

# PROPOSED MULTI RESIDENTIAL FLAT BUILDING AT 1 GATACRE AVENUE & 5 ALLISON AVENUE, LANE COVE NSW

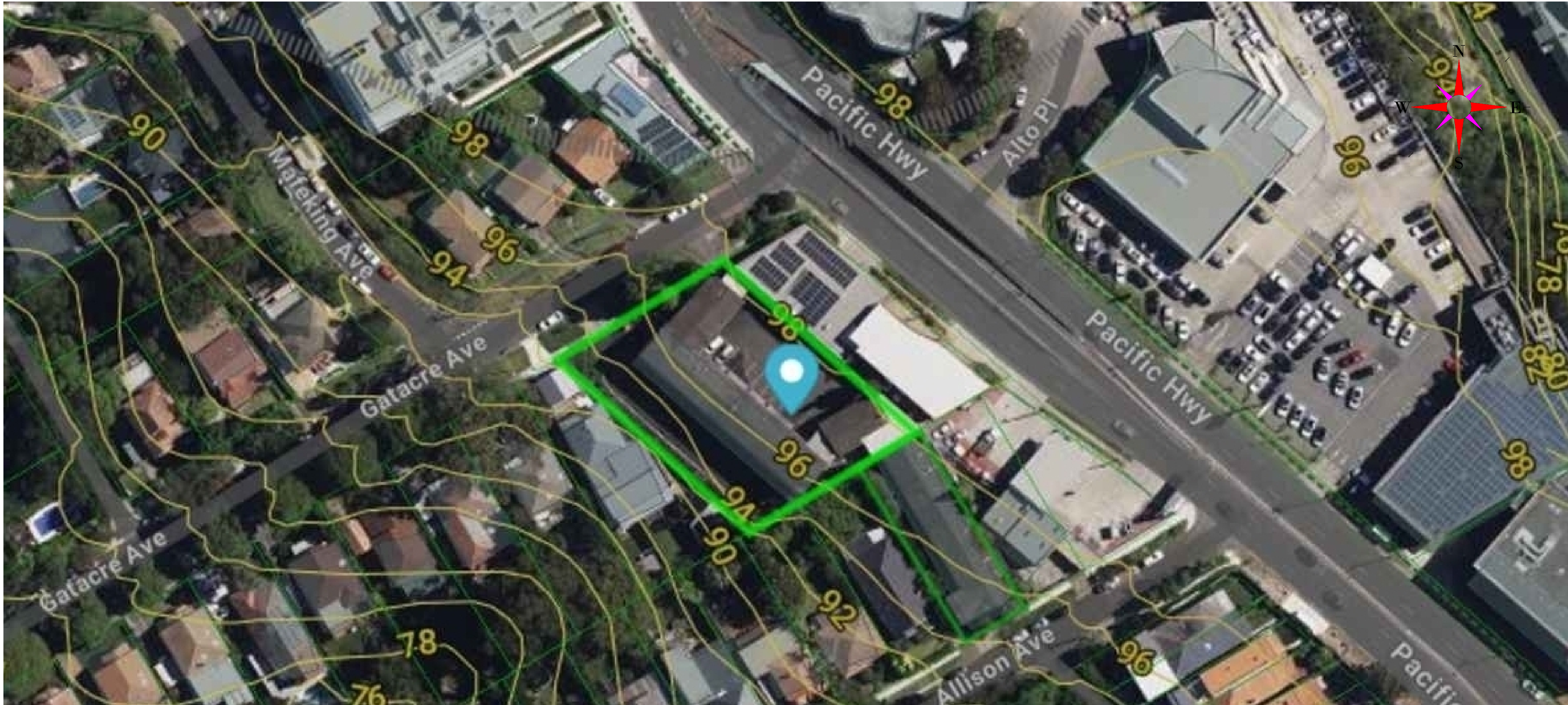
## CONCEPT STORMWATER DESIGN

TABLE OF SCHEDULES

SHEET #	DRAWING NAME	REV	DATE
SW-100	COVER PAGE	05	9/07/2024
SW-101	GENERAL NOTES	05	9/07/2024
SW-200	BASEMENT 02 PLAN	05	9/07/2024
SW-201	BASEMENT 01 PLAN	05	9/07/2024
SW-202	SITE PLAN 1 OF 2	05	9/07/2024
SW-202.1	SITE PLAN 2 OF 2	05	9/07/2024
SW-202.2	MAJOR WORKS LONG SECTION	05	9/07/2024
SW-203	UPPER GROUND FLOOR PLAN	05	9/07/2024
SW-300	OSD CATCHMENT PLAN	05	9/07/2024
SW-301	OSD DETAILED SECTIONS	05	9/07/2024
SW-302	STANDARD DETAILS	05	9/07/2024
SW-303	KERB INLET PIT DETAIL & PIPE LOAD CLASSIFICATION	05	9/07/2024

SPECIFICATIONS

THESE PLANS SHALL BE READ IN CONJUNCTION WITH  
ARCHITECTURAL DESIGN PLANS AND STRUCTURAL DESIGN  
PLANS



SITE LOCALITY

PREPARED BY

ARCHITECT

CLIENT



CIVIL STORMWATER  
ENGINEERING GROUP

. INNOVATE . ENGINEER . TRANSFORM .

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CSEG REFERENCE # CSW2024.12

REVISION 05

SW-100



GENERAL

ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH COUNCIL'S REQUIREMENTS, BUILDING CODE OF AUSTRALIA, NSW CODE OF PRACTICE AND THE RELEVANT SERVICE CODES.

THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERRED TO THE SUPERINTENDENT FOR DECISION BEFORE PROCEEDING WITH THE WORK.

ALL DIMENSIONS SHOWN ON THE DRAWINGS ARE IN MILLIMETERS (U.N.O.). DIMENSIONS SHALL NOT BE OBTAINED BY SCALING OF THESE DRAWINGS. USE FIGURED DIMENSIONS ONLY.

BENCHMARKS HAVE BEEN ESTABLISHED WHERE INDICATED ON THE DRAWINGS. ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (A.H.D.). THE CONTRACTOR SHALL UNDERTAKE ALL NECESSARY SURVEY WORK TO ENSURE THAT THE WORKS ARE CONSTRUCTED TO DESIGN LINE AND LEVEL.

SETTING OUT DIMENSIONS AND LEVELS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR.

ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE RELEVANT SAA CODES AND THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES.

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 WORK 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.

WHERE NEW WORKS ABOUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED.

ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS AND THESE SPECIFICATIONS.

DESIGN LEVELS GIVEN ARE TO FINISHED SURFACE LEVEL AND INCLUSIVE OF TOPSOIL. (TOPSOIL DEPTH VARIES)

THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A N.A.T.A. REGISTERED SURVEYOR.

CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS ARE TO BE UNDERTAKEN OVER TELECOMMUNICATIONS OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS.

THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ON THE DRAWING HAVE BEEN PLOTTED FROM DIAGRAMS PROVIDED BY SERVICE AUTHORITIES. THIS INFORMATION HAS BEEN PREPARED SOLELY FOR THE AUTHORITIES OWN USE AND MAY NOT NECESSARILY BE UPDATED OR ACCURATE.

THE POSITION OF SERVICES AS RECORDED BY THE AUTHORITY AT THE TIME OF INSTALLATION MAY NOT REFLECT CHANGES IN THE PHYSICAL ENVIRONMENT SUBSEQUENT TO INSTALLATION.

CAPITAL ENGINEERING CONSULTANTS DOES NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THE DRAWING SHOWS MORE THAN THE PRESENCE OR ABSENCE OF SERVICES, AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN FROM THE UTILITY SERVICES AUTHORITIES A CURRENT COPY OF UNDERGROUND SERVICES SEARCH FOR THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF ANY WORK AND NOTIFY ANY CONFLICT WITH THE DRAWINGS IMMEDIATELY. CLEARANCE SHALL BE OBTAINED FROM THE RELEVANT REGULATORY AUTHORITY. CONTRACTOR TO KEEP COPY OF UNDERGROUND SERVICES SEARCH ON SITE AT ALL TIMES. ANY DAMAGES TO SERVICES OR SERVICES ADJUSTMENTS SHALL BE CARRIED OUT BY THE CONTRACTOR OR RELEVANT AUTHORITY AT THE CONTRACTOR'S EXPENSE.

VISIT THE SITE BEFORE SUBMITTING THE FINAL TENDER PRICE TO ASSESS 'ON SITE' CONDITIONS. FAILURE TO DO SO WILL FORFEIT ANY CLAIM FOR NOT BEING AWARE OF CONDITIONS AFFECTING THE TENDER.

THE CONTRACTOR SHALL PREPARE ACCURATE WORK-AS-EXECUTED DRAWINGS FOLLOWING THE COMPLETION OF ALL WORKS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE IN PLACE & MAINTAIN TRAFFIC FACILITIES AT ALL TIMES DURING CONSTRUCTION.

SURVEY

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY XXXXXXXX, BEING REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. CAPITAL ENGINEERING CONSULTANTS DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.

SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT CAPITAL ENGINEERING CONSULTANTS.

ADOPT SSM XXXXXX RL:XXXXX AS PER SUREY COMPANY REF NO.XXXXXX

RESTORATION

RESTORE ALL TRAFFIC AREAS TO PRE-EXISTING CONDITIONS.

FOR ALL SURFACES OTHER THAN IN TRAFFIC AREAS RESTORE DISTURBED SURFACES TO PRE-EXISTING CONDITIONS AND COMPACT AS SPECIFIED.

MISCELLANEOUS

GEOTEXTILE FABRIC MATERIAL TO BE BIDIM A24 OR APPROVED EQUIVALENT AND SHALL COMPLY WITH AS3705-2012:GEOTEXTILES - IDENTIFICATION, MARKING AND GENERAL DATA'.

STORMWATER

COORDINATE THE INSTALLATION OF NEW SERVICES WITH ALL NEW & EXISTING SERVICES & STRUCTURAL PROVISIONS AS DETERMINED ON SITE.

ALL PIPEWORK TO BE SUPPORTED IN ACCORDANCE WITH AS3500.3-2003.

ALL PIPEWORK IS TO BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS AS SET DOWN IN AS3500.3-2003. ALL IN-GROUND PIPEWORK TO BE INSPECTED BY THE SUPERINTENDENT UNDER TEST CONDITIONS PRIOR TO BACKFILLING. BACKFILLING AND BEDDING TO AS3500.3-2003.

PIPES SHALL BE TRUE TO GRADES SHOWN AND ALIGNED SO THAT THE CENTRE OF THE INLET PIPE INTERSECTS WITH THE CENTRE OF THE OUTLET PIPE AT THE DOWNSTREAM FACE OF THE PIT.

BED ALL PIPES FIRMLY AND EVENLY WITH IMPORTED FILL ONLY. THICKNESS OF BEDDING LAYER SHALL BE 75mm IN SOIL AND 200mm IN ROCK.

LAY AND JOINT ALL PIPES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS3725-2007:'DESIGN FOR INSTALLATION OF BURIED CONCRETE PIPES'.

ALLOW TO TEST ALL PIPES AND PITS TO LOCAL AUTHORITY'S REQUIREMENTS.

EXCAVATE TRENCHES AND STOCKPILE ALL MATERIAL FOR INSPECTION WITH REGARD TO REUSE FOR TRENCH BACKFILL. REMAINING MATERIAL TO BE REMOVED FROM SITE.

BACKFILL PIPES WITH IMPORTED FILL. PROVIDE 200mm SIDE SUPPORT AND 150mm OVERLAY ABOVE PIPE CROWN. TRENCH FILL ABOVE THE EMBEDMENT ZONE TO THE UNDERSIDE OF THE ROAD PAVEMENT OR THE FOOTWAY SHALL BE AS FOLLOW:-

UNDER ROADWAY  
TRENCH FILL MATERIAL SHALL CONSIST OF IMPORTED FILL AS SPECIFIED HEREIN OF EITHER HIGH GRADE COMPACTION SAND OR APPROVED CRUSHED ROAD GRAVEL CONFORMING TO RMS QA SPECIFICATION 3051 OR SIMILAR.

OTHER THAN ROADWAY  
TRENCH MATERIAL EXCAVATED SHALL CONSIST OF SELECT FILL AS SPECIFIED HEREIN AND SHALL NOT CONTAIN MORE THAN 20% OF STONES OF SIZE BETWEEN 25mm AND 75mm AND NONE LARGER THAN 75mm. PRIOR TO USE OF THE EXCAVATED MATERIAL IT SHALL BE INSPECTED AND APPROVED BY THE ENGINEER.

COMPACT BEDDING. EMBEDMENT AND TRENCH FILL MATERIALS AS FOLLOW:-

EMBEDMENT:-  
FOR GRANULAR FILL MATERIAL (NON-COHESIVE SOIL) e.g. COARSE AGGREGATE FILL, THE DENSITY INDEX (ID) SHALL BE NOT LESS THAN 70%.

TRENCH FILL:-  
FOR GRANULAR MATERIAL (NON COHESIVE SOILS). THE DENSITY INDEX (ID) SHALL BE NOT LESS THAN 70%. FOR NON-GRANULAR FILL MATERIAL (COHESIVE SOILS), THE DRY DENSITY RATIO (RD) SHALL BE NOT LESS THAN 95%.

EXISTING SERVICES  
UTILITY INFORMATION SHOWN ON THE PLANS IS NOT INTENDED TO DEPICT MORE THAN THE PRESENCE OF ANY SERVICES. ACTUAL LOCATIONS SHOULD BE VERIFIED BY HAND EXCAVATION PRIOR TO CONSTRUCTION.

THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL (IF REQUIRED) OF ALL EXISTING SERVICES IN AREAS AFFECTED BY THE WORKS.

