

**BASEMENT 01 DRAINAGE PLAN** SCALE 1:150

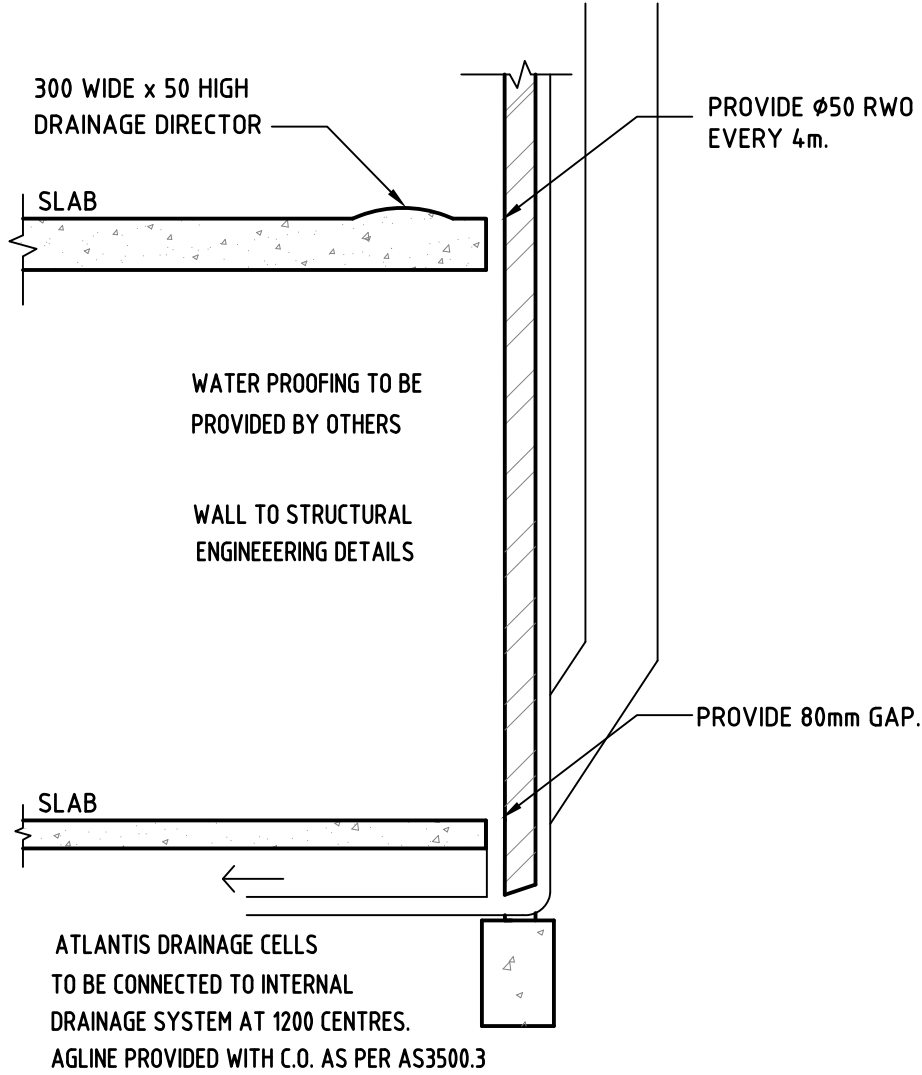
ALL BALCONIES ARE TO HAVE A 65mm DIAMETER OVERFLOW PIPE OR AND 80mm SQUARE OPENING ACTING AS AN OVERFLOW.

ALL DOWNPIPES TO BE 100mm DIAMETER OR 100 x 100mm MIN. TO ARCHITECTURAL SPECIFICATIONS OR AS NOTED ON PLAN.

