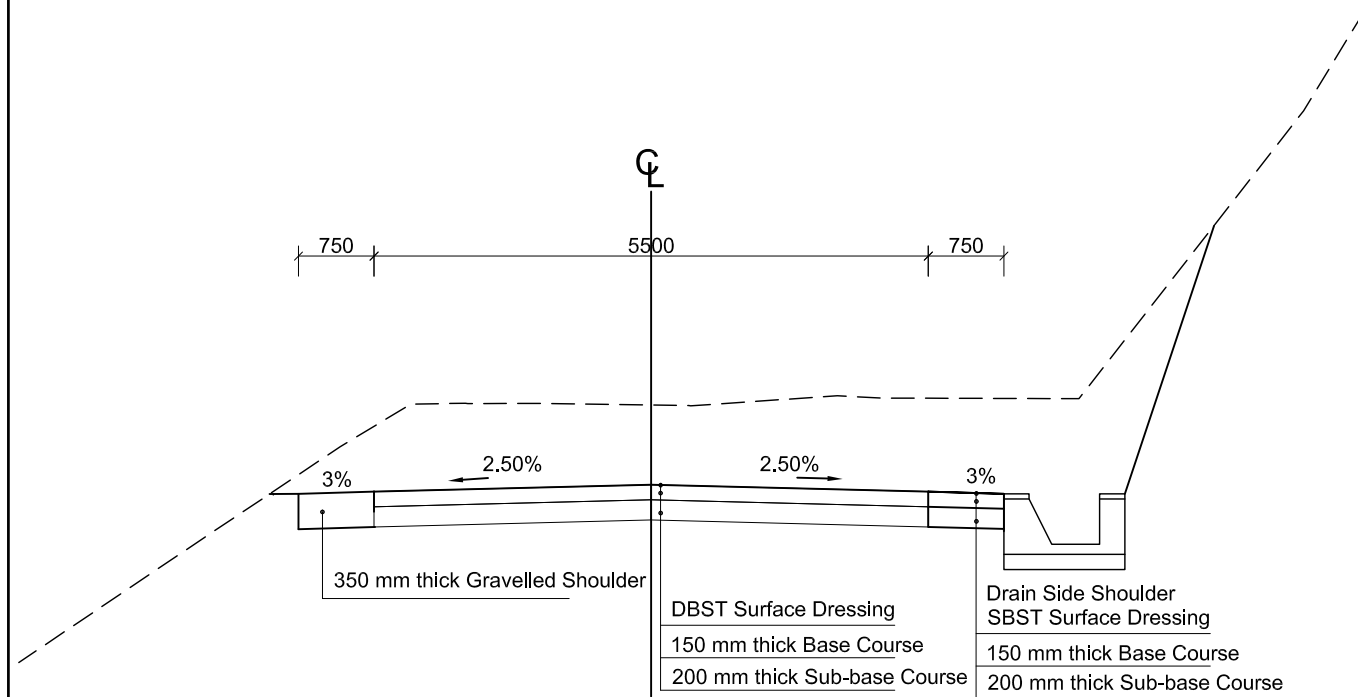


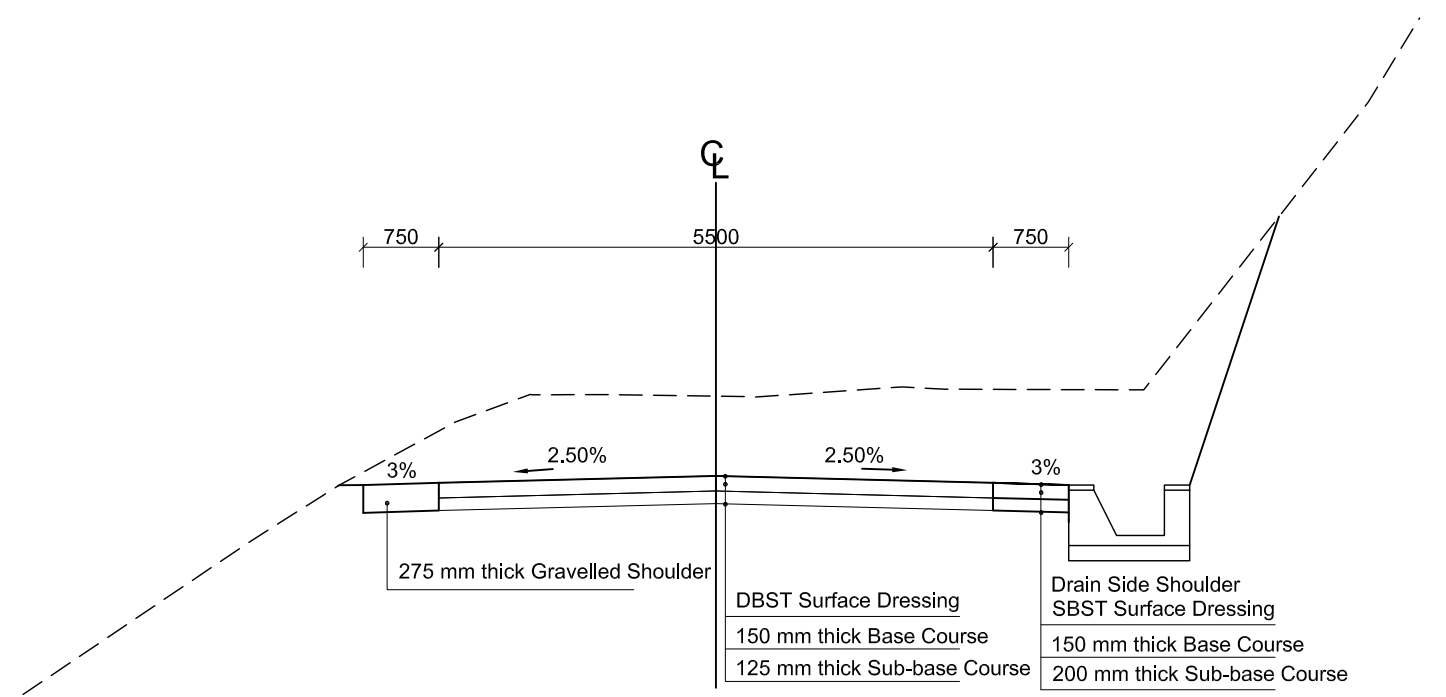
TYPICAL DRAWINGS



TYPICAL ROAD CROSS SECTION

Ch: 0+000 - 10+000; Ch: 20+000 - 33+752

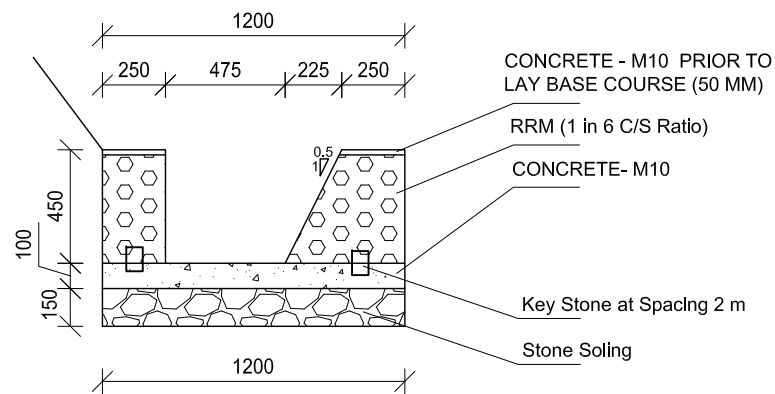
Scale 1:75



TYPICAL ROAD CROSS SECTION

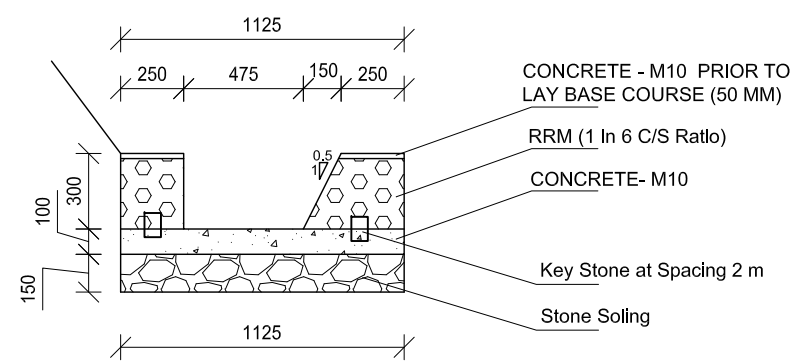
Ch 10+000 - 20+000

Scale 1:75



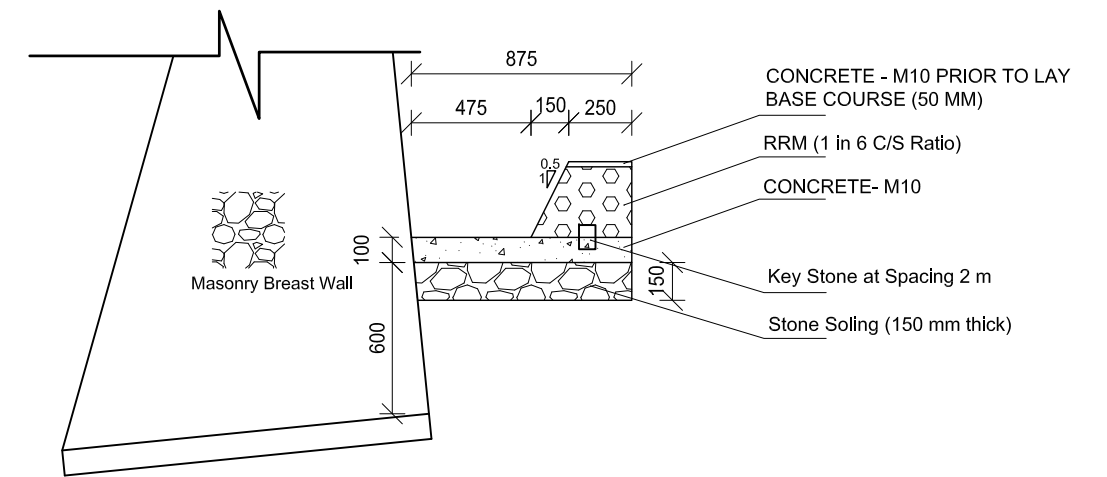
SIDE DRAIN -D3 (DrainB)

Scale 1:30



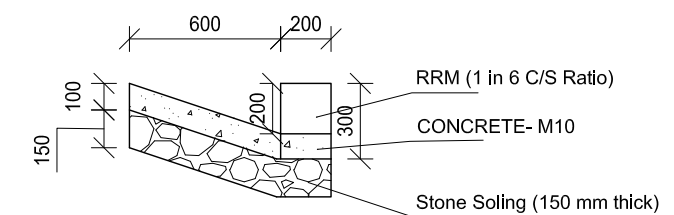
SIDE DRAIN -D1 (DrainA)

Scale 1:30



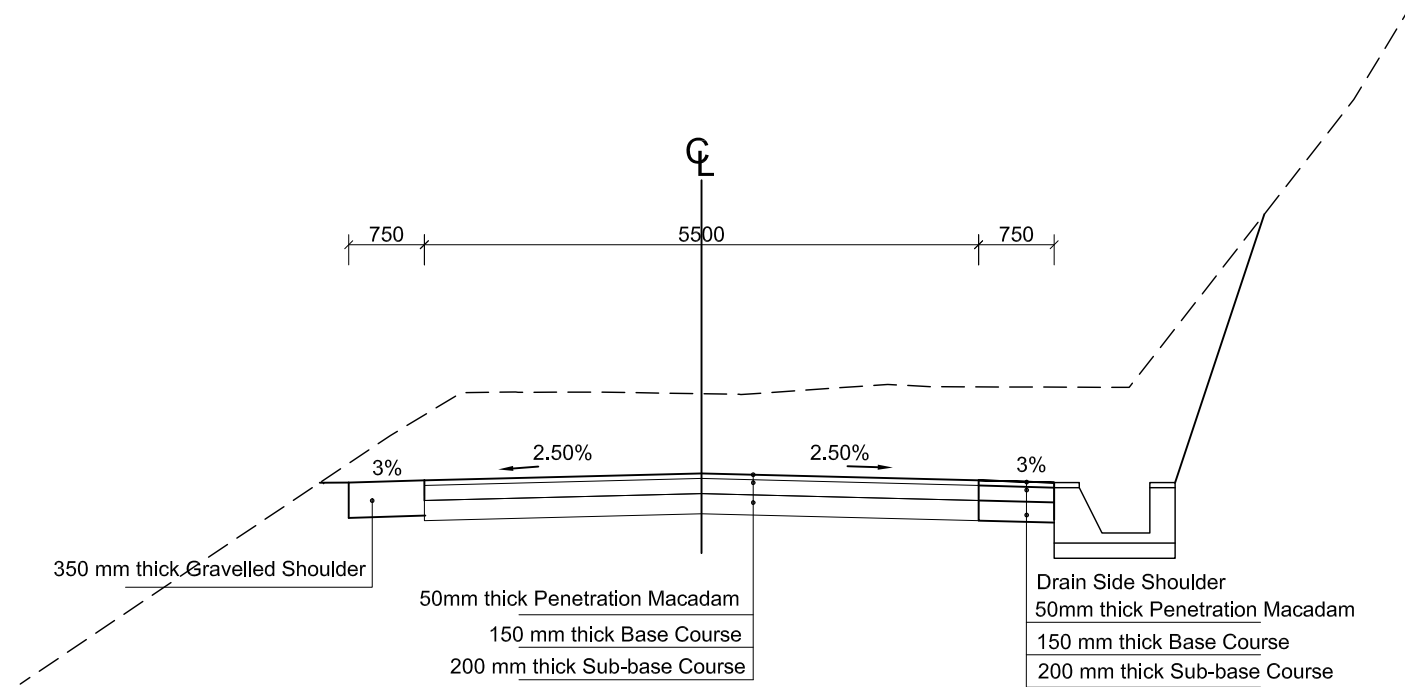
SIDE DRAIN -D2 (DrainC)

Scale 1:30

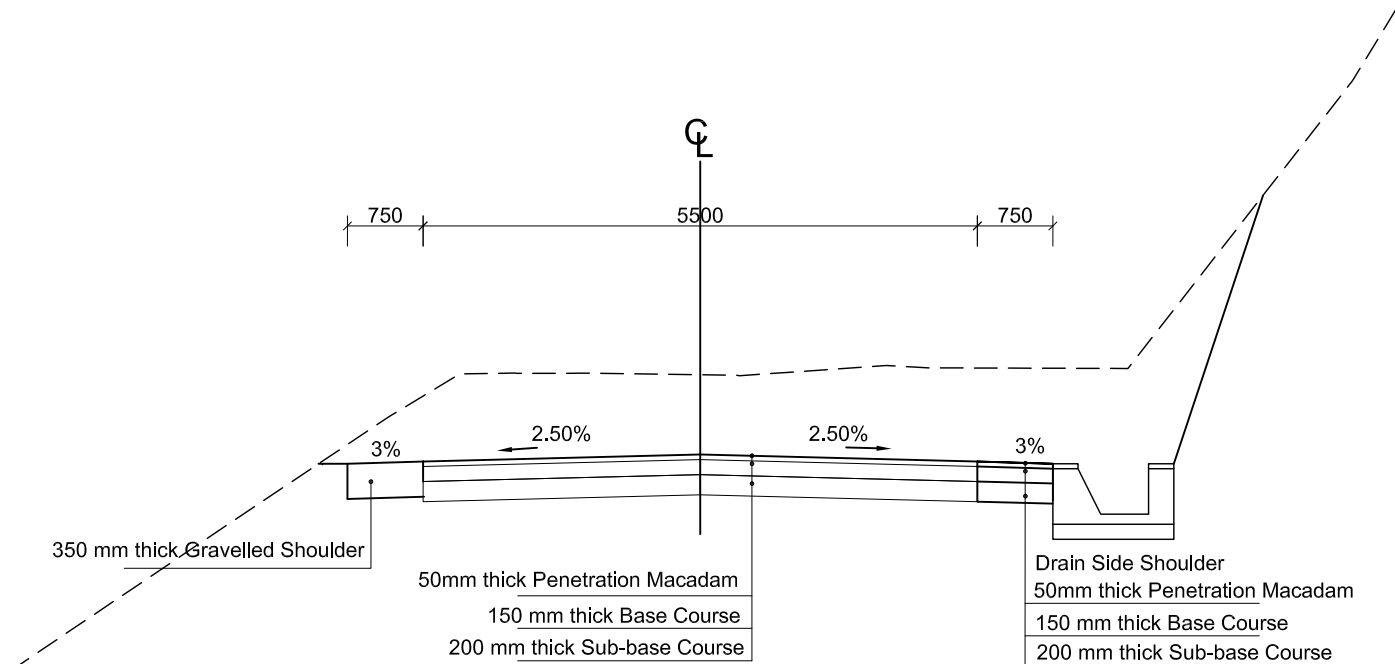


SIDE DRAIN -D4 (DrainD)

Scale 1:30




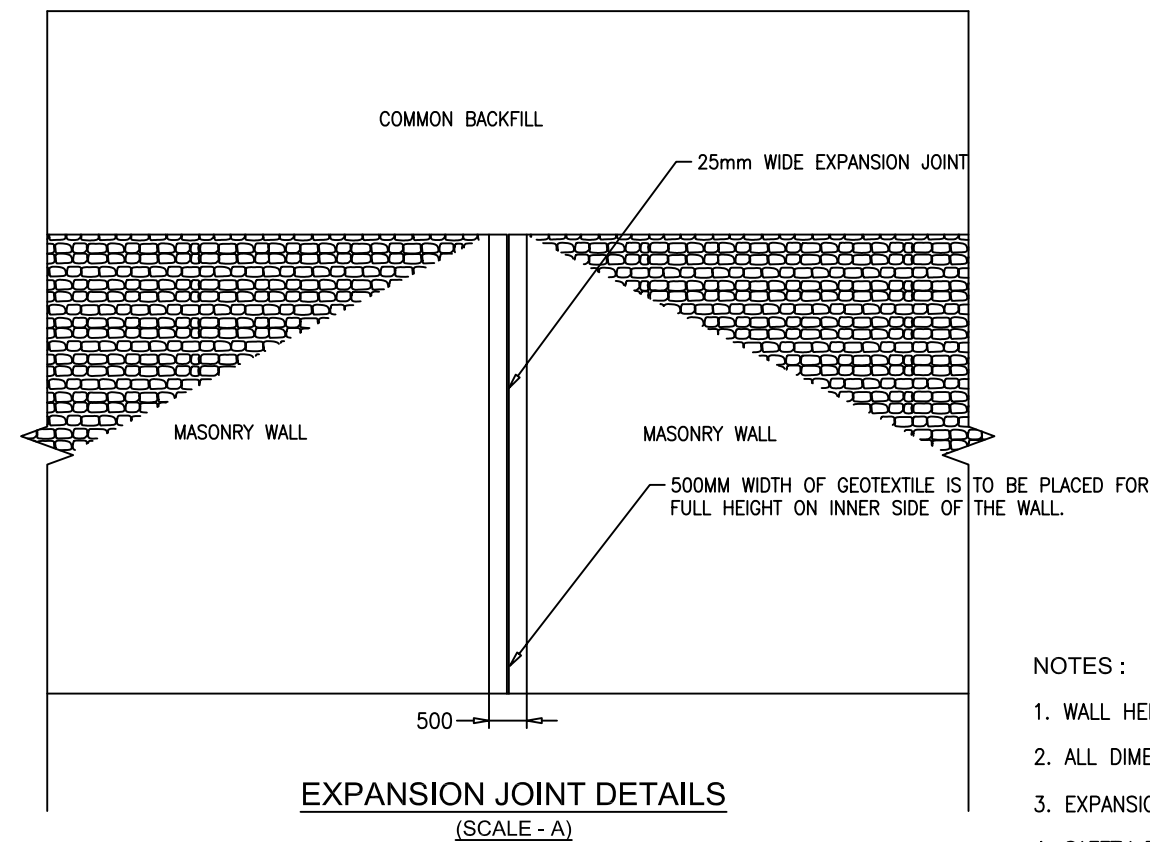
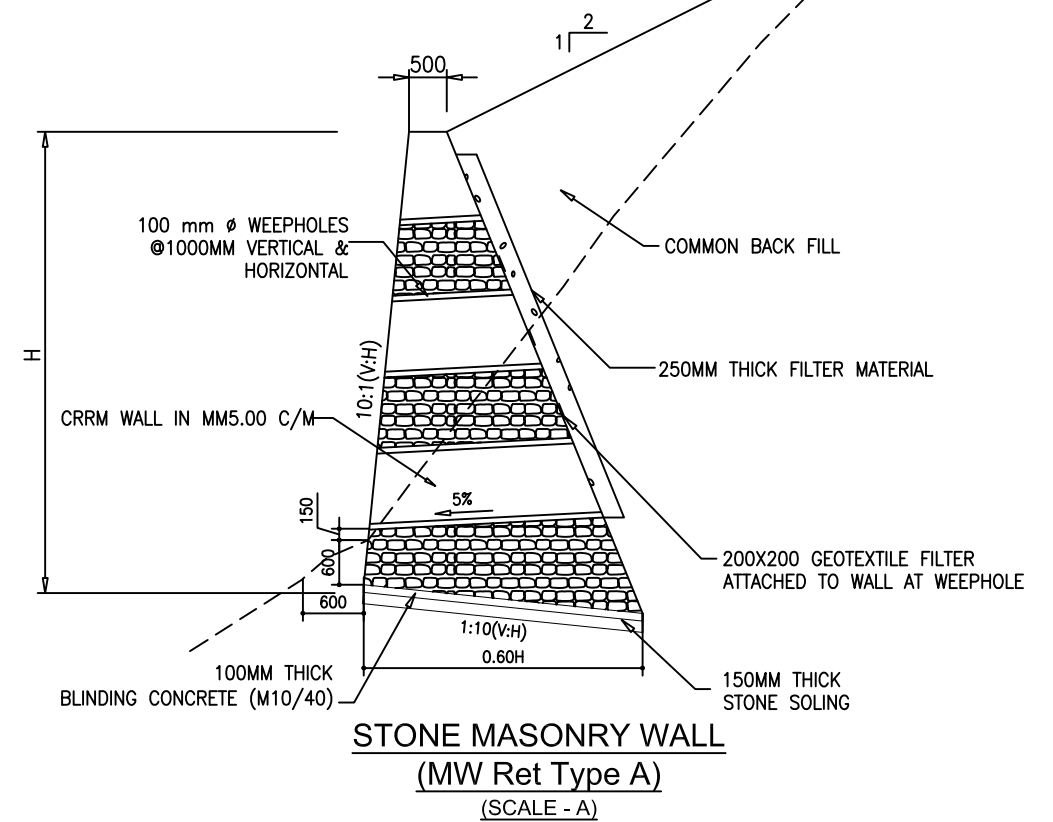
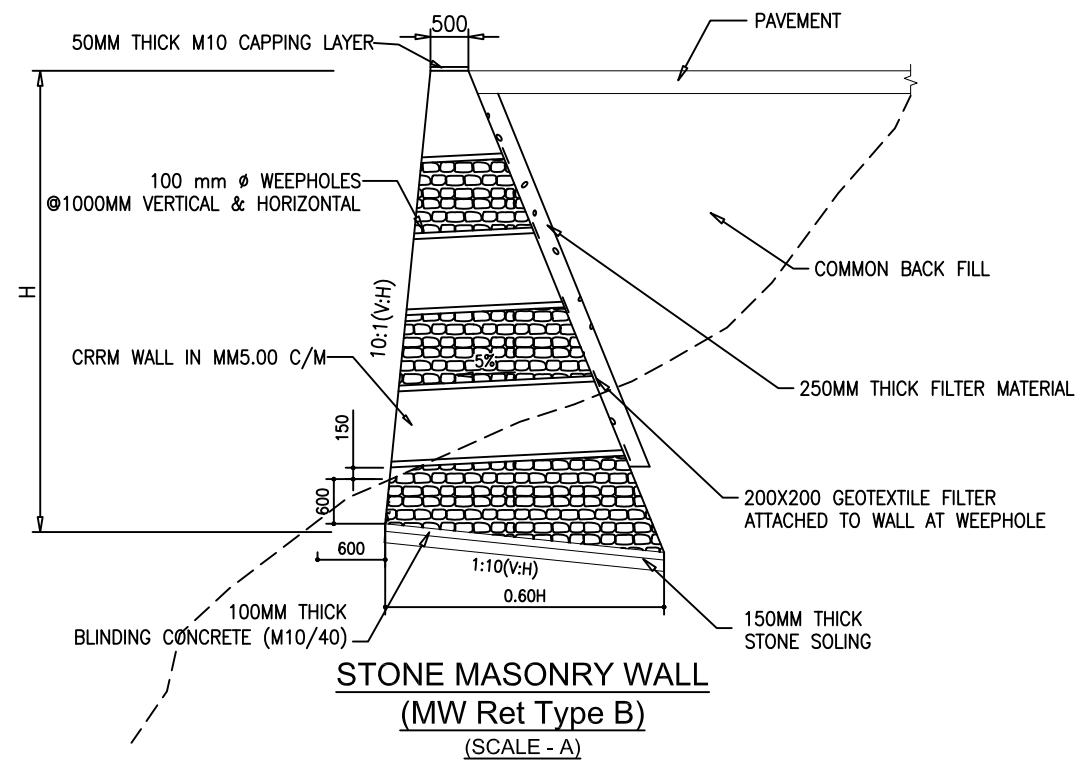
TYPICAL ROAD CROSS SECTION
Ch: 0+000 - 10+000; Ch: 20+000 - 33+752
Scale 1:75



