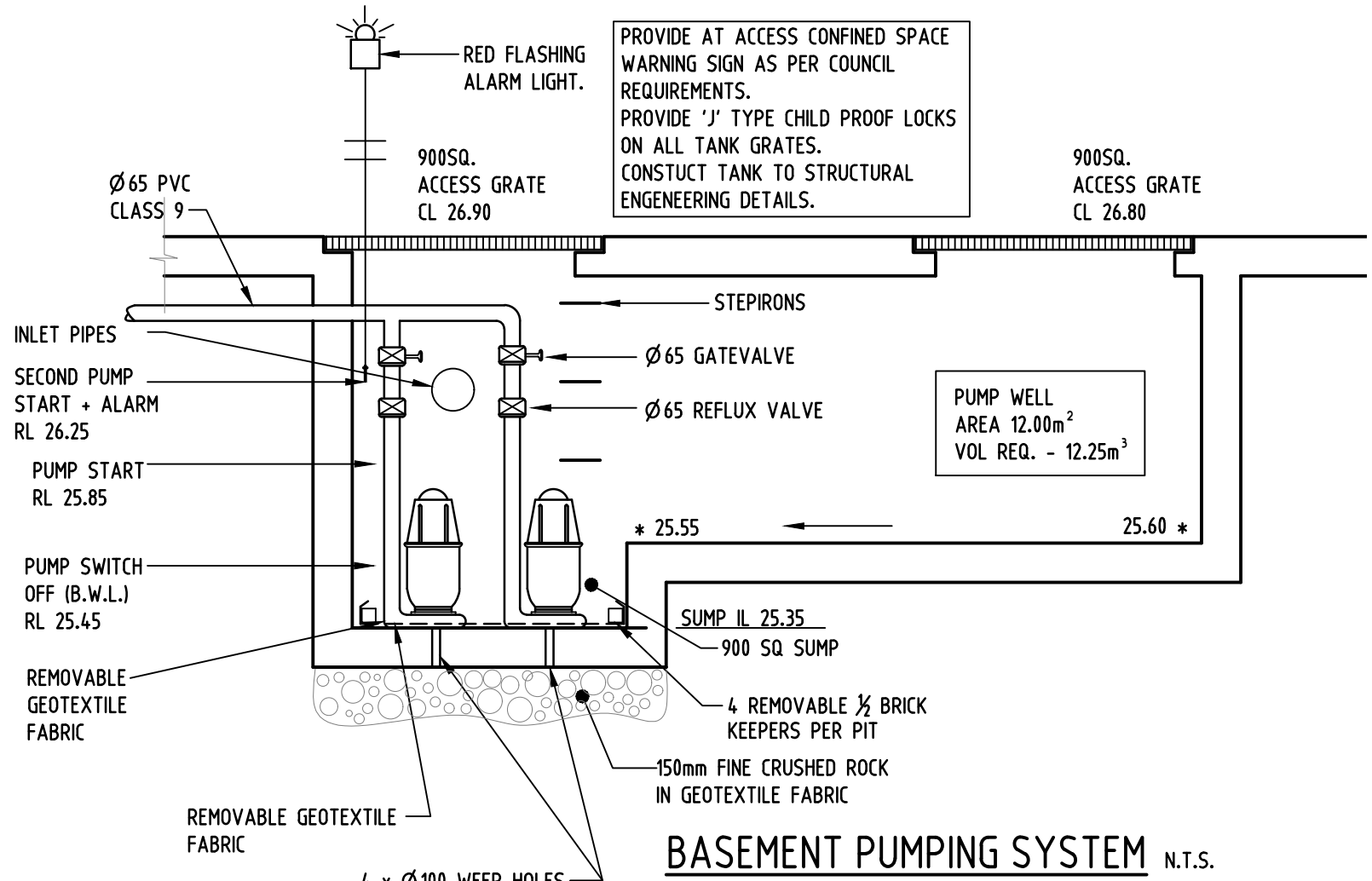
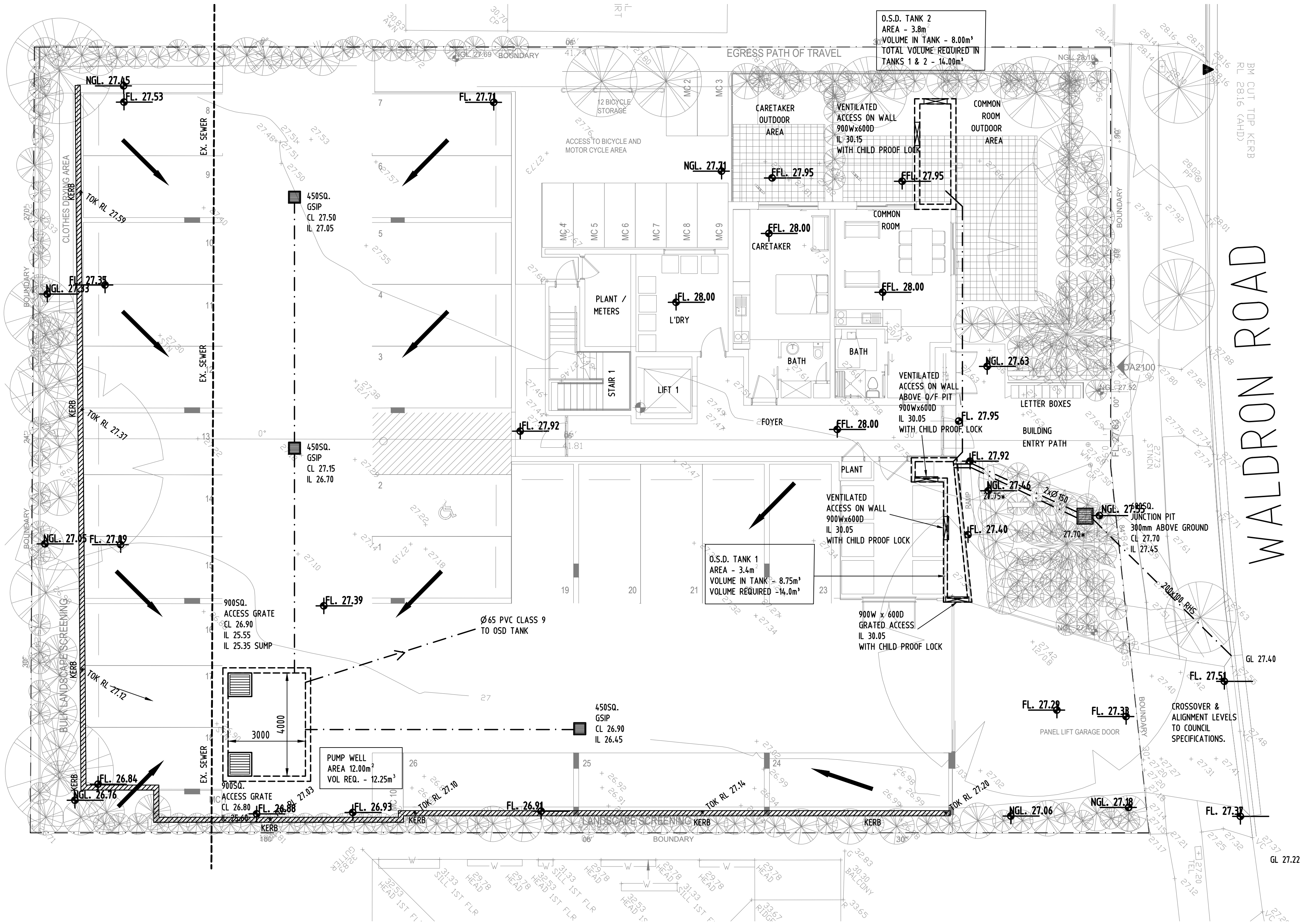