THE CONTRACTOR SHALL ENSURE THAT SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED AT ALL TIMES. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING WHERE REQUIRED. ONCE THE WORKS ARE COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD ALL DISTURBED AREAS.

DRAINAGE PIPES  
EXISTING PIPES WHICH FORM NO PART OF THE DRAINAGE SYSTEM SHALL BE REMOVED OR SEALED AS INDICATED ON THE PLANS. PIPES UP TO 300mm DIAMETER SHALL BE SEWER GRADE uPVC WITH SOLVENT WELDED JOINTS (U.N.O.). ALL PIPE JUNCTIONS AND TAPERS SHALL BE VIA PURPOSE MADE FITTINGS.

WHERE DOWNPIPES PASS UNDER FLOOR SLABS, SEWER GRADE uPVC WITH RUBBER RING JOINTS ARE TO BE USED.

MINIMUM GRADE TO DRAINAGE PIPES TO BE 1% (U.N.O.), MIN. SIZE 100mm DIAMETER (U.N.O.).

PIPES LARGER THAN OR EQUAL TO 300mm DIAMETER TO BE REINFORCED CONCRETE RUBBER RING JOINTED TYPE (CLASS 2) MANUFACTURED TO AS4058 (U.N.O.).

PIPE INSTALLATION UNDER TRAFFICABLE AREAS SHALL BE IN ACCORDANCE WITH CONCRETE PIPE ASSOCIATION OF AUSTRALIA PUBLICATION "CONCRETE PIPE SELECTION & INSTALLATION" TYPE H53 SUPPORT.

EQUIVALENT STRENGTH FRC PIPES MAY BE USED SUBJECT TO AUTHORITY APPROVAL.

MINIMUM PIPE COVER TO BE 400mm UNDER TRAFFICABLE AREAS AND 300mm ELSEWHERE (U.N.O.).

CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.

PROVIDE CLEANING EYES TO ALL DOWNPIPES NOT DIRECTLY CONNECTED TO PITS.

STORMWATER DRAINAGE CONNECTIONS TO COUNCIL'S SYSTEM SHALL BE TO THE REQUIREMENTS AND THE SATISFACTION OF LOCAL COUNCIL.

DRAINAGE PITS  
PITS DEEPER THAN 1200mm TO BE FITTED WITH STEP IRONS AT 300 CENTRES TO AS1657-2013:FIXED PLATFORMS, WALKWAYS, STAIRWAYS AND LADDERS - DESIGN, CONSTRUCTION AND INSTALLATION'.

ALL EXPOSED EDGES TO BE ROUNDED WITH 20mm RADIUS, OR CHAMFERED 20mm x 20mm.

PIT REINFORCEMENT - MESH S182 LAP TO BE 400mm MIN. CLEAR COVER 40 MIN. CAST AGAINST BLINDING OR FORMWORK. CORNER RETURNS MAY BE FABRIC OR EQUIVALENT BARS.

STORMWATER

BENCHING TO BE HALF OUTGOING PIPE DEPTH. CONCRETE FOR BENCHING TO BE 20MPa MASS CONCRETE.

APPROVED PRECAST PITS MAY BE USED.

100mm DIAMETER HOLE FOR SUBSOIL DRAINAGE OUTLET TO BE LOCATED 100mm ABOVE INVERT OF ALL INLET PIPES. SUBSOIL DRAINAGE TO EXTEND FOR A DISTANCE OF 3m UPSTREAM OF PIT (AT EACH INLET TRENCH) WITH THE UPSTREAM END SEALED.

ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH.

PIT GRATE, FRAMES AND SOLID COVERS SHALL BE CLASS B IN NON TRAFFIC AREAS AND CLASS D IN TRAFFICABLE AREAS IN ACCORDANCE WITH AS3996.

ALL GRATES SHALL BE PROVIDED WITH A LOCKING CLIP.

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

PIT GRATING TO BE GALVANISED STEEL TYPE 'WELDLOK' OR APPROVED EQUIVALENT.

SUBSOIL DRAINAGE  
SUBSOIL PIPES SHALL BE LAID AT A MIN GRADE OF 0.5% (U.N.O.).

ADDITIONAL SUBSOIL DRAINAGE SHALL BE LAID TO SUIT SITE CONDITIONS AND GROUNDWATER PRESENCE AS DIRECTED.

SUBSOIL PIPES SHALL BE LAID BEHIND KERBS IN CUT AREAS OF THE SITE.

SUBSOIL DRAINAGE SHALL CONSIST OF A SLOTTED 100mm DIAMETER PLASTIC PIPE WRAPPED IN GEOTEXTILE AND PLACED A MINIMUM OF 650mm BELOW THE FINISHED SURFACE LEVEL AND COVERED WITH 500mm OF 20mm GRAVEL. PROVIDE A MINIMUM OF 150mm GRAVEL AROUND SUBSOIL PIPE. TRENCH TO BE LINED WITH GEOTEXTILE FABRIC TYPE BIDIM A24

GRATES TO PITS IN FOOTPATH AREAS SHALL BE HEEL SAFE COMPLYING WITH THE DISABLED ACCESS CODE

EROSION CONTROL

BEFORE EARTHWORKS CAN COMMENCE THE EROSION & SEDIMENT CONTROL MEASURES MUST BE IN PLACE.

DURING THE CONSTRUCTION PERIOD, THESE CONTROL MEASURES WILL NEED TO BE INSPECTED & MAINTAINED REGULARLY, ESPECIALLY AFTER STORM EVENTS, BY THE CONTRACTOR.

ALL WORK IS TO BE CARRIED OUT TO PREVENT EROSION, CONTAMINATION & SEDIMENTATION OF THE STORAGE SITE. SURROUNDING AREAS & DRAINAGE SYSTEMS.

MINIMIZE DISTURBED AREA COVERED WITH NATURAL VEGETATION. ONLY THOSE AREAS DIRECTLY REQUIRED FOR CONSTRUCTION ARE TO BE DISTURBED.

INSTALL EROSION/SEDIMENT CONTROL MEASURES PRIOR TO COMMENCEMENT OF CONSTRUCTION OR EXCAVATION OPERATIONS.

PROVIDE SILT FENCE/STRAW BAIL BARRIERS TO THE LOW SIDE OF ALL EXPOSED EARTH EXCAVATIONS. THE SEDIMENT FENCING MATERIAL TO CYCLONE WIRE SECURITY FENCE. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (EG. HUMES PROPEX SILT STOP) STANDING 300mm ABOVE GROUND & EXTENDING 150mm BELOW GROUND.

ISOLATE EXISTING STORMWATER PITS WITH STRAW BALES OR SILT TRAPS TO FILTER ALL INCOMING FLOWS.

DO NOT STOCKPILE EXCAVATED MATERIAL ON THE ROAD WAY.

DIVERT CLEAN WATER FROM UNDISTURBED AREAS AROUND THE WORKING AREAS.

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 AND LEAVING THE SITE DO SO IN A FORWARD DIRECTION.

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 (POEO 1997) AND SHALL BE APPROVED BY LOCAL COUNCIL

ADOPT TEMPORARY MEASURES AS MAY BE NECESSARY FOR EROSION & SEDIMENT CONTROL, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: -

- DRAINS: TEMPORARY DRAINS AND CATCH DRAINS.  
- SPREADER BANKS OR OTHER STRUCTURES: TO DISPERSE CONCENTRATED RUNOFF.  
- SILT TRAPS: CONSTRUCTION AND MAINTENANCE OF SILT TRAPS TO PREVENT DISCHARGE OF SCOURED MATERIAL TO DOWNSTREAM AREAS.

AFTER RAIN, INSPECT, CLEAN, AND REPAIR IF REQUIRED, TEMPORARY EROSION & SEDIMENT CONTROL MEASURES.

REMOVE TEMPORARY EROSION &SEDIMENT CONTROL MEASURES WHEN THEY ARE NO LONGER REQUIRED.

COMPLY WITH THE REQUIREMENTS OF LANDCOM'S MANAGING URBAN STORMWATER - SOIL AND CONSTRUCTION 'THE BLUE BOOK' LATEST EDITION

THE EROSION & SEDIMENT CONTROL PLAN PROVIDED IS ONLY INDICATIVE. THE CONTRACTOR SHOULD PREPARE A DETAILED ESCP SUITABLE FOR THE SPECIFIC SITE CONDITIONS




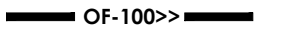



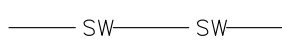







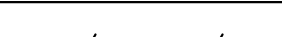

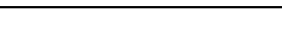

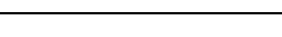


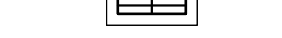


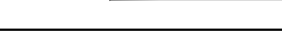


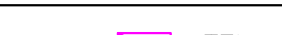
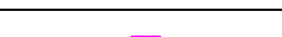
KERB AND GUTTER




















ALL KERB AND GUTTER SHALL COMPLY WITH AS2876-2000:'CONCRETE KERBS AND CHANNELS-MANUALLY OR MACHINE PLACED'.

CONCRETE CHARACTERISTICS SHALL BE IN ACCORDANCE WITH THE CONCRETE NOTES.

THE CONTRACTOR SHALL LIAISE WITH RELEVANT AUTHORITIES TO DETERMINE THEIR REQUIREMENTS FOR THE KERBS AND GUTTERS.

ALL KERB & GUTTER IS TO BE MACHINE LAID UNLESS OTHERWISE APPROVED BY THE SUPERINTENDENT

LEGEND	
	STORMWATER LINE DISCHARGE
	STORMWATER LINE SURFACE RUNOFF
	STORMWATER LINE ROOF RUNOFF
	OVER FLOW PIPE
	SUBSOIL DRAINAGE
	STORMWATER RISING MAIN
	EXISTING STORMWATER LINE
	AUTHORITY STORMWATER LINE
	EXISTING STORMWATER EASEMENT
	AUTHORITY SEWER LINE
	AUTHORITY WATER LINE
	AUTHORITY GAS LINE
	AUTHORITY ELECTRICITY LINE
	AUTHORITY FIBRE OPTIC LINE
	AUTHORITY COMMS LINE
	FENCE LINE
	GRADED SURFACE INLET PIT
	GRADED SURFACE INLET PIT WITH ENVIROPOD INSERT
	JUNCTION PIT
	KERB INLET PIT
	EXISTING GRADED SURFACE INLET PIT
	GRADED TRENCH DRAIN
	EXISTING JUNCTION PIT
	EXISTING KERB INLET PIT
	EXISTING TELSTRA PIT
	EXISTING HYDRANT
	EXISTING SEWER MANHOLE
	EXISTING GAS VALVE
	EXISTING POWER POLE
	EXISTING BOUNDARY TRAP

LEGEND	
	FIRST FLUSH
	DOWNPIPE
	OVERLAND FLOW PATH
	RAINWATER OUTLET
	CLEAR OUT POINT
	DISH DRAIN OUTLET
	PLANTER DRAIN
	PENETRATION WITH FIRE COLLAR
	PIT TAG/NUMBER
	RAINHEAD
	DOWNPIPE DROP
	NON RETURN VALVE
	WALL PENETRATION
	DOWNPIPE SPREADER.
	WARNING LIGHT
	SPOT LEVELS
	BENCHMARK
	SLOPE
	RAINWATER TANK

ABBREVIATIONS:

Ø or DIA	DIAMETER	TWL	TOP WATER LEVEL
CBR	CALIFORNIA BEARING RATIO	TP	TANGENT POINT
CH	CHAINAGE	UPVC	UNPLASTICISED POLYVINYL CHLORIDE
CL	CENTER LINE	UNO	UNLESS NOTED OTHERWISE
CO	CLEAR OUT	WPJ	WEAKENED PLANE JOINT
DD	DISH DRAIN	FF	FIRST FLUSH DEVICE
DDO	DISH DRAIN OUTLET	TYP	TYPICAL
DEJ	DOWELED EXPANSION JOINT		
DGB	DENSE GRADED BASECOURSE		
DGS	DENSE GRADED SUB-BASE		
DP	DOWNPIPE		
e	EXISTING		
FFL	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		
RCP	REINFORCED CONCRETE PIPE		
RK	ROLL KERB & GUTTER		
RL	REDUCED LEVEL		
RW	RETAINING WALL		
RWT	RAINWATER TANK		
SJ	SAWN CONTROL JOINT		
SMH	SEWER MAN HOLE		
SW	STORMWATER		
SWP	STORMWATER PIT		
SWRM	STORMWATER RISING MAIN		
SWS	STORMWATER SUMP		
SV	STOP VALVE		
TOK	TOP OF KERB		
TOW	TOP OF WALL		

APPROVALS

THE ASBUILT WORKS SHALL BE INSPECTED BY THE ENGINEER. MINIMUM 48 HOURS NOTICE SHALL APPLY TO ALL INSPECTIONS.

THE DESIGN PLANS HEREIN ARE SUBJECT TO LOCAL COUNCIL APPROVAL PRIOR TO CONSTRUCTION. OBTAIN EXPRESS (WRITTEN) ADVICE TO PROCEED FROM PROJECT SUPERINDEPENDENT PRIOR TO COMMENCEMENT.

SUBMIT WORK-AS-EXECUTED DRAWINGS IN DWG FORMAT AND HARD COPY FORMAT UNDERTAKEN BY A REGISTERED SURVEYOR. VERIFY ALL CONSTRUCTION WORKS SHOWN HEREON.

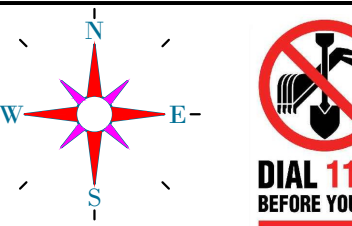

CERTIFY THAT THE ASBUILT SYSTEM HAS BEEN BUILT IN ACCORDANCE WITH THE APPROVED PLANS ISSUED FOR CONSTRUCTION.

