

PROPOSED DEVELOPMENT

82-84 STFFORD STREET, PENRITH

STORMWATER PLANS

GENERAL NOTES

- G1. THE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL DRAWINGS AND SPECIFICATIONS AND OTHER WRITTEN INSTRUCTIONS THAT MAY BE ISSUED.
- G2. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING FROM THE DRAWINGS. REFER ARCHITECTS DRAWINGS FOR ALL DIMENSIONS.
- G3. REFER ANY DISCREPANCY TO THE ENGINEER/ARCHITECT.
- G4. MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE APPROPRIATE SAA SPECIFICATIONS OR CODE AND WITH THE REQUIREMENTS OF THE RELEVANT LOCAL AUTHORITY.
- G5. THE ALIGNMENT AND LEVEL OF ALL SERVICES SHOWN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL CONFIRM THE POSITION AND LEVEL OF ALL SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY DAMAGE TO SERVICES SHALL BE RECTIFIED AT THE CONTRACTORS EXPENSE.
- G6. NO WORKS ARE TO COMMENCE UNTIL THE REQUIRED TREE REMOVAL PERMITS HAVE BEEN GRANTED BY RELEVANT LOCAL AUTHORITY, AND THE APPROPRIATE NOTICE OF INTENTION TO COMMENCE GIVEN.
- G7. ALL SERVICES, OR CONDUITS FOR SERVICING SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF PAVEMENT CONSTRUCTION.
- G8. SUBSOIL DRAINAGE, COMPRISING 100 AGRICULTURE PIPE IN GEO-STOCKING TO BE PLACED AS SHOWN AND AS MAY BE DIRECTED BY THE SUPERINTENDENT. SUBSOIL DRAINAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RELEVANT LOCAL AUTHORITY CONSTRUCTION SPECIFICATION.
- G9. NO WORK IS PERMITTED WITHIN ADJOINING PROPERTIES WITHOUT WRITTEN PERMISSION FROM THE OWNERS OR RESPONSIBLE AUTHORITY.

DRAINAGE NOTES

- D1. ALL DRAINAGE OUTLET LEVELS SHALL BE CONFIRMED ON SITE, PRIOR TO CONSTRUCTION COMMENCING.
- D2. ALL PIPES WITHIN THE PROPERTY TO BE MIN. 100 DIA UPVC @ 1% MIN. GRADE, UNO.
- D3. ALL PITS WITHIN THE PROPERTY ARE TO BE FITTED WITH "WELDLOK" OR APPROVED EQUIVALENT GRATES:  
- LIGHT DUTY FOR LANDSCAPED AREAS  
- HEAVY DUTY WHERE SUBJECTED TO VEHICULAR TRAFFIC
- D4. PITS WITHIN THE PROPERTY MAY BE CONSTRUCTED AS:  
1) PRECAST STORMWATER PITS  
2) CAST INSITU MASS CONCRETE  
3) CEMENT RENDERED 230mm BRICKWORK  
SUBJECT TO THE RELEVANT LOCAL AUTHORITY CONSTRUCTION SPECIFICATION.
- D5. ENSURE ALL GRATES TO PITS ARE SET BELOW FINISHED SURFACE LEVEL WITHIN THE PROPERTY. TOP OF PIT RL'S ARE APPROXIMATE ONLY AND MAY BE VARIED SUBJECT TO APPROVAL OF THE ENGINEER. ALL INVERT LEVELS ARE TO BE ACHIEVED.
- D6. ANY PIPES BENEATH RELEVANT LOCAL AUTHORITY ROAD TO BE RUBBER RING JOINTED RCP, UNO.
- D7. ALL PITS IN ROADWAYS ARE TO BE FITTED WITH HEAVY DUTY GRATES WITH LOCKING BOLTS AND CONTINUOUS HINGE.
- D8. PROVIDE STEP IRONS TO STORMWATER PITS GREATER THAN 1200 IN DEPTH.
- D9. TRENCH BACK FILL IN ROADWAYS SHALL COMPRISE SHARP, CLEAN GRANULAR BACK FILL IN ACCORDANCE WITH THE RELEVANT LOCAL AUTHORITY SPECIFICATION TO NON-TRAFFICABLE AREAS TO BE COMPACTED BY RODDING AND TAMPING USING A FLAT PLATE VIBRATOR.
- D10. WHERE A HIGH EARLY DISCHARGE (HED) PIT IS PROVIDED ALL PIPES ARE TO BE CONNECTED TO THE HED PIT, UNO.
- D11. DOWN PIPES SHALL BE A MINIMUM OF DN100 SW GRADE UPVC OR 100X100 COLORBOND/ZINCALUME STEEL, UNO.
- D12. COLORBOND OR ZINCALUME STEEL BOX GUTTERS SHALL BE A MINIMUM OF 450 WIDE X 150 DEEP.
- D13. EAVES GUTTERS SHALL BE A MINIMUM OF 125 WIDE X 100 DEEP (OR OF EQUIVALENT AREA) COLORBOND OR ZINCALUME STEEL, UNO.
- D14. SUBSOIL DRAINAGE SHALL BE PROVIDED TO ALL RETAINING WALLS & EMBANKMENTS, WITH THE LINES FEEDING INTO THE STORMWATER DRAINAGE SYSTEM, UNO.

EARTHWORKS NOTES

- E1. THE EARTHWORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT.
- E2. THE SITE OF THE WORKS SHALL BE PREPARED BY STRIPPING ALL EXISTING TOPSOIL, FILL AND VEGETATION.
- E3. SUBGRADE SHALL BE COMPACTED UNTIL A DRY DENSITY HAS BEEN ACHIEVED OF NOT LESS THAN 100% OF THE STANDARD MAXIMUM DRY DENSITY WHEN TESTED IN ACCORDANCE WITH AS 1289 TESTS E.1.1. OR E.1.2.
- E4. THE EXPOSED SUBGRADE SHOULD BE PROOF ROLLED TO DETECT ANY SOFT OR WET AREAS WHICH SHOULD BE LOCALLY EXCAVATED AND BACK FILLED WITH SELECTED MATERIAL.
- E5. THE BACK FILLING MATERIAL SHALL BE IMPORTED GRANULAR FILL OF LOW PLASTICITY, PREFERABLY CRUSHED SANDSTONE, AND TO BE PLACED IN LAYERS NOT EXCEEDING 150 LOOSE THICKNESS AND COMPACTED TO 98% OF STANDARD DRY DENSITY AT A MOISTURE CONTENT WITHIN 2% OF OPTIMUM.
- E6. SITE WORKS ARE TO BE BATTERED TO ADJACENT PROPERTY LEVELS.
- E7. STORMWATER MUST NOT BE CONCENTRATED ON TO AN ADJACENT PROPERTY.
- E8. AT NO TIME DURING OR AFTER CONSTRUCTION IS STORMWATER TO BE PONDED ON ADJOINING PROPERTIES.
- E9. THE SITE SHALL BE GRADED AND DRAINED SO THAT STORMWATER WILL BE DIRECTED AWAY FROM THE BUILDING PLATFORM.
- E10. STORMWATER DRAINAGE SHALL BE PROVIDED AND MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION. ALL STORMWATER RUNOFF SHALL BE GRADED AWAY FROM THE SITE WORKS AND DISPOSED OF VIA SURFACE CATCHDRAINS AND STORMWATER COLLECTION PITS.
- E11. ALL SURFACE CATCH DRAINS SHALL BE GRADED AT 1% (1 IN 100) MINIMUM. THE GROUND SHALL GRADE AWAY FROM ANY DWELLING AT 5% (1 IN 20) FOR THE FIRST METRE THEN AT 2.5% (1 IN 40).
- E12. WHERE A CUT FILL PLATFORM IS USED THERE SHALL BE A MINIMUM BERM 1000 WIDE TO THE PERIMETER OF THE SITE WORKS WHICH SHALL BE SUPPORTED BY BATTERS OF 3:1 IN FILL.
- E13. ANY VERTICAL OR NEAR VERTICAL PERMANENT EXCAVATION (CUT) DEEPER THAN 600 IN MATERIAL OTHER THAN ROCK SHALL BE ADEQUATELY RETAINED OR BATTERED AT A MINIMUM OF 3:1.
- E14. WHERE BATTERS CANNOT BE PROVIDED TO SUPPORT THE CUT OR FILL, THEY SHALL BE ADEQUATELY RETAINED.
- E15. RETAINING WALLS ARE TO BE CONSTRUCTED WITH ADEQUATE SUBSOIL DRAINAGE.

CONCRETE PAVEMENT

- C1. SUBGRADE SHALL BE PREPARED AS OUTLINED IN EARTHWORKS.
- C2. PROVIDE JOINTING AT MINIMUM 6000 MAX. INTERVALS OR AS OTHERWISE SPECIFIED IN THE DRAWINGS.
- C3. CONCRETE SHALL COMPRISE A MIN. COMPRESSIVE STRENGTH OF 32MPa AT 28 DAYS IN ACCORDANCE WITH THE RELEVANT LOCAL AUTHORITY SPECIFICATION, UNO.
- C4. ANY SUB-BASE MATERIAL SHALL BE COMPACTED AS OUTLINED IN EARTHWORKS.
- C5. CONCRETE KERB AND GUTTER SHALL COMPRISE A MINIMUM COMPRESSIVE STRENGTH OF 25MPa, UNO.
- C6. CONCRETE WORKS ARE TO BE CURED BY ONE OF THE FOLLOWING MEANS:  
i) WETTING TWICE DAILY FOR THE FIRST THREE DAYS;  
ii) USING AN APPROVED CURING COMPOUNDED FOR A MINIMUM OF 7 DAYS COMMENCING IMMEDIATELY AFTER POURING.

