



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)

TILOTTAMA URBAN ROADS, TILOTTAMA MUNICIPALITY

CH: 0+000 - 13+560.09 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. SITI Consultants (P.) Ltd. and DIGICON (P.) Ltd.



Regional Urban Development Project (RUDP)

Reviewed & Designed By :
DOHWA Engineering Co. Ltd.
in Association with
ERMIC (P.) Ltd., SILLI Consultants (P.) Ltd., and
DIGICON (P.) Ltd.
Also Reviewed: Ashimura

in Association with
SITT Consulting (P) Ltd and

DIGICON (P.) Ltd.
Whs. Bhamburda, Ambikapur

Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA

Team Leader : YOO CHANGMIN

Reviewed By : YAGYA BAHADUR MALLA

Approv

Chapters	
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1

TYPICAL CROSS SECTION OF ROAD

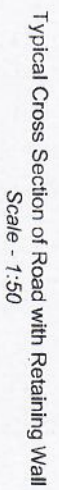
TILLOTTAMA URBAN ROADS

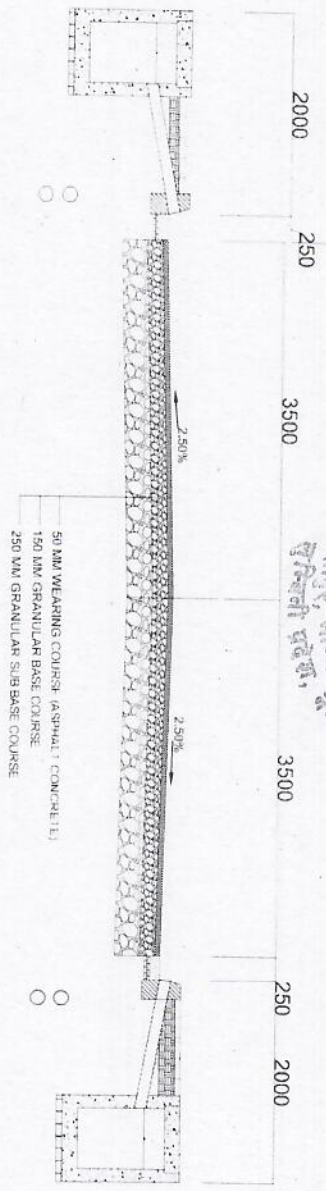
TILOTTAMA MUNICIPALITY
CITY: 01000 03-550 00 K

REV : DEC 2024

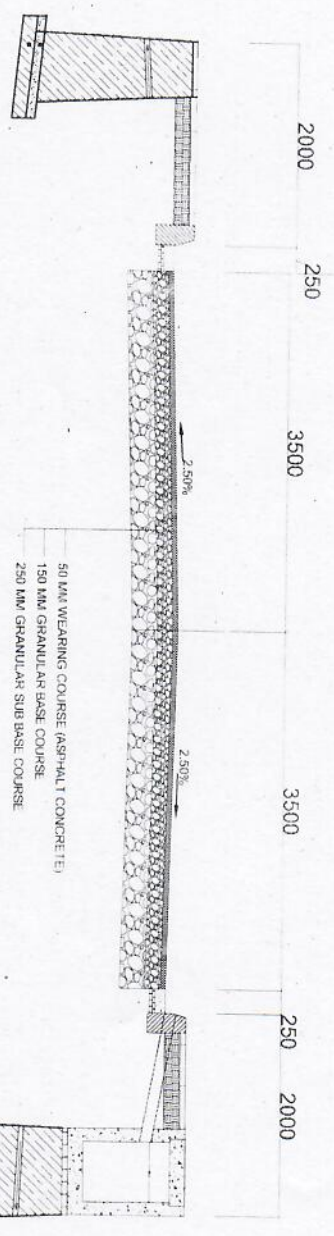
TITLE : TYPICAL

DRG NO : TM/RD/ITC





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 (DUBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Baburnagar, Kottur, Mysore

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DOHWA Engineering Co. Ltd.
in Association with
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M/S. Shree Anand Engineering
Works, Mysore

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

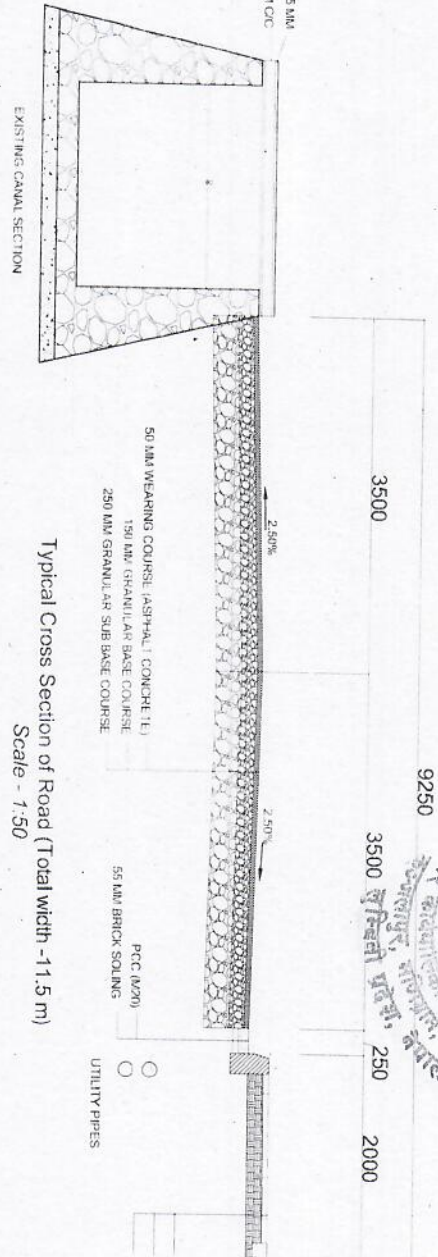
Client
Approved By:
Checked By:

Scale
As Shown

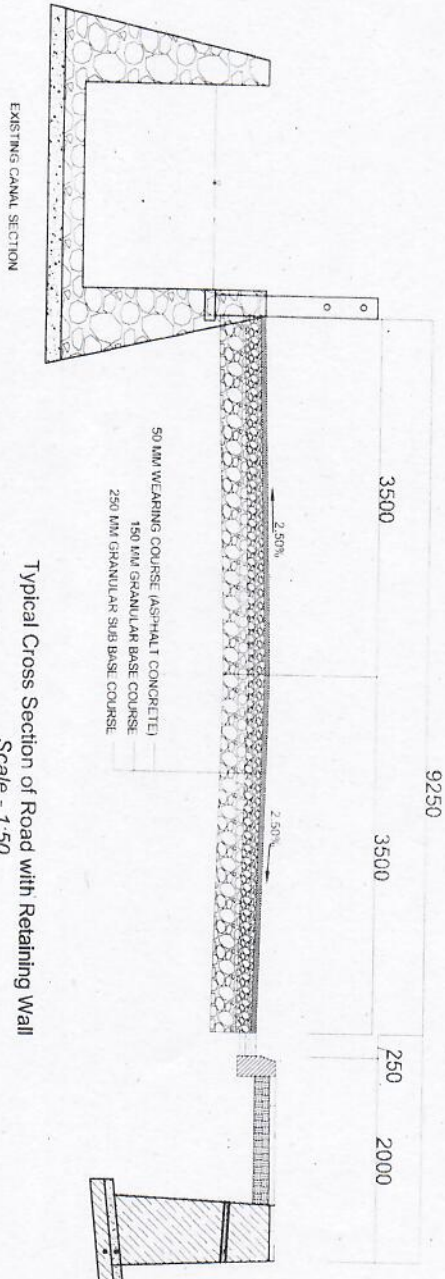
TYPICAL CROSS SECTION OF ROAD
TILOTTAMA URBAN ROADS
TILOTTAMA MUNICIPALITY
CH: 0+000 - 23+560.09 Km

REV : DEC 2024
TITLE : TYPICAL DRAWINGS
DRG NO : TM/RD/ID/02
SHEET NO : 02

CHEQUER PLATE 5 MM
CROSS BLANK (IS:8130)@1M CC



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 (DUBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Balekaval, Kottur, Bengaluru

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DOHVA Engineering Co. Ltd.
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M/S. Sreejith Associates
Bangalore