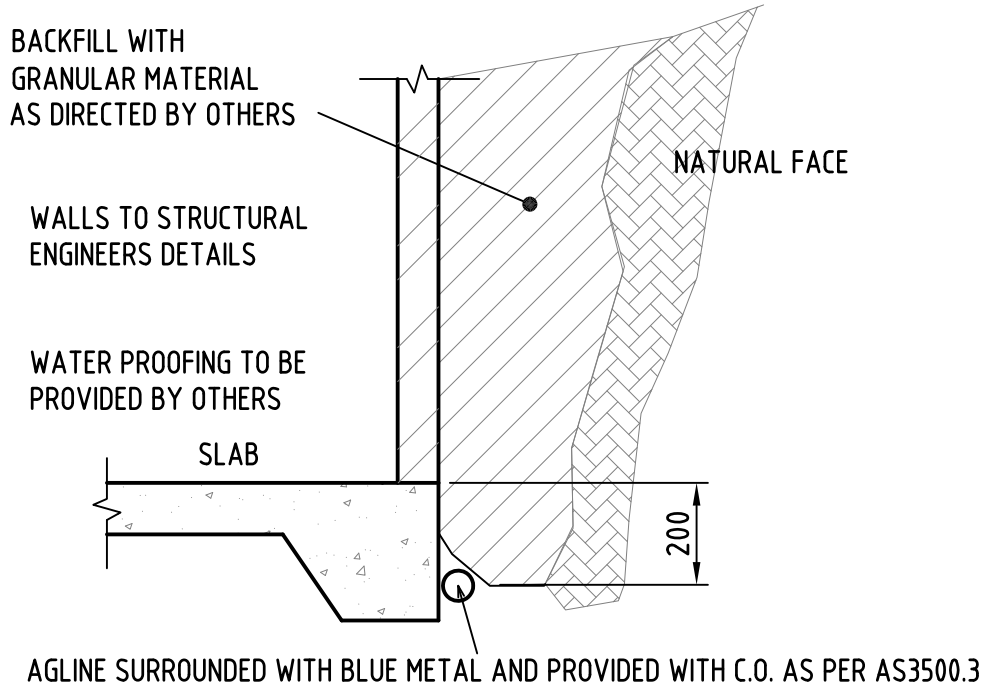
PROVIDE AG. LINES BEHIND ALL RETAINING WALLS AND SUBSOIL DRAINAGE AS PER STRUCTURAL ENGINEERING DETAILS. ALL LINES TO DRAIN TO PITTS.

- x DENOTES PROPOSED LEVEL
- DENOTES EXISTING LEVEL
- DENOTES DOWNPIPE
- ROOFWATER ONLY
- - - - STORMWATER ONLY

ATLANTIS DRAINAGE CELLS TO BE USED BEHIND BASEMENT RETAINING WALLS USE AN 200 WIDE x 40 THICK LOG WRAPPED IN GEOTEXTILE FABRIC AT 1200 CENTRES VERTICALLY TO STRUCTURAL ENGINEERS DETAILS. TYPICAL.



**TYPICAL BASEMENT WALL DRAINAGE DETAIL** N.T.S.



**TYPICAL BASMENT WALL DRAINAGE DETAIL** N.T.S.

**BASEMENT PUMPING WELL**

Provide two centrifugal drainage SUMP pumps with single phase electric motor capable of discharging 4.6L/s each against a total head of (6.5m) with 10 starts per hour maximum.

Class 1 Zone 2 certified pumps for hazardous areas is required

Switching shall provide for alternative operation of the pumps, high level switch ON/OFF, 2nd pump, and a red light alarm placed prominently in the basement area activated by high level switch ON.

Basement Holding Tank

Area draining to the garage pumping well is the driveway to the basement (80m²)

Storage must be provided for a blackout of at least 2hrs, the 100yrs ARI 2hr storm runoff is:

$Q = F \times C \times I \times A$

$= 1/3600 \times 1 \times 60 \times 80$

$= 1.33 \text{ L/s}$

Volume accumulated:

$V = (1.33 \text{ L/s} \times 2 \text{ hrs} \times 3600 \text{ s}) / 1000$

$= 9.6 \text{ m}^3$

Let the maximum discharge be for the 10 min 100yrs ARI storm. In the event of a stronger storm such as a 5min 100yrs ARI, The standby pump will operate with the duty pump to discharge the extra runoff. In case of a break down, storage is provided in the basement for the excess runoff.

$Q = F \times C \times I \times A$

$= 1/3600 \times 1 \times 207 \times 80$

$= 4.6 \text{ L/s}$

A Control volume is required to prevent the pump from starting too often (< 10/hr)