FLEXIBLE PAVEMENT NOTES

- F1. SUBGRADE SHALL BE PREPARED AS OUTLINED IN EARTHWORKS.
- F2. PAVEMENT MATERIAL SHALL CONSIST OF APPROVED OR RIPPED SANDSTONE, NATURAL GRAVEL OR FINE CRUSH ROCK AS PER THE RELEVANT COUNCIL AUTHORITY SPECIFICATION.
- F3. PAVEMENT MATERIALS SHALL BE SPREAD IN LAYERS NOT EXCEEDING 150 AND NOT LESS 75 COMPACTED THICKNESS.
- F4. PAVEMENT MATERIALS SHALL BE SIZED AND OF A STANDARD OUTLINED IN AS1141.
- F5. CRUSHED OR RIPPED SANDSTONE SHALL BE MINUS 75 NOMINAL SIZE DERIVED FROM SOUND, CLEAN SANDSTONE FREE FROM OVERBURDEN, CLAY SEAMS, SHALE AND OTHER DELETERIOUS MATERIAL.
- F6. PAVEMENT MATERIALS SHALL BE COMPACTED BY SUITABLE MEANS TO SATISFY THE FOLLOWING MINIMUM SPECIFICATIONS (AS PER AS1289.2)

DESCRIPTION	MEDIUM DENSITY RATIO
SUB-BASE	98% MOD
BASE COURSE	98% MOD
ASPHALTIC CONCRETE	97% MOD

AND SUBJECT TO THE RELEVANT LOCAL AUTHORITY CONSTRUCTION SPECIFICATION.
- F7. TESTING FOR EACH LAYER SHALL BE UNDERTAKEN BY A N.A.T.A. REGISTERED LABORATORY IN ACCORDANCE WITH AS1289, AT NOT MORE THAN 50m INTERVALS AND A MINIMUM OF TWO PER LAYER. FURTHER FREQUENCY OF TESTING SHALL BE NO LESS THAN THAT REQUIRED BY AS3978.

PAVED AREAS NOTES

- A1. SUBGRADE SHALL BE PREPARED AS OUTLINED IN EARTHWORKS.
- A2. ALL PAVERS ARE TO BE PLACED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION.
- A3. TRAFFICABLE AREAS:


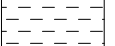


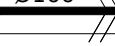

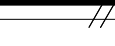










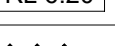
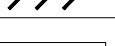


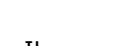



SUB-BASE TO BE 150 COMPACTED THICKNESS DGS75.
SUB-BASE TO BE SUITABLY COMPACTED TO MEDIUM DENSITY 98% MOD.
SUB-BASE TO EXTEND AT LEAST 200 BEYOND PAVED SURFACE.
PAVERS TO BE 80 THICK INTERLOCKING PAVERS ON 50 SAND BEDDING.
- A4. NON TRAFFICABLE AREAS:

SUB BASE AS PER TRAFFICABLE AREAS
PAVERS TO BE 60 INTERLOCKING PAVERS ON 50 SAND BEDDING (UNO).

EROSION AND SEDIMENT NOTES

- B1. THIS PLAN TO BE READ IN CONJUNCTION WITH EROSION AND SEDIMENT CONTROL DETAILS AS ATTACHED.
- B2. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY AND TO THE SATISFACTION OF THE RELEVANT LOCAL AUTHORITY PRIOR TO THE COMMENCEMENT OF AND DURING CONSTRUCTION. NO DISTURBANCE TO THE SITE SHALL BE PERMITTED OTHER THAN IN THE IMMEDIATE AREA OF THE WORKS AND NO MATERIAL SHALL BE REMOVED FROM THE SITE WITHOUT THE RELEVANT LOCAL AUTHORITY APPROVAL. ALL EROSION AND SEDIMENT CONTROL DEVICES TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH STANDARDS OUTLINED IN NSW DEPARTMENT OF HOUSING'S "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTIONS".
- B3. TOPSOIL SHALL BE STRIPPED AND STOCKPILED OUTSIDE HAZARD AREAS SUCH AS DRAINAGE LINES. THIS TOPSOIL SHALL BE RESPREAD LATER ON AREAS TO BE REVEGETATED AND STABILISED ONLY. (I.E. ALL FOOTPATHS, BATTERS, SITE REGARDING AREAS, BASINS AND CATCHDRAINS). TOPSOIL SHALL NOT BE RESPREAD ON ANY OTHER AREAS UNLESS SPECIFICALLY INSTRUCTED BY THE SUPERINTENDENT. IF THEY ARE TO REMAIN FOR LONGER THAN ONE MONTH STOCKPILES SHALL BE PROTECTED FROM EROSION BY COVERING THEM WITH A MULCH AND HYDROSEEDING AND, IF NECESSARY, BY LOCATING BANKS OR DRAINS DOWNSTREAM OF A STOCKPILE TO RETARD SILT LADEN RUNOFF.
- B4. THE CONTRACTOR SHALL REGULARLY MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES AND REMOVE ACCUMULATED SILT FROM SUCH DEVICES SUCH THAT MORE THAN 60% OF THEIR CAPACITY IS LOST. ALL THE SILT IS TO BE PLACED OUTSIDE THE LIMIT OF WORKS. THE PERIOD FOR MAINTAINING THESE DEVICES SHALL BE AT LEAST UNTIL ALL DISTURBED AREAS ARE REVEGETATED AND FURTHER AS MAY BE DIRECTED BY THE SUPERINTENDENT OR COUNCIL.
- B5. LAY TURF STRIP (MIN 300 WIDE) ON 100 TOPSOIL BEHIND ALL KERB WITH 1000 LONG RETURNS EVERY 6000 AND AROUND STRUCTURES IMMEDIATELY AFTER BACKFILLING AS PER THE RELEVANT LOCAL AUTHORITY SPECIFICATION.
- B6. THE CONTRACTOR SHALL GRASS SEED ALL DISTURBED AREAS WITH AN APPROVED MIX AS SOON AS PRACTICABLE AFTER COMPLETION OF EARTHWORKS AND REGRAIDING.
- B7. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING CONSTRUCTION CONFINING ACCESS WHERE POSSIBLE TO NOMINATED STABILISED ACCESS POINTS.
- B8. WHEN ANY DEVICES ARE TO BE HANDED OVER TO COUNCIL THEY SHALL BE IN CLEAN AND STABLE CONDITION.
- B9. THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL BY REGULAR WETTING DOWN (BUT NOT SATURATING) DISTURBED AREA.
- B10. PROVIDE AND MAINTAIN SILT TRAPS AROUND ALL SURFACE INLET PITS UNTIL CATCHMENT IS REVEGETATED OR PAVED.
- B11. REVEGETATE ALL TRENCHES IMMEDIATELY UPON COMPLETION OF BACKFILLING.
- B12. ALL DRAINAGE PIPE INLETS TO BE CAPPED UNTIL:  
- DOWNPIPES CONNECTED  
- PITS CONSTRUCTED AND PROTECTED WITH SILT BARRIER

SYMBOLS

DESCRIPTION	
	DENOTE ON-SITE DETENTION TANK OR PUMP OUT TANK
	DENOTE ON-SITE DETENTION BASIN
	DENOTE ABSORPTION TRENCH
	DENOTES DOWNPIPE
	DENOTES 100mm DIA STORMWATER SYSTEM PIPE AT 1% MIN. GRADE U.N.O
	DENOTES 150mm DIA STORMWATER SYSTEM PIPE AT 1% MIN. GRADE U.N.O
	DENOTES 225mm DIA STORMWATER SYSTEM PIPE AT 0.5% MIN. GRADE U.N.O
	DENOTES AGG LINE
	DENOTES SEDIMENT FENCE
	DENOTES INSPECTION OPENING WITH SCREW DOWN LID AT FINISH SURFACE LEVEL
	DENOTES CLEANING EYE
	STORMWATER PIT - GRATED INLET
	STORMWATER PIT - SOLID COVER
	NON RETURN VALVE
	DENOTE ROUND FLOOR DRAINS
	DENOTE SQUARE FLOOR DRAINS
	DENOTE PLANTER BOX DRAINS
	DENOTE GRATED DRAIN
	PROPOSED FINISH FLOOR LEVEL
	DENOTE EXISTING OVERLAND FLOW PATH
	DENOTE RAINWATER TANK
	DENOTE WATER OUTLET
	REDUCED LEVEL/SURFACE LEVELL
	INVERT LEVEL
	TOP OF KERB