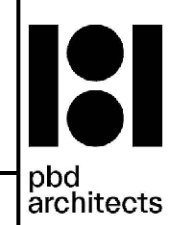
ALLOW FOR SUBGRADE AND PAVEMENT THICKNESS TO BE VERIFIED BY THE GEOTECHNICAL ENGINEER AFTER INSPECTION OF PRELIMINARY BOXING.

ALLOW FOR ANY SUBGRADE REPLACEMENT WORK TO BE DETERMINED AS REQUIRED BY GEOTECHNICAL ENGINEER AT THE TIME OF PAVEMENT CONSTRUCTION.

REV	01	02	03	04	05				
DATE	13-Mar-24	27-Mar-24	15-Apr-24	24-Apr-24	9-Jul-24				
DRN	MS	MS	MS	MS	MS				
DESIGNED	MS	MS	MS	MS	MS				
APRD	SCR	SCR	SCR	SCR	SCR				
DETAILS	FOR APPROVAL	FOR APPROVAL/ARCHITECTURAL CHANGES	FOR APPROVAL/ARCHITECTURAL CHANGES	FOR APPROVAL/ARCHITECTURAL CHANGES	FOR APPROVAL/ARCHITECTURAL CHANGES				
PROJECT ADDRESS: 1 GATACRE AVENUE & 5 ALLISON AVENUE, LANE COVE									

5	10	15	20
SCALE BAR 1:100			
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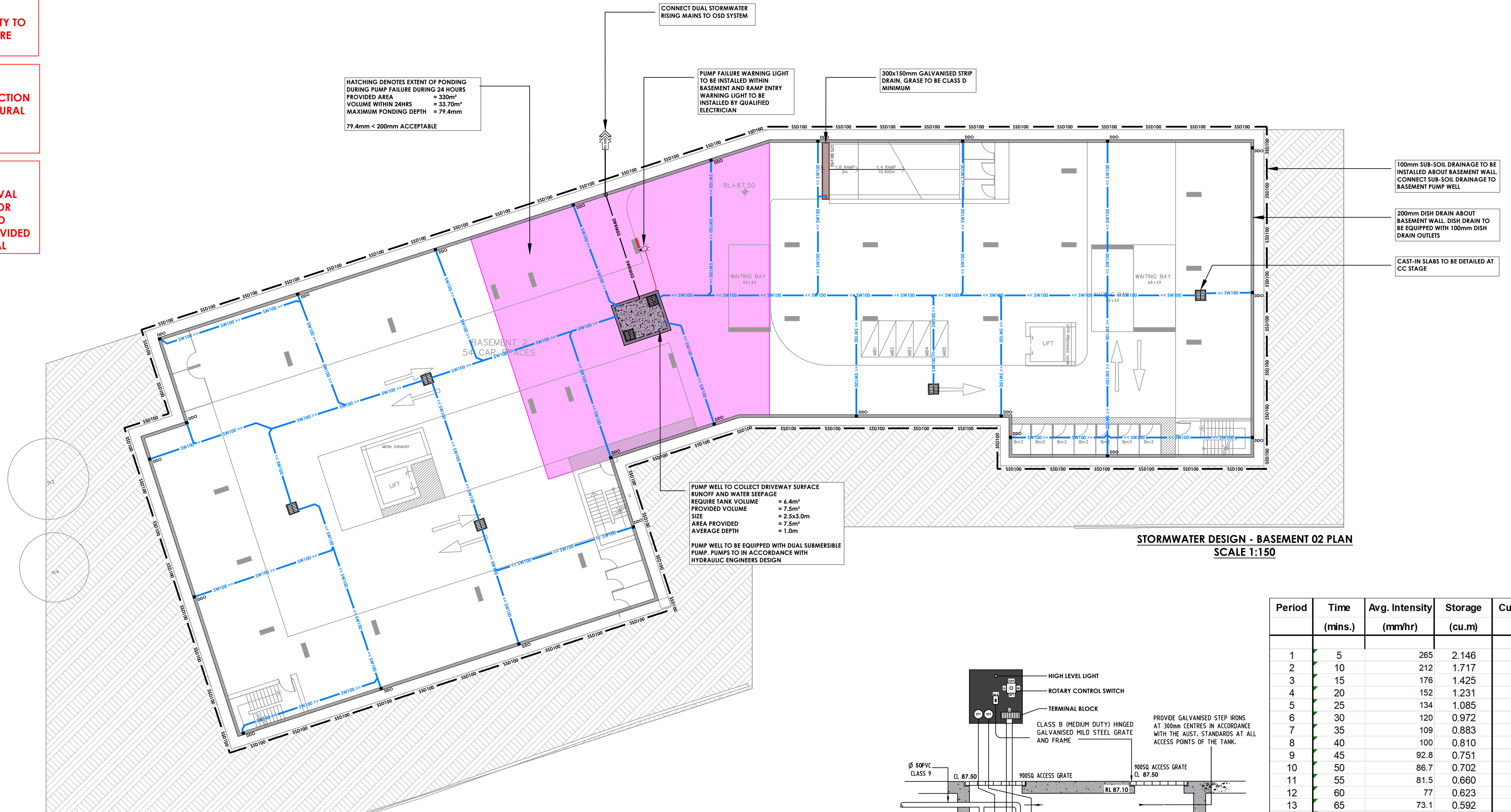


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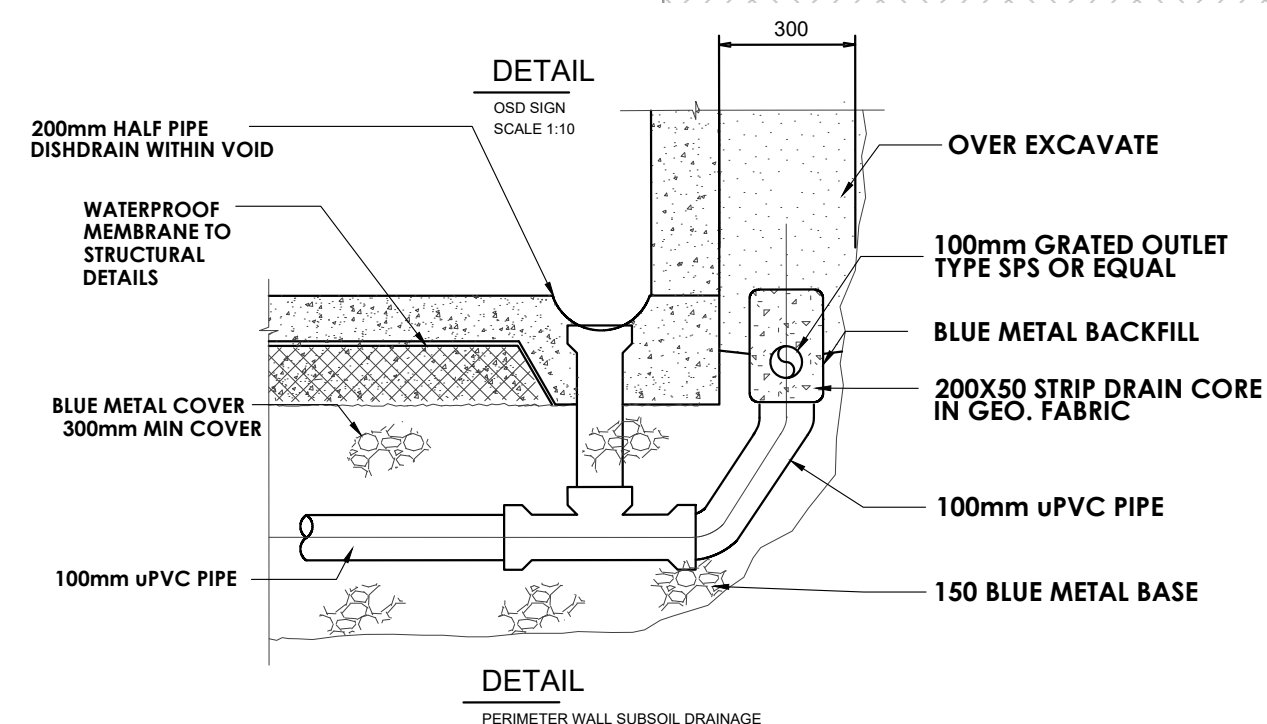
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**STORMWATER DESIGN - BASEMENT 02 PLAN**  
**SCALE 1:150**

Period	Time	Avg. Intensity	Storage	Cum. Storage
	(mins.)	(mm/hr)	(cu.m)	(cu.m)
1	5	265	2.146	2.146
2	10	212	1.717	3.862
3	15	176	1.425	5.287
4	20	152	1.231	6.518
5	25	134	1.085	7.603
6	30	120	0.972	8.574
7	35	109	0.883	9.457
8	40	100	0.810	10.267
9	45	92.8	0.751	11.018
10	50	86.7	0.702	11.720
11	55	81.5	0.660	12.380
12	60	77	0.623	13.003
13	65	73.1	0.592	13.595
14	70	69.7	0.564	14.160
15	75	66.6	0.539	14.699
16	80	63.9	0.517	15.216
17	85	61.5	0.498	15.714
18	90	59.2	0.479	16.194
19	95	57.2	0.463	16.657
20	100	55.4	0.449	17.105
21	105	53.7	0.435	17.540
22	110	52.2	0.423	17.963
23	115	50.7	0.411	18.373
24	120	49.4	0.400	18.773

PUMP-OUT STORAGE VOLUME	6.4 m <sup>3</sup>
-------------------------	--------------------



**CONTROL VOLUME TO PREVENT PUMP FROM STARTING TOO OFTEN (<10/HR)**

CV	= 900xQ p/n
CV	= (900x7.155)x( $\frac{1}{10000}$ )
	= 0.64m <sup>3</sup>
DEPTH	= 0.64/1.2 = 0.54m

**PUMP DISCHARGE**

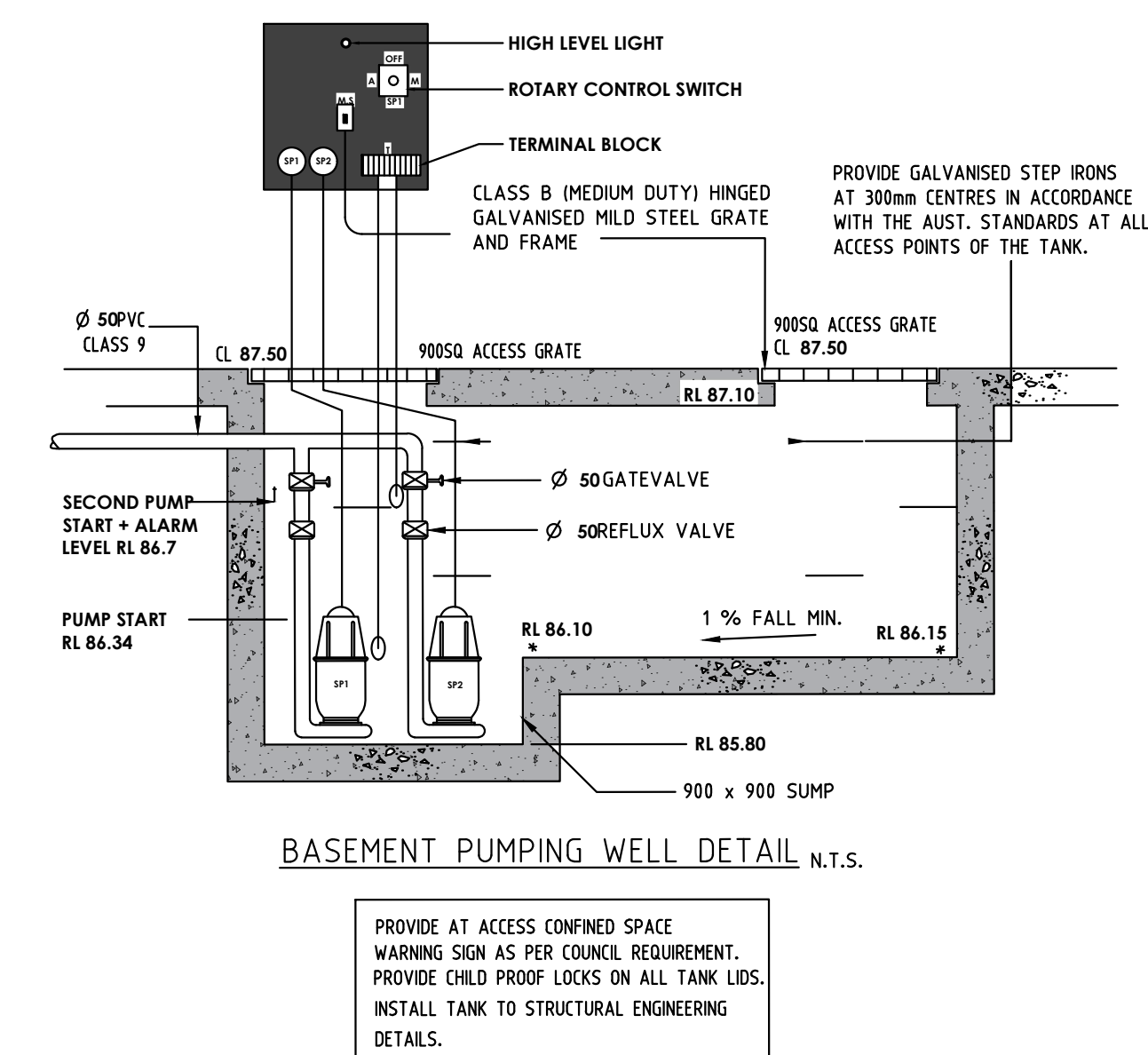
Q	= CIA/3600
C	= 0.9
I	= 265MM/HR (1%ARI 5MIN)
A	= 108m <sup>2</sup>
Q	= (0.9x0.219x108)/3600
	= 7.155/s (MIN 10I/s AS PER AS 3500)
	= 429.30l/min (PROVIDE 400l/min)