BASEMENT PUMPING WELL

Provide two centrifugal drainage SUMP pumps with single phase electric motor capable of discharging 5.75L/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.

Garage Holding Tank
Area draining to the garage pumping well is the driveway to the basement (100m²)
Storage must be provided for a blackout of at least 2hrs, the 100yrs ARI 2hr storm runoff is:
 $Q = F \times C \times I \times A$
 $= 1/3600 \times 1 \times 60 \times 100$
 $= 17 \text{ L/s}$

Volume accumulated:
 $V = (17 \text{ L/s} \times 2\text{hrs} \times 3600\text{s})/1000$
 $= 12.25 \text{ m}^3$

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.
 $Q = F \times C \times I \times A$
 $= 1/3600 \times 1 \times 207 \times 100$
 $= 5.75 \text{ L/s}$

A Control volume is required to prevent the pump from starting too often (< 10/hr)
 $CV = 900 \times Qp/n$
 $= (900 \times 5.75 \text{ l/s}) / (10 \times 1000)$
 $= 0.52 \text{ m}^3$

Garage Pumping Duty Calculation.(Q = 5.2 L/s)

ITEM	HEAD
Static Adjustment	4.5m
65mm Pump Fittings EL 25m (1.3m/100)	0.4m
65mm PVC Class 9 EL 40m (1.3m/100)	0.6m
Sundries(about 10%)	1.0m
Total	6.5m

GROUND FLOOR DRAINAGE PLAN SCALE 1:100

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 75mm MIN. TO ARCHITECTURAL SPECIFICATIONS OR AS NOTED ON PLAN.