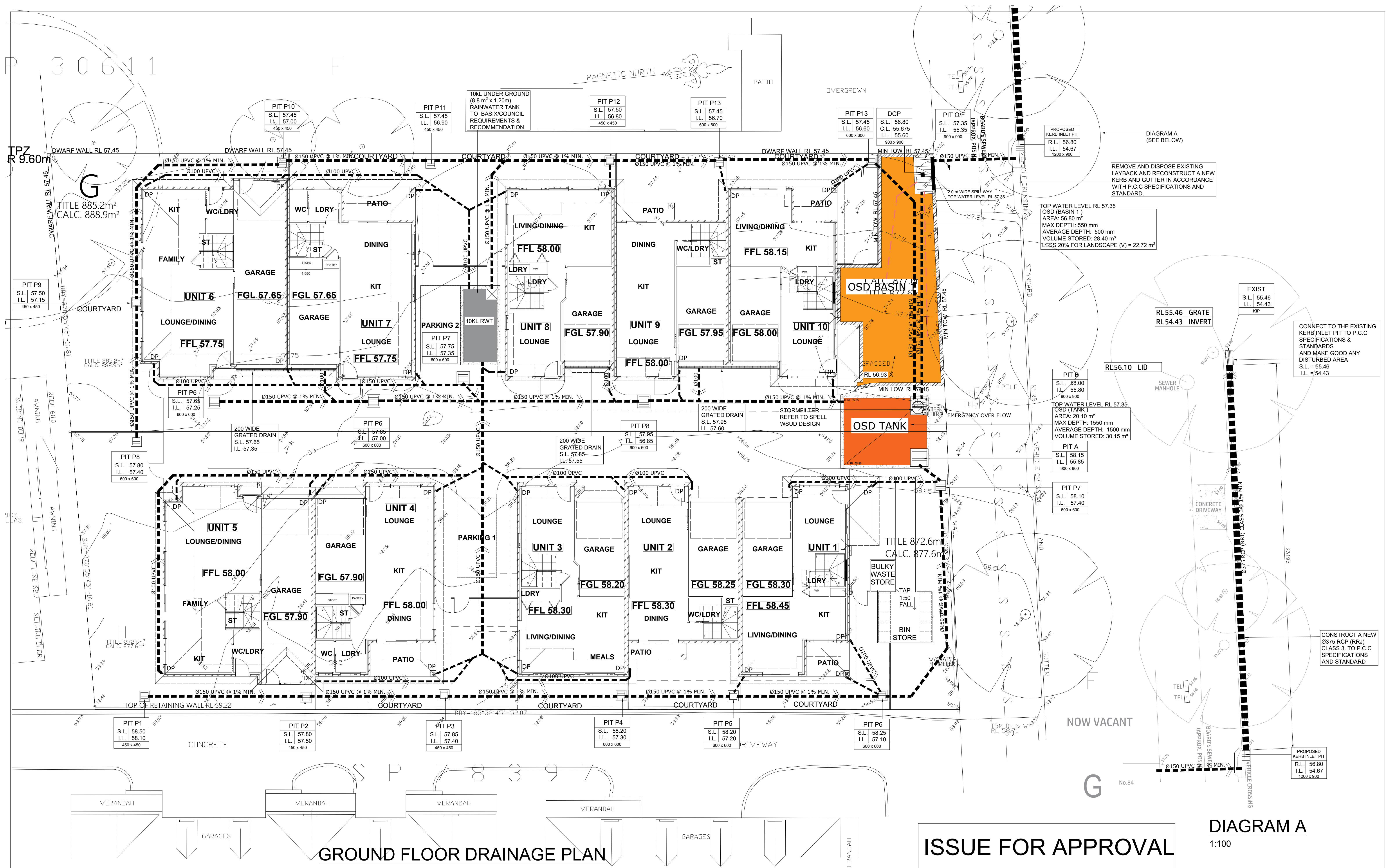
SCHEDULE OF DRAWINGS

SHEET No	DESCRIPTION
COVER	GENERAL NOTES
SW01	GROUND FLOOR STORMWATER MANAGEMENT PLAN
SW02	ROOF STORMWATER MANAGEMENT PLAN
SW03	SECTIONS AND DETAILS
SW04	OSD CATCHMENT PLAN
SW05	PROPOSED PIPE LONG SECTION & CALCULATIONS

ISSUE FOR APPROVAL

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GROUND FLOOR DRAINAGE PLAN

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ISSUE FOR APPROVAL

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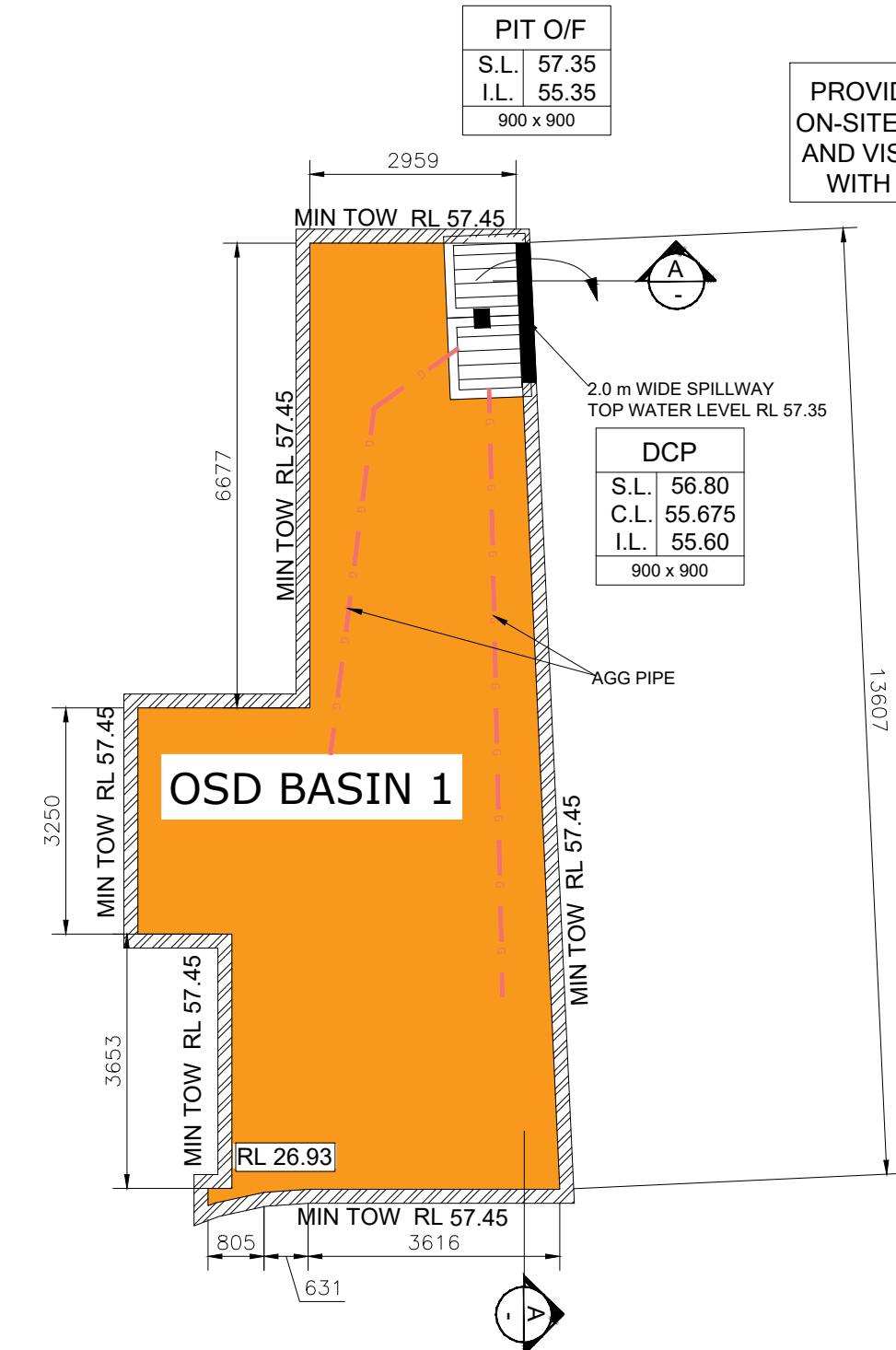
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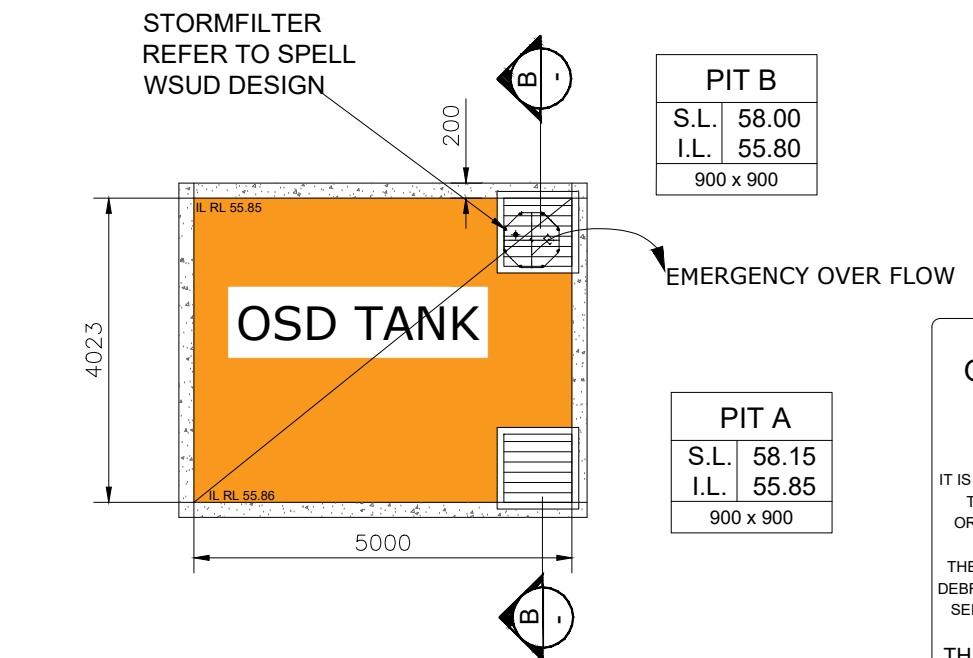




