PIPEWORK

STW	STORMWATER
SS	SUBSOIL
DP	DOWNPIPE
RD	ROOF DRAINAGE
	EXISTING SERVICE
	EXISTING SERVICE TO BE DISCONNECTED AND REMOVED

PIPEWORK SYMBOLS

R	RISER
D	DROPPER
COF	CAPPED OFF
HP	HORIZONTAL PENETRATION
DOF	DIRECTION OF FLOW
NC	NEW CONNECTION
C	CONTINUATION
MH	MAN HOLE
IO	INSPECTION OPENING
STWKIP	STORMWATER KERB INLET PIT
STWIP	STORMWATER INLET PIT
GRD	GRATED DRAIN
SO	SAFETY OVERFLOW
SP	SPREADER
RWO	RAINWATER OUTLET
BRWO	BALCONY RAINWATER OUTLET
PRWO	PLANTER RAINWATER OUTLET
SRWO	SPOON DRAIN RAINWATER OUTLET

ABBREVIATIONS

FFL	FINISH FLOOR LEVEL
IL	INVERT LEVEL
RL	REDUCED LEVEL
UPVC	UNPLASTICIZED POLYVINIL CHLORIDE
NTS	NOT TO SCALE
UNO	UNLESS NOTED OTHERWISE
SQ	SQUARE
mm	MILLIMETRES
m	METRES
m2	SQUARE METRES
m3	CUBIC METRES
/sec	PER SECOND
MIN	MINIMUM
MAX	MAXIMUM
APPR	APPROXIMATLY
DIA	DIAMETER
EX	EXISTING
AHD	AUSTRALIAN HEIGHT DATUM

STORMWATER

GENERAL NOTES

ALL IN ACCORDANCE WITH COUNCIL's STORMWATER REQUIREMENTS

PIPEWORK DESIGN

ALL PIPEWORK IS SIZED AND DESIGNED TO HANDLE A 1:100 YEAR EVENT RAINFALL

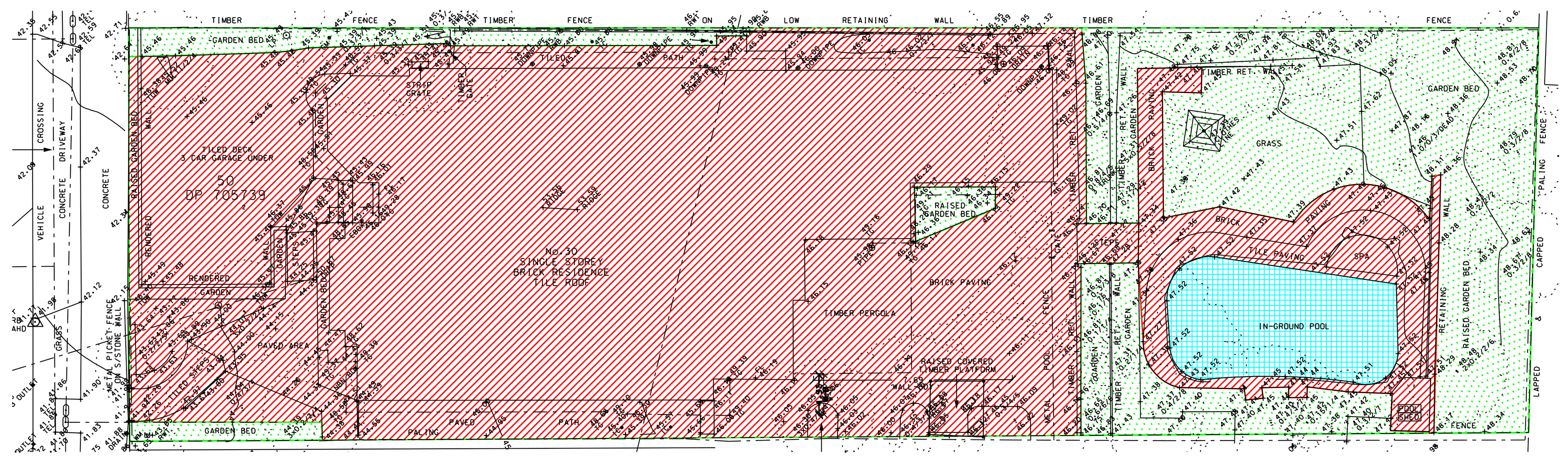
PIPEWORK

ALL PIPEWORK TO BE 100mm @ 1% FALL (UNO)

