Government of Nepal
Ministry of Urban Development
Department of Urban Development and Building Construction
Regional Urban Development Project
Project Coordination Office
Babarmahal, Kathmandu

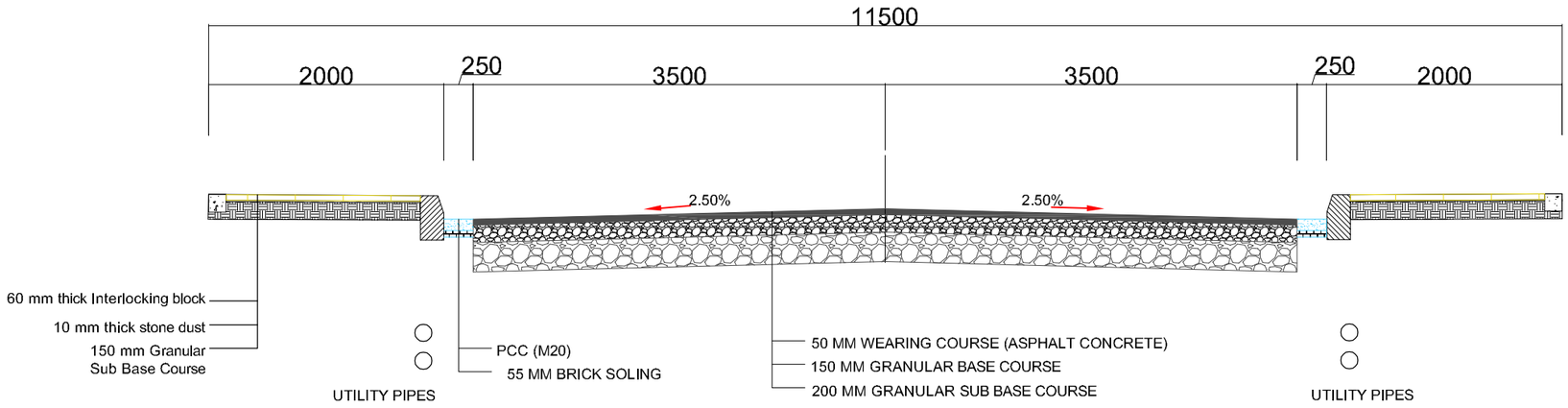
DETAIL PROJECT REPORT
for
READINESS ROAD SUBPROJECT

VOLUME – III (TYPICAL DRAWINGS)
SAINAMAINA URBAN ROADS, SAINAMAINA MUNICIPALITY
CH: 0+000 - 20+624.61 Km

Pre-Feasibility Study, Feasibility Study and Preparation of Detail Project Report
of West Urban Corridor (WUC) Development Project
[Ref. No. RUDP/DUDBC/PDC/1-WC]

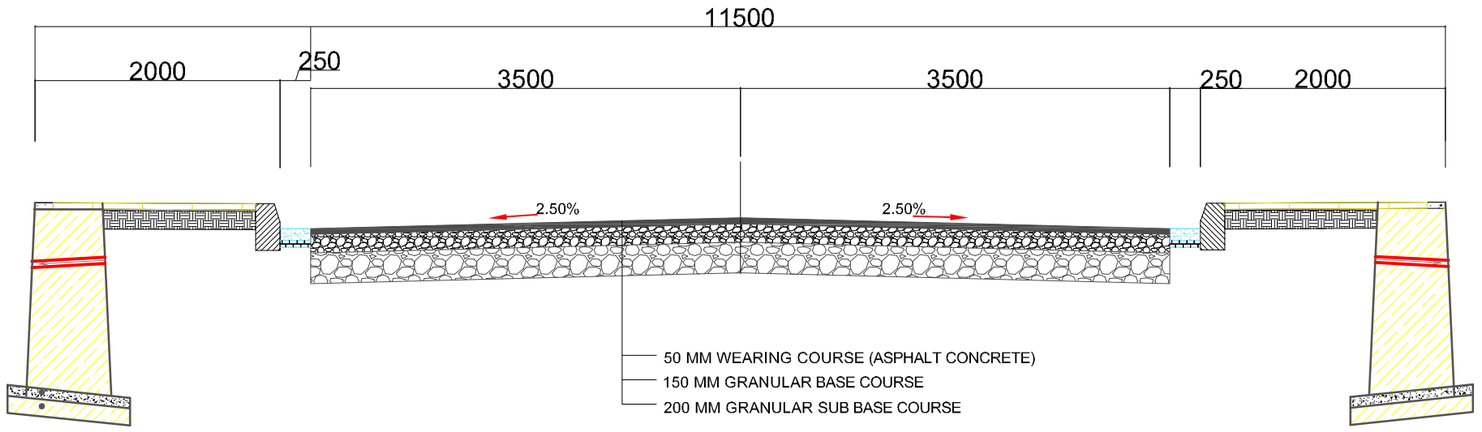
Consultant

DOHWA ENGINEERING *in association with* ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.



Typical Cross Section of Road (Total width -11.5 m)

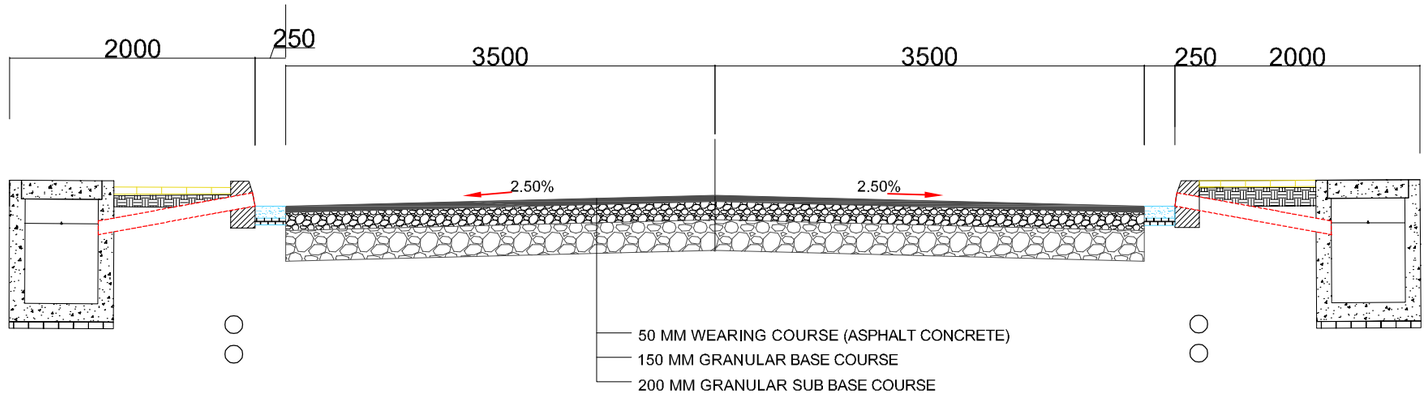
Scale - 1:50



Typical Cross Section of Road with Retaining Wall

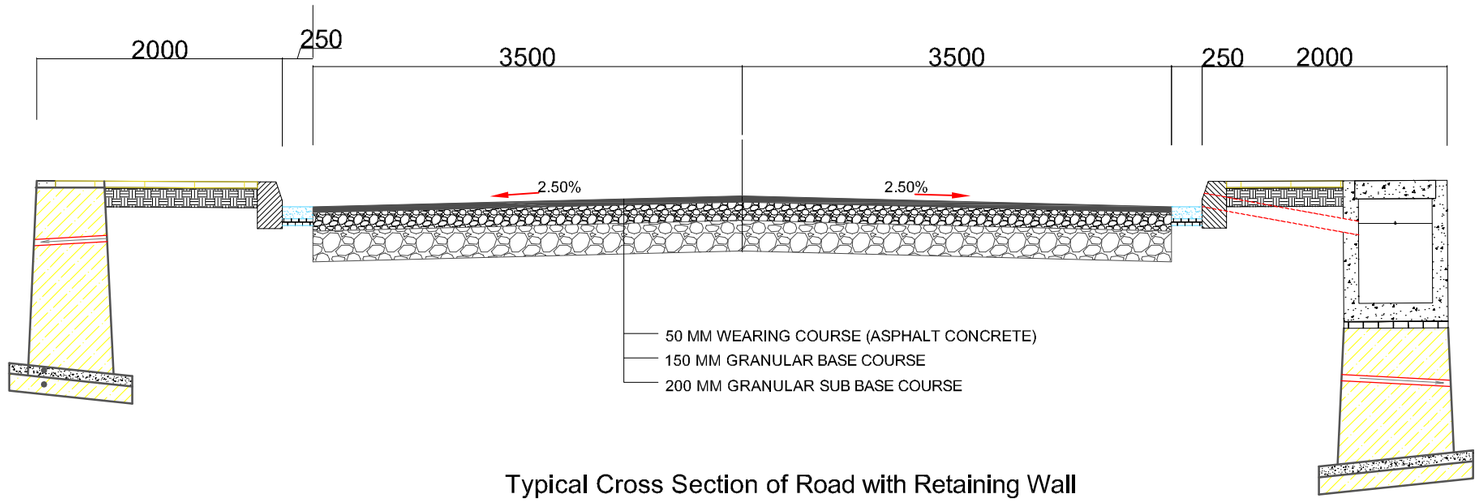
Scale - 1:50

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01 - 4589393	**Consultant** **Team Leader : YOO CHANGMIN** **Reviewed By : YAGYA BAHADUR MALLA** **Drawn By : SHRIJANA SHRESTHA**	**Client** **Approved By :** **Checked By :**	**Scale** **As Shown**	**TYPICAL CROSS SECTION OF ROAD** **SAINAMAINA URBAN ROADS** **SAINAMAINA MUNICIPALITY** **CH: 0+000 - 20+624.61 Km**	**REV : DEC 2024** **TITLE : TYPICAL DRAWINGS** **DRG NO : SM/RD/TD/01** **SHEET NO : 01**



Typical Cross Section of Road with RCC Covered Drain

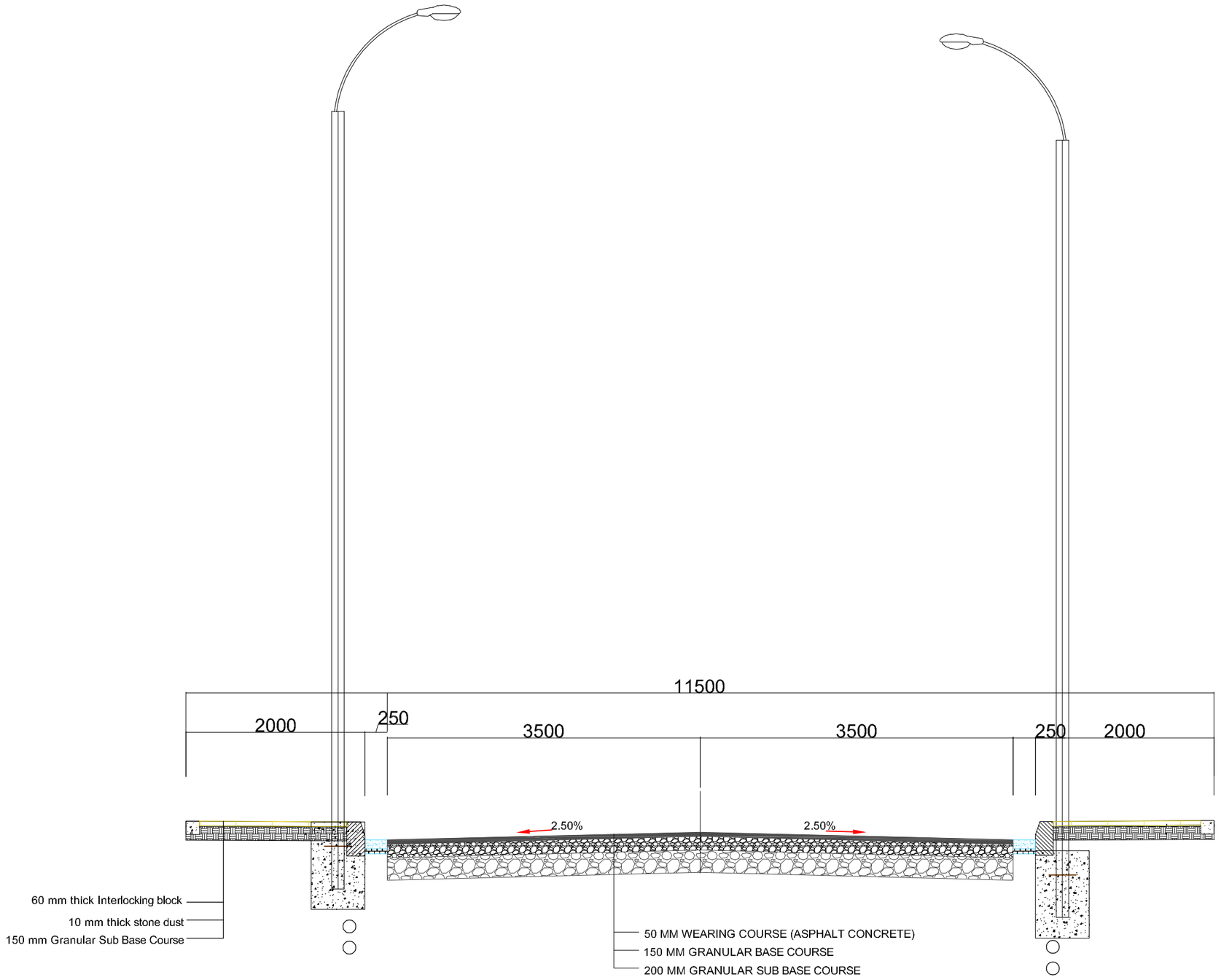
Scale - 1:50



Typical Cross Section of Road with Retaining Wall

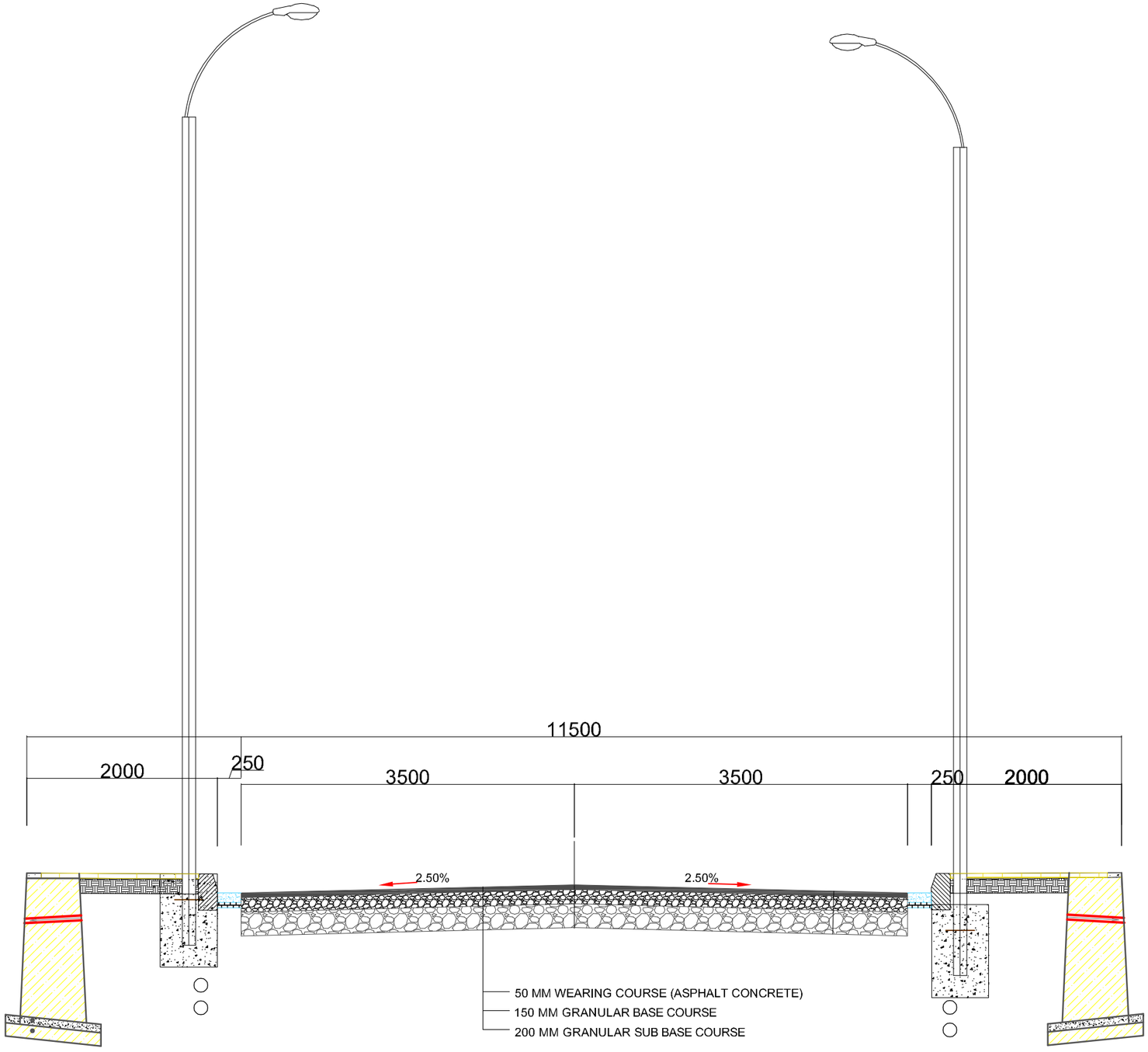
Scale - 1:50

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	TYPICAL CROSS SECTION OF ROAD SAINAMAINA URBAN ROADS SAINAMAINA MUNICIPALITY CH: 0+000 - 20+624.61 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/02 SHEET NO : 02



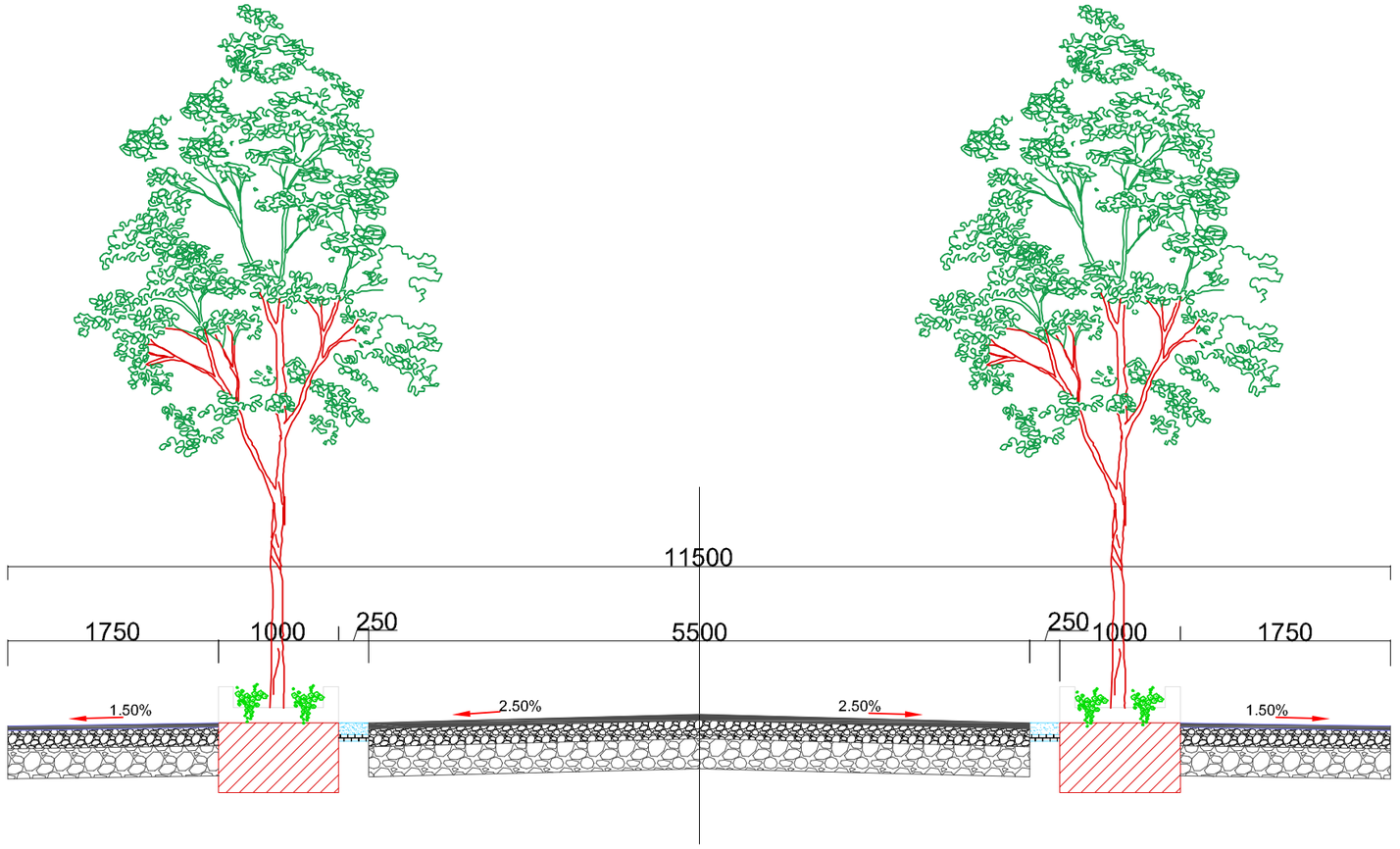
Typical Road Section (11.5 m) with Street Light