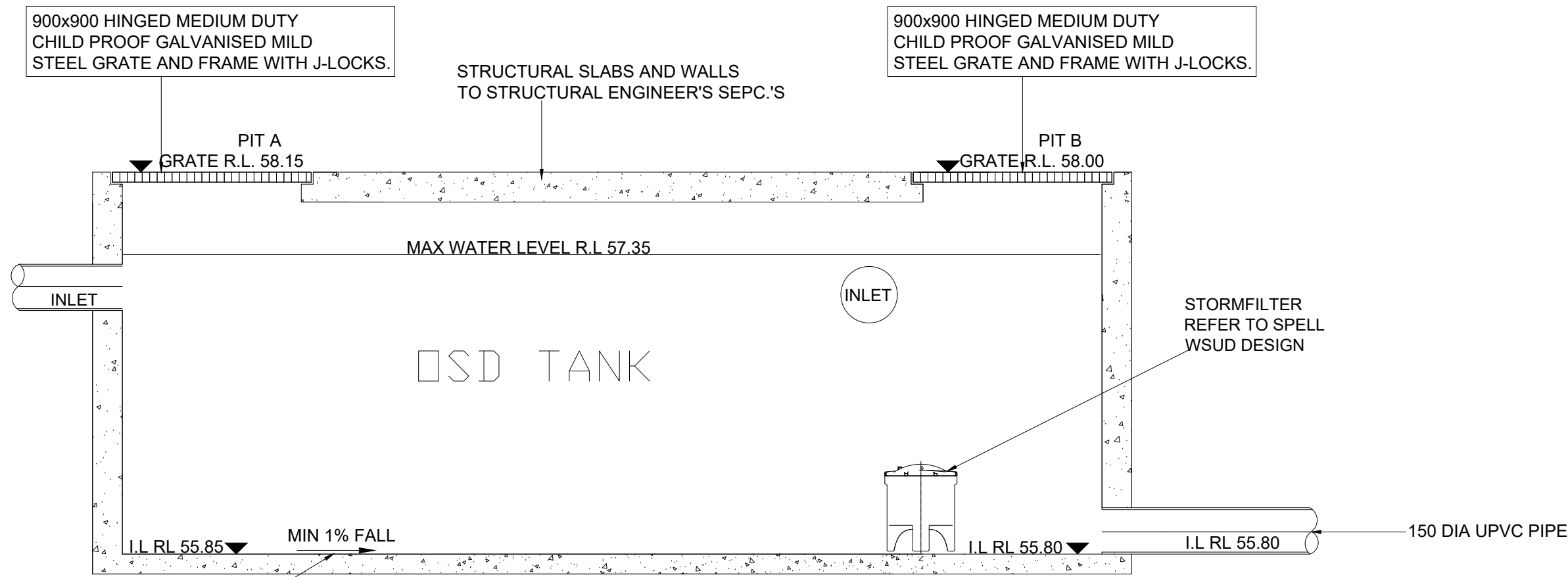




ON- SITE DETENTION BASIN PLAN  
SCALE 1:100



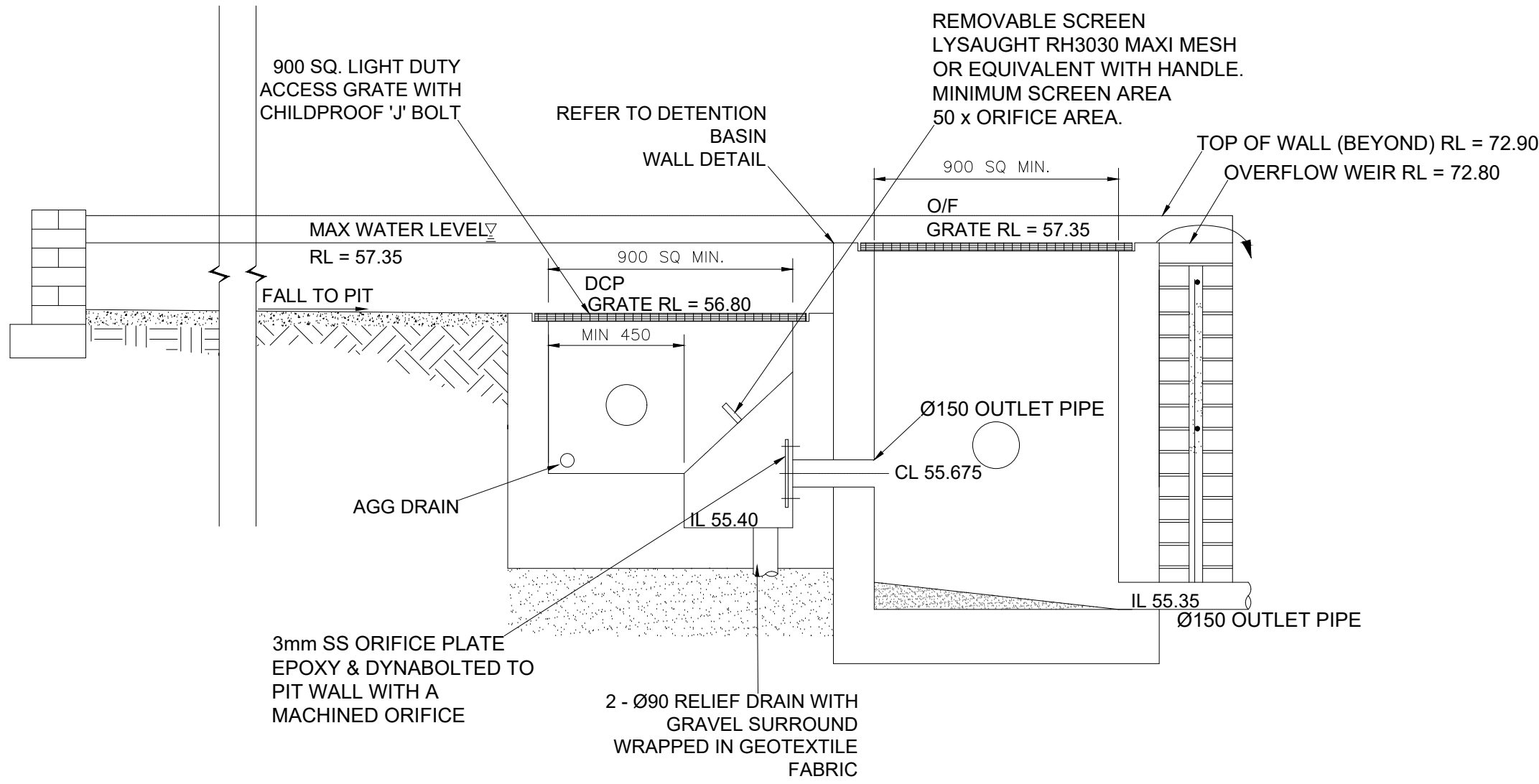
ON- SITE DETENTION TANK PLAN  
SCALE 1:100