## PUMP BLACKOUT VOLUME

V	= A x d
d	= 13MM/HR (1%AEP 24HR)
A	= 108m <sup>2</sup>
Q	= 108 x (312/1000)
	= 33.70m <sup>3</sup>

TOTAL DEPTH OF INUNDATION

AREA OF INUNDATION	= 330m <sup>2</sup>
DEPTH OF INUNDATION (33.70-7.5)330	= 79.4m
MAX. ALLOWABLE INUNDATION	= 200mr

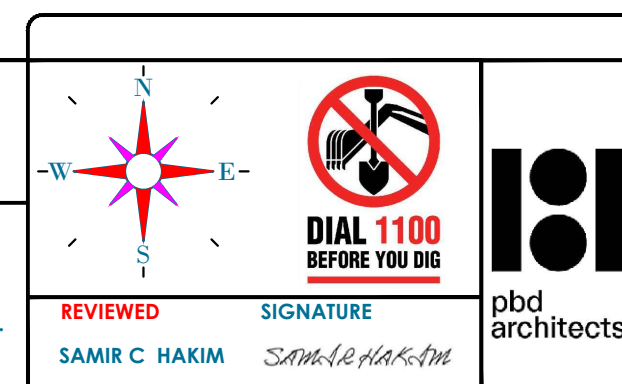


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**SCALE BAR 1:100**

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ENGINEER	 <b>CIVIL STORMWATER ENGINEERING GROUP</b> . INNOVATE . ENGINEER . TRANSFORM

## BASEMENT 02 PLAN

<b>MASS CURVE CALCULATOR</b>		0000 POC W MIN TS 0000 POC MAX TS 0000 POC W MIN TS 0000 POC MAX TS 0000 POC W MIN TS 0000 POC MAX TS 0000 POC W MIN TS 0000 POC MAX TS
<b>SHT SITE</b>	<b>SCALE: 1:100 (A3 1:200)</b>	<b>05</b> <b>REVISION</b>
	<b>PROJECT No: CSW2024.11</b>	
<b>APPLICATION DEVELOPMENT APPLICATION (DA)</b>		
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<b>SW-200</b>		<b>03</b> <b>SHEET</b>

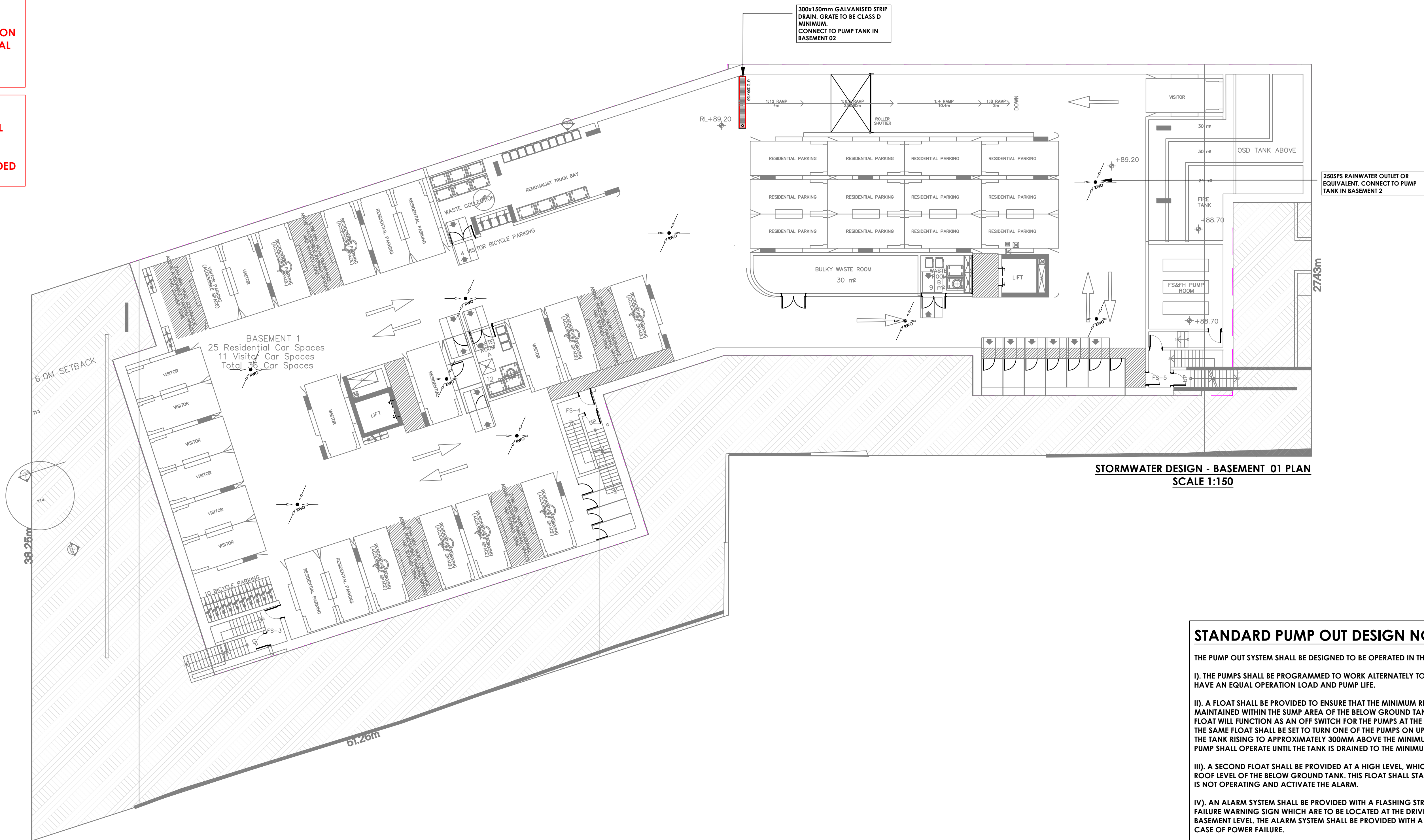


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STORMWATER DESIGN - BASEMENT 01 PLAN  
SCALE 1:150

**STANDARD PUMP OUT DESIGN NOTES:**

- THE PUMP OUT SYSTEM SHALL BE DESIGNED TO BE OPERATED IN THE FOLLOWING MANNER: -
- I). THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATELY TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE.
  - II). A FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE BELOW GROUND TANK. IN THIS REGARD THIS FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMPS AT THE MINIMUM WATER LEVEL. THE SAME FLOAT SHALL BE SET TO TURN ONE OF THE PUMPS ON UPON THE WATER LEVEL IN THE TANK RISING TO APPROXIMATELY 300MM ABOVE THE MINIMUM WATER LEVEL. THE PUMP SHALL OPERATE UNTIL THE TANK IS DRAINED TO THE MINIMUM WATER LEVEL.
  - III). A SECOND FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHALL START THE OTHER PUMP THAT IS NOT OPERATING AND ACTIVATE THE ALARM.
  - IV). AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBELIGHT AND A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO THE BASEMENT LEVEL. THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE.
  - V). A CONFINED SPACE DANGER SIGN SHALL BE PROVIDED AT ALL ACCESS POINTS TO THE PUMP OUT STORAGE TANK IN ACCORDANCE WITH THE UPPER PARRAMATTA RIVER CATCHMENT TRUST OSD HANDBOOK.

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PROJECT ADDRESS: 1 GATACRE AVENUE & 5 ALLISON AVENUE, LANE COVE

**SAMIR C HAKIM**  
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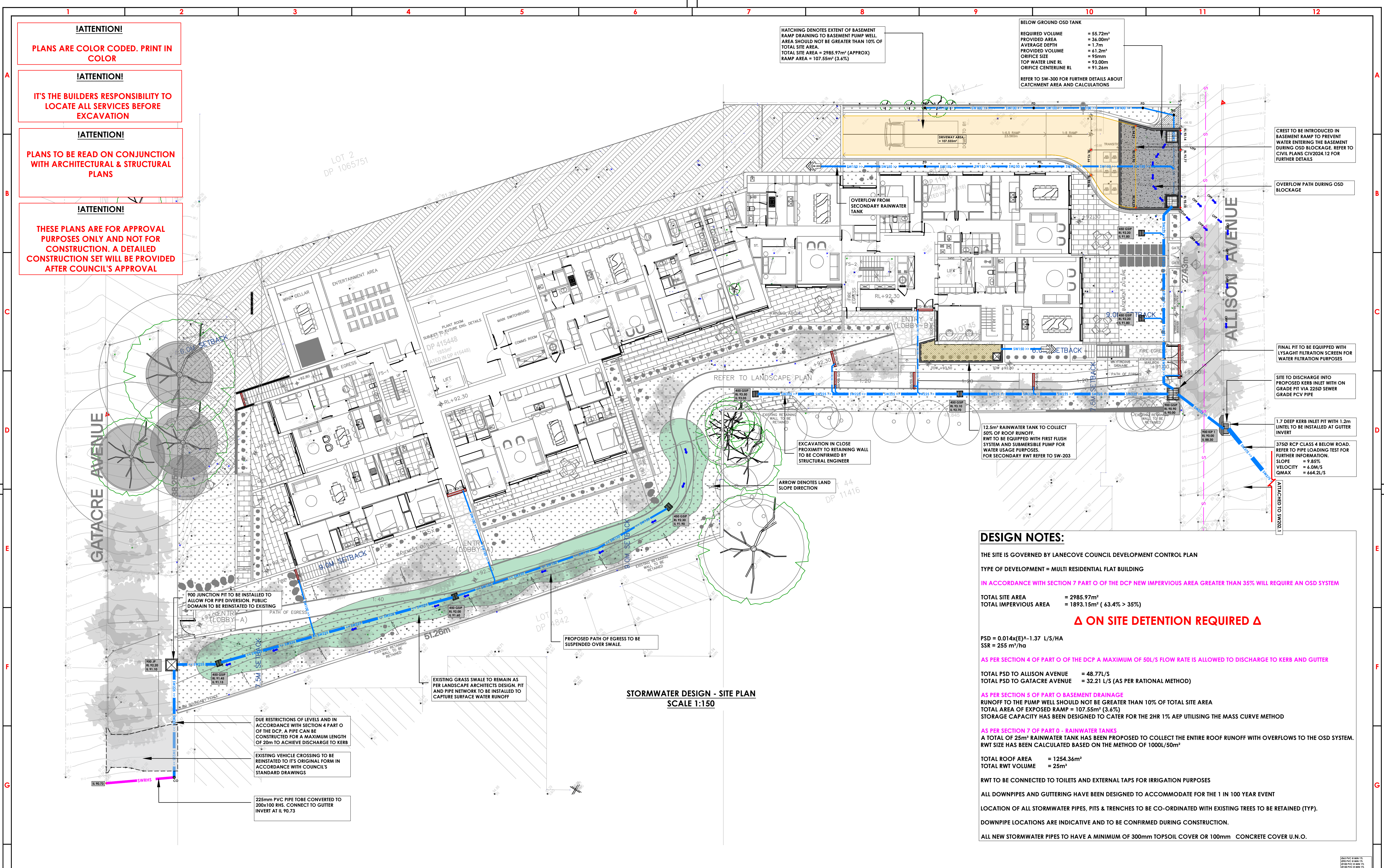
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HATCHING DENOTES EXTENT OF BASEMENT RAMP DRAINING TO BASEMENT PUMP WELL AREA SHOULD NOT BE GREATER THAN 10% OF TOTAL SITE AREA.  
TOTAL SITE AREA = 2985.97m² (APPROX)  
RAMP AREA = 107.55m² (3.6%)

BELOW GROUND OSD TANK  
REQUIRED VOLUME = 55.72m³  
PROVIDED AREA = 36.00m²  
AVERAGE DEPTH = 1.7m  
PROVIDED VOLUME = 61.2m³  
ORIFICE SIZE = 95mm  
TOP WATER LINE RL = 93.00m  
ORIFICE CENTERLINE RL = 91.26m  
REFER TO SW-300 FOR FURTHER DETAILS ABOUT CATCHMENT AREA AND CALCULATIONS

CREST TO BE INTRODUCED IN BASEMENT RAMP TO PREVENT WATER ENTERING THE BASEMENT DURING OSD BLOCKAGE. REFER TO CIVIL PLANS CIV2024.12 FOR FURTHER DETAILS

OVERFLOW PATH DURING OSD BLOCKAGE

FINAL PIT TO BE EQUIPPED WITH LYSAGHT FILTRATION SCREEN FOR WATER FILTRATION PURPOSES

SITE TO DISCHARGE INTO PROPOSED KERB INLET WITH ON GRADE PIT VIA 2250 SEWER GRADE PCV PIPE

1.7 DEEP KERB INLET PIT WITH 1.2m LINTEL TO BE INSTALLED AT GUTTER INVERT

3750 RCP CLASS 4 BELOW ROAD. REFER TO PIPE LOADING TEST FOR FURTHER INFORMATION.  
SLOPE = 9.85%  
VELOCITY = 6.0M/S  
QMAX = 664.2L/S

