

# **DISTRICT ROADS SUPPORT PROGRAMME**

District Authorities in Collaboration with Swiss Agency for Development and Cooperation

## **Standard Drawings**

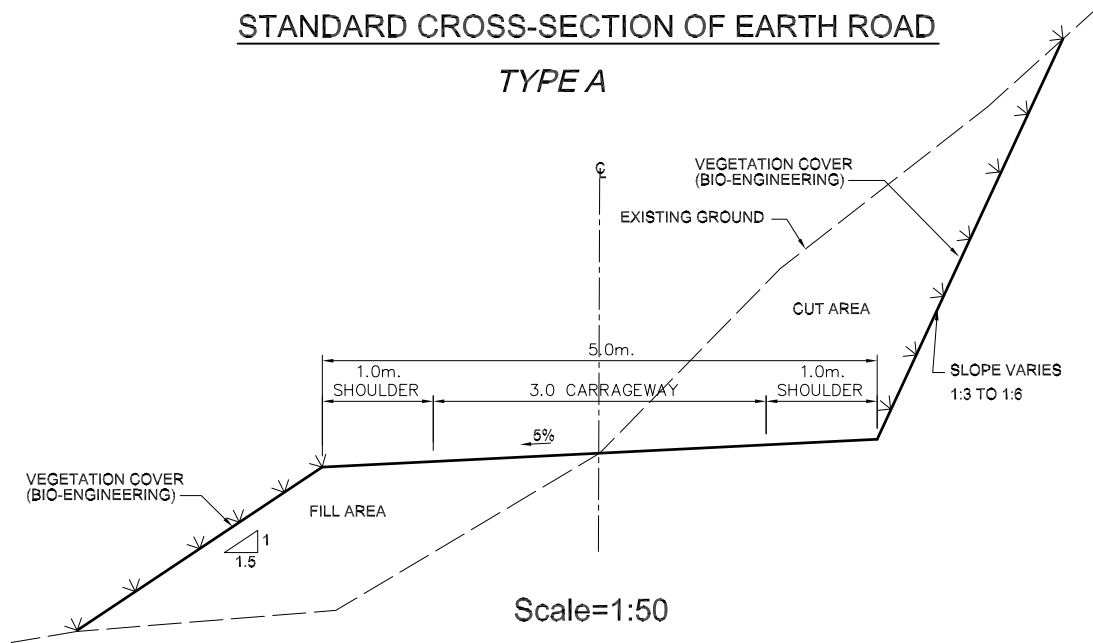
*(Draft)*

*October, 2003*



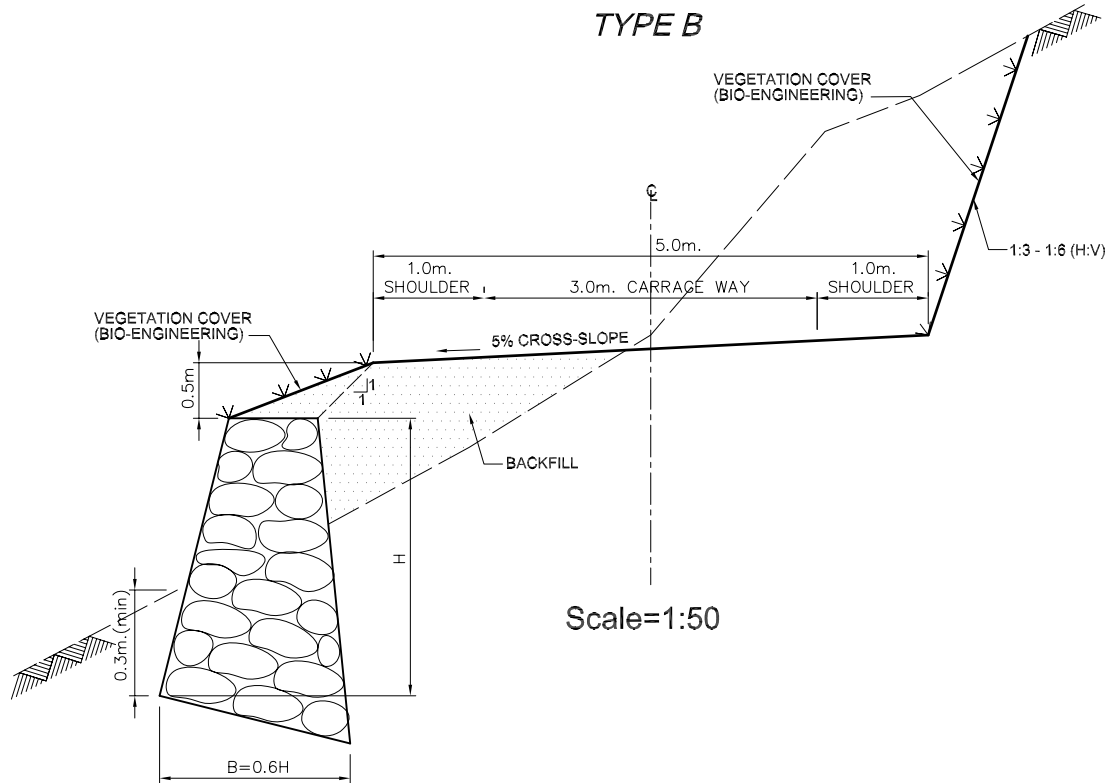
## STANDARD CROSS-SECTION OF EARTH ROAD

### TYPE A



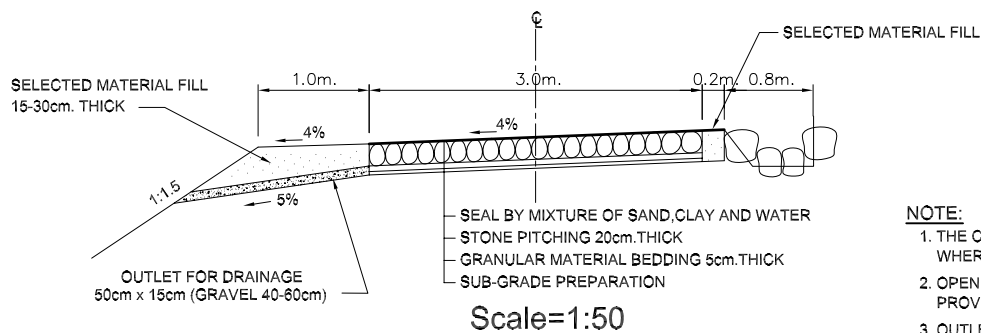
## STANDARD CROSS-SECTION OF EARTHEN ROAD

