STORMWATER DRAINAGE

PROPOSED DUAL OCCUPANCY

35 MOORE ROAD, FRESHWATER NSW 2096

DRAWING REGISTER	
DRAWING NO.	DRAWING TITLE
V250445 - SW000	COVER SHEET
V250445 - SW001	GENERAL NOTES
V250445 - SW100	STORMWATER DRAINAGE - BASEMENT
V250445 - SW101	STORMWATER DRAINAGE - GROUND FLOOR
V250445 - SW102	STORMWATER DRAINAGE - FIRST FLOOR
V250445 - SW103	STORMWATER DRAINAGE - TOP FLOOR
V250445 - SW104	STORMWATER DRAINAGE - ROOF
V250445 - SW110	STORMWATER DRAINAGE - DETAILS SHEET 1
V250445 - SW111	STORMWATER DRAINAGE - DETAILS SHEET 2

REVISION	REVISION DETAILS	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	ISSUED FOR DA	19.05.2025	C.K.	C.K.	D.S.	D.S.

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CLIENT

PROJECT MANAGER

SCALE NOT TO SCALE

GRID -

HEIGHT DATUM AHD

DRAWING TITLE COVER SHEET

STATUS FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

PROJECT
PROPOSED DUAL OCCUPANCY
35 MOORE ROAD, FRESHWATER NSW 2096
LGA: NORTHERN BEACHES COUNCIL

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SITEWORKS NOTES

1. ORIGIN OF LEVELS:- REFER SURVEY NOTES
2. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE LOCAL GOVERNMENT AUTHORITIES ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS.
3. PRIOR TO THE COMMENCEMENT OF THE WORKS THE CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES TO BE REPORTED TO VANGUARD.
4. PRIOR TO THE COMMENCEMENT OF THE WORKS, THE CONTRACTOR IS TO VERIFY THE ALIGNMENT AND LEVELS OF ALL EXISTING SERVICES AT ALL LOCATIONS WHERE THE PROPOSED SERVICES ARE TO CROSS, CONNECT TO OR ARE LOCATED IN CLOSE PROXIMITY TO THE EXISTING SERVICES. ANY DISCREPANCIES TO BE REPORTED TO VANGUARD.
5. CONTRACTOR MUST MAKE SMOOTH CONNECTION WITH ALL EXISTING WORKS.
6. ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.
7. ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL, REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH THE CURRENT AS 1289.5.2.1 (OR A DENSITY INDEX OF NOT LESS THAN 75).
8. PROVIDE 10mm WIDE ISOLATION JOINTS BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVEMENTS.
9. ASPHALTIC CONCRETE SHALL CONFORM TO THE CURRENT TFNSW SPECIFICATION TS 03283.1 (R116) HEAVY DUTY DENSE GRADED ASPHALT.
10. ALL BASECOURSE AND SUB-BASE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH THE CURRENT TFNSW SPECIFICATION TS 03315.1 (3051) GRANULAR BASE AND SUBBASE MATERIALS FOR SURFACED ROAD PAVEMENTS COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH THE CURRENT AS 1289 5.2.1.
    FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m^2 OF SUB-BASE COURSE MATERIAL PLACED UNLESS OTHERWISED APPROVED BY VANGUARD.
11. AS AN ALTERNATIVE TO THE USE OF IGNEOUS ROCK AS A SUB-BASE MATERIAL (IN NOTE 10) A CERTIFIED RECYCLED CONCRETE MATERIAL COMPLYING WITH THE CURRENT TFNSW SPECIFICATION TS 03315.1 (3051) GRANULAR BASE AND SUBBASE MATERIALS FOR SURFACED ROAD PAVEMENTS WILL BE CONSIDERED. SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF VANGUARD.
12. SHOULD THE CONTRACTOR WISH TO USE A RECYCLED PRODUCT THE CONTRACTOR IS TO SEEK ACCEPTANCE OF THE PRODUCT FROM VANGUARD. THE PRICE DIFFERENCE BETWEEN AN IGNEOUS PRODUCT AND A RECYCLED PRODUCT SHALL BE CLEARLY INDICATED.
13. WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED BY OTHERS, (EG. ADJUSTMENT OF SERVICES), THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF THESE WORKS.
14. ALL WORKS CARRIED OUT ADJACENT TO AND WITHIN SERVICE EASEMENTS ARE TO COMPLY WITH THE RELEVANT SERVICE AUTHORITIES GUIDELINES AND REQUIREMENTS.

EXISTING UNDERGROUND SERVICES NOTES

THE LOCATIONS OF UNDERGROUND SERVICES SHOWN IN THIS SET OF DRAWINGS HAVE BEEN PLOTTED FROM SURVEY INFORMATION AND SERVICE AUTHORITY INFORMATION. THE SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE. AT & L CAN NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.

CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ONSITE INCLUDING HAND EXCAVATION WHERE NECESSARY.

CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION WORKS.

CONTRACTORS ARE TO UNDERTAKE A SERVICES SEARCH, PRIOR TO COMMENCEMENT OF WORKS ON SITE. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.

BEFORE YOU DIG www.byda.com.au

BEFORE YOU DIG AUSTRALIA SHOULD BE CONTACTED PRIOR TO ANY EXCAVATION ON SITE

TM: TRADE MARK OF THE ASSOCIATION OF DIAL BEFORE YOU DIG SERVICES LTD. USED UNDER LICENSE.

STORMWATER DRAINAGE NOTES

GENERAL NOTES

1. STORMWATER DESIGN CRITERIA:
   ANNUAL EXCEEDANCE PROBABILITY:
   MINOR STORM: 5% AEP
   MAJOR STORM: 1% AEP
2. PIPES LESS THAN 300 DIA SHALL BE SEWER GRADE uPVC WITH SOLVENT WELDED JOINTS.
3. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN DN300.
4. ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF THE CURRENT AS 3500 3.1 AND AS/NZS 3500 3.2.
5. ALL STORMWATER DRAINAGE LINES UNDER PROPOSED BUILDING SLABS TO BE uPVC PRESSURE PIPE GRADE 6. ENSURE ALL VERTICALS AND DOWNPIPES ARE uPVC PRESSURE PIPE, GRADE 6 FOR A MIN OF 3.0m IN HEIGHT.
6. ALL DRAINAGE LINES TO PROVIDE A 3.0M LENGTH OF DN100 SUBSOIL DRAINAGE PIPE WRAPPED IN FABRIC SOCK, ON THE UPSTREAM SIDE OF EACH PIT. ALLOW FOR SECONDARY SUBSOIL FOR PIPES FOR PIPE GRATER THAN DN825.
7. SUBSOIL DRAIN WRAPPED IN APPROVED FILTER SOCK SHALL BE PROVIDED BENEATH ALL KERBLINES WHERE NO DRAINAGE LINES ARE SHOWN ON THE DRAWINGS AND SHALL DISCHARGE INTO DOWNSTREAM PITS.
8. WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPES ARE TO BE USED.
9. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL FROM VANGUARD.
10. GRATES AND COVERS SHALL CONFORM TO THE CURRENT AS 3996. CLASS D COVER (MINIMUM) SHALL BE PROVIDED IN TRAFFICKED PAVEMENTS WITH CLASS B (MINIMUM) BEING PROVIDED IN NON-TRAFFICKED AREAS.
11. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, THE CONTRACTOR SHALL PROVIDE ADEQUATE SAFETY PROCEDURES TO PREVENT THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
12. ALL PITS AND PIPES TO BE FOUNDED ON SUITABLE MATERIAL WITH A MINIMUM ALLOWABLE BEARING CAPACITY OF 100KPa UP TO 3.0m DEPTH TO INVERT AND 150KPa FROM 3.0m TO 6.0m DEPTH TO INVERT ONCE EXCAVATED. A CONCRETE BLINDING LAYER (MINIMUM 100mm THICK 25MPa OR DEEPER TO ENSURE MINIMUM SPECIFIED BEARING CAPACITY IS ACHIEVED) MAY BE PROVIDED. CONTRACTOR TO ENGAGE GEOTECHNICAL ENGINEER TO PROVIDE WRITTEN CONFIRMATION.
13. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.
14. ALL STORMWATER PITS ARE TO BE CAST IN-SITU IN ACCORDANCE WITH THE STORMWATER DETAILS AND SPECIFICATIONS.
15. ALL PITS MUST BE BENCHED AND STREAMLINED TO DIRECT WATER FROM THE INLET PIPE TO THE OUTLET PIPE.
16. PITS DEEPER THAN 600mm MUST BE FITTED WITH DOUBLE STEP-IRONS IN ACCORDANCE WITH THE CURRENT AS1657. PLASTIC ENCAPSULATED MAY BE USED. STEP-IRONS TO BE PROVIDED ON A SINGLE FACE WHERE POSSIBLE. SHOULD STEP-IRONS REQUIRE TO CHANGE FACE THEN 3 OVERLAPPING STEP IRONS ARE TO BE LOCATED ON EACH FACE.
17. FREQUENCY OF COMPACTION TESTING SHALL BE NOT LESS THAN 1 TEST PER 2 LAYERS PER 40 LINEAR METERS.