STORMWATER PIT SIZES

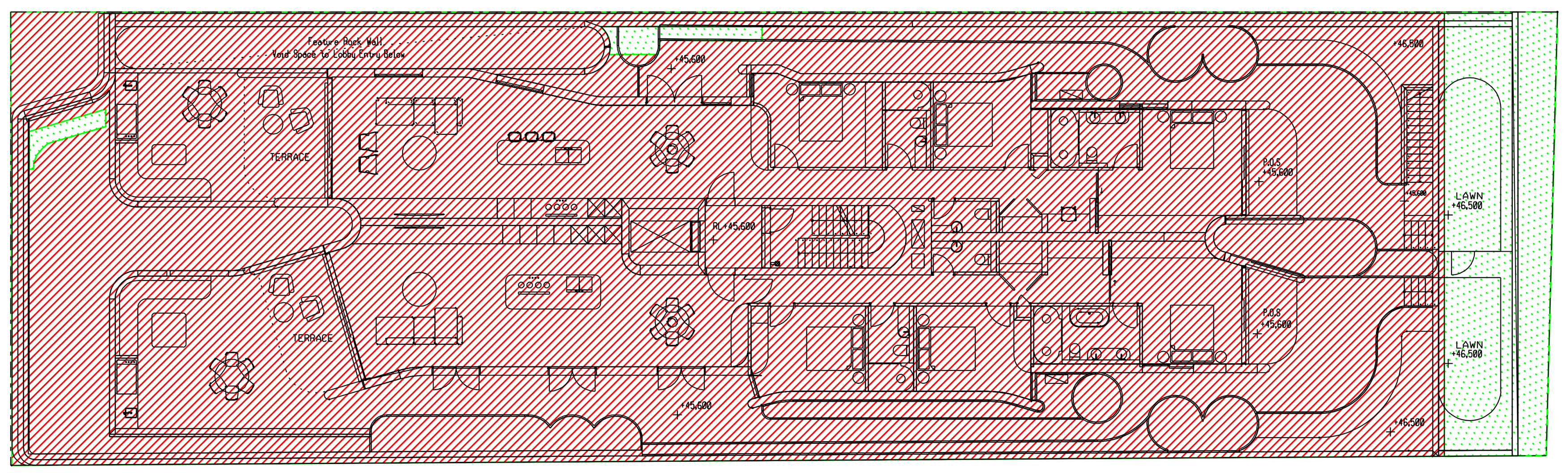
MINIMUM INTERNAL MEASUREMENTS:

DEPTH TO BASE OF CHAMBER	RECTANGULAR WIDTH	RECTANGULAR LENGTH	CIRCULAR	LADDER / STEP IRON
SMALLER THAN 600	450	450	600	NO
601 TO 900	600	600	900	NO
901 TO 1200	600	900	1050	NO
GREATER THAN 1200	900	900	1050	YES



