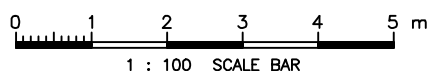


NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. SECTIONS FOR SERVICE RESERVOIR MAIN WALL IS FOR INDICATION ONLY.
3. THE USE OF GRANULAR FILTER OR 20mm SINGLE-SIZED AGGREGATES OR NO-FINES CONCRETE AS THE DRAINAGE MATERIAL SHALL BE AS SPECIFIED IN THE CONTRACT.
4. DISTANCE BETWEEN THE TOP OF THE INCLINED FILTER AND THE GROUND LEVEL SHALL BE THE LESSER OF 600 OR THE DISTANCE BETWEEN THE MAXIMUM RECORDED GROUND WATER LEVEL AND THE GROUND LEVEL.



C	RE-FORMATTED TO CSWP	W.K. CHIU	18/7/03
B	GENERAL REVISION	W.K. CHIU	26/6/00
A	GENERAL REVISION	K.W. CHAN	30/11/96
REF.	REVISION	APPROVED	DATE

WALL BACK DRAINS



水務署
Water Supplies Department

APPROVED

G.C. LEE
AD/NW

DATE

9/6/92

SCALE

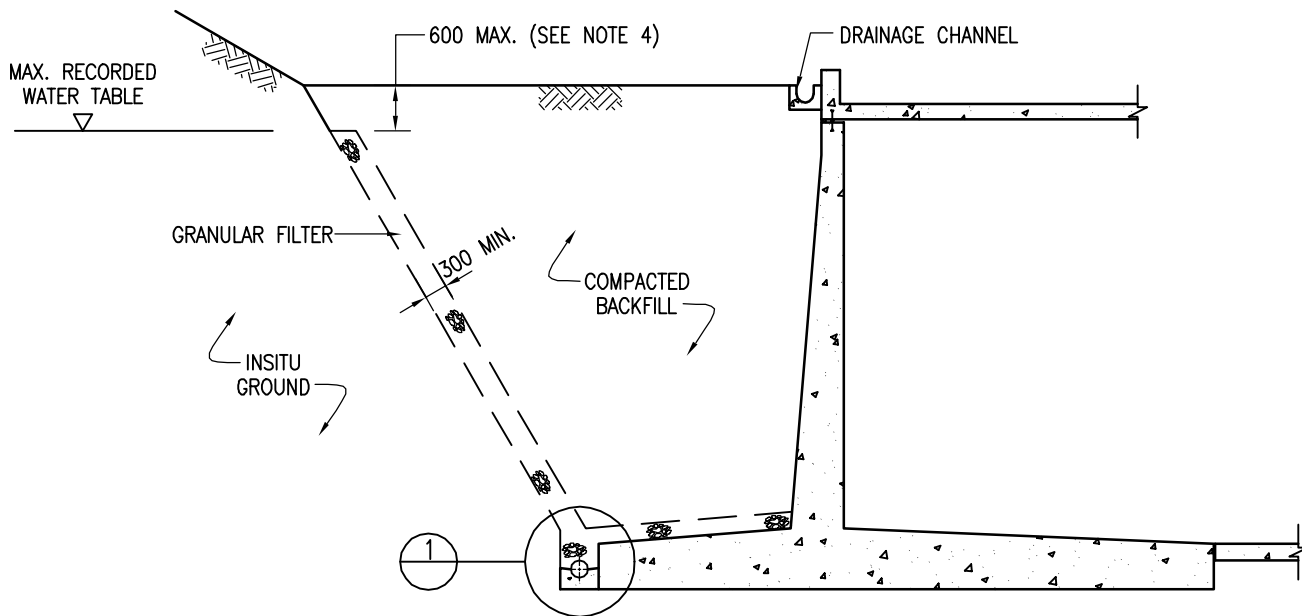
1 : 100

DRAWING NO.

WSD 3.2C

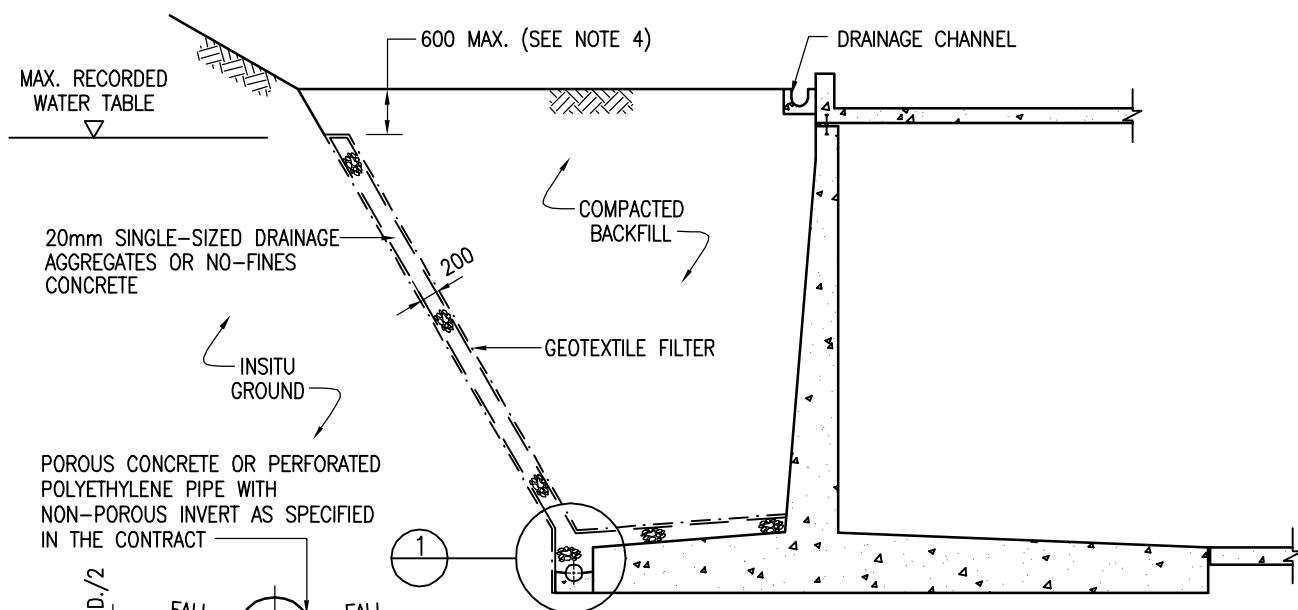
(SHEET 1 OF 3)