RIGID & SEMI-RIGID PIPE NOTES

18. PIPES 300 DIA. AND LARGER TO BE STEEL REINFORCED CONCRETE CLASS '3' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O. ALL ROAD CROSSINGS TO BE CLASS '4' U.N.O. EQUIVALENT STRENGTH FIBRE REINFORCED CONCRETE PIPES MAY BE USED SUBJECT TO APPROVAL BY VANGUARD OR THE LOCAL GOVERNMENT AUTHORITY.
19. REINFORCED CONCRETE PIPES TO COMPLY WITH THE CURRENT AS/NZS 4058.
    FIBRE REINFORCED CONCRETE PIPES TO COMPLY WITH THE CURRENT AS 4139.
    PIPES TO BE INSTALLED WITH TYPE HS3 (ROAD) AND HS2 (LOTS) SUPPORT IN ACCORDANCE WITH THE CURRENT AS/NZS 3725. N ALL CASES BACKFILL EMBEDMENT ZONE WITH SELECT FILL (MINIMUM CBR 15%) TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH THE CURRENT AS 1289.5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75).

FLEXIBLE PIPE NOTES

20. FLEXIBLE PIPES TO COMPLY WITH THE CURRENT AS/NZS 2566.1.
    PIPES TO BE INSTALLED IN ACCORDANCE WITH THE CURRENT AS/NZS 2566.2. IN ALL CASES BACKFILL EMBEDMENT ZONE WITH GRAVEL OR SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH THE CURRENT AS 1289.5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)

PRECAST CONCRETE PIT NOTES

21. PRECAST PIT MAY BE USED WITH THE APPROVAL OF VANGUARD THE SUPERINTENDENT AND THE LOCAL GOVERNMENT AUTHORITY AND SHALL BE INSTALLED TO THE MANUFACTURERS RECOMENDATIONS.
22. ALL PRE-CAST PITS ARE TO BE STRUCTURALLY CERTIFIED TO MEET RELEVANT REQUIREMENTS OF THE CURRENT AS3600 AND AS3996 (2019).
23. PRE-CAST STORMWATER PITS ARE TO BE APPROVED FOR TFNSW CONSTRUCTION (R11) AND ARE TO ARE TO BE DESIGNED AND CUSTOM MADE WITH OPENINGS UP TO A MAXIMUM +50mm OD OF THE STORMWATER PIPES. PITS ARE ALSO TO INCLUDE PENETRATIONS FOR SUBSOIL CONNECTIONS AND DOUBLE STEP-IRONS INSTALLED FOR PITS >0.6m DEEP. DEMOLITION SAWS MAY BE USED PROVIDING A NEAT FULL DEPTH CUT IS APPLIED AND ANY ADDITIONAL PENETRATIONS REQUIRED ARE TO BE CORE DRILLED.
24. SHOP DRAWINGS ARE TO BE PROVIDED FOR REVIEW AND ACCEPTANCE. IT SHOULD BE NOTED THAT THE CONTRACTOR IS TO ENSURE THAT THE STRUCTURAL COMPONENTS OF THE PITS ARE NOT COMPROMISED AND ONLY THE PIPE KNOCKOUTS ARE TO BE REMOVED FOR THE PIPE PENETRATIONS.

STORMWATER DRAINAGE NOTES (CONTINUED)

1. ALL PRECAST PITS TO BE FOUNDED ON CONCRETE BLINDING LAYER (100mm ON AN EARTH FOUNDATION OR 150mm ON A ROCK FORMATION) WITH A MINIMUM ALLOWABLE BEARING CAPACITY OF 100KPa UP TO 3.0m DEPTH TO INVERT AND 150KPa FROM 3.0m TO 6.0m DEPTH TO INVERT (MINIMUM 100mm THICK 25MPa OR DEEPER TO ENSURE MINIMUM SPECIFIED BEARING CAPACITY IS ACHIEVED). CONTRACTOR TO ENGAGE GEOTECHNICAL ENGINEER TO PROVIDE WRITTEN CONFIRMATION.
2. ALL PRE-CAST PIT PENETRATIONS SHALL BE CUT SO THAT IT IS FLUSH WITH THE INTERNAL WALL.
3. ALL PIPE JOINTING, SPARGING, RENDERING, FILLING OF GAPS TO BE FILLED WITH A HIGH STRENGTH NON-SHRINK GROUT WITH A MINIMUM 40MPa COMPRESSIVE STRENGTH AT 28 DAYS. (LANKO DURABED 702 OR SIMILAR).
4. SINGLE UNITS PREFERRED BUT IF REQUIRED MINIMUM RISER DEPTH 600mm PIT INSTALLATION AND JOINTING BETWEEN UNITS SHALL BE UNDERTAKEN IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
5. ANY DAMAGE TO THE STRUCTURAL INTEGRITY OF THE PRE-CAST PIT WILL BE REPAIRED AND STRUCTURALLY CERTIFIED AT THE CONTRACTORS EXPENCE TO THE SATISFACTION OF THE VANGUARD, SUPERINTENDENT / LOCAL GOVERNMENT AUTHORITY.

SURVEY NOTES

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. VANGUARD CONSULTING ENGINEERS 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 VANGUARD CONSULTING ENGINEERS.