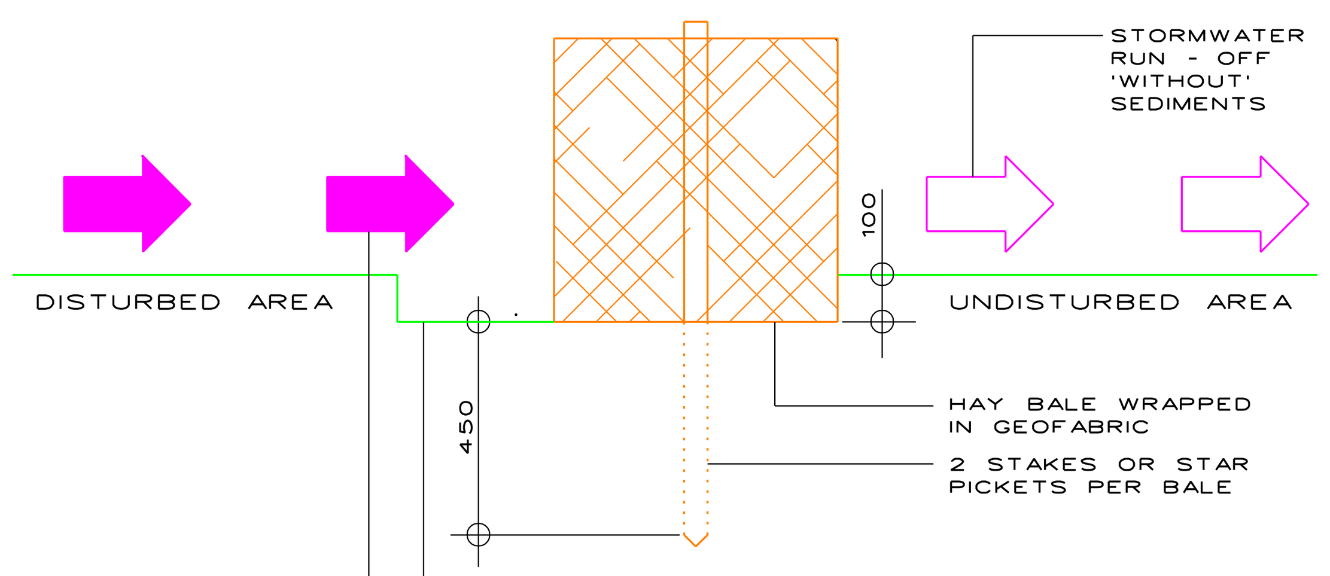
SYMBOL	CATCHMENT	IMPERVIOUS AREA	PERVIOUS AREA	PERCENTAGE
	ROOF & PAVED AREAS	598.8m2	-	69.5%
	DEEPSOIL LANDSCAPING	-	225.9m2	26.2%
	POOL	37.0m2		4.3%
TOTAL		861.7m2		100%

PRE DEVELOPED CATCHMENT AREAS



SYMBOL	CATCHMENT	IMPERVIOUS AREA	PERVIOUS AREA	PERCENTAGE
	ROOF AND PAVED AREAS	796.7m2	-	92.5%
	DEEPSOIL LANDSCAPING	-	65m2	7.5%
TOTAL		861.7m2		100%