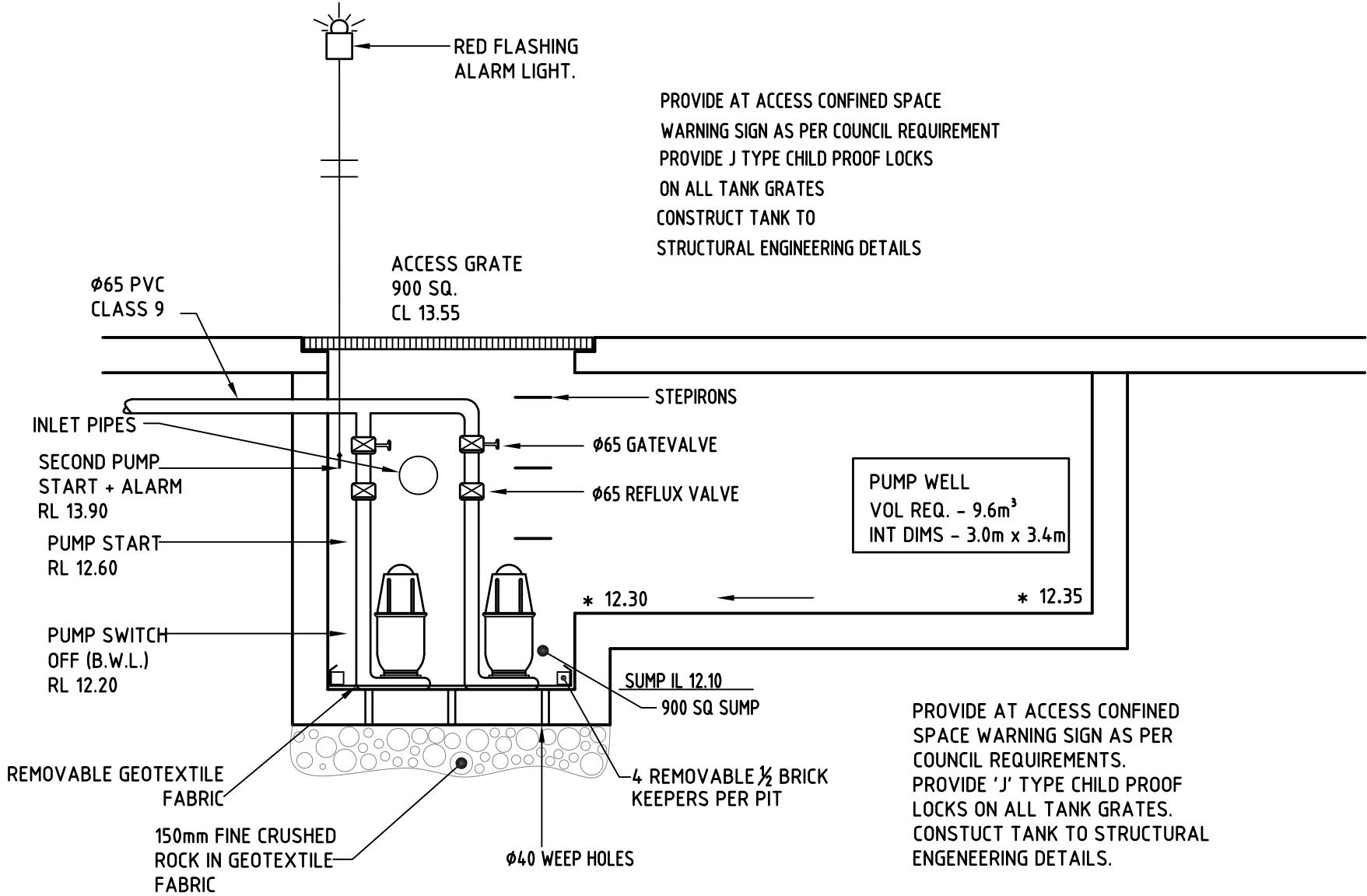
$CV = 900 \times Q_p / n$

$= (900 \times 4.6 \text{ l/s}) / (10 \times 1000)$

$= 0.41 \text{ m}^3$

Basement Pumping Duty Calculation.(Q = 4.6 L/s)

ITEM	HEAD
Static Adjustment	4.6m
65mm Pump Fittings EL 25m (3.1m/100)	0.8m
65mm PVC Class 9 EL 15m (3.1m/100)	0.5m
Sundries(about 10%)	0.6m
Total	6.5m