AS3500.3
MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS

DEPTH TO INVERT OF OUTLET		MINIMUM INTERNAL DIMENSIONS mm		
		RECTANGULAR		CIRCULAR
		WIDTH	LENGTH	DIAMETER
	≤ 600	450	450	600
> 600	≤ 900	600	600	900
> 900	≤ 1200	600	900	1000
> 1200		900	900	1000

AS3500.3
MINIMUM GRADIENT OF SITE STORMWATER DRAINS

NOMINAL SIZE	MINIMUM GRADIENT		NOMINAL SIZE	MINIMUM GRADIENT	
DN	AU	NZ	DN	AU	NZ
90	1:100	1:90	225	1:200	1:350
100	1:100	1:120	300	1:250	1:350
150	1:100	1:200	375	1:300	1:350

AS3500.3
TABLE 7.1: MINIMUM PIPE COVER
(FROM FINISHED SURFACE TO TOP OF PIPE)

LOCATION	CAST IRON, DUCTILE IRON, GALVANIZED STEEL	OTHER AUTHORIZED(*) PRODUCTS
	MINIMUM COVER (millimeters)	
1 NOT SUBJECT TO VEHICULAR LOADING		
(A) WITHOUT PAVEMENT -		
(i) FOR SINGLE DWELLINGS	NIL	100
(ii) FOR OTHER THAN ITEM (i)	NIL	300
(B) WITH PAVEMENT OF BRICK OR UNREINFORCED CONCRETE	NIL (†)	50 (†)
2 SUBJECT TO VEHICULAR LOADING		
(A) OTHER THAN ROADS -		
(i) WITHOUT PAVEMENT	300	450
(ii) WITH PAVEMENT OF -		
(A) REINFORCED CONCRETE FOR HEAVY VEHICULAR LOADING	NIL (†‡)	100 (†‡)
(B) BRICK OR UNREINFORCED CONCRETE FOR LIGHT VEHICULAR LOADING	NIL (†‡)	75 (†‡)
(B) ROADS -		
(i) SEALED	300	500 (†‡)
(ii) UNSEALED	300	500 (†‡)
3 SUBJECT TO CONSTRUCTION EQUIPMENT LOADING OR IN EMBANKMENT CONDITIONS	300	500 (†‡)

(*) INCLUDE OVERLAY ABOVE THE TOP OF THE PIPE OF NOT LESS THAN 50mm THICK.
(†) BELOW THE UNDERSIDE OF THE PAVEMENT.
(‡) SUBJECT TO COMPLIANCE WITH AS1762, AS2033, AS/NZS 2566.1, AS3725 OR AS4060.

LEGEND

DP ●	DOWNPIPE
SW >	STORMWATER LINE
RW >	ROOF WATER LINE
SSD	SUBSOIL DRAINAGE LINE
OF >	OVERFLOW LINE
SWRM SWRM	STORMWATER RISING MAIN
e	EXISTING STORMWATER LINE
SW SW	AUTHORITY STORMWATER LINE
HL HL	HIGH LEVEL STORMWATER LINE
S	AUTHORITY SEWER LINE
W	AUTHORITY WATER LINE
G G	AUTHORITY GAS LINE
E	AUTHORITY ELECTRICITY LINE
FO FO FO	AUTHORITY FIBRE OPTIC LINE
TEL	AUTHORITY COMMS LINE
OH(E)	AUTHORITY OVERHEAD ELECTRICAL LINE
/ /	FENCE LINE
	GRATED SURFACE INLET PIT
	GRATED SURFACE INLET PIT WITH OCEANGUARD BASKET
	JUNCTION PIT
	KERB INLET PIT
	GRATED TRENCH DRAIN
eTEL	EXISTING TELSTRA PIT
eHYD	EXISTING HYDRANT
eSV	EXISTING STOP VALVE
eGAS	EXISTING GAS VALVE
ePP	EXISTING POWER POLE
eBT	EXISTING BOUNDARY TRAP
eSMH	EXISTING SEWER MANHOLE
OFP	OVERLAND FLOW PATH
RWO	RAINWATER OUTLET

LEGEND

CO	CLEAR OUT POINT
DDO	DISH DRAIN OUTLET
PD	PLANTER DRAIN
	CAPPING
FF	FIRST FLUSH
RH	RAINHEAD
	DOWNPIPE DROP
	NON RETURN VALVE
	WALL PENETRATION
SP	DOWNPIPE SPREADER
	WARNING LIGHT
80.00	SPOT LEVELS
	BENCHMARK

ABBREVIATIONS:

Ø or DIA	DIAMETER
CBR	CALIFORNIA BEARING RATIO
CH	CHAINAGE
CL	CENTER LINE
CO	CLEAR OUT
DD	DISH DRAIN
DDO	DISH DRAIN OUTLET
DEJ	DOWELLED EXPANSION JOINT
DGB	DENSE GRADED BASECOURSE
DGS	DENSE GRADED SUB-BASE
DP	DOWNPIPE
e	EXISTING
FFL	FINISHED FLOOR LEVEL
GTD	GRATED TRENCH DRAIN
GSIP	GRATED SURFACE INLET PIT
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
NGL	NATURAL GROUND LEVEL
OFP	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
SWRM	STORMWATER RISING MAIN
TOK	TOP OF KERB
TOW	TOP OF WALL
TWL	TOP WATER LEVEL
TP	TANGENT POINT
UNO	UNLESS NOTED OTHERWISE
WPJ	WEAKENED PLANE JOINT
FF	FIRST FLUSH DEVICE
TYP	TYPICAL
BM	BENCH MARK

LEGEND:

	PROPOSED	EXISTING	FUTURE	TEMPORARY
STORMWATER PIPELINE				
STORMWATER DRAINAGEG PITS				
CONCRETE HEADWALL				
DRAINAGE LABEL	A.05	A.05	A.05	A.05
CATCH DRAIN				

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PUMP-OUT TANK CALCULATION:

1. STORAGE VOLUME

AREA DRAINING TO PUMP-OUT PIT = 16.9 m2
RAINFALL DEPTH (10yr-2hr) = 63.6 mm
VOLUME REQUIRED = A x d = 16.9 x 63.6 x 10-3/ = 1.07m3
(MIN. 3m3 AS PER AS3500.3)
VOLUME PROVIDED = 1.75x1.75x1.0 = 3.06m3

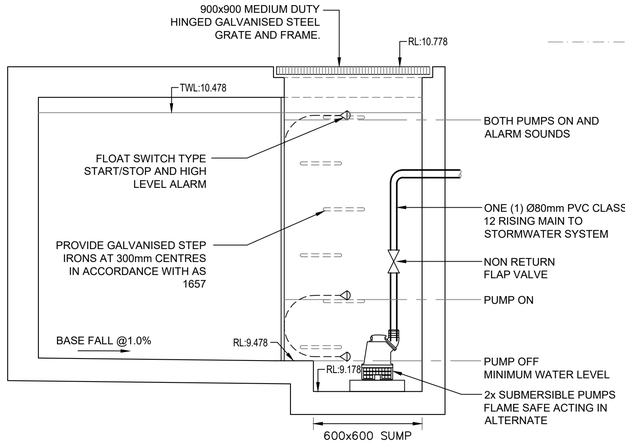
2. PUMP-OUT RATE

RAINFALL INTENSITY I (100yr-5mins) = 264 mm/hr
PUMP-OUT RATE REQUIRED Q = 1x 264 x 16.9 / 3600 = 1.24 L/s
PUMP-OUT RATE PROVIDED = 10L/s OVER 5m HEAD.