### TYPE B



## STANDARD CROSS-SECTION FOR STONE PAVED ROADS

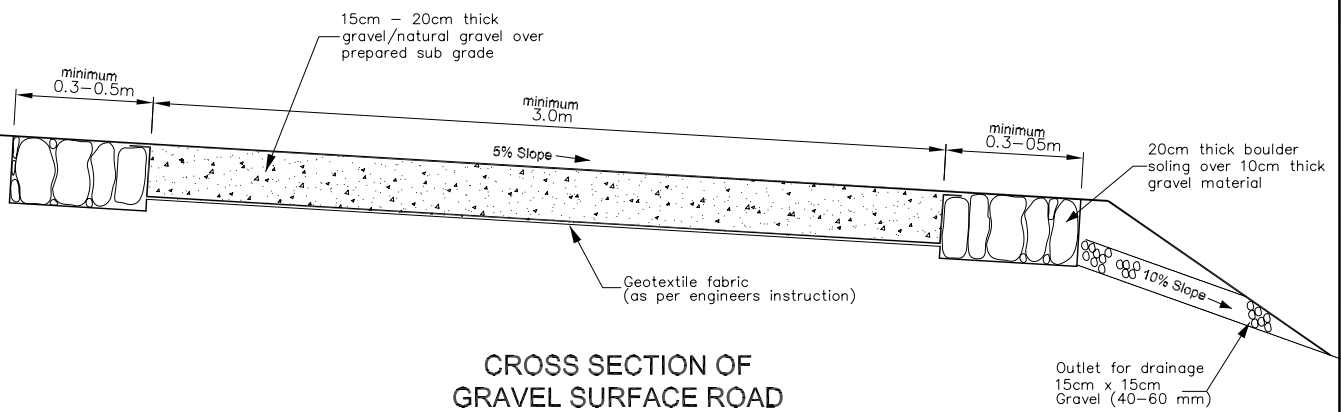
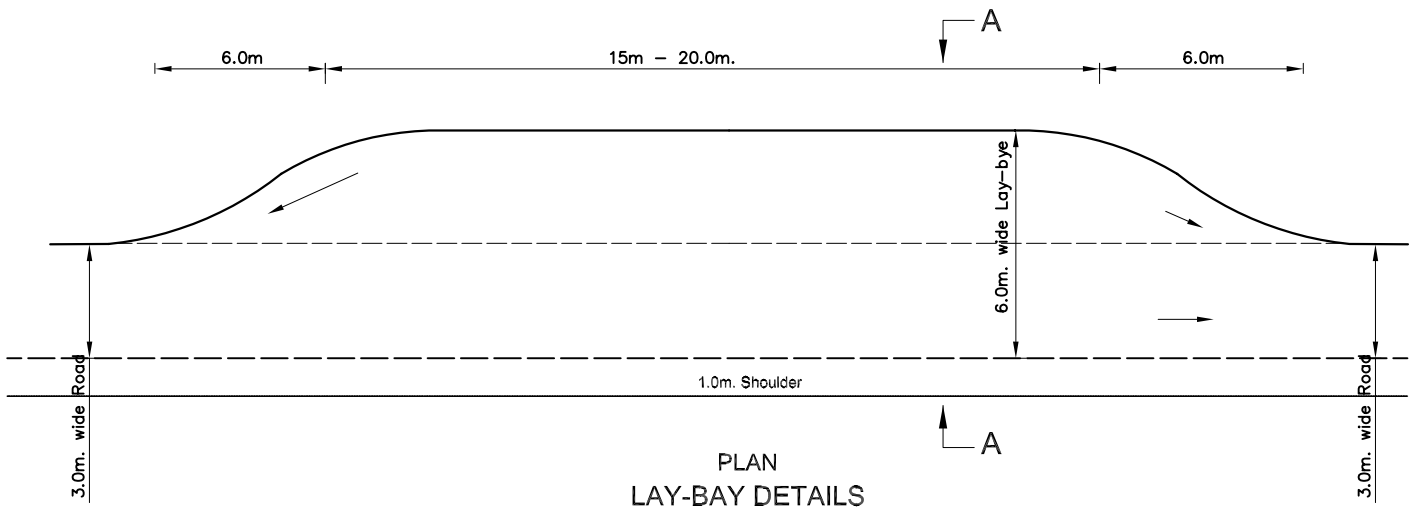
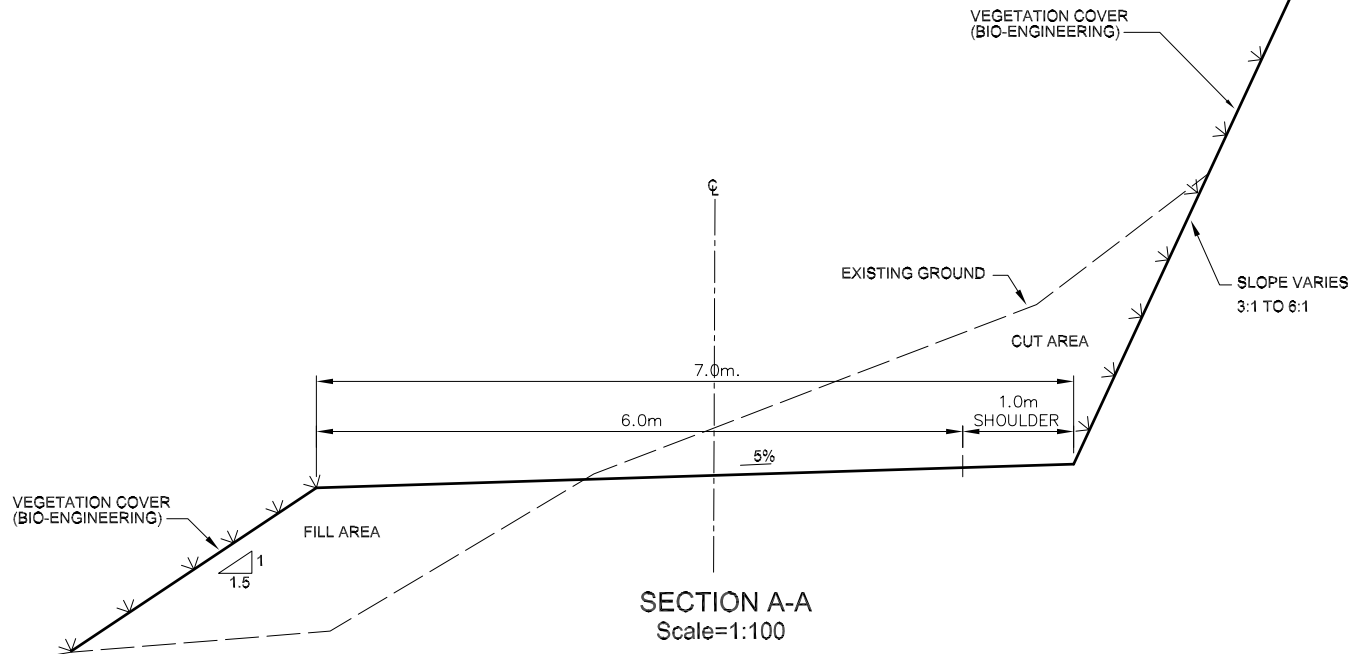
### TYPE C



#### NOTE:

1. THE CARRAGEWAY WIDTH IS STONE PAVED WHERE THE GRADIENT EXCEEDS 10%.
2. OPEN EARTH DRAIN WITH SCOUR CHECKS ARE PROVIDED WHERE THE GRADIENT EXCEEDS 5%.
3. OUTLET FOR DRAINAGE TO BE PROVIDED AT 50m INTERNAL OR AS PER THE ENGINEERS INSTRUCTION.