TYPICAL ROAD CROSS SECTION
Ch: 0+000 - 10+000; Ch: 20+000 - 33+752
Scale 1:75

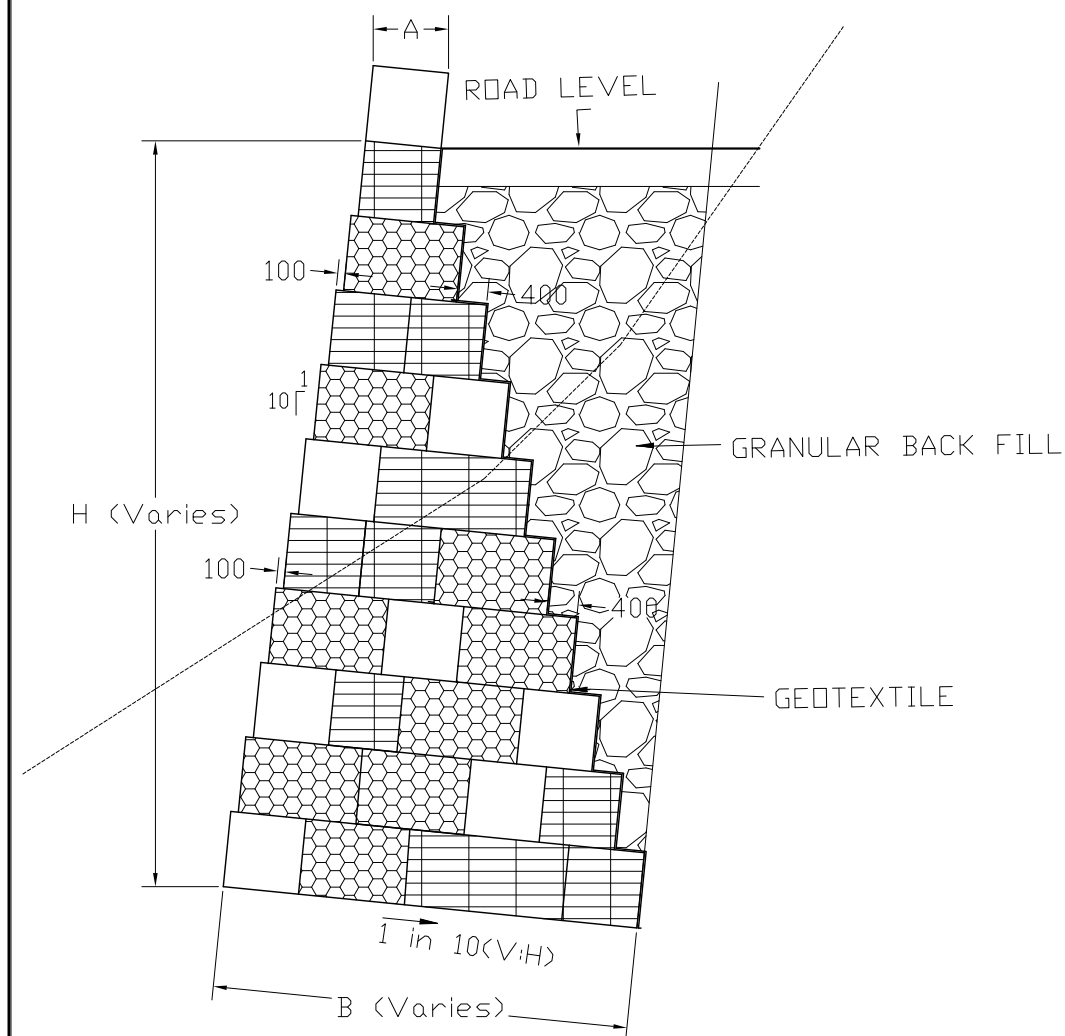
Note:
Penetration Macadam used at sections with high grade
and Hair-pin Bends

 <div>Government of Nepal Ministry of Urban Development Department of Local Infrastructure (DoLI) Rural Connectivity Improvement Project (RCIP) Project Coordination Unit (PCU) Pulchowk, Lalitpur</div>	Consultant: Joint Venture of AVIYAAN - SOILTEST - CARD 254 Ekata Marg, New Baneshwor, Kathmandu-34, Nepal Phone: 977-1-4104307 Email: info@avlyaan.com	Lubughat - Bethan - Sunapati Ga. Pa. - Galpa Doramba Road	DATE	REVISION	SIGNATURE	DESIGNED BY :	SCALE As Shown	TYPICAL DRAWING	DATE:
						DRAWN BY :			DRG NO : PD
						CHECKED BY :		Penetration Macadam	SHEET NO : 2
						APPROVED BY :			

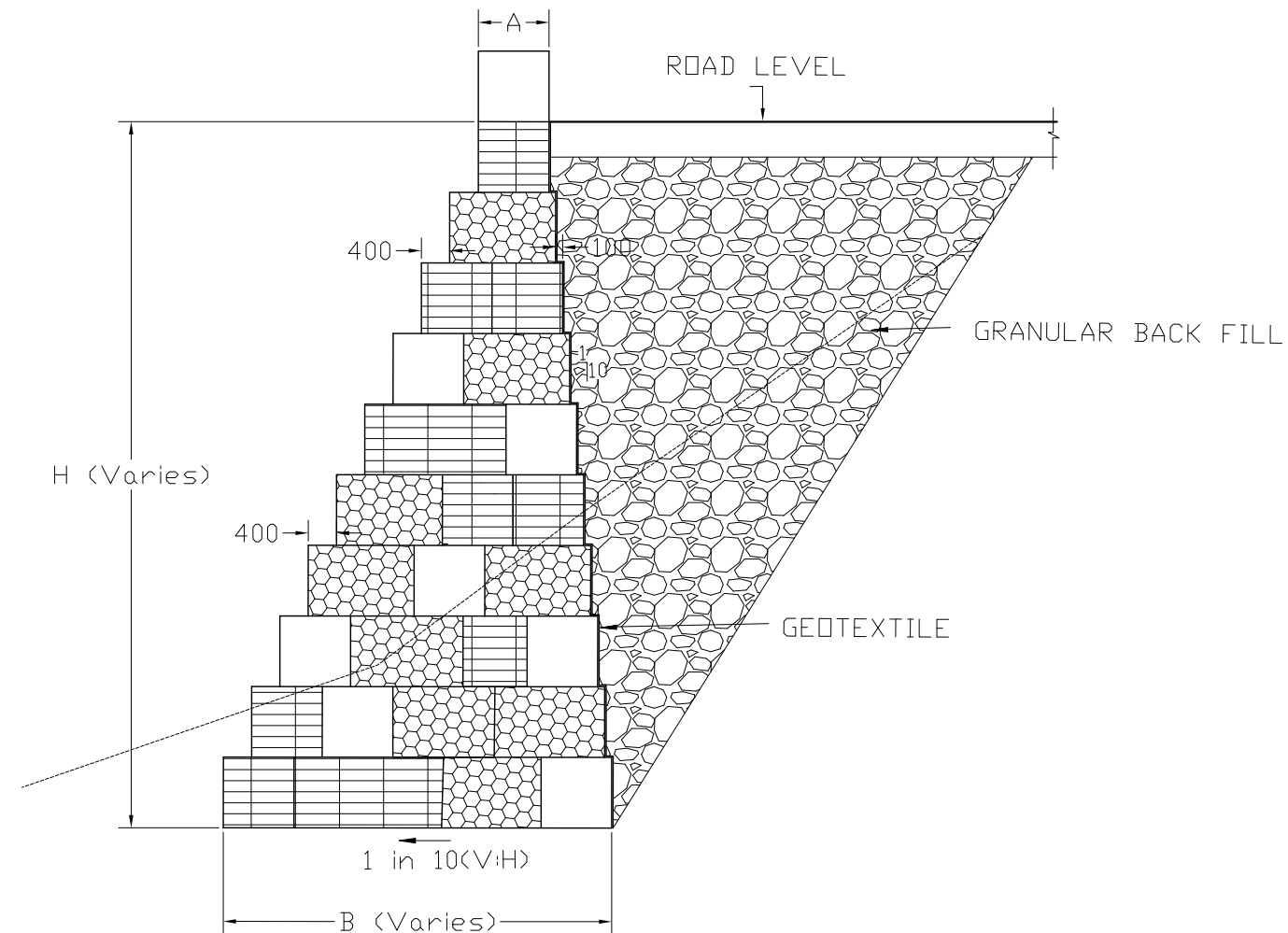


NOTES :

1. WALL HEIGHT IS TO BE MODIFIED AS PER ACTUAL SITE CONDITION OR AS DIRECTED BY THE ENGINEER.
2. ALL DIMENSIONS ARE IN MM EXCEPT OTHERWISE MENTIONED.
3. EXPANSION JOINT IS TO BE PROVIDED MAXIMUM AT A DISTANCE OF 10.0 M C/C OR AS DIRECTED BY THE ENGINEER.
4. SAFETY BLOCKS TO BE PROVIDED WHERE THE DOWNFALL IS MORE THAN 3.0 M.



GRAVITY GABION WALL (Back Batter)



GRAVITY GABION WALL (Front Batter)

Detail for Semi Gravity Gabion walls

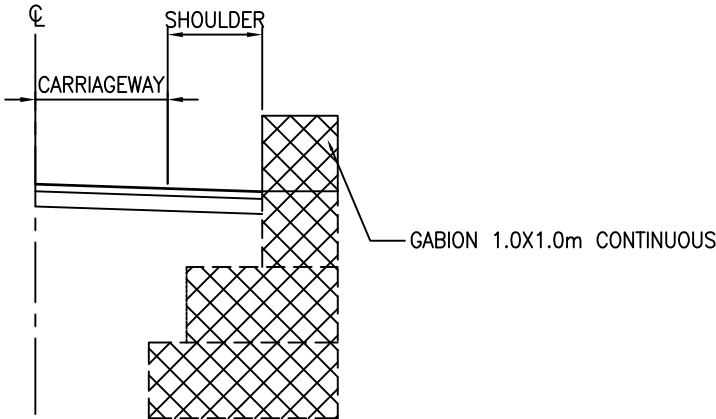
BASE WIDTHS AND TYPICAL GROUND PRESSURES (T/m ²)								
Wall Height (m)		2	3	4	6	8	10	12
Front Batter	Base Width,m	1.5	2.0	2.5	3.5	4.5	5.5	6.5
	Ground pressure (T/m ²)	50	70	90	120	150	190	230
Back Batter	Base Width,m	1.5	2.0	2.55	3.5	4.5	5.5	6.5
	Ground pressure (T/m ²)	70	110	150	220	290	360	420

NOTES:

1. All dimensions are in mm except otherwise mentioned.
2. For wall height more than 6.0 m, and backfill slope angle greater than 20.
detailed design with soil investigation is to be done or as directed by the Engineer.
3. If space is available, slopping outside is preferred for valley side of the road.

WORK QUANTITIES (Per Linear Metre)

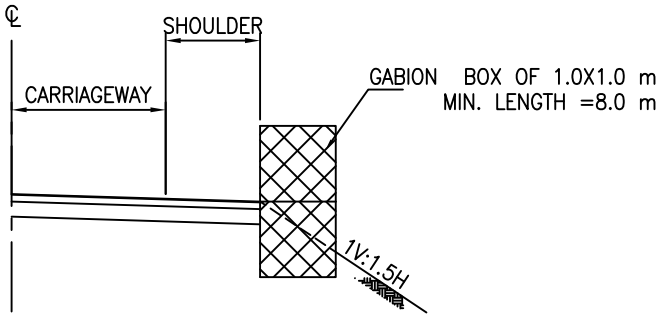
Item No	Description	UNIT	QUANTITY
	Gabion Box	m3	1.00



GABION BARRIER FOR GABION WALL (HEIGHT>3.0 m)

WORK QUANTITIES (Per Linear Metre)

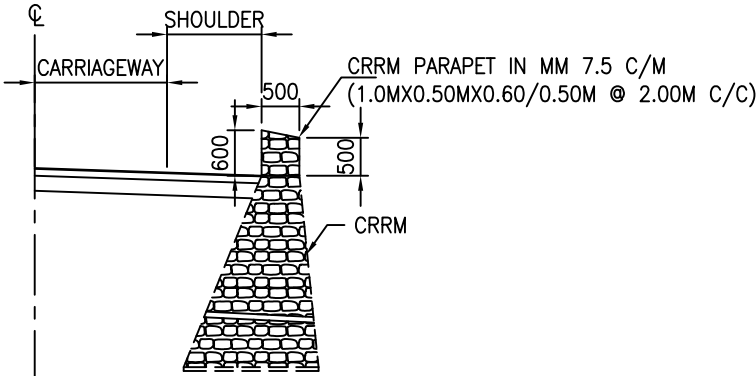
Item No	Description	UNIT	QUANTITY
	Earth Work in Excavation	m3	0.67
	Gabion Box	m3	2.00



GABION BARRIER FOR EMBANKMENT (HEIGHT>3.0 m)

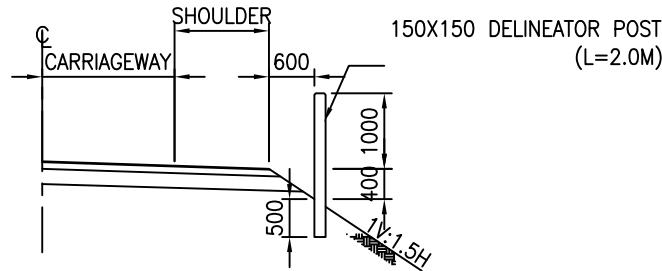
WORK QUANTITIES (Per Linear Metre)

Item No	Description	UNIT	QUANTITY
	CRRM IN 7.5 C/M	m3	0.14

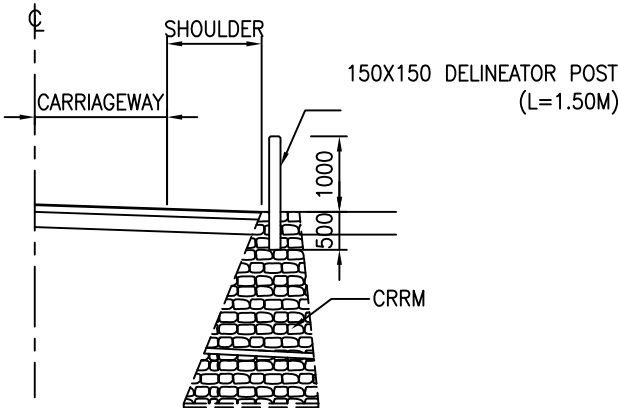


CRRM PARAPET FOR CRRM WALL (HEIGHT>3.0 m)

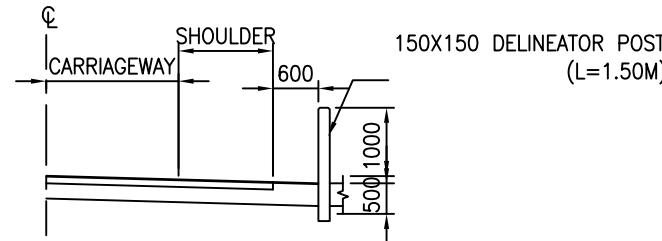
NOTE#: DELINEATORS ARE TO BE ERRECTED 600 MM FROM THE ROAD EDGE.



DELINEATOR FOR EMBANKMENT (HEIGHT<=3.0 m)



DELINEATOR FOR MASONRY WALL (HEIGHT<=3.0 m)



DELINEATOR FOR PLAIN AREA

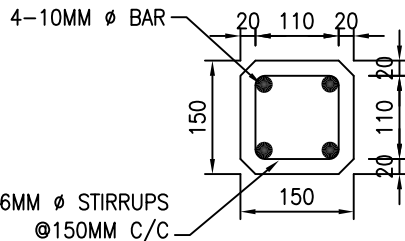
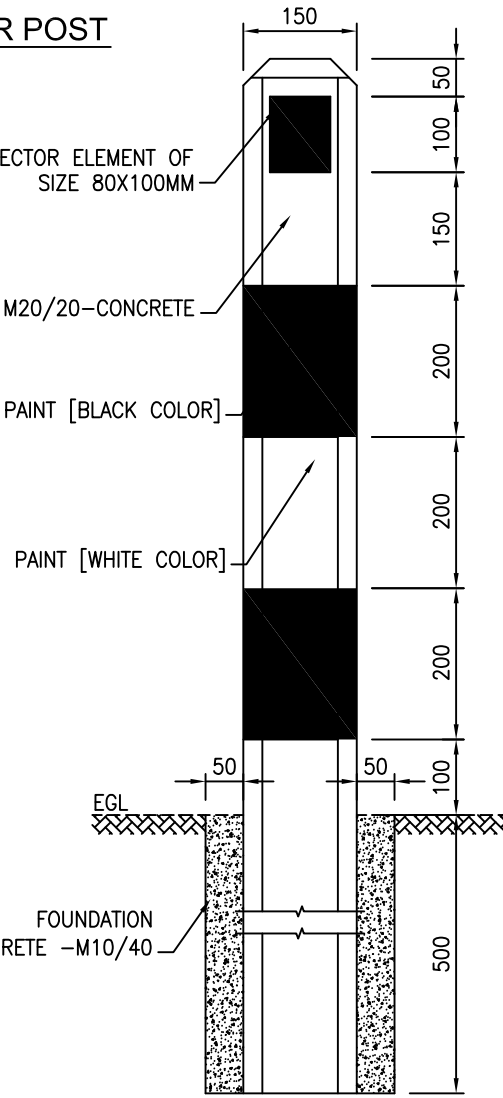
DETAILING OF DELINEATOR POST (SCALE - 1:10)

WORK QUANTITIES (For 2.0m Height)

ITEM NO	Description	UNIT	QUANTITY
	EARTH WORK EXACAVATION	m3	0.03
	M20/20 - CONCRETE	m3	0.045
	M10/40 - CONCRETE	m3	0.02
	FORMWORK (F2)	m2	0.945
	10MM Ø BAR	Kg.	4.96
	6MM Ø STIRRUPS	Kg.	1.50

WORK QUANTITIES (For 1.50m Height)

ITEM NO	Description	UNIT	QUANTITY
	EARTH WORK EXACAVATION	m3	0.03
	M20/20 - CONCRETE	m3	0.033
	M10/40 - CONCRETE	m3	0.02
	FORMWORK (F2)	m2	0.735
	10MM Ø BAR	Kg.	3.72
	6MM Ø STIRRUPS	Kg.	1.20

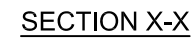


PLAN

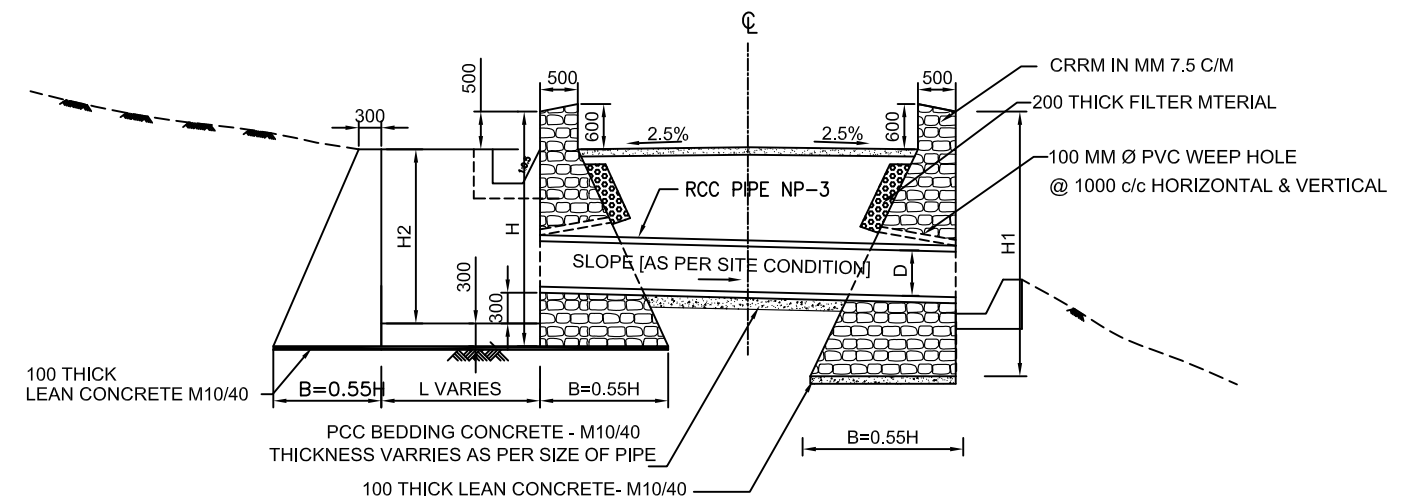
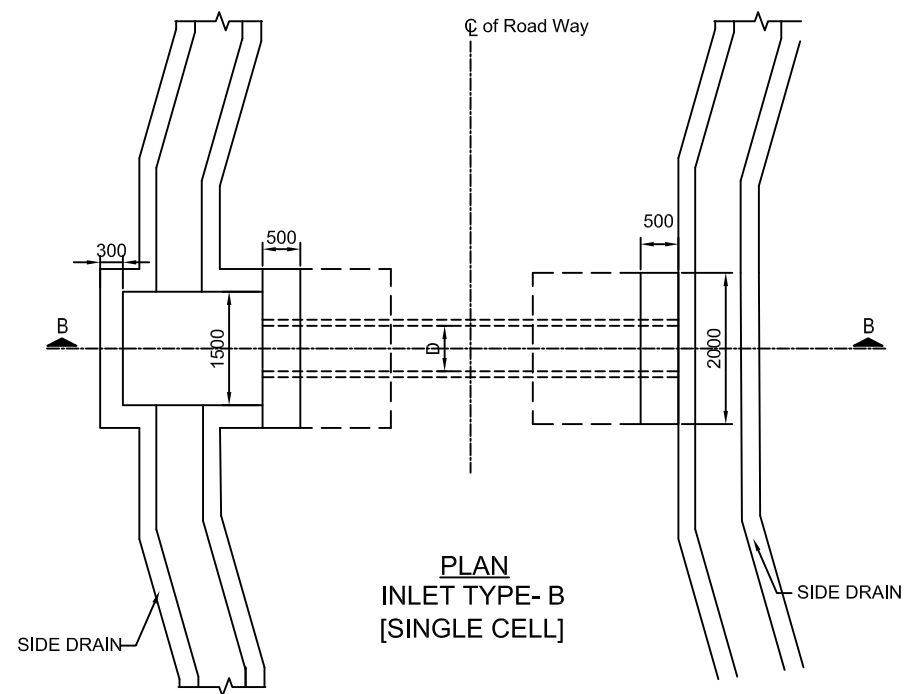
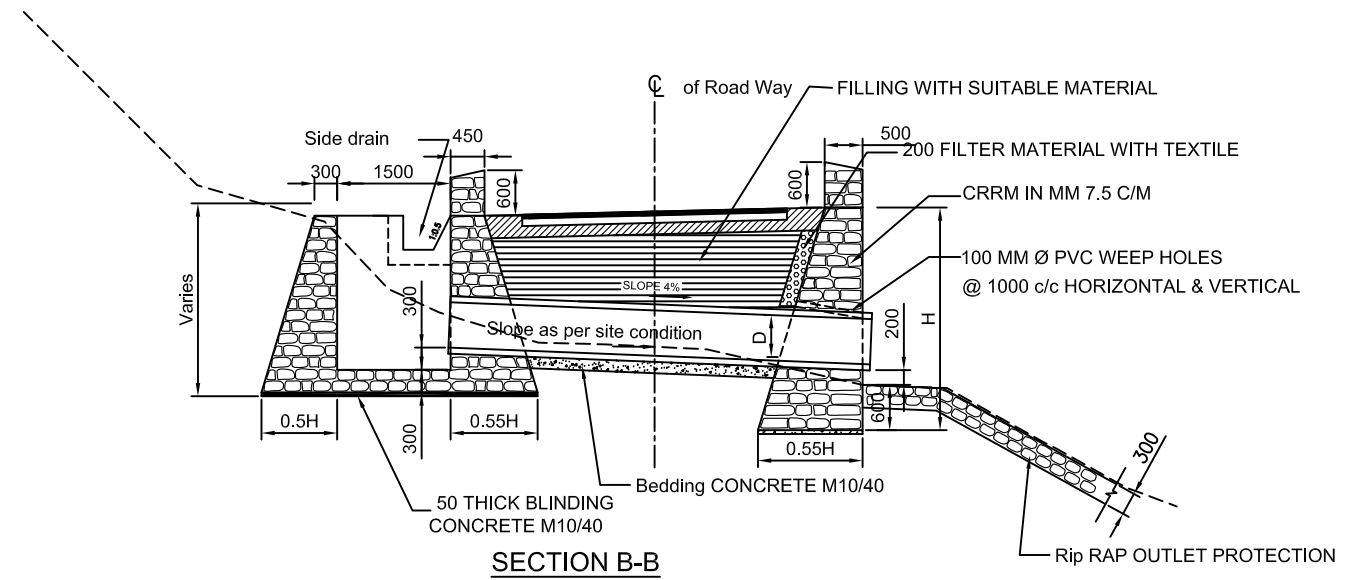
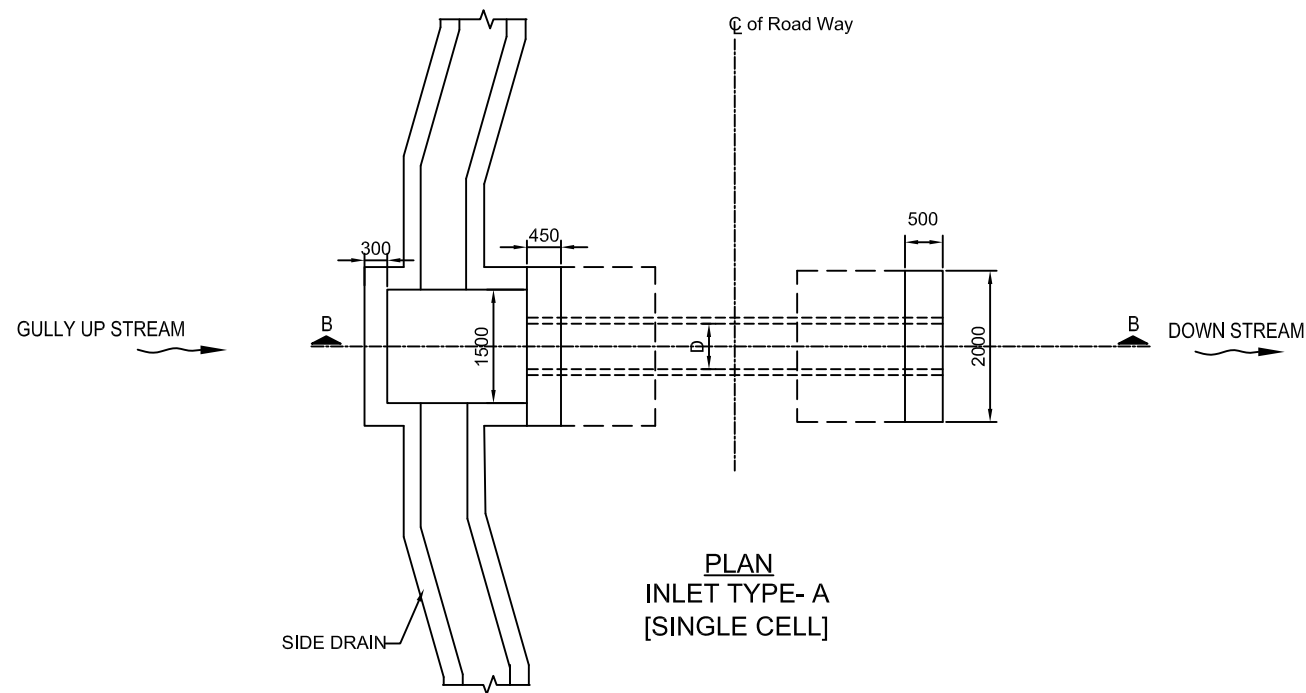
SECTIONAL ELEVATION

RECOMMENDED SPACING FOR DELINEATOR.