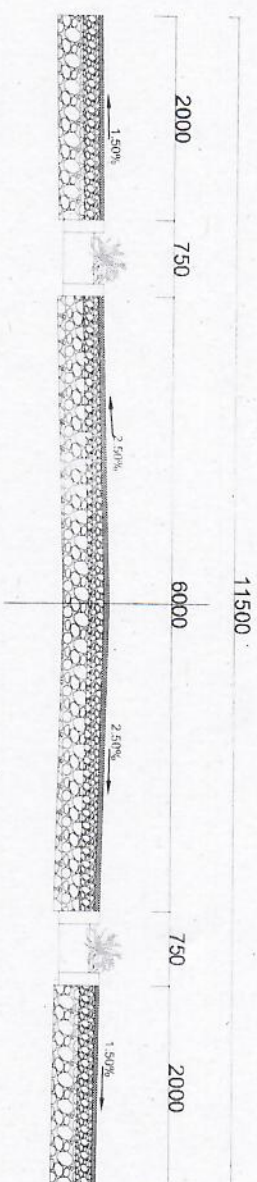
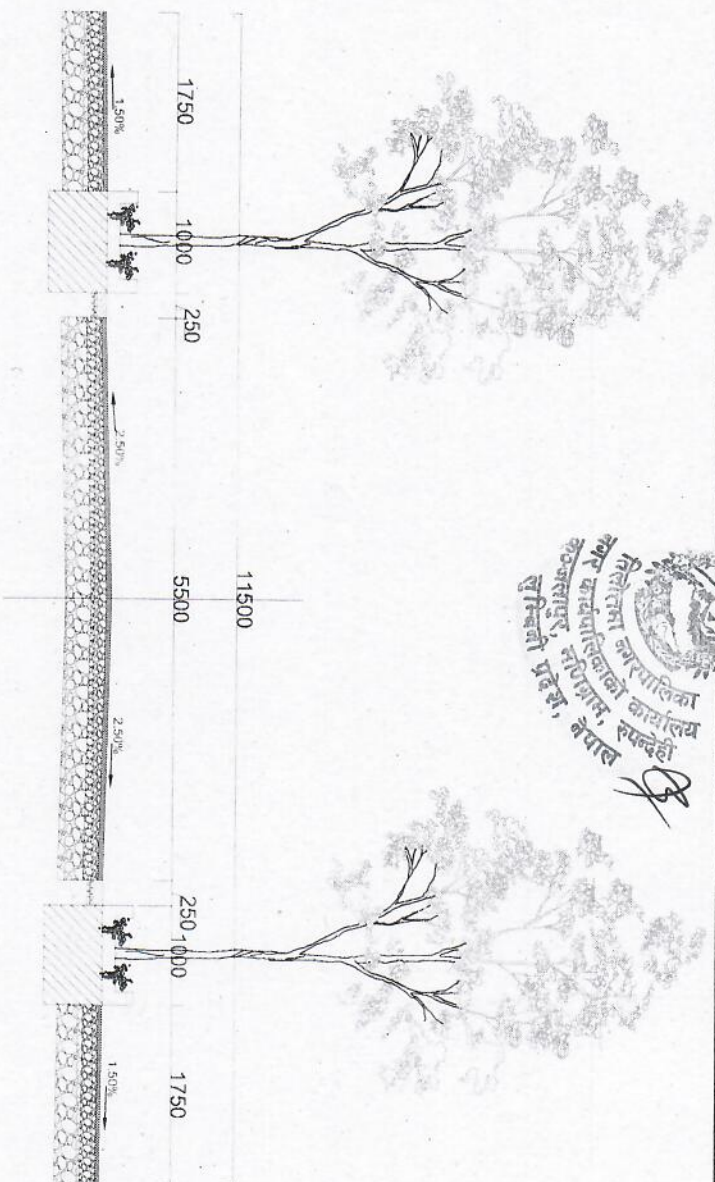
Consultant
Team Leader: YOO CHANGMIN
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Client
Approved By:

Scale
As Shown

TYPICAL CROSS SECTION OF ROAD
TILLOTTAMA URBAN ROADS
TILLOTTAMA MUNICIPALITY
CH: 0+000 - 23+560.09 Km

REV: DEC 2024
TITLE: TYPICAL DRAWINGS
DRG NO: TWRBD/10/03
SHEET NO: 03



Typical Cross Sections of Road with Verge & Cycle Track
Scale - 1:50



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

Reviewed & Designed By:
DUBCO Engineering Co. Ltd.
FPMC (P) Ltd., SILT Consultants (P) Ltd. and
M/S. Bannister, Kathmandu
S/N: 171-4000000

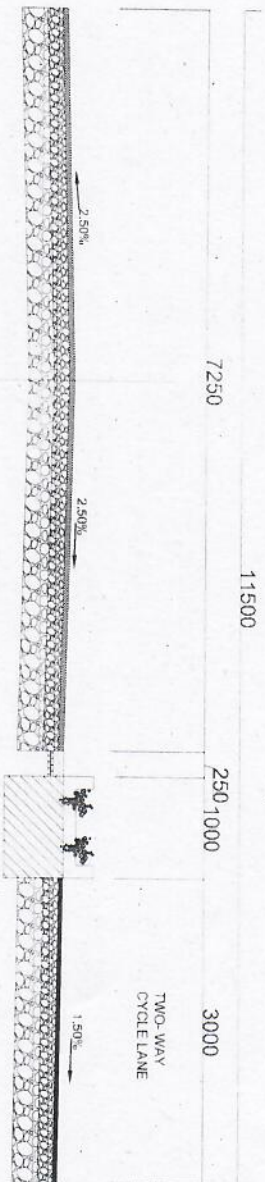
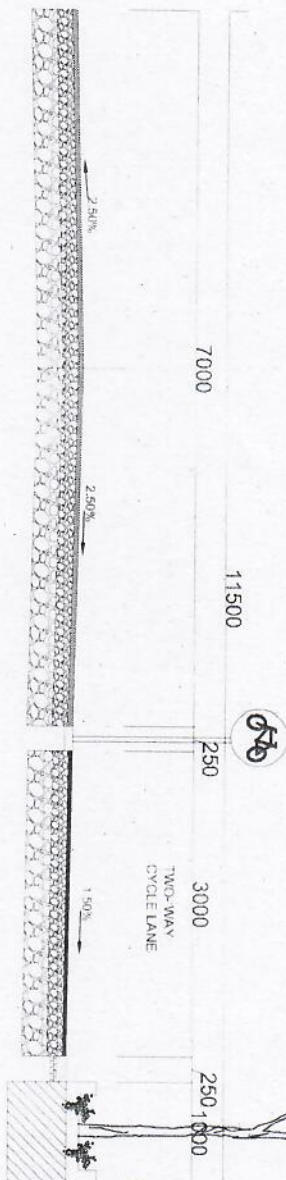
Consultant
Team Leader: YOG CHANGMAN
Reviewed By: YAGYA BAHADUR MALA
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Client
Approved By:
Checked By:

Scale
As Shown

TYPICAL CROSS SECTION OF ROAD
TILLOTTAMA URBAN ROADS
TILLOTTAMA MUNICIPALITY
CH. 0+000 - 23+500.09 Km

REV : DEC 2024
TITLE : TYPICAL DRAWINGS
DRG NO : TMRD/1/D05
SHEET NO : 05



Typical Cross Sections of Road with Verge & Cycle Track
Scale - 1:50



Department of Urban Development & Planning
Construction (DUBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Bhutanbatali, Kathmandu, Nepal

Reviewed & Designed By :
Dohwa Engineering Co. Ltd.
of Bhutanese origin
ENAC (P.) Ltd. and
ENAC (P.) Ltd. and
ENAC (P.) Ltd. and
ENAC (P.) Ltd. and