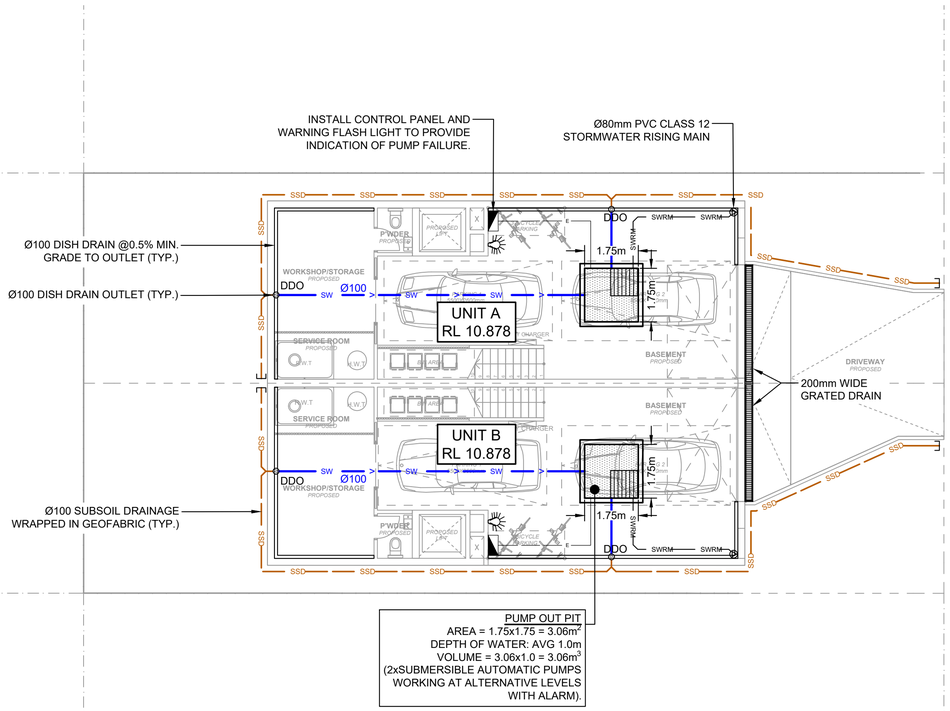
SPECIFY 2x SUBMERSIBLE PUMPS ALINE KS-30
OR APPROVED EQUAL.

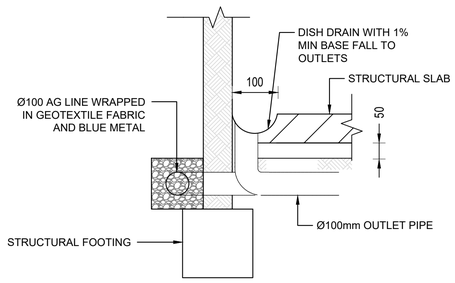
PUMP-OUT TANK NOTES:

1. PUMPS SHALL WORK ALTERNATIVELY
2. A LOW LEVEL FLOAT TO BE PROVIDED TO MAINTAIN MIN. WATER LEVEL IN THE TANK (OFF SWITCH)
3. A SECOND FLOAT, 300mm HIGHER SHOULD BE PROVIDED TO ACTIVATE ONE PUMP THAT WILL DRAIN THE TANK TO THE LEVE OF THE LOW LEVEL FLOAT
4. A THIRD FLOAT SHALL BE PROVIDED APPROX. AT THE SOFFIT OF THE TANK; THIS FLOAT WILL ACTIVATE THE SECOND PUMP THAT IS NOT IN OPERATION AND WILL ACTIVATE THE ALARM
5. AN ALARM SYSTEM SHALL BE PROVIDED WITH FLASHING STROBE LIGHT AND A PUMP FAILURE SIGN WHICH ARE TO BE PROVIDED IN A VISIBLE SPOT AT THE DRIVEWAY ENTRANCE.
6. A BACK-UP BATTERY SHALL BE PROVIDED FOR THE ALARM SYSTEM IN CASE OF POWER FAILURE
7. A CONFINED SPACE DANGER SIGN SHALL BE PROVIDED AT ALL ACCESS POINT TO THE PUMP-OUT STORAGE TANK IN ACCORDANCE WITH GUIDELINES FROM SAFE WORK AUSTRALIA.



DETAIL 1
SUBSOIL PUMP OUT PIT
SCALE 1:20



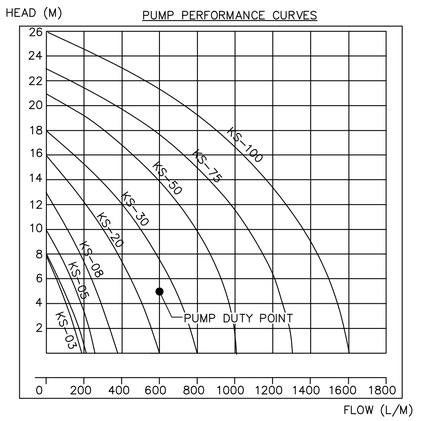


DETAIL 2
SUBSOIL DRAINAGE
N.T.S.

RECOMMENDED PUMP →

Type	Output		Outlet		Rated Head Capacity		Maximum Head	Maximum Capacity	Weigh	Dimension		
	HP	kW	mm	Inch	M	LPM	M	LPM	Kg	L(mm)	W(mm)	H(mm)
KS-03	1/3	0.25	40	1 1/2"	3	130	8	180	9	188	141	305
KS-04	1/2	0.4	50	2"	5	150	8	220	11	208	140	359
KS-05	1/2	0.4	50	2"	5	160	10	260	14	230	156	375
KS-08	1	0.75	50	2"	6	240	13	380	21	290	180	425
KS-20	2	1.5	80	3"	10	300	16	600	31	278	182	475
KS-30	3	2.2	80	3"	10	500	18	800	42	390	250	450
KS-50	5	3.7	100	4"	10	800	21	1100	48	450	240	530
KS-75	7 1/2	5.6	100	4"	15	800	23	1300	60	550	310	590
KS-100	10	7.5	150	6"	18	900	25	1600	70	550	310	610

RECOMMENDED PUMP SPECIFICATIONS



PUMP SIZING

REVISION	REVISION DETAILS	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	ISSUED FOR DA	19.05.2025	C.K.	C.K.	D.S.	D.S.

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CLIENT

PROJECT MANAGER

SCALE
1:20 / 1:40 A1 / A3 — 0 200 400 600 800mm
1:100 / 1:200 A1 / A3 — 0 1 2 3 4m

GRID -
HEIGHT DATUM AHD

DRAWING TITLE
STORMWATER DRAINAGE BASEMENT

STATUS FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

PROJECT
PROPOSED DUAL OCCUPANCY
35 MOORE ROAD, FRESHWATER NSW 2096
LGA: NORTHERN BEACHES COUNCIL

DRAWING NUMBER	REFERENCE NUMBER	REVISION
V250445 - SW100	V250445	A

DESIGN NOTES:

THE SITE IS LOCATED IN NORTHERN BEACHES COUNCIL.

SITE AREA (COMBINED) = 385.2m²
IMPERVIOUS AREA (COMBINED) = 224.5m² (58.3% SITE AREA)
SITE AREA (EACH LOT) = 192.6m²

IN ACCORDANCE TO COUNCIL GUIDELINES, OSD IS REQUIRED FOR SUBJECT DEVELOPMENT. REFER TO DETAIL FOR FURTHER CALCULATIONS.

