HYDRAULIC SERVICES
32 QUEEN STREET
MOSMAN, NSW 2088

LEGEND

ABBREVIATIONS

AAV	AIR ADMITTANCE VALVE
AB	ACCESSIBLE BASIN
AC	AIR CONDITIONING
AV	AIR RELEASE VALVE
AWC	ACCESSIBLE TOILET (WATER CLOSET)
B	BASIN
BG	BOX GUTTER
BT	BOUNDARY TRAP
BTH	BATH
BWU	BOILING WATER UNIT
CAC	CIRCULAR ACCESS CHAMBER
CI	CAST IRON
CIC	CAST IN COLUMN
CIS	CAST IN SLAB
CO	CLEAR OUT
CS	CLEANERS SINK
Cu	COPPER
CW	COLD WATER
DI	DUCTILE IRON
DP	DOWN PIPE
DST	DRAINAGE STACK
DTU	DRAINAGE TURN-UP
DW	DISHWASHER
DWG	DRAWING
EJ	EXPANSION JOINT
Ex	EXISTING
FFL	FINISHED FLOOR LEVEL
FH	FIRE HYDRANT
FHR	FIRE HOSE REEL
FP	FLUSHING POINT
FW	FLOOR WASTE
GBP	GAS BAYONET POINT
GFW	GARBAGE FLOOR WASTE
GMS	GALVANISED MILD STEEL
GVP	GREASE VENT PIPE
GW	GLASS WASH
HDC	HEAVY DUTY COVER
HDG	HEAVY DUTY GRATE
HL	HIGH LEVEL
HT	HOSE TAP
HW	HOT WATER
HWR	HOT WATER RETURN
HWU	HOT WATER UNIT
IL	INVERT LEVEL
IM	ICE MACHINE
IPMF	INDUCT PIPE MICA FLAP
KIP	KERB INLET PIT
KFW	KITCHEN FLOOR WASTE
KO	KEY OPERATED
LDC	LIGHT DUTY COVER
LDG	LIGHT DUTY GRATE
LL	LOW LEVEL
LT	LAUNDRY TUB
LTG	LONGITUDINAL TRENCH GRATE
NG	NATURAL GAS
NTS	NOT TO SCALE
O/F	OVERFLOW
ORG	OVERFLOW RELIEF GULLY
P	PENETRATION
PFW	PLANTROOM FLOOR WASTE
PLRO	PLANTER RAINWATER OUTLET
PLV	PRESSURE LIMITING VALVE
PRO	PARAPET RAINWATER OUTLET
PRV	PRESSURE REDUCING VALVE
RC	REFRIGERATION CABINET
RGB	RECESSED GAS BAYONET POINT
RL	REDUCED LEVEL
RO	RAINWATER OUTLET
RPZD	REDUCED PRESSURE ZONE DEVICE
RST	RECESSED STOP TAP
RTD	RECESSED TUNDISH
RV	RELIEF VENT
RWH	RAINWATER HEAD
S	SINK
SHR	SHOWER
SMH	SEWER MANHOLE
SPR	SPRINKLER SERVICE
SRM	SEWER RISING MAIN
SST	SOIL STACK
ST	STOP TAP
STW	STORMWATER
SV	STOP VALVE (ISOLATION VALVE)
SWP	STORMWATER PIT
SWRM	STORMWATER RISING MAIN
TD	TUNDISH
TG	TRENCH GRATE
TMV	THERMOSTATIC MIXING VALVE
TOK	TOP OF KERB
TTD	TRAPPED TUNDISH
TRO	TERRACE RAINWATER OUTLET
TVP	TRADE WASTE VENT PIPE