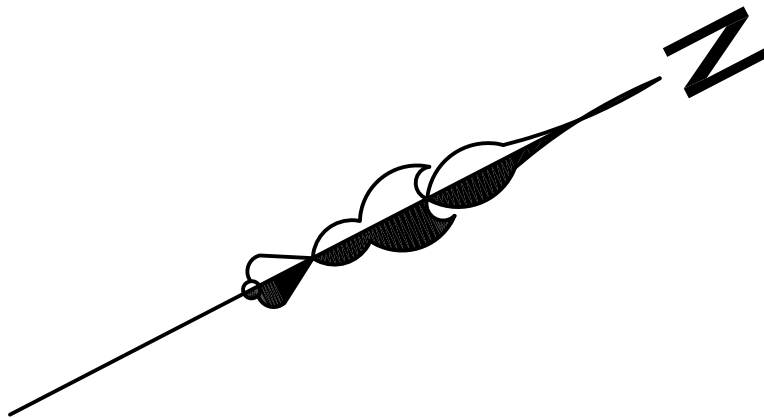
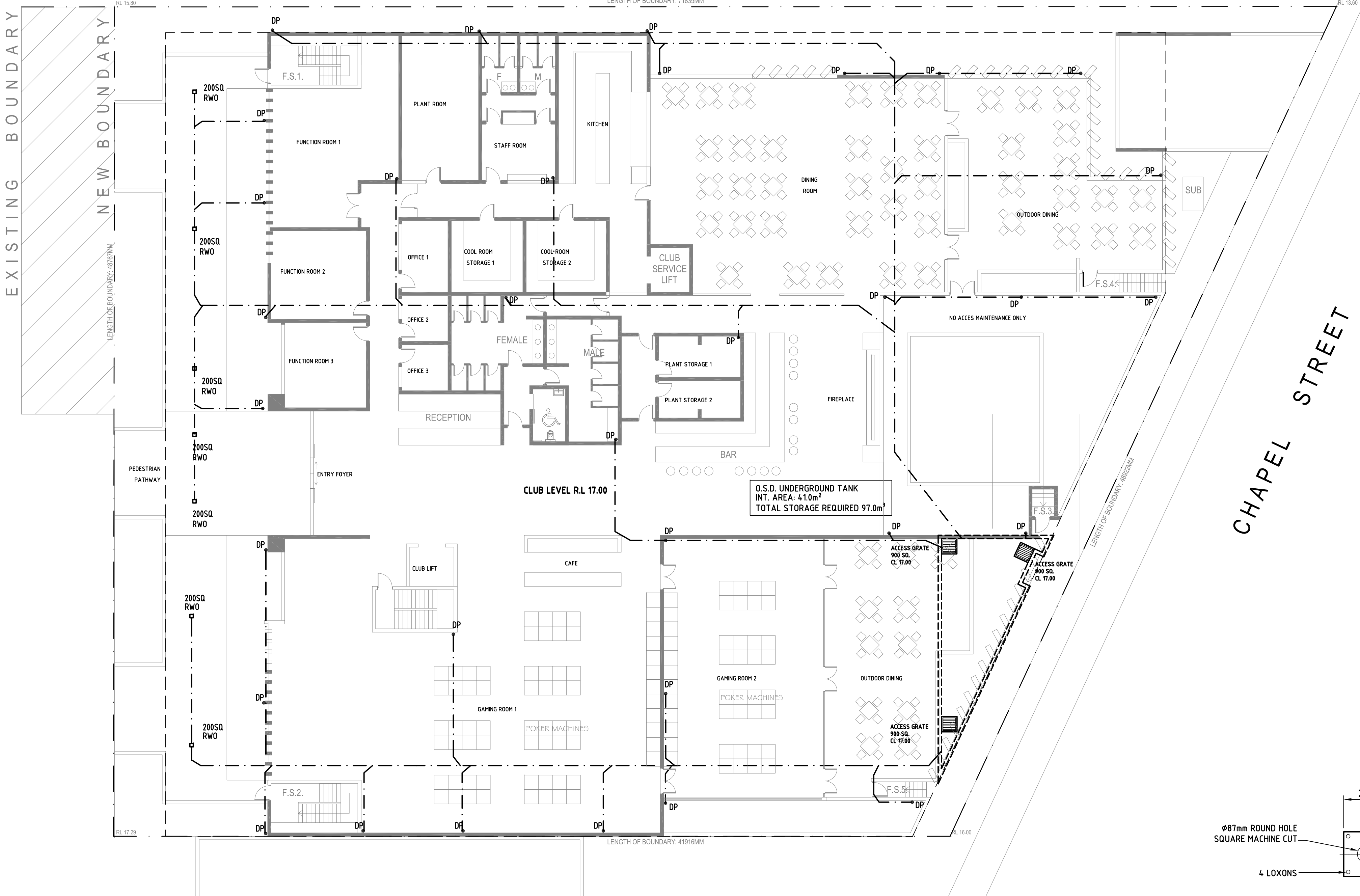


