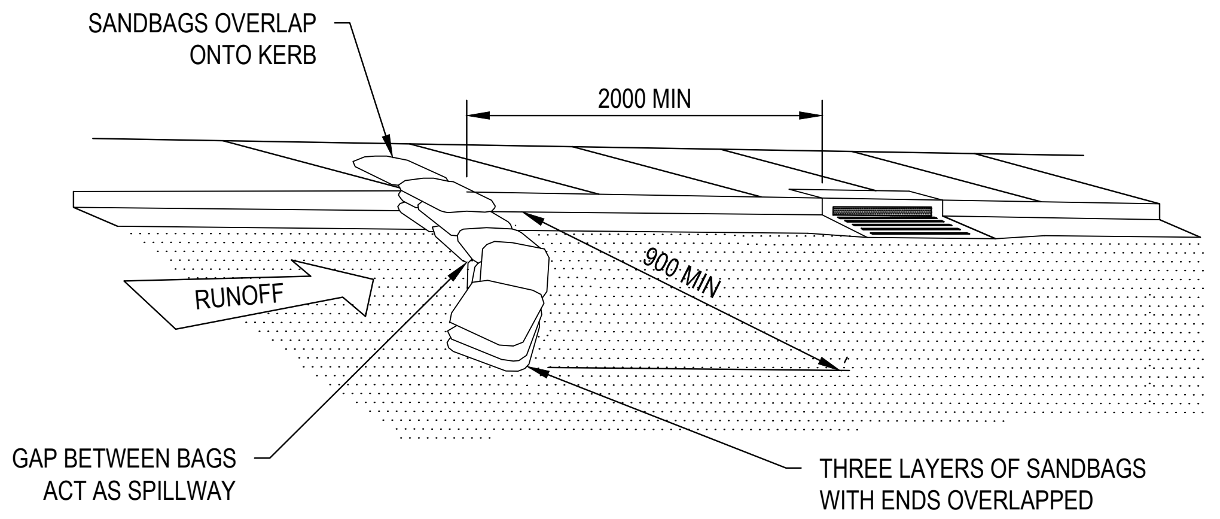
GEOTEXTILE INLET FILTER (SD 6-12)