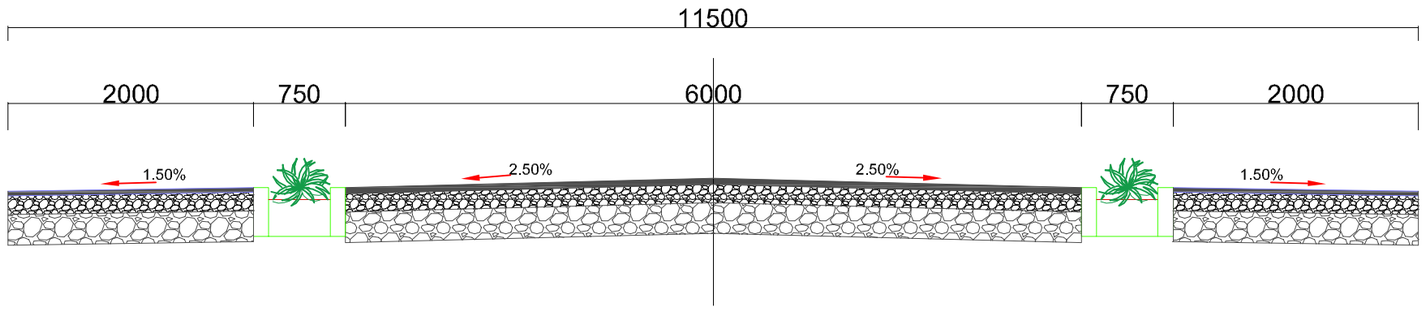
Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** **Team Leader : YOO CHANGMIN** **Reviewed By : YAGYA BAHADUR MALLA** **Drawn By : SHRIJANA SHRESTHA**	**Client** **Approved By :** **Checked By :**	**Scale** **As Shown**	**TYPICAL CROSS SECTION OF ROAD** **SAINAMAINA URBAN ROADS** **SAINAMAINA MUNICIPALITY** **CH: 0+000 - 20+624.61 Km**	**REV : DEC 2024** **TITLE : TYPICAL DRAWINGS** **DRG NO : SM/RD/TD/03** **SHEET NO : 03**



Typical Road Section (11.5 m) with Street Light and Retaining Wall

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** **Team Leader : YOO CHANGMIN** **Reviewed By : YAGYA BAHADUR MALLA** **Drawn By : SHRIJANA SHRESTHA**	**Client** **Approved By :** **Checked By :**	**Scale** **As Shown**	**TYPICAL CROSS SECTION OF ROAD** **SAINAMAINA URBAN ROADS** **SAINAMAINA MUNICIPALITY** **CH: 0+000 - 20+624.61 Km**	**REV : DEC 2024** **TITLE : TYPICAL DRAWINGS** **DRG NO : SM/RD/TD/04** **SHEET NO : 04**

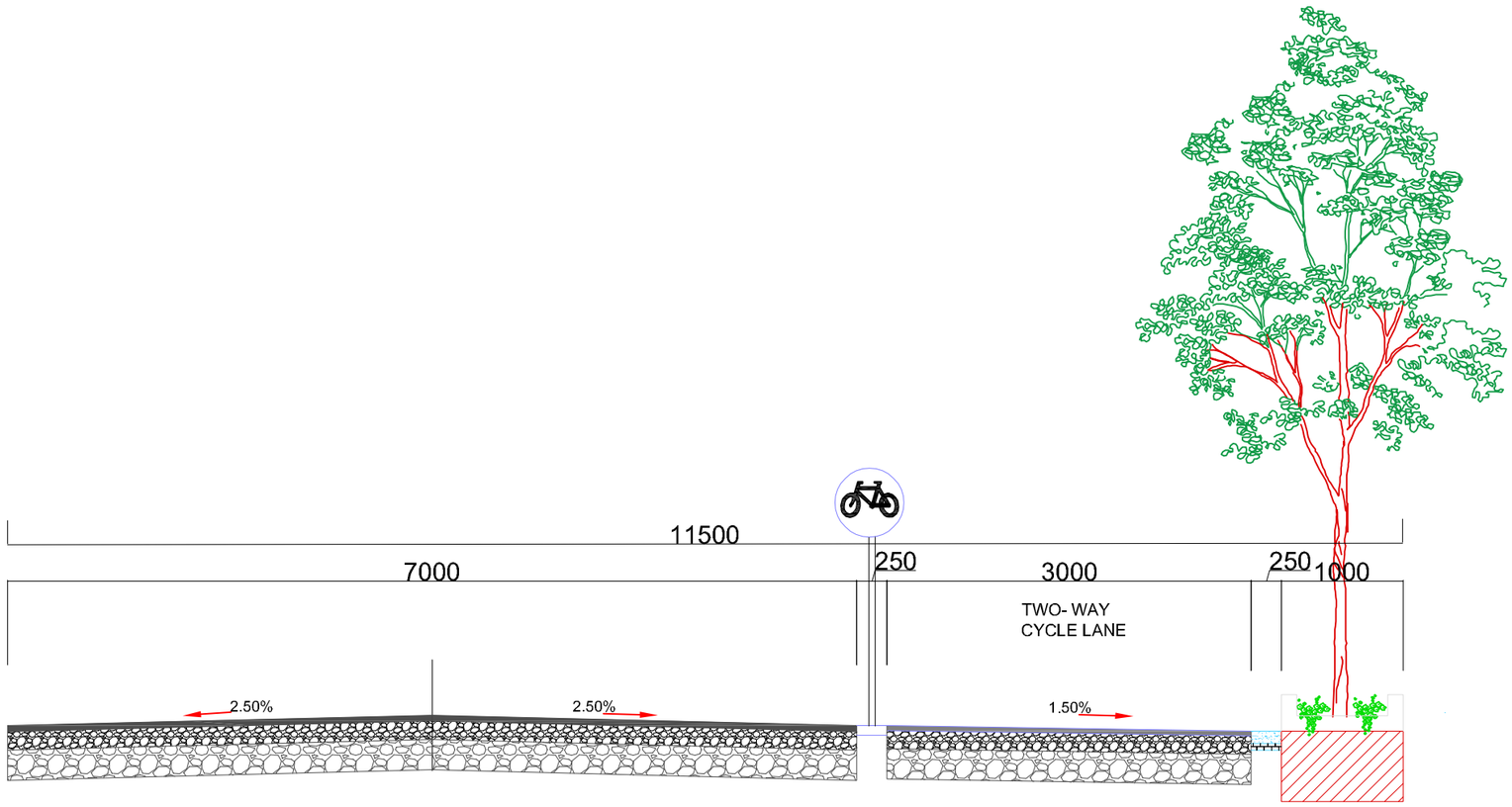


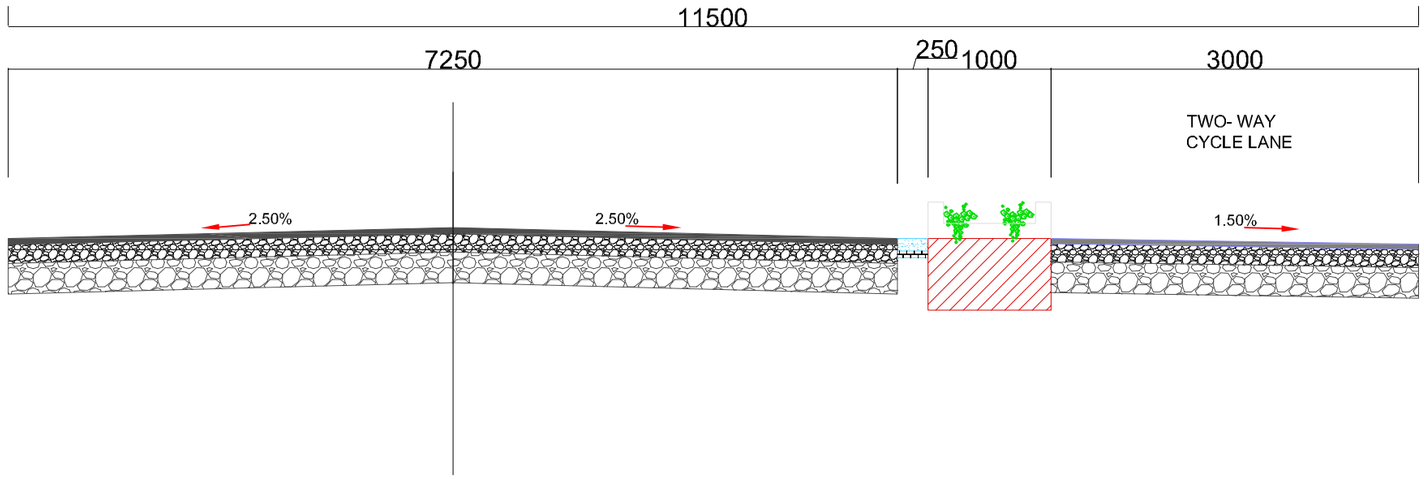


Typical Cross Sections of Road with Verge & Cycle Track

Scale - 1:50

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01 - 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	TYPICAL CROSS SECTION OF ROAD SAINAMAINA URBAN ROADS SAINAMAINA MUNICIPALITY CH: 0+000 - 20+624.61 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/05 SHEET NO : 05

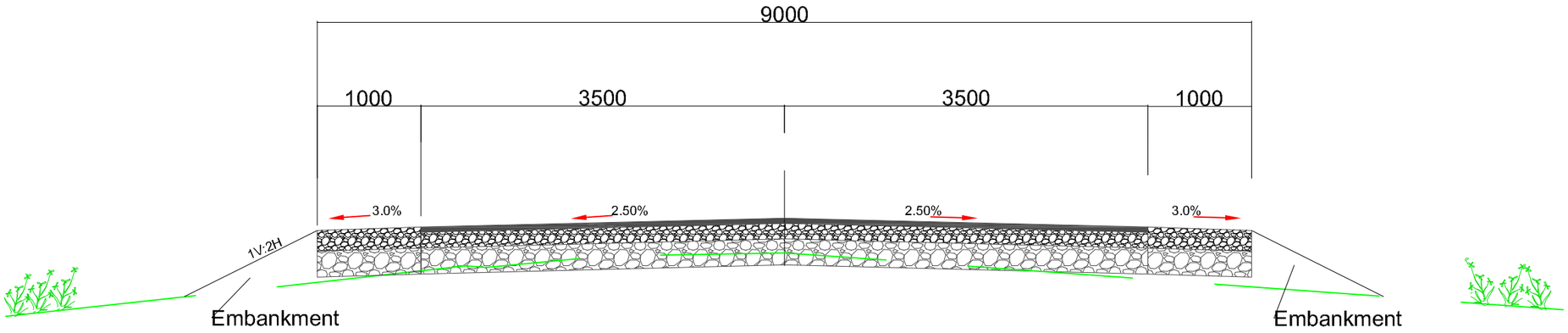




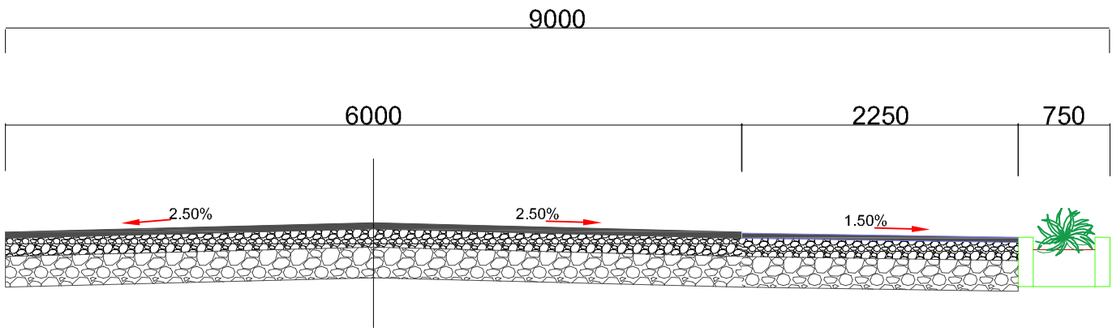
Typical Cross Sections of Road with Verge & Cycle Track

Scale - 1:50

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01 - 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	TYPICAL CROSS SECTION OF ROAD SAINAMAINA URBAN ROADS SAINAMAINA MUNICIPALITY CH: 0+000 - 20+624.61 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/06 SHEET NO : 06



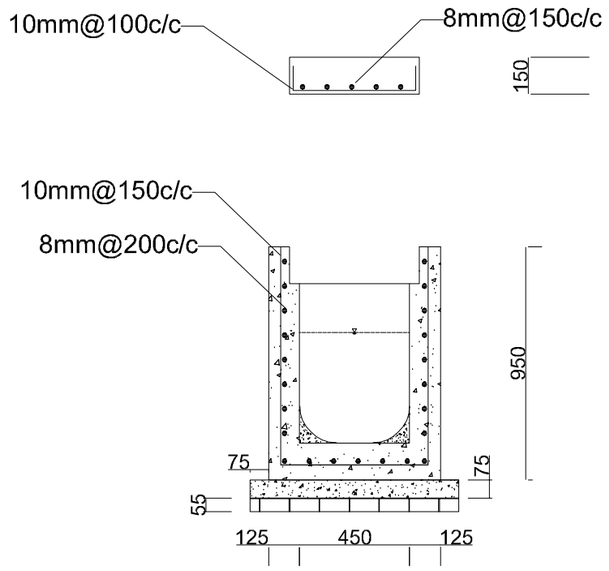
Typical Road Section With Shoulder and Embankment



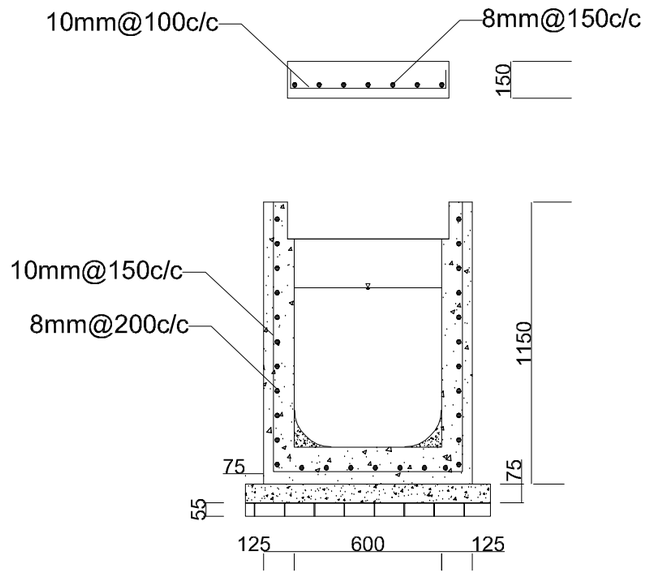
Typical Cross Sections of Road with Verge & Cycle Track

Scale - 1:50

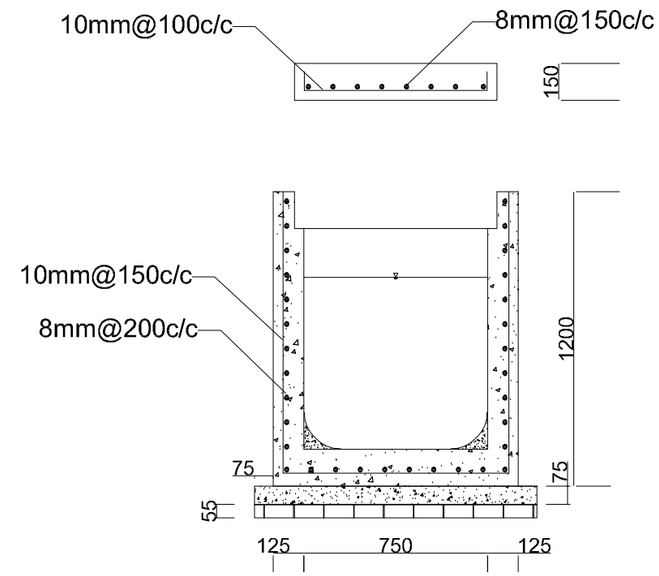
Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01 - 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	TYPICAL CROSS SECTION OF ROAD SAINAMAINA URBAN ROADS SAINAMAINA MUNICIPALITY CH: 0+000 - 20+624.61 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/07 SHEET NO : 07



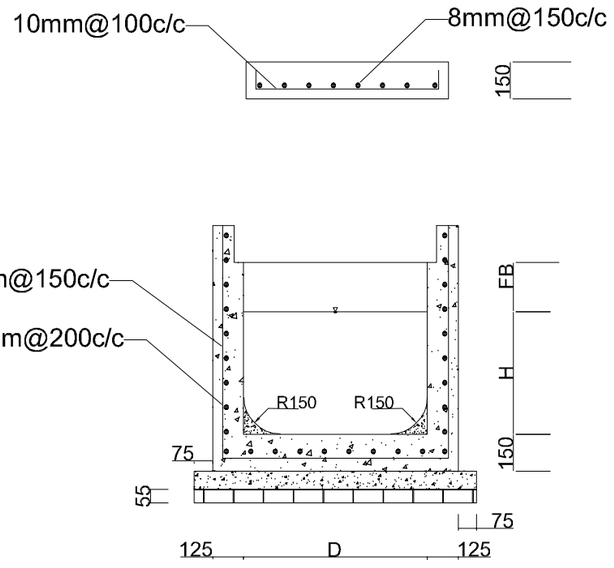
RCC DRAIN - TYPE A
Scale - 1:25

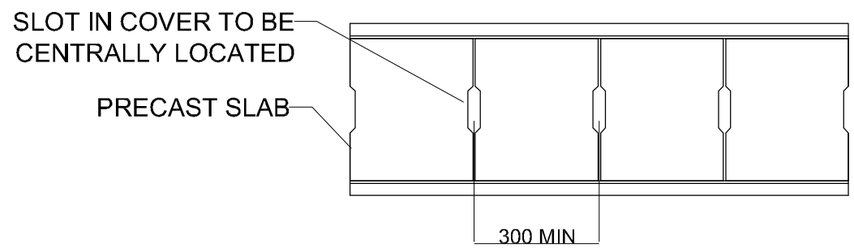


RCC DRAIN - TYPE B
Scale - 1:25



RCC DRAIN - TYPE C
Scale - 1:25





PLAN OF RCC DRAIN WITH PRECAST DRAIN COVER

DRAIN SIZES			
Type	D (mm)	H (mm)	FB (mm)
A	450	450	200
B	600	600	200
C	750	750	200

Department of Urban Development & Building Construction (DUDBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Babarmahal, Kathmandu, Nepal

Reviewed & Designed By :
DOHWA Engineering Co. Ltd.
in Association with
ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.
Mid- Baneshwor, Kathmandu
Tel: 01- 4589393

Consultant	**Client**
Team Leader : YOO CHANGMIN	**Approved By :**
Reviewed By : YAGYA BAHADUR MALLA	**Checked By :**
Drawn By : SHRIJANA SHRESTHA	

Scale
As Shown

TYPICAL DRAIN SECTIONS
SAINAMAINA URBAN ROADS
SAINAMAINA MUNICIPALITY
CH: 0+000 - 20+624.61 Km

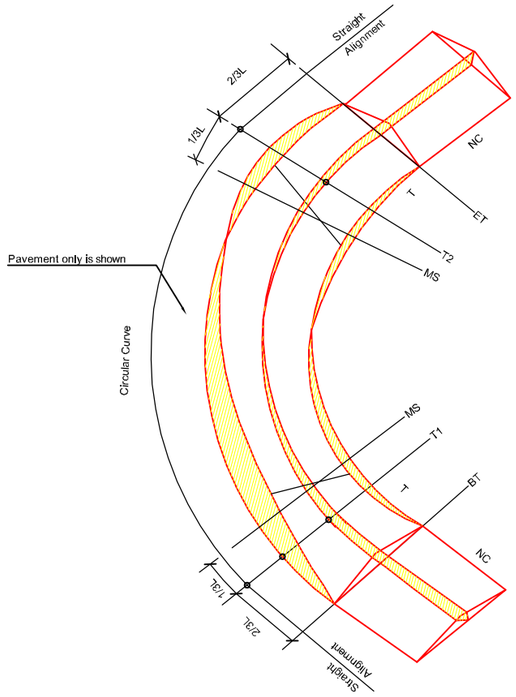
REV	**: DEC 2024**
TITLE	**: TYPICAL DRAWINGS**
DRG NO	**: SM/RD/TD/08**
SHEET NO	**: 08**