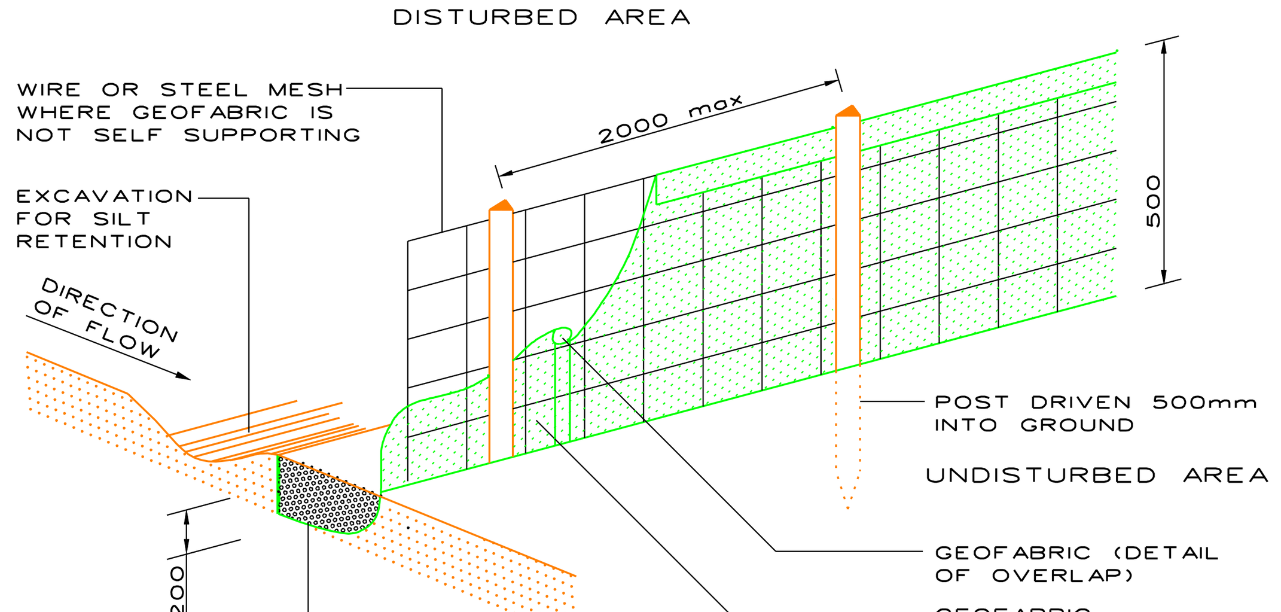
POST DEVELOPED CATCHMENT AREAS



DETAIL 1: HAY BALE BARRIER

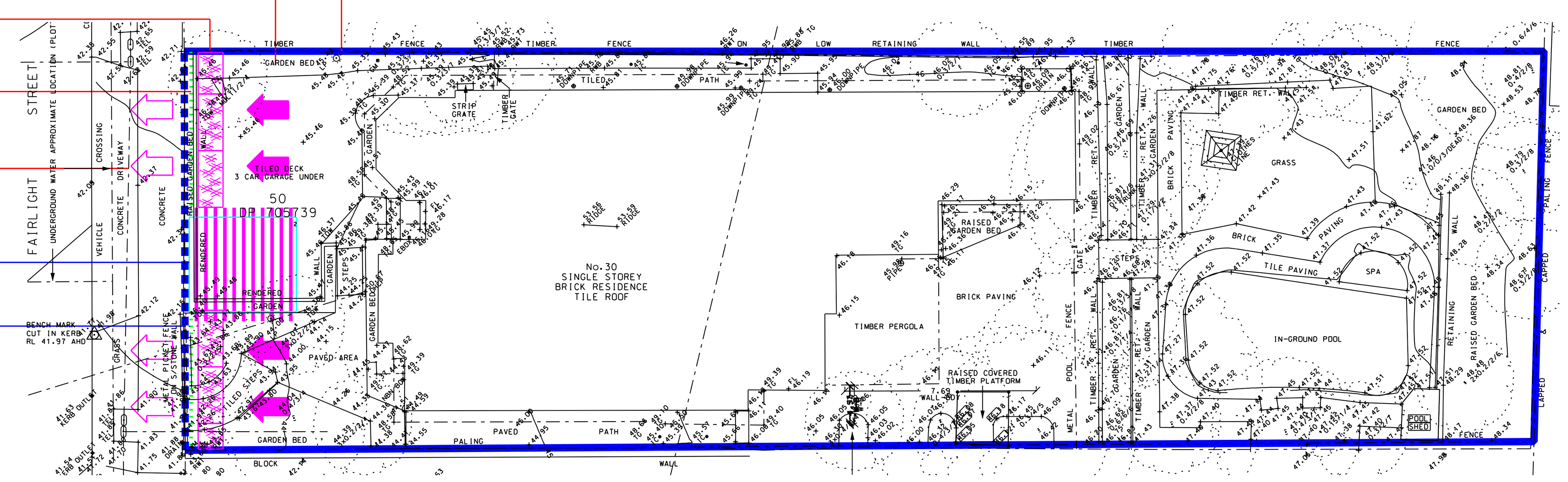
NTS

INSTALL AS REQUIRED AS REQUIRED TO SUIT CONSTRUCTION PROCESS



DETAIL 2: SILT FENCE

NTS



SEDIMENTATION CONTROL DURING CONSTRUCTION

APPROVAL

N

REV	DESCRIPTION	DATE
B	RE - ISSUED FOR DA	14.10.21
A	ISSUED FOR DA	22.09.21

CLIENT
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PROJECT
30 FAIRLIGHT STREET
FAIRLIGHT NSW 2094

DRAWING TITLE
LEGEND, CATCHMENT CALCS. AND SED. CONTROL

SCALE 1:200 @ A1 / 1:400 @ A3
JOB No 20/306
DISCIPLINE HYD
DRAWING No H-DA-00
REVISION B

STW DA DRAWING

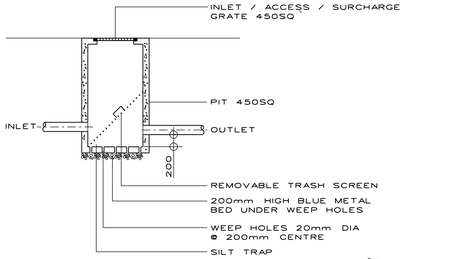
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