**BASEMENT PUMPING SYSTEM** N.T.S.

**NOT FOR CONSTRUCTION**

E	27.02.2018	ISSUED TO THE ARCHITECT	HE
D	29.11.2016	ISSUED FOR DA APPROVAL	HE
C	28.11.2016	ISSUED TO THE ARCHITECT	HE
B	07.11.2016	ISSUED TO THE ARCHITECT	HE
A	02.11.2016	ISSUED TO THE ARCHITECT	HE
REV.	DATE	AMENDMENT DESCRIPTION	DRAWN
<b>JOHN ROMANOUS &amp; ASSOCIATES</b> PTY. LTD. CONSULTING CIVIL & STRUCTURAL ENGINEERS ACN 054 595 005 SUITE 5/ 1850 FOREST RD. HURSTVILLE NSW 2220. Ph 9585 0223 Fax 9580 8592			
PROPOSED DEVELOPMENT AT: <b>ROCKDALE R.S.L CLUB 41 - 45 BAY ST, &amp; 4 CHAPEL ST, ROCKDALE.</b>			
<b>STORMWATER DRAINAGE DETAILS (CONCEPT)</b>			
DRAWN	CHECKED	SCALE	DATUM
HE	J.M.ROMANOUS (B.E., M.I.E.AUST.	AS SHOWN @A1	A.H.D
		DRAWING No.	REV.
		<b>1766 - S1/3</b>	<b>E</b>

BAY STREET



ON SITE-DETENTION (Contributing Area 95% of site)

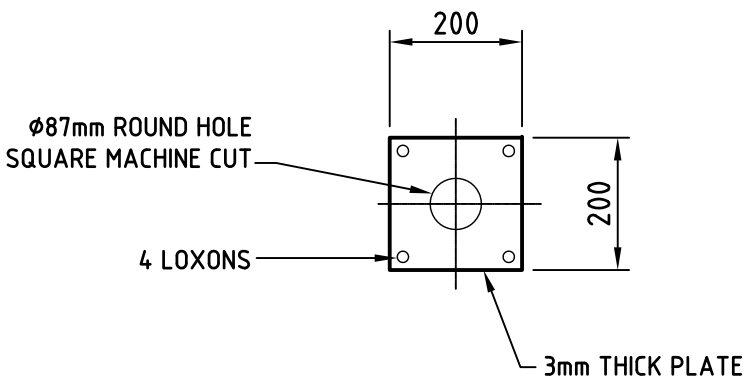
ORIFICE 1 $\phi$	RL 13.97
ORIFICE DIA	109mm
ORIFICE 2 $\phi$	RL 14.00
ORIFICE DIA	87mm

ARI	Required Discharge (L/s)	Required Volume (m <sup>3</sup> )	Top Water Level (RL)	Orifice-1 Discharge (L/s)	Orifice-2 Discharge (L/s)	Total Discharge (L/s)
2	16.7	4.36	15.10	16.70	16.70	16.7
50	53.1	97.0	16.70	53.10	16.70	53.1

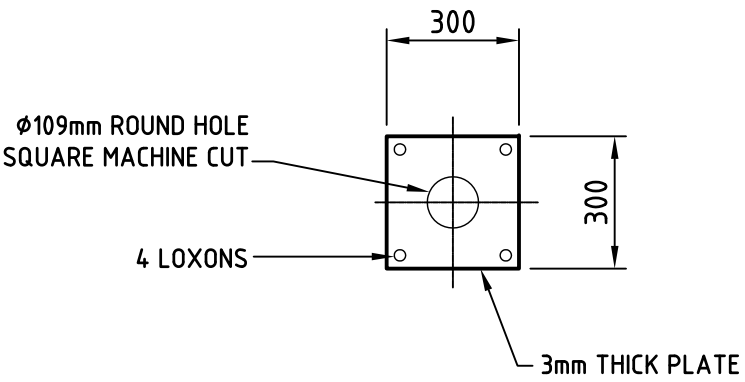
DESIGN SUMMARY

QUANTITY	VALUE
SITE AREA	2950 m <sup>2</sup>
CATCHMENT NAME	MUDDY CREEK
PERMISSIBLE SITE DISCHARGE	180L/s/ha
REQUIRED SITE STORAGE	320 m <sup>3</sup> /ha
PERMISSIBLE SITE DISCHARGE @ 50yr. ARI	53.10 L/s
REQUIRED STORAGE @ 50yr. ARI	97.00m <sup>3</sup>
PERMISSIBLE SITE DISCHARGE @ 2yr. ARI	16.70L/s
REQUIRED STORAGE @ 2yr. ARI	4.360 m <sup>3</sup>
ON-SITE DETENTION VOLUME PROVIDED	97.00 m <sup>3</sup>

REFER TO DESIGN CALCULATION CHECKLIST



ORIFICE PLATE-2 DETAIL N.T.S.



ORIFICE PLATE-1 DETAIL N.T.S.

CLUB LEVEL DRAINAGE PLAN SCALE 1:150

ALL GUTTERS TO BE MINI-LINE MINIMUM SIZE TO ARCHITECTURAL SPECIFICATION OR AS NOTED ON PLAN.