SYMBOLS

- COLD WATER POINT
- HOT WATER POINT
- CONTINUATION SYMBOL (CONTINUATION OF SERVICE NOT SHOWN)
- CAPPED OFF SERVICE
- DROPPER
- RISER
- DIRECTION OF FLOW IN PIPE
- FLANGE CONNECTION
- BALANCING VALVE (STAD)
- TUNDISH
- ISOLATION VALVE
- FLEXIBLE CONNECTION
- PUMP
- METER
- TEMPERATURE GAUGE
- PRESSURE GAUGE
- BACKFLOW PREVENTION DEVICE
- TWO WAY VALVE
- THREE WAY VALVE
- FLOAT VALVE
- AIR RELEASE VALVE
- CHECK VALVE (WATER SERVICE) REFLUX VALVE (DRAINAGE)
- FILTER
- VENTED GAS REGULATOR
- ELECTRICAL CONTROL PANEL
- OVERFLOW RELIEF GULLY/YARD GULLY
- SV IN PATH BOX
- GAS REGULATOR
- PRESSURE REDUCING VALVE
- PRESSURE LIMITING VALVE
- SOLENOID VALVE
- STRAINER
- DIRECTIONAL ARROW
- OVERLAND FLOW PATH
- PENETRATION
- DIRECTION OF FLOW
- SERVICE
- SIZE
- CONTINUED ON DWG HX

SYMBOLS

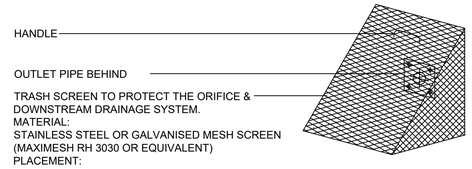
- FLOOR WASTE/RAINWATER OUTLET
- STORMWATER PIT (WITH COVER)
- STORMWATER PIT (WITH GRATE)
- SQUARE RAINWATER OUTLET
- SEWER MANHOLE (CAC)
- KERB INLET PIT
- FIRE HYDRANT
- STORMWATER HEADWALL
- SPREADER
- FIRE HOSEREEL
- STANDPIPE FIRE HYDRANT
- BOUNDARY TRAP
- AIR ADMITTANCE VALVE

LINETYPES

- SEWER DRAINAGE/SANITARY PLUMBING
- VENT PIPE
- SRM SRM SRM — SEWER RISING MAIN
- SWRM — STORMWATER RISING MAIN
- STORMWATER DRAINAGE
- TW — TRADE WASTE DRAINAGE
- SUBSOIL DRAINAGE
- SSRM — SUBSOIL RISING MAIN
- COLD WATER SERVICE
- HOT WATER FLOW
- HOT WATER RETURN
- GAS SERVICE
- FIRE HOSE REEL SERVICE
- FIRE HYDRANT SERVICE
- WARM WATER FLOW
- WARM WATER RETURN
- FIRE SPRINKLER SERVICE
- IR — IRRIGATION SERVICE
- R — RECYCLED WATER
- E E E — ELECTRICAL CONDUIT
- e — EXISTING SERVICE
- EXISTING SERVICE TO BE REDUNDANT