Transition Curve Detail

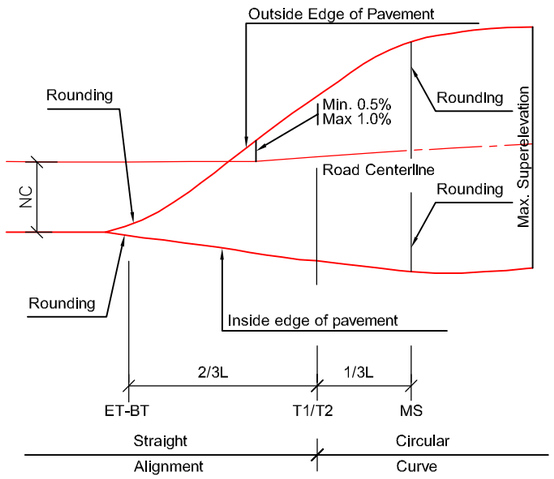
Transition Length

Mountaineous and Steep Terrain

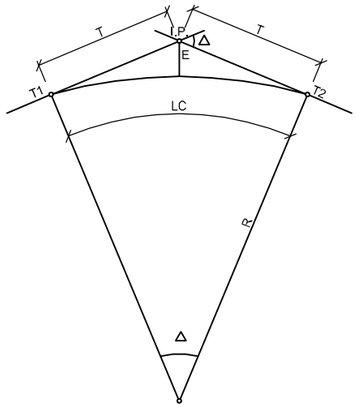
Curve Radius (Meters)	Design Speed in km/h				
	50	40	30	25	20
	Transition Length in Meters				
14				NA	30
20				35	20
25			NA	25	20
30			30	25	15
40		NA	25	20	15
50		40	20	15	15
55		40	20	15	15
70	NA	30	15	15	15
80	55	25	15	15	NR
90	45	25	15	15	
100	45	20	15	15	
125	35	15	15	NR	
150	30	15	15		
170	25	15	NR		
200	20	15			
250	15	15			
300	15	NR			
400	15				
500	NR				



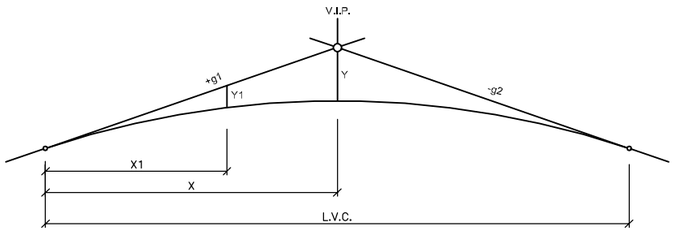
Typical Superelevation



Cross Slope in Curves



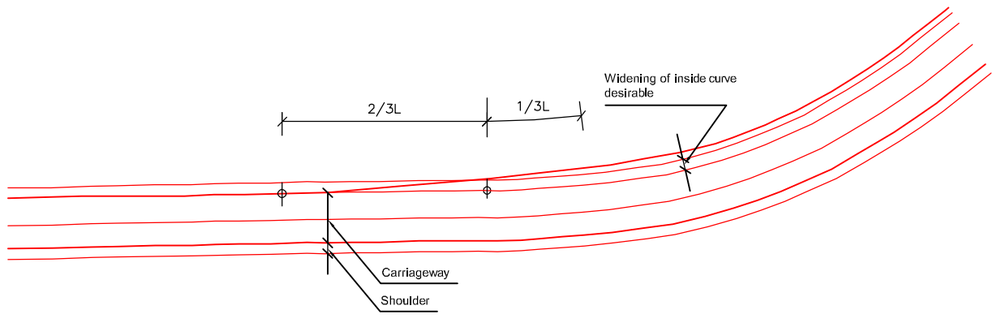
Circular Curve
For Horizontal Alignment



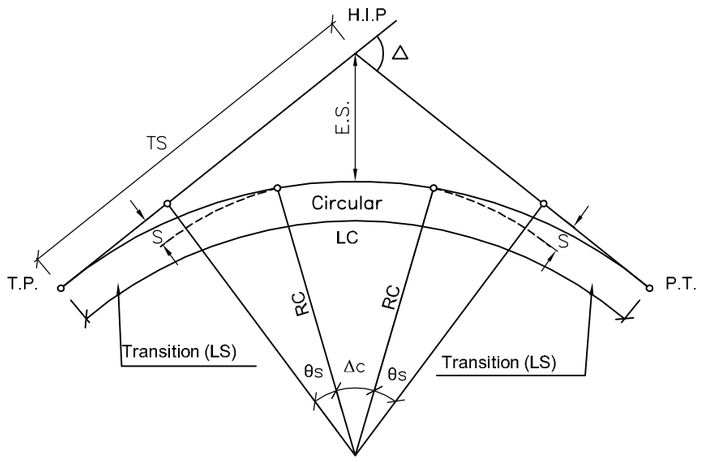
Parabolic Curve
For Vertical Alignment

Note:

For Circular horizontal curves the length L of superelevation run-off is based on maximum relative slope between profile of center line and pavement edge of 1.0%.



Pavement Widening on Curves



Elements of Combined Circular and Transition Curve

V.I.P. = Vertical Intersection Point.
L.V.C = Length of Vertical Curve.
$\pm g_1, g_2$ = Gradients.
Y,Y1 = Abscissa of the Vertical Curve.
X,X1 = Ordinate of the Vertical Curve.

$$Y = X^2 \frac{\pm g_1 - (\pm g_2)}{2LVC}$$

T.P.,P.T = Tangent Point.
H.I.P = Horizontal Intersection Point.
Δ = Total Deviation Angle.
Δc = Deviation and Central Angle of Circular arc.
TS = Deviation Angle of Transition Curve.
RC = Radius of Circular Curve.
S = Shift.
θs = Tangent Distance.
ES = Apex Distance.
LS = Length of Transition.
LC = Length of Circular Curve.

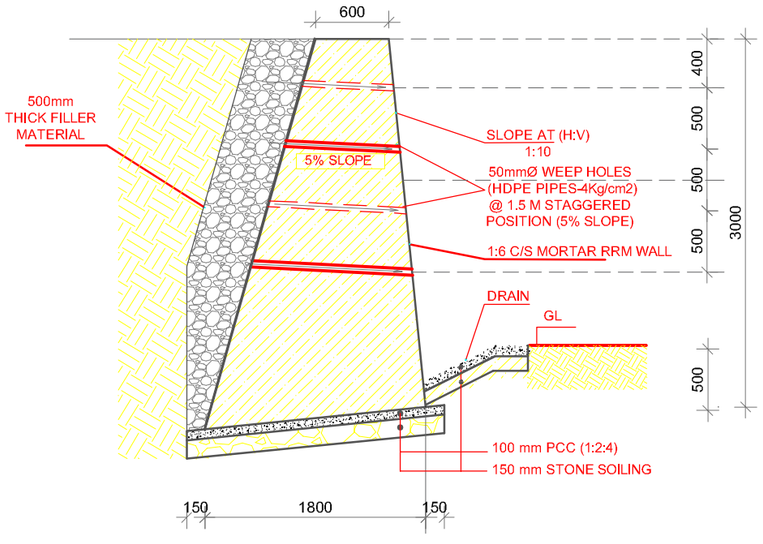
I.P. = Intersection Point
Δ = Deflection Angle
R = Radius of Curvature
T = Tangent length
E = Distance from I.P. to Circular Curve Measured on the Bisectors
LC = Length of Circular Curve
T_1 = Beginning of Circular Curve
T_2 = End of Circular Curve

$T = R. TAN \frac{\Delta}{2}$

$E = R. \left(\frac{1}{COS \frac{\Delta}{2}} - 1 \right)$

$LC = R. \frac{\Pi}{200} . \Delta$

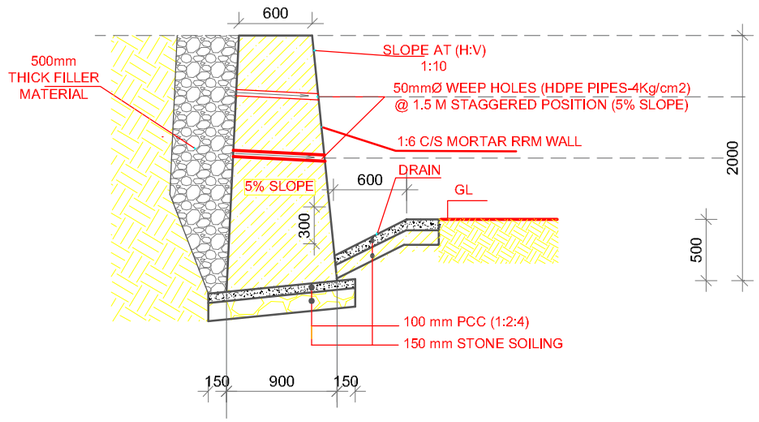
Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	**DETAILS OF ELEMENTS OF CURVES** **SAINAMAINA URBAN ROADS** **SAINAMAINA MUNICIPALITY** **CH: 0+000 - 20+624.61 Km**	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/09 SHEET NO : 09



RETAINING WALL DETAIL (HEIGHT - 3.0 m)

NOTE: EXPANSION JOINT @10M-15M

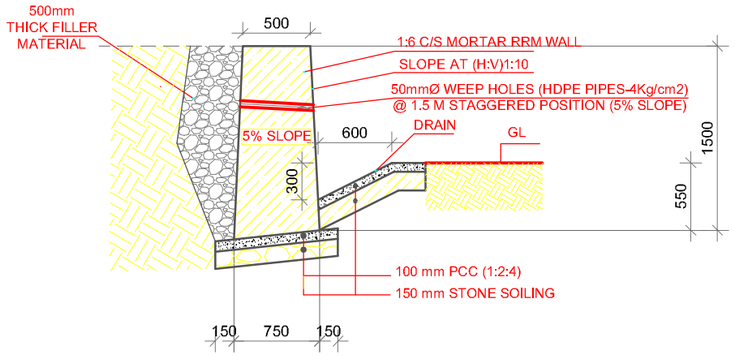
SCALE:1:50



RETAINING WALL DETAIL (HEIGHT - 2.0 m)

NOTE: EXPANSION JOINT @10M-15M

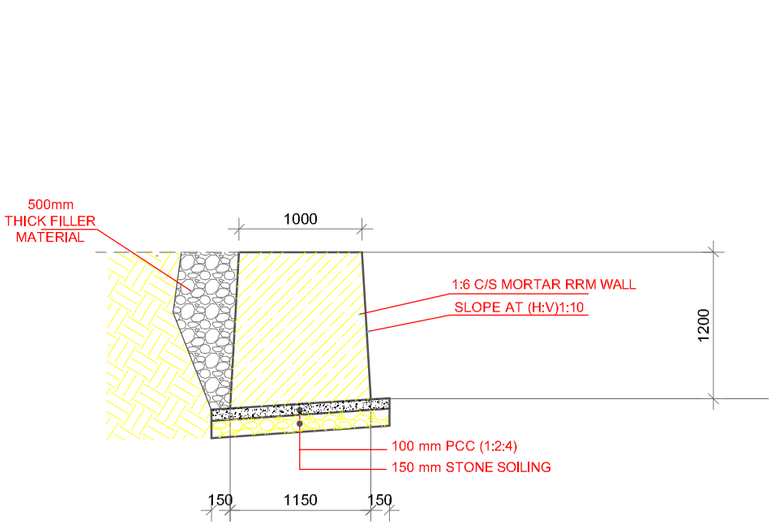
SCALE:1:50



RETAINING WALL DETAIL (HEIGHT - 1.5 m)

NOTE: EXPANSION JOINT @10M-15M

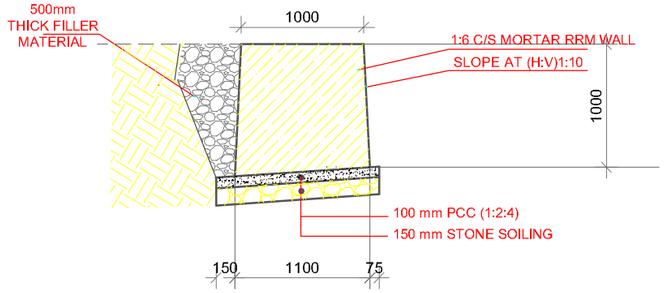
SCALE:1:50



RETAINING WALL DETAIL (HEIGHT - 1.2 m)

NOTE: EXPANSION JOINT @10M-15M

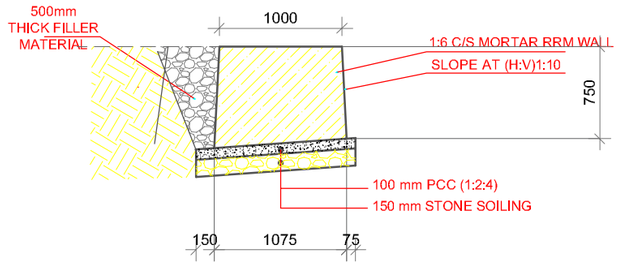
SCALE:1:50



RETAINING WALL DETAIL (HEIGHT - 1.0 m)

NOTE: EXPANSION JOINT @10M-15M

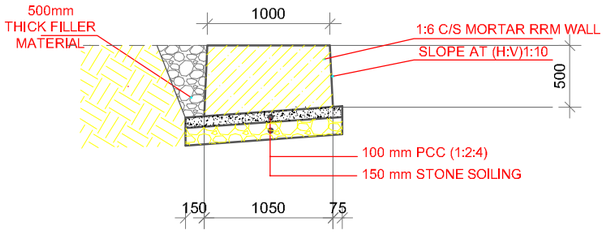
SCALE:1:50



RETAINING WALL DETAIL (HEIGHT - 0.75 m)

NOTE: EXPANSION JOINT @10M-15M

SCALE:1:50

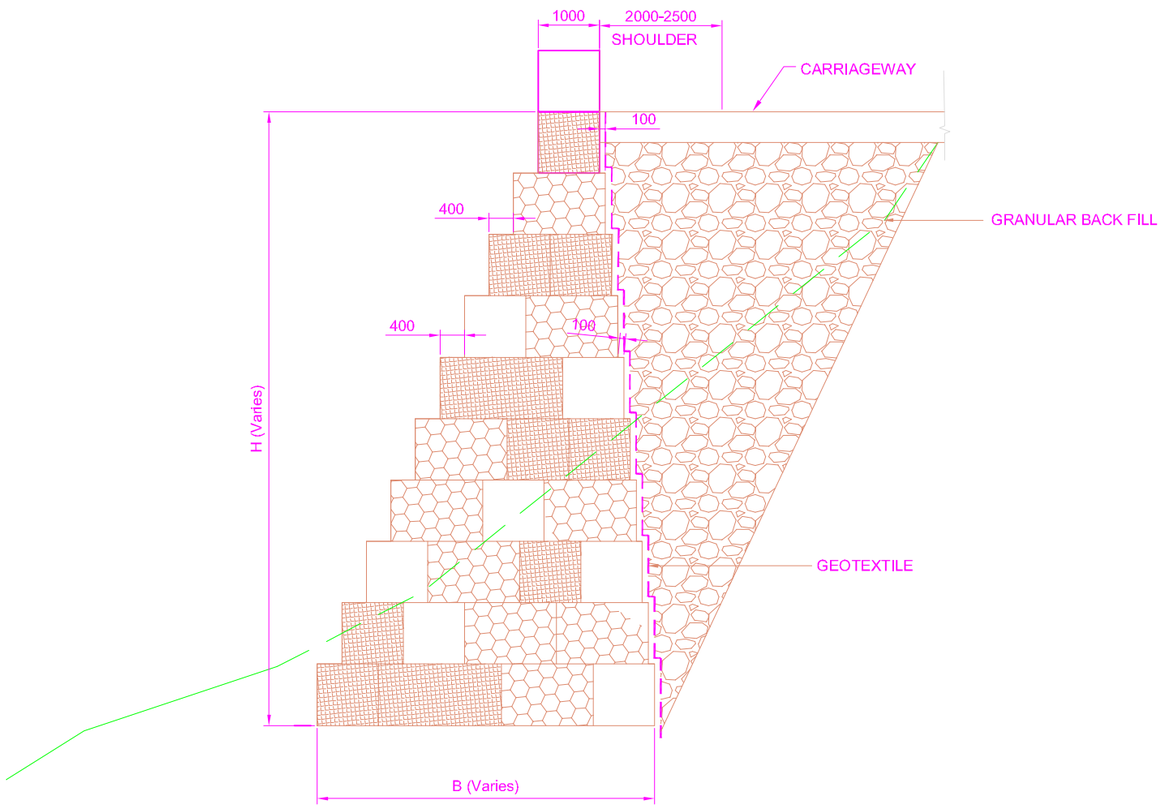


RETAINING WALL DETAIL (HEIGHT - 0.5 m)

NOTE: EXPANSION JOINT @10M-15M

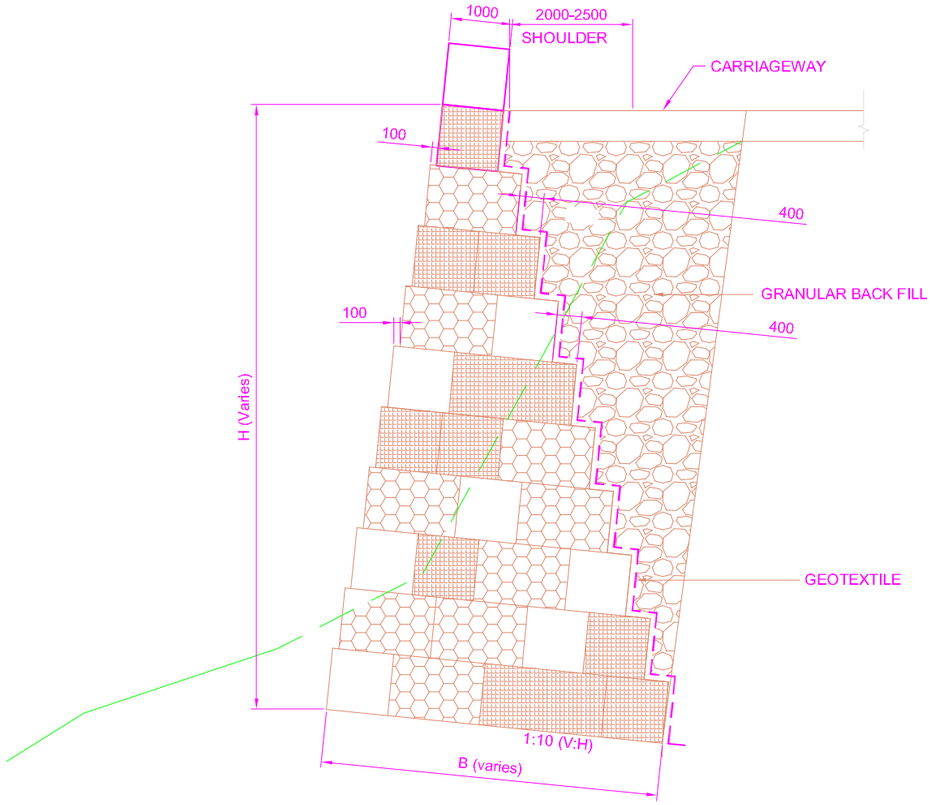
SCALE:1:50

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** **Team Leader : YOO CHANGMIN** **Reviewed By : YAGYA BAHADUR MALLA** **Drawn By : SHRIJANA SHRESTHA**	**Client** **Approved By :** **Checked By :**	**Scale** **As Shown**	**TYPICAL RETAINING WALL** **SAINAMAINA URBAN ROADS** **SAINAMAINA MUNICIPALITY** **CH: 0+000 - 20+624.61 Km**	**REV : DEC 2024** **TITLE : TYPICAL DRAWINGS** **DRG NO : SM/RD/TD/10** **SHEET NO : 10**



GRAVITY GABION WALL (FRONT BATTER)

SCALE:-1:100



GRAVITY GABION WALL (BACK BATTER)