RADIUS OF Horizontal Curve(M)	SPACING OF POST DELINEATOR(M)	PURPOSE OF DELINEATION(M)
30	6.0	Horizontal Curve
50	8.0	Horizontal Curve
100	12.0	Horizontal Curve
200	20.0	Horizontal Curve
300	25.0	Horizontal Curve
400	30.0	Horizontal Curve
500	35.0	Horizontal Curve
600	38.0	Other Purpose
700	42.0	Other Purpose
800	45.0	Other Purpose
900	48.0	Other Purpose
1000	50.0	Other Purpose
>1000 AND STRAIGHTS	70.0	Other Purpose

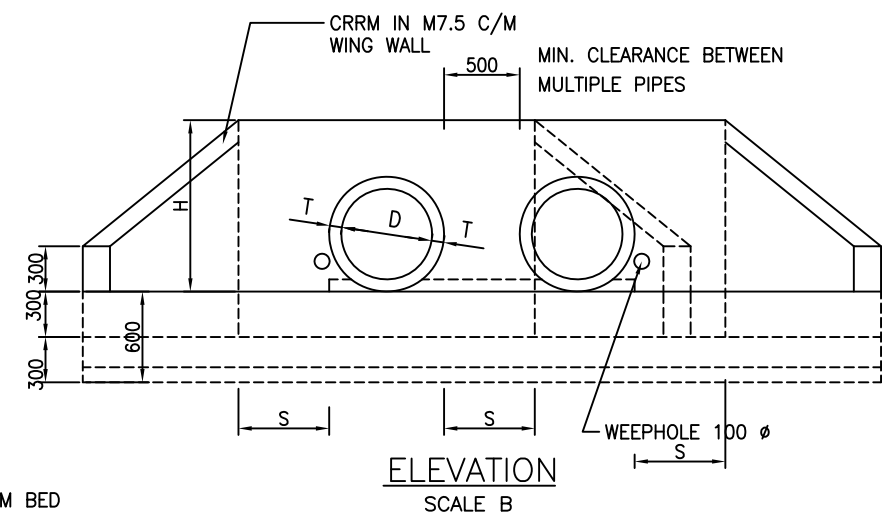
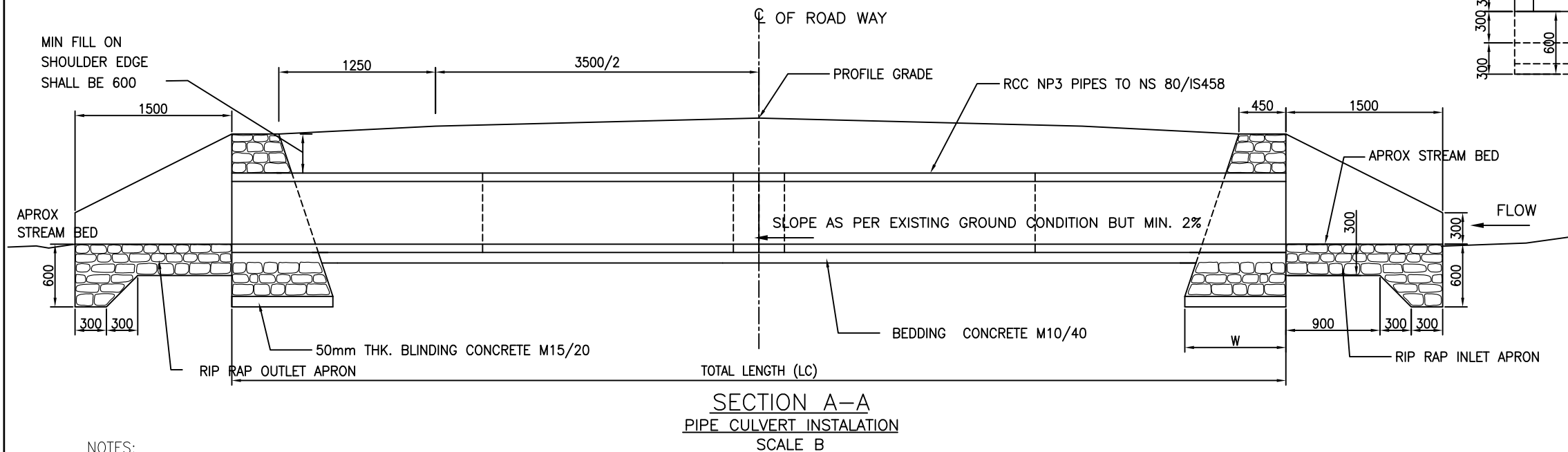
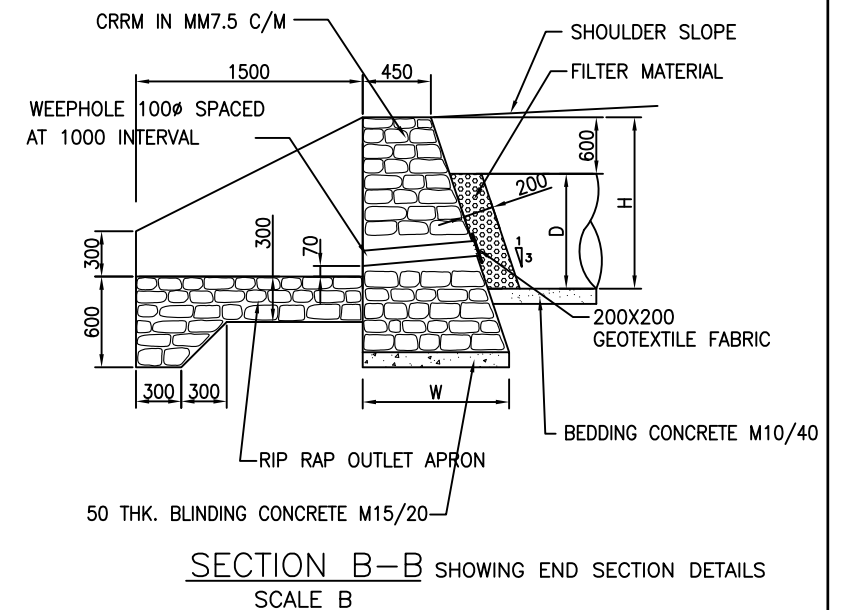
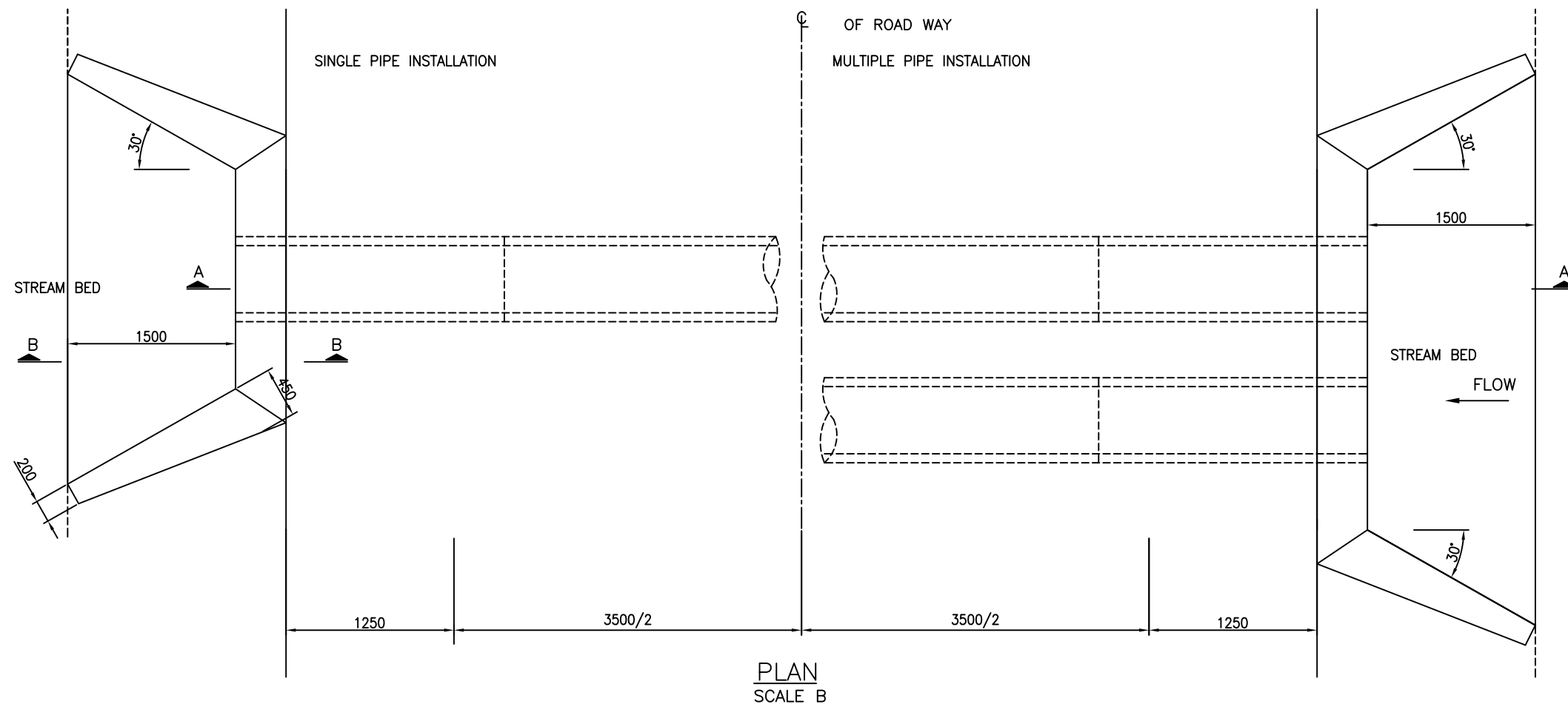


- | |
|--------------|
| DATE: |
| DRG NO : PC |
| SHEET NO : 1 |



1. D=Inside diameter of pipe.
2. Sizes of various components of sections X-X and Y-Y depends on discharge at site.
3. Cascades are used for direct flow over short stretches of very steep erodible gully slope.
4. Height of structures H, H1 & H2 varies as per site condition.
5. All the dimensions are in millimetres unless otherwise mentioned.


 <p>Government of Nepal Ministry of Urban Development Department of Local Infrastructure (DoLI) Rural Connectivity Improvement Project (RCIP) Project Coordination Unit (PCU) Pulchowk, Lalitpur</p>	<p>Consultant: Joint Venture of AVIYAAN - SOILTEST - CARD 254 Ekata Marg, New Baneshwor, Kathmandu-34, Nepal Phone: 977-1-4104307 Email: info@aviyaan.com</p>	<p>Lubughat - Bethan - Sunapati Ga. Pa. - Galpa Doramba Road</p>	DATE	REVISION	SIGNATURE	DESIGNED BY :	SCALE As Shown	TYPICAL DRAWING	DATE:
						DRAWN BY :			DRG NO : PC
						CHECKED BY :			SHEET NO : 2
						APPROVED BY :		Standard Drawing of Pipe Culvert	

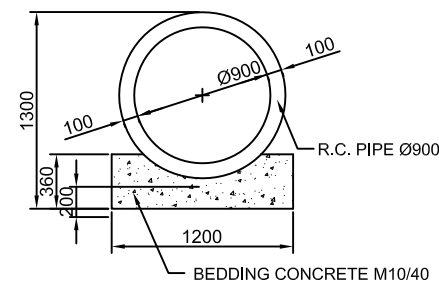


NOTES:

1. ALL WORKS SHOULD BE IN ACCORDANCE WITH STANDARD SPECIFICATION AND SPECIAL PROVISION.
2. LENGTH OF THE CULVERT (LC) SHALL BE AS PER THE DRAWINGS OR AS DIRECTED BY THE ENGINEER
3. DIMENSION OF THE WING WALL WILL VARY AS PER ACTUAL SITE CONDITION OR AS DIRECTED BY THE ENGINEER

MASONRY END SECTION			
DIMENSIONS			
D	H	W	S
900	1300	890	900
1200	1630	890	1200

 <p>Government of Nepal Ministry of Urban Development Department of Local Infrastructure (DoLI) Rural Connectivity Improvement Project (RCIP) Project Coordination Unit (PCU) Pulchowk, Lalitpur</p>	<p>Consultant: Joint Venture of AVIYAAN - SOILTEST - CARD 254 Ekata Marg, New Baneshwor, Kathmandu-34, Nepal Phone: 977-1-4104307 Email: info@aviyaan.com</p>	<p>Lubughat - Bethan - Sunapati Ga. Pa. - Galpa Doramba Road</p>	DATE	REVISION	SIGNATURE	DESIGNED BY :	SCALE As Shown	TYPICAL DRAWING Standard Drawing of Pipe Culvert	DATE:
						DRAWN BY :			DRG NO : PC
						CHECKED BY :			SHEET NO : 3
						APPROVED BY :			

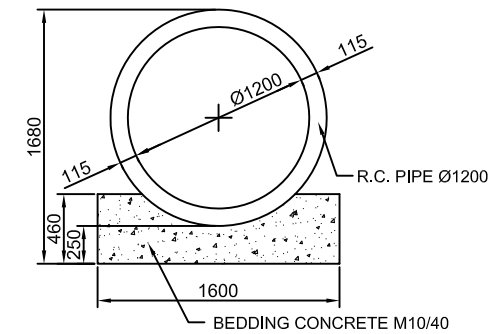


PIPE CULVERT (Ø900)

SCALE B

WORK QUANTITIES (PER 10.0m)

ITEM	UNIT	QUANTITY	REMARKS
R.C. PIPE (Ø900)	m	10.00	NP3
CONCRETE M10/40	m ³	3.46	
FORM WORK	m ²	7.20	
EXCAVATION	m ³	4.32	

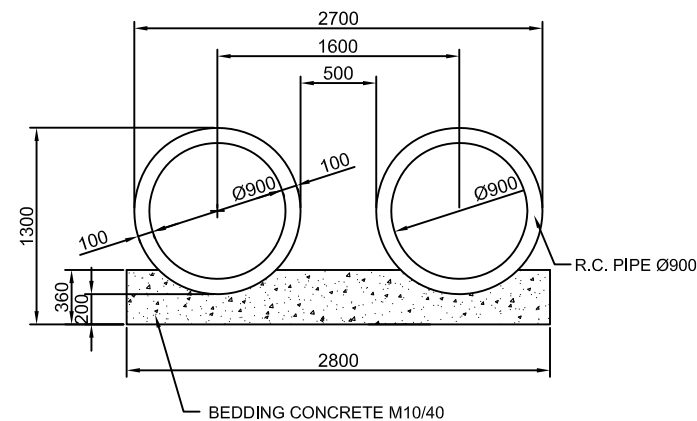


PIPE CULVERT (Ø1200)

SCALE B

WORK QUANTITIES (PER 10.0m)

ITEM	UNIT	QUANTITY	REMARKS
R.C. PIPE (Ø1200)	m	10.00	NP3
CONCRETE M10/40	m ³	5.89	
FORM WORK	m ²	9.20	
EXCAVATION	m ³	7.36	

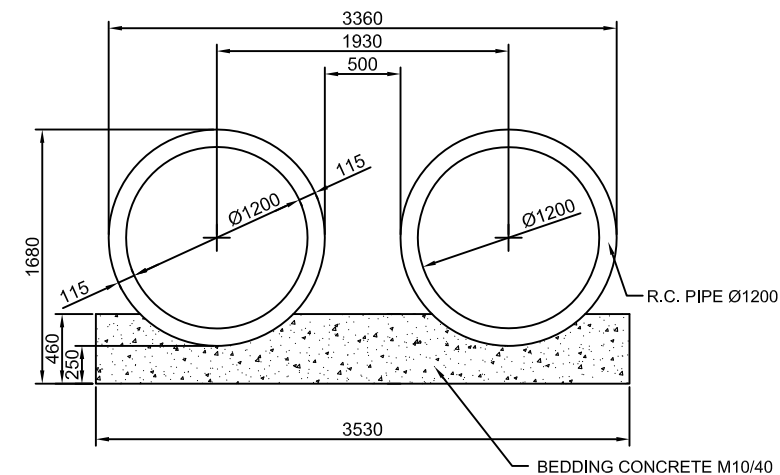


PIPE CULVERT (Ø900 X 2)

SCALE B

WORK QUANTITIES (PER 10.0m)

ITEM	UNIT	QUANTITY	REMARKS
R.C. PIPE (Ø900)	m	20.00	NP3
CONCRETE M10/40	m ³	8.36	
FORM WORK	m ²	7.20	
EXCAVATION	m ³	10.08	



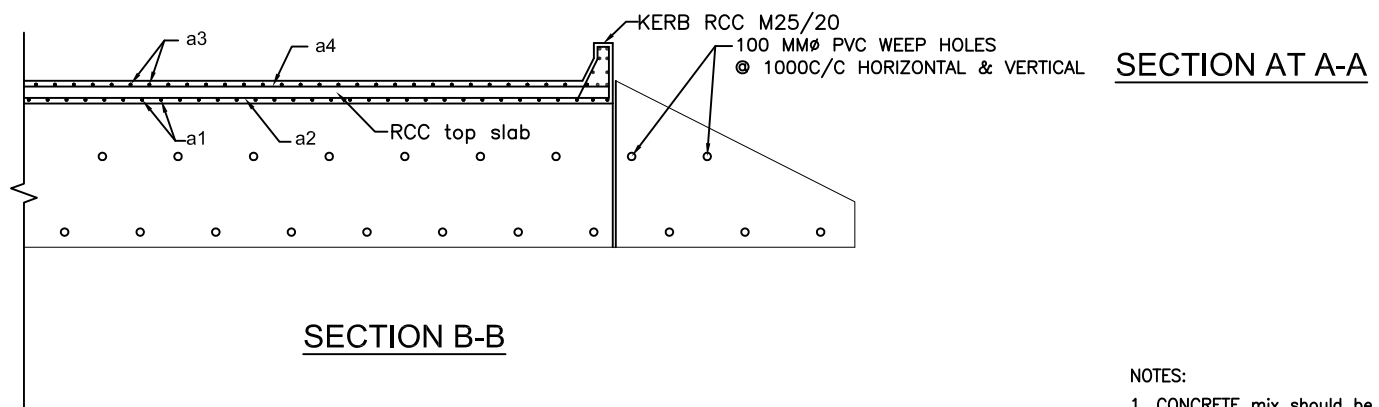
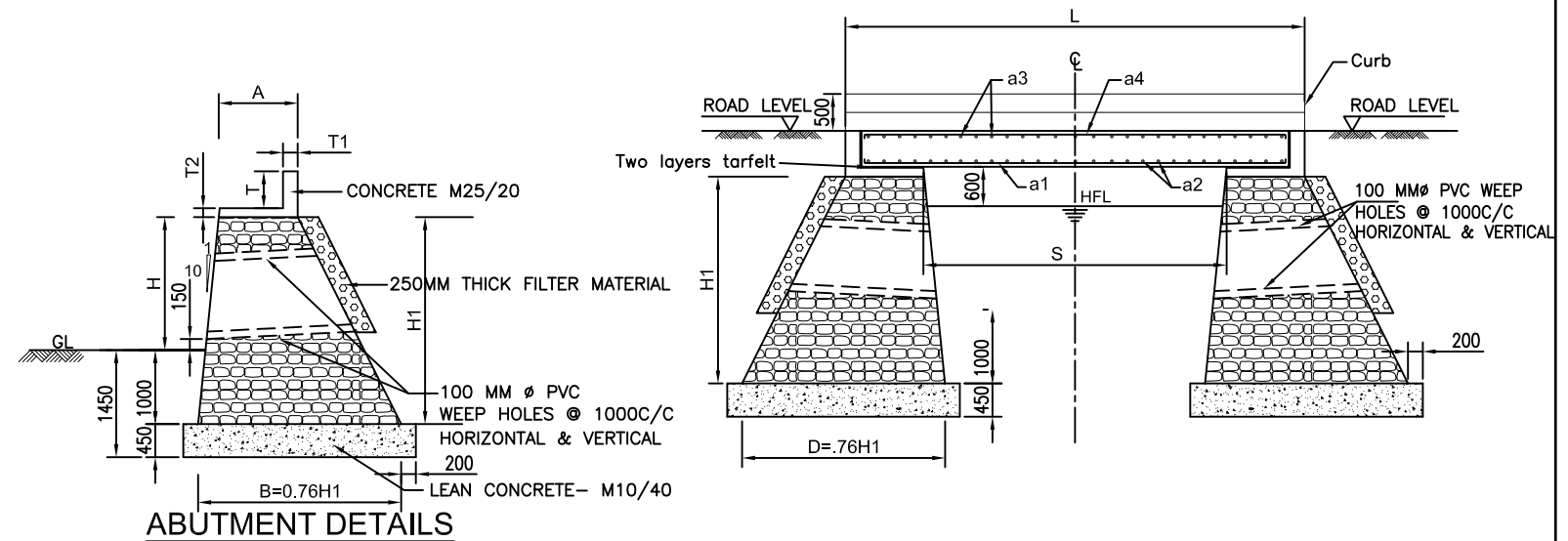
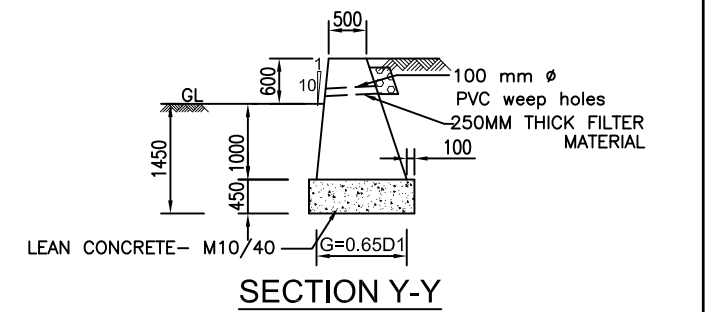
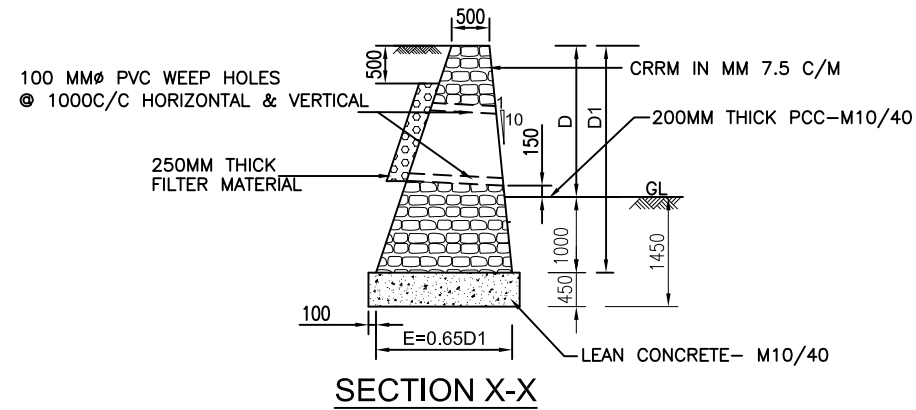
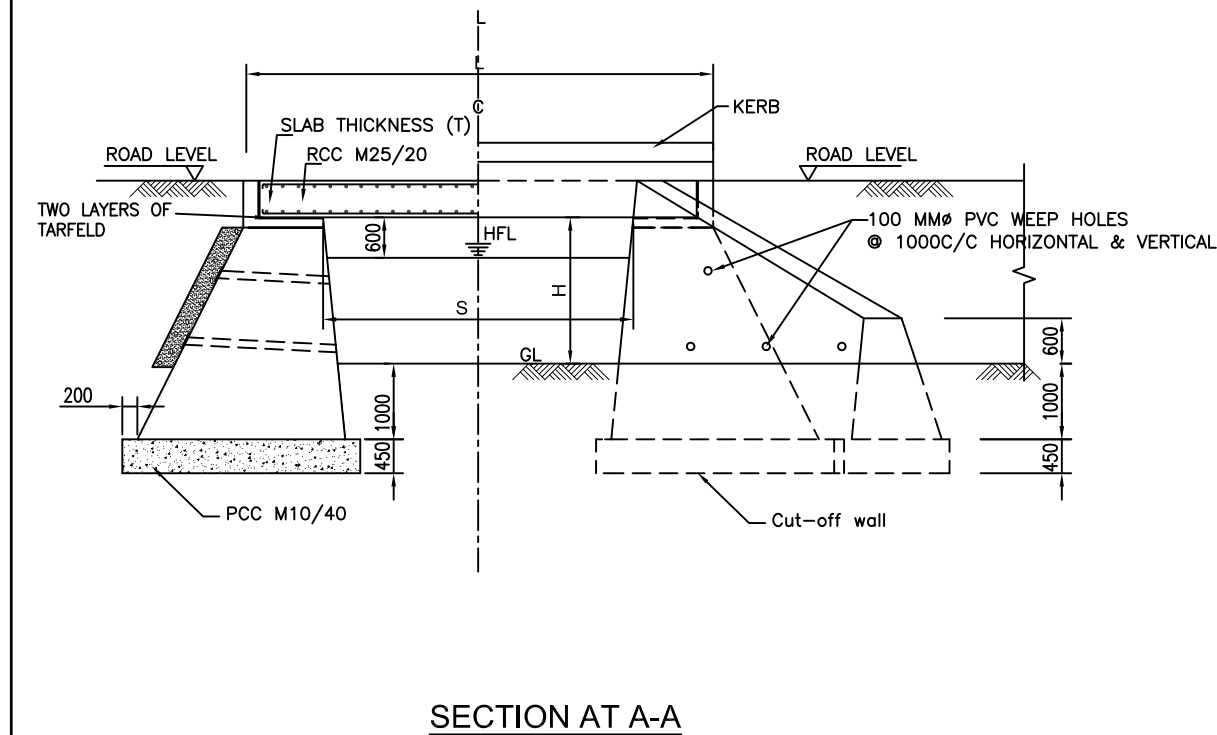
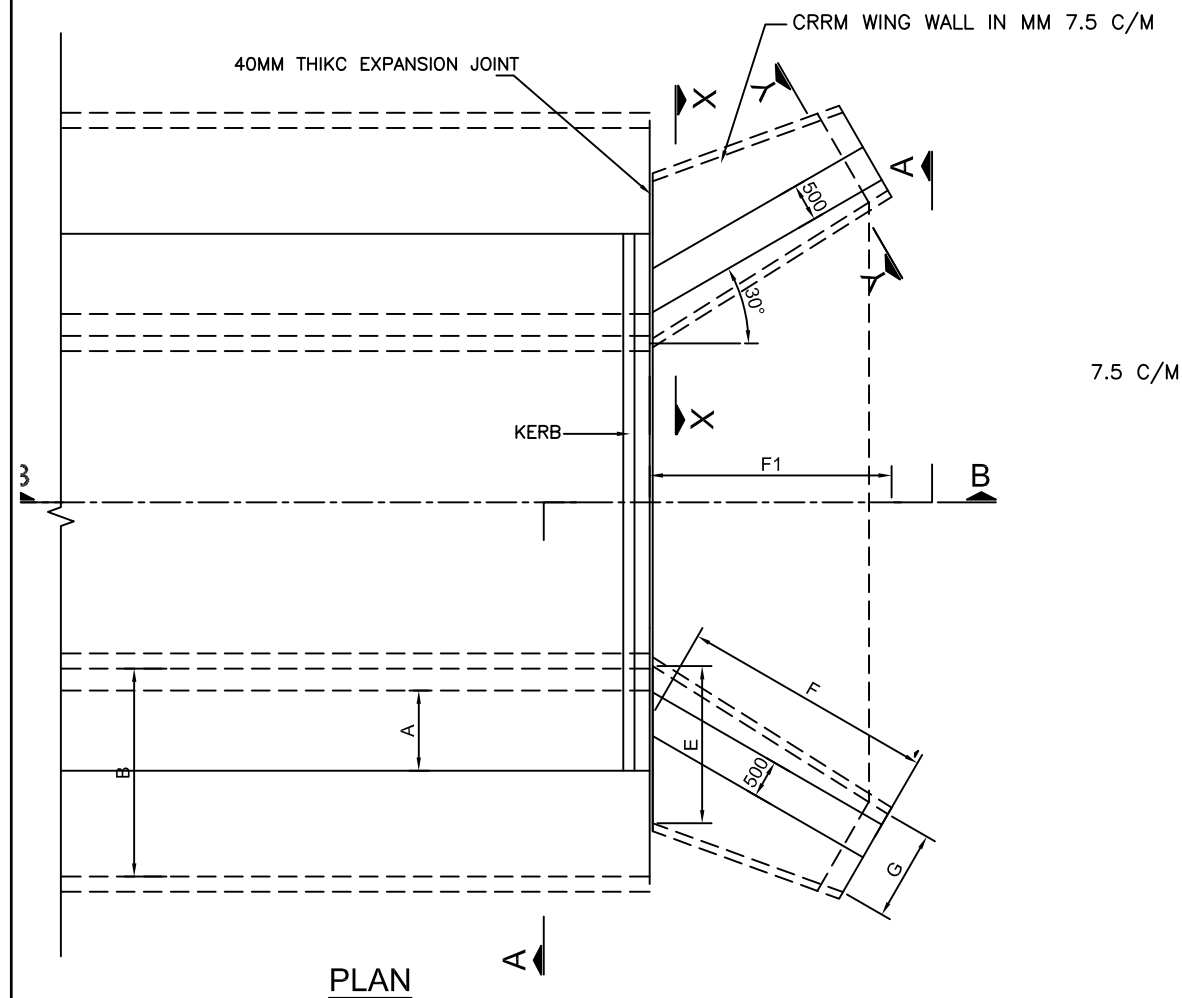
PIPE CULVERT (Ø1200 X 2)