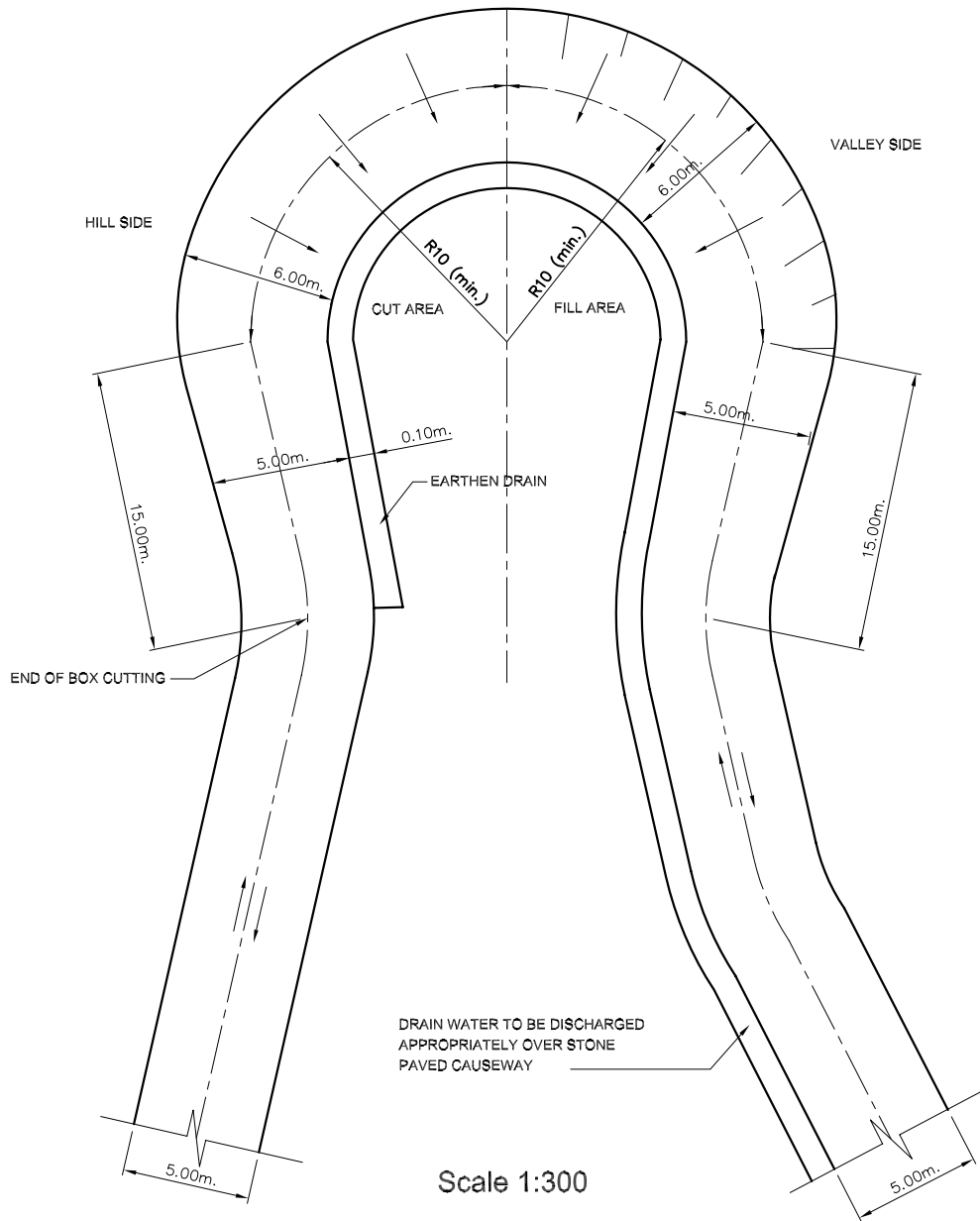




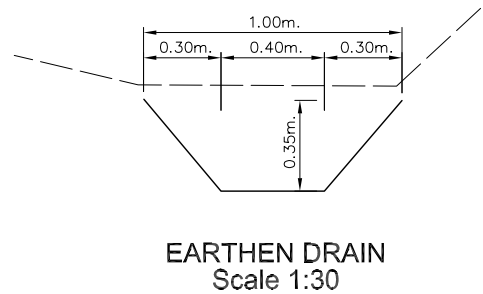
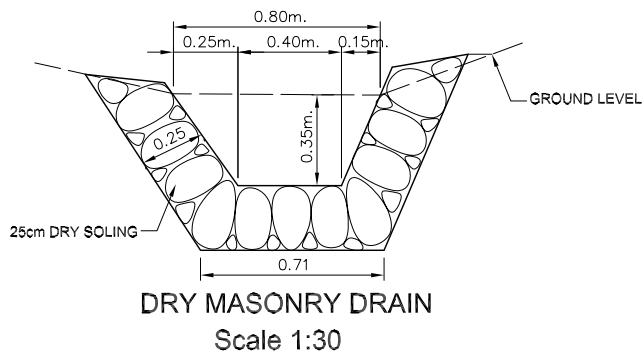
- Note: 1. Outlets for drainage to be provided at 50m interval or as per the engineers instruction.  
 2. Geo textile fabric to be provided as per the engineers instruction.



## STANDARD DETAILS FOR HAIR PIN BEND

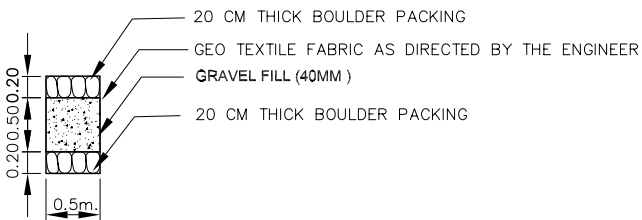
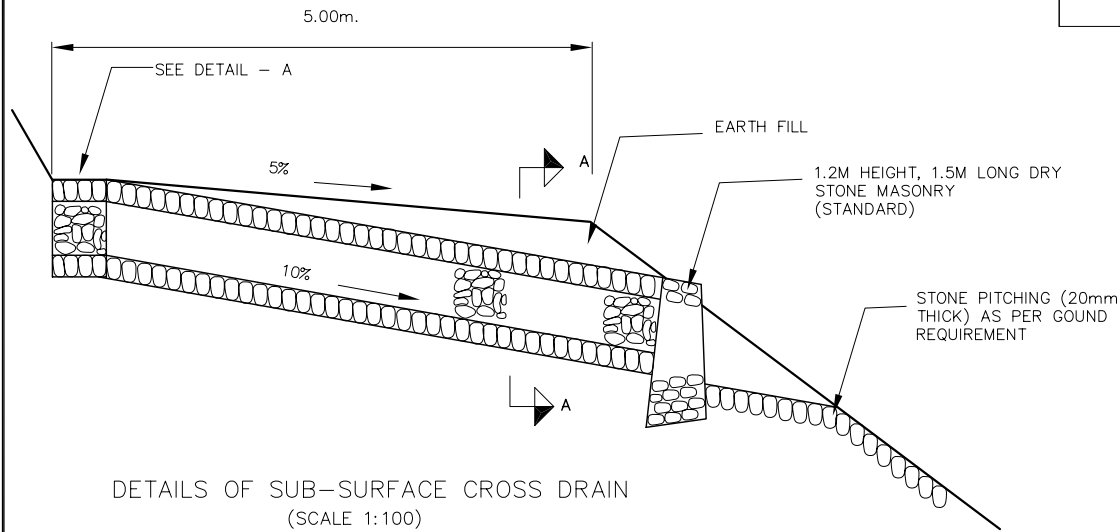
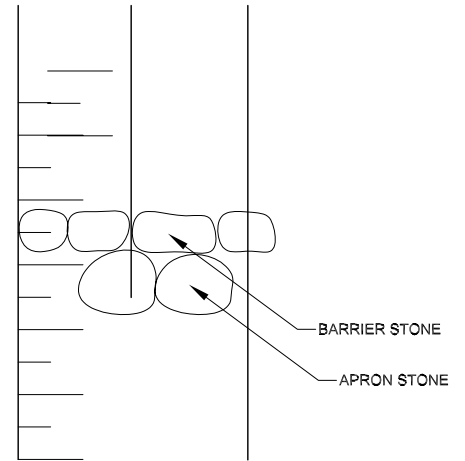
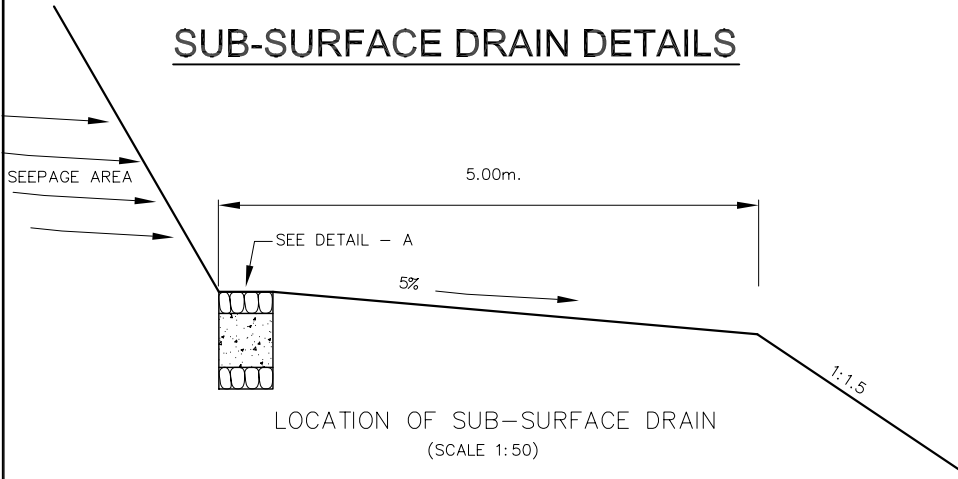