STORMWATER DA DRAWING ONLY

- NOT FOR CONSTRUCTION
- FINAL LOCATION OF ALL DOWNPIPES, PITS, RAINWATER OUTLETS AND SUBSOIL PIPES TO BE CONFIRMED DURING CONSTRUCTION CERTIFICATE STAGE OF THE PROPOSED DEVELOPMENT

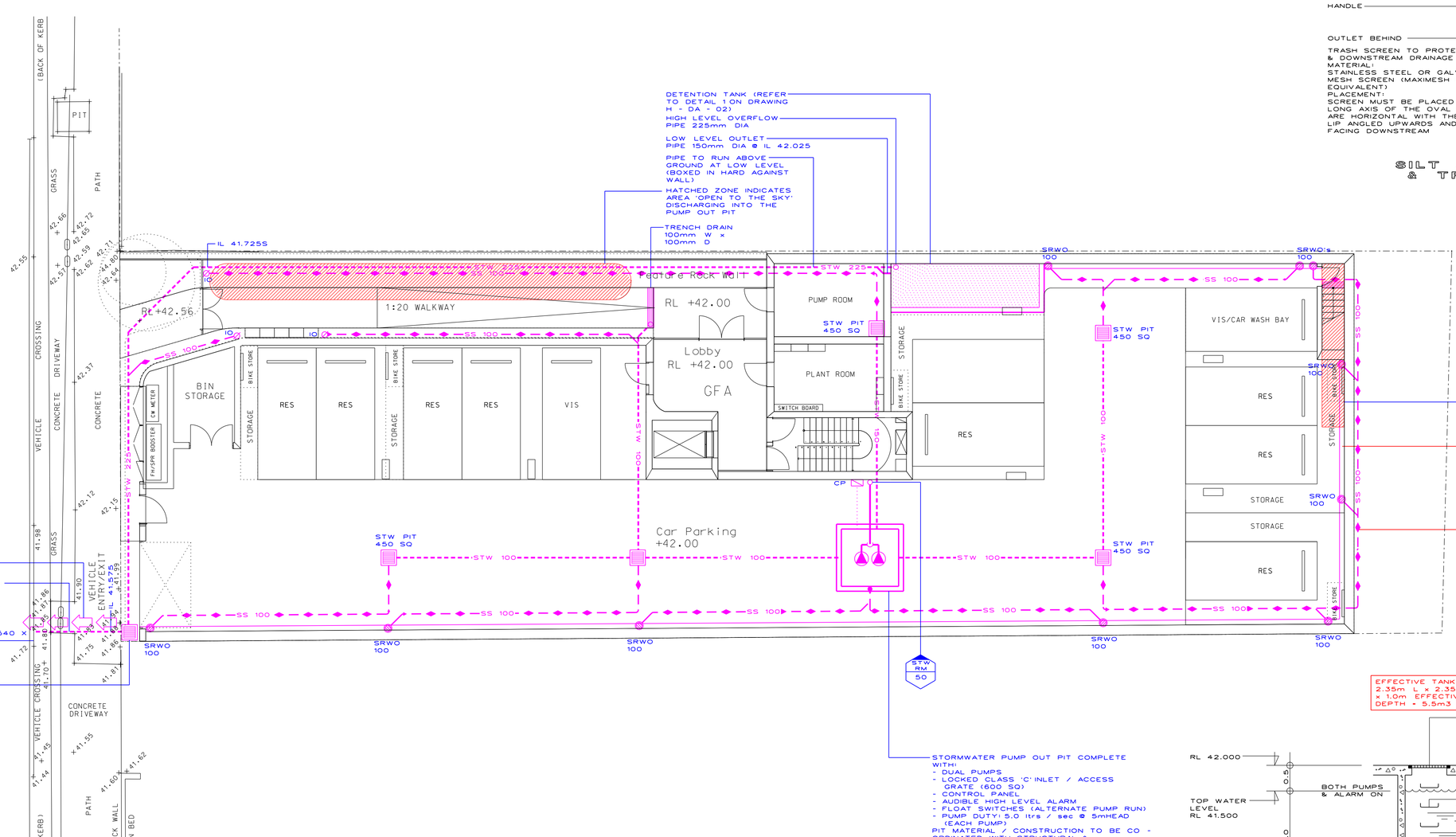
NOTES

FOR GENERAL NOTES AND LEGEND REFER TO DRAWING H - DA - 00



DETAIL 1: SILT ARRESTOR PIT & TRASH SCREEN

NTS

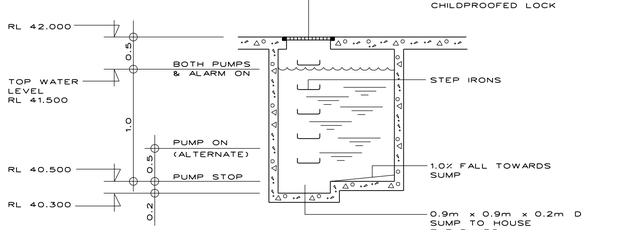


STORMWATER PUMP OUT PIT COMPLETE WITH:
- DUAL PUMPS
- LOCKED CLASS 'C' INLET / ACCESS GRATE (600 SQ)
- CONTROL PANEL
- AUDIBLE HIGH LEVEL ALARM
- FLOAT SWITCHES (ALTERNATE PUMP RUN)
- PUMP DUTY: 5.0 ltrs / sec @ 5mHEAD (EACH PUMP)

PIT MATERIAL / CONSTRUCTION TO BE CO - ORDINATED WITH STRUCTURAL & GEOTECHNICAL ENGINEERS. PAY SPECIAL ATTENTION TO GROUNDWATER PRESSURE AND POSSIBLE 'UPLIFT'.

PIT SIZE:
- APPROX. 31.2m2 OF AREAS 'OPEN TO THE SKY' ARE DISCHARGING INTO THE PIT
- ASSUMED SEEPAGE INFLOW RATE: 0.2 ltrs / sec (TO BE VERIFIED DURING CONSTRCTION)
- EMERGENCY STORAGE REQUIRED FOR THE FOLLOWING DURATION (ASSUMING THE PUMPS MALFUNCTION AND / OR THERE IS A BLACKOUT): 2 HOURS - 5.5m3