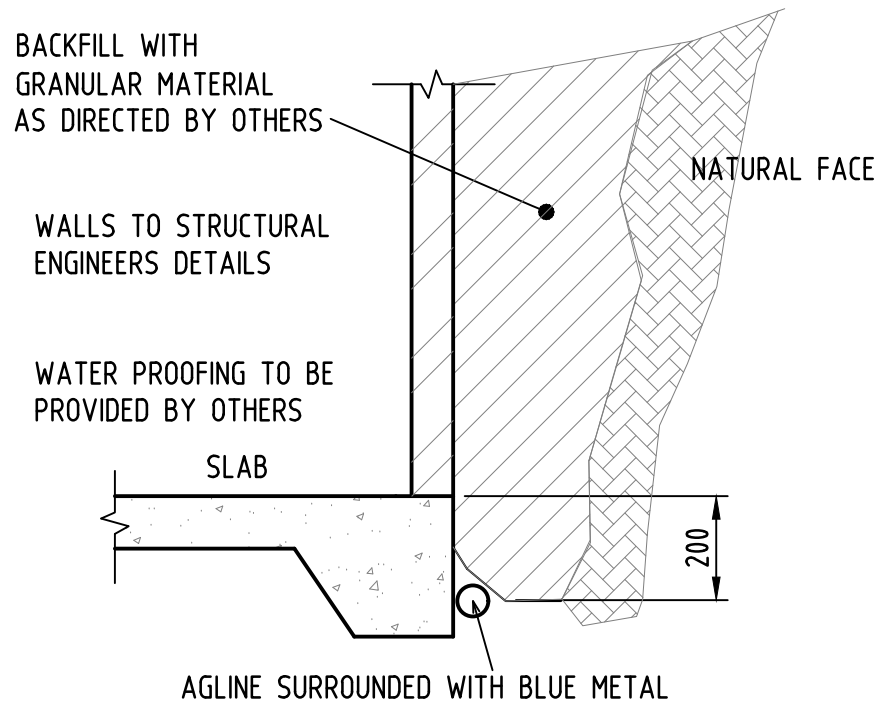
PROVIDE AG. LINES BEHIND ALL RETAINING WALLS AND SUBSOIL DRAINAGE AS PER STRUCTURAL ENGINEERING DETAILS. ALL LINES TO DRAIN TO PITS.

- * DENOTES PROPOSED LEVEL
- × DENOTES EXISTING LEVEL
- DENOTES DOWNPIPE
- ROOFWATER ONLY
- - - STORMWATER ONLY

DESIGN SUMMARY

QUANTITY	VALUE
SITE AREA FOR EACH PROPOSED LOT	1285 m²
IMPERVIOUS PRE-DEVELOPMENT	30 %
IMPERVIOUS POST-DEVELOPMENT	70 %
AREA DRAINED TO THE CONTROL PIT (%)	90 %
PERMISSIBLE SITE DISCHARGE @ 5yr. ARI.	39.08 l/s
REQUIRED STORAGE @ 5yr. ARI.	8.29 m³
PERMISSIBLE SITE DISCHARGE @ 10yr. ARI.	45.90 l/s
REQUIRED STORAGE @ 10yr. ARI.	10.24 m³
PERMISSIBLE SITE DISCHARGE @ 20yr. ARI.	56.98 l/s
REQUIRED STORAGE @ 20yr. ARI.	11.40 m³
PERMISSIBLE SITE DISCHARGE @ 50yr. ARI.	60.85 l/s
REQUIRED STORAGE @ 50yr. ARI.	12.65 m³
PERMISSIBLE SITE DISCHARGE @ 100yr. ARI.	68.80 l/s
REQUIRED STORAGE @ 100yr. ARI.	13.93 m³

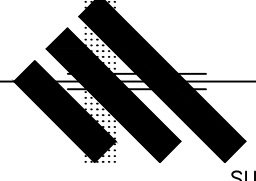
The post and pre-development peak discharge from the subject site was determined for the 5, 10, 20, 50 & 100 yrs ARI, for storm duration from 10 minutes to 4.5hours using ILSAX computer program and CANTERBURY Rainfall Files.



TYPICAL BASEMENT WALL DRAINAGE DETAIL N.T.S.
WITH SPACE BEHIND THE WALL

NOT FOR CONSTRUCTION

F	05.02.2019	ISSUED FOR DA APPROVAL	JDR
E	21.01.2019	ISSUED FOR DA APPROVAL	JDR
D	27.08.2018	ISSUED FOR DA APPROVAL	HE
C	23.08.2018	ISSUED TO THE ARCHITECT	HE
B	20.11.2017	ISSUED TO THE ARCHITECT	HE
A	20.09.2017	ISSUED TO THE ARCHITECT	HE
REV.	DATE	AMENDMENT DESCRIPTION	DRAWN

 JOHN ROMANOUS & ASSOCIATES PTY. LTD. CONSULTING CIVIL & STRUCTURAL ENGINEERS ACN 054 595 005			
SUITE 2D / 322 KINGSROVE RD, KINGSROVE NSW 2208 Ph (02) 83 87 68 26			
PROPOSED DEVELOPMENT AT: 73 - 75 WALDRON ROAD, CHESTER HILL.			
STORMWATER DRAINAGE/SEDIMENT CONTROL DETAILS			
DRAWN	CHECKED	SCALE	DATUM
HE	J.M.ROMANOUS (B.E., M.I.E.AUST.)	AS SHOWN @A1	A.H.D.
DRAWING No.		REV.	
1849 - S1/2		D	