## TYPES OF STANDARD SIDE DRAINS



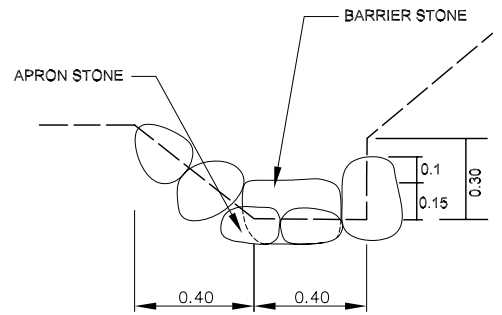
# DETAILS OF SCOUR CHECKS IN DRAIN

## SUB-SURFACE DRAIN DETAILS

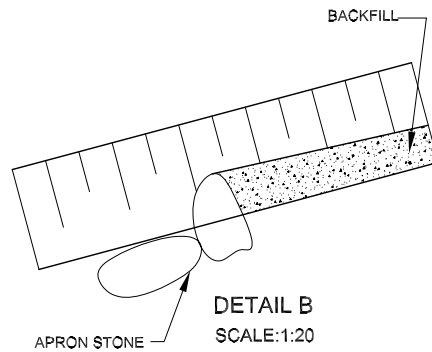


DETAIL-A  
(SCALE 1:50)

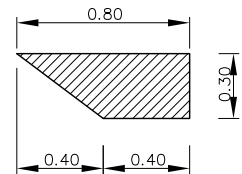
NOTE: SUB-SURFACE CROSS DRAIN TO BE PROVIDED AT 30m INTERVAL



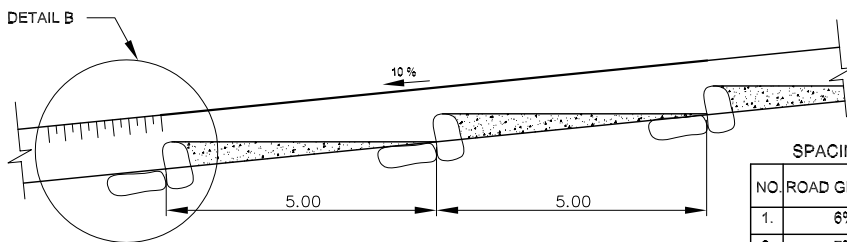
DETAIL A  
FRONT VIEW  
SCALE:1:20



DETAIL B  
SCALE:1:20



WOODEN TEMPLATE FOR EXCAVATION  
SCALE:1:25



L-SECTION ALONG DRAIN  
SCALE:1:100





### SPACING OF SCOUR CHECKS

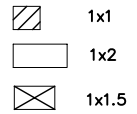
NO.	ROAD GRADIENT	SPACING OF SCOUR CHECKS
1.	6%	15 m.
2.	7%	8 m.
3.	>8%	5 m.



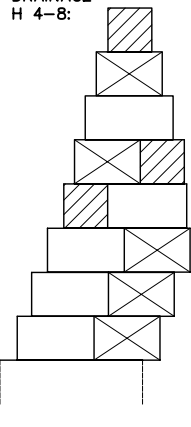
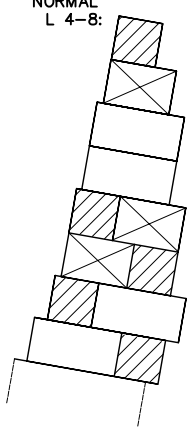
# RETAINING WALL-STANDARD TYPES

## THE MOUNTAIN SIDE WALL

TYPE H (Heavy)	TILT	TYPE L (Light)	TILT	HEIGHT	AREA (m <sup>2</sup> )		DIST.FRONT-WALL TO CENTRE LINE (m)	LAYER STEP (m)	
					Type H	Type L		Type H	Type L
H 2: 	3:1	L 2: 	3:1	H = 2m	3.5	2.5	3.00	-	GABION BOXES
H 3: 		L 3: 	3:1	H = 3m	5.0	4.0	3.00	0.25	0.25