SCALE B

WORK QUANTITIES (PER 10.0m)

ITEM	UNIT	QUANTITY	REMARKS
R.C. PIPE (Ø1200)	m	20.00	NP3
CONCRETE M10/40	m ³	13.62	
FORM WORK	m ²	9.20	
EXCAVATION	m ³	16.24	

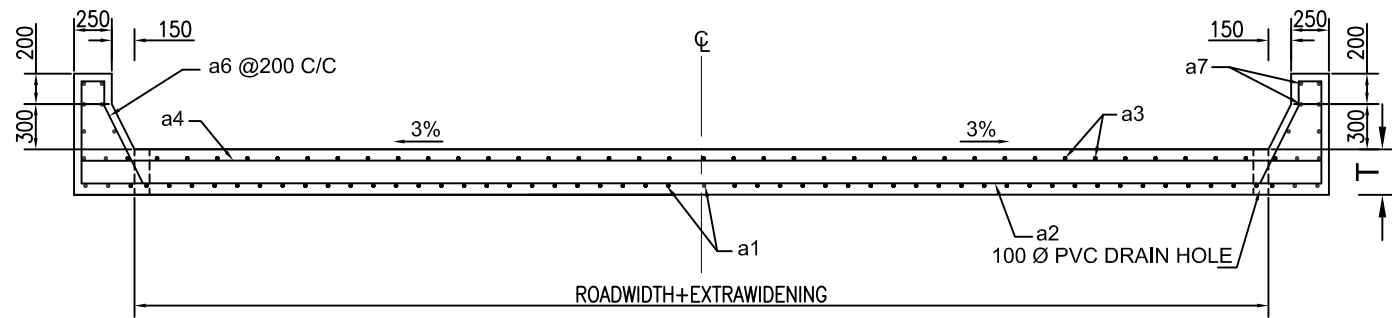
1. D=Inside diameter of pipe.
2. Sizes of various components of sections X-X and Y-Y depends on discharge at site.
3. Cascades are used for direct flow over short stretches of very steep erodible gully slope.
4. Height of structures H, H1 & H2 varies as per site condition.
5. All the dimensions are in millimetres unless otherwise mentioned.



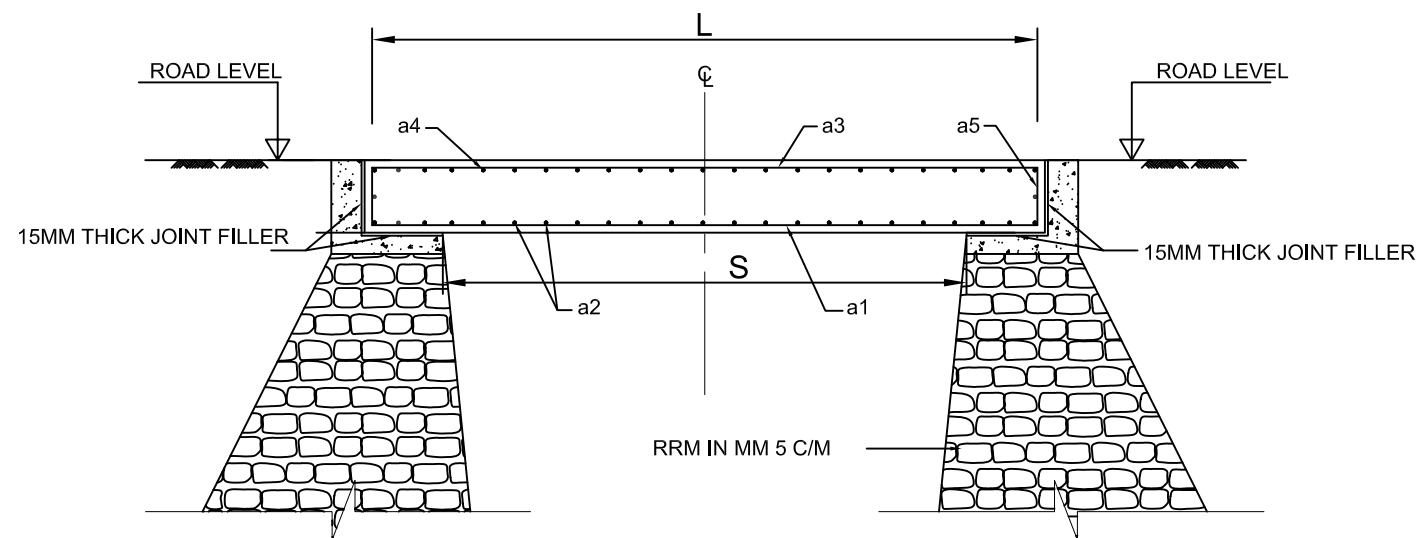
- NOTES:
1. CONCRETE mix should be M25/20 or as shown in the drawing.
 2. All edges are to be chamfered 100 mm x 100 mm.
 3. Mortar mix should be MM 7.5.
 4. All Dimensions are in Millimetres except the dimensions in table.

CULVERT DIMENSIONS AND QUANTITIES												
CULVERT TYPE	SIZE	DIMENSIONS(m)							QUANTITIES (LINEAR METRE EXCLUDING WING WALL APRON CUT-OFF WALL)			
		H1	T	T1	T2	A	B	L	CONCRETE M25 (M ³)	CONCRETE M15 (M ³)	Reinforcing Steel(kg)	MASONRY (M ³)
I	1.00x2.00	3.00	0.25	0.20	0.12	0.52	2.28	2.04	0.61	2.41	60.13	16.80
II	2.00x2.00	3.00	0.25	0.20	0.12	0.65	2.28	3.30	1.01	2.41	73.72	17.58
III	3.00x3.00	4.00	0.30	0.20	0.15	0.77	3.04	4.54	1.62	3.10	99.10	30.48
IV	4.00x3.00	4.00	0.40	0.20	0.15	0.77	3.04	5.54	2.49	3.10	179.99	30.48
V	5.00x3.00	4.00	0.50	0.20	0.20	1.00	3.04	7.00	3.87	3.10	211.12	30.48
VI	6.00x3.00	4.00	0.55	0.25	0.25	1.00	3.04	8.40	4.80	3.10	312.67	30.48

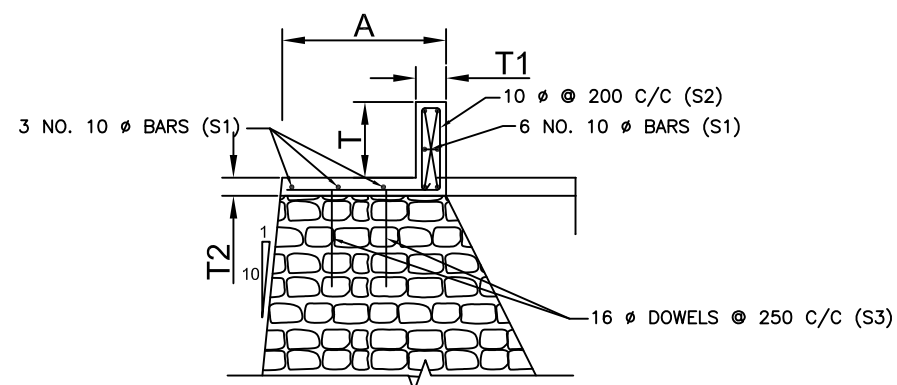
WINGWALL DIMENSIONS AND QUANTITIES (INCLUDING APRON SLAB & CUT-OFF WALL)									
CULVERT TYPE	SIZE	DIMENSIONS(m)						QUANTITIES (AT ONE END)	
		D	D1	E	F	F1	G	MASONRY M ³	
I	1.00x2.00	2.00	3.00	1.95	2.88	2.48	1.39	5.96	
II	2.00x2.00	2.00	3.00	1.95	2.88	2.48	1.39	5.96	
III	3.00x3.00	3.00	4.00	2.60	4.68	4.05	1.39	12.07	
IV	4.00x3.00	3.00	4.00	2.60	4.85	4.20	1.39	12.52	
V	5.00x3.00	3.00	4.00	2.60	5.02	4.35	1.39	12.95	
VI	5.00x3.00	3.00	4.00	2.60	5.12	4.43	1.39	13.21	



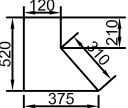
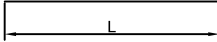
TRANSVERSE SECTION



LONGITUDINAL SECTION

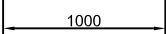




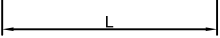

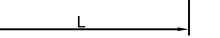
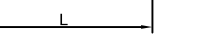
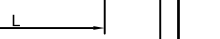
ABUTMENT SEAT DETAIL

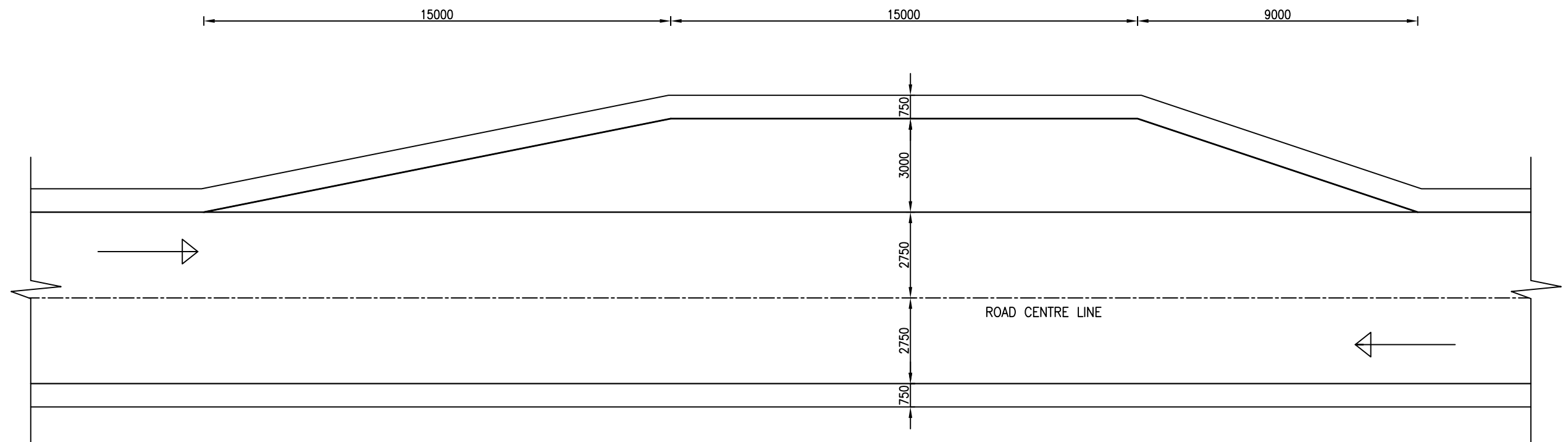
BAR BENDING SCHEDULE OF KERB								
CULVERT TYPE								
	MARK α6				MARK α7			
	DIA (mm)	NO.	LENGTH	TOTAL LENGTH	DIA (mm)	NO.	LENGTH	TOTAL LENGTH
I	10	22	1.74	38.17	10	12	1.96	23.52
II	10	36	1.74	62.46	10	12	3.22	38.64
III	10	48	1.74	83.28	10	12	4.46	53.52
IV	10	56	1.74	97.16	10	12	5.44	65.28
V	10	70	1.74	121.45	10	12	6.90	82.80
VI	10	80	1.74	39.20	10	12	7.70	92.40

NOTES:

1. TMT BARS having characteristic strength 500 N/mmi should be used.
2. All the dimensions are in millimetres except the dimensions in table.

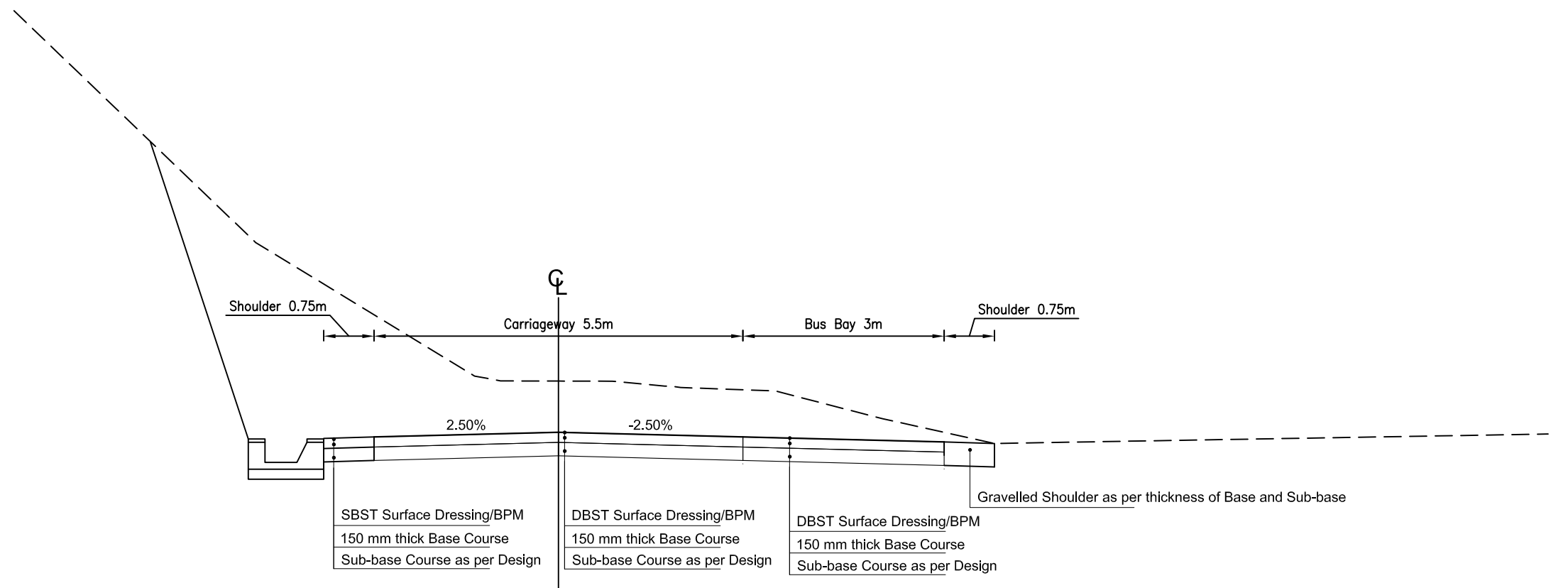
BAR BENDING SCHEDULE OF ABUTMENT SEAT PER LINEAR METRE (FOR ONE ABUTMENT SEAT)												
CULVERT TYPE												
	MARK S1				MARK S2				MARK S3			
	DIA (mm)	NO.	LENGTH	TOTAL LENGTH	DIA (mm)	NO.	LENGTH	TOTAL LENGTH	DIA (mm)	NO.	LENGTH	TOTAL LENGTH
I	10	18.00	1.00	9	10	5	1.25	6.25	16	8	0.60	4.80
II	10	18.00	1.00	9	10	5	1.26	6.32	16	8	0.60	4.80
III	10	18.00	1.00	9	10	5	1.58	7.90	16	8	0.60	4.80
IV	10	18.00	1.00	9	10	5	1.94	9.69	16	8	0.60	4.80
V	10	18.00	1.00	9	10	5	2.23	11.15	16	8	0.60	4.80
V	10	18.00	1.00	9	10	5	2.27	11.35	16	8	0.60	4.80

BAR BENDING SCHEDULE PER ONE LINEAR METRE OF CULVERT (EXCLUDING KERB & ABUTMENT SEAT)																			
CULVERT TYPE																			
	MARK a1				MARK a2				MARK a3				MARK a4				MARK a5		
	DIA (mm)	SPACING	NO. REQD./ PER LINEAR METRE	L	DIA	SPACING	NO. REQD./ PER LINEAR METRE	L	DIA	SPACING	NO. REQD./ PER LINEAR METRE	L	DIA	SPACING	NO. REQD./ PER LINEAR METRE	L	DIA	NO. REQD./ PER LINEAR METRE	L
I	12	140	7.14	1.54	12	300	3.33	8.20	10	300	3.33	1.54	10	300	3.33	8.20	12	2	8.20
II	12	120	8.33	2.80	12	300	3.33	8.20	10	300	3.33	2.80	10	300	3.33	8.20	12	2	8.20
III	16	150	6.67	4.04	12	300	3.33	8.20	10	300	3.33	4.04	10	300	3.33	8.20	12	2	8.20
IV	20	150	6.67	6.04	12	200	5.00	8.20	10	200	5.00	6.04	10	200	2.00	8.20	12	2	8.20
V	20	130	7.69	6.50	12	180	5.56	8.20	12	300	3.33	6.50	12	300	3.33	8.20	12	2	8.20
VI	25	150	6.67	7.80	12	150	6.67	8.20	12	200	5.00	7.80	12	200	5.00	8.20	12	2	8.20



TYPICAL PLAN OF A BUS BAY

SCALE 1:150

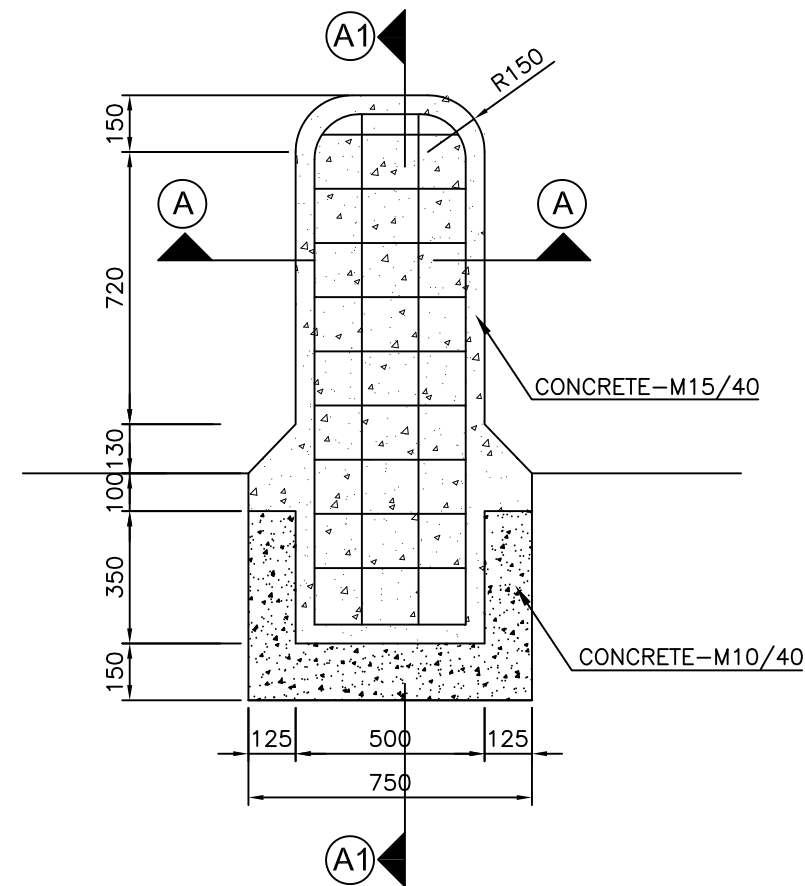


TYPICAL ROAD CROSS SECTION

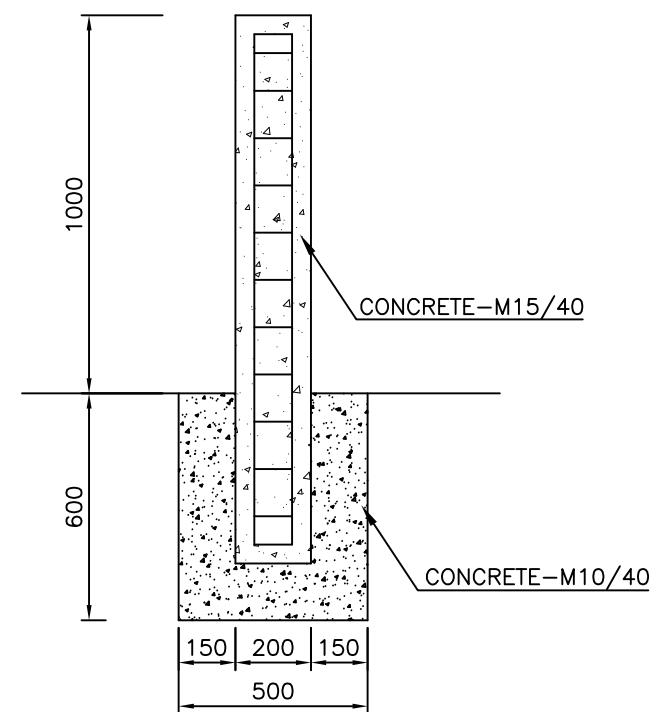
SCALE 1:80

 <div>Government of Nepal Ministry of Urban Development Department of Local Infrastructure (DoLI) Rural Connectivity Improvement Project (RCIP) Project Coordination Unit (PCU) Pulchowk, Lalitpur</div>	Consultant: Joint Venture of AVIYAAN - SOILTEST - CARD 254 Ekata Marg, New Baneshwor, Kathmandu-34, Nepal Phone: 977-1-4104307 Email: info@aviyaan.com	Lubughat - Bethan - Sunapati Ga. Pa. - Galpa Doramba Road	DATE	REVISION	SIGNATURE	DESIGNED BY :	SCALE As Shown	TYPICAL DRAWING	DATE:
						DRAWN BY :			DRG NO : BB
						CHECKED BY :			SHEET NO : 1
						APPROVED BY :		Standard Drawing of Bus Bay	