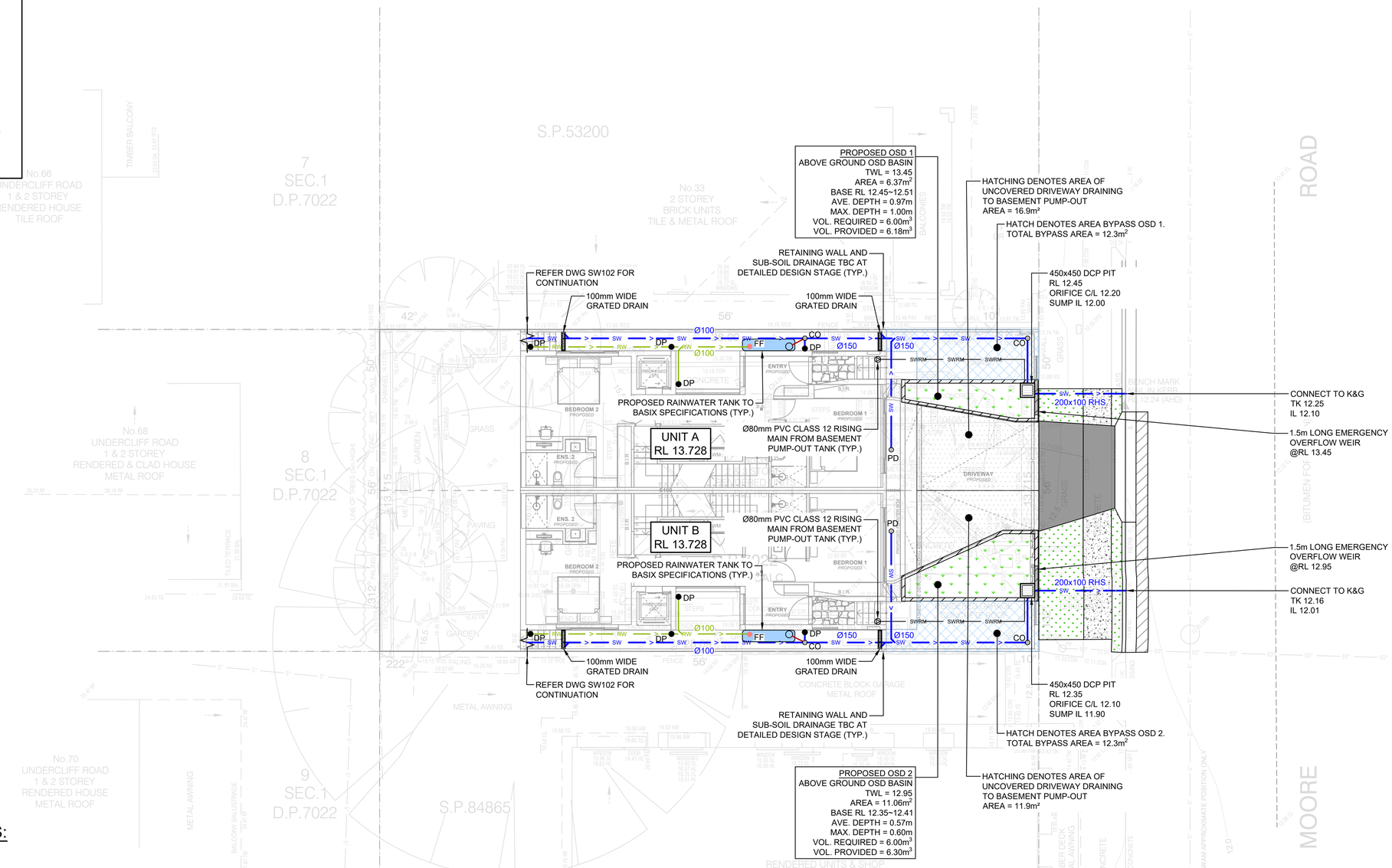
SIMPLIFIED METHOD (EACH LOT) (AS PER COUNCIL GUIDELINES APPENDIX 8)
SSR = 5m³ (+20% FOR LANDSCAPED BASIN) = 6m³
MAX. Q_{100} = 13L/s

CONTRACTOR TO INSTALL ABOVE GROUND RAINWATER TANK TO COLLECT REQUIRED ROOF AREA IN ACCORDANCE WITH BASIX CERTIFICATE.

RAINWATER TANK TO BE EQUIPPED WITH FIRST FLUSH AND MOSQUITO PROTECTION DEVICES.

ALL NEW STORMWATER PIPES TO HAVE A MINIMUM OF 100mm CONCRETE OR 300mm TOPSOIL COVER U.N.O.

ALL DOWNPIPES SHOWN ON PLAN ARE Ø100mm uPVC U.N.O.



EROSION & SEDIMENT CONTROL NOTES:

CONTRACTOR TO PROVIDE SILT FENCE/HAY BAIL BARRIERS TO THE LOW SIDE OF ALL EXPOSED EARTH EXCAVATIONS (TYP).

ISOLATE EXISTING STORMWATER PITS WITH HAY BALES TO FILTER ALL INCOMING FLOWS.

DO NOT STOCK PILE EXCAVATED MATERIAL ON THE ROAD WAY.

SURVEY

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN.

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PROJECT MANAGER

SCALE
1:100 / 1:200 A1 / A3
0 1 2 3 4m

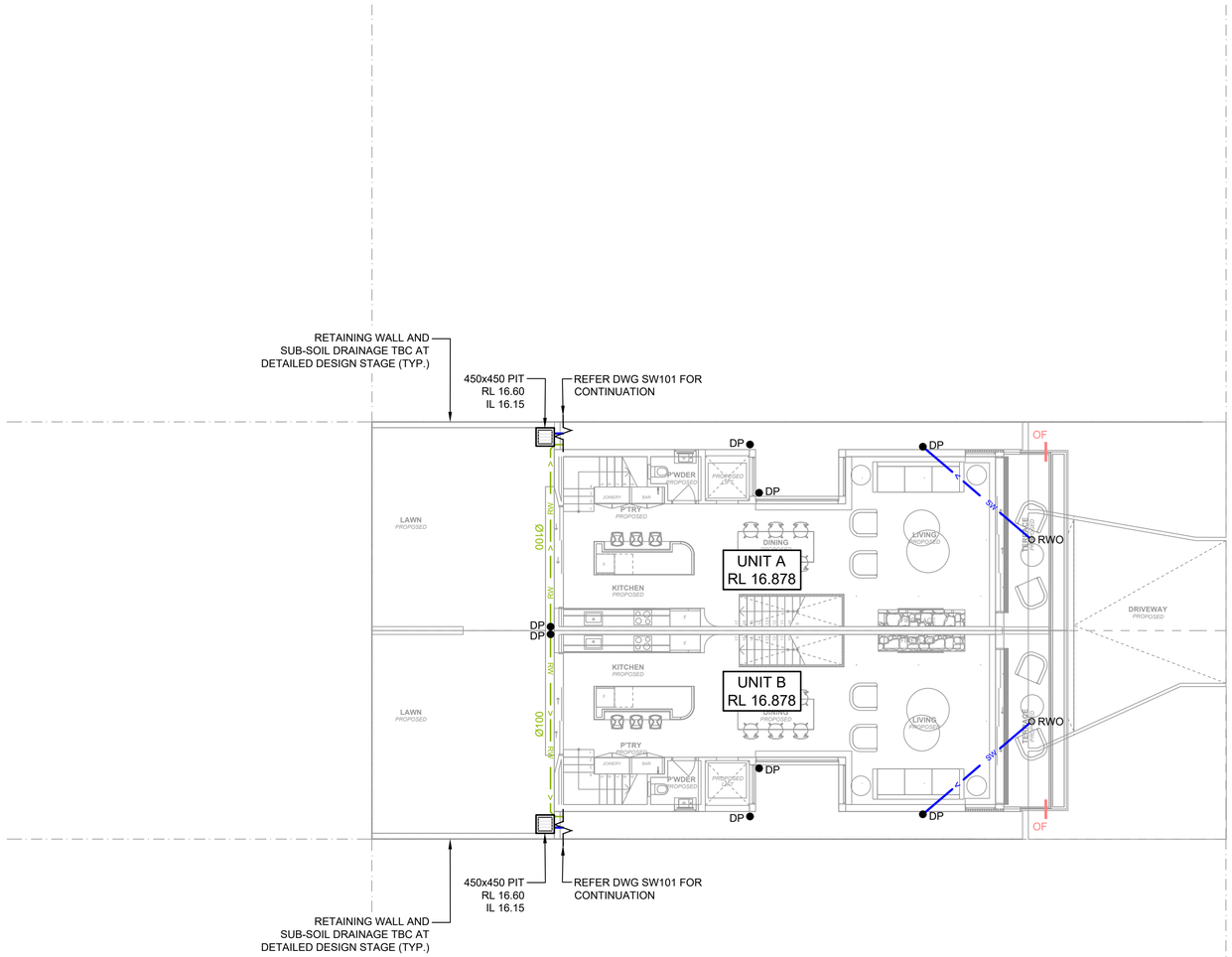
GRID -
HEIGHT DATUM AHD

DRAWING TITLE
STORMWATER DRAINAGE GROUND FLOOR

STATUS FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

PROJECT
PROPOSED DUAL OCCUPANCY
35 MOORE ROAD, FRESHWATER NSW 2096
LGA: NORTHERN BEACHES COUNCIL

DRAWING NUMBER	REFERENCE NUMBER	REVISION
V250445 - SW101	V250445	A



REVISION	REVISION DETAILS	DATE	DRAWN	DESIGN	CHECK	APPROVED
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PROJECT MANAGER