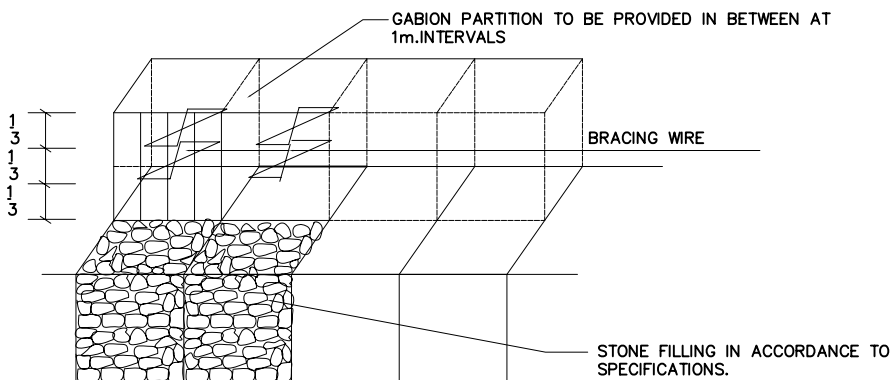


## THE VALLEY SIDE WALL

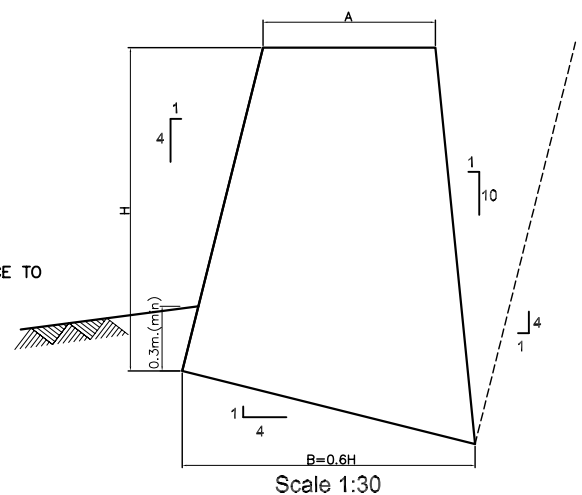
TYPE H (Heavy)	TILT	TYPE L (Light)	TILT	HEIGHT	AREA (m <sup>2</sup> )		DIST.FRONT-WALL TO CENTRE LINE (m)		LAYER STEP (m)	
					Type H	Type L	Type H	Type L	Type H	Type L
DRAINAGE H 4-8: 	NO TILT (WATER FLOW)	NORMAL L 4-8: 	5:1	2m	2.5	2.5	3.30	3.40	0.30	0.25
				3m	4.5	4.5	3.60	3.85	0.30	-
				4m	7.0	6.5	3.90	4.05	0.40	0.25
				5m	10.0	9.0	4.30	4.50	0.40	-
				6m	13.5	11.5	4.70	4.70	0.50	0.25
				7m	17.0	14.5	5.20	5.15	0.50	0.25
				8m	20.5	17.5	5.70	5.60	0.50	0.25

**NOTE:** GEOTEXTILE FABRIC TO BE PROVIDED ON REAR SIDE OF TYPE H (DRAINAGE) GABION WALL.

## THE FILLING OF GABION BOXES



## DRY MASONRY RETAINING WALL DETAILS

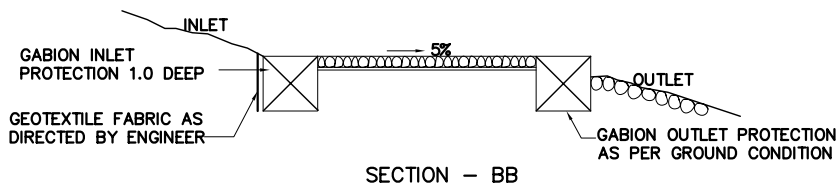
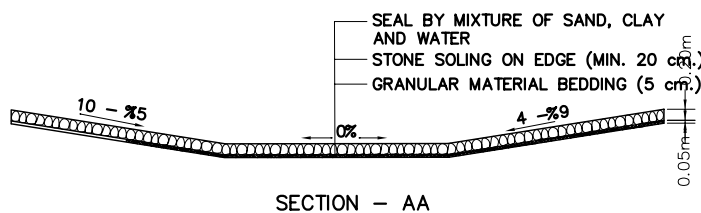
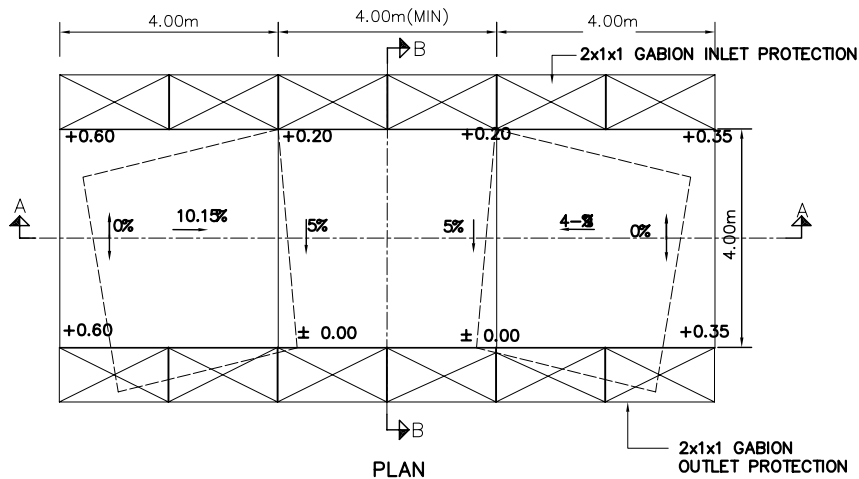


NO.	HEIGHT OF WALL H	BASE WIDTH OF WALL B	TOP WIDTH OF WALL A	X - Sectional Area
1.	1	0.950	0.6	0.890
2.	1.5	1.125	0.6	1.456
3.	2.0	1.300	0.6	2.116
4.	2.5	1.675	0.8	3.453
5.	3.0	1.850	0.8	4.413
6.	3.5	2.025	0.8	5.469

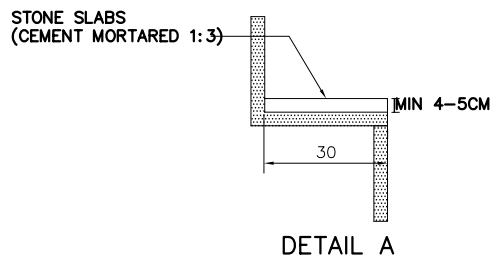
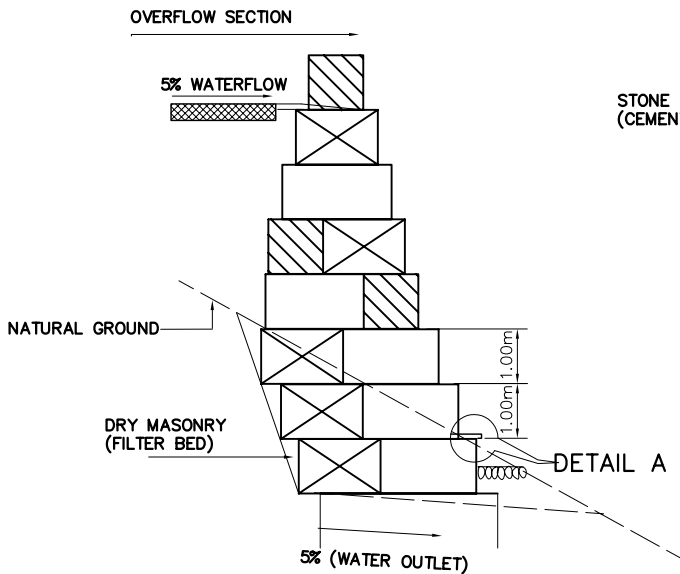
**NOTE:** TOP WIDTH 0.6 FOR H<2m AND 0.8m.FOR H>2m.  
MAXIMUM HEIGHT OF DRY MASONRY RETAINING WALL 3.5m.