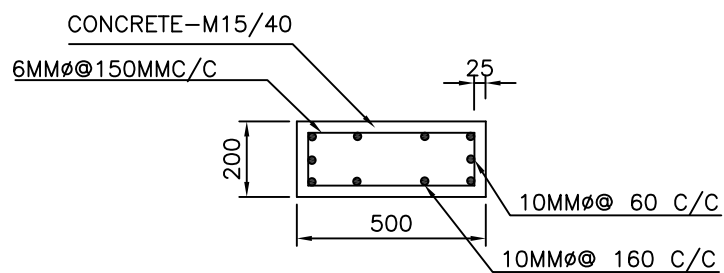
5TH. KILOMETRE STONE



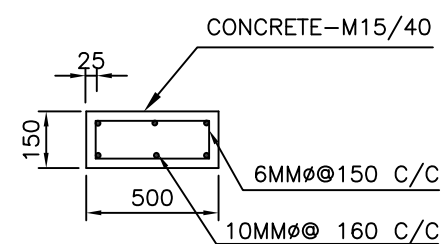
SECTIONAL ELEVATION



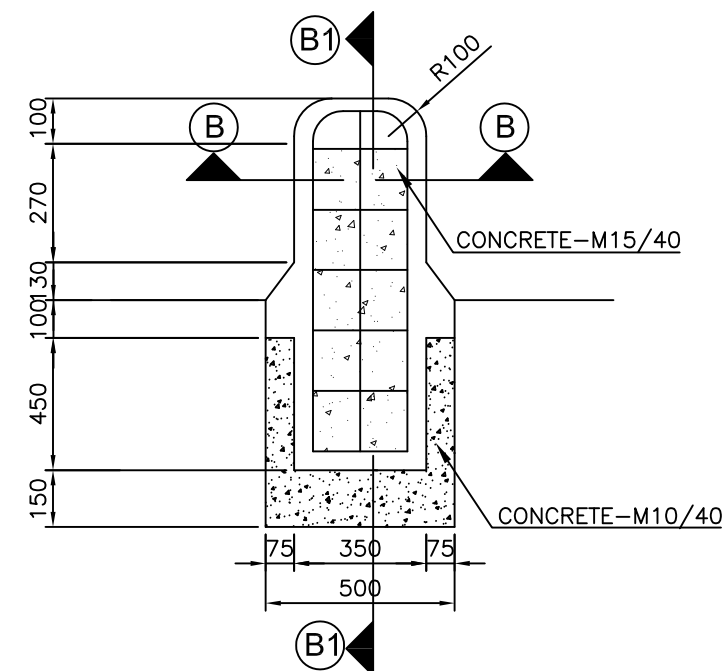
SECTION A1/A1



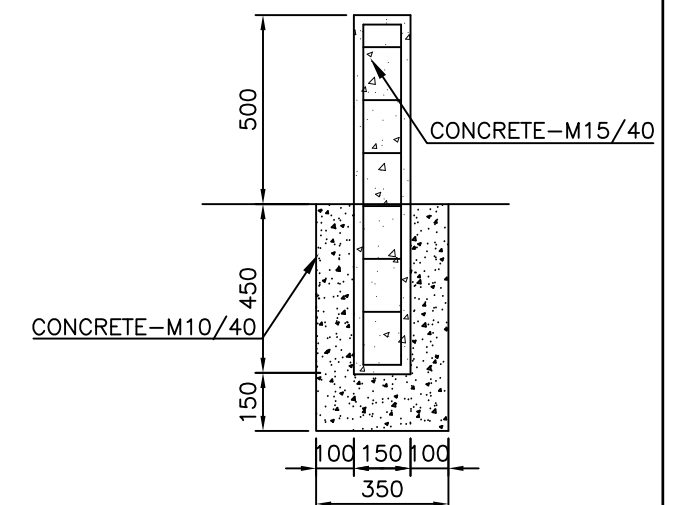
SECTION A/A



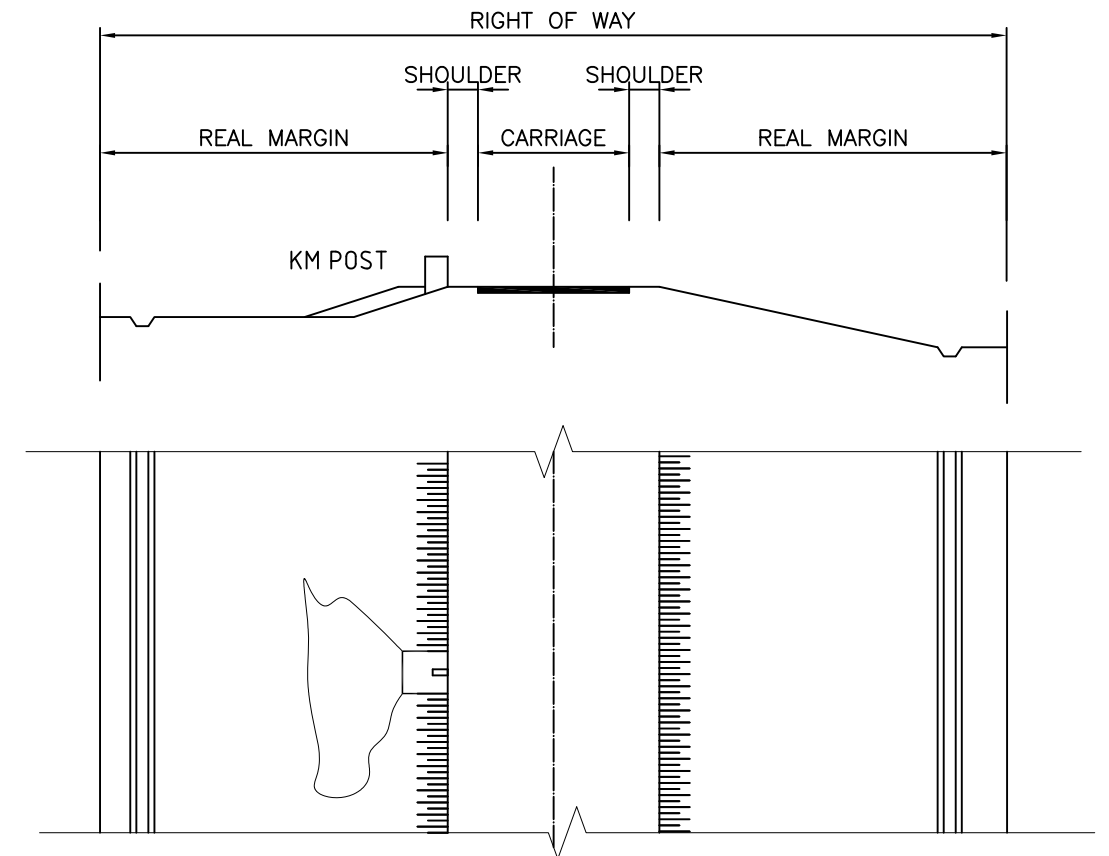
SECTION B/B



SECTIONAL ELEVATION



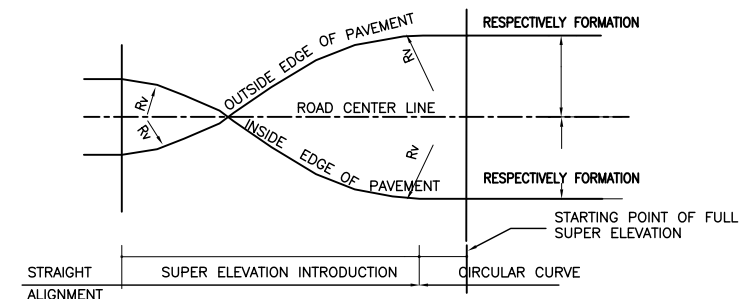
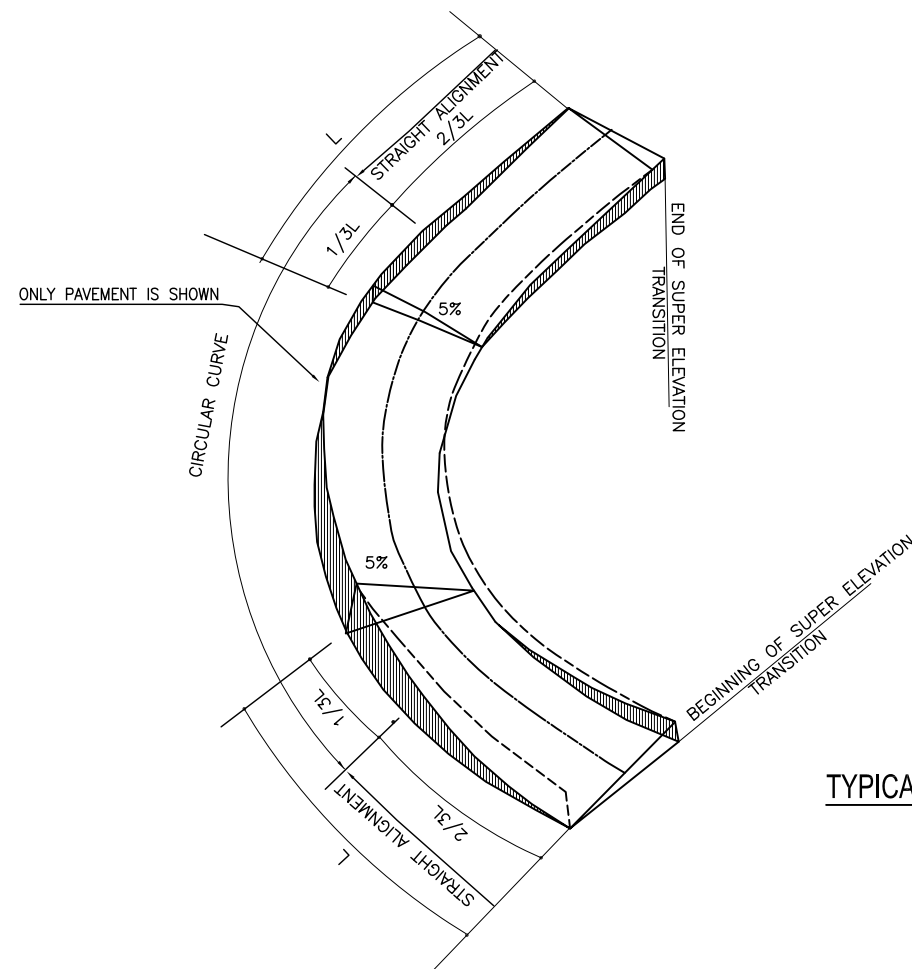
SECTION B1/B1



LOCATION OF K.M.SIGN

NOTE #:

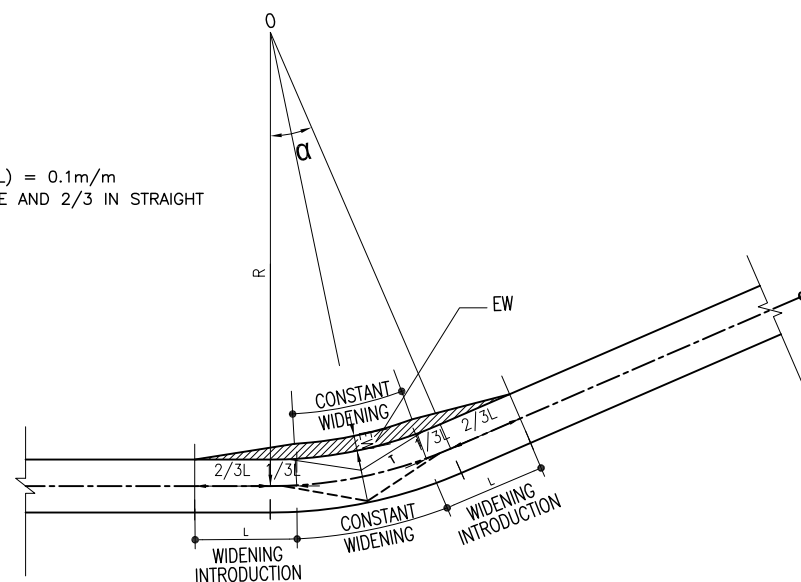
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED.
2. ANY DECRIANCY, DOR STANDARD DRAWING SHALL BE FOLLOWED.



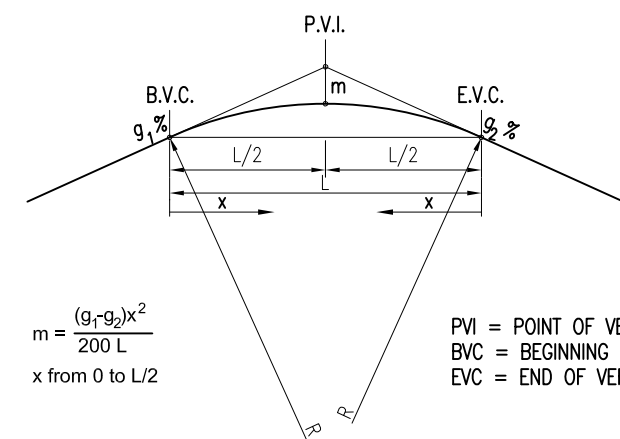
MAXIMUM SUPER ELEVATION TRANSITION 1% IN 60 m
 NORMAL SUPER ELEVATION TRANSITION 1% IN 100 m
 L = SUPER ELEVATION TRANSITION LENGTH

TYPICAL SUPER ELEVATION IN CURVES

EXTRA WIDENING TRANSITION RATE(L) = 0.1m/m
 EXTRA WIDENING 1/3 INSIDE CURVE AND 2/3 IN STRAIGHT
 EW = EXTRA WIDENING WIDTH
 L = WIDENING TRANSITION LENGTH



CURVE WIDENING

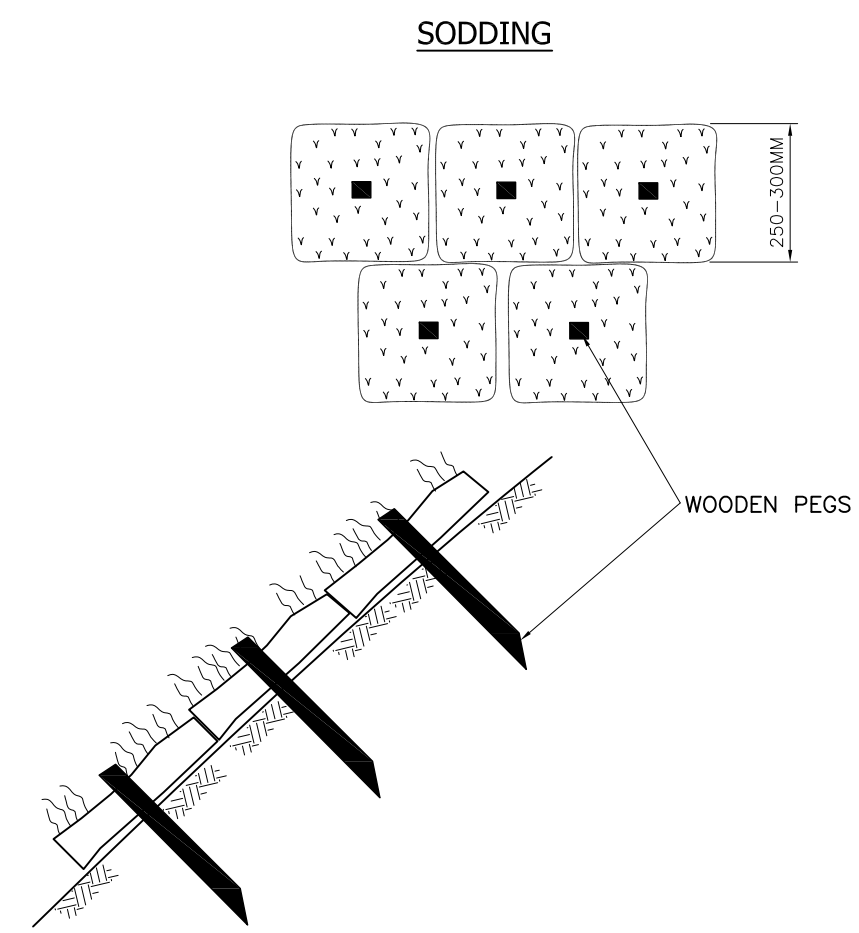
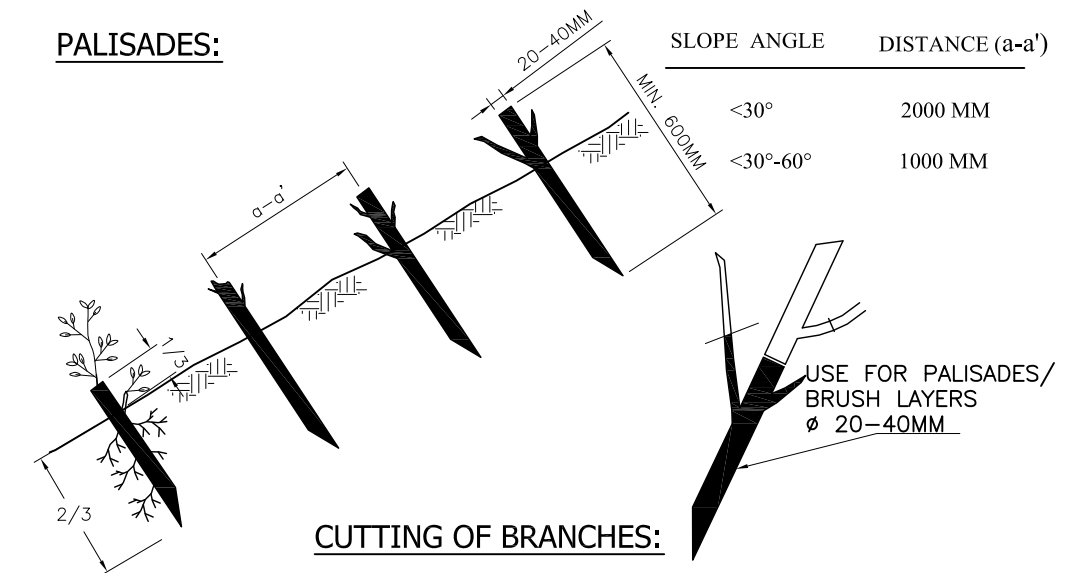
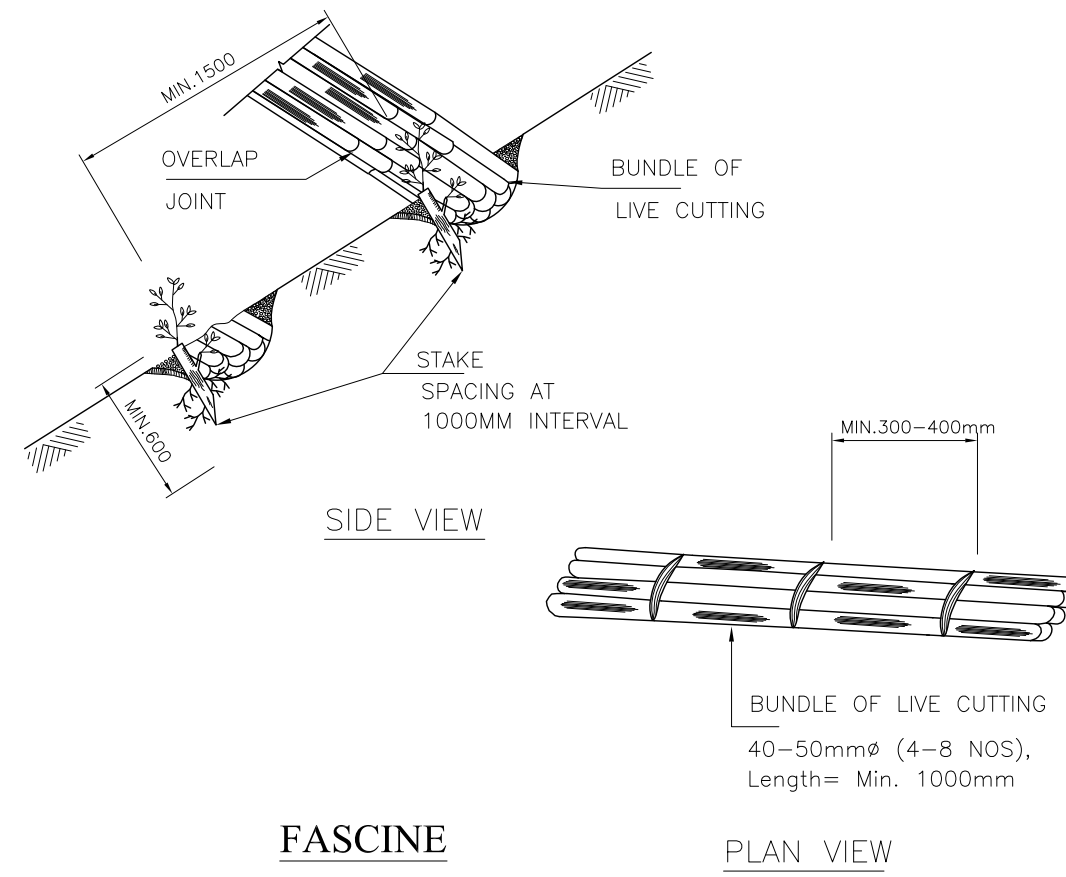


$$m = \frac{(g_1 - g_2)x^2}{200L}$$

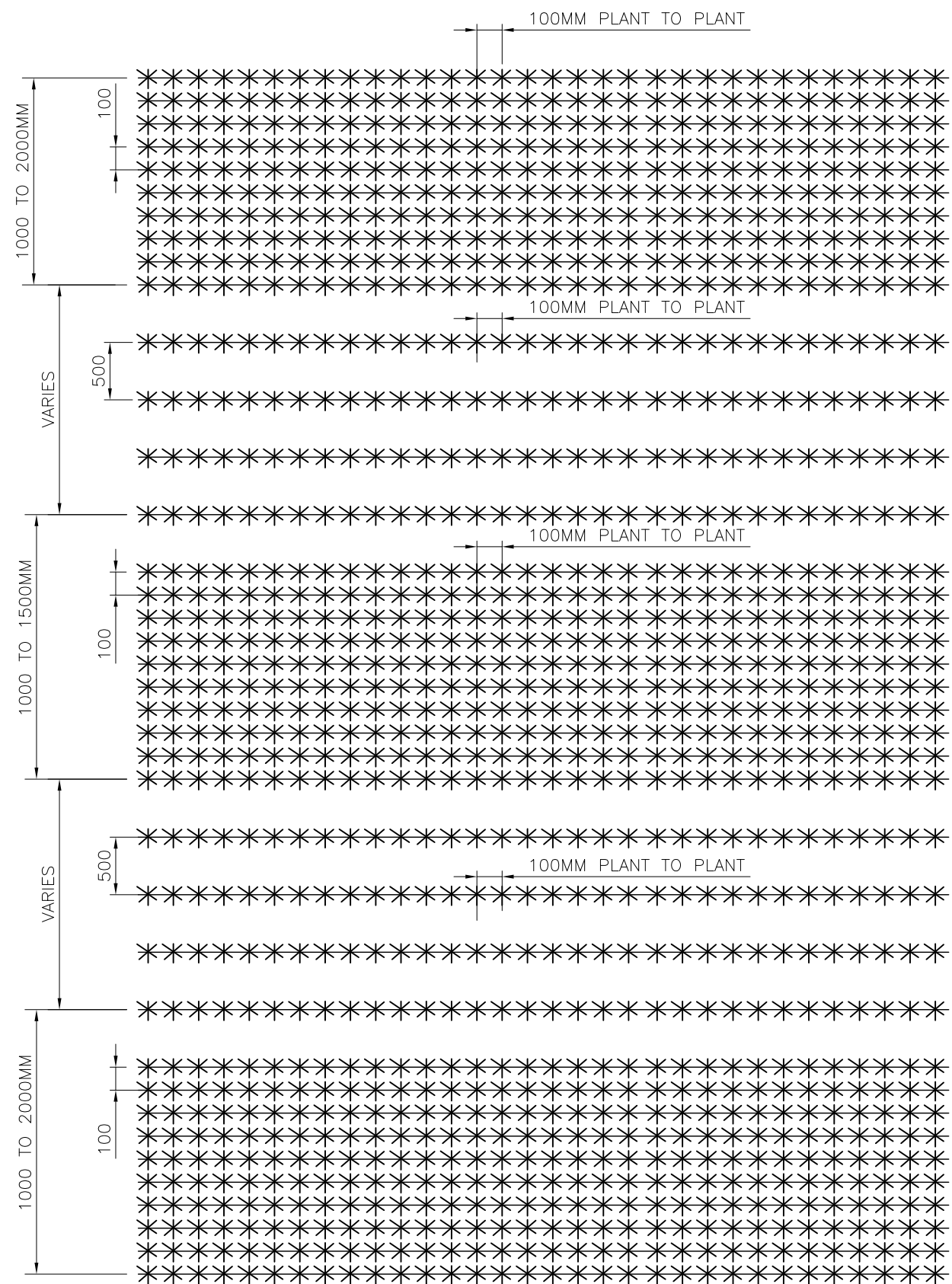
x from 0 to L/2

P.V.I. = POINT OF VERTICAL INTERSECTION
 B.V.C. = BEGINNING OF VERTICAL CURVE
 E.V.C. = END OF VERTICAL CURVE

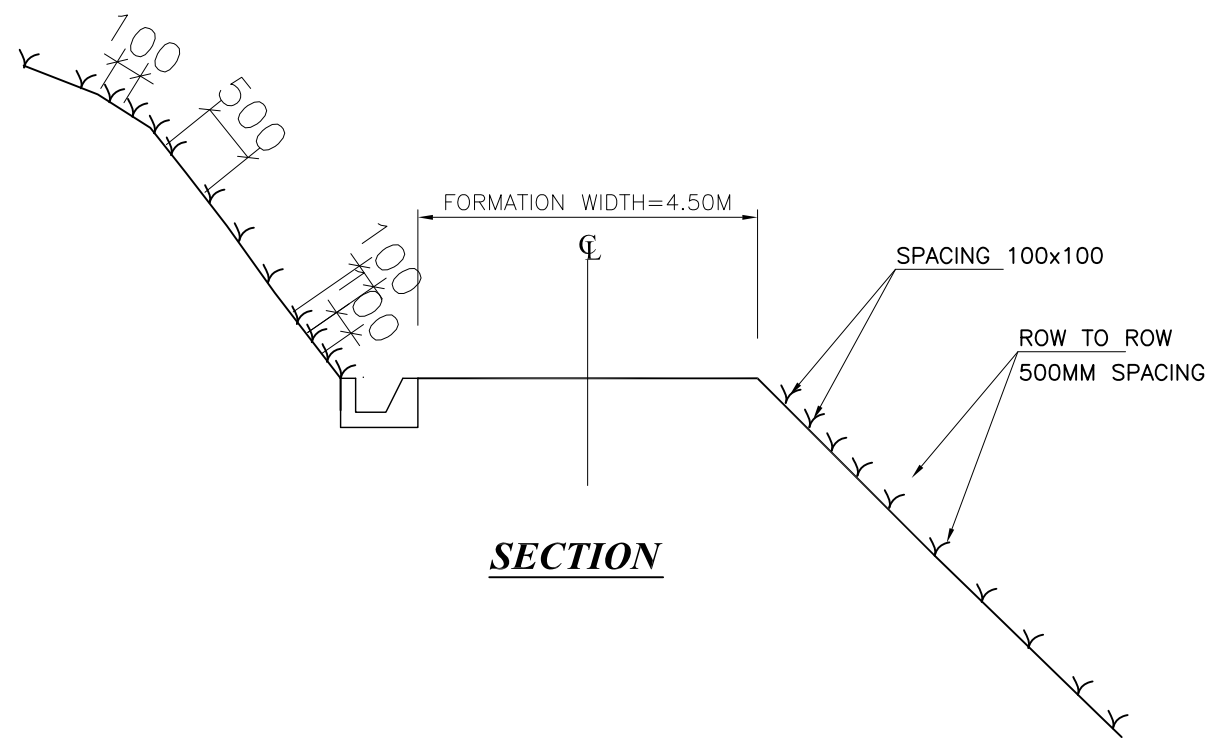
VERTICAL CURVE CALCULATION



a) ROOTED GRASS SLIPS:



GRASS PLANTING CONFIGURATION

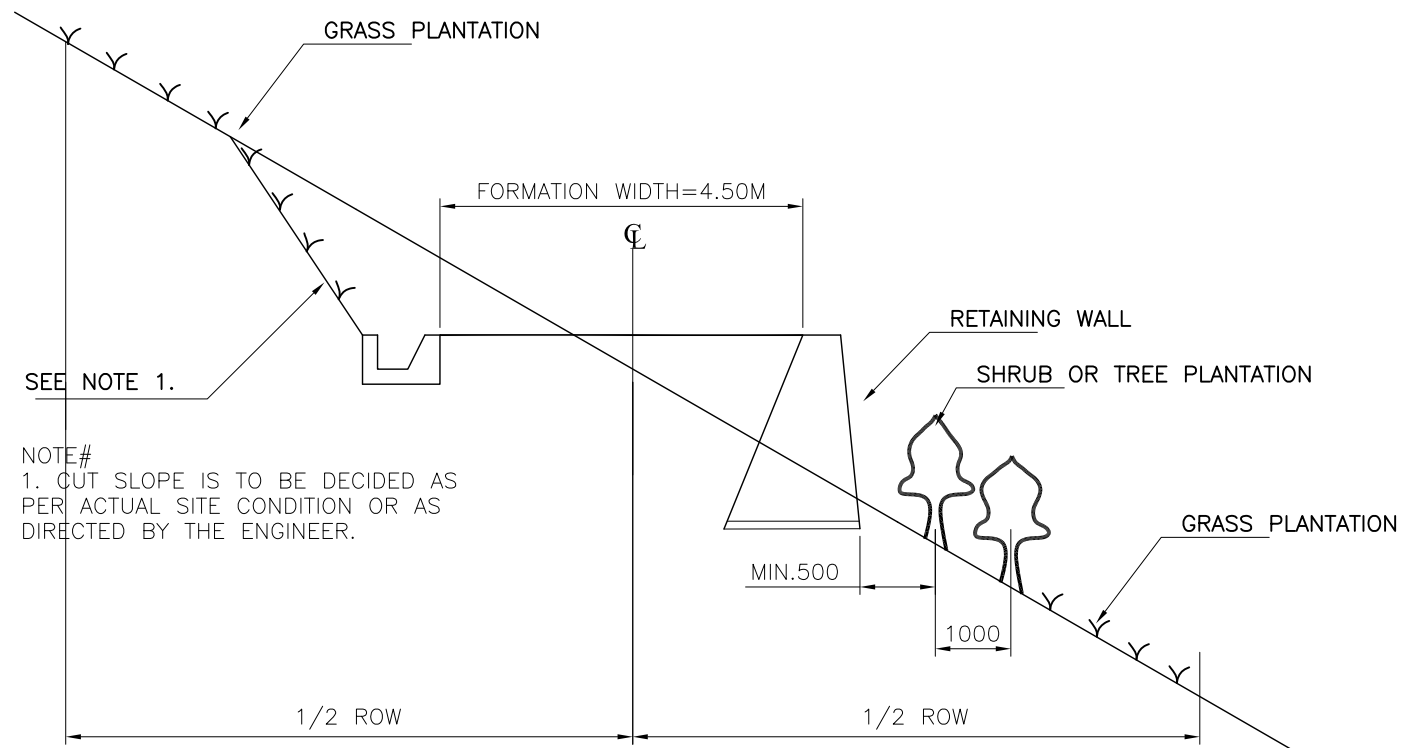


SECTION

b) CULM CUTTING GRASS PLANTING:

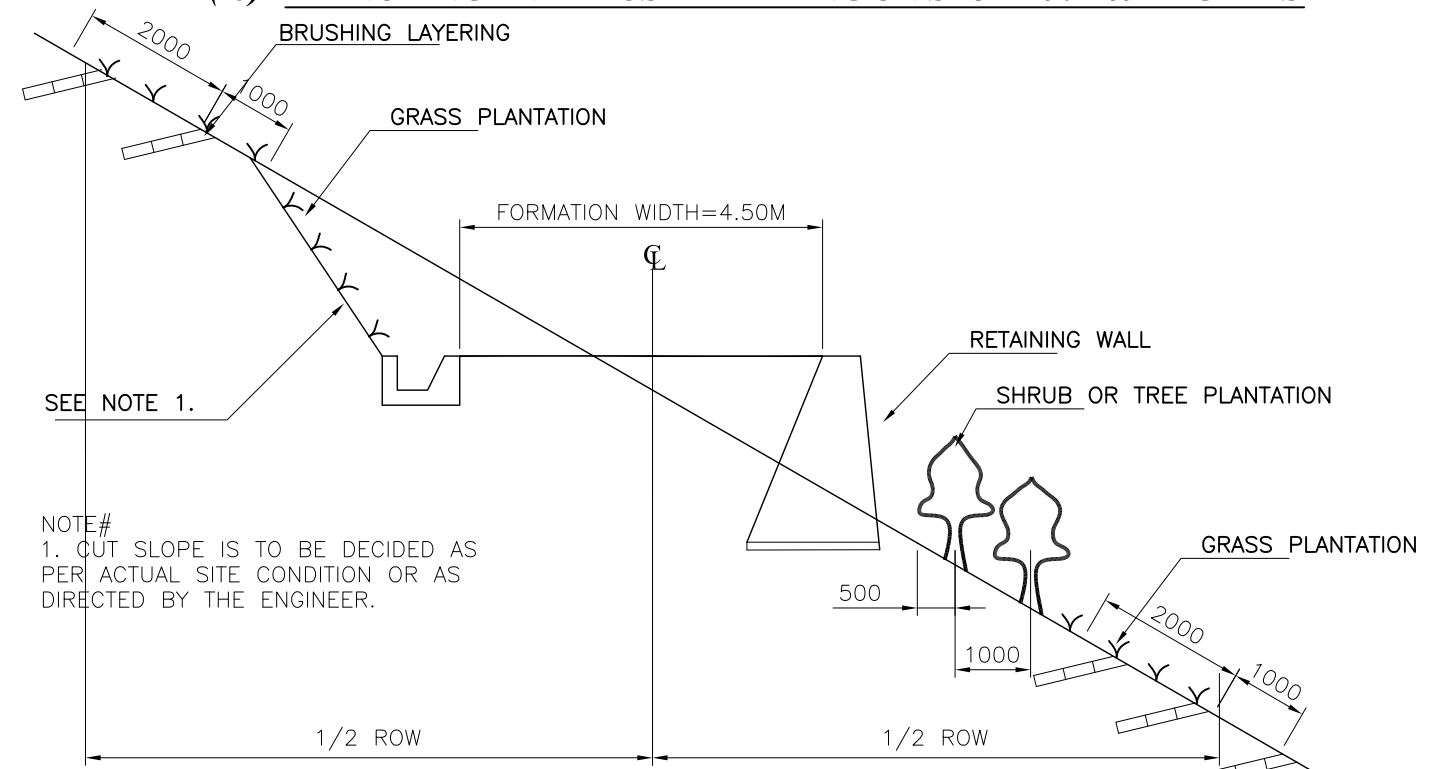
- LINE PLANTING @ 8 NOS. PER METER LENGTH.
- SPACING BETWEEN ROWS = 300 TO 500MM.

(Ia) PLANTING ON SLOPE <30 DEGREES



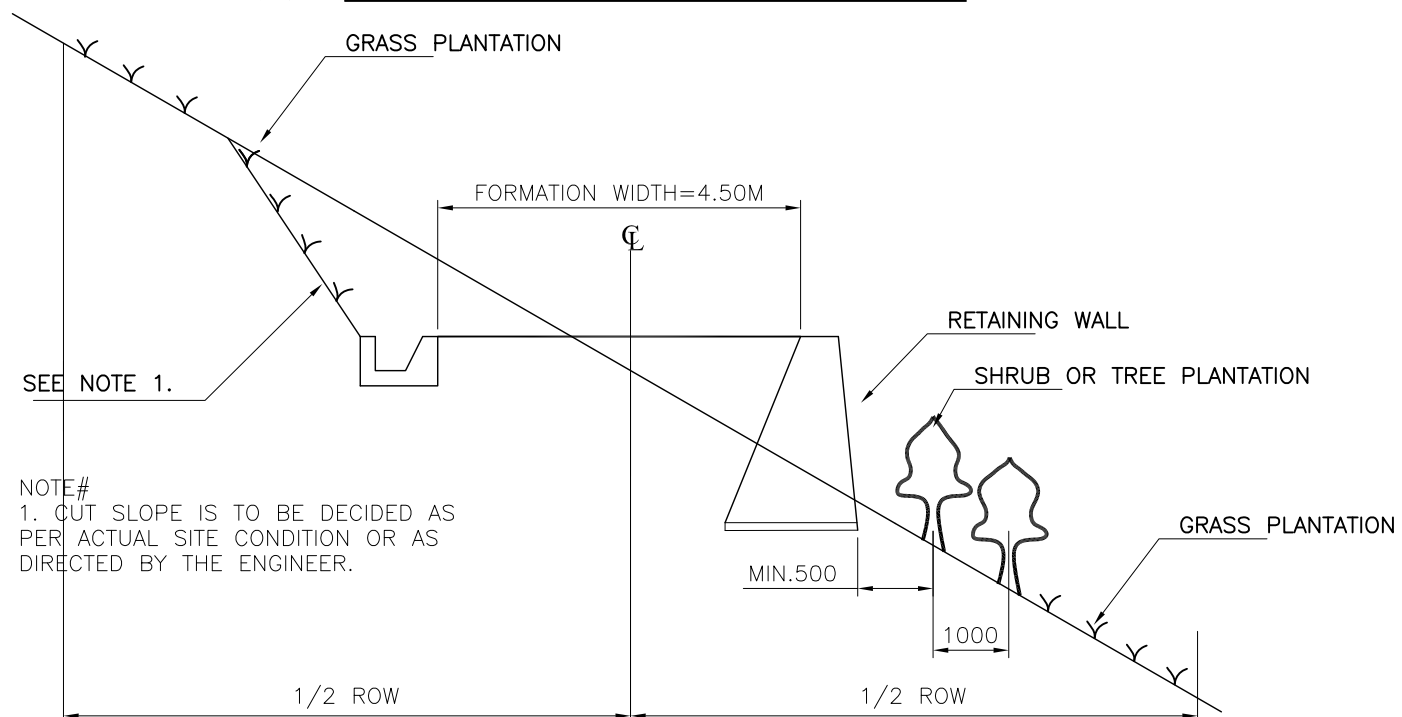
IF THE SLOPE LESS THAN 35 DEGREE, PLANTING TREE SEEDLINGS WILL BE DONE ALONG THE SLOPE AT AN INTERVAL OF 1M C/C. BY DIGGING PITS 300MM. DIAMETER AND 30 CM. DEPTH. MIX COMPOST WITH SOIL UPTO 1/4 OF PIT VOLUME. IN BETWEEN THE TWO TERRACES, ROOTED GRASS SLIPS WILL BE PLANTED AT THE SPACING 100x100MM BY DIGGING PLANTING HOLES TO A MAXIMUM OF 50MM. DEPTH WITH METAL ROD OR WOOD PEG.

(Ib) TRENCHING AND BRUSH LAYERING ON SLOPE 30 - 45 DEGREES



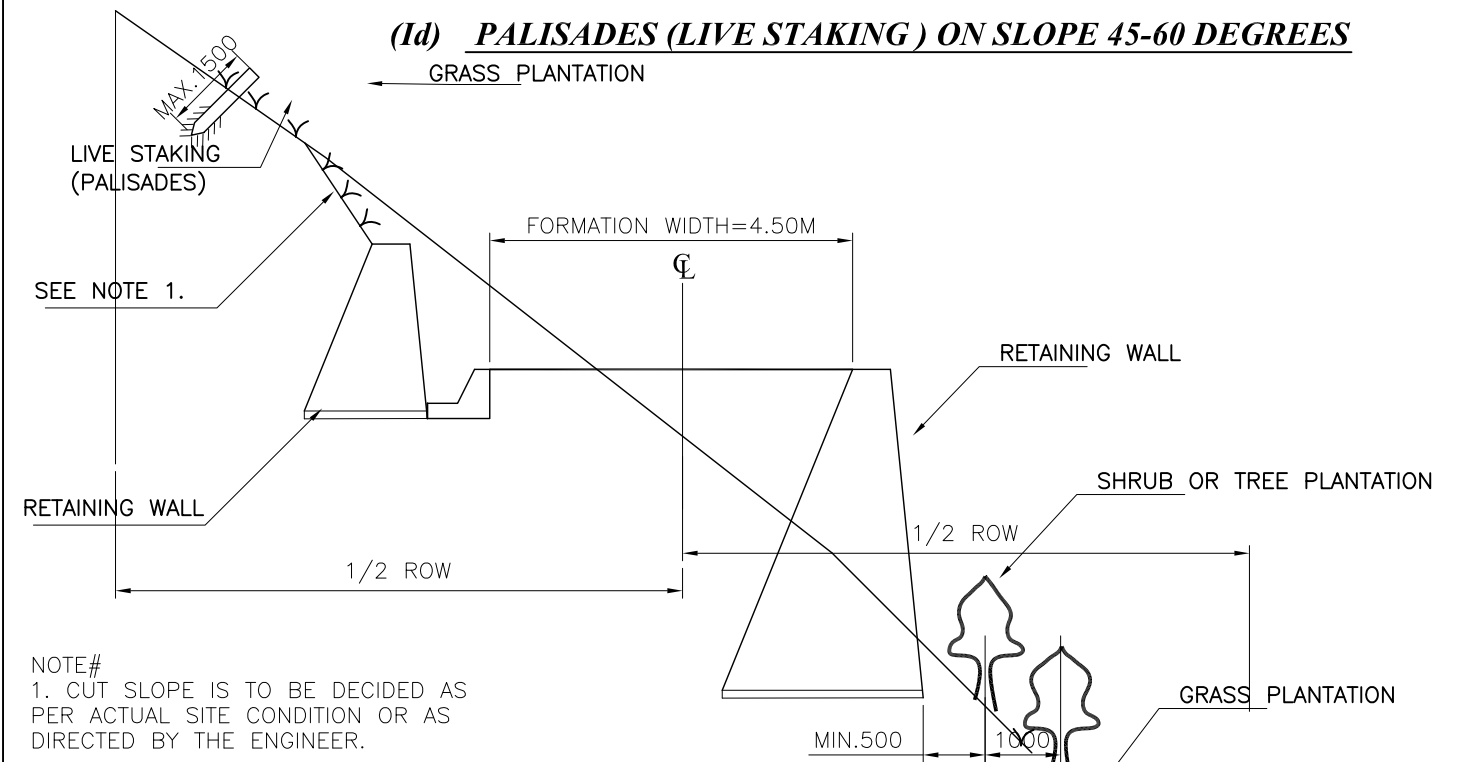
IF THE SLOPE IN BETWEEN 30-45 DEGREE, TRENCHES ARE DUG UP TO 200MM. DEPTH ALONG THE CONTOUR AND LIVE BRANCHES OF CUTTINGS ARE PLACED CRISS CROSS WISE IN THE TRENCHES EXPOSING 1/5 OF THE TOTAL LENGTH ABOVE THE GROUND. IN THE SLOPE BETWEEN THE TWO TRENCHES, ROOTED GRASS SLIPS WILL BE PLANTED AT THE SPACING OF 100MMx100MM BY DIGGING HOLES 50MM DEPTH WITH METAL ROD OR HARD WOOD PEG.

(Ic) PLANTING ON SLOPE <30 -45 DEGREES



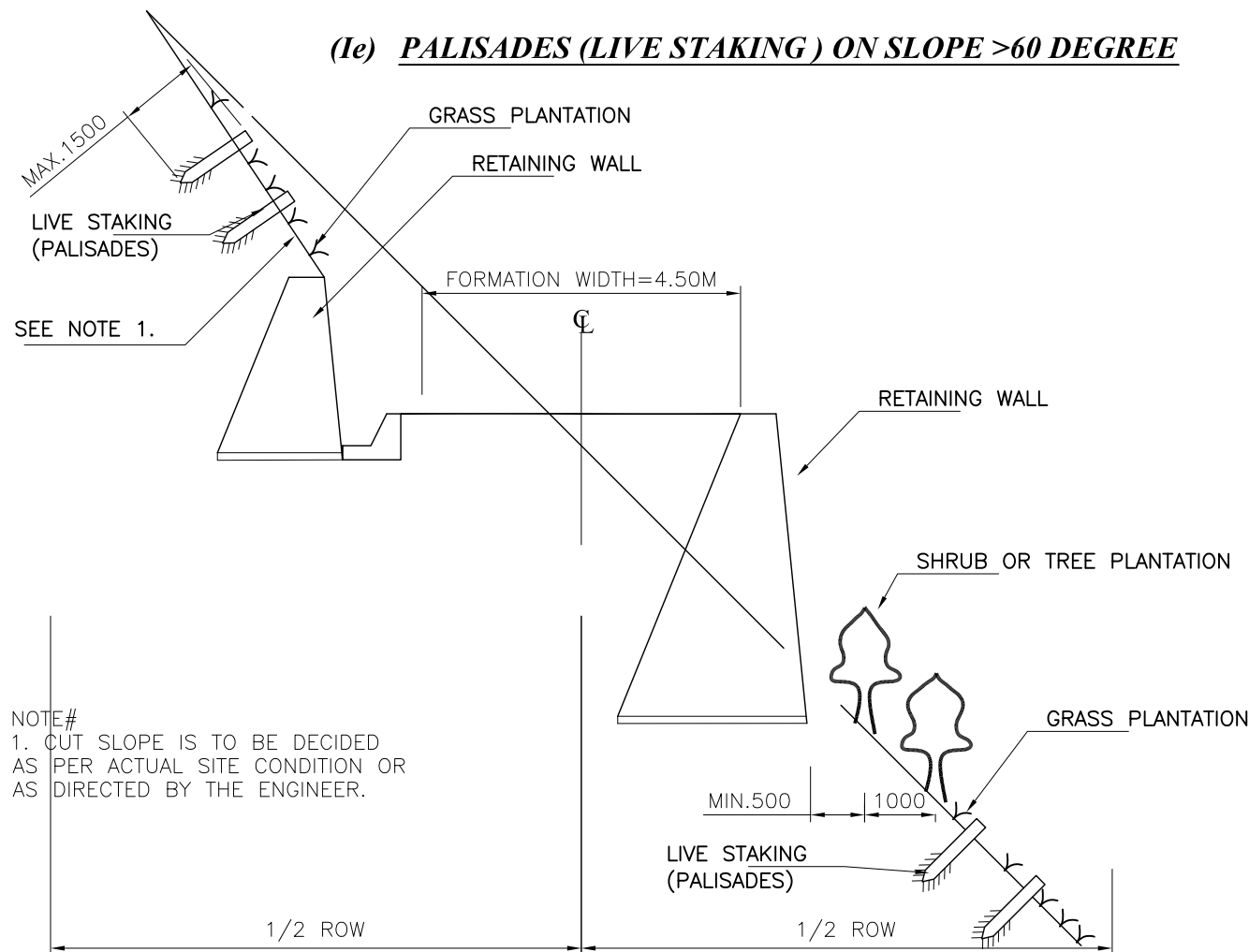
IF THE SLOPE IN BETWEEN 30-45 DEGREE, PLANTATION OF TREE SEEDLINGS WILL BE DONE ALONG THE CONTOUR AT AN INTERVAL OF 1M. BY DIGGING PITS OF SIZE 300MM. DIA AND 300MM. DEPTH. MIX COMPOST WITH SOIL UP TO 1/4 OF PIT VOLUME. IN BETWEEN THE TWO TRENCHES, ROOTED GRASS SLIPS WILL BE PLANTED AT THE SPACING OF 100MM. x 100MM. BY DIGGING HOLES TO A MAXIMUM OF 50MM. DEPTH WITH METAL ROD OR WOODEN PEG.

(Id) PALISADES (LIVE STAKING) ON SLOPE 45-60 DEGREES



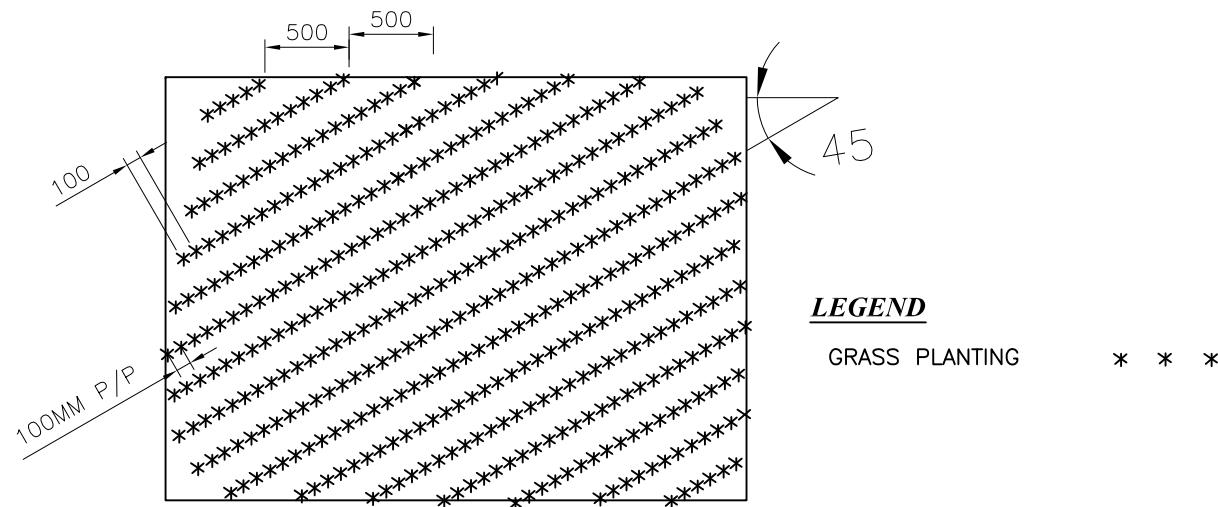
IF THE SLOPE IS IN BETWEEN 45-60 DEGREE, LIVE STAKES OF DIAMETER MIN. 50MM AND LENGTH MINIMUM 1M. ARE DIPPED TO GROUND AT RIGHT ANGLE TO THE INCLINED SLOPE SO THAT MAXIMUM 150MM IS ALLOWED TO STICK OUT OF THE GROUND. PEGS SHOULD BE SPACED AT 50MM WITHIN THE ROW ALONG THE CONTOUR. ON SLOPES IN BETWEEN ROOTED GRASS SLIPS WILL BE PLACED AT THE SPACING OF 100MM x 100MM BY DIGGING HOLES 50MM DEPTH WITH METAL ROD OR HARD PEG.

(1e) PALISADES (LIVE STAKING) ON SLOPE >60 DEGREE



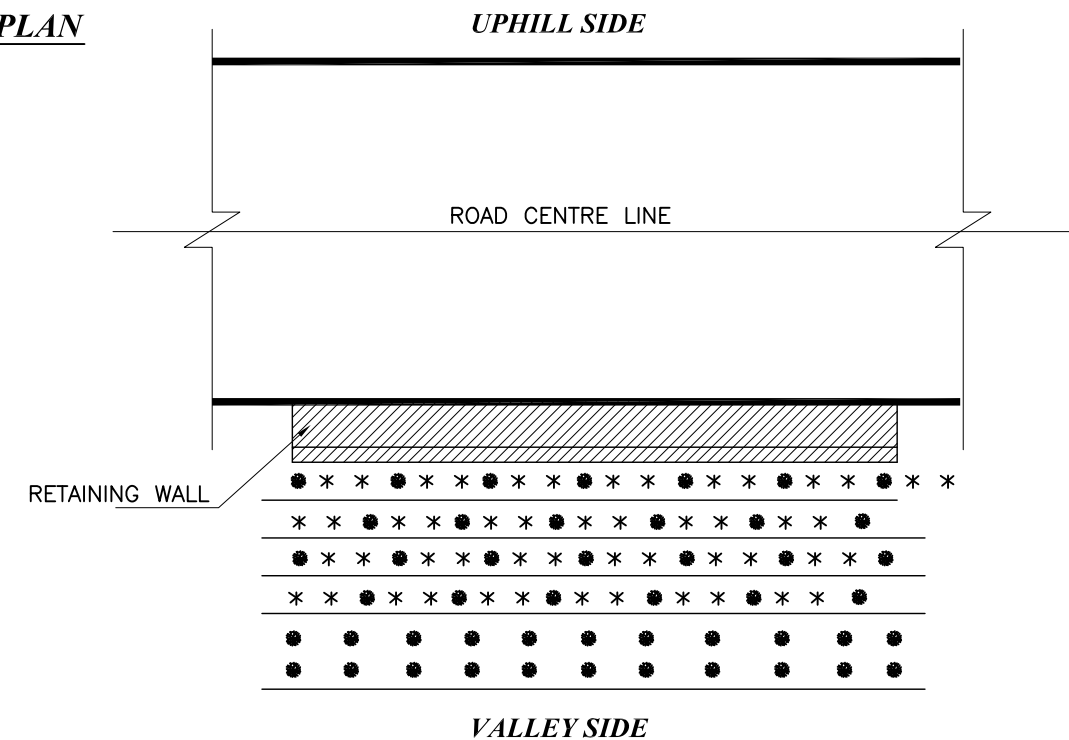
IF THE SLOPE IS 60 DEGREES, LIVE STAKES OF MINIMUM 50MM. DIA. AND 1M. LONG OF SUITABLE SPECIES ARE DIPPED INTO THE GROUND AT RIGHT ANGLE TO THE INCLINED SLOPE, SO THAT MAX. 150MM. IS ALLOWED TO STICK OUT OF THE GROUND. LIVE STAKES SHOULD BE SPACED AT 50MM. ALONG THE CONTOUR AND 1M. ALONG THE SLOPES. ON SLOPE IN BETWEEN THE LIVE STAKING, ROOTED GRASS SLIPS WILL BE PLANTED AT THE SPACING OF 100MM.x100MM. BY DIGGING HOLES 50MM. DEPTH WITH METAL ROD OR HARD WOOD PEG.