SCALE:-1:100

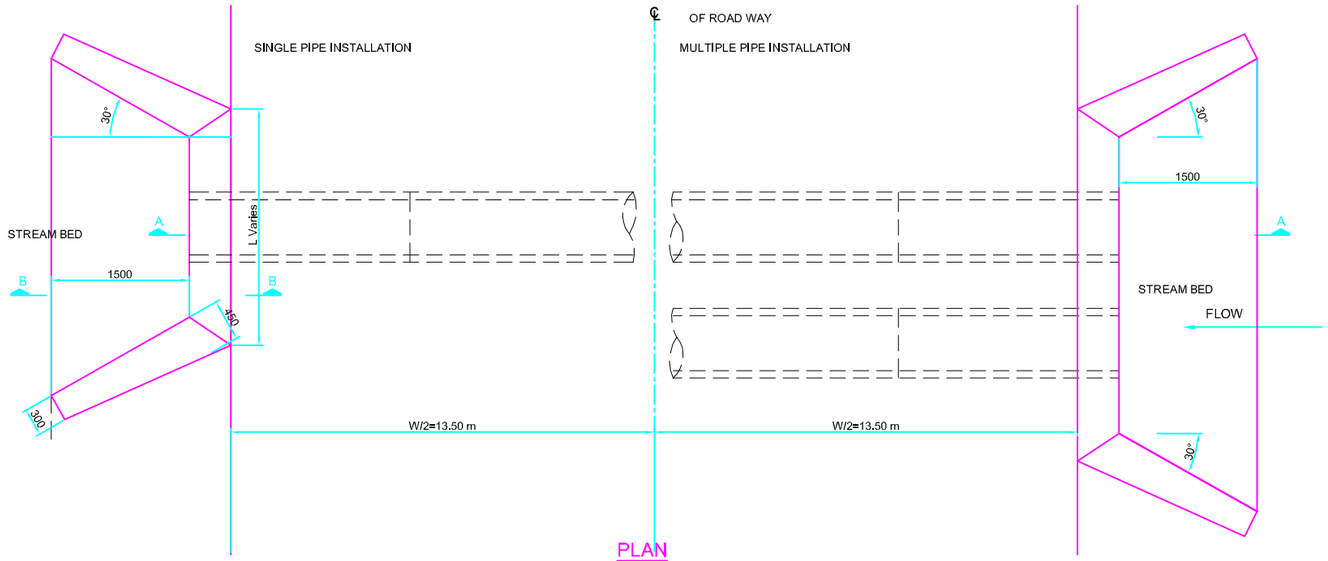
Detail for Gravity Gabion walls (FB-BB)

BASE WIDTHS AND TYPICAL GROUND PRESSURES ((T/m²)								
Wall Height (H),m		2	3	4	6	8	10	12
Front Batter	Base Width, (B)	1.5	2.0	2.5	3.5	4.5	5.5	6.5
	Ground pressure (T/m²)	50	70	90	120	150	190	230
Back Batter	Base Width, (B)	1.5	2.0	2.55	3.5	4.5	5.5	6.5
	Ground pressure (T/m²)	70	110	150	220	290	360	420

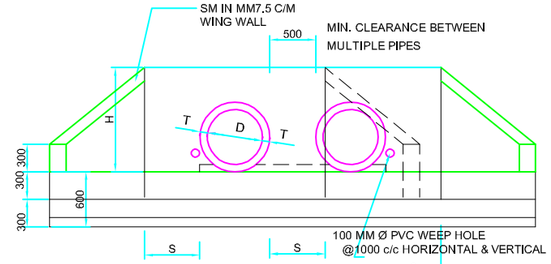
NOTES:

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

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Desigined By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	TYPICAL GABION RETAINING WALL SAINAMAINA URBAN ROADS SAINAMAINA MUNICIPALITY CH: 0+000 - 20+624.61 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/11 SHEET NO : 11

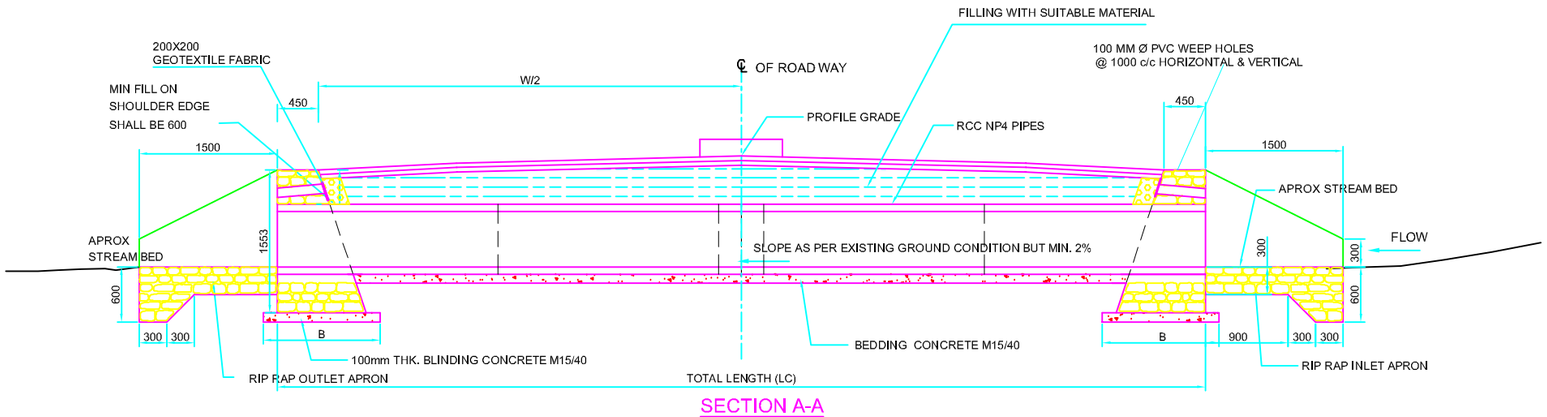


PLAN

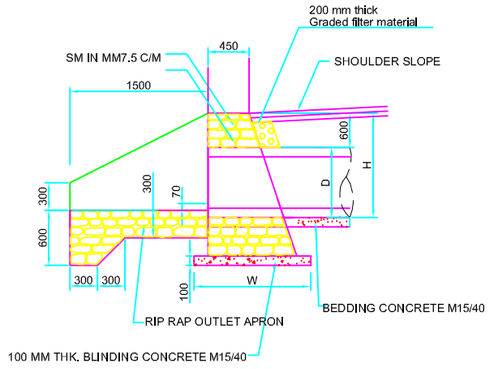


ELEVATION

MASONRY END SECTION DIMENSIONS	
D	S
600	600
900	900

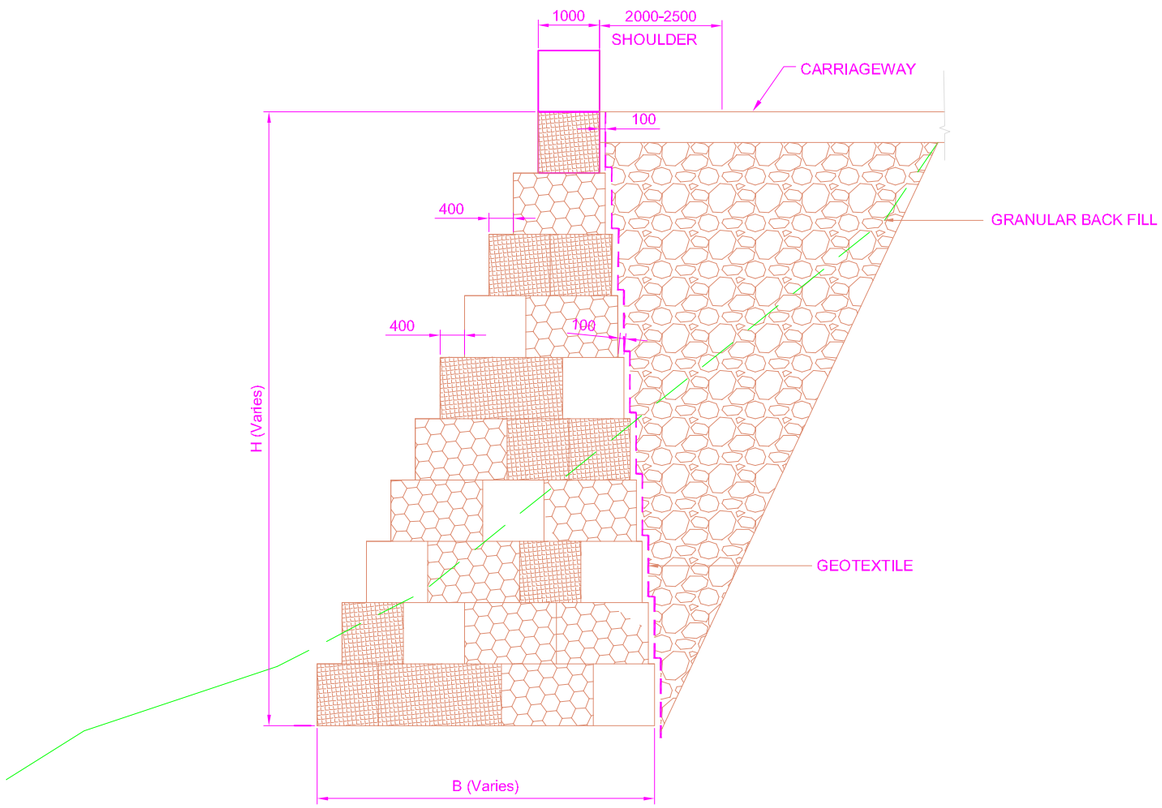


SECTION A-A
PIPE CULVERT INSTALLATION
Scale-15:1



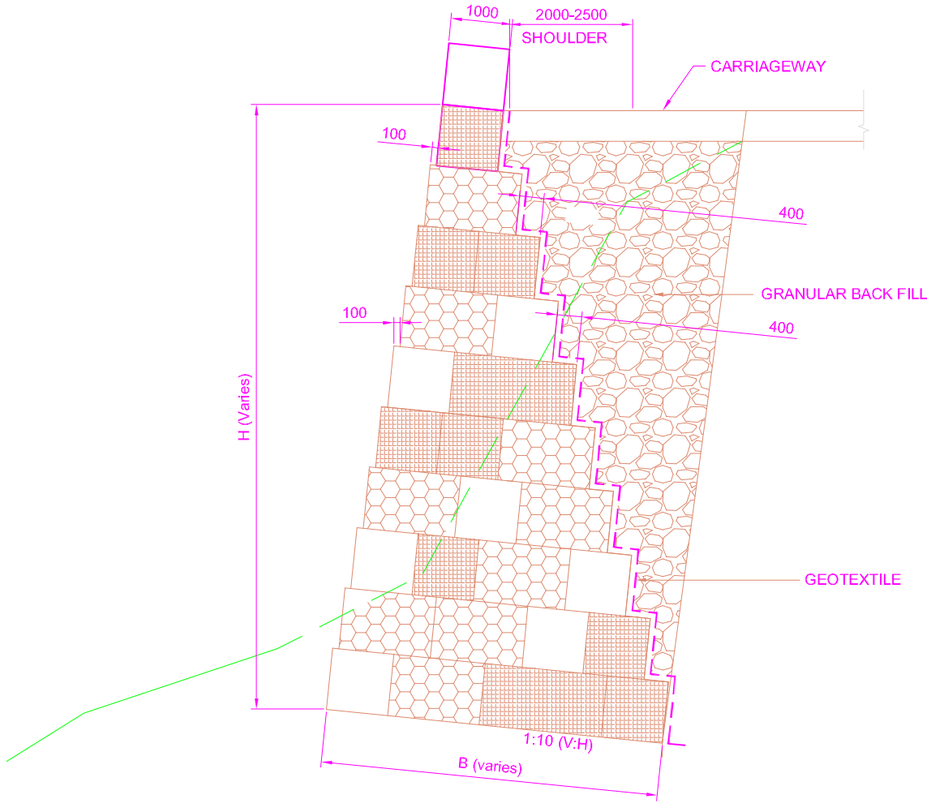
SECTION B-B SHOWING END SECTION DETAILS
Scale-15:1

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** **Team Leader : YOO CHANGMIN** **Reviewed By : YAGYA BAHADUR MALLA** **Drawn By : SHRIJANA SHRESTHA**	**Client** **Approved By :** **Checked By :**	**Scale** **As Shown**	**TYPICAL PIPE CULVERT (PLAIN)** **SAINAMAINA URBAN ROADS** **SAINAMAINA MUNICIPALITY** **CH: 0+000 - 20+624.61 Km**	**REV : DEC 2024** **TITLE : TYPICAL DRAWINGS** **DRG NO : SM/RD/TD/12** **SHEET NO : 12**



GRAVITY GABION WALL (FRONT BATTER)

SCALE:-1:100



GRAVITY GABION WALL (BACK BATTER)

SCALE:-1:100

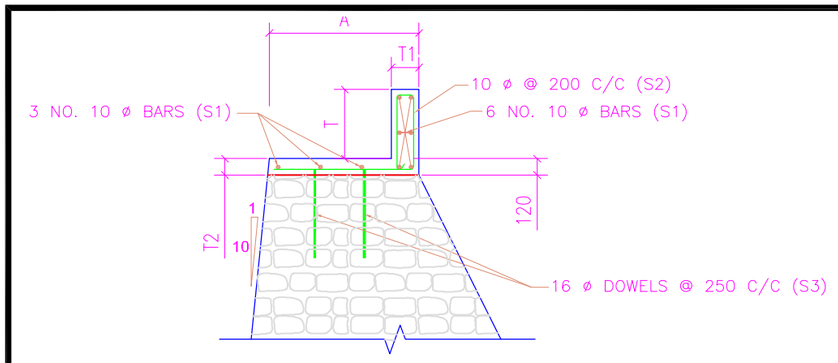
Detail for Gravity Gabion walls (FB-BB)

BASE WIDTHS AND TYPICAL GROUND PRESSURES ((T/m²)								
Wall Height (H),m		2	3	4	6	8	10	12
Front Batter	Base Width, (B)	1.5	2.0	2.5	3.5	4.5	5.5	6.5
	Ground pressure (T/m²)	50	70	90	120	150	190	230
Back Batter	Base Width, (B)	1.5	2.0	2.55	3.5	4.5	5.5	6.5
	Ground pressure (T/m²)	70	110	150	220	290	360	420

NOTES:

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

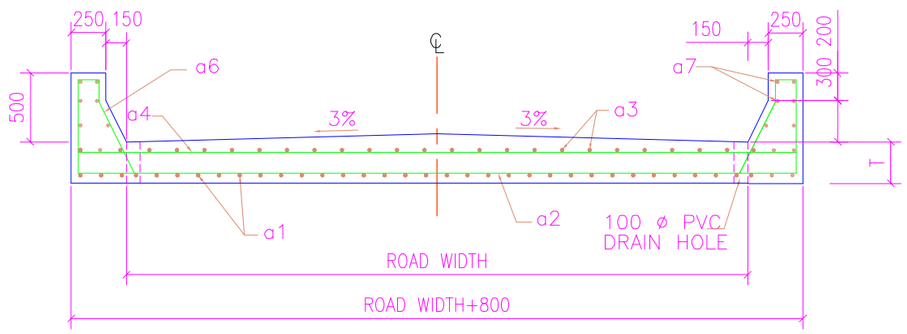
Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Desigined By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	TYPICAL GABION RETAINING WALL SAINAMAINA URBAN ROADS SAINAMAINA MUNICIPALITY CH: 0+000 - 20+624.61 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/11 SHEET NO : 11



ABUTMENT SEAT DETAIL

BAR BENDING SCHEDULE PER ONE LINEAR METRE OF CULVERT (EXCLUDING CURB & ABUTMENT SEAT)

CULVERT TYPE	L	MARK a1					L	MARK a2			L	MARK a3			L	MARK a4			L	MARK a5		
		DIA (mm)	SPACING	NO. REQD./ PER METRE	L	Remarks	DIA	SPACING	NO. REQD./ PER METRE	L	DIA	SPACING	NO. REQD./ PER METRE	L	DIA	SPACING	NO. REQD./ PER METRE	L	DIA	NO. REQD./ PER METRE	L
I		12	140	7.14	1.54	Every third bar to be bent up	10	150	6.67	5.10	10	300	3.33	1.54	10	300	3.33	5.10	12	2	5.10
II		12	120	8.33	2.80	Every third bar to be bent up	10	150	6.67	5.10	10	300	3.33	2.80	10	300	3.33	5.10	12	2	5.10
III		16	140	7.14	4.04	Every third bar to be bent up	10	150	6.67	5.10	10	300	3.33	4.04	10	300	3.33	5.10	12	2	5.10
IV		16	110	9.09	5.04	Every third bar to be bent up	10	150	6.67	5.10	10	200	5.00	6.04	10	200	2.00	5.10	12	2	5.10
V		20	140	7.14	6.04	Alternate bar to be bent up	12	170	5.88	5.10	12	300	3.33	6.50	12	300	3.33	5.10	12	2	5.10
VI		20	130	7.69	7.04	Alternate bar to be bent up	12	150	6.67	5.10	12	200	5.00	7.80	12	200	5.00	5.10	12	2	5.10



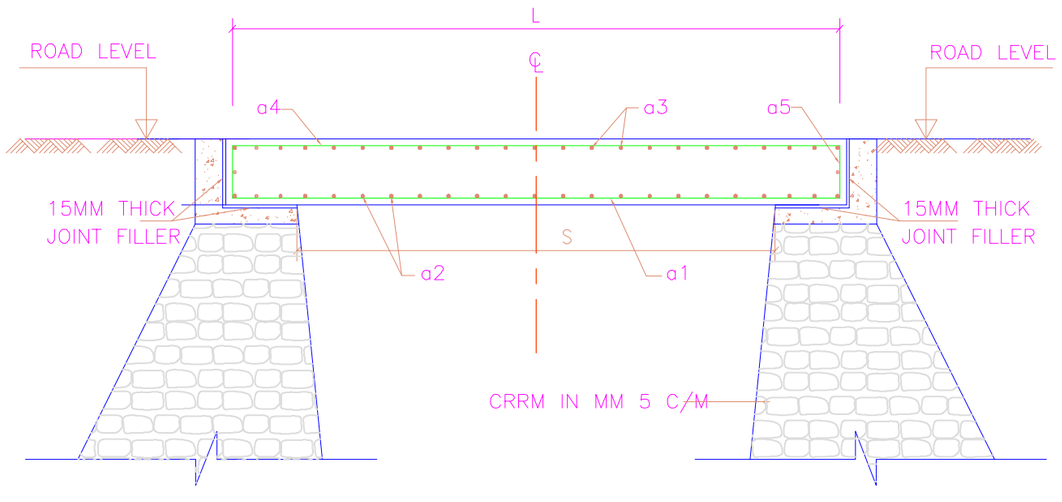
TRANSVERSE SECTION

BAR BENDING SCHEDULE OF ABUTMENT SEAT PER LINEAR METRE

CULVERT TYPE	1000	MARK s1				120~170 / Varies / 100 / Varies	MARK s2				600	MARK s3			
		DIA (mm)	NO.	LENGTH	TOTAL LENGTH		DIA (mm)	NO.	LENGTH	TOTAL LENGTH		DIA (mm)	NO.	LENGTH	TOTAL LENGTH
I		10	9	1.00	9.00		10	5	1.25	6.25		10	8	0.60	4.80
II		10	9	1.00	9.00		10	5	1.26	6.32		10	8	0.60	4.80
III		10	9	1.00	9.00		10	5	1.58	7.90		10	8	0.60	4.80
IV		10	9	1.00	9.00		10	5	1.94	9.69		10	8	0.60	4.80
V		10	9	1.00	9.00		10	5	2.23	11.15		10	8	0.60	4.80
V		10	9	1.00	9.00		10	5	2.27	11.35		10	8	0.60	4.80

BAR BENDING SCHEDULE OF CURB

CULVERT TYPE	120 / 520 / 310 / 375	MARK a6				L	MARK a7			
		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/mm should be used.
2. All the dimensions are in millimetres except the dimensions in table.