STORMWATER NOTES

1. CONFIRM LOCATION, SIZE, CONDITION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORK.
2. ALL WORK TO BE IN ACCORDANCE WITH LOCAL AUTHORITIES REQUIREMENTS, BCA AND RELEVANT AUSTRALIAN STANDARDS (IN PARTICULARLY AS 3500)
3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL AND OTHER CONSULTANTS DOCUMENTS. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER BEFORE PROCEEDING WITH THE WORK.
4. LOCATION OF ALL DOWNPIPES, PITS AND PIPEWORK IS DIGRAMMATIC ONLY FINAL LOCATION TO BE CO-ORDINATED DURING CONSTRUCTION CERTIFICATE DOCUMENTATION.
5. ALL MATERIALS USED IN THE WORK SHALL BE NEW AND OF THE BEST QUALITY AND TYPE AVAILABLE TO CONFORM WITH THE RELEVANT AUSTRALIAN STANDARDS AND BEAR THE REQUIRED STANDARDS MARK AND WATERMARK.
6. MAKE ALL APPLICATIONS TO LOCAL COUNCIL. PAY ALL FEES AND OBTAIN ALL NECESSARY PERMITS AND APPROVALS AS REQUIRED BY THE AUTHORITIES.
7. PIPEWORK UP TO 225mm DIAMETER SHALL BE UPVC DRAINAGE WASTE GRADE WITH SOLVENT WELDED JOINTS.
8. PIPEWORK SHALL BE LAID AT 1:100 MINIMUM GRADE UNLESS NOTED OTHERWISE. PIPEWORK MAY BE LAID AT STEEPER GRADES AS REQUIRED TO MEET COVER REQUIREMENTS OR AS NOMINATED BY PIPEWORK INVERT LEVELS.
9. SUBSOIL PIPEWORK SHALL BE INSTALLED AS REQUIRED, INCLUDING BEHIND ALL RETAINING STRUCTURES, PLANTERS AND WHERE GROUND WATER IS ENCOUNTED. SHALL BE 90mm SLOTTED UPVC PIPE WRAPPED IN CLOTH SOCK AND SURROUNDED WITH 150mm THICKNESS OF 20mm DIAMETER BLUE METAL AND SURROUNDED IN GEOTEXTILE FABRIC.
10. ALL EXTERNAL LEVELS TO FALL AWAY FROM BUILDING. BUILDER TO ENSURE THRESHOLD REQUIREMENTS. OVERLAND FLOW PATHS TO BE MAINTAINED AROUND BUILDING TO PREVENT WATER INGRESS.
11. ALL LANDSCAPED AREAS LOCATED ABOVE CONCRETE SLABS TO BE EQUIPPED WITH DEDICATED OUTLET, WATERPROOFING MEMBRANE, DRAINAGE CELL AND GEOFABRIC.
12. SUBSOIL, UPLIFT PRESSURE, VERTICAL WALL DRAINAGE AND PIT CONSTRUCTION DETAILS TO BE CONFIRMED / CO-ORDINATED WITH STRUCTURAL AND GEOTECHNICAL ENGINEERS DURING CONSTRUCTION STAGE OF THE PROPOSED DEVELOPMENT.
13. ALL BALCONIES TO BE PROVIDED WITH SAFETY OVERFLOWS (FINAL LOCATION OF OVERFLOWS TO BE CONFIRMED BY ARCHITECT).



DETAIL: REMOVABLE TRASH SCREEN

SCALE NTS

DRAWING SCHEDULE

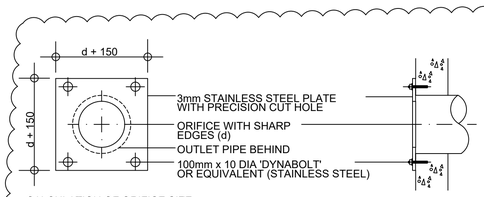
DWG No	DESCRIPTION
H01	COVER SHEET, CALCULATIONS & DETAILS
H02	EROSION CONTROL PLAN
H03	GROUND & LOWER GROUND FLOOR DRAINAGE
H04	LEVEL 1 & LEVEL 2 / ROOF DRAINAGE

OSD & RAINWATER TANK CALCULATIONS

ALL IN ACCORDANCE WITH MOSMAN COUNCIL'S STORMWATER REQUIREMENTS.

SITE AREA:	1429m²
EXISTING SITE IMPERVIOUS AREA:	445.8m²
PROPOSED SITE IMPERVIOUS AREA:	722.2m²
PERMISSIBLE SITE DISCHARGE (1:5YR):	35.38 L/sec
ON-SITE DETENTION REQUIRED (1:20YR):	8.7m³

RAINWATER TANK WITH 6,015L MINIMUM EFFECTIVE VOLUME AS PER BASIX REQUIREMENTS.