## STANDARD CAUSEWAY

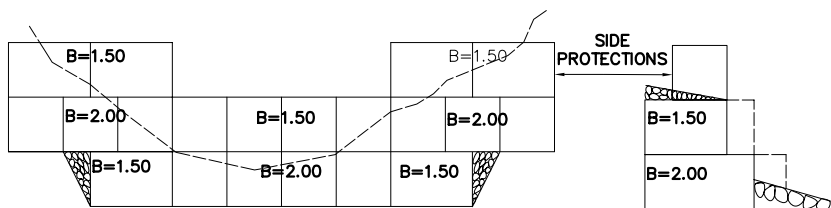
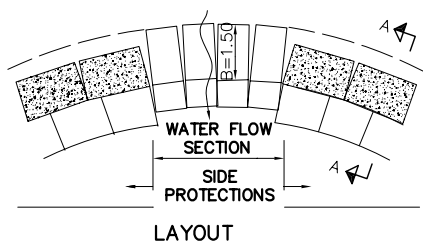


## STANDARD WATER OUTLETS



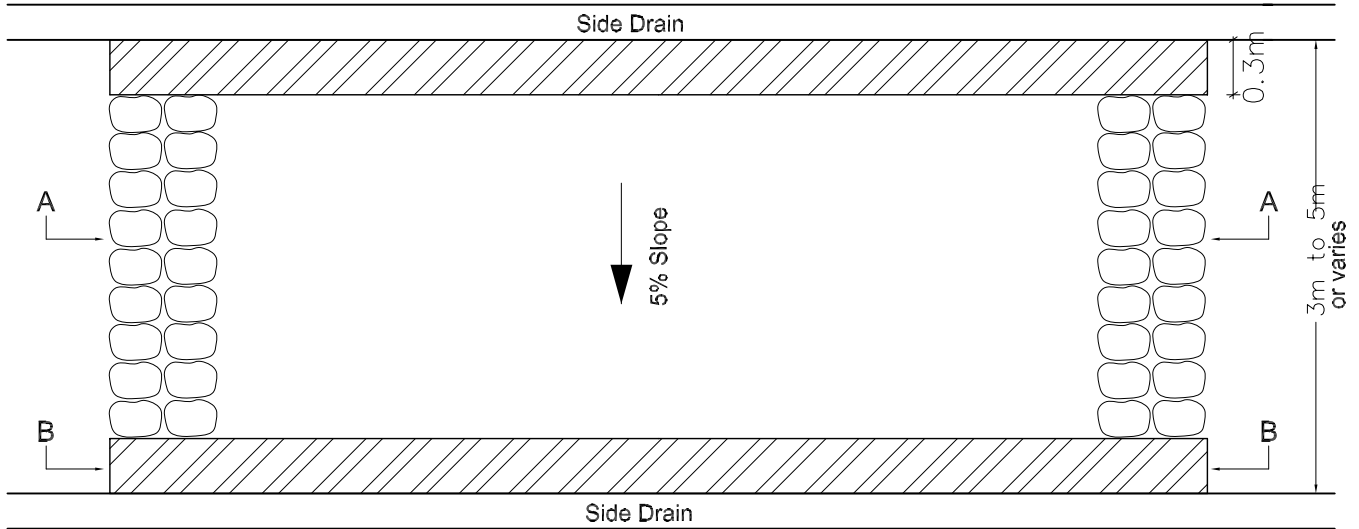
NOTE : RETAINING WALLS TO BE AS PER STANDARD

## STANDARD CHECK DAMS

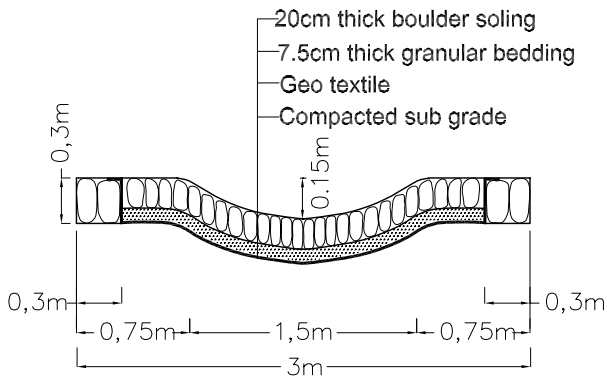


NOTE : CHECK DAM HEIGHT MAXIMUM 4m.