### DESIGN NOTES:

THE SITE IS GOVERNED BY LANECOVE COUNCIL DEVELOPMENT CONTROL PLAN  
TYPE OF DEVELOPMENT = MULTI RESIDENTIAL FLAT BUILDING  
IN ACCORDANCE WITH SECTION 7 PART O OF THE DCP NEW IMPERVIOUS AREA GREATER THAN 35% WILL REQUIRE AN OSD SYSTEM  
TOTAL SITE AREA = 2985.97m²  
TOTAL IMPERVIOUS AREA = 1893.15m² (63.4% > 35%)  
**Δ ON SITE DETENTION REQUIRED Δ**  
PSD = 0.014x(E)^1.37 L/S/HA  
SSR = 255 m³/ha  
AS PER SECTION 4 OF PART O OF THE DCP A MAXIMUM OF 50L/S FLOW RATE IS ALLOWED TO DISCHARGE TO KERB AND GUTTER  
TOTAL PSD TO ALLISON AVENUE = 48.77L/S  
TOTAL PSD TO GATACRE AVENUE = 32.21 L/S (AS PER RATIONAL METHOD)  
AS PER SECTION 5 OF PART O BASEMENT DRAINAGE  
RUNOFF TO THE PUMP WELL SHOULD NOT BE GREATER THAN 10% OF TOTAL SITE AREA  
TOTAL AREA OF EXPOSED RAMP = 107.55m² (3.6%)  
STORAGE CAPACITY HAS BEEN DESIGNED TO CATER FOR THE 2HR 1% AEP UTILISING THE MASS CURVE METHOD  
AS PER SECTION 7 OF PART O - RAINWATER TANKS  
A TOTAL OF 25m³ RAINWATER TANK HAS BEEN PROPOSED TO COLLECT THE ENTIRE ROOF RUNOFF WITH OVERFLOWS TO THE OSD SYSTEM.  
RWT SIZE HAS BEEN CALCULATED BASED ON THE METHOD OF 1000L/50m²  
TOTAL ROOF AREA = 1254.36m²  
TOTAL RWT VOLUME = 25m³  
RWT TO BE CONNECTED TO TOILETS AND EXTERNAL TAPS FOR IRRIGATION PURPOSES  
ALL DOWNPIPES AND GUTTERING HAVE BEEN DESIGNED TO ACCOMMODATE FOR THE 1 IN 100 YEAR EVENT  
LOCATION OF ALL STORMWATER PIPES, PITS & TRENCHES TO BE CO-ORDINATED WITH EXISTING TREES TO BE RETAINED (TYP).  
DOWNPIPE LOCATIONS ARE INDICATIVE AND TO BE CONFIRMED DURING CONSTRUCTION.  
ALL NEW STORMWATER PIPES TO HAVE A MINIMUM OF 300mm TOPSOIL COVER OR 100mm CONCRETE COVER U.N.O.

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SITE PLAN 1 OF 2  
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05 SHEET



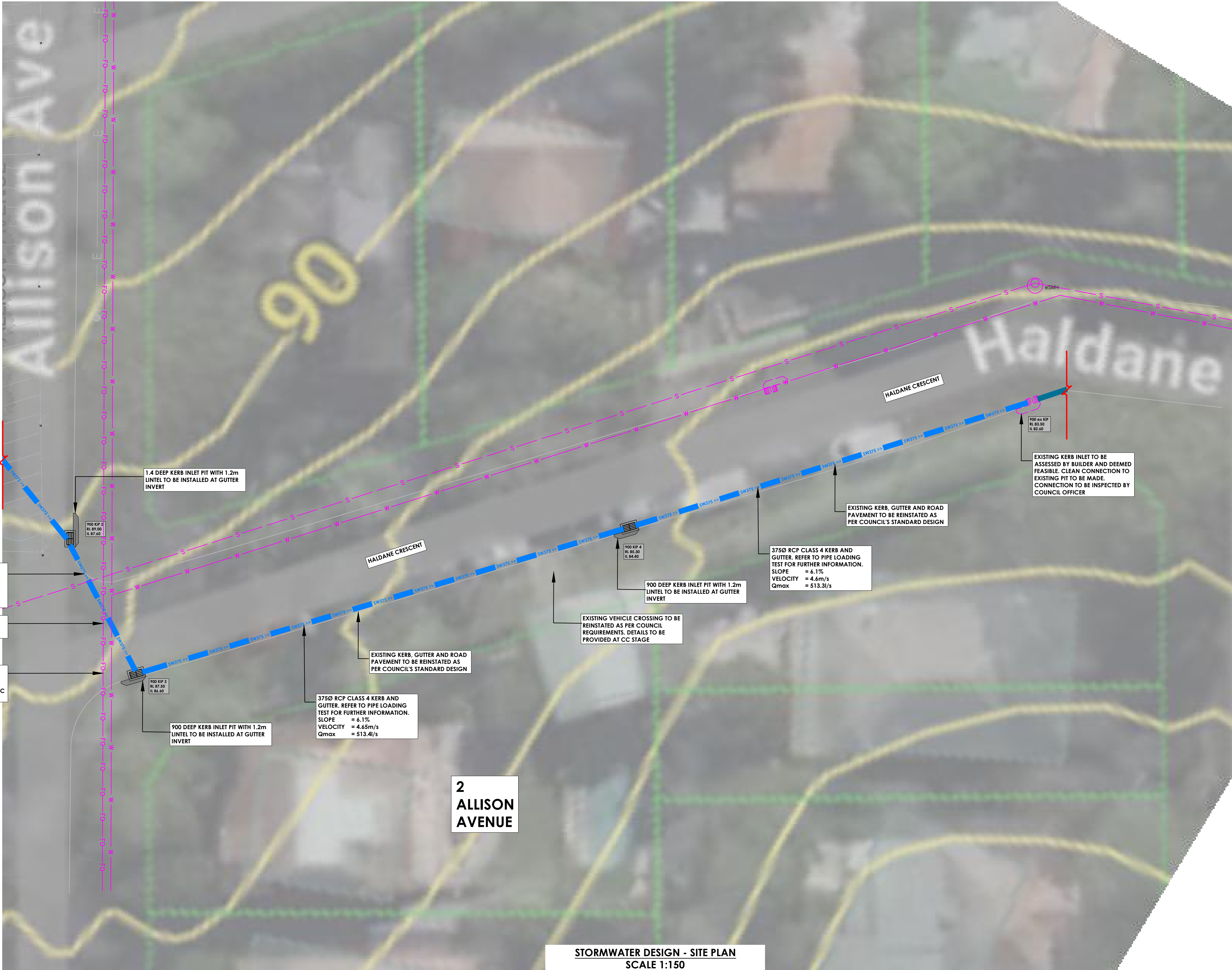
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DETAILED MAJOR WORKS DESIGN TO BE COMPLETED AT CC STAGE. EXACT SERVICE LOCATIONS TO BE OBTAINED AT CC STAGE. THIS IS TO BE CONDITIONED AS PART OF THE DA APPROVAL



STORMWATER DESIGN - SITE PLAN  
SCALE 1:150

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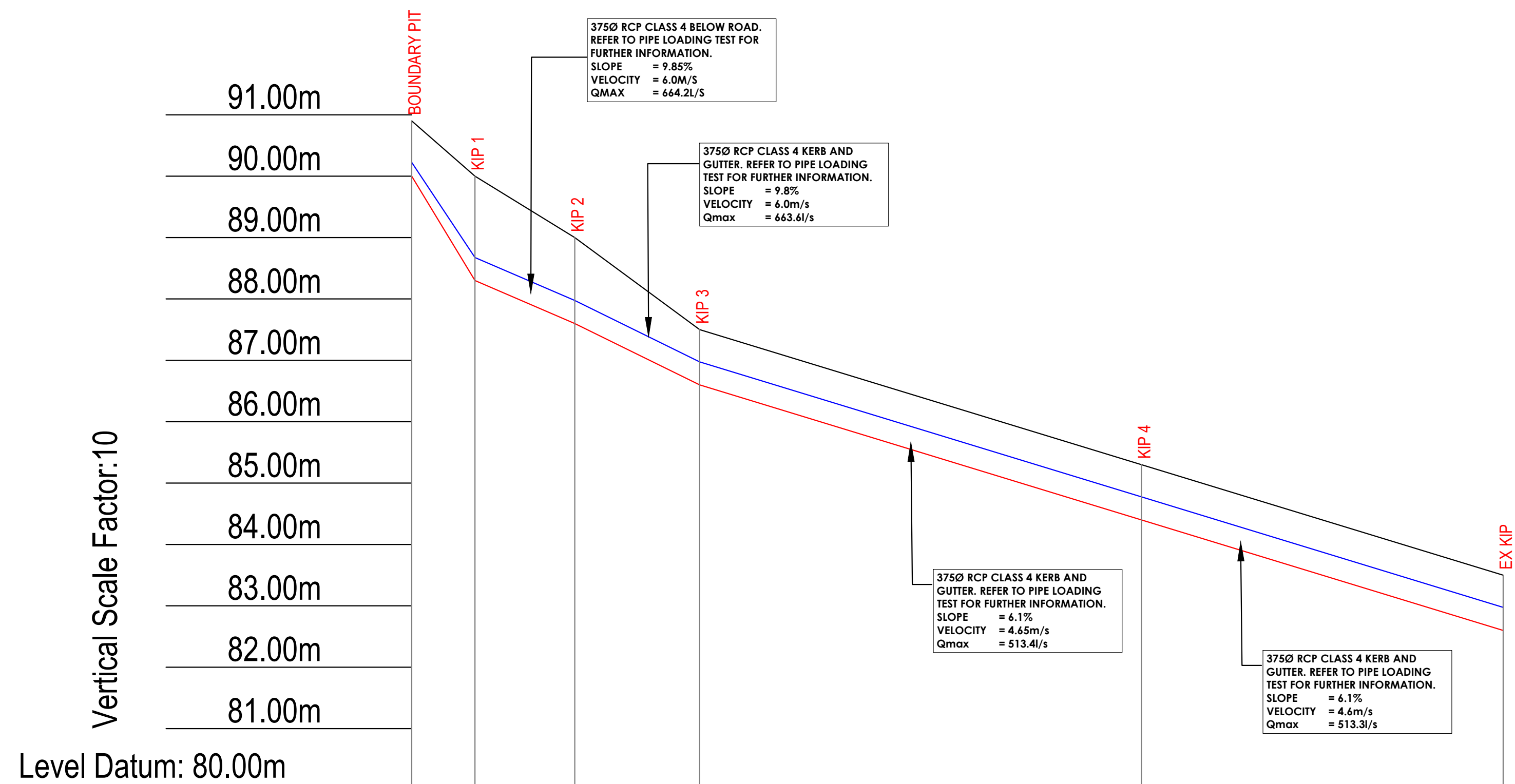
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SITE PLAN 2 OF 2

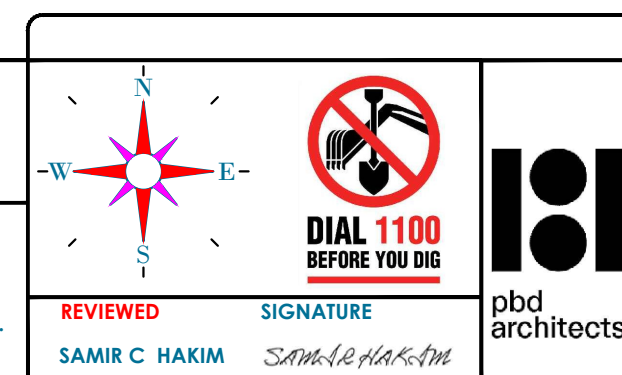
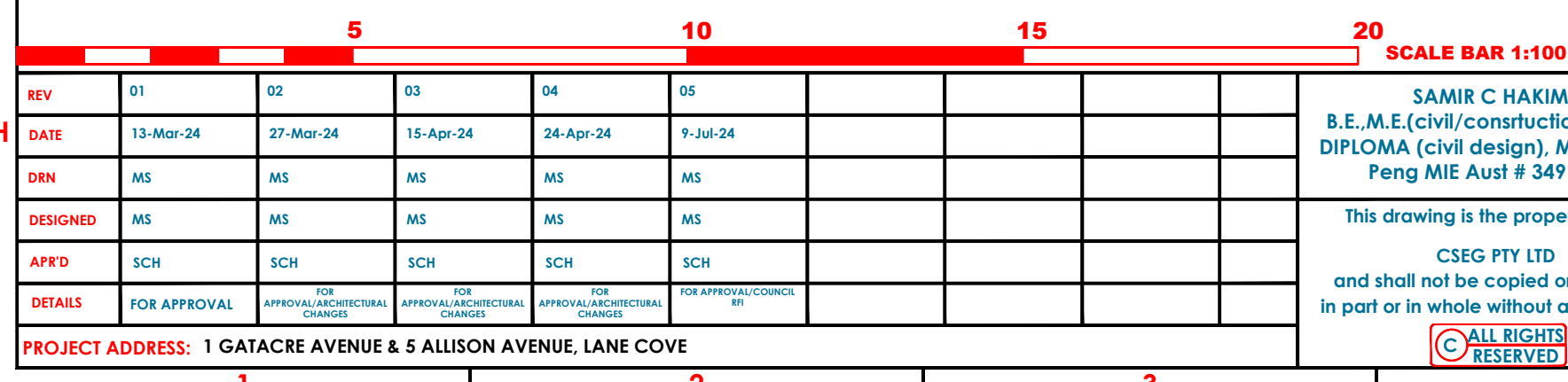
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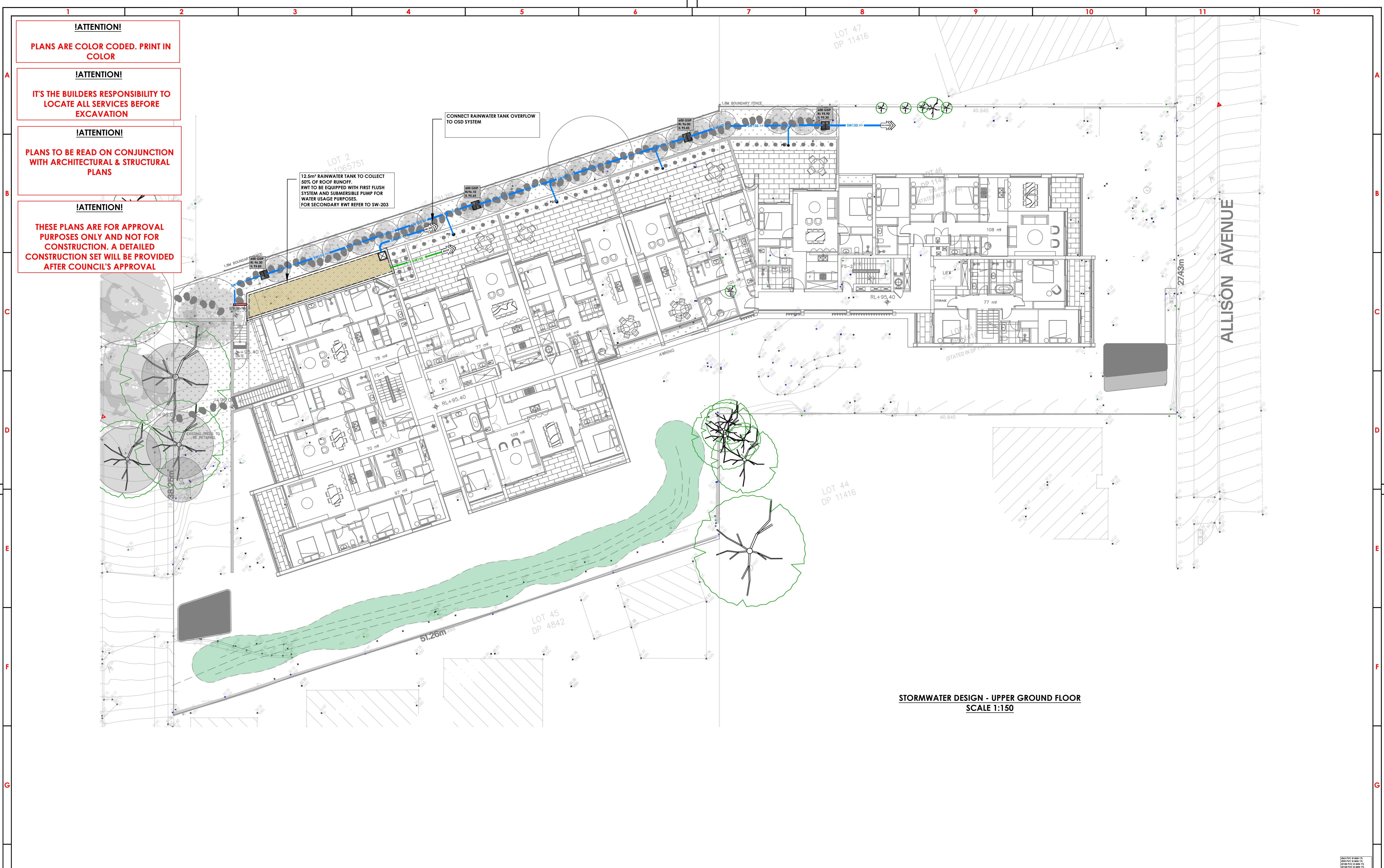