SCALE (m)

0 1.0 2.0

Department of Urban Development & Building Construction (DUDBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Babarmahal, Kathmandu, Nepal

Reviewed & Desigined By :
DOHWA Engineering Co. Ltd.
in Association with
ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.
Mid- Baneshwor, Kathmandu
Tel: 01- 4589393

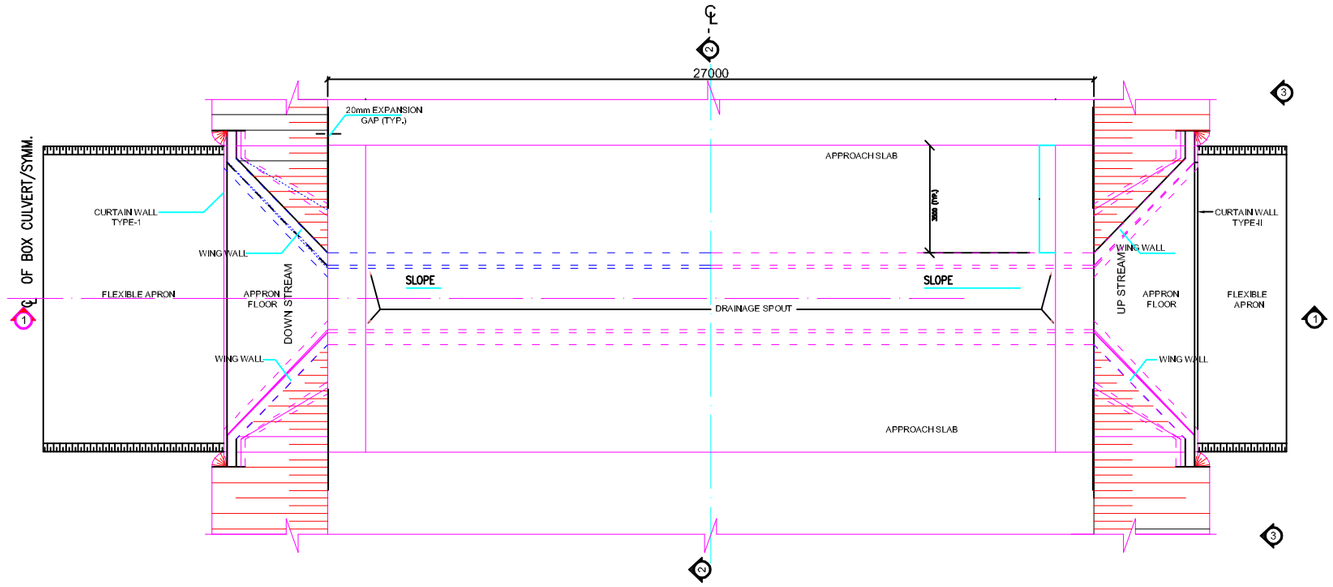
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

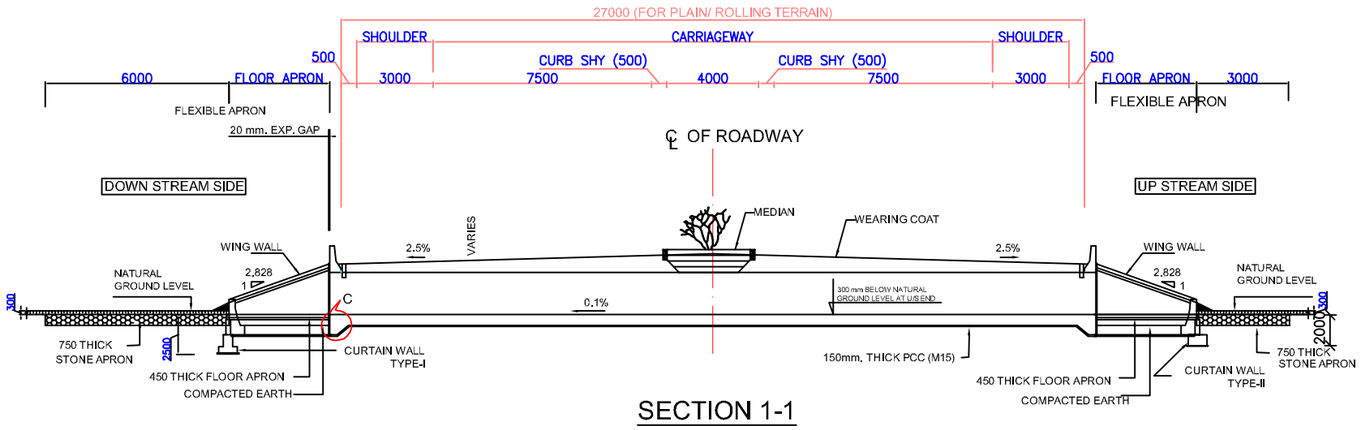
Scale
As Shown

Slab Culvert No Fill Reinforcement
SAINAMAINA URBAN ROADS
SAINAMAINA MUNICIPALITY
CH: 0+000 - 20+624.61 Km

REV	: DEC 2024
TITLE	: TYPICAL DRAWINGS
DRG NO	: SM/RD/TD/14
SHEET NO	: 14



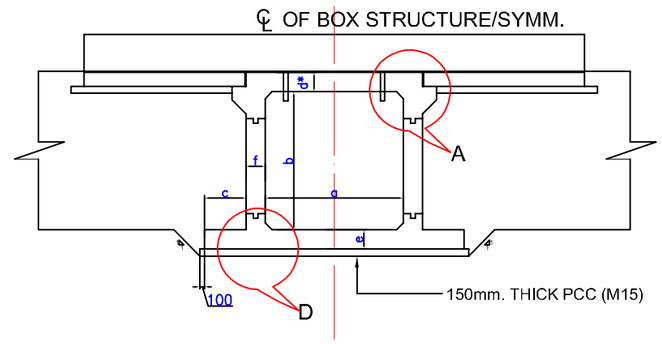
PLAN AT ROAD LEVEL



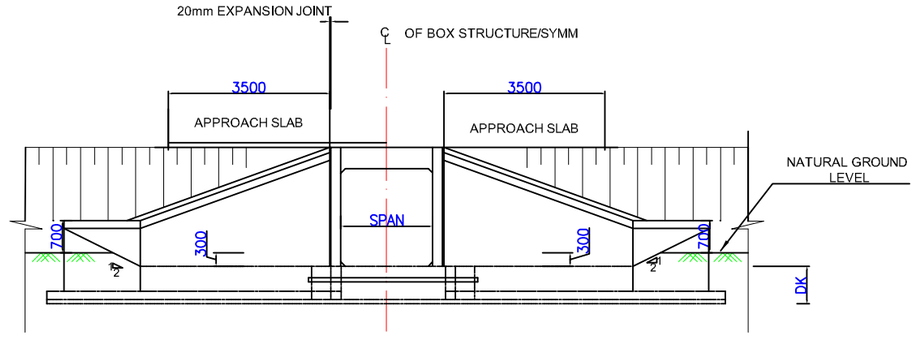
SECTION 1-1

TABLE SHOWING SALIENT DIMENSIONS

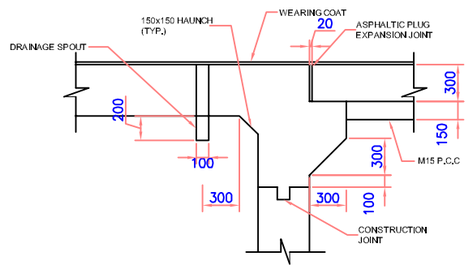
BOX CELL DESIGNATION	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)
2m x 2m	2000	2000	500	350	380	300
3m x 3m	3000	3000	900	420	420	420
6m x 5m	6000	5000	1100	680	750	750



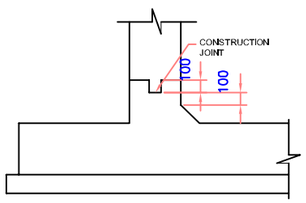
SECTION 2-2



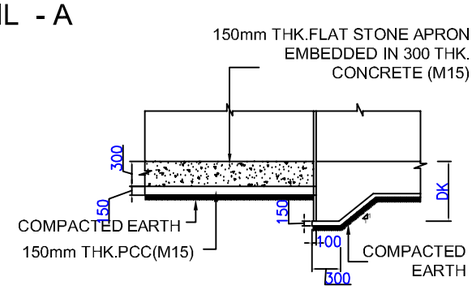
SECTION 3 -3



DETAIL - A



DETAIL - D



DETAIL -C

NOTES:

- All dimensions are in millimeters unless otherwise noted. Only written dimensions are to be followed.
- Soft and loose patches in the bearing area shall be replaced by compacted granular fills with layers not exceeding 300mm.
- Net bearing capacity for the soil shall not be less than 15 T/m2.
- 'DK' is depth of key at base slab. 'DK' shall be 1200mm upto base slab thickness of 900mm. For base slab thickness greater than 900mm, 'DK' shall be e+300mm, where 'e' is the base slab thickness.
- Concrete shall be design mix and shall have minimum 28 days characteristics strength of M25 for box structure. Reinforcing steel shall be High Yield Strength Deformed bars of Fe500 conforming to IS:1786

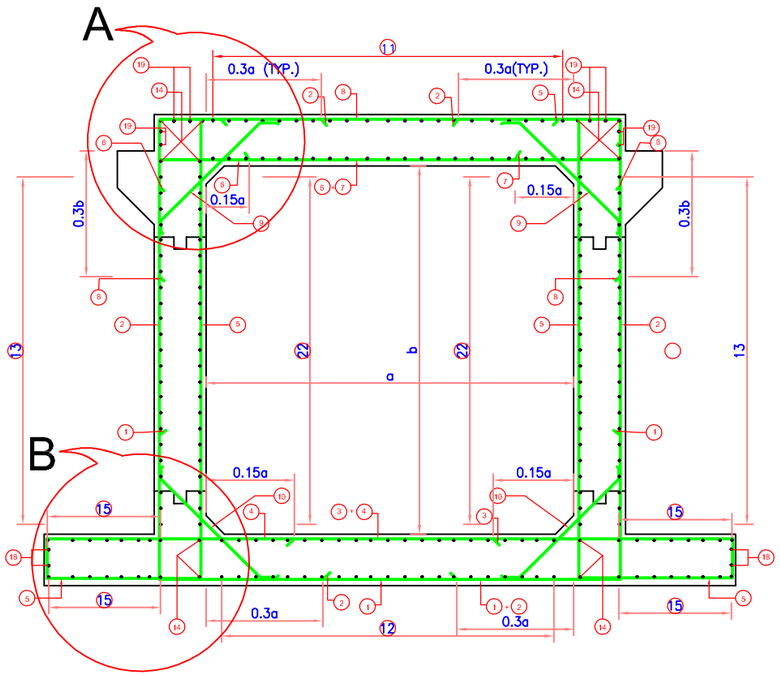
Department of Urban Development & Building Construction (DUDBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Babarmahal, Kathmandu, Nepal

Reviewed & Designed By :
DOHWA Engineering Co. Ltd.
in Association with
ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.
Mid- Baneshwor, Kathmandu
Tel: 01- 4589393

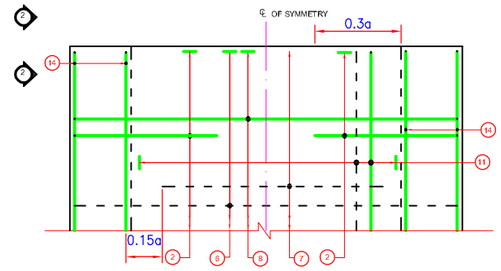
Consultant	Client	Scale
Team Leader : YOO CHANGMIN	Approved By :	As Shown
Reviewed By : YAGYA BAHADUR MALLA		
Drawn By : SHRIJANA SHRESTHA	Checked By :	

SINGLE CELL BOX CULVERT W/O CUSHION
SAINAMAINA URBAN ROADS
SAINAMAINA MUNICIPALITY
CH: 0+000 - 20+624.61 Km

REV	: DEC 2024
TITLE	: TYPICAL DRAWINGS
DRG NO	: SM/RD/TD/15
SHEET NO	: 15

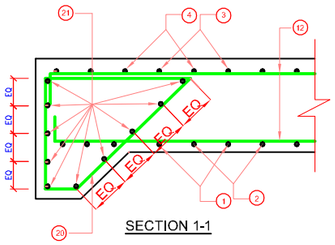


REINFORCEMENT DETAILS OF SINGLE CELL BOX CULVERT

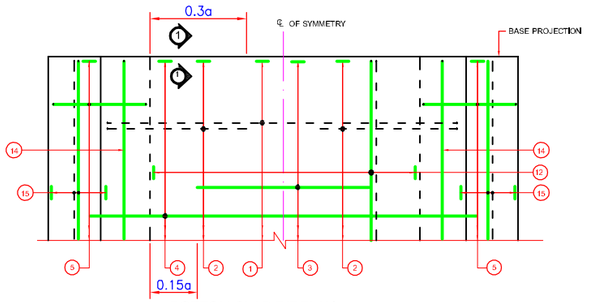


TOP SLAB R/F PLAN

BAR MARK 5, 19, KERB, BRACKET & HAUNCH LINES NOT SHOWN IN PLAN



SECTION 1-1



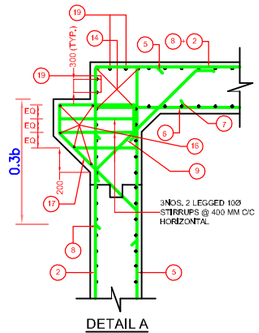
BOTTOM SLAB R/F PLAN

(HAUNCH LINES NOT SHOWN IN PLAN)

LEGEND:

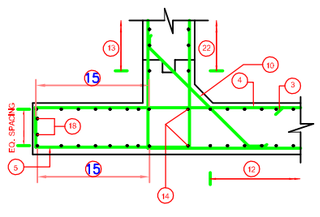
: TOP FACE BARS/ OUTER FACE BARS

: BOTTOM FACE BARS/ INNER FACE BARS

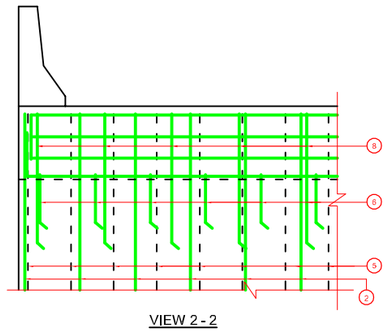


DETAIL A

(SCALE 1 : 40)



DETAIL B



VIEW 2 - 2

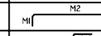
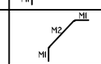
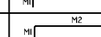
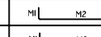
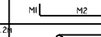
(HAUNCH LINES NOT SHOWN IN PLAN)

NOTES:

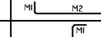
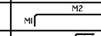
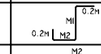
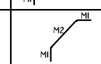
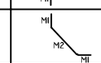
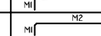
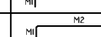
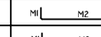
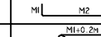
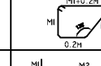
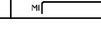
1. Minimum clear cover to any reinforcing including stirrups shall be 50mm unless otherwise noted.
2. Construction Joints:
   a. The location and provision of construction joint shall be approved by Engineer-in-charge. In the drawings the construction joints are shown parallel to the direction of water flow. The concreting operation shall be carried out continuous upto the construction joints.
   b. The concrete surface at the joint shall be brushed with a stiff brush after casting while the concrete is still fresh, and it has only slightly hardened.
   c. Before new concrete is poured the surface of old concrete shall be prepared as under:
      - For hardened concrete, the surface shall be thoroughly cleaned to remove debris/laitance and made rough so that ¼ of the size of the aggregate is exposed.
      - For partially hardened concrete, the surface shall be treated with wire brush followed by an air jet.
      - The old surface shall be soaked with water without leaving puddles immediately, before starting concreting to prevent the absorption of water for new concrete.
   d. New concrete shall be thoroughly compacted in the region of the joints.
3. Welding of reinforcement bars shall not be permitted.
4. Minimum lap length of reinforcement shall be decided as per the reinforcement arrangement based on IRC:21-2000. Not more than 50% of reinforcement shall be lapped at any one location.
5. Bending of reinforcement bars shall be as per IS: 2502.

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	SINGLE CELL BOX CULVERT W/O CUSHION SAINAMAINA URBAN ROADS SAINAMAINA MUNICIPALITY CH: 0+000 - 20+624.61 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/16 SHEET NO : 16

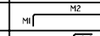
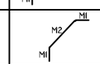
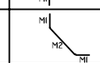
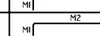
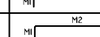
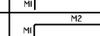
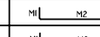
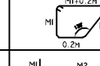
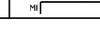
BAR SCHEDULE FOR BOX CULVERT 2X2 (WITHOUT CUSHION) PER M LENGTH

BAR MARK	DESCRIPTION OF BARS	BAR DIA. (mm)	SPACING (mm)	M1 In mm.	M2 In mm.	LENGTH In mm.	NO. OF BARS	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)
1		10	250	930	2500	4326	5	21.63	0.617	13.35
2		16	250	850	2630	4275	10	42.75	1.580	67.56
3		0	0	0	0	0	0	0.00	0.000	0.00
4		16	250	280	3500	4005	5	20.03	1.580	31.65
5		16	250	2630	700	3648	10	36.48	1.580	57.65
6		16	250	260	2500	2965	5	14.83	1.580	23.43
7		0	0	0	0	0	0	0.00	0.000	0.00
8		10	250	900	2500	4266	5	21.33	0.617	13.17
9		10	250	200	890	1243	10	12.43	0.617	7.67
10		12	250	200	932	1291	10	12.91	0.889	11.48
11		10	250	225	1000	1450	16	23.20	0.617	14.32
12		10	250	190	1000	1380	16	22.08	0.617	13.63
13		10	250	160	1000	1320	16	21.12	0.617	13.04
14		10		160	1000	1320	12	15.84	0.617	9.78
15		10	250	190	1000	1380	12	16.56	0.617	10.22
16		12		1000	0	1000	10	10.00	0.889	8.89
17		12	250	1006	1268	2274	10	22.74	0.889	20.21
18		10		160	1000	1320	4	5.28	0.617	3.26
19		10		160	1000	1320	8	10.56	0.617	6.52
20		10	150	1100	1556	4207	50	210.35	0.617	129.85
21		10		160	3500	3786	20	75.72	0.617	46.74
22		10	250	160	1000	1320	16	21.12	0.617	13.04
								TOTAL WEIGHT=		515.47

BAR SCHEDULE FOR BOX CULVERT 3X3 (WITHOUT CUSHION) PER M LENGTH

BAR MARK	DESCRIPTION OF BARS	BAR DIA. (mm)	SPACING (mm)	M1 In mm.	M2 In mm.	LENGTH In mm.	NO. OF BARS	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)
1		10	200	1270	3740	6246	6	37.48	0.617	23.13
2		16	200	1270	3740	6225	12	74.70	1.580	118.05
3		12	200	2100		2100	5	10.50	0.889	9.33
4		16	200	320	5540	6125	6	36.75	1.580	58.08
5		12	150	3740	1220	5298	16	84.77	0.889	75.35
6		16	200	260	3740	4205	6	25.23	1.580	39.87
7		0	0	0	0	0	0	0.00	0.000	0.00
8		10	200	1270	3740	6246	6	37.48	0.617	23.13
9		10	200	200	1158	1511	12	18.13	0.617	11.19
10		10	200	200	1158	1524	12	18.29	0.617	11.29
11		10	200	260	1000	1520	30	45.60	0.617	28.15
12		12	200	210	1000	1420	30	42.60	0.889	37.87
13		10	200	210	1000	1420	30	42.60	0.617	26.30
14		10		160	1000	1320	12	15.84	0.617	9.78
15		10	200	210	1000	1420	24	34.08	0.617	21.04
16		12		1000	0	1000	10	10.00	0.889	8.89
17		12	200	1006	1268	2274	12	27.29	0.889	24.26
18		10		160	1000	1320	4	5.28	0.617	3.26
19		10		160	1000	1320	8	10.56	0.617	6.52
20		10	200	1100	1556	4207	58	244.01	0.617	150.63
21		10		160	5540	5826	20	116.52	0.617	71.93
22		10	250	210	1000	1420	24	34.08	0.617	21.04
								TOTAL WEIGHT=		779.10

BAR SCHEDULE FOR BOX CULVERT 6X5 (WITHOUT CUSHION) PER M LENGTH

BAR MARK	DESCRIPTION OF BARS	BAR DIA. (mm)	SPACING (mm)	M1 In mm.	M2 In mm.	LENGTH In mm.	NO. OF BARS	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)
1		20	200	2200	7400	11731	6	70.39	2.469	173.80
2		20	200	2500	6330	11261	12	135.13	2.469	333.68
3		16	200	4200	0	4200	5	21.00	1.580	33.19
4		20	200	650	9600	10831	6	64.99	2.469	160.47
5		12	125	6330	1750	8418	18	151.52	0.889	134.70
6		16	200	260	7400	7865	6	47.19	1.580	74.58
7		12	200	4200	0	4200	5	21.00	0.889	18.67
8		10	200	2130	7400	11626	6	69.76	0.617	43.06
9		10	200	200	1993	2346	12	28.15	0.617	17.38
10		10	200	200	2092	2457	12	29.48	0.617	18.20
11		10	150	390	1000	1780	78	138.84	0.617	85.71
12		12	150	375	1000	1750	78	136.50	0.889	121.34
13		12	150	375	1000	1750	66	115.50	0.889	102.67
14		10		160	1000	1320	12	15.84	0.617	9.78
15		10	150	375	1000	1750	36	63.00	0.617	38.89
16		12		1000	0	1000	10	10.00	0.889	8.89
17		12	200	1171	1702	2872	12	34.46	0.889	30.64
18		10		160	1000	1320	4	5.28	0.617	3.26
19		10		160	1000	1320	8	10.56	0.617	6.52
20		10	150	1100	1556	4207	130	546.91	0.617	337.62
21		10		160	9600	9886	20	197.72	0.617	122.06
22		10	170	375	1000	1750	58	101.50	0.617	62.66
								TOTAL WEIGHT=		1937.76

NOTES:

1. Quantity of steel does not include 5% extra for wastage and laps.
2. Joint or lapping of bars shall be suitably staggered as per IRC:21-2000.
3. The bar list does not include the 10φ stirrups on the notch where the approach slab rest on culvert.