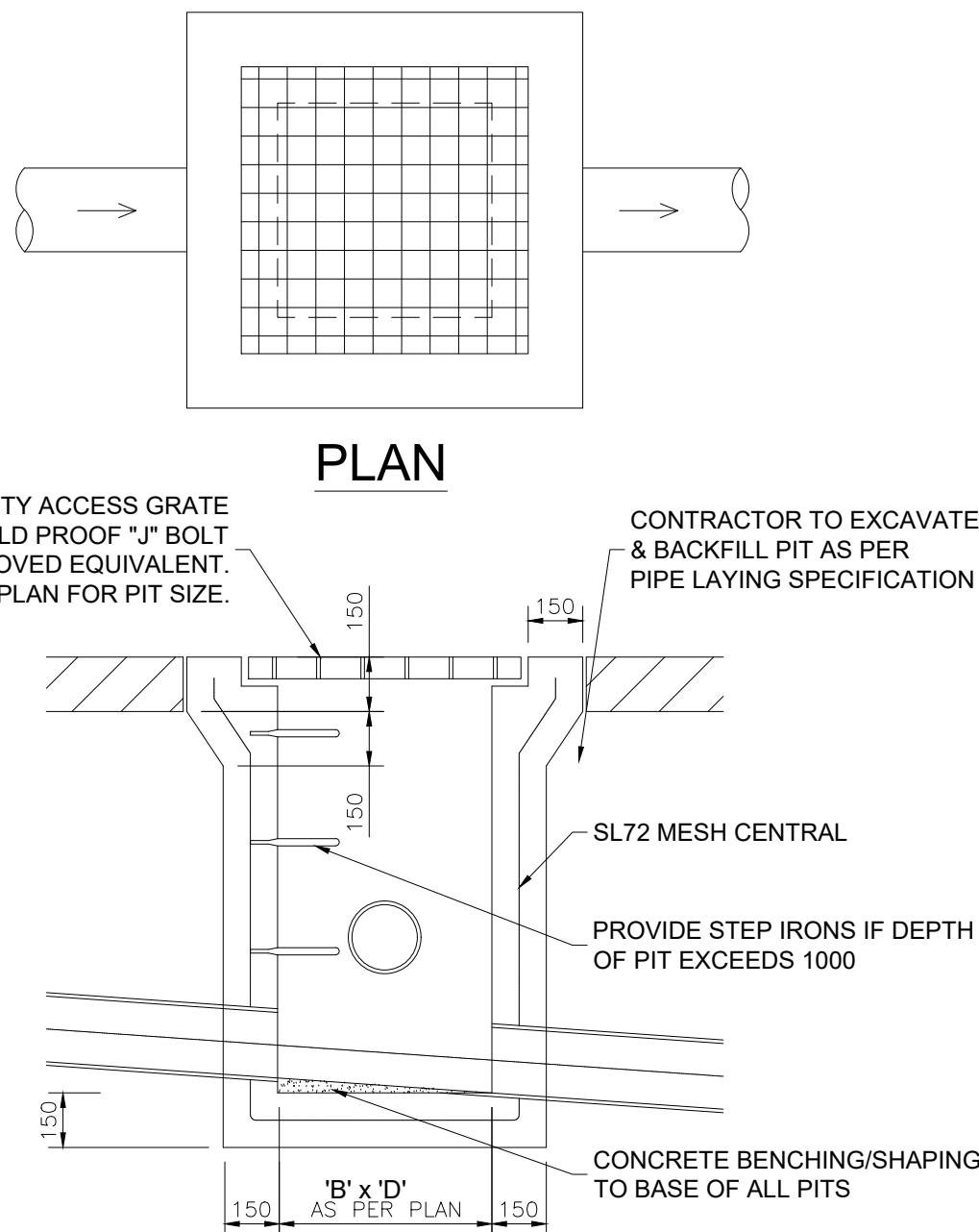
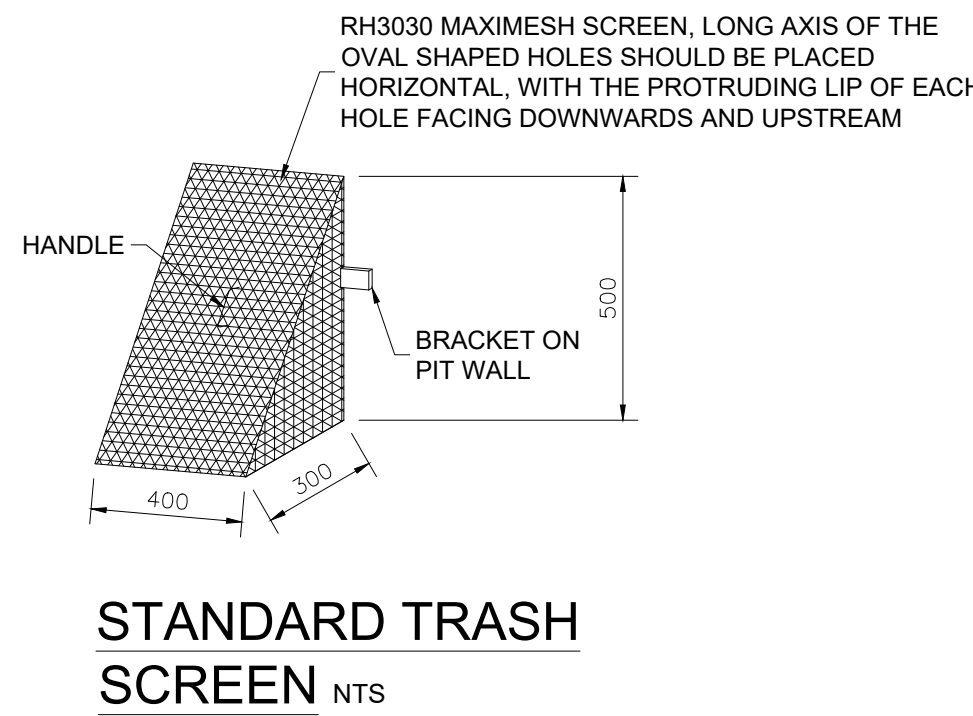
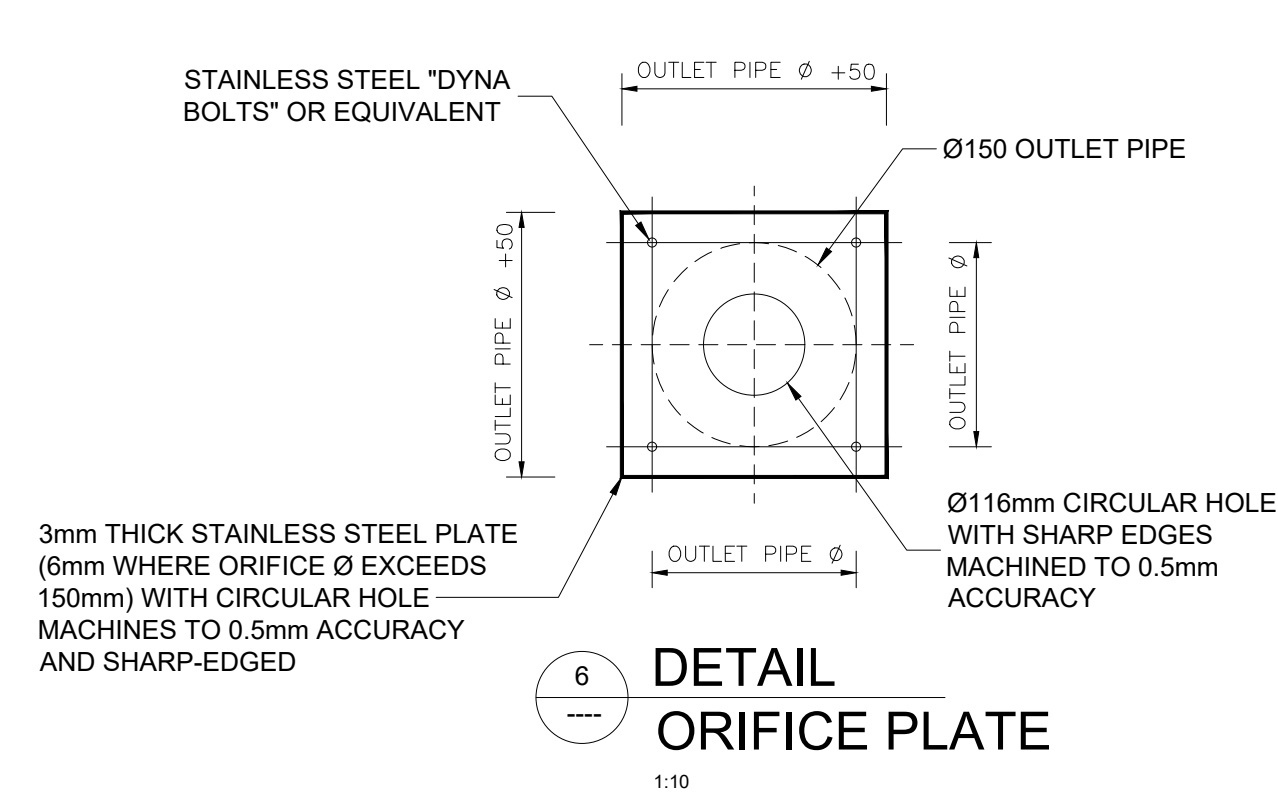
OSD TANK - STORMWATER SECTION B-B AT OUTLET  
NTS