CHAINAGE (m)	0	5.15	13.27	23.437	59.409	88.852
GROUND LEVEL (M)	90.900	90.000	89.000	87.500	85.300	83.500
PIPE OVERT LEVEL (M)	90.225	88.675	87.975	86.975	84.775	82.975
PIPE INVERT LEVEL (M)	90.000	88.300	87.600	86.600	84.400	82.600
DEPTH OF CUTTING	0.900	1.700	1.400	0.900	0.900	0.900
PIPE DIA & MATERIAL	375 MM Ø RCP CLASS 4					

LONG SECTION OF PIPE LINE FROM CH:0 TO CH:88.852







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PROJECT ADDRESS: 1 GATACRE AVENUE & 5 ALLISON AVENUE, LANE COVE

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UPPER GROUND FLOOR

SW-203

05  
REVISION

08  
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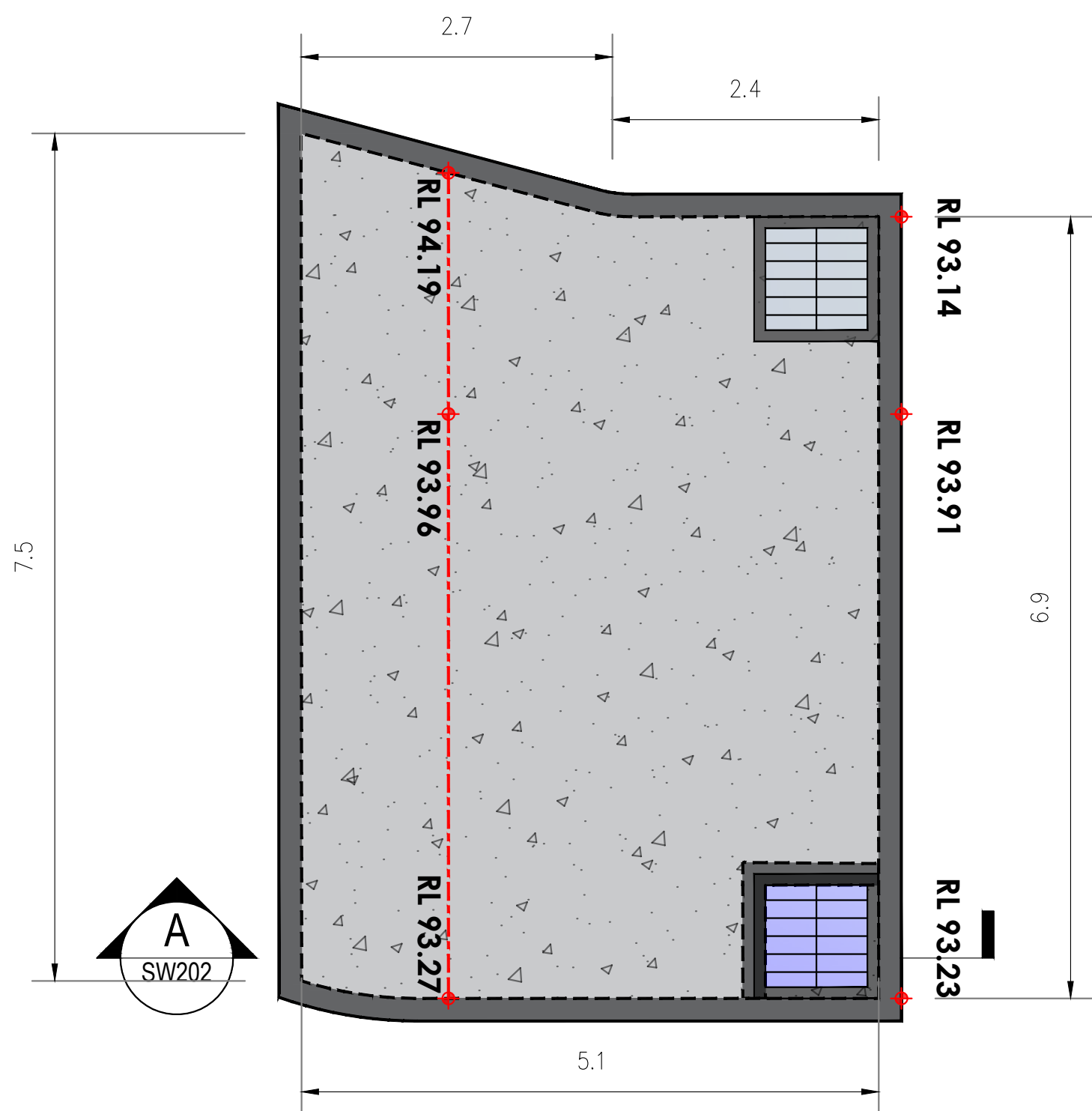
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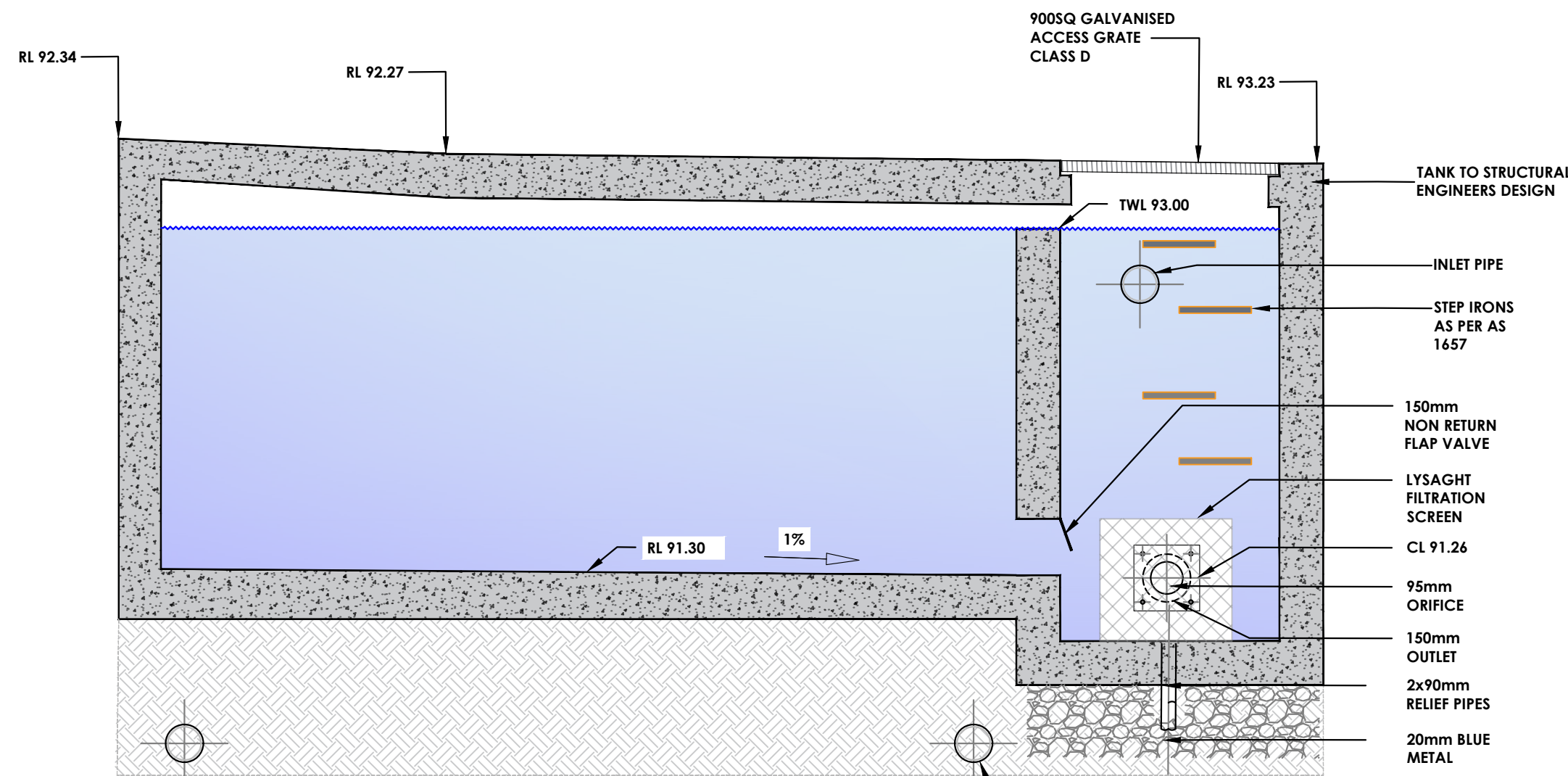


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	PROJECT No: CSW2024.11		
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OSD PLAN VIEW  
SCALE 1:50



OSD SECTION A-A  
SCALE 1:25

#### Appendix 14 – OSD Calculation Sheet

##### ON-SITE DETENTION CALCULATION SHEET

DEVELOPMENT TYPE: Multi Residential Flat Building

ADDRESS: 1 Gatacre Avenue & 5 Allison Avenue, Lane Cove

Site Area (m<sup>2</sup>) 2985.97 (A)  
Total Impervious Area (roofs, driveways, hardstand etc) (m<sup>2</sup>) 1893.15 (B)  
Total Area draining to the Storage Facility (m<sup>2</sup>) (impervious and pervious areas) 1897.07 (C)  
New Impervious Area bypassing the Storage Facility 298.46 (D)

$\frac{(B) + (D)}{(B)} =$  1.16 (E)  
cannot be greater than 1.25.