Department of Urban Development & Building Construction (DUDBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Babarmahal, Kathmandu, Nepal

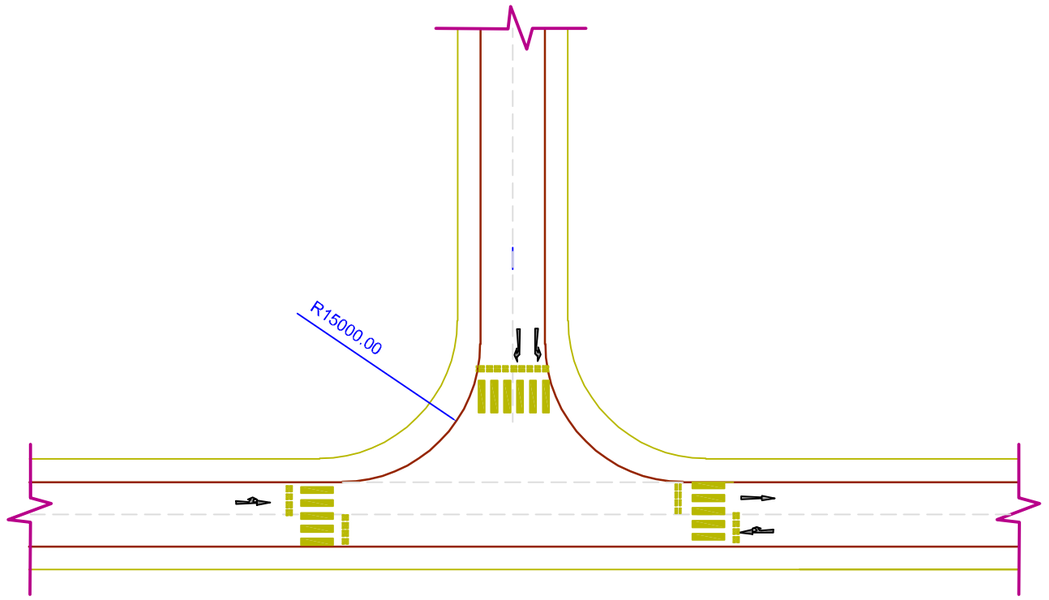
Reviewed & Desigined By :
DOHWA Engineering Co. Ltd.
in Association with
ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.
Mid- Baneshwor, Kathmandu
Tel: 01- 4589393

Consultant	**Client**
Team Leader : YOO CHANGMIN	**Approved By :**
Reviewed By : YAGYA BAHADUR MALLA	
Drawn By : SHRIJANA SHRESTHA	**Checked By :**

Scale
As Shown

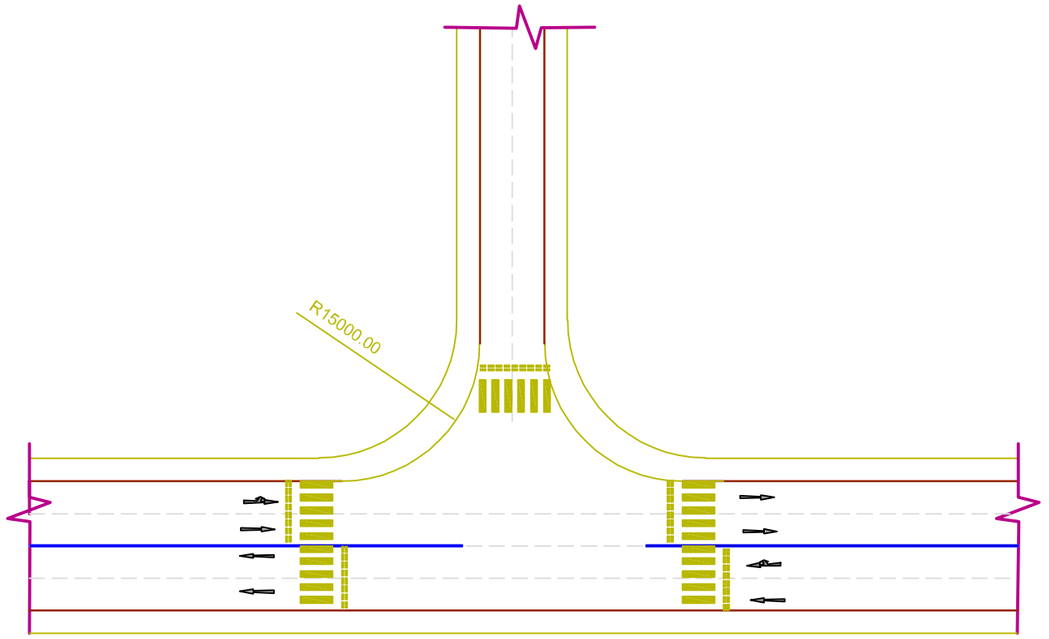
SINGLE CELL BOX CULVERT W/O CUSHION
SAINAMAINA URBAN ROADS
SAINAMAINA MUNICIPALITY
CH: 0+000 - 20+624.61 Km

REV	**: DEC 2024**
TITLE	**: TYPICAL DRAWINGS**
DRG NO	**: SM/RD/TD/17**
SHEET NO	**: 17**



T-INTERSECTION WITH BASIC RIGHT TURN TREATMENT

SCALE:-1:1500



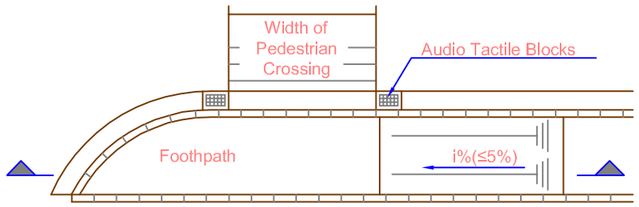
T-INTERSECTION WITH MULTIPLE LANE DIVIDED WITH NO SPECIFIC RIGHT TURN TREATMENT

SCALE:-1:1500

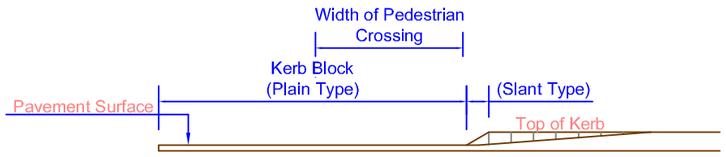
Notes:

1) All Dimension are in mm unless stated.

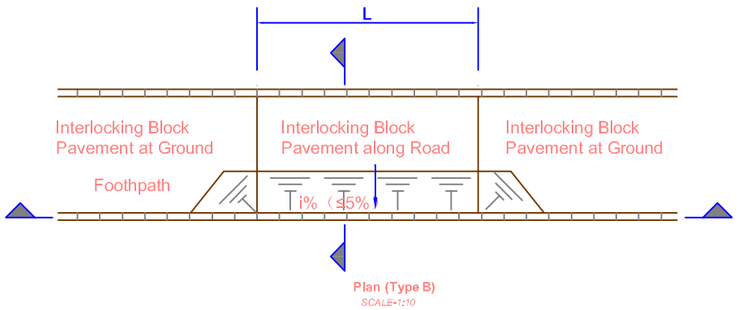
Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	JUNCTION IMPROVEMENTS SAINAMAINA URBAN ROADS SAINAMAINA MUNICIPALITY CH: 0+000 - 20+624.61 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/18 SHEET NO : 18



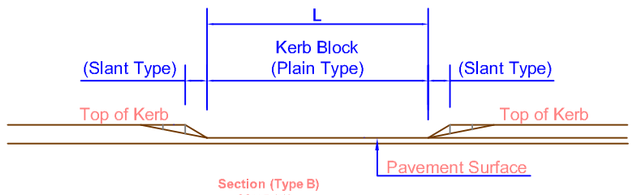
Plan (Type A)
SCALE-1:10



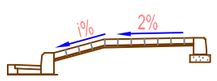
Section (Type A)
SCALE-1:10



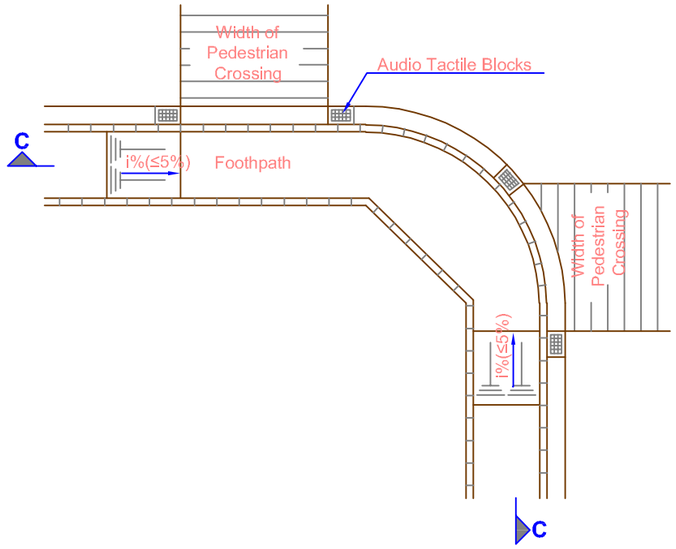
Plan (Type B)
SCALE-1:10



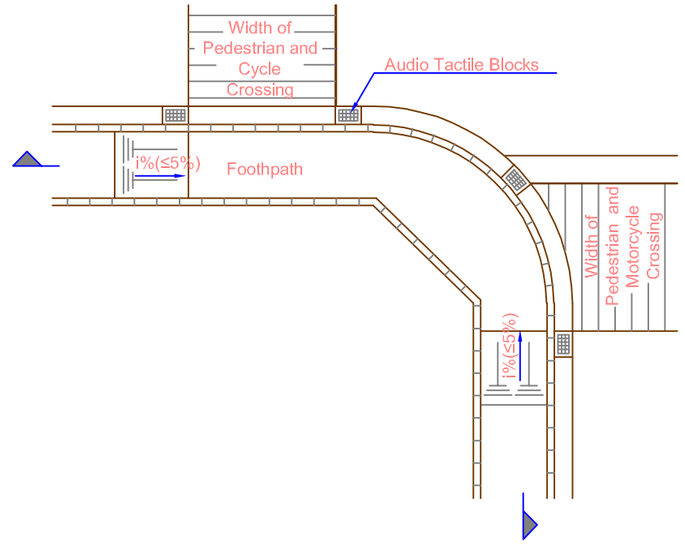
Section (Type B)
SCALE-1:10



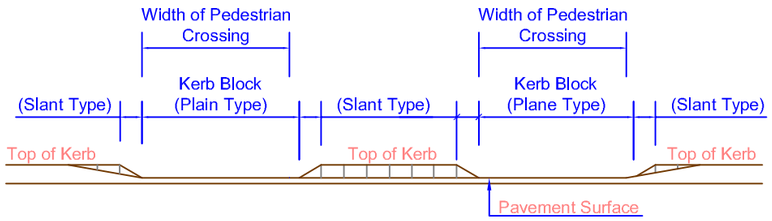
Section (Type B)
SCALE-1:10



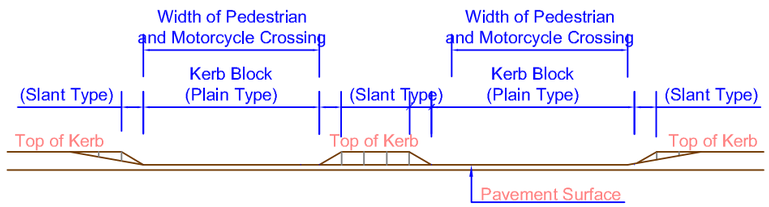
Plan (Type C)
SCALE-1:10



Plan (Type D)
SCALE-1:10

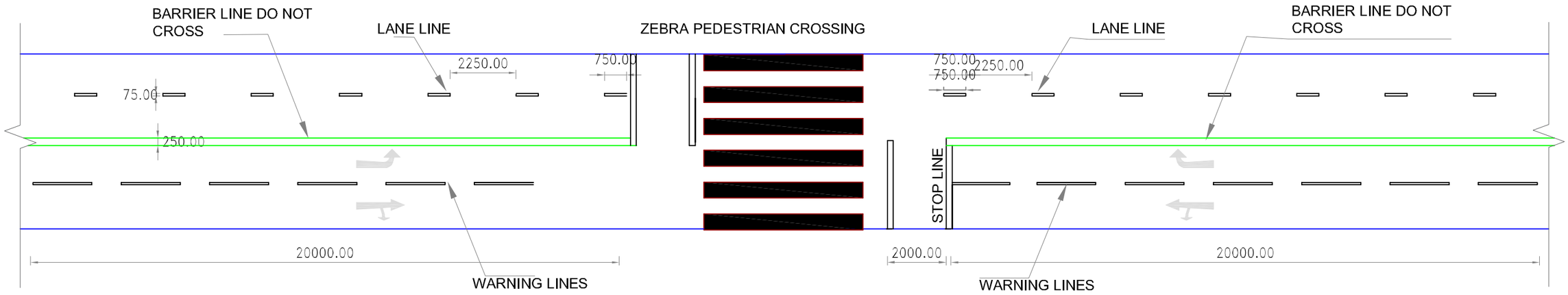


Section (Type C)
SCALE:-1:10



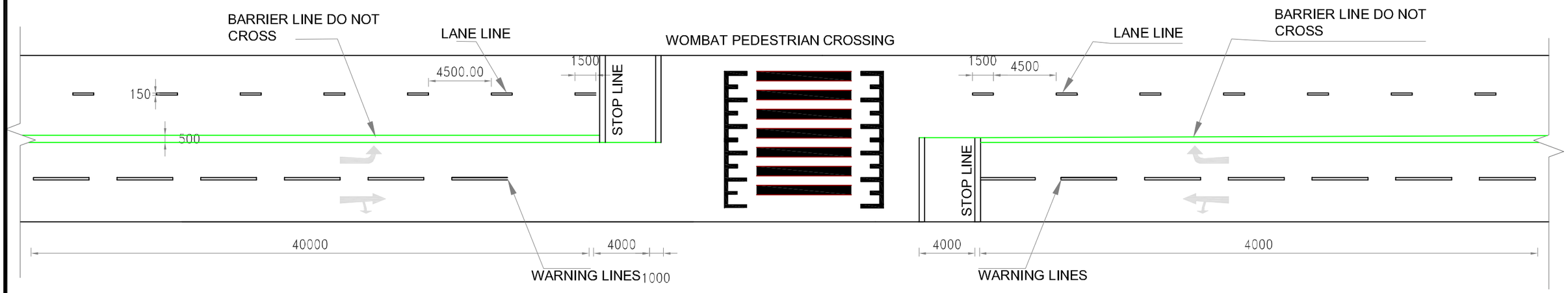
Section (Type D)
SCALE-1:10

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	KERB RAMPS AND FOOTPATH SAINAMAINA URBAN ROADS SAINAMAINA MUNICIPALITY CH: 0+000 - 20+624.61 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/19 SHEET NO : 19



MID-BLOCK ZEBRA CROSSING

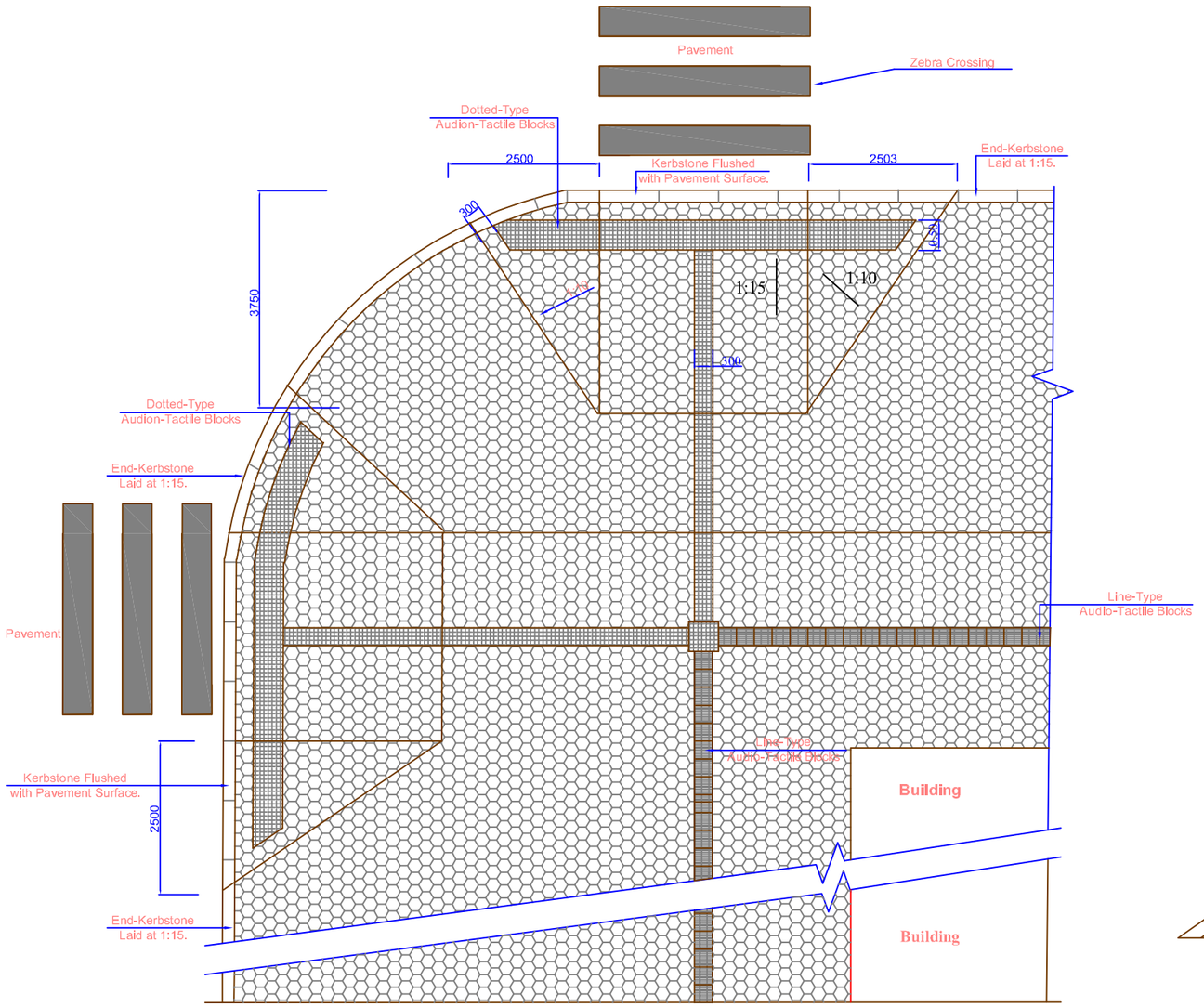
NOT TO SCALE



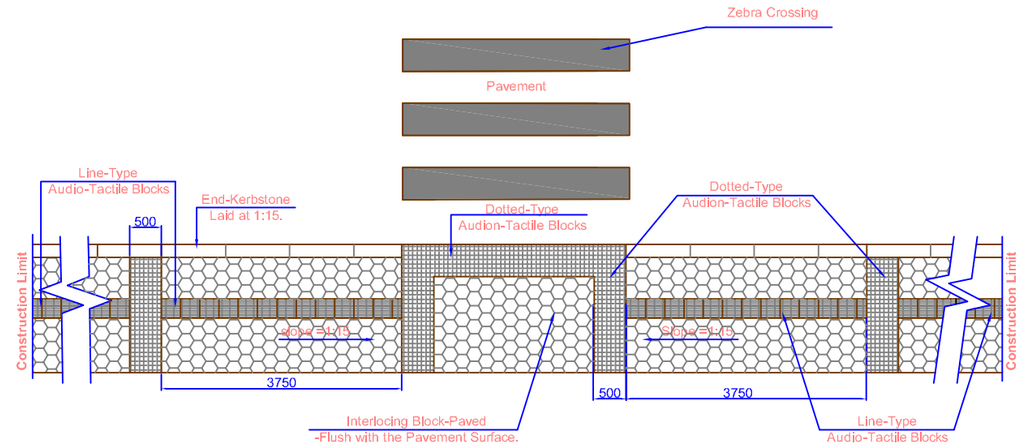
MID-BLOCK WOMBAT CROSSING

NOT TO SCALE

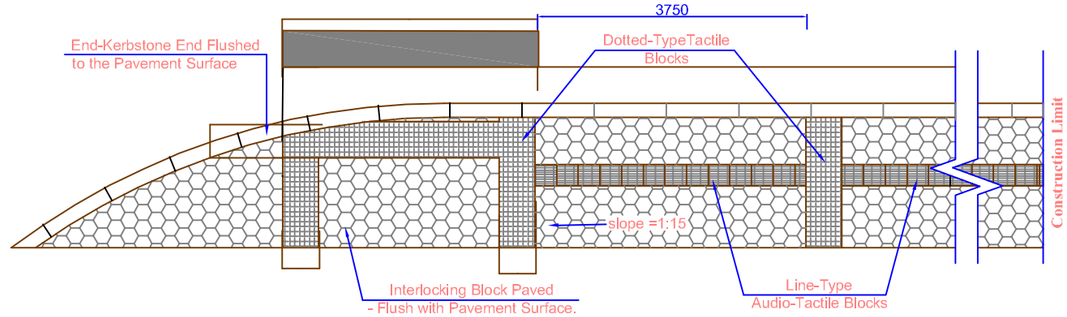
Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	**PEDESTRIAN CROSSINGS & LANE MARKINGS** **SAINAMAINA URBAN ROADS** **SAINAMAINA MUNICIPALITY** **CH: 0+000 - 20+624.61 Km**	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/20 SHEET NO : 20