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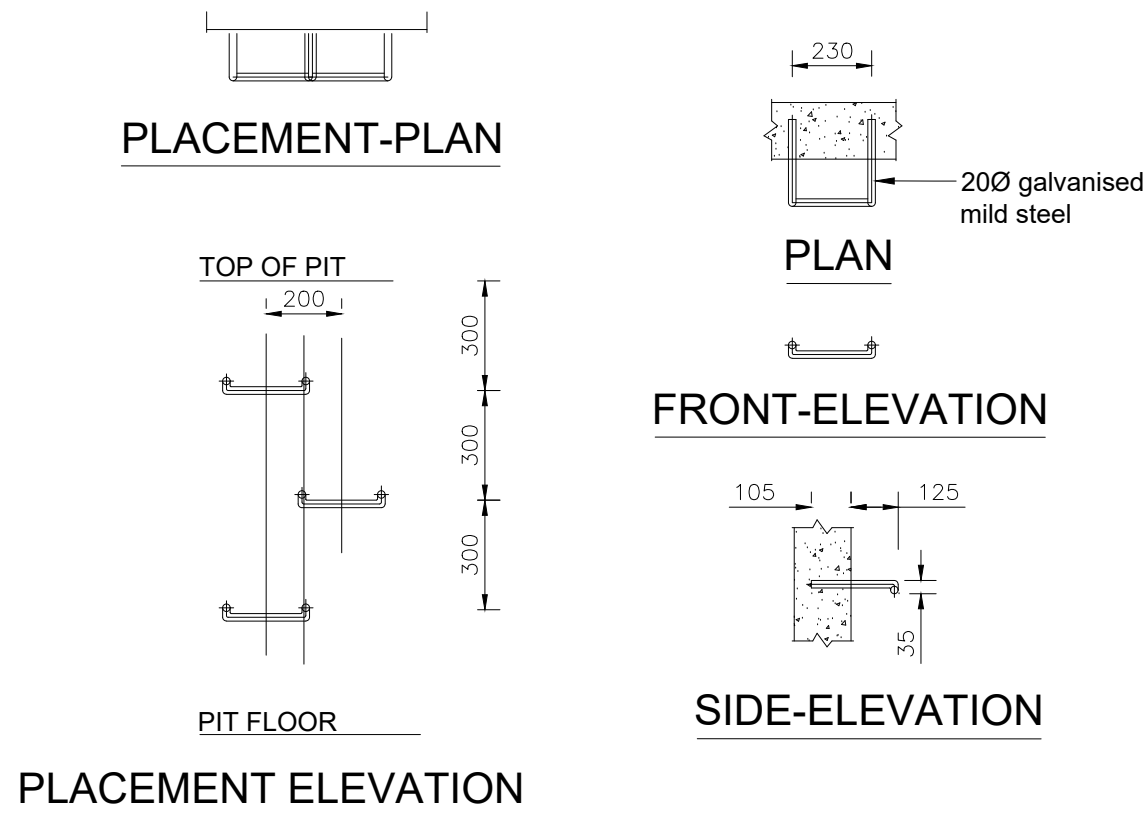
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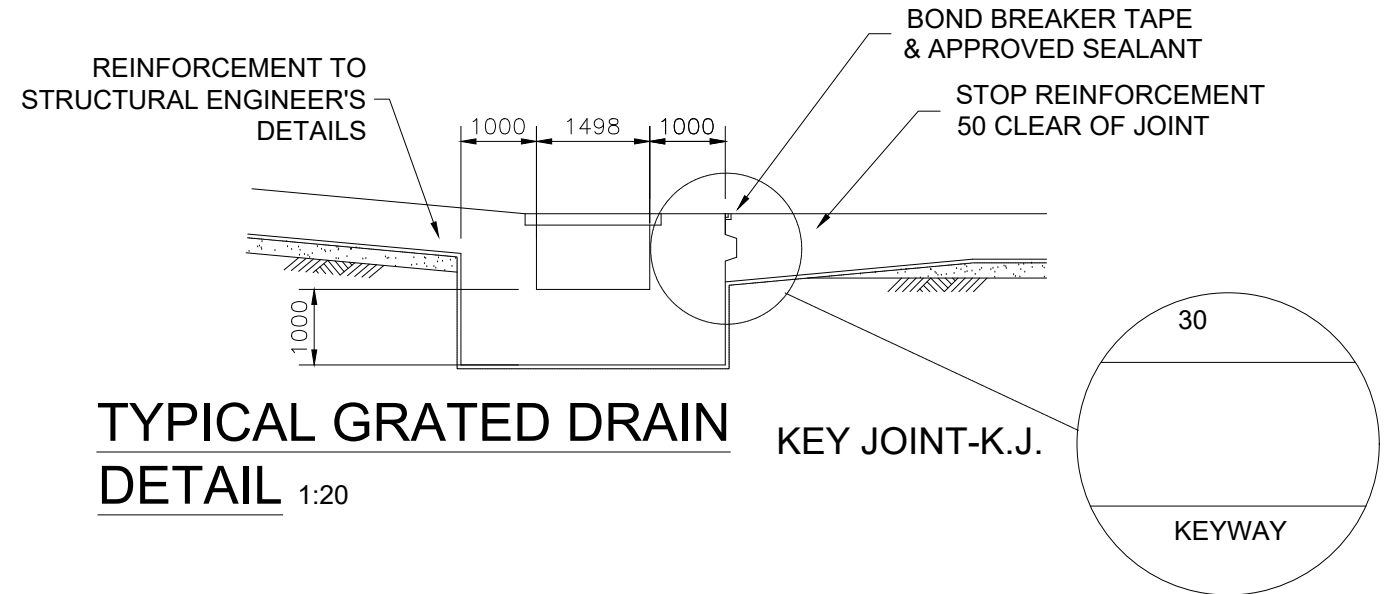
OSD SECTION A-A AT OUTLET



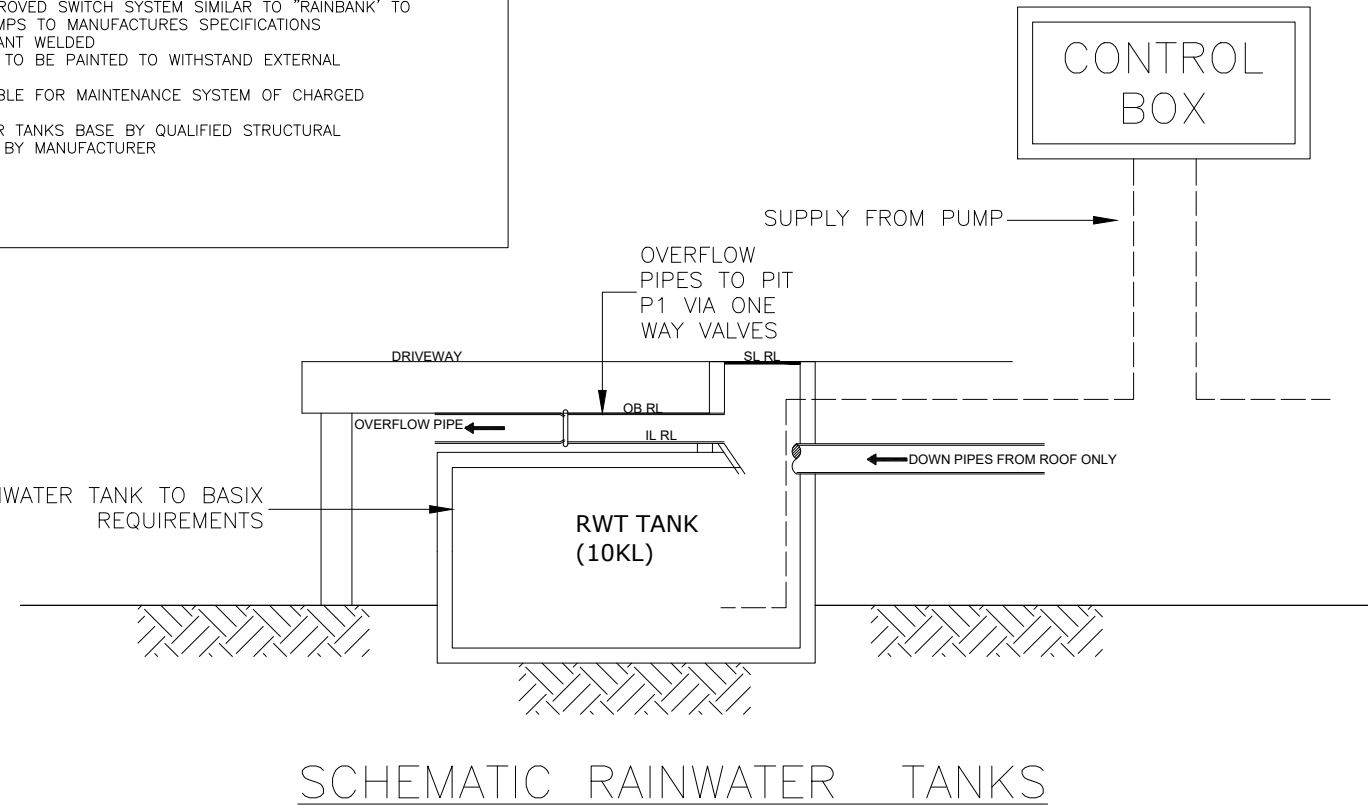
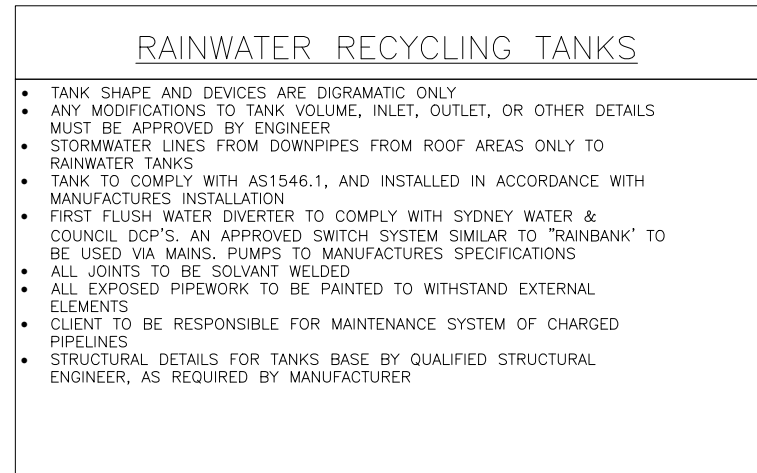
SECTION - TYPICAL SURFACE INLET PIT  
1:5 @ A1  
TYPICAL FOR ALL PITS IN DRIVEWAY/CARPAK AREAS