SCALE

1:100 / 1:200
A1 / A3

0 1 2 3 4m

GRID -

HEIGHT DATUM AHD

DRAWING TITLE

STORMWATER DRAINAGE
FIRST FLOOR

STATUS FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

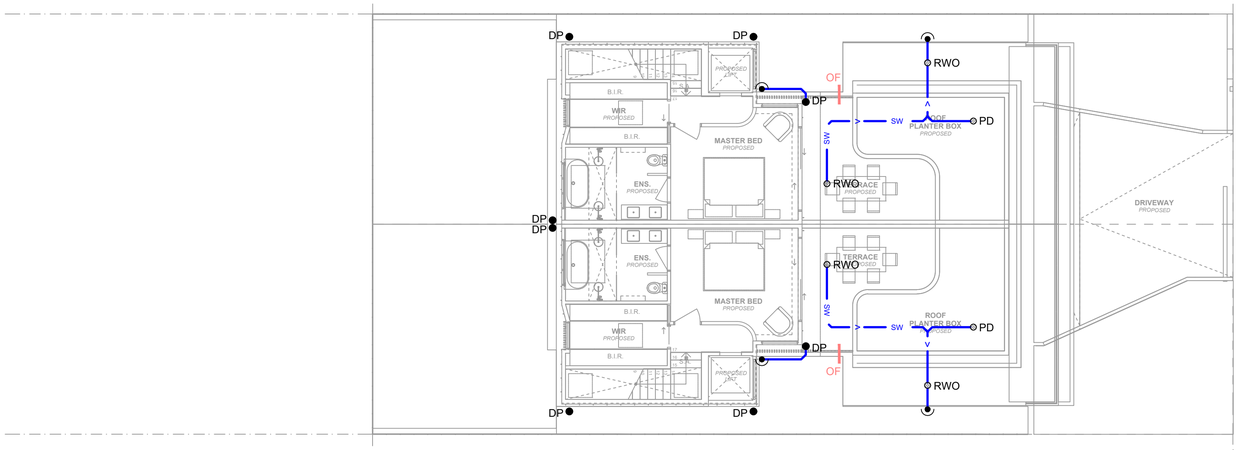
PROJECT

PROPOSED DUAL OCCUPANCY

35 MOORE ROAD, FRESHWATER NSW 2096

LGA: NORTHERN BEACHES COUNCIL

DRAWING NUMBER	REFERENCE NUMBER	REVISION
V250445 - SW102	V250445	A



REVISION	REVISION DETAILS	DATE	DRAWN	DESIGN	CHECK	APPROVED
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PROJECT MANAGER

SCALE

1:100 / 1:200
A1 / A3

0 1 2 3 4m

GRID -

HEIGHT DATUM AHD

DRAWING TITLE

STORMWATER DRAINAGE
TOP FLOOR

STATUS FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

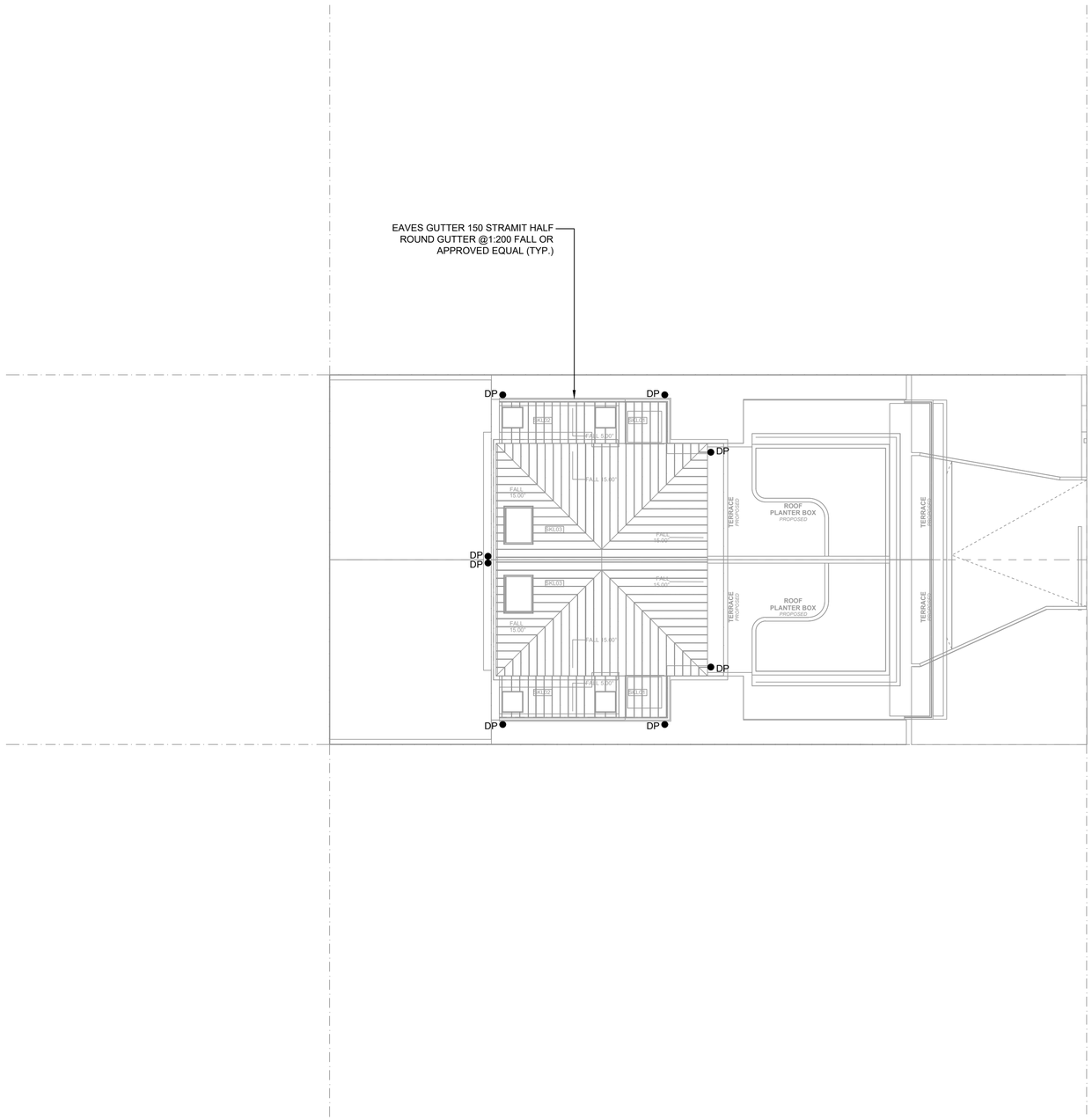
PROJECT

PROPOSED DUAL OCCUPANCY

35 MOORE ROAD, FRESHWATER NSW 2096

LGA: NORTHERN BEACHES COUNCIL

DRAWING NUMBER	REFERENCE NUMBER	REVISION
V250445 - SW103	V250445	A



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SCALE
1:100 / 1:200
A1 / A3
0 1 2 3 4m