GRASS PLANTING LINES, DIAGONAL



-COMBINED VALLEY SIDE RETAINING WALL WITH BIOENGINEERING MEASURES

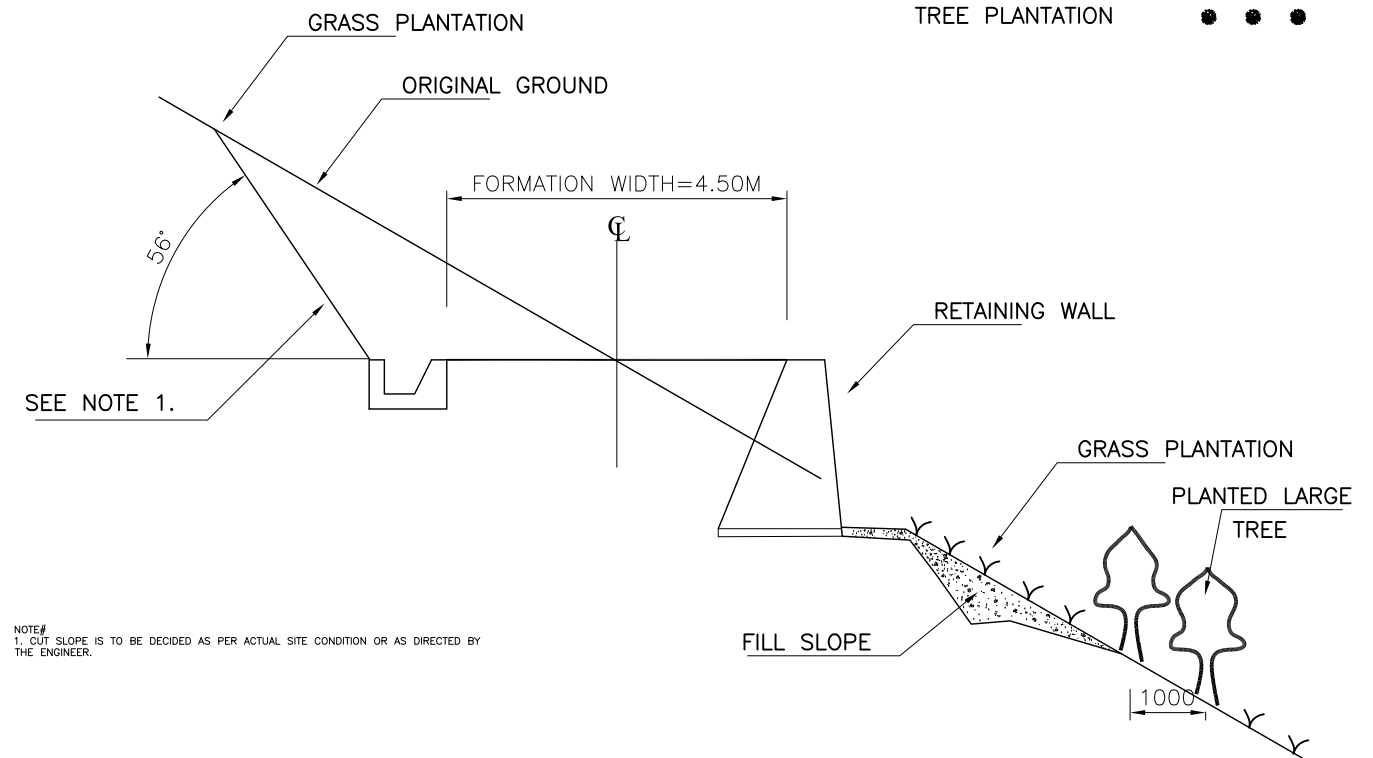
(B1) PLAN



SECTION/PROFILE

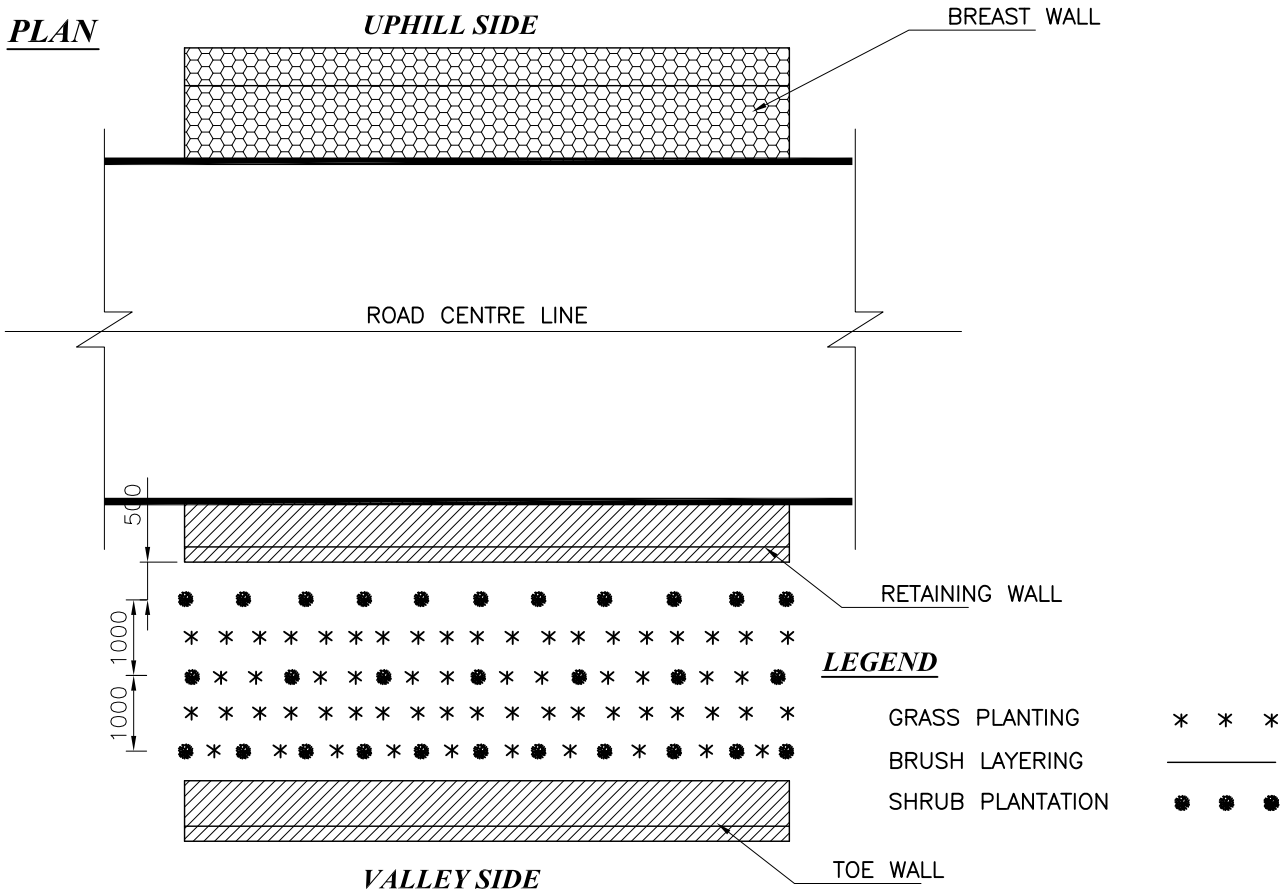
LEGEND

GRASS PLANTING * * *
BRUSH LAYERING ———
TREE PLANTATION ● ● ●

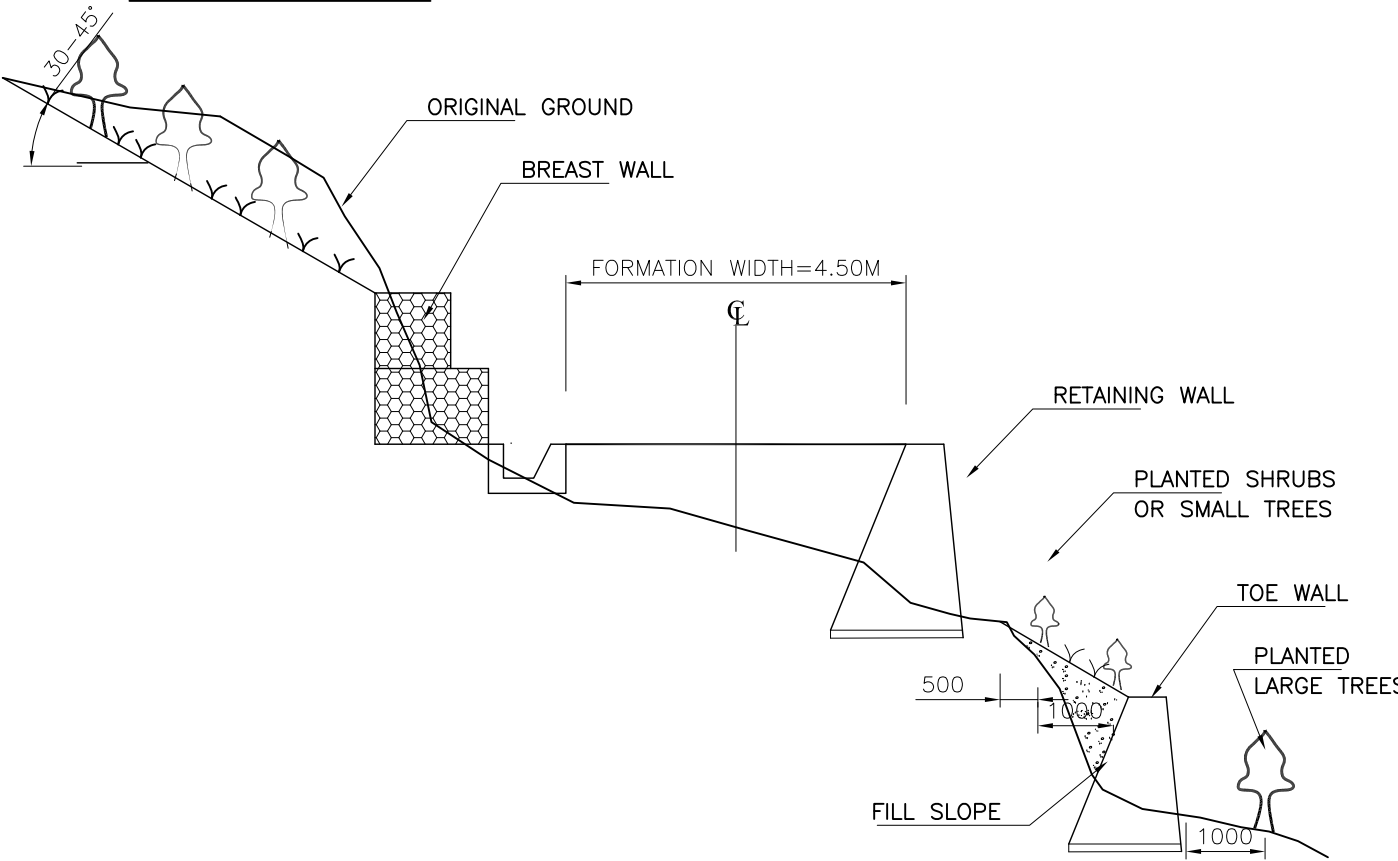


COMBINED BREASTWALL WITH BIOENGINEERING WORKS ON BACKFILL AND CUT SLOPE.

(B2) PLAN

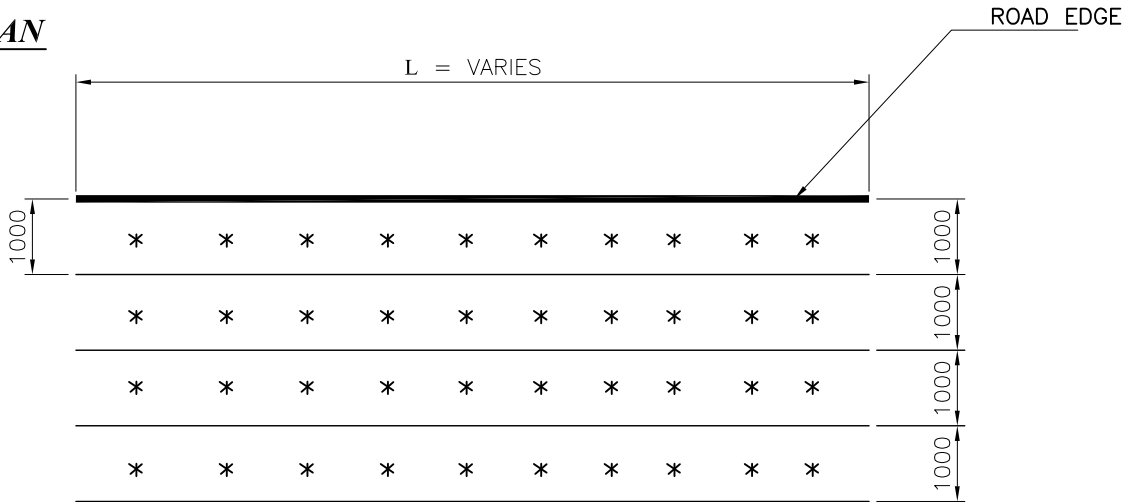


SECTION/PROFILE

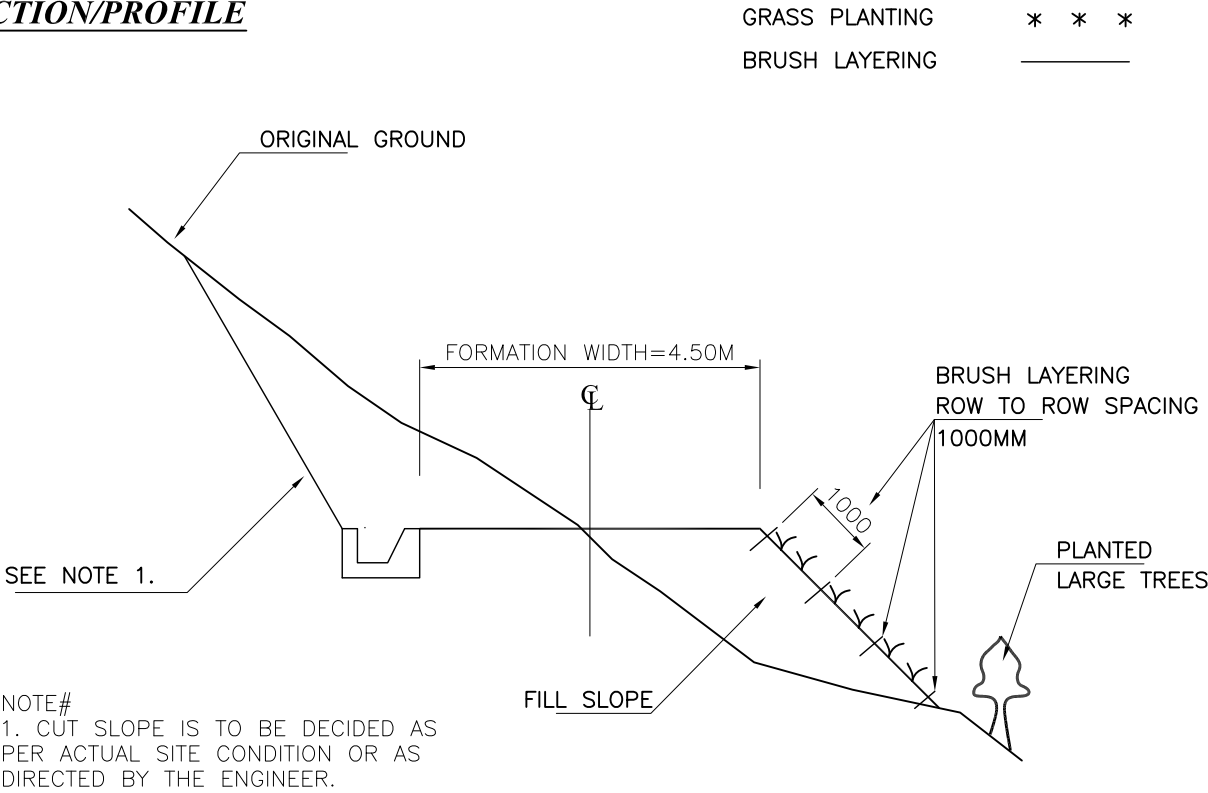


BIOENGINEERING WORKS ON FILL SLOPE.

(B3) PLAN

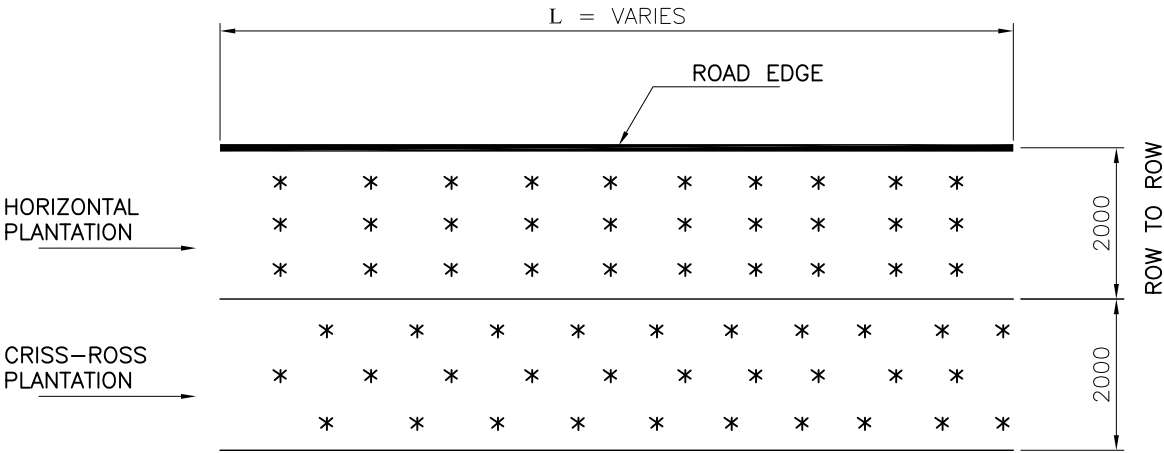


SECTION/PROFILE



BRUSH LAYERING ON EMBANKMENT SLOPES

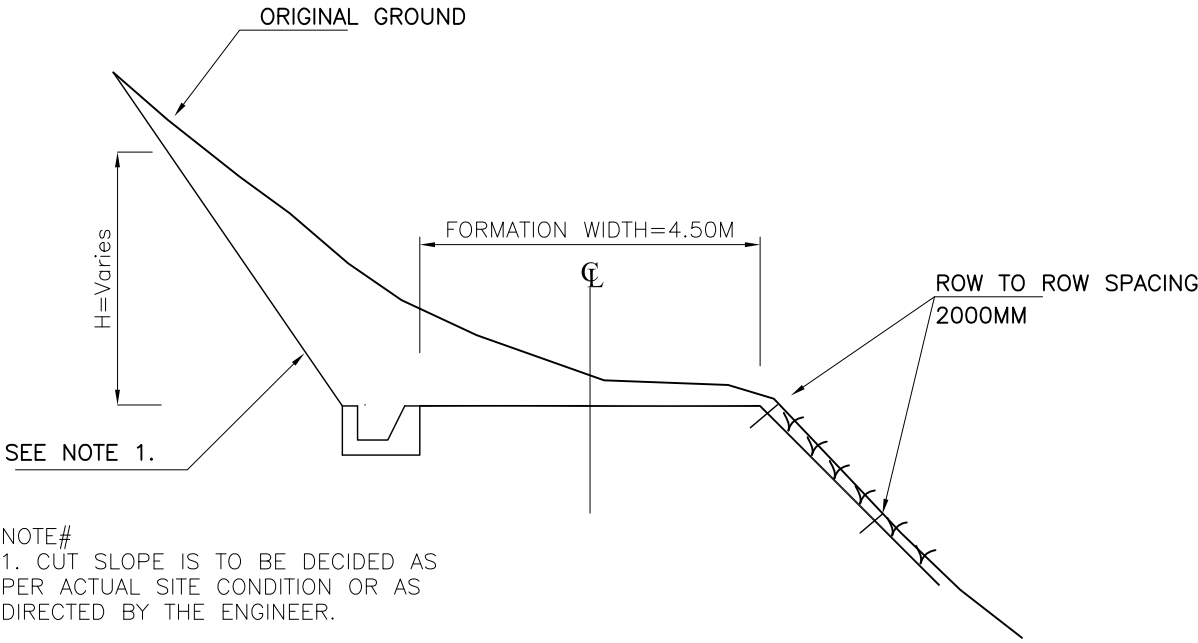
PLAN



SECTION/PROFILE

LEGEND

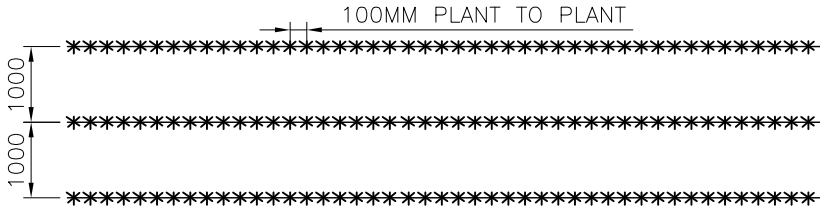
GRASS PLANTING * * *
BRUSH LAYERING _____



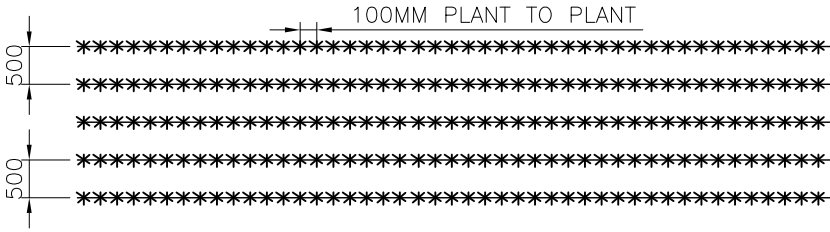
NOTE#
1. CUT SLOPE IS TO BE DECIDED AS PER ACTUAL SITE CONDITION OR AS DIRECTED BY THE ENGINEER.