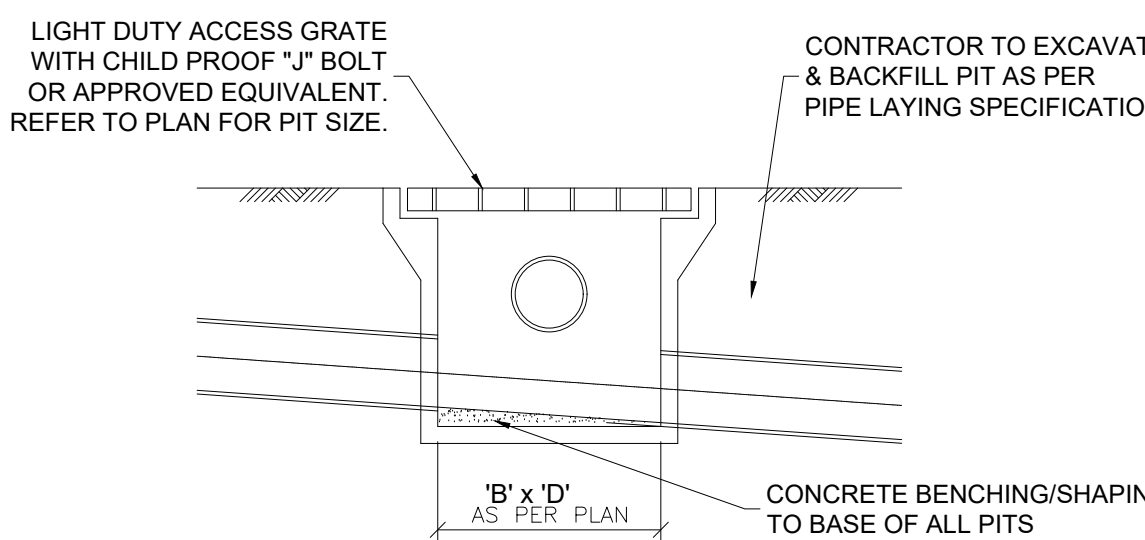
TYPICAL STEP IRONS  
1:20



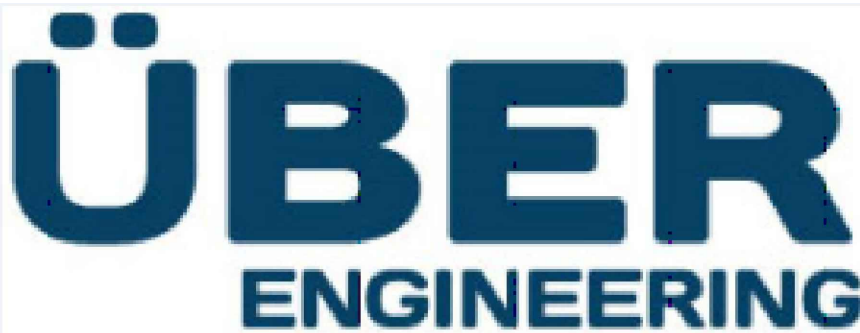
TYPICAL GRATED DRAIN  
DETAIL 1:20



ISSUE FOR APPROVAL



TYPICAL SURFACE INLET PIT  
DETAIL 1:100  
TYPICAL FOR ALL PITS IN NON TRAFFIC AREAS.



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CLIENT

JOSEF USNIK

PROJECT

PROPOSED DEVELOPMENT  
82-84 STAFFORD STREET  
PENRITH

DRAWING TITLE

STORMWATER SECTIONS AND  
DETAILS

SCALES AS SHOWN	DESIGNED ZK	DRAFTED MK
DRAWING NO. U21108 SW03	APPROVED ZK	REVISION B





DESIGN SUMMARY

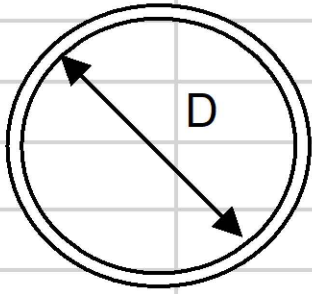
BELOW DESIGN IS BASED ON PENRITH COUNCIL STORMWATER DESIGN GUIDELINE SECTION "4.3.5- SIZING OSD SYSTEM."

TOTAL SITE AREA = 1766.5 m<sup>2</sup>  
AREA CONSIDERED FOR OSD AS PER SECTION 4.2.1  
A = 1766.5 m<sup>2</sup>  
SSR = 240 m<sup>3</sup>/ha  
PSD = 120 L/s/ha

VOLUME REQUIRED = 240 x 0.1767 = 42.41 m<sup>3</sup>  
PERMISSIBLE SITE DISCHARGE = 120 x 0.1767 = 21.2 L/s  
BYPASS AREA = 35 m<sup>2</sup> (1.98%)  
AS PER TABLE 8  
SSR = 258 m<sup>3</sup> / ha  
PSD = 107.8 L/s/ha  
VOLUME REQUIRED = 258 x 0.1767 = 45.59 m<sup>3</sup>  
PERMISSIBLE SITE DISCHARGE = 107.8 x 0.1767 = 19.05 L/s

VOLUME PROVIDED = 22.72 m<sup>3</sup> + 30.15 m<sup>3</sup> = 52.87 m<sup>3</sup>  
HEAD OVER ORIFICE = 1.675 m

ORIFICE DIAMETER = 83 mm  
NOTE ADOPTED TAILWATER AS PIPE HGL LEVEL RL 55.442

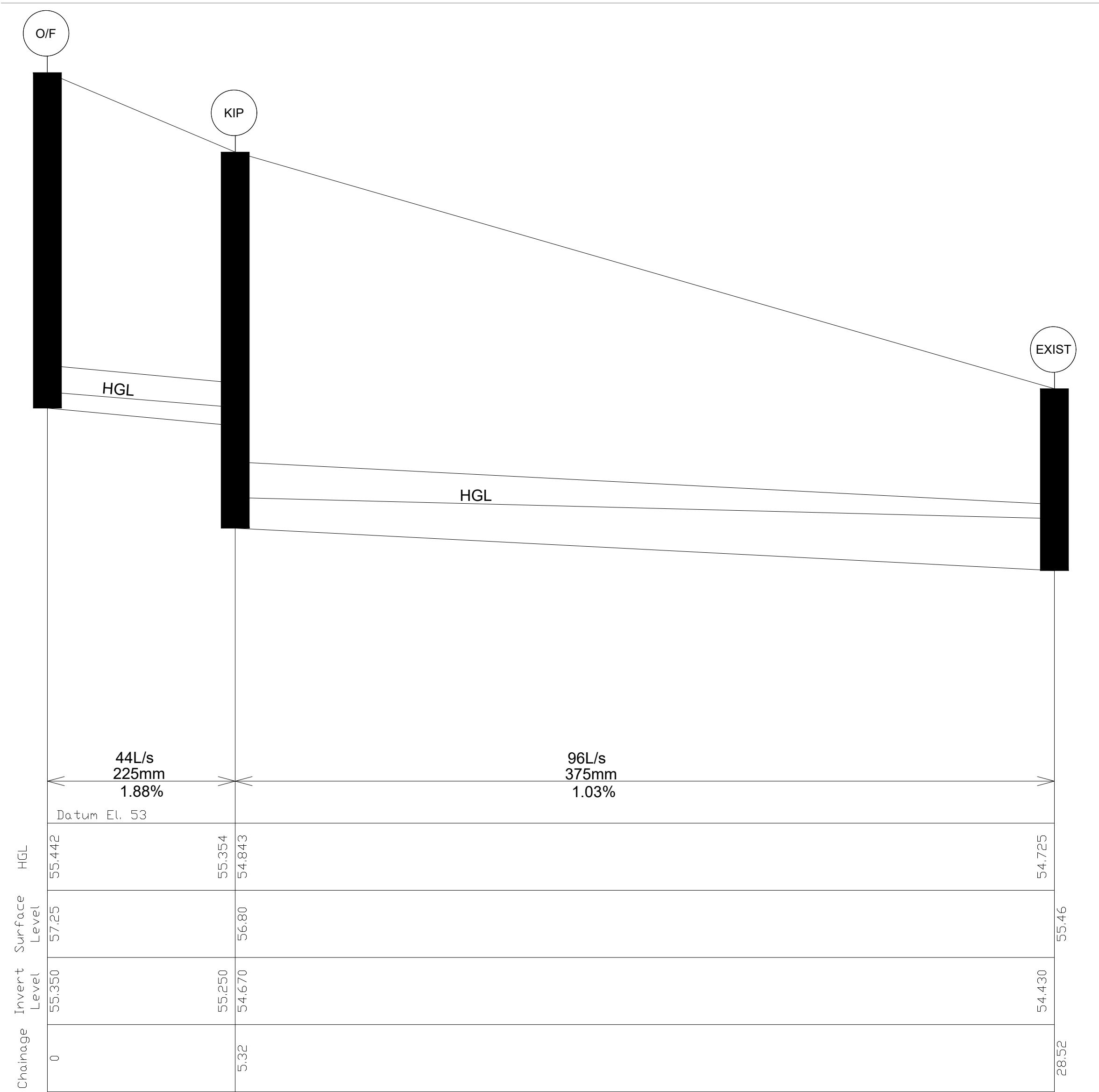
Orifice Diameter				
100 YEAR ARI				
	C =		0.620	
	Q=		19.05	l/s
	h =		1.675	m
	Orifice diameter d =		0.083	m
	This equation relies on: Free discharge Sharp edged orifice			