FLARED KERB RAMP WITH AUDIO-TACTILE BLOCKS



KERB-RAMP AT MID-BLOCK WITH AUDIO-TACTILE BLOCKS



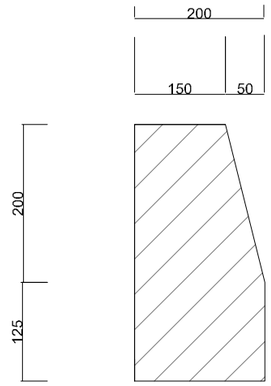
KERB-RAMMP AT INTERSECTION WITH AUDIO-TACTILE BLOCKS

Department of Urban Development & Building Construction (DUDBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Babarmahal, Kathmandu, Nepal

Reviewed & Desigined By :
DOHWA Engineering Co. Ltd.
in Association with
ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.
Mid- Baneshwor, Kathmandu
Tel: 01- 4589393

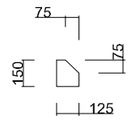
Consultant	**Client**	**Scale**	**TACTILE PAVEMENTS**
Team Leader : YOO CHANGMIN	**Approved By :**	**As Shown**	**SAINAMAINA URBAN ROADS**
Reviewed By : YAGYA BAHADUR MALLA			**SAINAMAINA MUNICIPALITY**
Drawn By : SHRIJANA SHRESTHA	**Checked By :**		**CH: 0+000 - 20+624.61 Km**

REV	**: DEC 2024**
TITLE	**: TYPICAL DRAWINGS**
DRG NO	**: SM/RD/TD/21**
SHEET NO	**: 21**



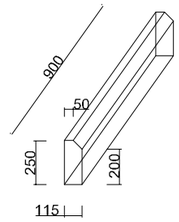
KERB STONE DETAIL

Scale 1:35



SPLAYED KERB

Scale 1:35

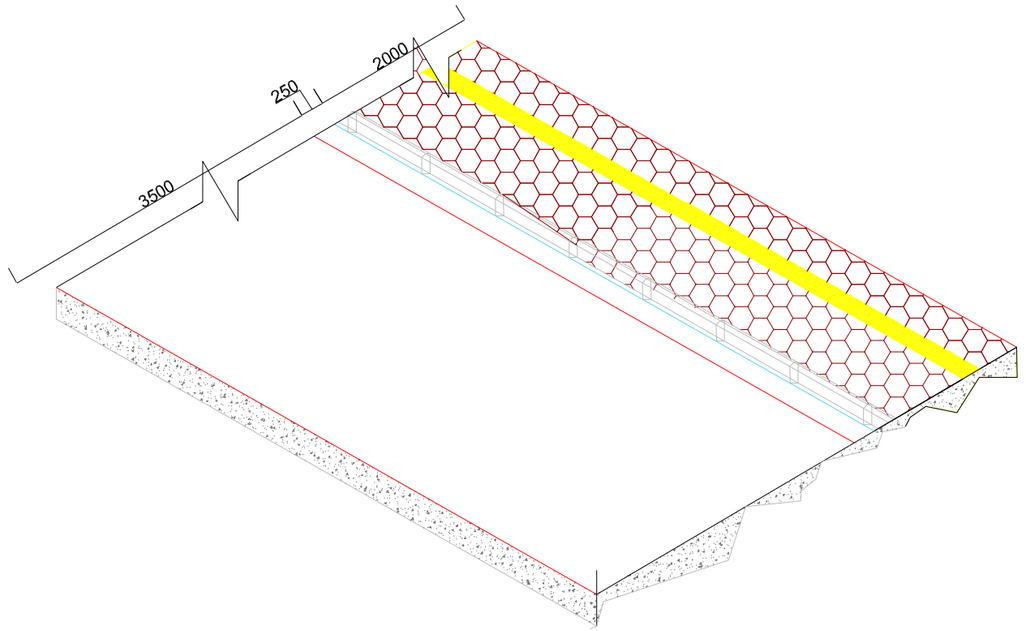


PRECAST KERB

Scale 1:35

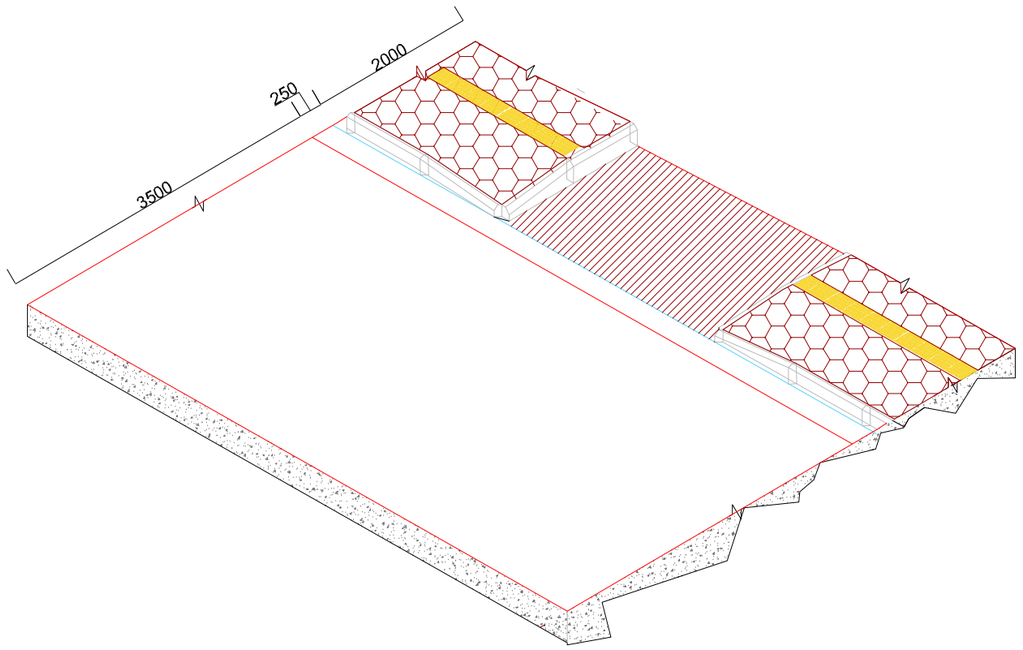
BULL NOSED KERB

Scale 1:35

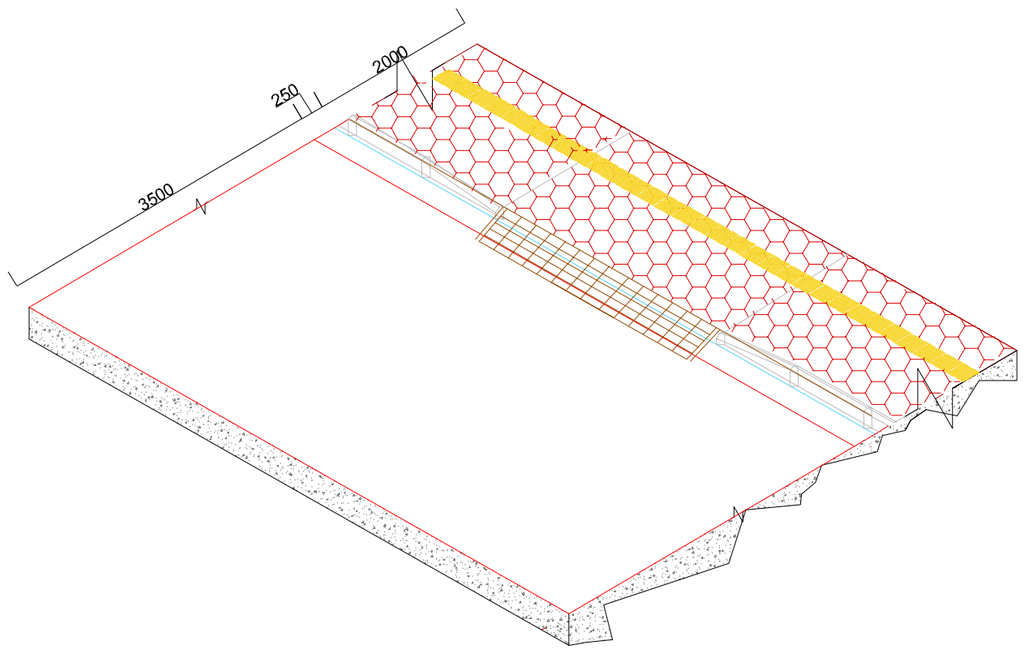


Isometric view of Raised cross walk & Kerb Detail

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	**ISOMETRIC VIEW OF FOOTPATH & KERBS** **SAINAMAINA URBAN ROADS** **SAINAMAINA MUNICIPALITY** **CH: 0+000 - 20+624.61 Km**	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/22 SHEET NO : 22

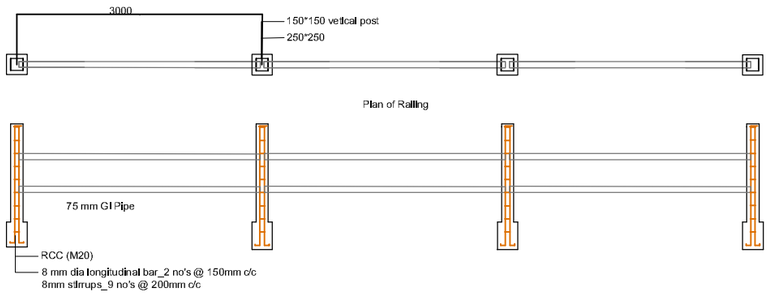


Isometric view of Main Road and Side Road Junction

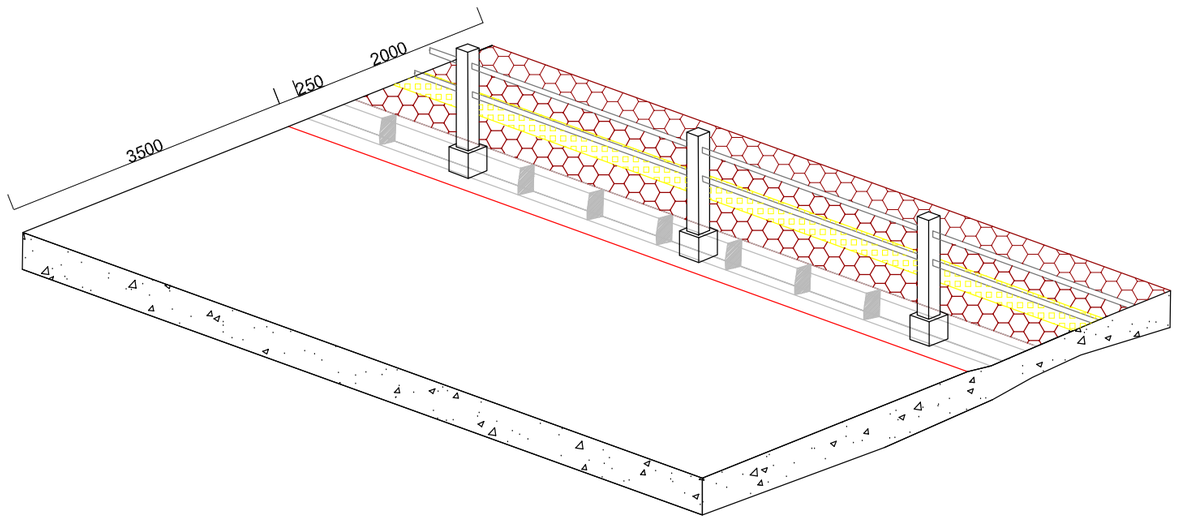


Isometric view of Ramp with Footpath

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	Isometric View of Footpaths and Kerbs **SAINAMAINA URBAN ROADS** **SAINAMAINA MUNICIPALITY** **CH: 0+000 - 20+624.61 Km**	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/23 SHEET NO : 23

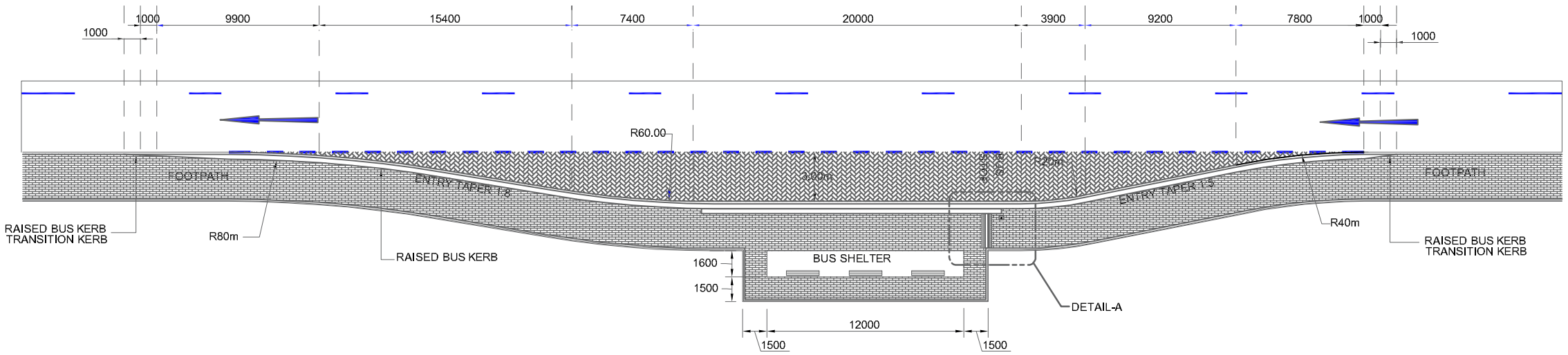


Front view of Railing



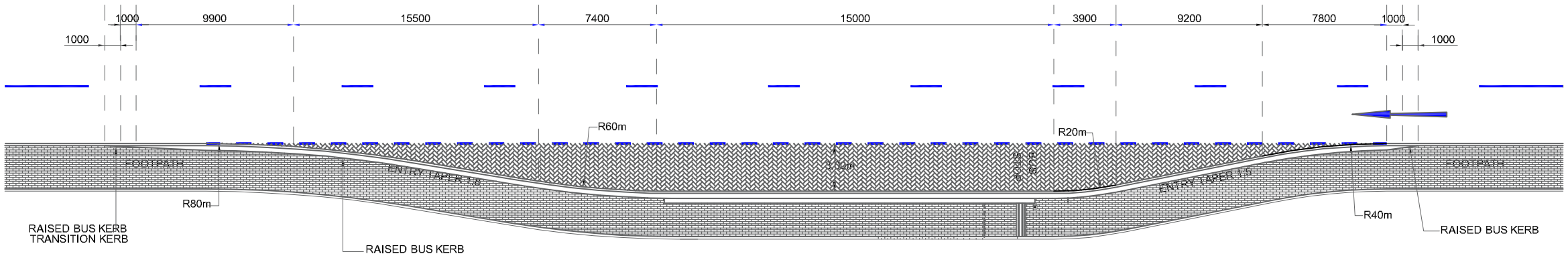
Isometric view of Railing with Footpath

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	Isometric View of Footpaths and Kerbs **SAINAMAINA URBAN ROADS** **SAINAMAINA MUNICIPALITY** **CH: 0+000 - 20+624.61 Km**	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/24 SHEET NO : 24



Typical Layout for a standard Bus Stop Layby

Not to Scale



Typical Layout for a Standard Bus Stop Layby

Not to Scale

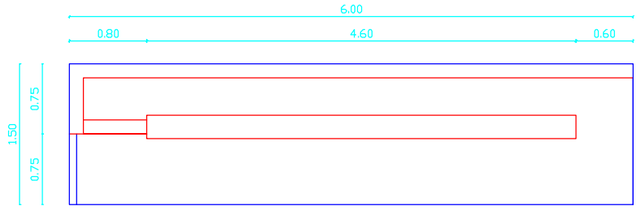
NOTES:

All dimensions are in millimeter unless otherwise stated.

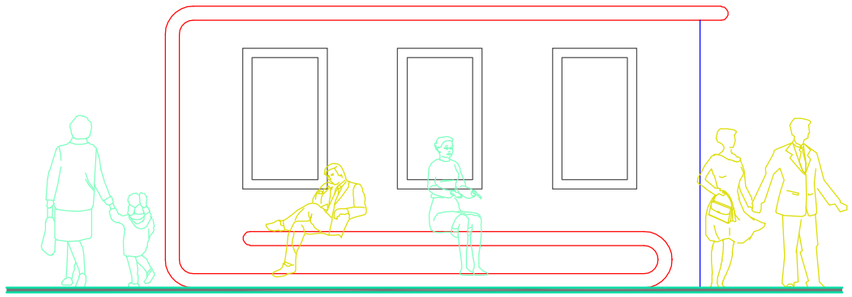
All materials and workmanship shall be in accordance with the current N.C.S unless otherwise agreed with the engineer.

Production and siting of traffic signs and road marking shall be as per current version of the Nepal traffic control manual.

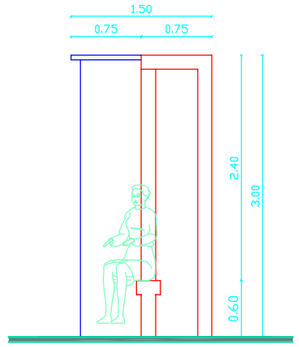
Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	TYPICAL BUS LAYBYS SAINAMAINA URBAN ROADS SAINAMAINA MUNICIPALITY CH: 0+000 - 20+624.61 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/25 SHEET NO : 25



PLAN

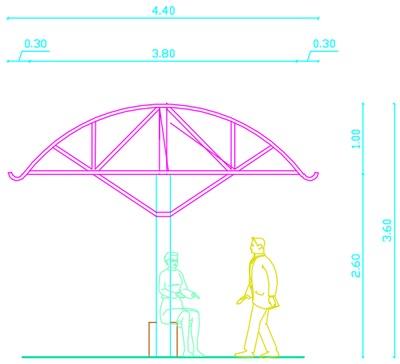


FRONT
ELEVATION

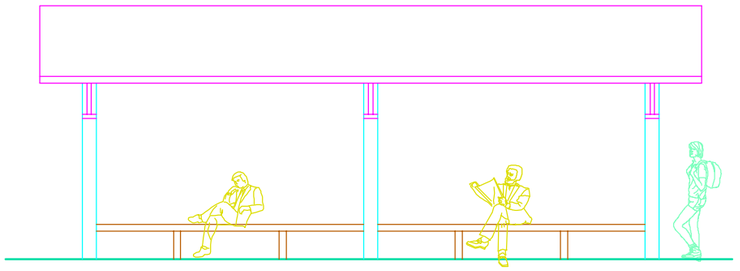


SIDE
ELEVATION

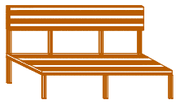
BUS STAND



SIDE
ELEVATION



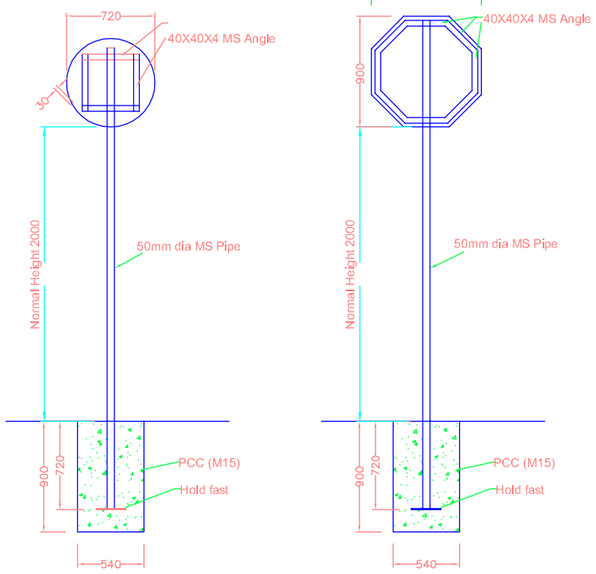
FRONT
ELEVATION



WOODEN RESTING BENCH

REST/WAITING STATIONS WITH SHEDS

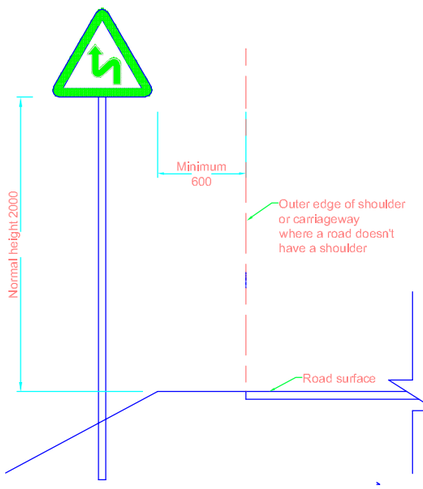
Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** **Team Leader : YOO CHANGMIN** **Reviewed By : YAGYA BAHADUR MALLA** **Drawn By : SHRIJANA SHRESTHA**	**Client** **Approved By :** **Checked By :**	**Scale** **As Shown**	TYPICAL BUS AND WAITING STANDS **SAINAMAINA URBAN ROADS** **SAINAMAINA MUNICIPALITY** **CH: 0+000 - 20+624.61 Km**	**REV : DEC 2024** **TITLE : TYPICAL DRAWINGS** **DRG NO : SM/RD/TD/26** **SHEET NO : 26**