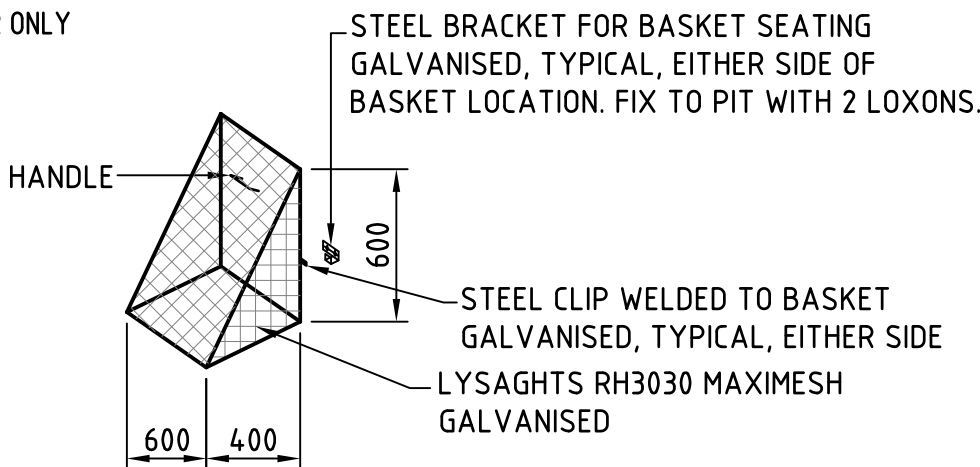
ALL GUTTERS TO BE PROVIDED WITH LEAF GUARD.

ALL BALCONIES ARE TO HAVE A 65mm DIAMETER OVERFLOW PIPE OR AND 80mm SQUARE OPENING ACTING AS AN OVERFLOW.

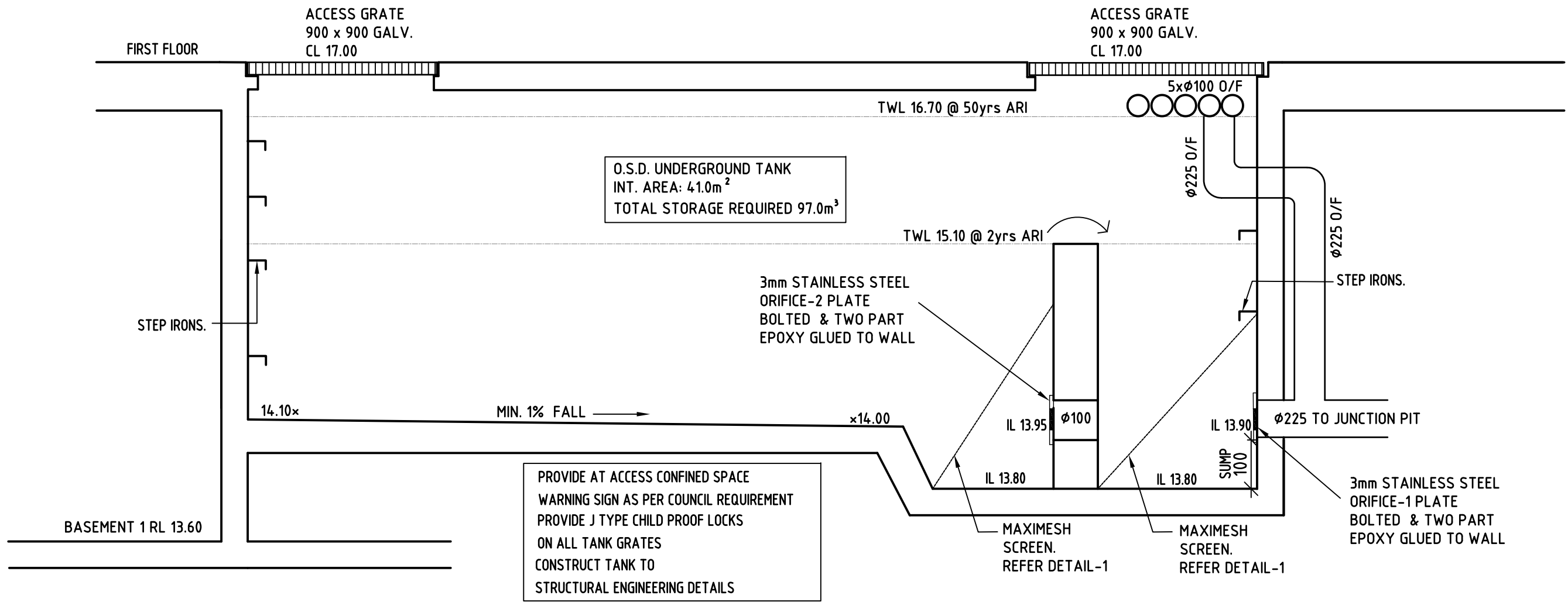
ALL DOWNPIPES TO BE 100mm DIAMETER OR 100 x 100mm MIN. TO ARCHITECTURAL SPECIFICATIONS OR AS NOTED ON PLAN.