Permitted Site Discharge (PSD) rate per m<sup>2</sup>  
If (D) = 0 then PSD = 0.014 l/sec/m<sup>2</sup>  
If (D) ≠ 0 then PSD = 0.014 + ((D) - 1.37) l/sec/m<sup>2</sup> 0.013 (F)

PERMITTED SITE DISCHARGE (l/s) ((C) x (F)) 24.53 l/s

Storage Volume per m<sup>2</sup>  
(G) = 0.0255 m<sup>3</sup>/m<sup>2</sup> for all Catchments 0.0255 (G)

SITE STORAGE REQUIREMENT (m<sup>3</sup>) ((C) + (D)) x (G) 55.72 m<sup>3</sup>

OUTLET CONTROL - using a Sharp Edged Orifice Plate

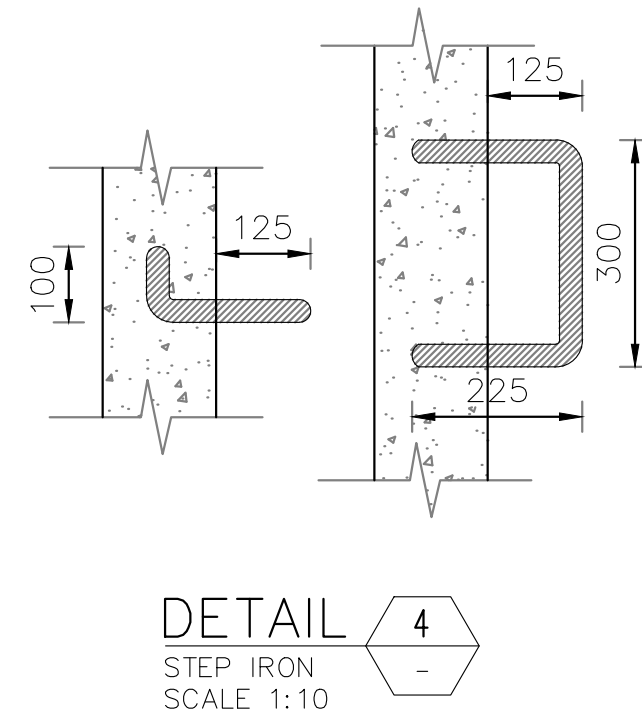
Height Difference between top water level and Centre of Orifice (m) 1.00 (H)

ORIFICE DIAMETER (mm) 94.8 mm = 21.9  $\sqrt{\frac{PSD}{H}}$

Should pipe and pit losses be used to control outflow, the calculations are to be attached.

#### OSD CALCULATION SHEET

Lane Cove Development Control Plan Part O – Stormwater Management  
Adopted on 22 February 2010 Amendment – 28 September 2023 Page 61



CONFINED SPACE DANGER SIGN

##### TES:

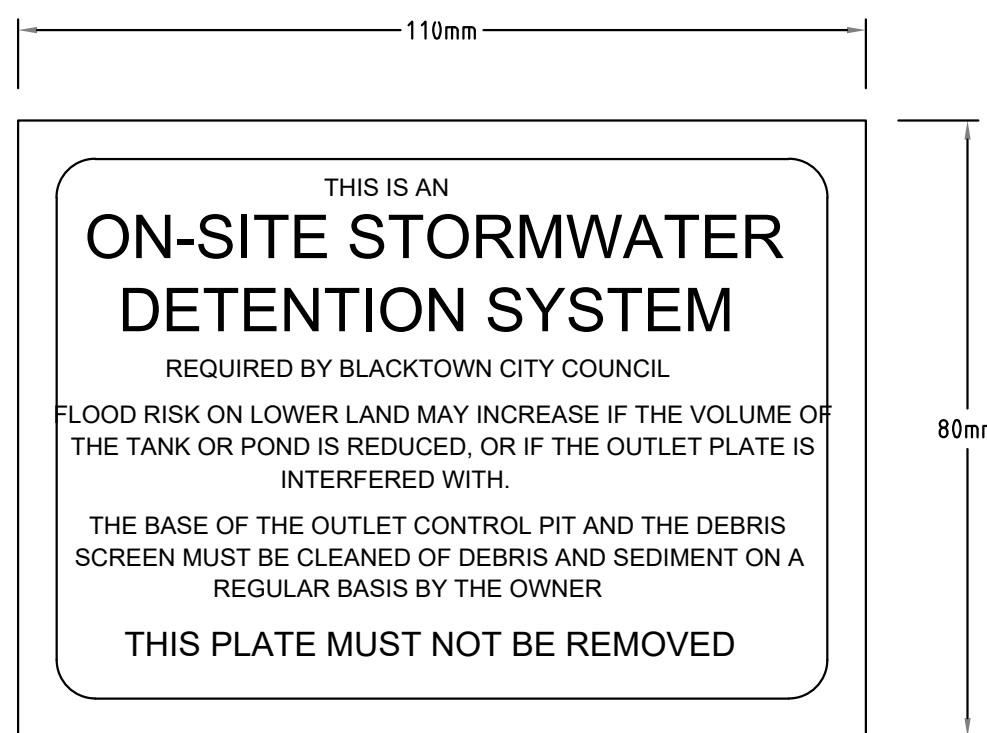
A CONFINED SPACE DANGER SIGN SHALL BE PLACED NEXT TO EACH AND EVERY ACCESS POINT SO THAT THEY ARE VISIBLE TO PERSONS ENTERING ANY BELOW GROUND TANK OR PIT.

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

MINIMUM DIMENSIONS OF THE SIGN:  
LARGE ENTRIES: 300mm x 450mm  
SMALL ENTRIES: 250mm x 180mm

SIGN TO BE MADE FROM COLOUR BONDED ALUMINIUM OR POLYPROPYLENE

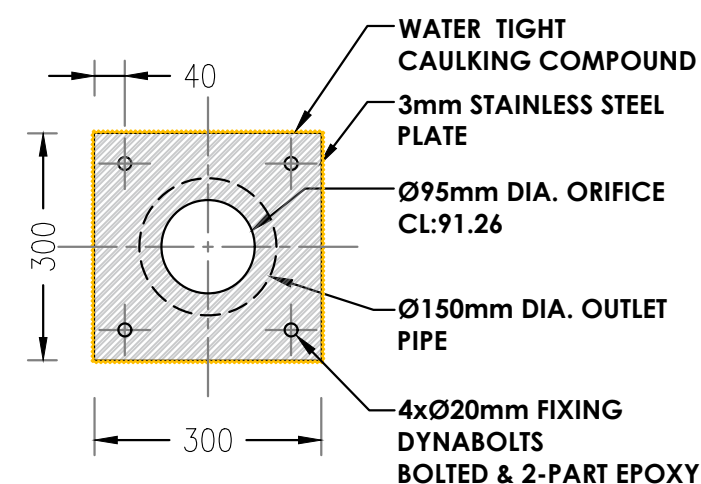
SIGN FIXED USING HILTI CHEMSETS OR EXPOXY



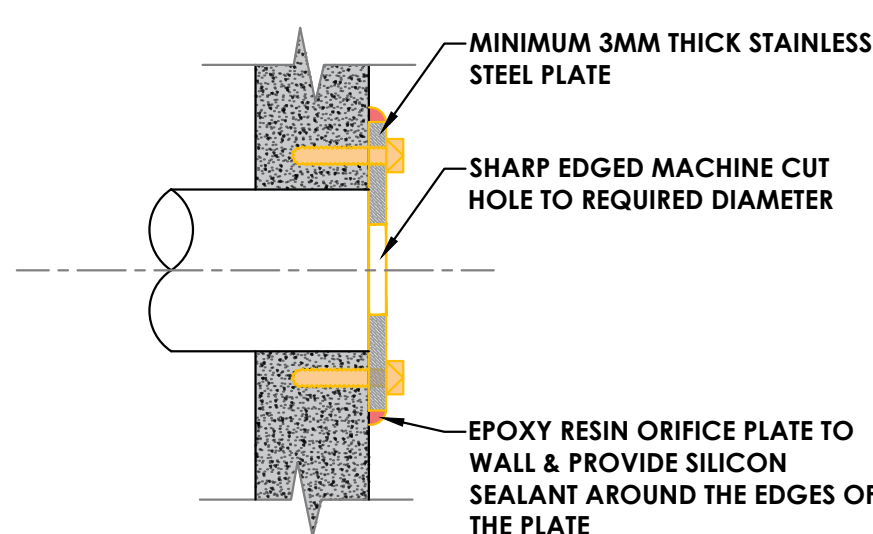
##### ON SITE STORMWATER DETENTION SYSTEM SIGN

##### NOTES:

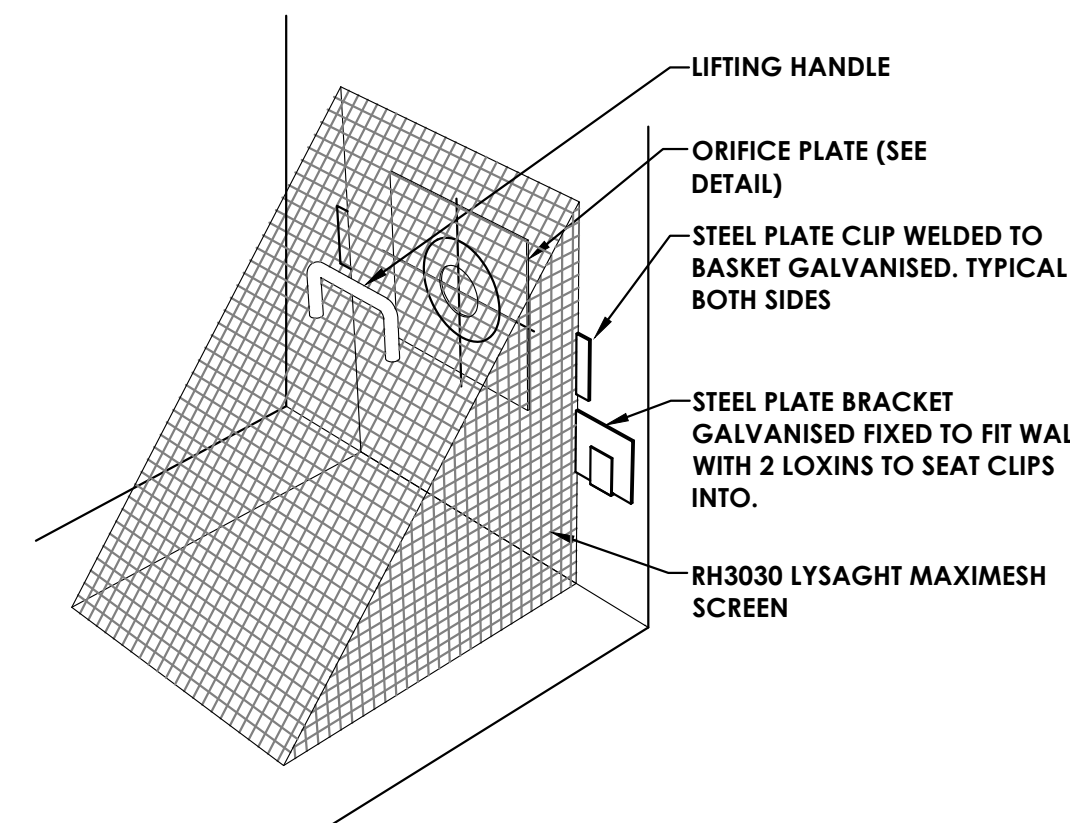
- CORNERS SQUARE
- COLOURS:  
ETCHED AND FILLED BLACK LEDGEND ON A NATURAL SILVER BACKGROUND.
- CONSTRUCTED FROM ALUMINIUM 0.9mm MILL.
- THIS SIGN SHALL BE PLACED IN A VISIBLE LOCATION NEAR A DISCHARGE CONTROL PIT OR AT THE ACCESS TO ONE.
- SIGN FIXED USING HILTI CHEMSETS OR EXPOXY



DETAIL  
ORIFICE PLATE  
SCALE 1:20



DETAIL  
ORIFICE  
SCALE NTS



DETAIL  
DEBRIS SCREEN  
NOT TO SCALE

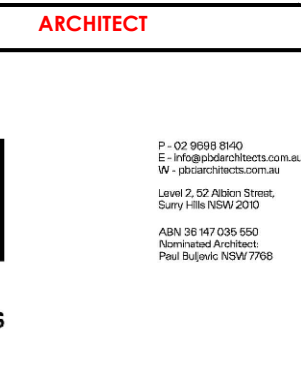
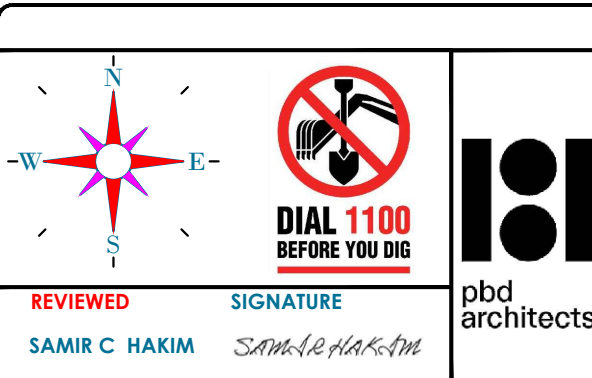
5					10					15					20				
REV	01	02	03	04	05														
DATE	13-Mar-24	27-Mar-24	15-Apr-24	24-Apr-24	9-Jul-24														
DRN	MS	MS	MS	MS	MS														
DESIGNED	MS	MS	MS	MS	MS														
APPROV	SCH	SCH	SCH	SCH	SCH														
DETAILS	FOR APPROVAL	FOR APPROVAL	FOR APPROVAL	FOR APPROVAL	FOR APPROVAL														
PROJECT ADDRESS: 1 GATACRE AVENUE & 5 ALLISON AVENUE, LANE COVE																			

##### SCALE BAR 1:100

SAMIR C HAKIM  
B.E., M.E. (civil/construction), ADV.  
DIPLOMA (civil design), M.I.E. Aust,  
Peng MIE Aust # 3491570

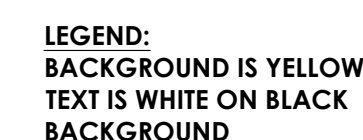
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A1	SCALE: 1:100 (A3 1:200)	05
SHT SIZE	PROJECT No: CSW2024.11	REVISION
APPLICATION	DEVELOPMENT APPLICATION (DA)	
SUPERSEDES:		
DRAWING TITLE	SW-301	10 SHEET





DOWNPIPE CONNECTION TO uPVC  
STORMWATER  
SCALE 1:10

[illegible]

	1	
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DIPLOMA (civil design), M.I.E. Aust,  
Peng MIE Aust # 3491570