SPACING DETAIL FOR GRASS PLANTING			
Planting configuration	Slope steepness	Spacing	
		Plant to Plant	Row to Row
Random lines	Slopes less than 30°	100mm	1000mm
	Slopes less than 30°-45°	100mm	500mm
	Slopes less than 45°	100mm	300mm
Diagonal	Slopes less than 30°	100mm	300mm
	Slopes more than 30°	100mm	300mm
Down slopes lines	ALL Slopes	1000mm	300mm

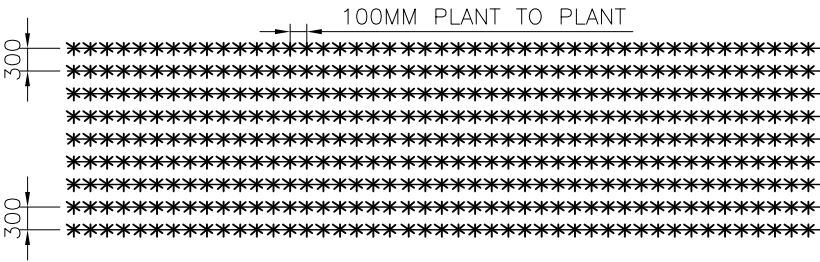
1. GRASS PLANTING LINES CONTOUR/ HORIZONTAL, SLOPE <30°



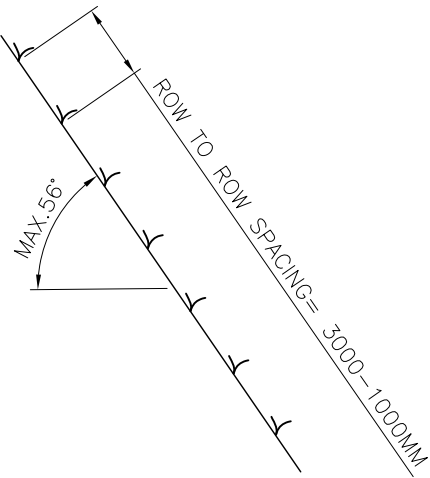
2. GRASS PLANTING LINES CONTOUR/ HORIZONTAL, SLOPE <30°-45°



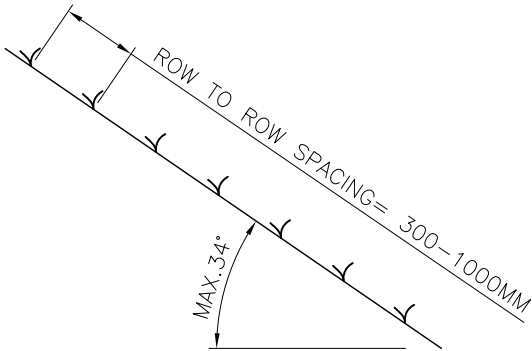
3. GRASS PLANTING LINES CONTOUR/ HORIZONTAL, SLOPE >45°



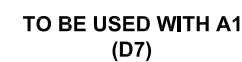
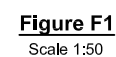
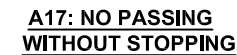
A) CUT SLOPES

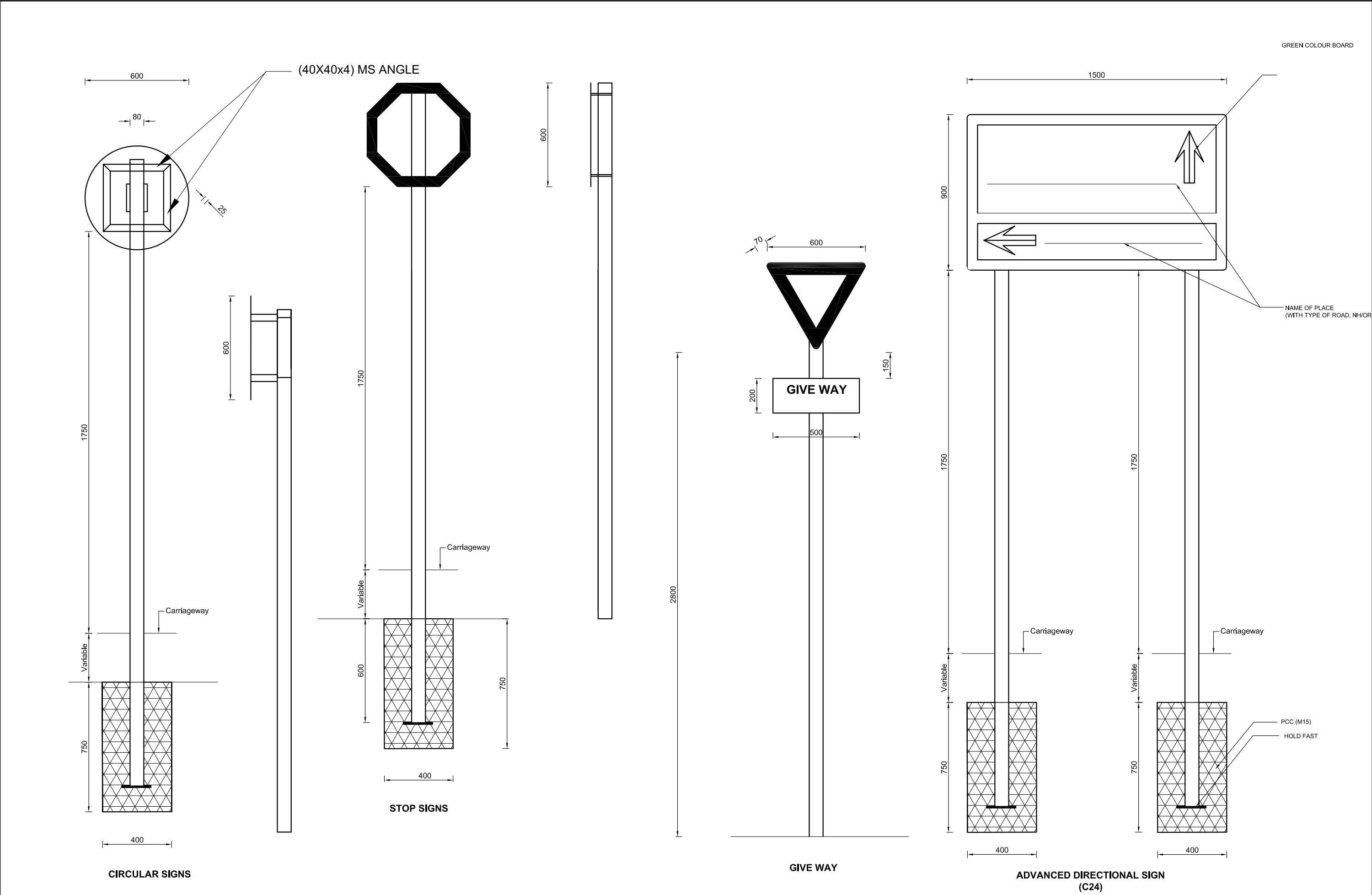


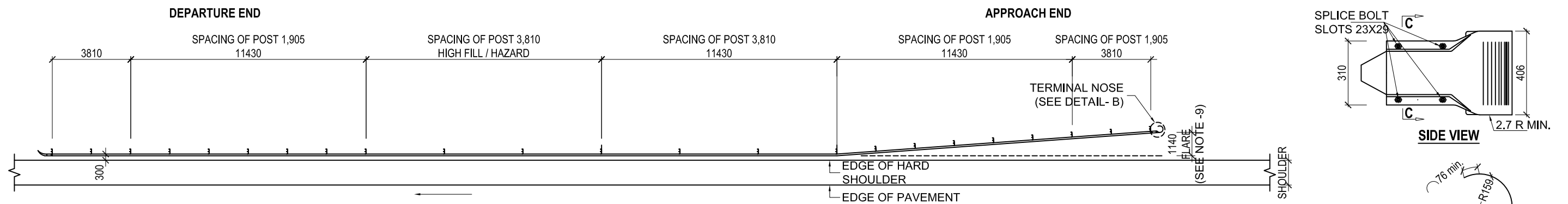
B) FILL SLOPES



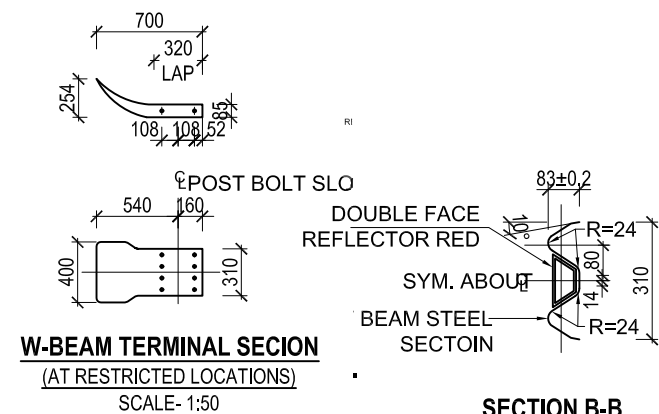
SIDE VIEW OF GRASS PLANTATION



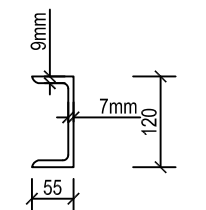




GUARD RAIL FOR HIGH FILL (3m) OR HAZARD
SCALE- 1:200



SECTION B-B
W BEAM RAIL
(TYPE -1, CLASS B)
SCALE- 1:20



120X55X7X9X1820
GI POST

120X55X7X9X325
GI SPACER BLOCK

RAIL

240

83

DETAIL - A
PLAN
SCALE- 1:10

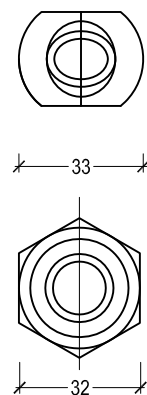
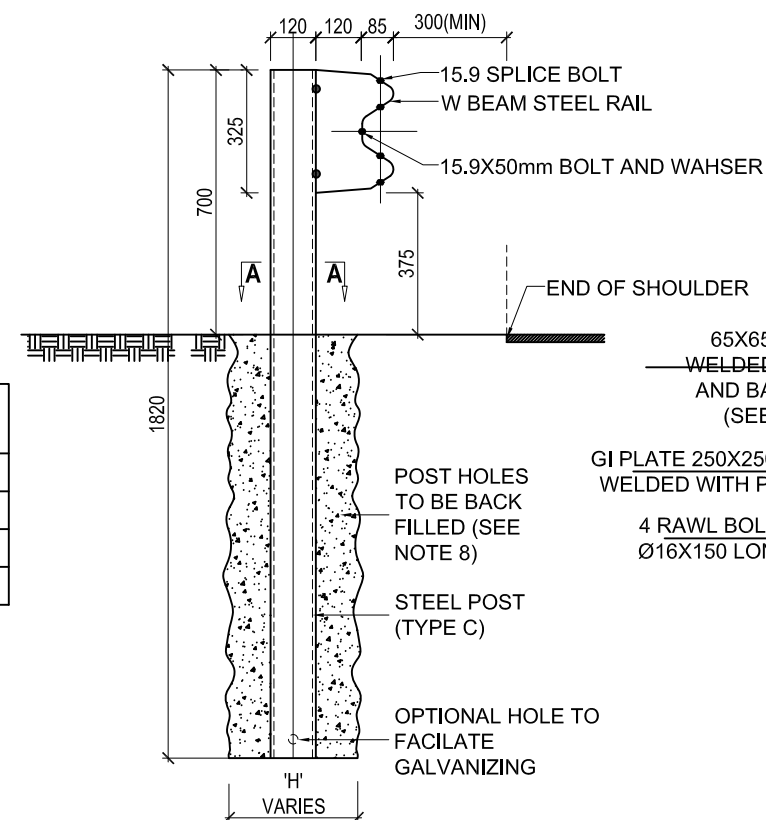


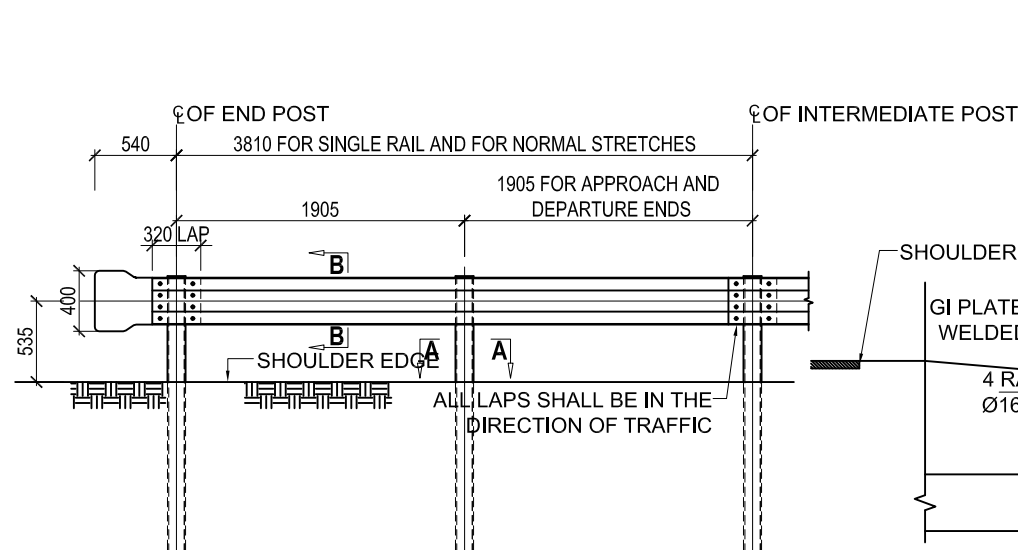
TABLE NO.1

L (mm)	THREAD LENGTH (mm)
35	FULL THREAD
50	45mm THREAD
255	100mm THREAD
460	150mm THREAD

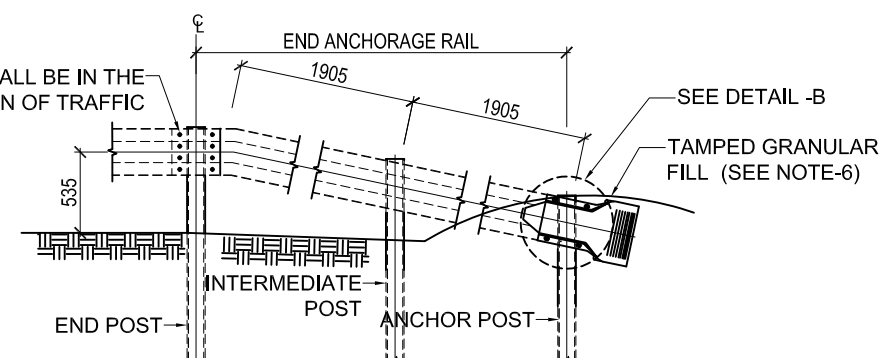
POST OR SPLICE BOLT AND NUT
SCALE- 1:25



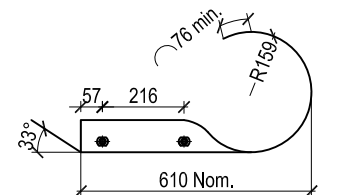
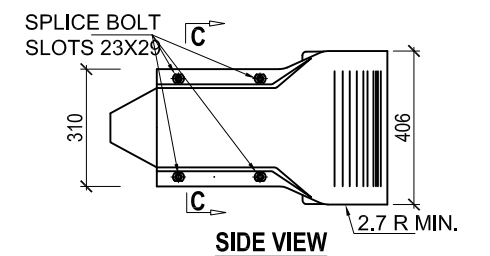
STEEL POST DETAIL
(FOR SINGLE GUARD RAIL)
SCALE- 1:20



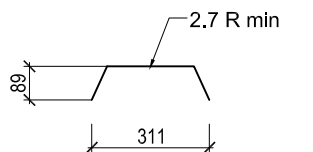
STEEL POST FIXATION
(AT STRUCTURES/CONCRETE BLOCK)
SCALE- 1:20



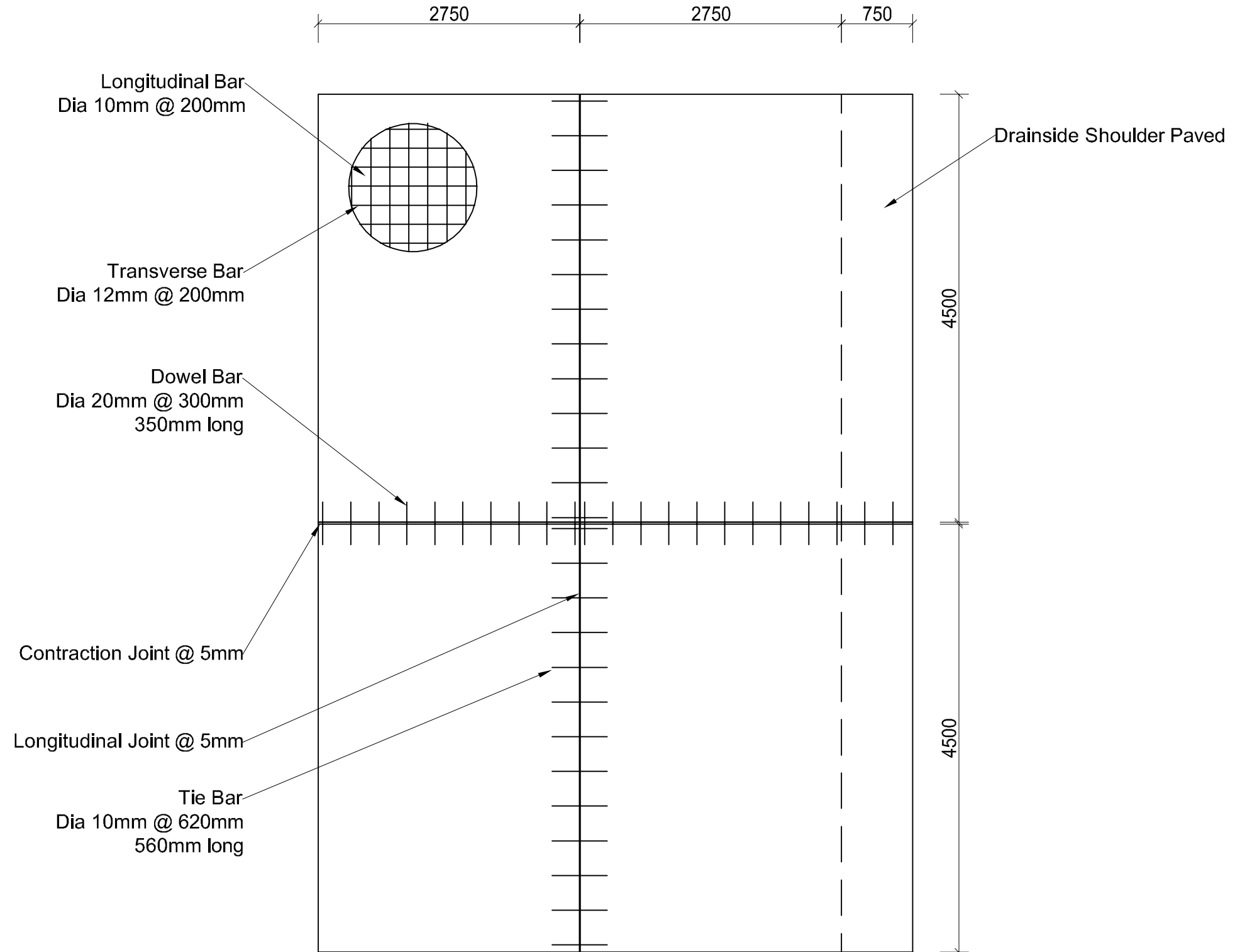
TYPICAL END RAIL ANCHORAGE
(RAMP DOWN SECTION)
SCALE- 1:50




TERMINAL NOSE
DETAIL B
SCALE- 1:20

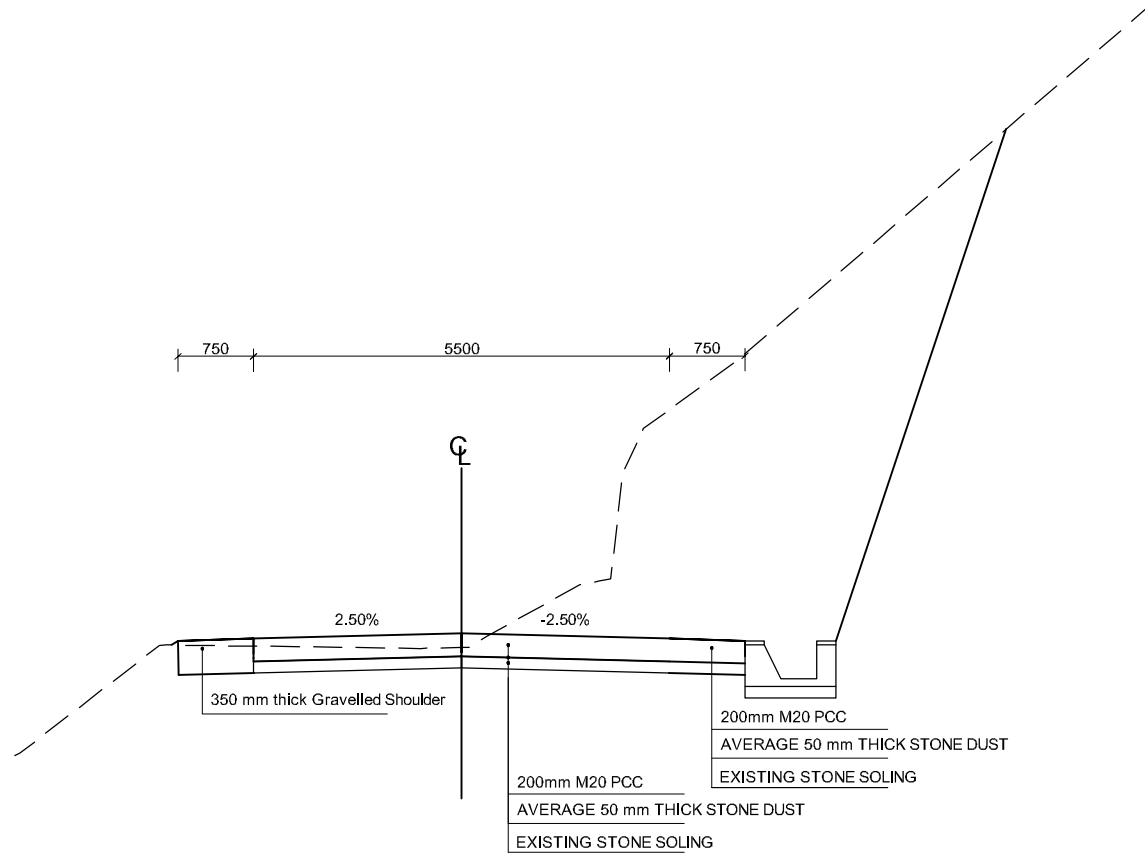


- OTHERWISE.
- ALL LAPS SHALL BE IN THE DIRECTION OF TRAFFIC.
 - W-BEAM TERMINAL SECTIONS SHALL BE USED IN PLACE OF END RAIL ANCHORAGE AT RESTRICTED LOCATIONS AS APPROVED BY THE ENGINEER.
 - W-BEAM RAIL SECTIONS SHALL CONFORM TO AASHOT M-180 AND SHALL BE TYPE-1, CLASS B, WHEREAS POST SHALL BE TYPE 'C' (STRONG POST).
 - WHERE THE GUARDRAIL HAS TO FOLLOW A CURVE OF LESS THAN 45m RADIUS, THE BEAM SHALL BE CURVED TO SUIT, BY THE BEAM MANUFACTURER.
 - THE HOLES FOR ANCHORAGE POSTS SHALL BE BACK FILLED WITH WELL COMPACTED GRANULAR MATERIAL. THE SPACE INSIDE THE TERMINAL NOSE SHALL BE FILLED WITH CONCRETE AT NO EXTRA COST TO THE EMPLOYER.
 - CONTRACTOR SHALL PREPARE DRAWINGS SHOWING LOCATION, ELEVATIONS AND SPACING OF POSTS EACH CULVERTS/HIGH FILL LOCATION AND SHALL OBTAIN ENGINEER'S APPROVAL. THE LOCATION AND EXTENT OF GUARD RAIL CAN BE REDUCED DEPENDING UPON SITE CONDITIONS OF AS DIRECTED BY THE ENGINEER.
 - BACKFILLING OF THE POST HOLES WILL BE CARRIED OUT AS FOLLOWS:
 - IN CASE OF ROCK, CORED HOLES-250 DIA (AS MADE) WILL BE BACK FILLED WITH LEAN CONCRETE.
 - IN CASE OF STRATA OTHER THAN ROCK, HOLES-300 DIA (AS MADE) WILL BE BACK FILLED WITH LEAN CONCRETE OR THEPOSTS MAY BE HAMMERED IN PLACE AS APPROVED BY THE ENIGEEER. NO EXTRA PAYMET SHALL BE MADE TO THE CONTRACTOR FOR CORING AND OR CONCETING FOR POST FIXATION.
 - EMBANKMENT MAY BE WIDENED, WHERE NECESSARY, TO ACCOMODATE GUARD RAIL FLARE AT APPROACH END.
 - POSTS DAMAGED DURING HAMMERING SHALL BE REPLACED BY THE CONTRACTOR AT NO EXTRA COST TO THE EMPLOYER.

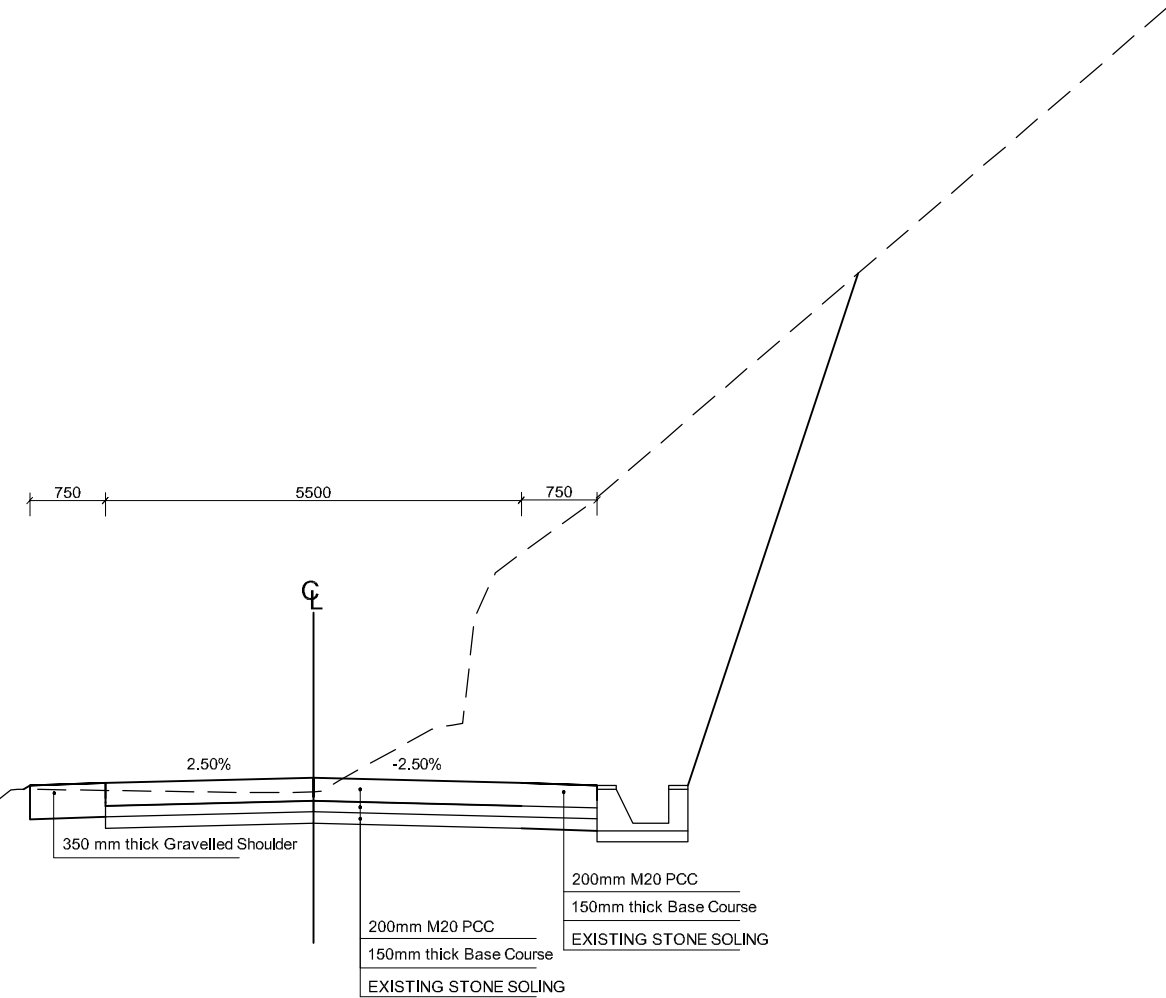


TYPICAL PLAN OF RIGID PAVEMENT
Scale 1:50

 <div>Government of Nepal Ministry of Urban Development Department of Local Infrastructure (DoLI) Rural Connectivity Improvement Project (RCIP) Project Coordination Unit (PCU) Pulchowk, Lalitpur</div>	Consultant: Joint Venture of AVIYAAN - SOILTEST - CARD 254 Ekata Marg, New Baneshwor, Kathmandu-34, Nepal Phone: 977-1-4104307 Email: info@aviyaan.com	Lubughat - Bethan - Sunapati Ga. Pa. - Galpa Doramba Road	DATE	REVISION	SIGNATURE	DESIGNED BY :	SCALE As Shown	TYPICAL DRAWING	DATE:
						DRAWN BY :			DRG NO : PD
						CHECKED BY :		Rigid Pavement	SHEET NO : 1
						APPROVED BY :			



TYPICAL ROAD CROSS SECTION OF RIGID PAVEMENT (Option I)



TYPICAL ROAD CROSS SECTION OF RIGID PAVEMENT (Option II)