CALCULATION OF ORIFICE SIZE

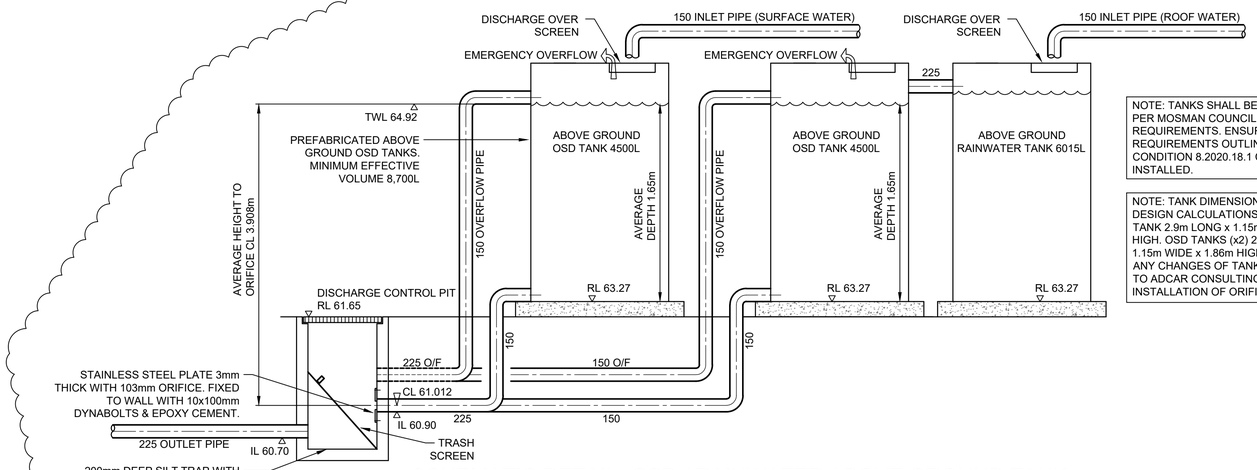
PSD = PERMISSABLE SITE DISCHARGE IN [m3/s]
A = CROSSECTIONAL AREA OF ORIFICE PLATE IN [m2]
C = DISCHARGE CO-OEFFICIENT (0.6 FOR ORIFICE PLATE)
G = ACCELERATION DUE TO GRAVITY = 9.81 [m/s]
H = MAX. HEIGHT / HEAD OF WATER ABOVE THE CENTRE LINE OF THE ORIFICE PLATE IN [m]
D = ORIFICE DIAMETER IN [mm]

$$A = \frac{PSD}{C \times \sqrt{2 \times G \times H}} = \frac{0.03538}{0.6 \times \sqrt{2 \times 9.81 \times 3.908}}$$

$$D = \sqrt{\frac{A \times 4}{\pi}} = \sqrt{\frac{0.0067 \times 4}{\pi}} \times 1000\ mm/m = 93mm$$

DETAIL: ORIFICE PLATE

SCALE NTS



NOTE: TANKS SHALL BE INSTALLED AS PER MOSMAN COUNCIL REQUIREMENTS. ENSURE ALL REQUIREMENTS OUTLINED IN DA CONDITION 8.2020.18.1 CLAUSE 57 ARE INSTALLED.

NOTE: TANK DIMENSIONS USED FOR DESIGN CALCULATIONS. RAINWATER TANK 2.9m LONG x 1.15m WIDE x 1.86m HIGH. OSD TANKS (x2) 2.3m LONG x 1.15m WIDE x 1.86m HIGH. REPORT ANY CHANGES OF TANK OR LEVELS TO ADCAR CONSULTING PRIOR TO INSTALLATION OF ORIFICE PLATE.

SCHEMATIC DETAIL- OSD / RAINWATER ABOVE GROUND TANK

NTS

REV	DATE	DESCRIPTION
C	30.05.2022	ISSUED FOR SECT 34
B	14.12.2021	ISSUED FOR SECT 4.55
A	02.03.2021	ISSUED FOR CC

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PROJECT
RESIDENTIAL ALTERATIONS & ADDITIONS
32 QUEEN STREET
MOSMAN, NSW

DRAWING TITLE
HYDRAULIC SERVICES COVER, CALCULATIONS AND DETAILS

STATUS
CONSTRUCTION CERTIFICATE

DRAWN	ENGINEER	CHECKED	SCALE
PB	PC	MA	NTS@A1 NTS@A3

PROJECT No.	DRAWING No.	REVISION
P2019-142	H01	C