PROVIDE AG. LINES BEHIND ALL RETAINING WALLS AND SUBSOIL DRAINAGE AS PER STRUCTURAL ENGINEERING DETAILS. ALL LINES TO DRAIN TO PITS.

- × DENOTES PROPOSED LEVEL
- 8.17 DENOTES EXISTING LEVEL
- DENOTES DOWNPIPE
- ROOFWATER ONLY
- .-.-.- STORMWATER ONLY



SCREEN DETAIL N.T.S.



ON-SITE DETENTION TANK N.T.S.

NOT FOR CONSTRUCTION

E	27.02.2018	ISSUED TO THE ARCHITECT	HE
D	29.11.2016	ISSUED FOR DA APPROVAL	HE
C	28.11.2016	ISSUED TO THE ARCHITECT	HE
B	07.11.2016	ISSUED TO THE ARCHITECT	HE
A	02.11.2016	ISSUED TO THE ARCHITECT	HE
REV.	DATE	AMENDMENT DESCRIPTION	DRAWN

<b>JOHN ROMANOUS &amp; ASSOCIATES</b> PTY. LTD.			
CONSULTING CIVIL & STRUCTURAL ENGINEERS ACN 054 595 005			
SUITE 5/ 1850 FOREST RD. HURSTVILLE NSW 2220. Ph 9585 0223 Fax 9580 8592			
PROPOSED DEVELOPMENT AT: <b>ROCKDALE R.S.L CLUB 41 - 45 BAY ST, &amp; 4 CHAPEL ST, ROCKDALE.</b>			
<b>STORMWATER DRAINAGE DETAILS (CONCEPT)</b>			
DRAWN	CHECKED	SCALE	DATUM
HE	J.M.ROMANOUS ,B.E., M.I.E.AUST.	AS SHOWN @A1	A.H.D
		1766 - S2/3	REV.
			E

BAY STREET

EXISTING BOUNDARY

NEW BOUNDARY

CHAPEL STREET

GENERAL NOTES:

- ALL SERVICES ARE TO BE LOCATED IN THE FIELD IN CONJUNCTION WITH A RESPONSIBLE OFFICER OF EACH RELEVANT AUTHORITY PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- DRAINAGE PITS ARE TO BE A 450MM SQUARE OR LARGER AS SHOWN, AND FITTED WITH A GALVANIZED GRATE.
- ALL PITS ARE TO HAVE A GALVANISED GRATE AND FRAME. FRAME TO BE CAST INTEGRALLY WITH THE PIT.
- ALL PITS ARE TO BE BENCH TO HALF PIPE LEVEL.
- PROVIDE STEP IRONS WHERE PIT IS DEEPER THAN 1m. AT 450mm CENTRES.
- DRAINAGE PIPES SHALL BE SEWER GRADE UPVC UNLESS OTHERWISE NOTED.
- DRAINAGE PIPE SIZES ARE 100mm DIAMETER UNLESS OTHERWISE NOTED.
- ALL BARE SOIL AREAS ARE TO BE PROTECTED FROM EROSION BY TEMPORARY MEASURES AND REVEGETATED AT THE CESSATION OF CONSTRUCTION.
- THE DOWNHILL BOUNDARY OF THE SITE IS TO BE PROTECTED BY HAY BALES OR A FILTER FABRIC FENCE DURING CONSTRUCTION AS SHOWN IN THE ATTACHED DETAILS.
- THE STREET DRAINAGE PIT LOCATED DOWNHILL OF THE SITE SHALL BE PROTECTED FROM SEDIMENT WITH HAY BALES.
- A SINGLE CONSTRUCTION ENTRANCE SHALL BE ESTABLISHED IN THE MANNER SHOWN IN THE ATTACHED DETAILS.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL AND STRUCTURAL ENGINEERING DOCUMENTS. ANY DISCREPANCIES SHALL BE REPORTED BY THE BUILDER TO THE ARCHITECT PRIOR TO COMMENCEMENT OF THE ITEM.
- THESE PLANS ARE DIAGRAMMATIC AND SHOW THE GENERAL LOCATION OF STRUCTURES AND PIPES. WORK SHALL BE SET OUT ON SITE BY THE SITE FOREMAN & MAY VARY FROM THE PLANS TO THE EXTENT REQUIRED. TO ENSURE COMPATIBLE CONSTRUCTION OF OTHER SERVICES AND STRUCTURAL REQUIREMENTS. VARIATION IN LOCATION OF MORE THAN 1.0M & ANY CHANGES IN SIZE OF ANY COMPONENT NOMINATED HEREON SHALL BE REFERRED TO THE DESIGNER FOR COMMENT.
- IF IN DOUBT, ASK THE SUPERINTENDENT WHO SHALL CONSULT THE DESIGNER.