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

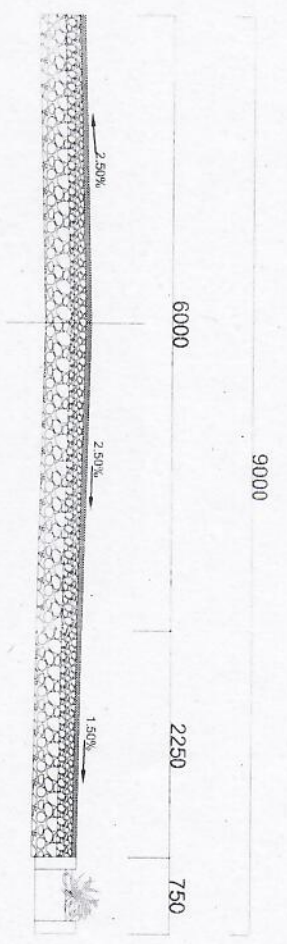
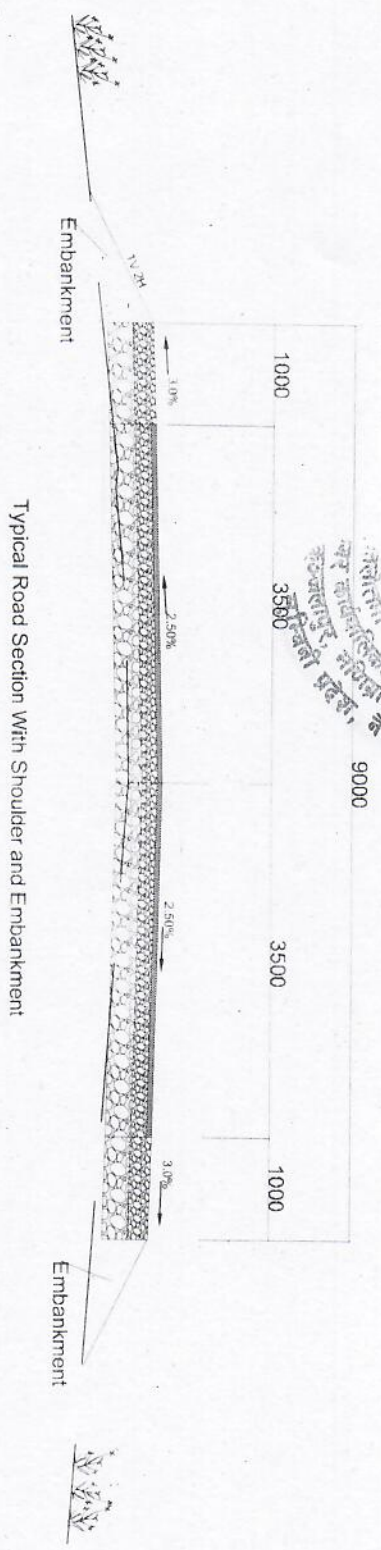
Client
Approved By :
Checked By :

Scale
As Shown

TYPICAL CROSS SECTION OF ROAD
TILLOTAMA URBAN ROADS
TILLOTAMA MUNICIPALITY
CH: 0+000 - 23+560.09 Km

REV : DEC 2024
TITLE : TYPICAL DRAWINGS
DRG NO : TWRD/TD06
SHEET NO : 06

सुदूर पश्चिमाञ्चल विकास कार्यालय
 नगर कार्यलय, रुपन्देही
 नयाँ बजार, रुपन्देही
 नेपाल

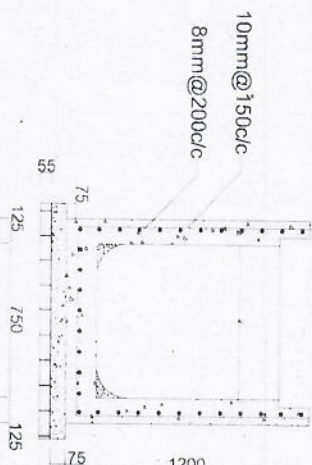
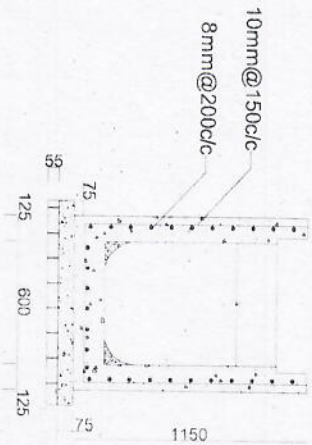
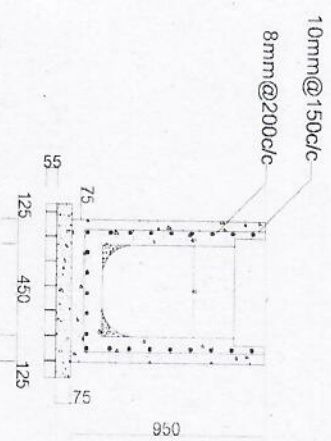
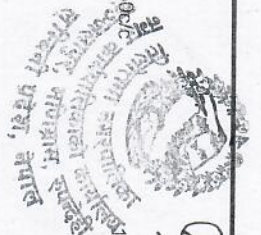


Typical Cross Sections of Road with Verge & Cycle Track
 Scale - 1:50

 Department of Urban Development & Building Government of Nepal Regional Urban Development Project (RUDP) Project Coordination Office Bhatmandai, Kathmandu, Nepal		Reviewed & Designed By : DORWA Engineering Co. Ltd. or Associate with: ERMC (P) Ltd. SDC Consultants (P) Ltd. and SDC Consultants (P) Ltd. Web: www.dorwa.com.np Tel: 01-4250100		Consultant Team Leader : YOG CHANGMIN Reviewed By : YAGYA BAHADUR MALLA Drawn By : SHRIJANA SHRESTHA	Client Approved By : Checked By :	Scale As Shown	TYPICAL CROSS SECTION OF ROAD TILOTTAMA URBAN ROADS TILOTTAMA MUNICIPALITY CH: 0+000 - 23+560.09 Km	REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : 1/WRD/10/07 SHEET NO : 07
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10mm@100c/c
8mm@150c/c

10mm@100c/c
8mm@150c/c
10mm@100c/c
8mm@150c/c



RCC DRAIN - TYPE A
Scale - 1/25

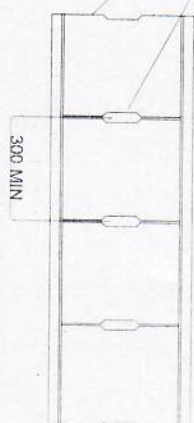
RCC DRAIN - TYPE B
Scale - 1/25

RCC DRAIN - TYPE C
Scale - 1/25

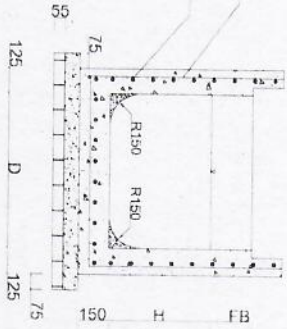
10mm@100c/c
8mm@150c/c



SLOT IN COVER TO BE
CENTRALLY LOCATED
PRECAST SLAB



10mm@150c/c
8mm@200c/c



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 (DUBC)
Regional Urban Development Project (RUDP)
Project Coordinator: Chief
Bachchanthi Kothandaram, Noida

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ENRC (P) Ltd., SITI Consultants (P) Ltd. and
DIGCON (P) Ltd.
Mr. S. S. Srinivas
Mr. S. S. Srinivas

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

Client
Approved By:
Checked By:

Scale
As Shown

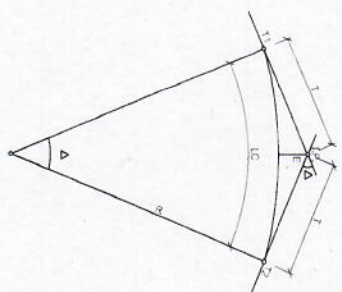
TYPICAL DRAIN SECTIONS
TILLOTTAMA URBAN ROADS
TILLOTTAMA MUNICIPALITY
CH: 0+000 - 23+560.09 Km

REV : DEC 2024
TITLE : TYPICAL DRAWINGS
DNG NO : TWRD/106
SHEET NO : 06

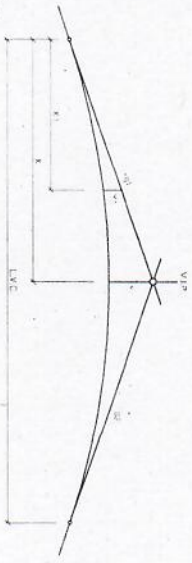
Transition Curve Detail Transition Length Mountainous and Steep Terrain



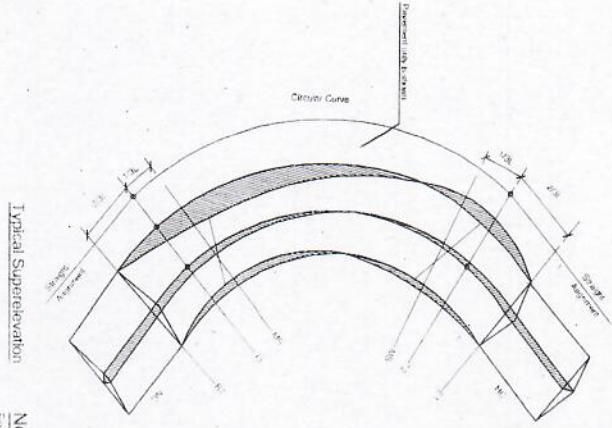
Curve Radius (Meters)	Design Speed in km/h				
	50	40	30	25	20
14				NA	30
20				35	20
25			NA	25	20
30			30	25	15
40		NA	25	20	15
50		40	20	15	15
55		40	20	15	15
70	NA	30	15	15	15
80	55	25	15	15	NR
90	45	25	15	15	
100	45	20	15	15	
125	35	15	15	15	
150	30	15	15		
170	25	15	NR		
200	20	15			
250	15	15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