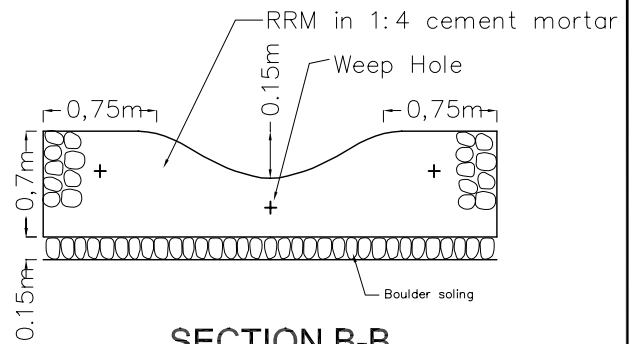




**PLAN**  
Scale 1:50

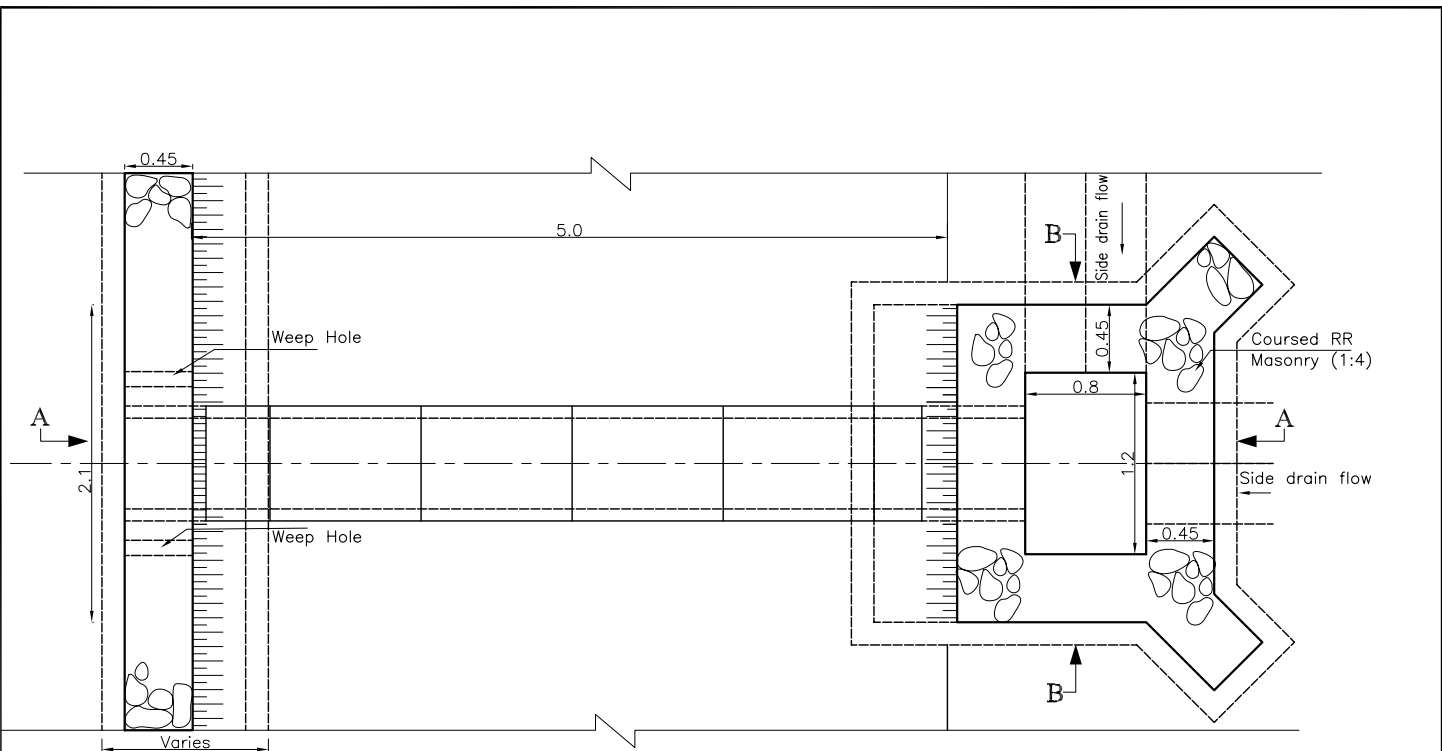


**SECTION A-A**  
Scale 1:50

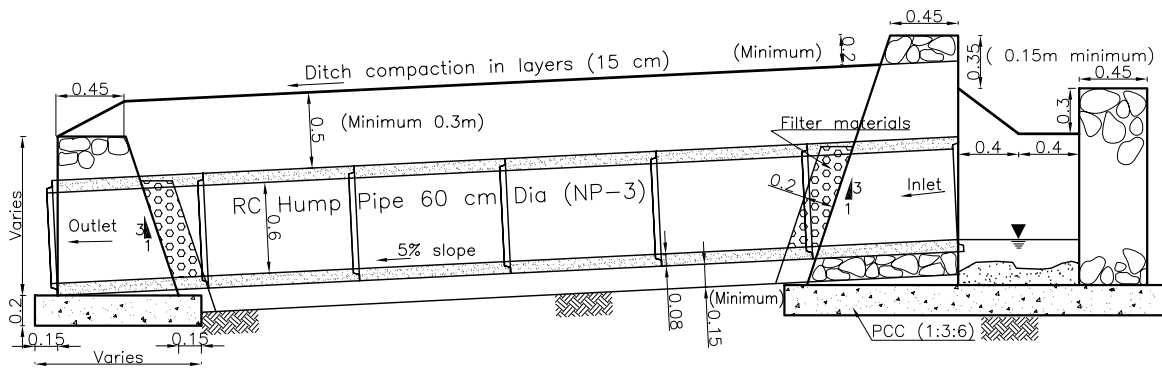


**SECTION B-B**  
Scale 1:50

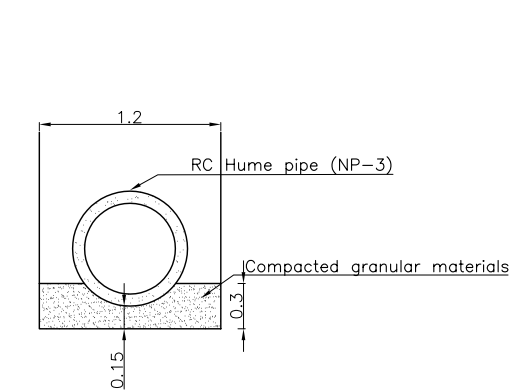




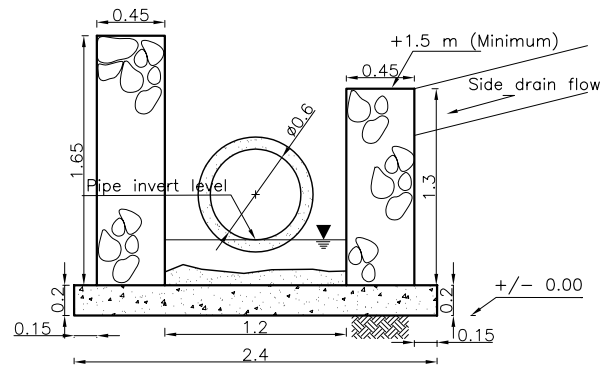
Layout Plan



Longitudinal Section at A-A

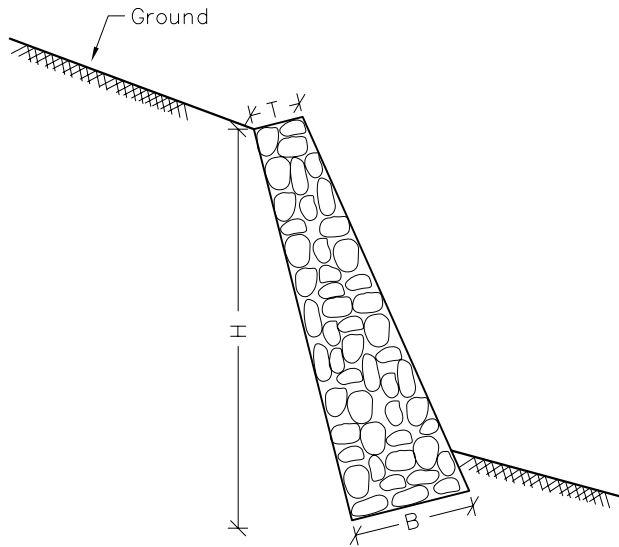


Details of Bedding



Section at B-B

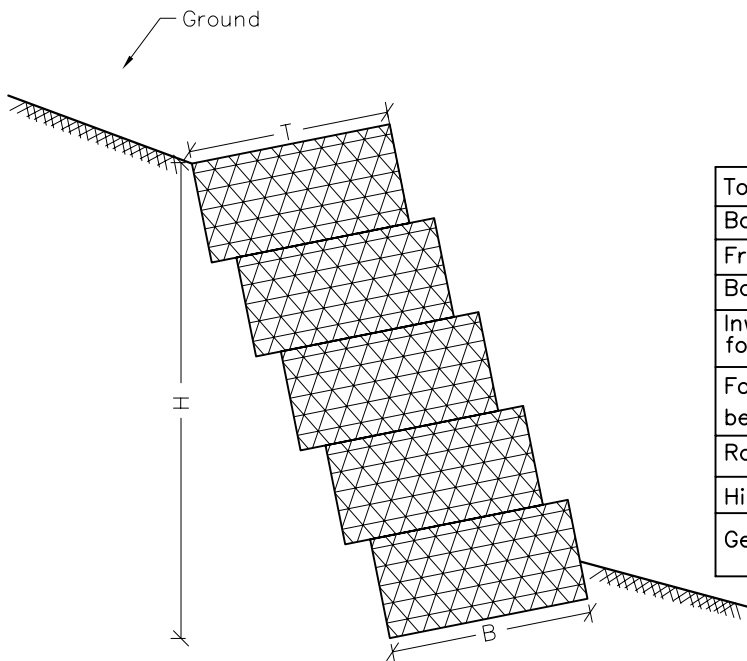
## DRY STONE WALL



### Construction Notes

Top width (T)	0.5		
Base width (B)	0.29 H	0.3 H	0.33 H
Front batter	2:1	2:1	3:1
Back batter	3:1	4:1	5:1
Inward dip of foundation	1:3	1:4	1:5
Foundation depth below drain	0.5 m	0.5 m	0.5 m
Range of height (H)	6 m	4 m	3 m
Hill slope angle	35–60		
General	Pack stone along foundation bed. Use bond stones. Specify minimum stone size.		