CSWP



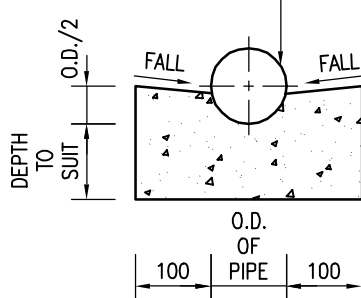
WITH GRANULAR FILTER

SCALE 1 : 100

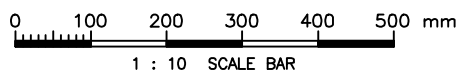


**WITH GEOTEXTILE FILTER AND DRAINAGE LAYER
TYPE 2 ARRANGEMENT**

SCALE 1 : 100



DETAIL '1'
SCALE 1 : 10



1 : 10 SCALE BAR



1 : 100 SCALE BAR

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SCALE

1 : 10 OR AS SHOWN

DRAWING NO.

WSD 3.2C

(SHEET 2 OF 3)

CSWP

GRANULAR FILTER DESIGN CRITERIA RECOMMENDED FOR USE IN HONG KONG

(EXTRACTED FROM GEO PUBLICATION NO. 1/93 – REVIEW OF GRANULAR AND GEOTEXTILE FILTERS, TABLE 3)

RULE NUMBER	FILTER DESIGN RULE	REQUIREMENT
1	$D_{15} F_c < 5 \times D_{85} S_f$	STABILITY (i.e. THE PORES IN THE FILTER MUST BE SMALL ENOUGH TO PREVENT INFILTRATION OF THE MATERIAL BEING DRAINED)
2	SHOULD NOT BE GAP-GRADED (i.e. HAVING TWO OR MORE DISTINCT SECTIONS OF THE GRADING CURVE SEPARATED BY SUB-HORIZONTAL PORTIONS)	
3	$D_{15} F_f > 5 \times D_{15} S_c$	PERMEABILITY (i.e. THE FILTER MUST BE MUCH MORE PERMEABLE THAN THE MATERIAL BEING DRAINED)
4	NOT MORE THAN 5% TO PASS 63 μ m SIEVE AND THAT FRACTION TO BE COHESIONLESS	
5	UNIFORMITY COEFFICIENT $4 < \frac{D_{60} F}{D_{10} F} < 20$	SEGREGATION (i.e. THE FILTER MUST NOT BECOME SEGREGATED OR CONTAMINATED PRIOR TO, DURING AND AFTER INSTALLATION)
6	MAXIMUM SIZE OF PARTICLES SHOULD NOT BE GREATER THAN 50mm	

NOTES :

- (1) IN THIS TABLE, $D_{15} F$ IS THE SIZE OF SIEVE (IN mm) THAT ALLOWS 15% BY WEIGHT OF THE FILTER MATERIAL TO PASS THROUGH. SIMILARLY, $D_{85} S$ IS THE SIZE OF SIEVE (IN mm) THAT ALLOWS 85% BY WEIGHT OF THE BASE SOIL TO PASS THROUGH. THE SUBSCRIPT c DENOTES THE COARSE SIDE OF THE ENVELOPE, AND SUBSCRIPT f DENOTES THE FINE SIDE.
- (2) FOR A WIDELY-GRADED BASE SOIL, WITH ORIGINAL $D_{90} S > 2\text{mm}$ AND $D_{10} S < 0.06\text{mm}$, THE ABOVE CRITERIA SHOULD BE APPLIED TO THE 'REVISED' BASE SOIL GRADING CURVE CONSISTING OF THE PARTICLES SMALLER THAN 5mm ONLY.
- (3) THE THICKNESS OF A FILTER SHOULD NOT BE LESS THAN 300mm FOR A HAND-PLACED LAYER, OR 450mm FOR A MACHINE-PLACED LAYER.
- (4) RULE 5 SHOULD BE USED TO CHECK INDIVIDUAL FILTER GRADING CURVES RATHER THAN TO DESIGN THE LIMITS OF THE GRADING ENVELOPE.
- (5) THE DETERMINATION OF THE PARTICLE SIZE DISTRIBUTIONS OF THE BASE SOIL AND THE FILTER SHOULD BE CARRIED OUT WITHOUT USING DISPERSANTS.

Cad Ref. : WSD030203-C.dwg

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SCALE

NOT APPLICABLE

DRAWING NO.

WSD 3.2C

(SHEET 3 OF 3)

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