OSD CATCHMENT PLAN

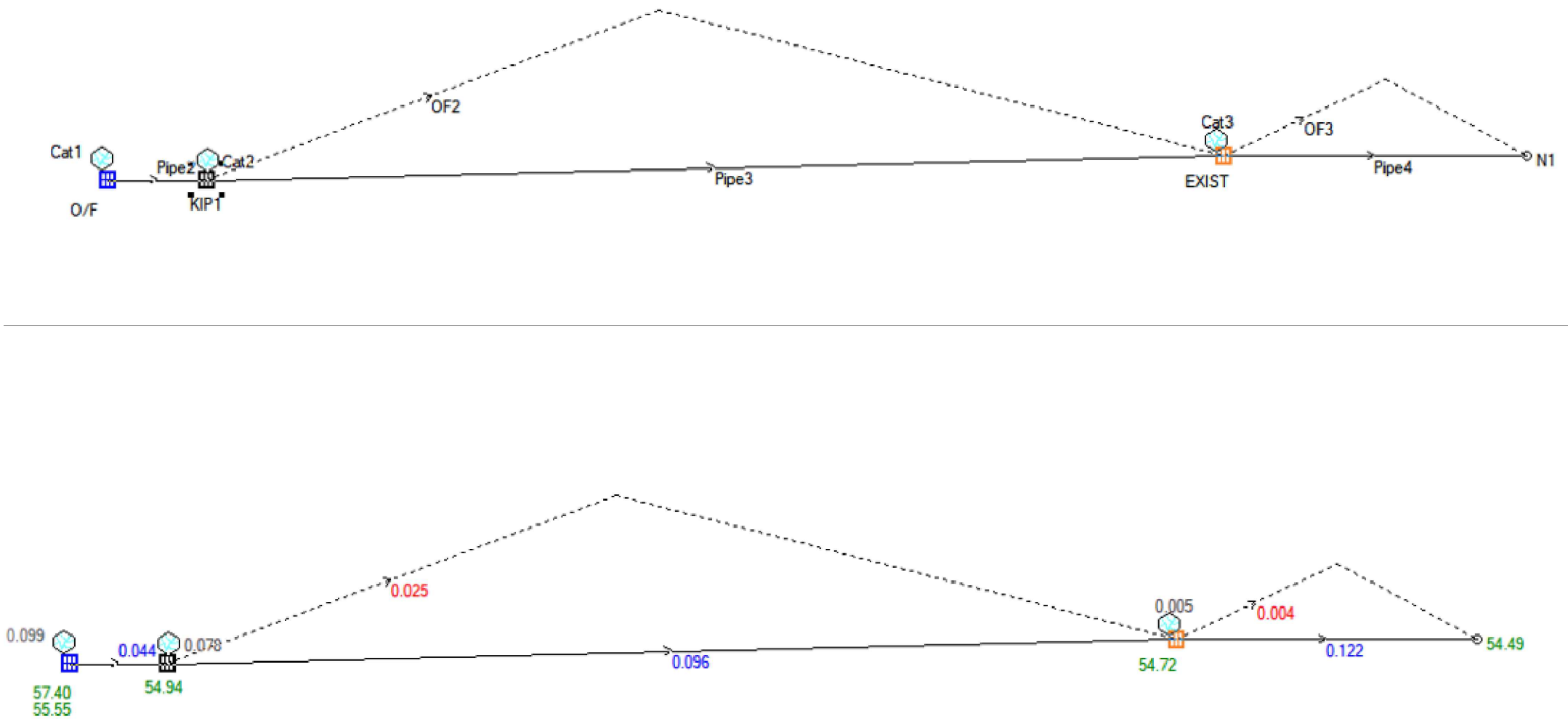
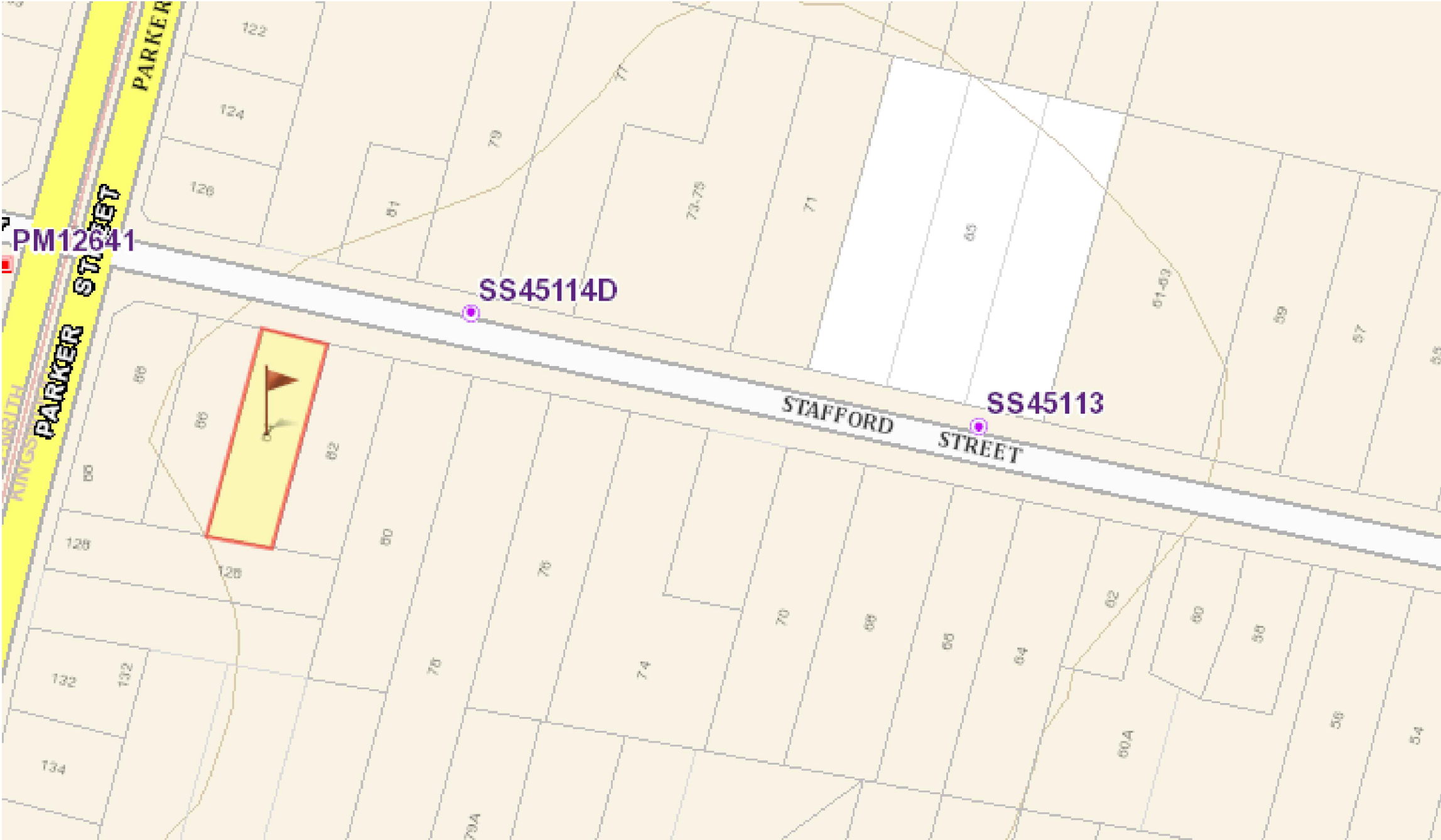
1:100

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								SCALES AS SHOWN		
B	ISSUE FOR DA APPROVAL	22-10-2021							DESIGNED ZK	DRAFTED MK
A	DRAFT FOR DISCUSSION ONLY	05-08-2021							APPROVED ZK	REVISION B
REVISION	AMENDMENT	ISSUE DATE	ISSUE							



PROPOSED LONGITUDINAL PIPE SECTION  
SCALE : 1:100 (H) 1:20 (v)



ISSUE FOR APPROVAL

## 82-84 STAFFORD STREET KINGSWOOD

Results of a simplified bottom up HGL analysis.  
This provides a simple analysis that can be checked manually. It is useful where Council insists on a manual check on HGLs.  
The HGLs shown here may be different to the more accurate values normally calculated by Drains.  
the maximum flows and HGLs throughout the system occur at the same time. In fact, in different parts of the system, they may occur during different storms, or even at different times within the one storm, and that flow is steady.

### 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
Cat1	0.099	0.075	0.024	5	10		0 AR&R 20 year, 25 minutes storm, average 82.16 mm/h, Zone 1
Cat2	0.078	0.066	0.012	5	10		0 AR&R 20 year, 25 minutes storm, average 82.16 mm/h, Zone 1
Cat3	0.005	0.004	0.001	5	20		10 AR&R 20 year, 1.5 hours storm, average 39.81 mm/h, Zone 1

### PIPE DETAILS

Pipe	Flow (cu.m/s)	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Int. Dia (mm)	Rough (mm)	Nom.Cap: V (cu.m/s)	Max V (m/sec)	D/S HGL (m)	Friction Loss (m)	U/S HGL (m)	Node	Headloss Coeff (Ku)	Shock Los: (m)	HGL (m)	Free-board	Overflow (cu.m/s)
Pipe4	0.122	5	54.43	54.33	2	375	0.3	0.307	3	54.494	0.1	54.594	EXIST	1.5	0.093	54.687	0.77	0.004
Pipe3	0.096	23.2	54.67	54.43	1.03	375	0.3	0.22	1.9	54.687	0.156	54.843	KIP1	1.5	0.058	54.902	1.9	0.025
Pipe2	0.044	5.32	55.35	55.25	1.88	242	0.03	0.114	2.7	55.354	0.1	55.454	O/F	1.5	0.068	55.522	1.73	

### PIT & NODE DETAILS

### OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Widht	Max V	Due to Storm
OF2	0.025	0.025	2.953	0.006	0	7.4	0.56	AR&R 20 year, 25 minutes storm, average 82.16 mm/h, Zone 1
OF3	0.004	0.004	2.953	0.003	0	7.4	0.16	AR&R 20 year, 25 minutes storm, average 82.16 mm/h, Zone 1

B	ISSUE FOR DA APPROVAL	22-10-2021			
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JOSEF USNIK	PROPOSED DEVELOPMENT 82-84 STAFFORD STREET PENRITH	PROPOSED PIPE LONG SECTION & CALCULATIONS
		SCALES AS SHOWN
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		DRAFTED MK
		DRAWING NO. U21108 SW05
		APPROVED ZK
		REVISION B