Circular Curve
For Horizontal Alignment



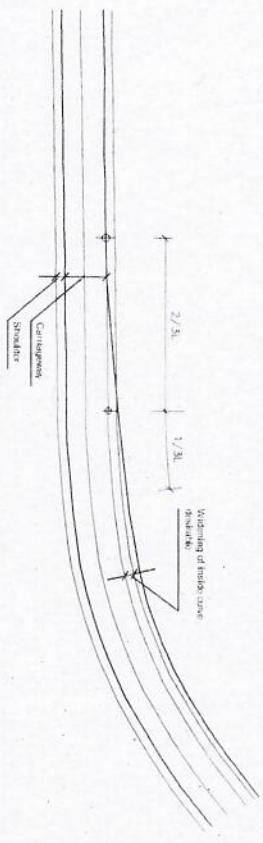
Parabolic Curve
For Vertical Alignment



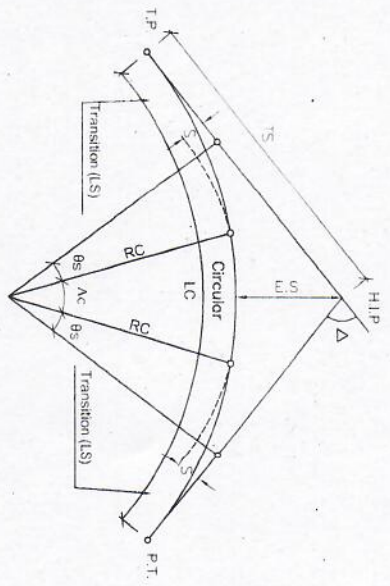
Typical Super-elevation

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

Cross Slope in Curves



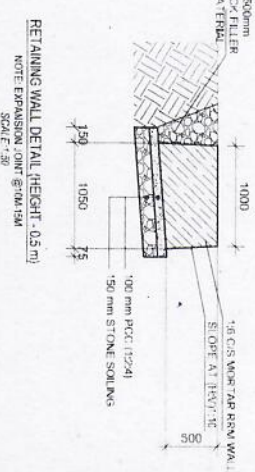
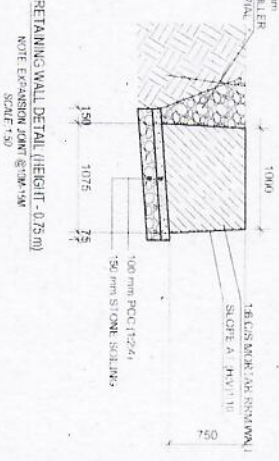
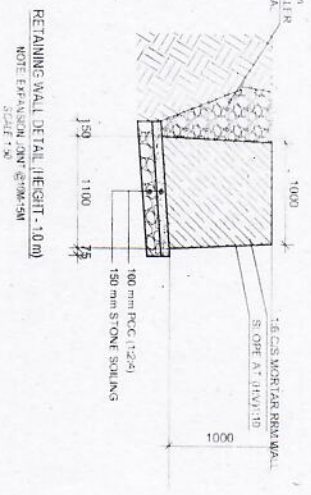
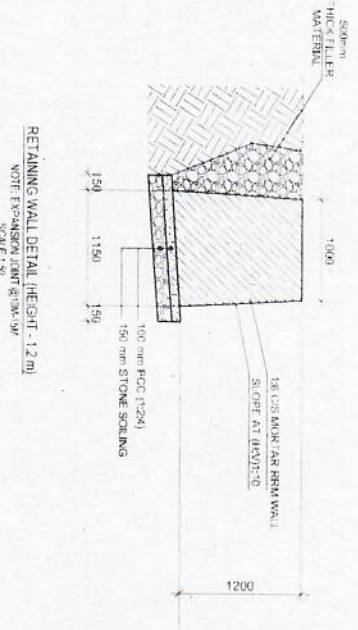
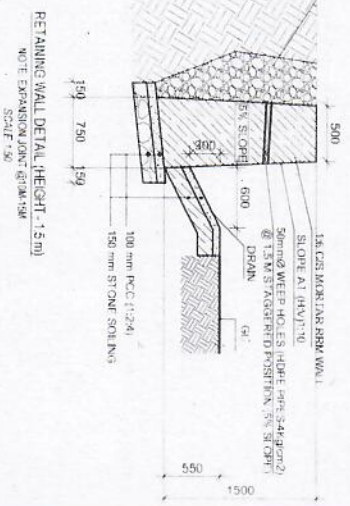
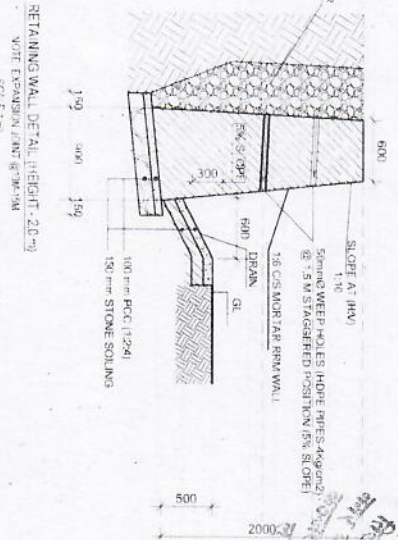
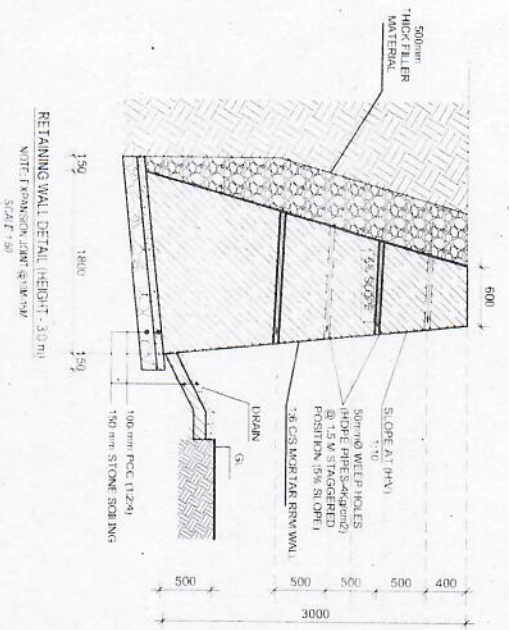
Pavement Widening on Curves



Elements of Combined Circular and
Transition Curve

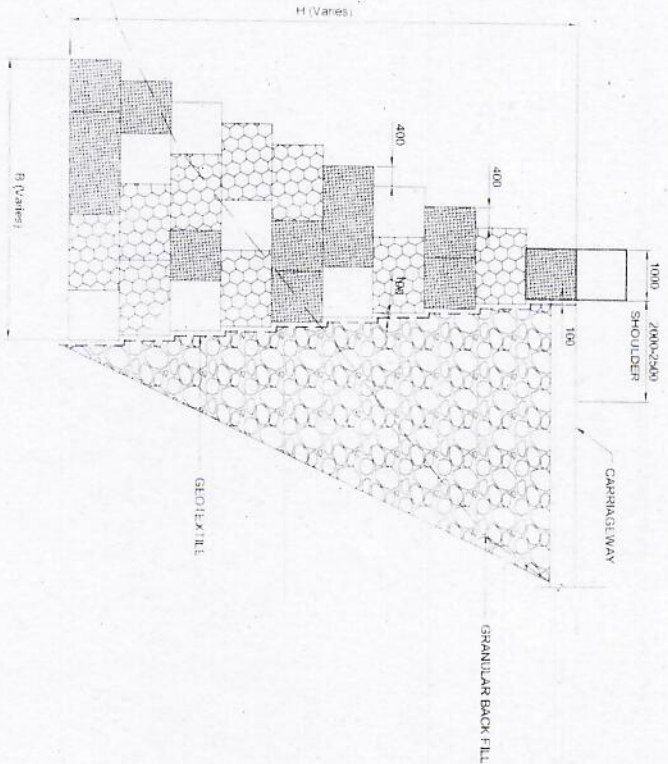
- I.P. = Intersection Point
- H.I.P. = Horizontal Intersection Point
- V.P. = Vertical Intersection Point
- TS = Tangent Length
- LC = Length of Circular Curve
- ES = Beginning of Circular Curve
- LS = End of Circular Curve
- LC = Length of Transition Curve
- ES = Tangent Distance
- LS = Apex Distance
- LC = Length of Circular Curve

- V.I.P. = Vertical Intersection Point
- L.V.C. = Length of Vertical Curve
- H.I.P. = Horizontal Intersection Point
- X.Y. = Abscissa of the Vertical Curve
- X.X. = Ordinate of the Vertical Curve
- V = X
- 2LVC = 2LVC