EFFECTIVE TANK VOLUME
2.35m L x 2.35m W x
x 1.0m EFFECTIVE WATER DEPTH - 5.5m3



APPROVAL

REV	DESCRIPTION	DATE
B	RE - ISSUED FOR DA	14.10.21
A	ISSUED FOR DA	22.09.21

CLIENT
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PROJECT
30 FAIRLIGHT STREET
FAIRLIGHT NSW 2094

DRAWING TITLE
BASEMENT STORMWATER DRAINAGE

SCALE: 1:100 @ A1 / 1:200 @ A3
JOB No: 20/308
DISCIPLINE: HYD
DRAWING No: H-DA-01
REVISION: B

STORMWATER DRAINAGE DA

STORMWATER DA DRAWING ONLY

- NOT FOR CONSTRUCTION
- FINAL LOCATION OF ALL DOWNPIPES, PITS, RAINWATER OUTLETS AND SUBSOIL PIPES TO BE CONFIRMED DURING CONSTRUCTION CERTIFICATE STAGE OF THE PROPOSED DEVELOPMENT

LANDSCAPING DRAINAGE

ALL LANDSCAPED AREAS LOCATED ABOVE CONCRETE SLABS TO BE EQUIPPED WITH WATERPROOFING MEMBRANE, DRAINAGE CELL AND GEOFABRIC

ON SITE DETENTION

ALL ACCORDANCE WITH NORTHERN BEACHES STORMWATER REQUIREMENTS

OLD MANLY COUNCIL STORMWATER POLICY:
DENSITY SUB ZONE 2
GREATER THAN 35.0% IMPERVIOUS PRE DEVELOPED
GREATER THAN 7 % SLOPE ACROSS THE SITE

ACCORDING TO CHART ON PAGE 44:

DETENTION REQUIRED = 32.0m3

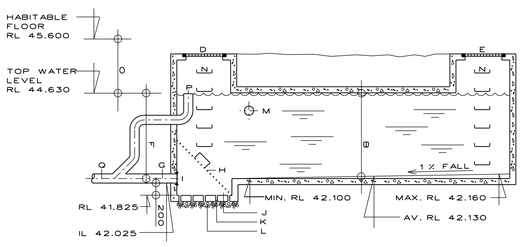
ACCORDING TO CHART ON PAGE 47:

PSD = 25.0 ltrs/sec

MAX. PERMISSIBLE DISCHARGE TO KERB AND GUTTER

NOTES

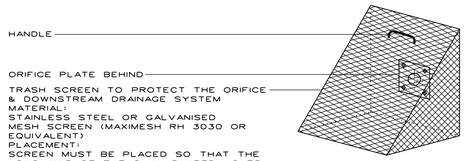
FOR GENERAL NOTES AND LEGEND REFER TO DRAWING H - DA - 00



- ALL TANK DIMENSIONS SHOWN ARE INTERNAL MEASUREMENTS
- REFER TO STRUCTURAL ENGINEERS DOCUMENTS FOR WALL / SLAB THICKNESS AND CONSTRUCTION DETAILS

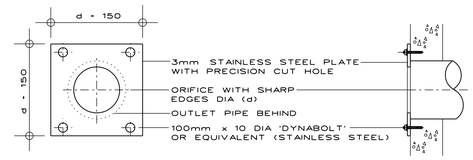
ITEM	DESCRIPTION	
A	TANK AREA	12.8m2
B	AVERAGE EFFECTIVE WATER DEPTH	2.5m
C	EFFECTIVE TANK VOLUME (12.8m2 x 2.5m)	32.0m3
D	INLET / ACCESS GRATE No. 1 (LOCKED)	600SQUARE
E	INLET / ACCESS GRATE No. 2 (LOCKED)	600SQUARE
F	MAX. WATER LEVEL ABOVE ℄ OF ORIFICE PLATE	2.53m
G	OUTLET PIPE	150mm DIA
H	TRASH SCREEN	REFER TO DETAIL 2
I	ORIFICE PLATE	REFER TO DETAIL 3
J	SILT TRAP	1.0m SQUARE
K	WEEP HOLES 20mm DIA	@ 200mm CENTRE
L	BLUE METAL BED (WRAPPED IN GEOFABRIC)	200mm HIGH
M	INLET PIPE	REFER TO PLAN
N	STEP IRONS	
O	FREEBOARD	970mm
P	EMERGENCY OVERFLOW PIPE	225mm DIA
Q	DISCHARGE PIPE TO COUNCIL's DRAINAGE SYSTEM	225mm DIA

DETAIL 1:
DIAGRAMMATIC SECTION THROUGH DETENTION TANK
NTS



TRASH SCREEN TO PROTECT THE ORIFICE & DOWNSTREAM DRAINAGE SYSTEM
MATERIAL:
STAINLESS STEEL OR GALVANISED MESH SCREEN (MAXIMESH RH 3030 OR EQUIVALENT)
PLACEMENT:
SCREEN MUST BE PLACED SO THAT THE LONG AXIS OF THE OVAL SHAPED HOLES ARE HORIZONTAL WITH THE PROTRUDING LIP ANGLED UPWARDS AND FACING DOWNSTREAM