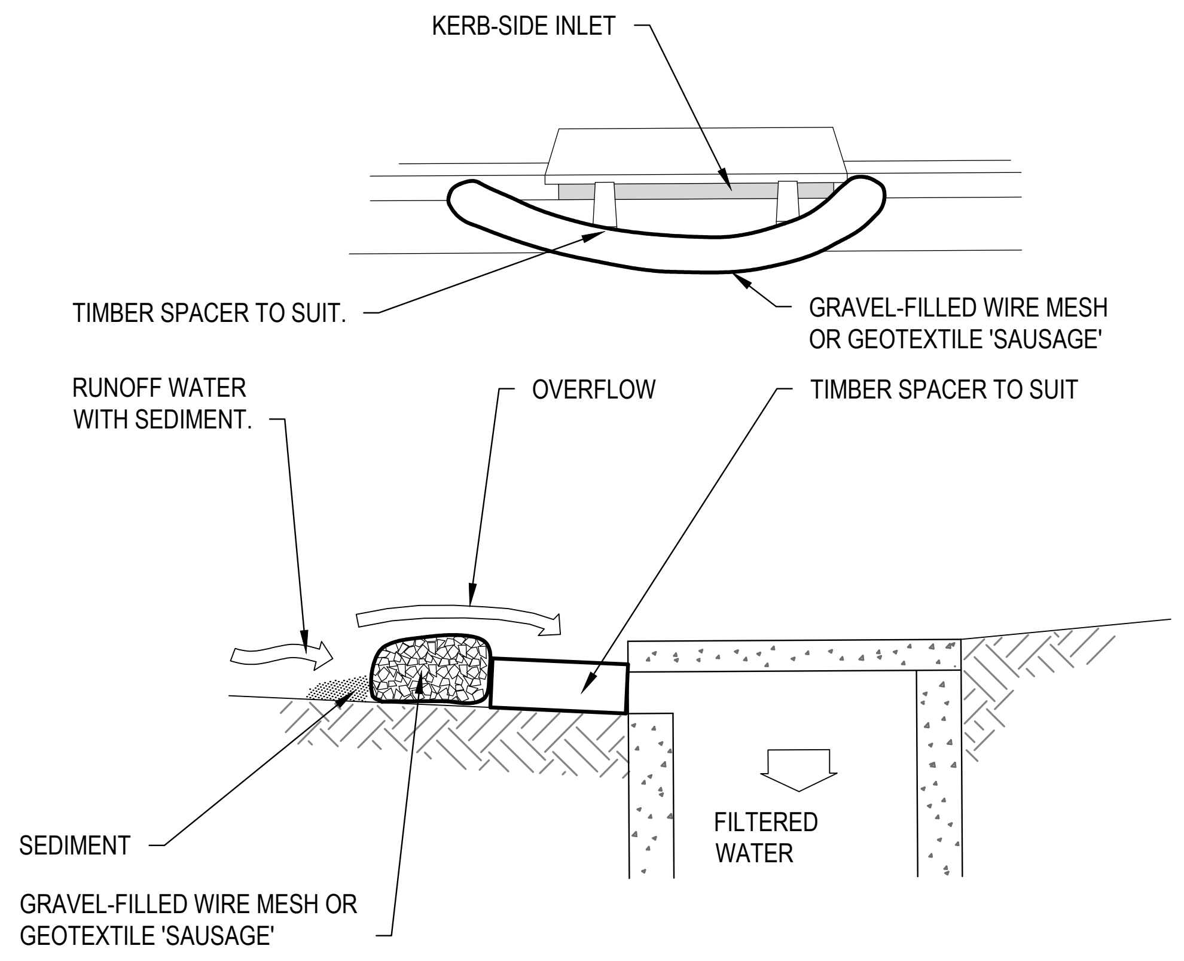
CONSTRUCTION NOTES

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

SEDIMENT FENCE (SD 6-8)