GRID -

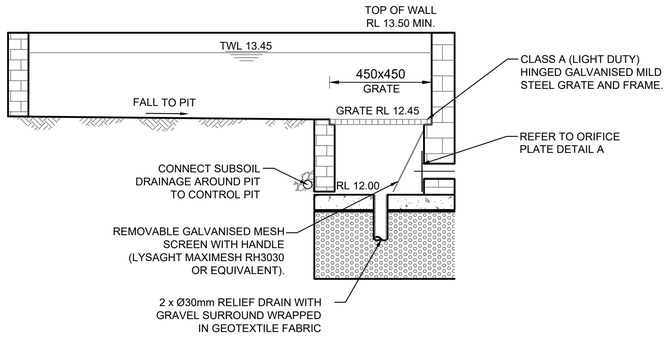
HEIGHT DATUM AHD

DRAWING TITLE
STORMWATER DRAINAGE
ROOF

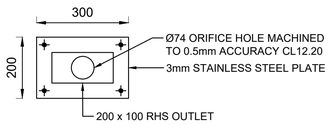
STATUS FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

PROJECT
PROPOSED DUAL OCCUPANCY
35 MOORE ROAD, FRESHWATER NSW 2096
LGA: NORTHERN BEACHES COUNCIL

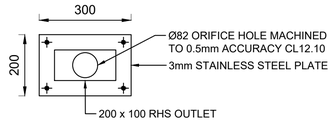
DRAWING NUMBER	REFERENCE NUMBER	REVISION
V250445 - SW104	V250445	A



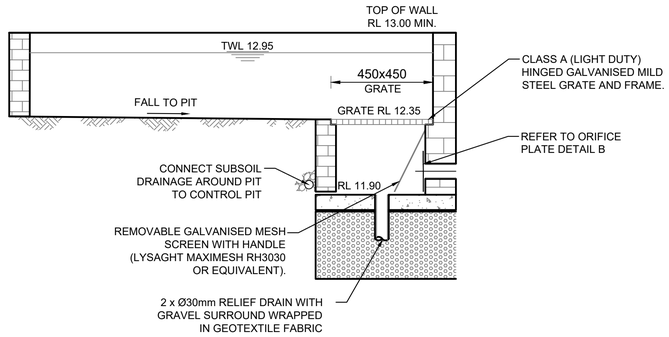
DETAIL 1
OSD 1
SCALE NTS



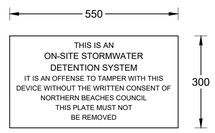
DETAIL A
ORIFICE PLATE
SCALE 1:10



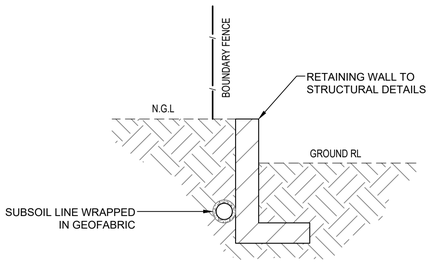
DETAIL B
ORIFICE PLATE
SCALE 1:10



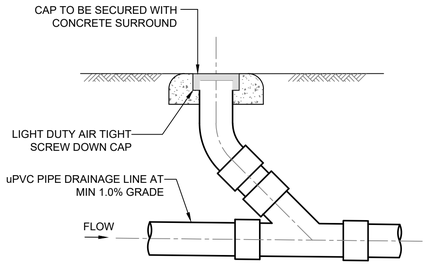
DETAIL 2
OSD 2
SCALE NTS



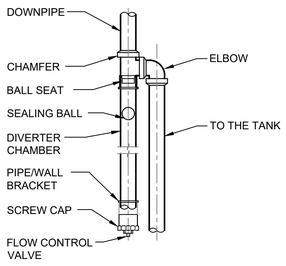
DETAIL 3
OSD SIGN
SCALE 1:10



DETAIL 4
SUBSOIL BEHIND RETAINING WALL
SCALE NTS



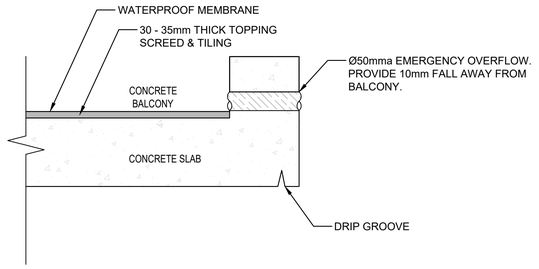
DETAIL 5
CLEANING EYE
SCALE 1:20



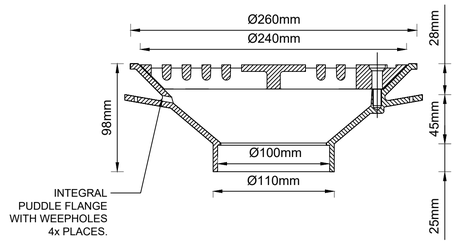
DETAIL 6
FIRST FLUSH DIVERTER
SCALE 1:20

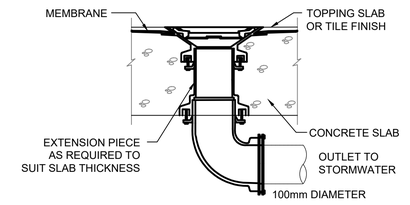
LEGEND:
BACKGROUND IS YELLOW
TEXT IS WHITE ON BLACK
BACKGROUND

DETAIL 7
RAINWATER SIGN
SCALE 1:10

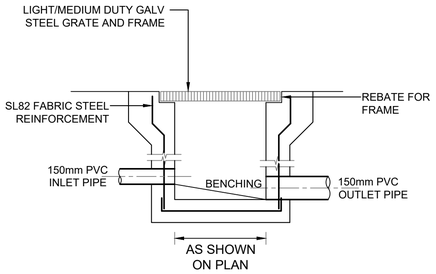


DETAIL 8
BALCONY OVERFLOW
SCALE 1:20

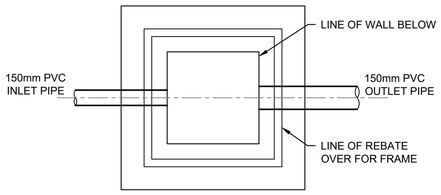




DETAIL 9
TYPE SPS
RAINWATER OUTLET
NOT TO SCALE

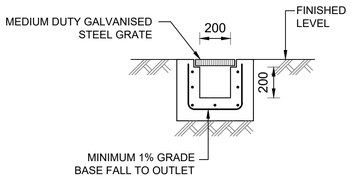


SECTION

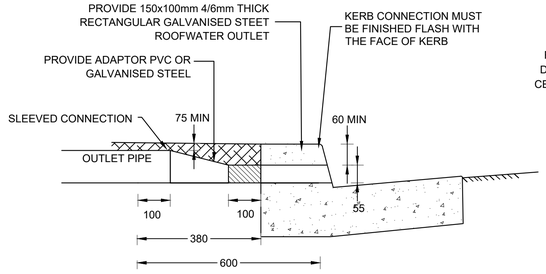


PLAN WITHOUT GRATE

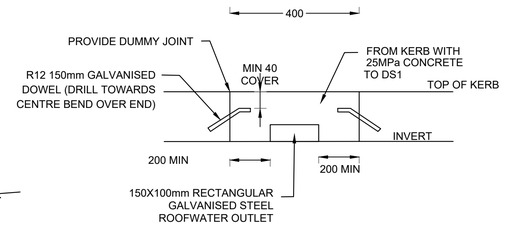
DETAIL 10
STORMWATER PIT
SCALE 1:20



DETAIL 11
GRATED DRAIN
SCALE 1:20



SECTION VIEW



FRONT VIEW SECTION

DETAIL 12
KERB OUTLET CONNECTION
NOT TO SCALE

NOTES FOR KERB CONNECTION
1. ENSURE THAT ALL CONNECTIONS ARE WATER TIGHT.
2. FOR TRAFFICABLE AREA SUCH AS DRIVERWAYS, USE RECTANGULAR GALVANISED STEEL OUTLET PIPE FOR FULL LENGTH, EG. BOUNDARY TO KERB.
3. ALL DEMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