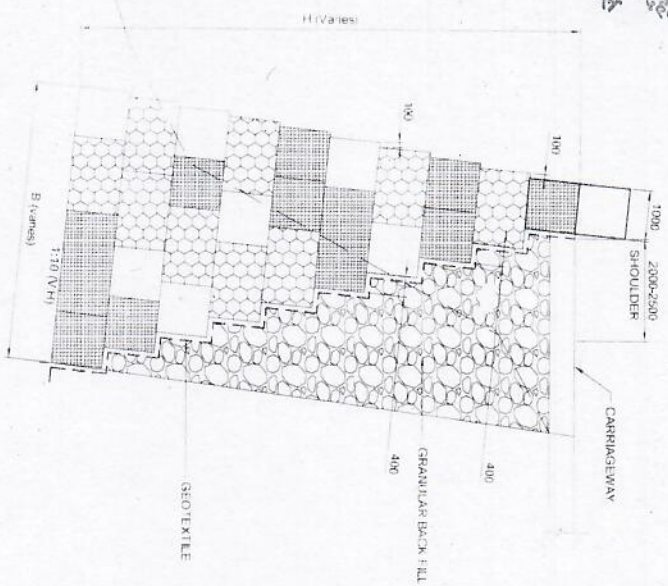
Department of Urban Development & Building
Construction (DUBB)
Regional Urban Development Project (RUDP)
Project Coordination Office
Baburnagar, Kottahalli, Bengal

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DOWA Engineering Co. Ltd.
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EMC (P) Ltd., Silt Consultants (P) Ltd. and
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No. 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 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GRAVITY GABION WALL (FRONT BATTER)

SCALE: 1:100



GRAVITY GABION WALL (BACK BATTER)

SCALE: 1:100

- Detail for Gravity Gabion walls (FB-BB)

H (mm)		B (mm)		T (mm)		S (mm)		D (mm)	
W	L	W	L	W	L	W	L	W	L
1.5	2.0	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5
50	70	90	120	150	190	230	270	310	350
1.5	2.0	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5
70	110	150	220	290	360	430	500	570	640

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 (DUBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Bachchanal, Kotturdu, Bengal

Reviewed & Designed By :
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ENR (P) Ltd., S.I.T. Consultants (P) Ltd. and
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No. 31, 32, 33, 34

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Drawn By : SHRIJANA SHRESTHA

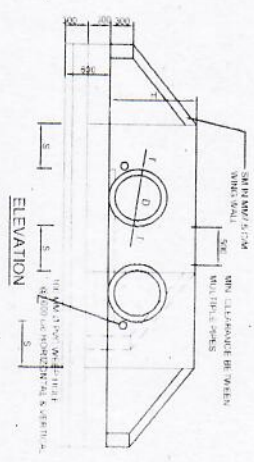
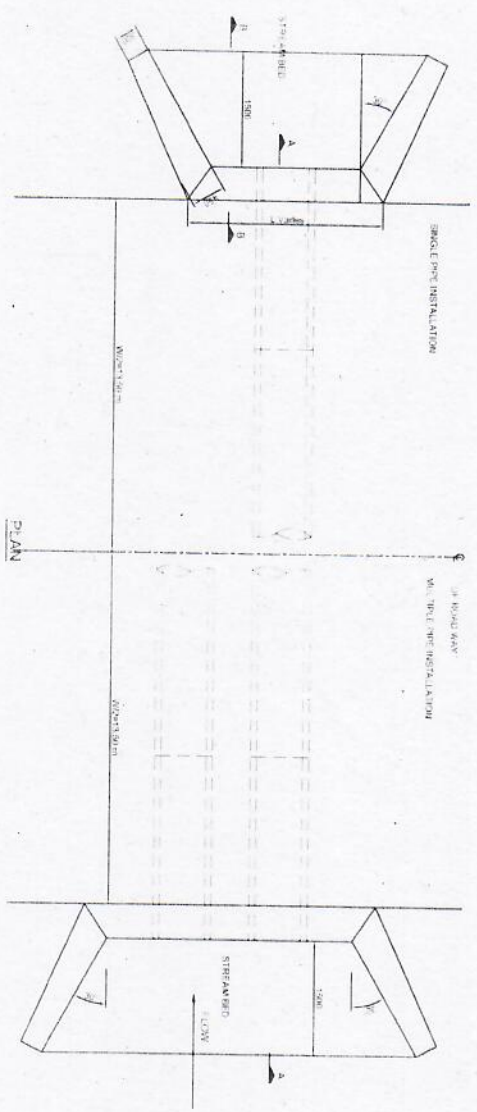
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Approved By :
Checked By :

Scale
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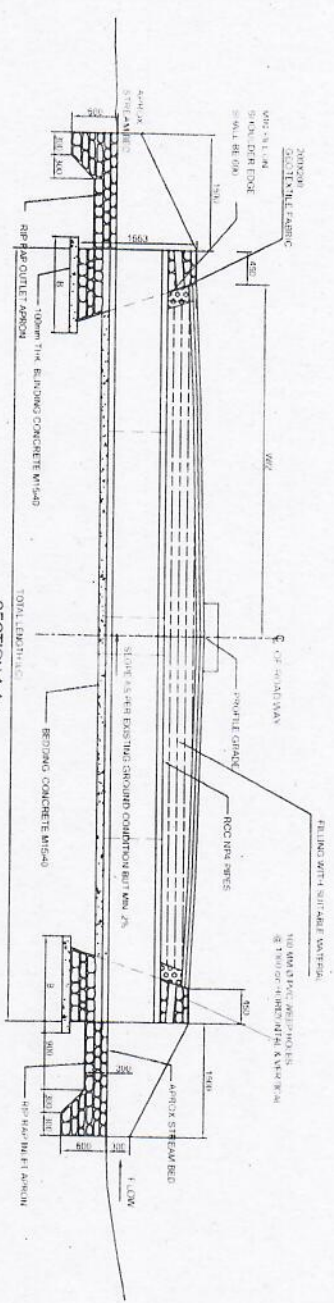
TYPICAL GABION RETAINING WALL
TILOTTAMA URBAN ROADS
TILOTTAMA MUNICIPALITY
CH. 0+000 - 23+560.09 Km

REV : DEC 2024
TITLE : TYPICAL DRAWINGS
DRG NO : SMRD/10/11
SHEET NO : 11

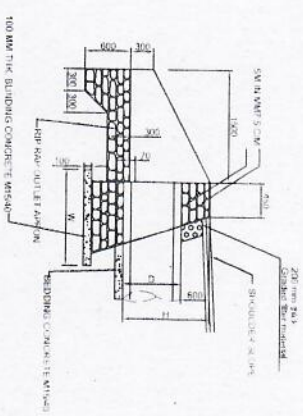




MANHOLE DATA	
NO.	DIAMETER (mm)
1	1500
2	1500
3	1500



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 (DUDB)
Regional Urban Development Project (RUPP)
Project Coordination Office
Bhaktapur, Nepal

Reviewed & Designed By:
DOHWA Engineering Co. Ltd.
in Association with
SIL Consultants (P) Ltd. and
DIDCON (P) Ltd.
No. 14/11/456883

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

Client:
Approved By:

Scale:
As Shown

TYPICAL PIPE CULVERT (PLAIN)
TILOTAMA URBAN ROADS
TILOTAMA MUNICIPALITY
CH: 0+000 - 23+560.09 Km

REV: DEC 2024
TITLE: TYPICAL DRAWINGS
DRG NO: SWR/OTD/12
SHEET NO: 12

A cross-sectional diagram showing a masonry apron resting on a lean concrete base. The masonry is depicted with a pattern of circles representing aggregate. A horizontal line with a downward-pointing arrow indicates the interface between the masonry and the concrete. The concrete base is labeled "0.10 LEAN CONCR." and has a width of "0.45".

SECTION A-A

SEE FIG. E-3.0 FOR INTERIORS

Architectural floor plan of a building. The plan shows a central corridor labeled "CORRIDOR FILL WITH RETAINED FILLER" connecting four rooms. The rooms are labeled as follows:

- Top room: "HOT TUB SLAB"
- Bottom room: "MAGORY AFRON"
- Left room: "MAGORY AFRON WALL"
- Right room: "MAGORY AFRON WALL"

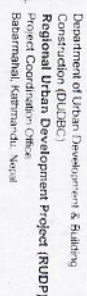
The plan includes dimensions, a north arrow, and a scale bar. The scale bar indicates a length of 10 meters. The north arrow points towards the top of the plan. The plan also shows various structural elements like walls, doors, and windows.