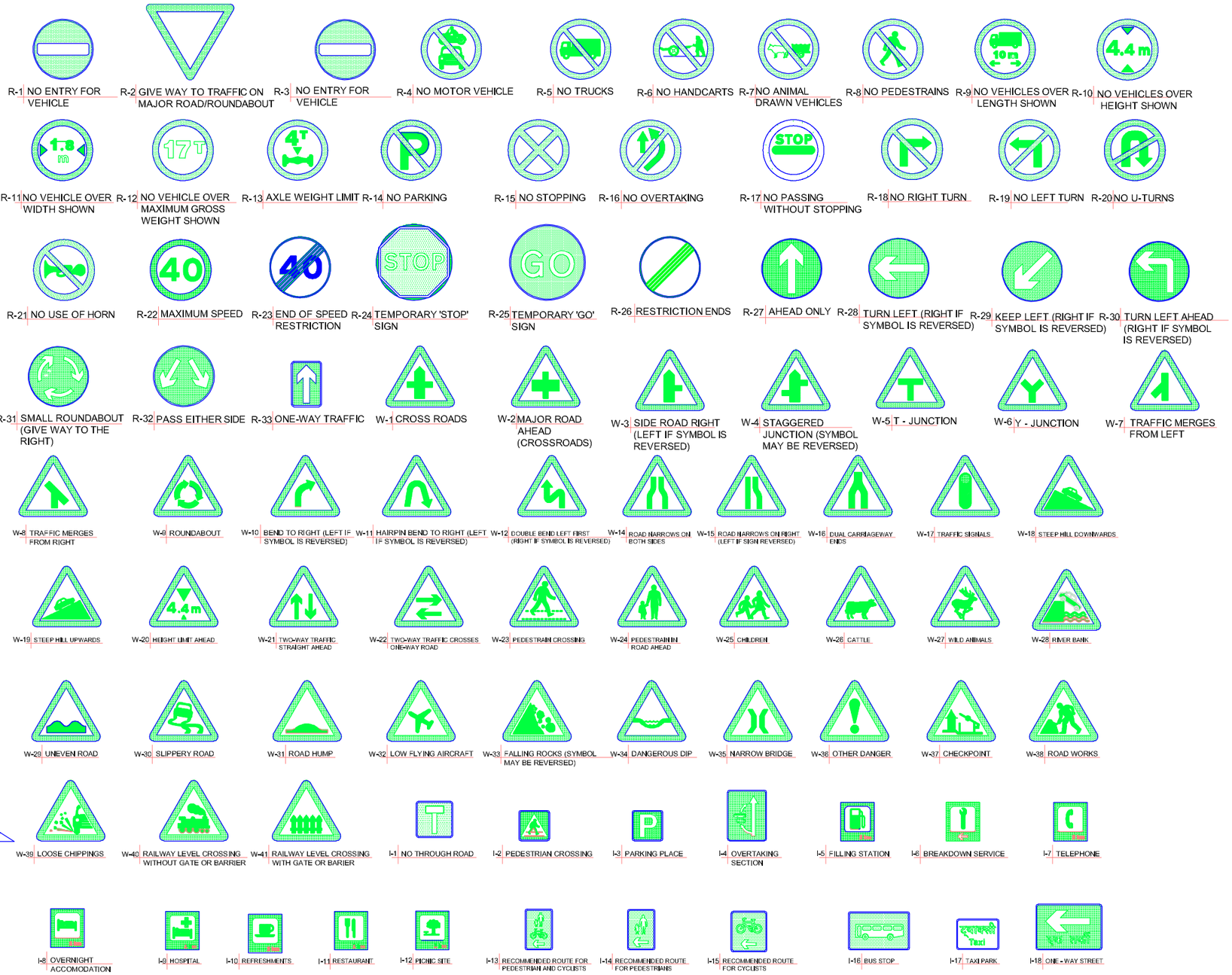
CIRCULAR SIGNS

STOP SIGNS

EQUILATERAL TRIANGULAR SIGNS



SIGNS POSITIONING

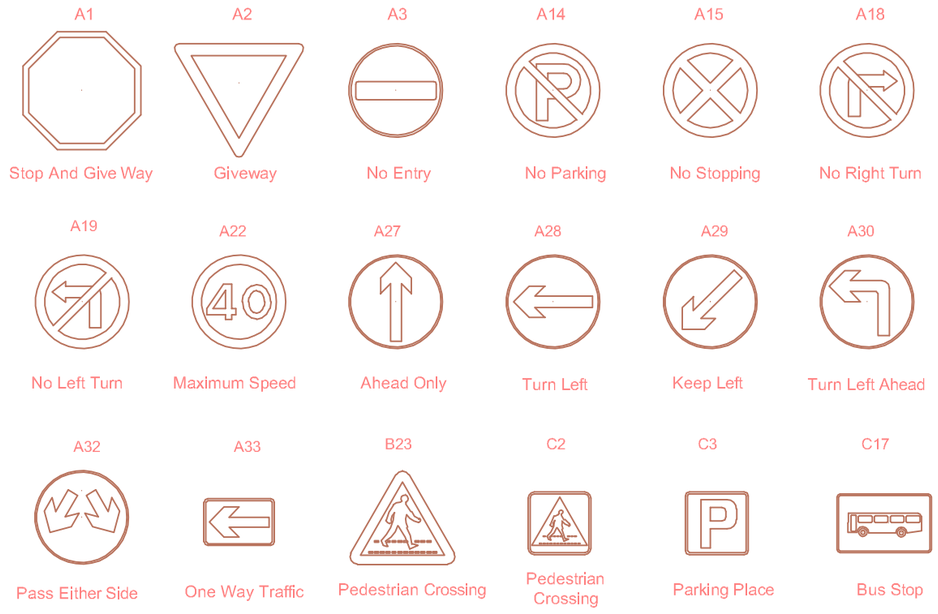


Note:

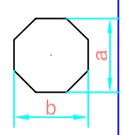
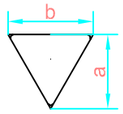
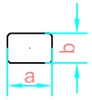
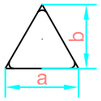
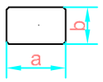
For the dimensions of board signs and letter,
Please Refer Traffic Signs Manual Vol 1 & 2.

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** **Team Leader : YOO CHANGMIN** **Reviewed By : YAGYA BAHADUR MALLA** **Drawn By : SHRIJANA SHRESTHA**	**Client** **Approved By :** **Checked By :**	**Scale** **Not to Scale**	**TRAFFIC CONTROL MEASURES** **SAINAMAINA URBAN ROADS** **SAINAMAINA MUNICIPALITY** **CH: 0+000 - 20+624.61 Km**	**REV : DEC 2024** **TITLE : TYPICAL DRAWINGS** **DRG NO : SM/RD/TD/27** **SHEET NO : 27**

RECTO-REFLECTIVE SIGN TYPICAL



SIZE OF REGULATORY SIGNS (Reviews)

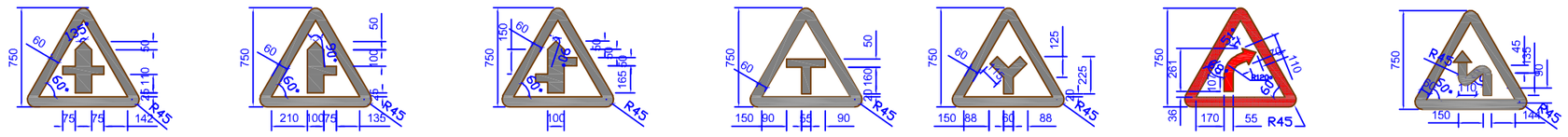
SIGN TYPE	A	B	C	D	E	F	G
a	750	864	750	600	865	300	600
b	750	750		450	600	300	375
REMARKS							
	A1	A2	A3-A32	A33	B1-B12	C2.C3	C17

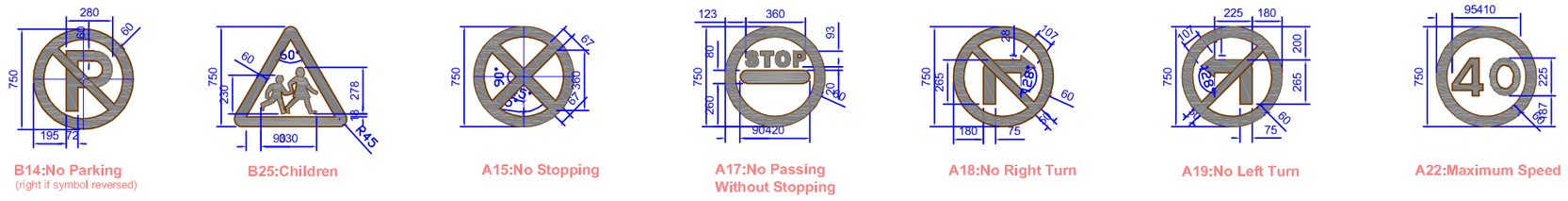
NOTE:

Refer Nepal Traffic Sign Manual by D.O.R.

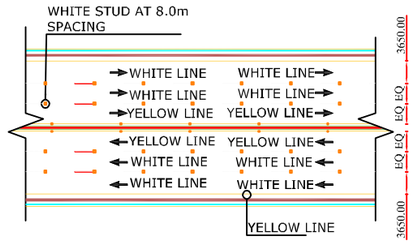
SIZE OF REGULATORY SIGNS (Reviews)

DETAILS OF FEW RECTO-REFLECTIVE SIGN TYPICAL



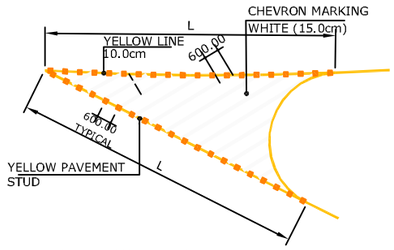


Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	TRAFFICE CONTROL MEASURES 02 SAINAMAINA URBAN ROADS SAINAMAINA MUNICIPALITY CH: 0+000 - 20+624.61 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/28 SHEET NO : 28



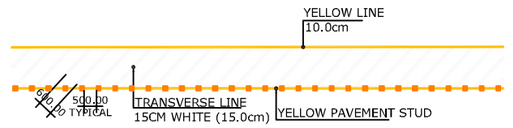
Typical Part of Pavement With Studs and Marking

Not in scale



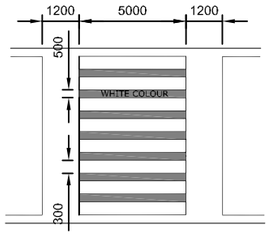
CHEVRON MARKING

Not in scale



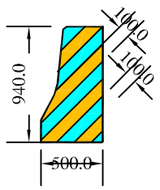
DETAIL OF TRAVERSE LINE MARKING

SCALE:-1:250



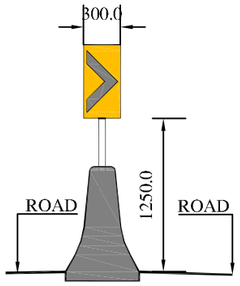
PEDESTRIAN CROSSING

SCALE:-1:100



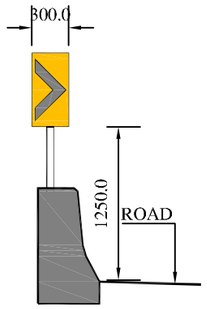
PAINT MARKING

SCALE:-1:50



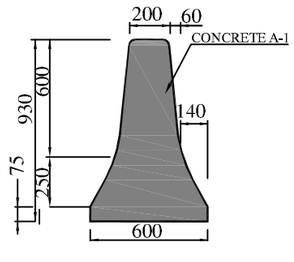
TYPE 1: BARRIER

SCALE:-1:50



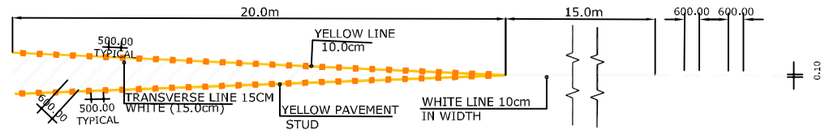
TYPE 2: BARRIER

SCALE:-1:50



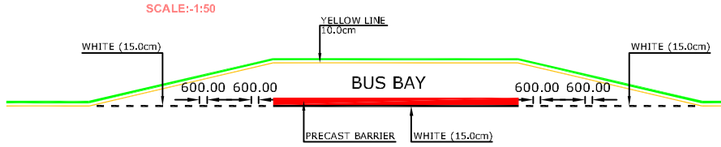
BARRIER USED AT BUS-BAYS

NOT IN SCALE



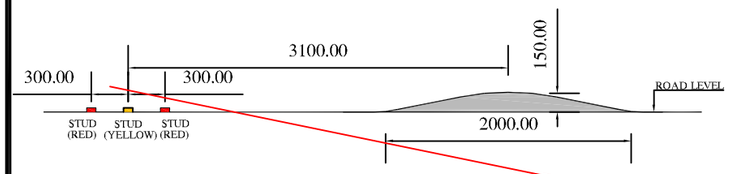
TRAVERSE LINE MARKING

SCALE:-1:250



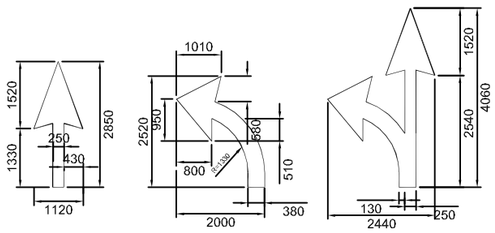
TYPICAL MARKING IN BUS-BAYS

SCALE:-1:500



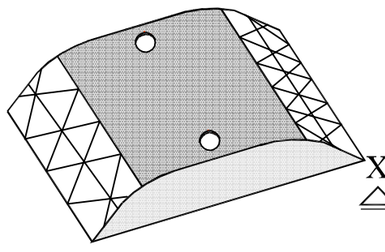
DETAIL X-X

SCALE:-1:50



TYPICAL ARROWS

Not in scale

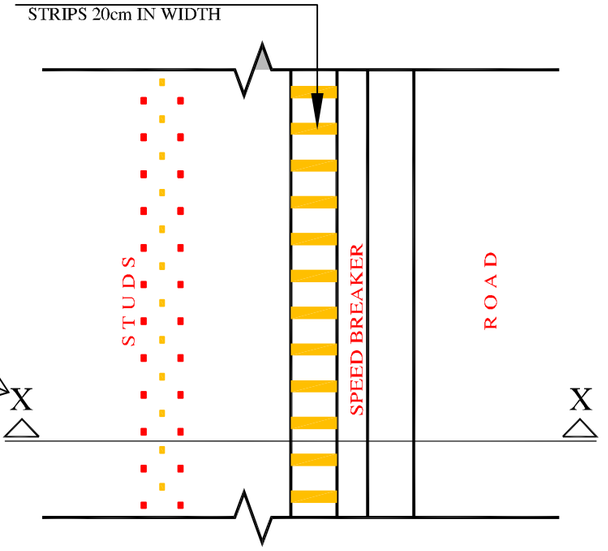


STUD

SCALE:-1:100

DETAIL OF STUDS

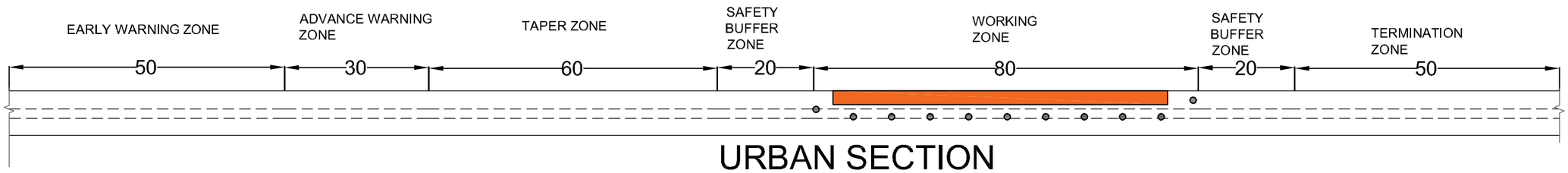
SCALE:-1:100



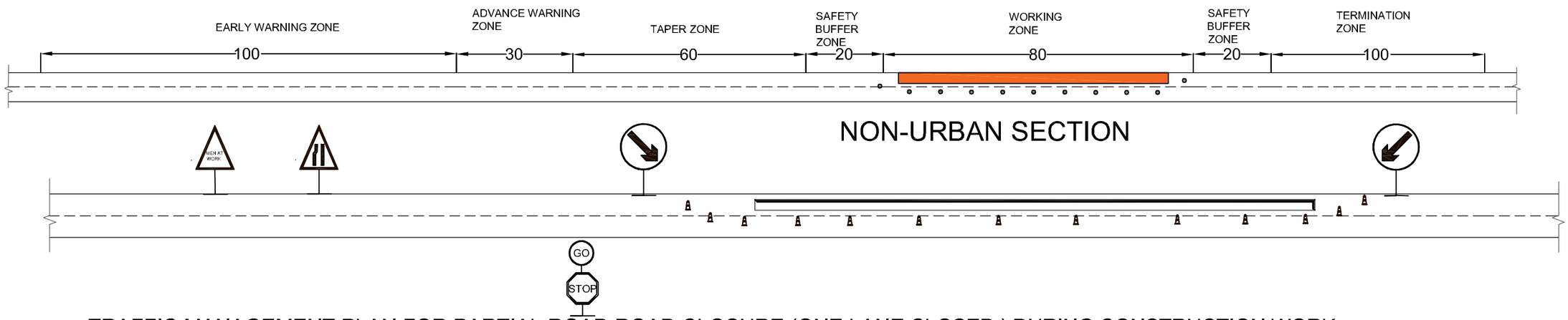
PLAN OF SPEED BREAKER

SCALE:-1:100

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01 - 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	SPECIAL TRAFFIC CONTROL MEASURES SAINAMAINA URBAN ROADS SAINAMAINA MUNICIPALITY CH: 0+000 - 20+624.61 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/29 SHEET NO : 29

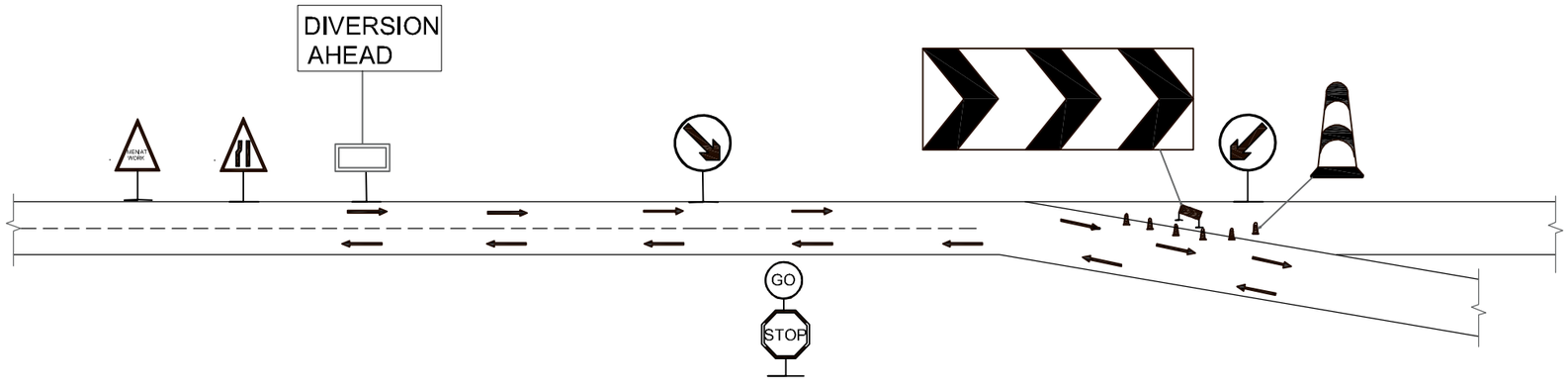


URBAN SECTION



NON-URBAN SECTION

TRAFFIC MANAGEMENT PLAN FOR PARTIAL ROAD ROAD CLOSURE (ONE LANE CLOSED) DURING CONSTRUCTION WORK



TRAFFIC MANAGEMENT PLAN FOR FULL ROAD CLOSURE (TRAFFIC DIVERSION) DURING CONSTRUCTION WORK

Department of Urban Development & Building Construction (DUDBC) **Regional Urban Development Project (RUDP)** Project Coordination Office Babarmahal, Kathmandu, Nepal	**Reviewed & Designed By :** **DOHWA Engineering Co. Ltd.** in Association with **ERMC (P.) Ltd., SILT Consultants (P.) Ltd., and DIGICON (P.) Ltd.** Mid- Baneshwor, Kathmandu Tel: 01- 4589393	**Consultant** Team Leader : YOO CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	**Client** Approved By : Checked By :	**Scale** As Shown	**TRAFFIC MANAGEMENT PLAN** **SAINAMAINA RING ROAD** **DUIMAT CHOCK -TALI SECTION** **CH: 0+000 - 5+261.16 Km**	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : SM/RD/TD/30 SHEET NO : 30