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PROJECT MANAGER

SCALE
1:10 / 1:20 A1 / A3: 0 100 200 300 400mm
1:20 / 1:40 A1 / A3: 0 200 400 600 800mm

GRID -
HEIGHT DATUM AHD

DRAWING TITLE
STORMWATER DRAINAGE
DETAILS SHEET 1

STATUS
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

PROJECT
PROPOSED DUAL OCCUPANCY
35 MOORE ROAD, FRESHWATER NSW 2096
LGA: NORTHERN BEACHES COUNCIL

DRAWING NUMBER	REFERENCE NUMBER	REVISION
V250445 - SW110	V250445	A

Appendix 16 – On-site Detention Checklist

This checkliist is to be used to determine the on-site stormwater disposal requirement for developments and must be completed and included with the submission of any development application for these works. Please read this form carefully for its notes, guidelines, definition and relevant policies.

For assistance and support, please contact Council's Development Engineering and Certification team on 1300 434 434.

Part 1 Location of the Property

House Humber	35	Legal Property Description	
Street	Moore Road	Lot	15
Suburb	Freshwater	Section	1
Postcode	NSW 2096	DP	7022

Part 2 Site Details

Northern Beaches Stormwater Regions (refer to Map 2 of Northern Beaches Council's Water Management for Development policy)	2	Total Site Area 385.2m2	
Pre-Development Impervious Area	214.4m2	Post-Development Impervious Area	224.5m2
Is the site of the development located within an established Flood Prone Land as referred to Council's Local Environmental Plans? If yes, On-site stormwater Detention system (OSD) is not required and please proceed to part 5 of this checklist If no, please proceed to part 3 of this checklist.			Yes ☐ No ☒

Part 3: Northern Beaches Stormwater Regions
(refer to Map 2 of Northern Beaches Council's Water Management for Development policy)

If the site of the development located within Region 1, please proceed to the part 4.1 of this checklist
If the site of the development located within Region 2, please proceed to the part 4.2 of this checklist
If the site of the development located within Region 3, please proceed to the part 4.3 of this checklist
If the site of the development located within Region 4, please refer to Council's Warriewood Valley Water Management Specification.

Part 4 Determination of OSD Requirements

Part 4.1 Northern Beaches Stormwater Region 1	
Is the additional impervious area of the development more than 50 m² on a cumulative basis since February 1996?	Yes ☐ No ☐
If yes, OSD is required and please refer to section 9.3.1 of Council's Water Management for Development Policy If no, OSD is not required and please proceed to the part 5 of this checklist	

Part 4.2 Northern Beaches Stormwater Region 2		
Part 4.2.1 Description of Work		
Residential flat building, commercial, industrial, multiple occupancy development and subdivisions resulting in the creation of three lots or more, will require OSD in all case. Please provide a design in accordance with the section 9.3.2 of Council's Water Management for Development Policy. Any single residential building development, please proceed to part 4.2.2 of this checklist.		
Part 4.2.2 Exemption		
Is the site area less than 450m²?		Yes ☐ No ☐
Does the site of the development drain directly to the ocean without the need to pass through a drainage control structure such as pipe, bridge, culvert, kerb and gutter or natural drainage system?		Yes ☐ No ☐
Is it an alternation and addition development to the existing dwellings?		Yes ☐ No ☐
If yes to any of the above questions, OSD is not required. If no to all the above questions, proceed to part 4.2.3		
Part 4.2.3 Determination of OSD Requirements		
Calculation	a) Site area m² x 0.40 (40%) = ...385.2 x 0.4 = 154.1..... m² b) Post- development impervious area = ...224.5..... m² **OSD will not be required when (a) is greater than (b)** Is OSD required for this development (tick one only) Yes ☒ No ☐ If yes, provide a design in accordance with the section 9.3.2 of Council's Water Management for Development Policy. If no, OSD is not required and please proceed to part 5 of this checklist.	

Part 4.3 Northern Beaches Stormwater Region 3		
Part 4.3.1 Stormwater Zone		
In the region, the method of stormwater control to be applied shall depend on the location of the site. Please refer to Map 3 of Northern Beaches Council's Water Management for Development policy.		
If the site of the development located within stormwater zone 1, please proceed to the part 4.3.2 of this checklist		
If the site of the development located within stormwater zone 2, please provide a design in accordance with the section 9.3.3.3 of Council's Water Management for Development Policy.		
If the site of the development located within stormwater zone 3, please provide a design in accordance with the section 9.3.3.4 of Council's Water Management for Development Policy.		
If the site of the development located within stormwater zone 4, please provide a design in accordance with the section 9.3.3.5 of Council's Water Management for Development Policy.		
Part 4.3.2 Determination of OSD requirements in Stormwater Zone 1		
Part 4.3.2.1 For A New Building		
1) Exemption	a) Is the site area less than 400? Yes ☐ No ☐ b) Is the post-development impervious area less than 190 m²? Yes ☐ No ☐ If yes to both questions, OSD is not required. If no to any of the above questions, please process to calculation	
2) Calculation	a) Site area _____m² x 0.35 = _____m² + 50 = _____m² b) Post- development impervious area _____m² OSD will not be required when (b) is less than 250 m² and (a) is greater than (b) Is OSD required for this development? Yes ☐ No ☐ If yes, provide a design in accordance with the section 9.3.3.2 of Council's Water Management for Development Policy. If no, OSD is not required and please proceed to part 5.	
Part 4.3.2.2 For Alterations and Additions		
If the current impervious area of the site is more than 60% of the site area, OSD will be required. Alternatively, please proceed to the next calculation section.		
1) Calculation	Is the post development impervious area increased by less than 50 m²? Yes ☐ No ☐ Is the post development impervious area less than 60% of the site area? Yes ☐ No ☐ If yes to both questions, OSD is not required. If no to any of the above questions, provide a design in accordance with section 9.3.3.2 of Council's Water Management for Development Policy	

Part 5 Disposal of Stormwater

Does the site fall naturally towards the street? Yes ☒ No ☐ If yes, provide a design in accordance with section 5.1 of Council's Water Management for Development Policy. If no, provide a design in accordance with section 5.5 of Council's Water Management for Development Policy.

Definitions

Designed to help you fill out this application	**Site area:** This refers to the area of the land bounded by its existing or proposed boundaries. **Impervious area:** This refers to driveways, parking spaces, pathways, paved areas, hardstand areas, roofed areas, garages and outbuildings. **Pre Development Impervious area**: This refers all impervious areas of the site before the development. **Post Development Impervious areas**: This refers all the impervious areas within the site after the development is completed.

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CLIENT

PROJECT MANAGER

SCALE NOT TO SCALE

GRID -

HEIGHT DATUM AHD

DRAWING TITLE
STORMWATER DRAINAGE DETAILS SHEET 2

STATUS FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

PROJECT
PROPOSED DUAL OCCUPANCY
35 MOORE ROAD, FRESHWATER NSW 2096
LGA: NORTHERN BEACHES COUNCIL

DRAWING NUMBER V250445 - SW111

REFERENCE NUMBER V250445

REVISION A