[illegible]

NOTES:

1. FOR GENERAL NOTES SEE DWG NO. 001
2. FOR BARR BEHINDS SEE DWG NO. 019
3. FOR GUARDRAILS SEE DWG NO. 019
4. FOR GUARDRAILS ON "V" SEE DWG NO. 019
5. CONCRETE COVER SHALL BE 0.05 EXCEPT STATED OTHERWISE
6. 60% CONCRETE PRESTRESSING W/ 25% SHALL BE USED
7. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE STATED
8. ALL EXPOSED CORNER TO HAVE 25MM CHAMFER
9. ALL EXPOSED SURFACES TO BE FINISHED TO THE SMOOTH
10. ALL BARS SHALL BE 12MM OR GREATER
11. THE EXHIBITION SHALL CHECK AND APPROVED BEFORE CONSTRUCTION BEGINS
12. GLASS VERTICAL JOINTS IS PROVIDED BETWEEN WALL AND
13. MAIN WALL
14. MAIN ANCHORS AT GOUT ET AND INLET SHALL BE PROVIDED AS PER
15. DWG NO. 019
16. LENGTH OF GUTTER C/S SHALL BE AS PER HIGHWAY DOWNS
17. AS OR DIRECTED BY ENGINEERS
18. ALL CURB CONSTRUCTION SHALL BE CARRIED OUT IN A COMPLIANCE WITH THE
19. SPECIFICATIONS


 नारायण कान्दोपाध्याय
 बुकिंग प्रो. प्रो.
 नारायण कान्दोपाध्याय
 बुकिंग प्रो. प्रो.
 नारायण कान्दोपाध्याय
 बुकिंग प्रो. प्रो.



Reviewed & Designed By:
DOHWA Engineering Co. Ltd.
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ERMIC (P.) Ltd., SILT Consultants (P.) Ltd. and
DIGICON (P.) Ltd.
Also Reviewed by:
Mr. K. Srinivasan, Hyderabad

Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA

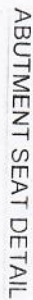
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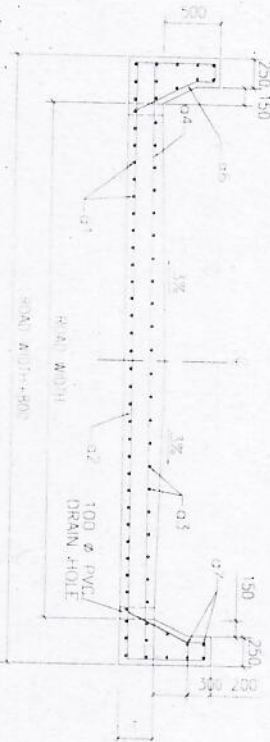
SINGLE CELL SLAB CULVERT
TILLOTTAMA URBAN ROADS
TILLOTTAMA MUNICIPALITY

REV	: DEC 2024
TITLE	: TYPICAL DRAWINGS
DRG NO	: SM/RD/TD/13

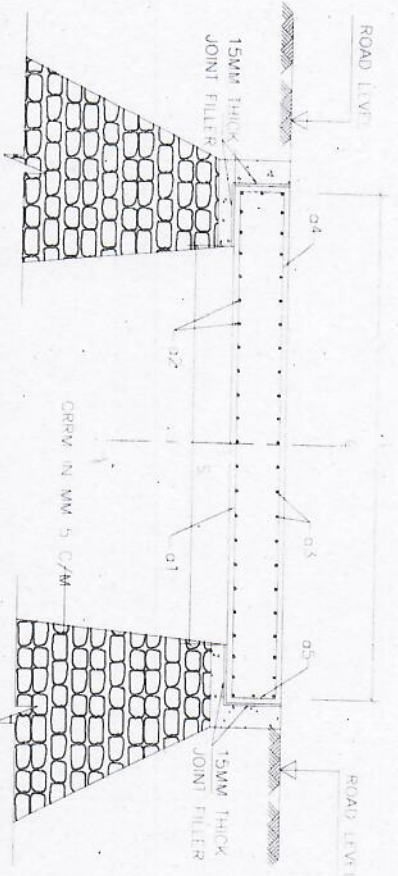
C 2024
PICAL DRAWINGS
MRD/TD/13



CULVERT TYPE									
MARK 41									
DA	SPACING	NO. REQ'D	REMARKS		DA	SPACING	NO. REQ'D	REMARKS	
PER METER	PER METER	PER METER	PER METER	PER METER	PER METER	PER METER	PER METER	PER METER	PER METER
I	12	140	7.14	154	Evenly spaced due to the slope up	12	90	6.67	5.10
II	12	120	8.33	7.80	Evenly spaced due to the slope up	12	150	6.67	5.10
III	16	140	7.14	1.04	Evenly spaced due to the slope up	12	150	6.67	5.10
IV	16	110	8.66	5.04	Evenly spaced due to the slope up	12	150	6.67	5.10
V	20	140	7.14	6.04	Alternating due to the slope up	12	170	5.88	5.10
VI	20	130	7.69	7.34	Alternating due to the slope up	12	150	6.67	5.10



TRANSVERSE SECTION



CULVERT TYPE												
MARK	NO.	TOTAL		NO.	TOTAL		MARK	NO.	TOTAL			
		LENGTH (Feet)	DA (mm)		LENGTH (Feet)	DA (mm)			LENGTH (Feet)	DA (mm)		
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	1.25	6.25	10	8	0.60	4.80
III	10	9	1.00	9.00	10	5	1.25	6.25	10	8	0.60	4.80
IV	10	9	1.00	9.00	10	5	1.25	6.25	10	8	0.60	4.80
V	10	9	1.00	9.00	10	5	1.25	6.25	10	8	0.60	4.80

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NOTES

[†] TAT (AFS) having characteristic strength 400 N/mm² at two levels.

2 All the conversions are in millimetres except the dimensions in inch



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

Reviewed & Designed By:
DOHWA Engineering Co. Ltd.
(In Association with)
ERMIC (P.) Ltd., SILT Consultants (P.) Ltd. and
DIGICON (P.) Ltd.

Consultant	.
Team Leader	YOO CHANGMIN
Reviewed By	YAGYA BAHADUR MALLA

Client
Approved By

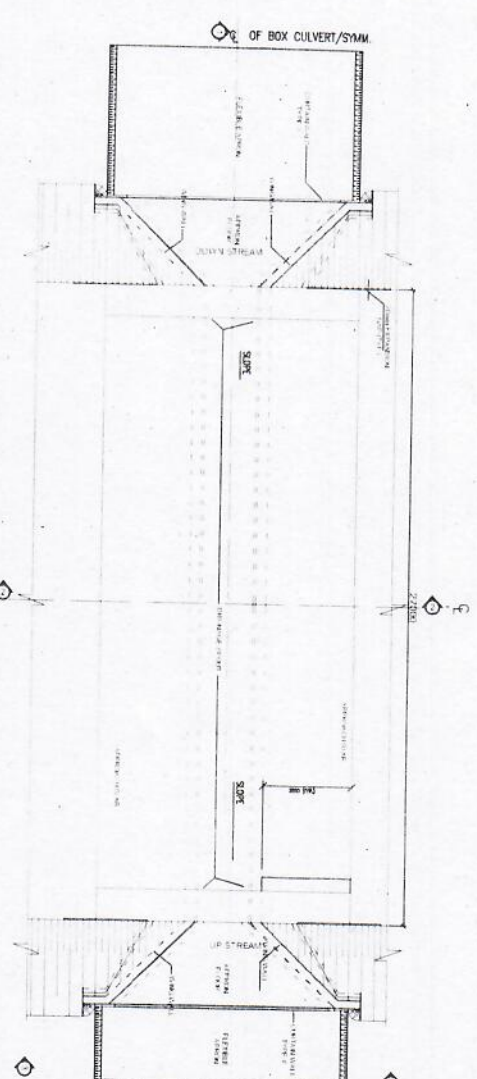
Scale

As Shown

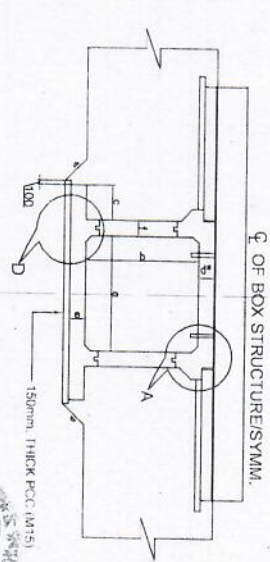
Slab Culvert No Fill Reinforcement
TILLOTTAMA URBAN ROADS
TILLOTTAMA, MINNESOTA