LEGEND

- RL REDUCED LEVEL  
CL COVER LEVEL  
IL INVERT LEVEL  
GSIP GRATED SURFACE INLET PIT  
OSD ON-SITE DETENTION  
TWL TOP WATER LEVEL  
BWL BOTTOM WATER LEVEL  
TW TOP OF WALL  
IO INSPECTION OPENING  
ARI AVERAGE RECURRENCE INTERVAL  
FW FLOOR WASTE  
AHD AUSTRALIAN HEIGHT DATUM  
PSD PERMISSIBLE SITE DISCHARGE  
HED HIGH EARLY DISCHARGE  
RHS RECTANGULAR HOLLOW SECTION  
SS STAINLESS STEEL  
FRC FIBER REINFORCED CONCRETE  
RCP REINFORCED CONCRETE PIPE  
RRJ RUBBER RING JOINT  
U/S UNDERSIDE OF SLAB  
O/S OVER THE SLAB  
O/F OVERFLOW  
DP DOWN PIPE  
DROPPER  
RWO RAIN WATER OUTLET  
RWH RAIN WATER HEAD  
FFL FINISHED FLOOR LEVEL

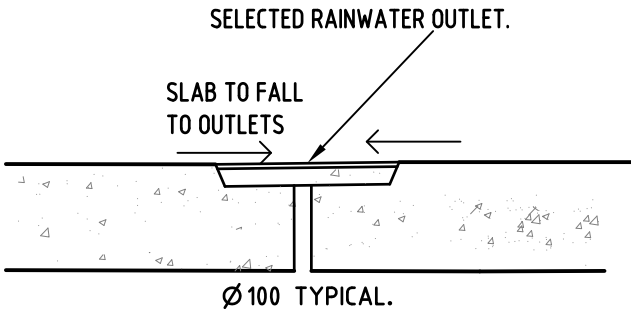
ROOF DRAINAGE PLAN SCALE 1:150

ALL BALCONIES ARE TO HAVE A 65mm DIAMETER OVERFLOW PIPE OR AND 80mm SQUARE OPENING ACTING AS AN OVERFLOW.

ALL DOWNPIPES TO BE 100mm DIAMETER OR 100 x 100mm MIN. TO ARCHITECTURAL SPECIFICATIONS OR AS NOTED ON PLAN.

PROVIDE AG. LINES BEHIND ALL RETAINING WALLS AND SUBSOIL DRAINAGE AS PER STRUCTURAL ENGINEERING DETAILS. ALL LINES TO DRAIN TO PITS.

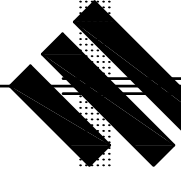
- x DENOTES PROPOSED LEVEL  
o DENOTES EXISTING LEVEL  
o DENOTES DOWNPIPE  
- - - - - ROOFWATER ONLY  
- . - . - STORMWATER ONLY



RAINWATER OUTLET DETAIL (RWO) DETAIL N.T.S

NOT FOR CONSTRUCTION

E	27.02.2018	ISSUED TO THE ARCHITECT	HE
D	29.11.2016	ISSUED FOR DA APPROVAL	HE
C	28.11.2016	ISSUED TO THE ARCHITECT	HE
B	07.11.2016	ISSUED TO THE ARCHITECT	HE
A	02.11.2016	ISSUED TO THE ARCHITECT	HE
REV.	DATE	AMENDMENT DESCRIPTION	DRAWN



JOHN ROMANOUS & ASSOCIATES PTY. LTD.  
CONSULTING CIVIL & STRUCTURAL ENGINEERS ACN 054 595 005  
SUITE 5/ 1850 FOREST RD. HURSTVILLE NSW 2220. Ph 9585 0223 Fax 9580 8592

PROPOSED DEVELOPMENT AT:  
ROCKDALE R.S.L CLUB 41 - 45 BAY ST, & 4 CHAPEL ST, ROCKDALE.

STORMWATER DRAINAGE DETAILS					(CONCEPT)
DRAWN	CHECKED	SCALE	DATUM	DRAWING No.	REV.
HE	J.M.ROMANOUS ,B.E., M.I.EAUST.	AS SHOWN @A1	A.H.D	1766 - S3/3	E