DETAIL 2:
REMOVABLE TRASH SCREEN
NTS



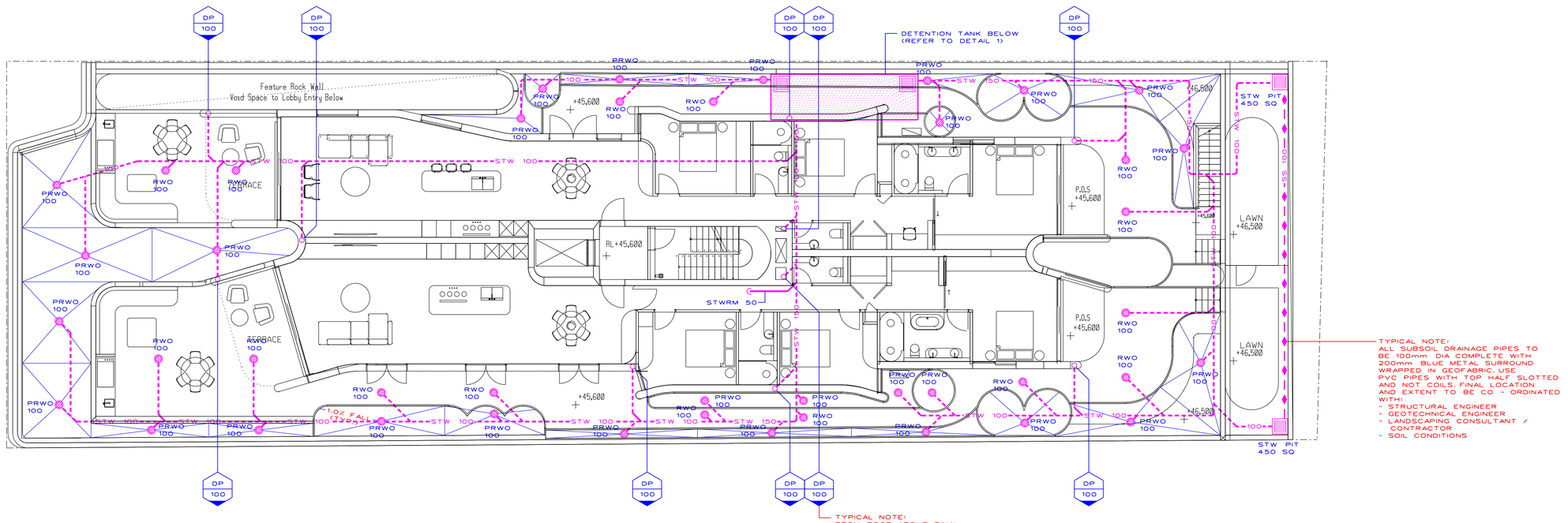
CALCULATION OF ORIFICE SIZE

PSD - PERMISSABLE SITE DISCHARGE IN [m3/s]
A - CROSSECTIONAL AREA OF ORIFICE PLATE IN [m2]
C - DISCHARGE CO-OEFFICIENT (0.6 FOR ORIFICE PLATE)
G - ACCELERATION DUE TO GRAVITY = 9.81 [m/s]
H - MAX. HEIGHT / HEAD OF WATER ABOVE THE CENTRE LINE OF THE ORIFICE PLATE IN [m]
D - ORIFICE DIAMETER IN [mm]

$$A = \frac{PSD}{C \times \sqrt{2 \times G \times H}} = \frac{0.025}{0.6 \times \sqrt{2 \times 9.81 \times 2.53}} = 0.006m2$$

$$D = \sqrt{\frac{A \times 4}{\pi}} = \sqrt{\frac{0.006 \times 4}{\pi}} \times 1000\ mm/m = 87mm\ DIA$$

DETAIL 3:
ORIFICE PLATE
NTS



TYPICAL NOTE:
ALL SUBSOIL DRAINAGE PIPES TO BE 100mm DIA COMPLETE WITH 200mm BLUE METAL SURROUND WRAPPED IN GEOFABRIC, USE PVC PIPES WITH TOP HALF SLOTTED AND NOT COILS. FINAL LOCATION AND EXTENT TO BE CO - ORDINATED WITH:
- STRUCTURAL ENGINEER
- GEOTECHNICAL ENGINEER
- LANDSCAPING CONSULTANT / CONTRACTOR
- SOIL CONDITIONS

TYPICAL NOTE:
FROM ROOF ABOVE, FINAL LOCATION AND EXTENT TO BE CONFIRMED DURING THE CC STAGE.

APPROVAL

REV	DESCRIPTION	DATE
B	RE - ISSUED FOR DA	14.10.21
A	ISSUED FOR DA	22.09.21

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PROJECT
30 FAIRLIGHT STREET
FAIRLIGHT
NSW 2094

DRAWING TITLE
GROUND FLOOR STORMWATER DRAINAGE

SCALE: 1:100 @ A1 / 1:200 @ A3
JOB No: 20/308
DISCIPLINE: HYD
DRAWING No: H-DA-02
REVISION: B

STW DA DRAWING

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150