REV	:	DEC 2024
TITLE	:	TYPICAL DRAWINGS

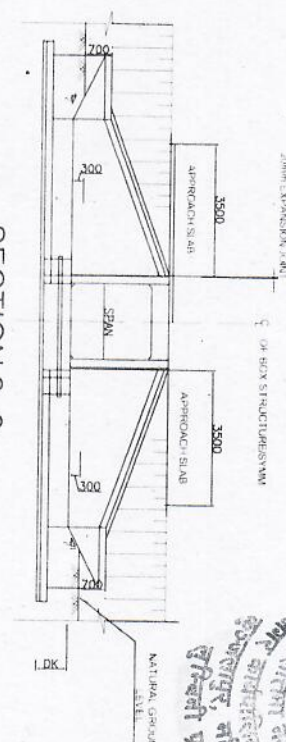
: DEC 2024
: TYPICAL DRA



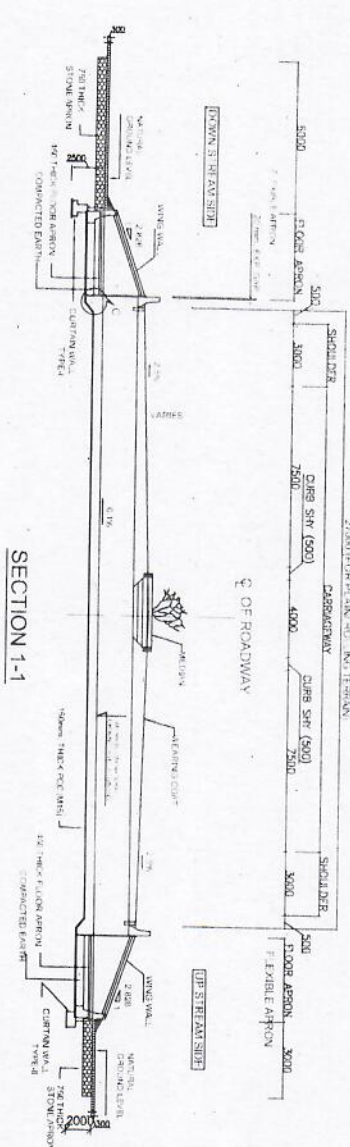
PLAN AT ROAD LEVEL



SECTION 2-2

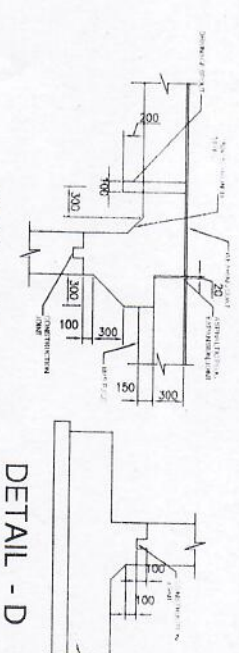


SECTION 3-3



SECTION 1-1

DETAIL - A



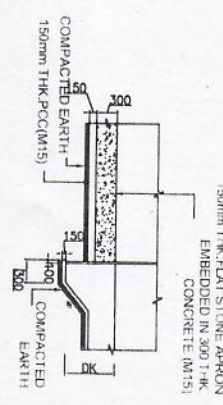
DETAIL - D

TABLE SHOWING SALIENT DIMENSIONS

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

- NOTES:
- All dimensions are in millimeters unless otherwise noted. Only written dimensions are to be followed.
 - Soil and base materials in the bearing area shall be replaced by compacted granular fills with layers not exceeding 300mm.
 - Not 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 400mm, where 'v' is the base slab thickness.
 - Concrete shall be design mix and shall have minimum 28 days characteristic strength of M25 for box structure. Reinforcing steel shall be High Yield Strength Deformed bars of Fe500 conforming to IS 1786.

DETAIL - C



Department of Urban Development & Building
Construction (DUDB/C)
Regional Urban Development Project (RUDP)
Project Coordination Office
Babernakul, Kathmandu, Nepal

Reviewed & Designed By:
Dohwa Engineering Co. Ltd.
Associate Engineer
ENR (P) Ltd. SLC Consultants (P) Ltd. and
M/s. Dohwa Engineering Co. Ltd.
T-11-050000

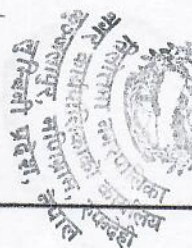
Consultant
Team Leader: YOO CHANGMIN
Reviewed By: YAGYA BHADUR MALLA
Drawn By: SHRIJANA SHRESTHA

Client
Approved By:
Checked By:

Scale
As Shown

SINGLE CELL BOX CULVERT TWO CUSHION
TILOTTAMA URBAN ROADS
TILOTTAMA MUNICIPALITY
CH: 0+000 - 23+560.09 km

REV : DEC 2024
TITLE : TYPICAL DRAWINGS
DRG NO : SWR/D/17/5
SHEET NO : 15





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

Reviewed & Designed By:
DOHWA Engineering Co. Ltd.
in Association with
ERAC (P) Ltd., SILL Consultants (P) Ltd. and
M&S DESIGN (P) Ltd.
Tel: 01-4401000

Consultant
Team Leader: YOD CHANGMIN
Reviewed By: YAGYA SAHA-DUR MALLA
Drawn By: SHRIJANA SHRESTHA

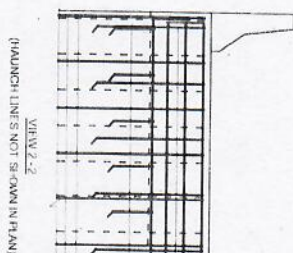
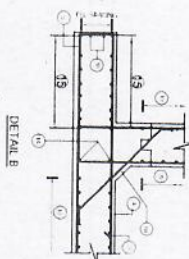
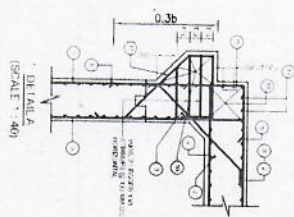
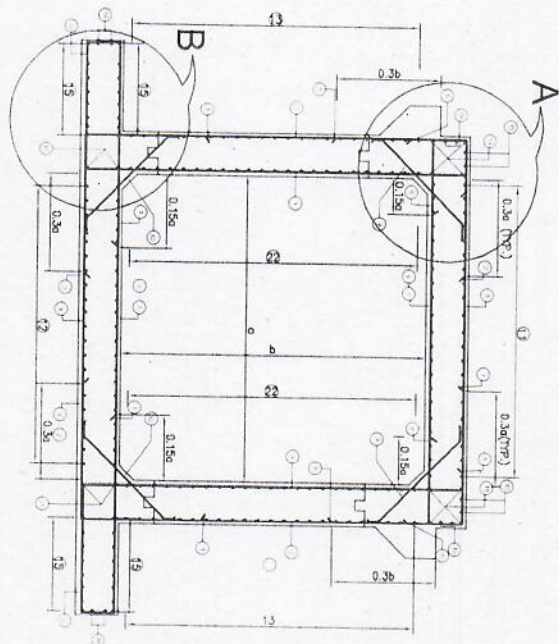
Client
Approved By:
Checked By:

Scale
As Shown

SINGLE CELL BOX CULVERT W/O CUSHION
TILOTTAMA URBAN ROADS
TILOTTAMA MUNICIPALITY
CH-04000 - 23+560.09 Km

REV : DEC 2024
TITLE : TYPICAL DRAWINGS
Dwg NO : SMR/DT/16
SHEET NO : 16

REINFORCEMENT DETAILS OF SINGLE CELL BOX CULVERT



- NOTES:
1. Minimum clear cover to any reinforcing including stirrups shall be 50mm unless otherwise noted.
 2. Construction joints.
 3. The location and provision of construction joint shall be approved by Engineer-in-charge. In the drawing, the construction joints are shown parallel to the direction of water flow. The concrete operation shall be carried out continuously upto the construction joints.
 4. 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.
 5. Before new concrete is poured the surface of old concrete shall be prepared as under:
 - a. For hardened concrete, the surface shall be thoroughly cleaned to remove debris, grease and make rough so that 1/4 of the size of the aggregate is exposed.
 - b. For partially hardened concrete, the surface shall be treated with wire brush followed by an air jet.
 6. The old surface shall be soaked with water without leaving puddles immediately, before starting concreting to prevent the absorption of water for new concrete.
 7. Welding of reinforcement bars shall not be permitted in the region of the joints.
 8. 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.
 9. Bending of reinforcement bars shall be as per IS: 2502.