SANDBAG SEDIMENT TRAP

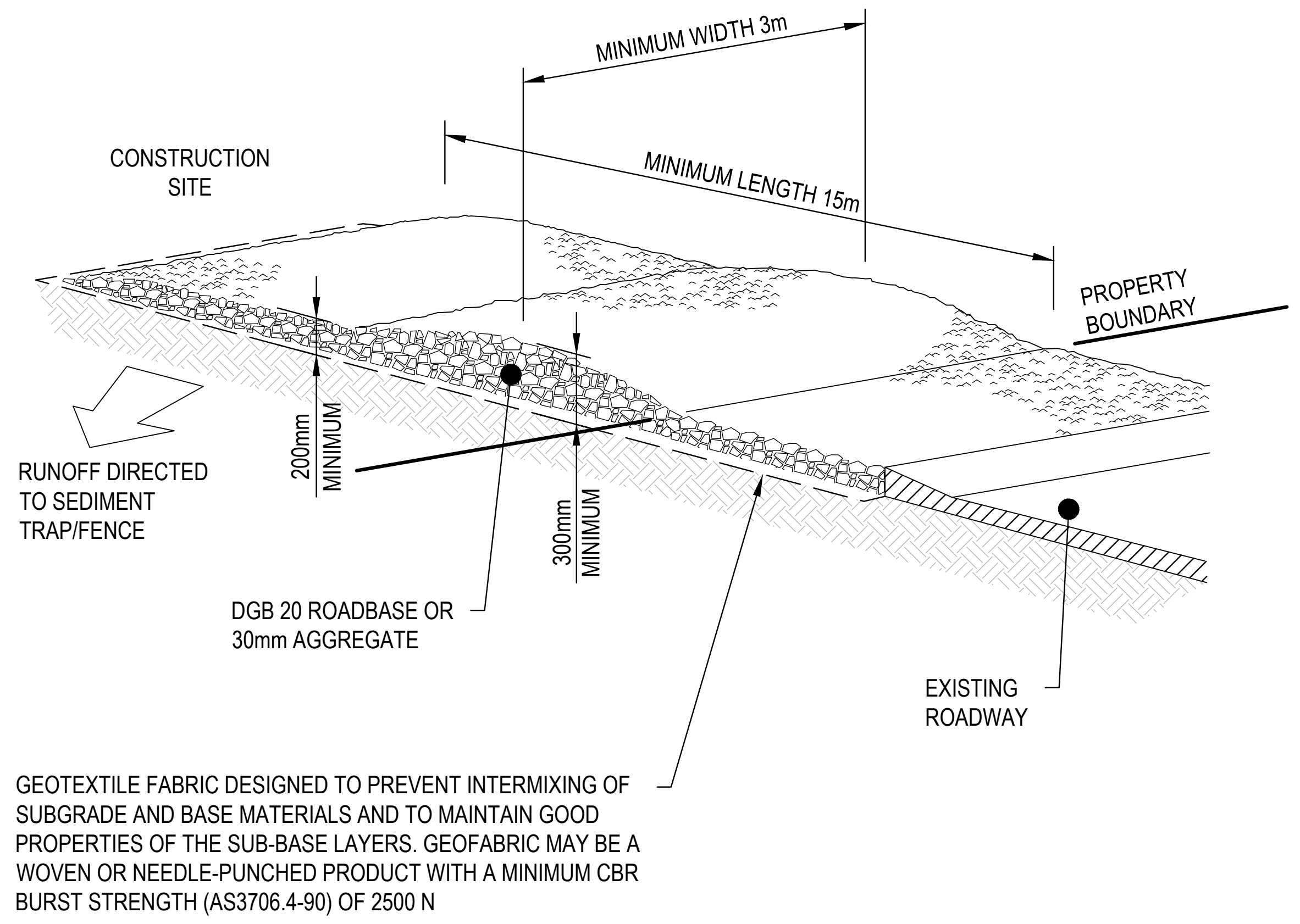


NOTE:THIS PRACTICE ONLY TO BE USED
WHERE SPECIFIED IN APPROVED SWMP/ESCP.

CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. 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.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. 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.

MESH AND GRAVEL INLET FILTER (SD 6-11)



CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. 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 (SD 6-14)

REV.	DATE	AMENDMENT	INT.	APP.
9	30/06/2023	ARCHITECTURAL & DRAINAGE REVISED	J.L	J.H
8	7/06/2023	REVISED PER ARBORIST REPORT	J.L	J.H
7	10/05/2023	RETAINING WALL REVISED	J.L	J.H
6	5/09/2022	RETAINING WALL REVISED	J.L	J.H
5	15/08/2022	ISSUED FOR DA	J.L	J.H
4	25/05/2022	ISSUED FOR REVIEW	J.L	J.L
3	19/05/2022	ISSUED FOR REVIEW	J.L	J.L

Client
JACK ZHANG

Architect
NKP ARCHITECURE

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Project
PROPOSED SUBDIVISION
12-14 GLADYS AVENUE
FRENCHS FOREST NSW 2030

Drawing Title
EROSION AND SEDIMENT CONTROL PLAN & DETAILS

Design: J.L
Drawn: J.L
Validate: J.H

Job Number: 20220060
Drawing Number: DA-SW600
Scale: AS NOTED
Date: 30/06/2023
Size: A1
Datum: A.H.D

North Point
N

Status
DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

Scale
0 10 20 30 40m
SCALE 1:400 @A1

DATE PLOTTED: 3 July 2023 9:57 AM

CAD File: P:\2022\20220060-12-14 Gladys Avenue, Frenchs Forest\Civil\cad\DA-SW600.dwg