## GABION WALL



### Construction Notes

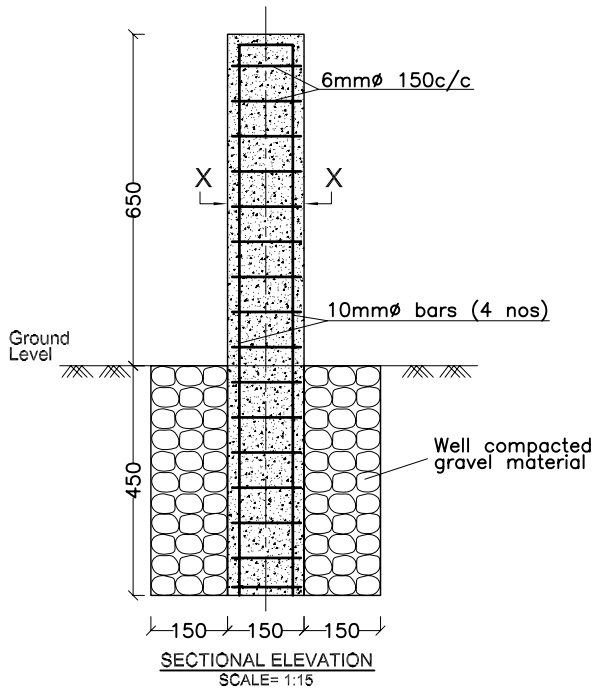
Top width (T)	2
Base width (B)	2
Front batter	
Back batter	3 to 5:1
Inward dip of foundation	1:5
Foundation depth below drain	0.5 – 1 m
Range of height (H)	4 – 8 m
Hill slope angle	35– 60
General	Step in front face 20–50 cm wide. Otherwise as per retaining walls.

### Notes

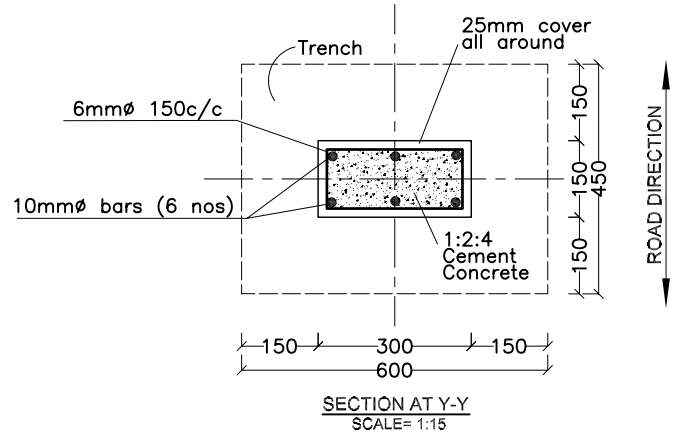
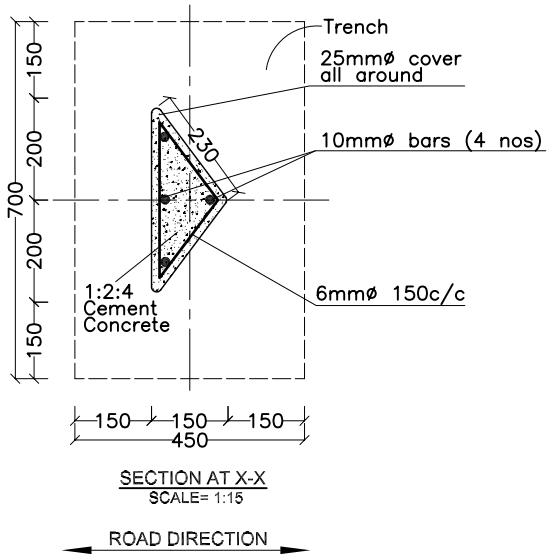
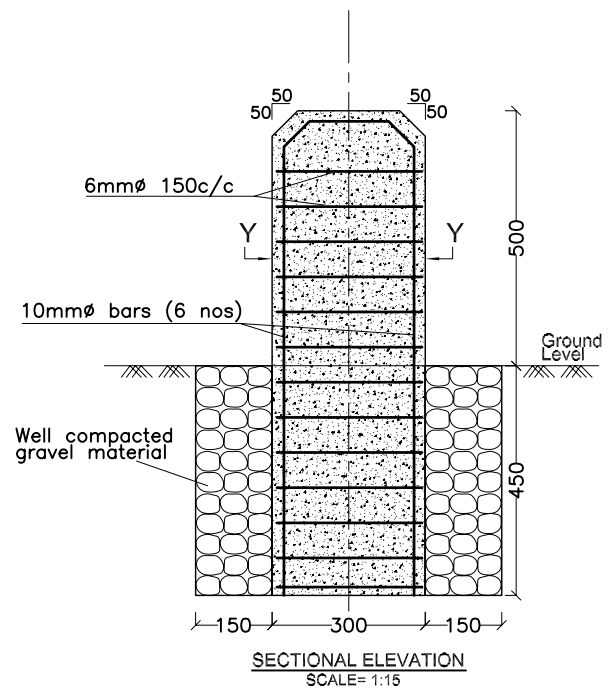
1. The typical dimensions shown rely both on well-drained backfill and good foundation conditions.
2. Detailed design is necessary in case of soil slopes and walls higher than 6 m and poor foundation conditions.
3. Dry stone breast walls are used when the foundation conditions are uniform and geo-technically favourable i.e fairly dry and stable slope with low earth pressure.
4. Gabion walls should be used in weak foundation, wet soils, high ground water, high seepage areas etc.
5. For the gabion breast wall upto 3m height, standard drawing no. S-5 shall be used.



### KILOMETER STONE



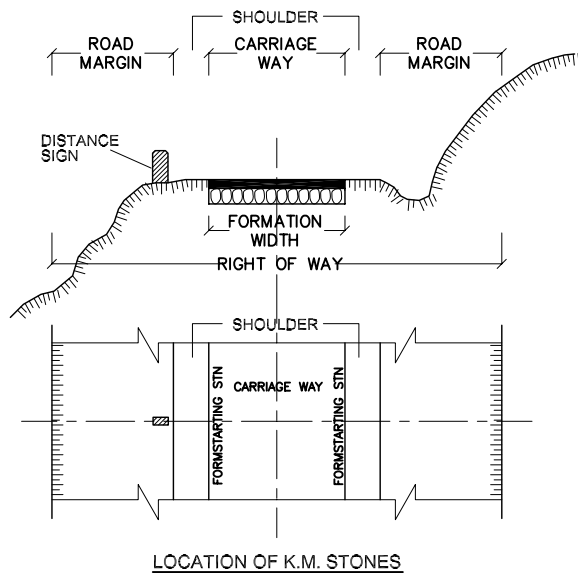
### 5TH KILOMETER STONE



#### DETAILS OF WORK QUANTITIES

Description	Unit	KILOMETER STONE	5TH KILOMETER STONE
PCC (1:2:4)	cum	0.033	0.043
Reinforcement 6mmØ	kg	1.6	1.4
10mmØ	kg	2.8	3.6
Earthwork in Excavation	cum	0.144	0.122
Gravel Packing	cum	0.131	0.034

#### NOTES ON DISTANCE SIGNS



Note: All dimensions are used in millimeter (mm)