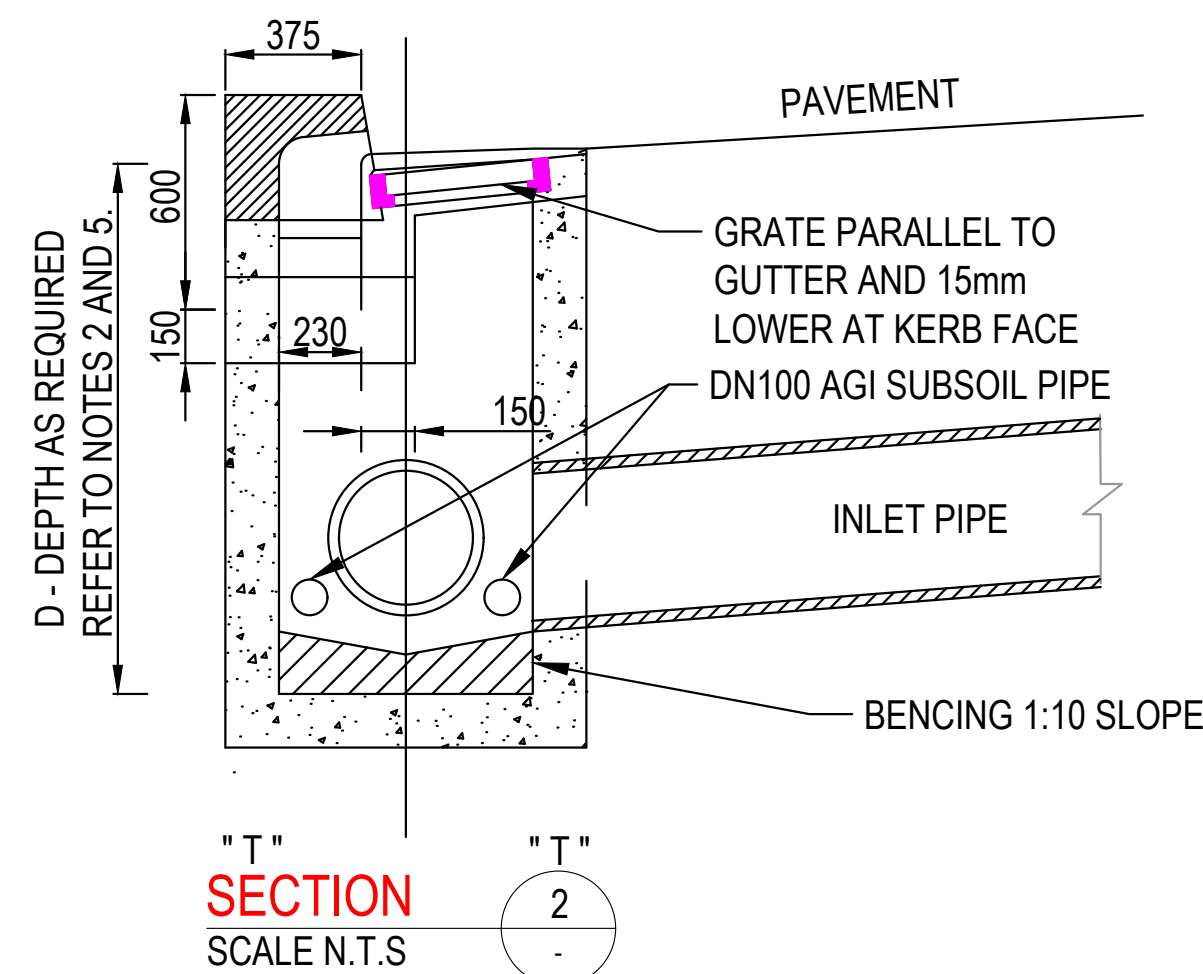
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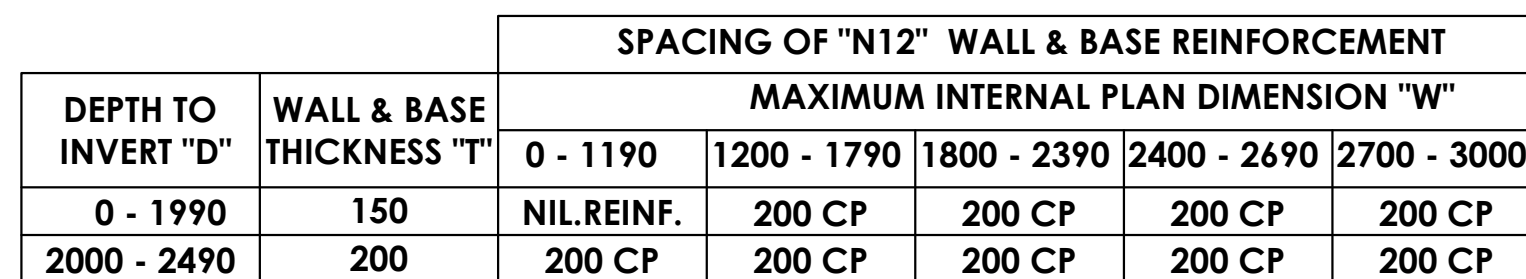
## STANDARD DETAILS

SHEET SIZE	PROJECT NO: CSW2024.11	REVISION
APPLICATION	DEVELOPMENT APPLICATION (DA)	
SUPERSEDES:		
DRAWING TITLE		
SW-302	11	





1. ALL GRATED KERB INLET PITS (ON GRADE) SHALL BE PROVIDED WITH AN INLET AS SPECIFIED ON DESIGN DRAWINGS ON THE HIGHER SIDE OF THE PIT.
2. STEP IRONS TO BE PROVIDED FOR PITS DEEPER THAN 1000mm AND PLACED ON A WALL CLEAR OF FLOW WHERE POSSIBLE
3. THE COMPRESSIVE STRENGTH OF ALL CONCRETE USED SHALL BE 25MPa AT 28 DAYS.
4. ALL INTERNAL PIT CORNERS TO BE PROVIDED WITH BENCHING OR 30 RADIUS TO IMPROVE FLOW.
5. WHERE INTERNAL WIDTH EXCEEDS 750mm OR DEPTH EXCEEDS 1200mm, WALLS TO BE REINFORCED IN ACCORDANCE WITH THE TABLE SHOWN BELOW.
6. SELECTED GRANULAR MATERIAL BACKFILL SHALL BE PLACED TO FILL ALL EXCAVATED VOIDS. (REFER TO AS 3725-2007)
7. DN100 AGI DRAINAGE PIPE 3.0m LONG WRAPPED IN FABRIC SOCK TO BE PLACED ADJACENT TO INLET PIPES ON BOTH SIDES AND 100mm MINIMUM ABOVE PIT FLOOR.
8. SURROUND SUBSOIL DRAINAGE PIPE/AGLINE WITH 10mm AGGREGATE.
9. 50mm MINIMUM CONCRETE COVER UNLESS NOTED OTHERWISE.
10. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.



CP DENOTES CENTRALLY PLACED

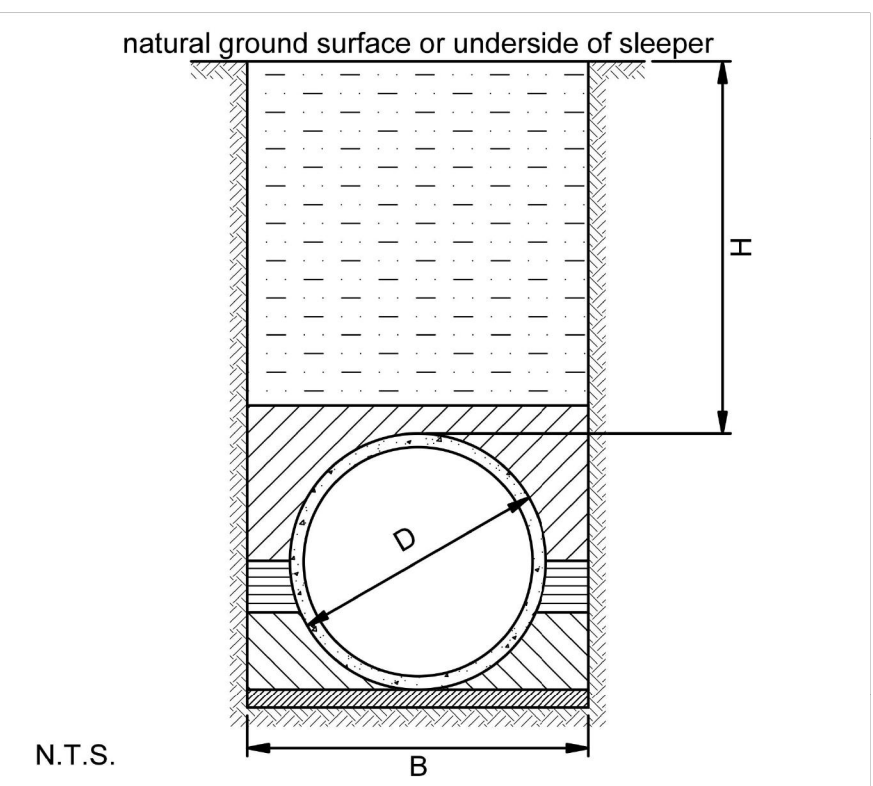
Page 1 of 1

### DESIGN OF 375 DIA. RRJ DRAINAGE PIPE

## Date: 09-Jul-2024

Job number:	CSW2024.12	Design:	375RCP
Client:	WINIM	Designer:	SAMIR
Project:	New Project	Company:	CSEG
Description:		File:	375 PIPE LOAD.ppr

Installation Condition:	trench
Pipe Nominal Diameter (mm):	375
Pipe External Diameter, D (mm):	445
Pipeline Orientation:	skew
Soil Type:	wet clay
Soil Density (kN/m³):	20
Soil Parameter $K_{\mu}$ :	0.1100
Trench Width, B (m):	1.000
Height Of Fill, H (m):	0.525
Flexible Pavement Type:	asphalt
Flexible Pavement Density (kN/m³):	21.000
Flexible Pavement Thickness (m):	0.000
Effective Height Of Fill, $H_e$ (m):	0.525
Support Type:	HS2
Bedding Factor:	2.5



**In Service Load Cases/Combinations Considered** (controlling load case/combination highlighted)

Load Description*	Fill Height (m)	Wg/2.5	Wq/1.5	Ww/2.5	Tc	Pipe Class
earth + weight of internal water	0.525	2.1		0.3	2.5	2
uniform surcharge load	0.525	4.8		0.3	5.1	2
point load	0.525	4.0		0.3	4.3	2
W80(AS/NZS3725)	0.525	2.1	18.7	0.3	21.1	3
A160(AS/NZS3725)	0.525	2.1	18.7	0.3	21.1	3
M1600(AS/NZS3725)	0.525	2.1	13.7	0.3	16.1	2
S1600(AS/NZS3725)	0.525	2.1	8.7	0.3	11.1	2
HLP400	0.525	2.1	16.0	0.3	18.5	3

All loads in kN/m. \*Includes earth load at fill height shown.

**Controlling Loads:** earth + W80(AS/NZS3725) standard vehicle + weight of internal water  
**Minimum Test Load:**  $T_c = 2.1 + 18.7 + 0.3 = 21.1 \text{ kN/m}$

**Adopt 375 dia. Class 3 RRJ pipe (375/3 RRJ) in accordance with AS/NZS 4058:2007.**

1. In service live loads are considered as acting directly (no distribution) on the pipe (for cover < 0.4 m) in accordance with AS/NZS 3725:2007.
2. A nominal pipe wall thickness of 32 mm has been assumed.

PipeClass v2.0.23

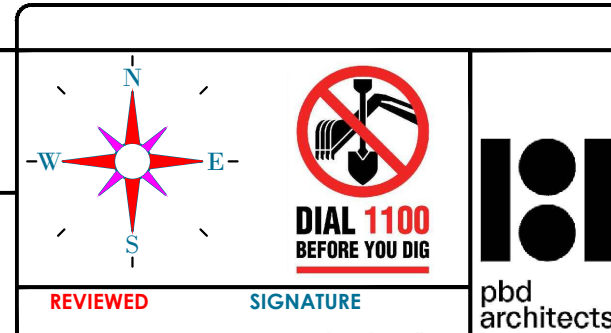
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	5			10		15	
REV	01	02	03	04	05		
DATE	13-Mar-26	17-Mar-26	18-Apr-26	24-Apr-26	9-Jul-24		
DIN	MS	MS	MS	MS	MS		
DESIGNED	MS	MS	MS	MS	MS		
APPRD	SCH	SCH	SCH	SCH	SCH		
DETAILS	FOR APPROVAL	FOR APPROVAL ARCHITECTURAL CHANGES	FOR APPROVAL ARCHITECTURAL CHANGES	FOR APPROVAL ARCHITECTURAL CHANGES	FOR APPROVAL CONTRACTOR SET		

20  
SCALE BAR 1:100

**SAMIR C HAKIM**  
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Peng MIE Aust # 3491570

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ABN 36 147 035 550  
Nominated Architect  
Practising in NSW, Victoria, ACT, SA



**CIVIL STORMWATER  
ENGINEERING GROUP**  
INNOVATE ENGINEER TRANSFORM

## KERB INLET PIT DETAIL & PIPE LOAD CLASSIFICATION

A1		SCALE: 1:100 (A3 1:200)		05	
SHEET SIZE		PROJECT No: CSW2024.11		REVISION	
APPLICATION		DEVELOPMENT APPLICATION (DA)			
SUPERSEDES:					
DRAWING TITLE					
SW-303		12			
		SHEET			

Q45 PVC @ MIN 1%  
Q90 PVC @ MIN 1%  
Q100 PVC @ MIN 1%  
Q150 PVC @ MIN 1%  
Q225 PVC @ MIN 0.5%  
Q300 PVC @ MIN 0.4%  
UNLESS NOTED OTHERWISE