HAUNCH LINES NOT SHOWN IN PLAN

TOP SLAB REF PLAN

BOTTOM SLAB REF PLAN

HAUNCH LINES NOT SHOWN IN PLAN

SECTION 1:1

SECTION 1:1

SECTION 1:1

SECTION 1:1

SECTION 1:1

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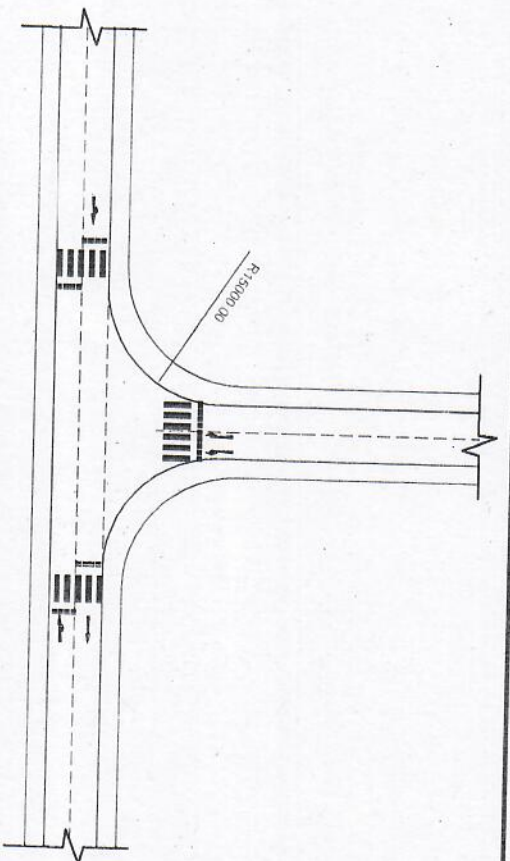
SECTION 1:1

SECTION 1:1

SECTION 1:1

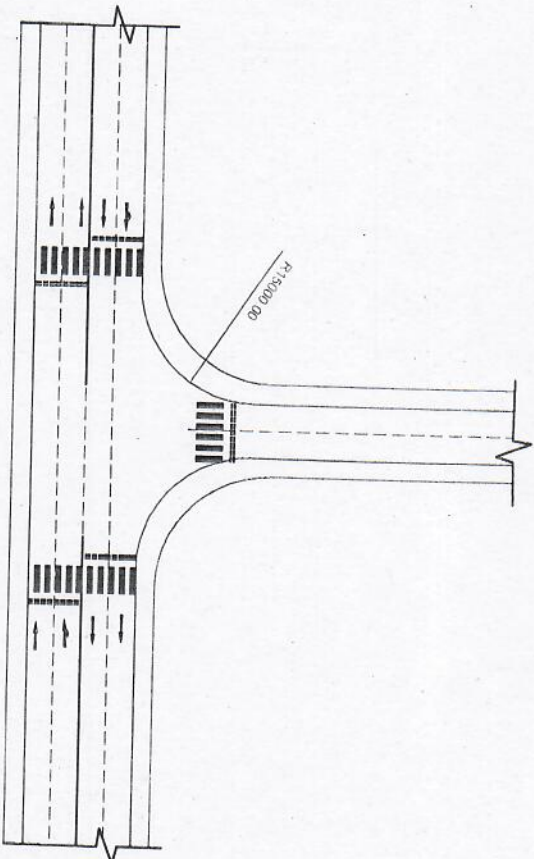
SECTION 1:1

SECTION 1:1



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 (DUBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Babarmahal, Kathmandu, Nepal

Reviewed & Designed By :
DOHWA Engineering Co. Ltd.
in Association with
DIGNON (P) Ltd. and
M/S. Design & Architecture
Pvt. Ltd. (D&A)

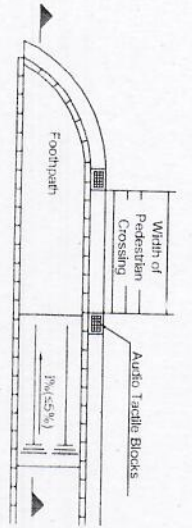
Consultant
Team Leader : YOG CHANDAN
Reviewed By : YAGYA BHADUR WALIA
Drawn By : SHRIJANA SHRESTHA

Client
Approved By :
Checked By :

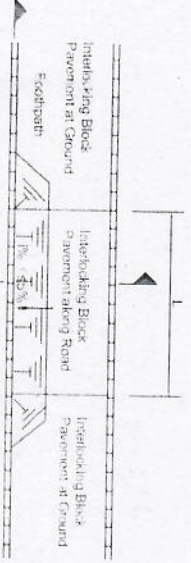
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As Shown

JUNCTION IMPROVEMENTS
TILOTTAMA URBAN ROADS
TILOTTAMA MUNICIPALITY
CH: 0+000 - 23+560.09 Km

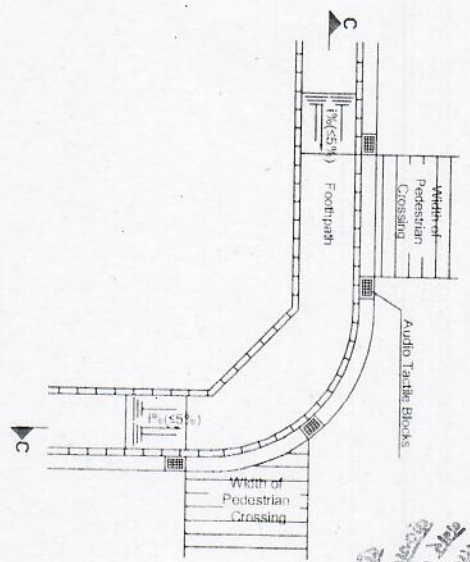
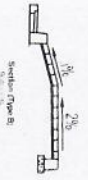
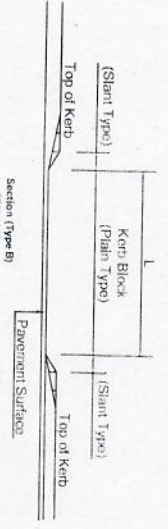
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TITLE : TYPICAL DRAWINGS
DRG NO : SM/RD/10-18
SHEET NO : 18



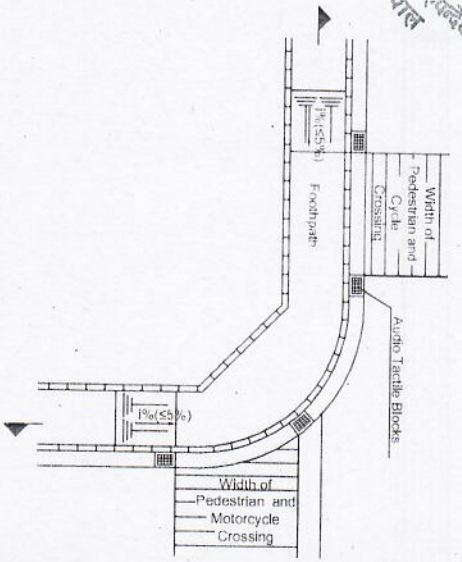
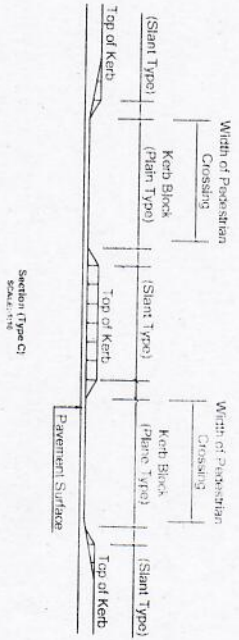
Plan (Type A)



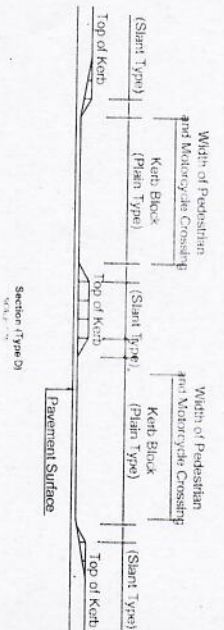
Plan (Type B)



Plan (Type C)



Plan (Type D)



Department of Urban Development & Planning
Construction (DUBCP)
Regional Urban Development Project (RUDP)
Project Coordination Office
Bansimahal, Kalmanna, Bellary

Reviewed & Designed By:
DOHWA Engineering Co. Ltd.
in Association with
PROCON (P) Ltd.
No. 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Consultant
Team Leader: YOO CHANMIN
Reviewed By: YACIA BAHADUR MALLA
Drawn By: SHRIJANA SHRESTHA

Client
Approved By:

Scale
As Shown

KERB RAMP AND FOOTPATH
TILOTTAMA URBAN ROADS
TILOTTAMA MUNICIPALITY
CH: 0-400 - 23-560.09 Km

REV : DEC 2024
TITLE : TYPICAL DRAWINGS
DRG NO : SMRD/DT/13
SHEET NO : 19



NOT TO SCALE



NOT TO SCALE



Department of Urban Development & Planning

Regional Urban Development Project (RUDP)

Project Coordination Office
Baramahal, Karnataka, Nepal

Reviewed & Designed By :

DESIGNED BY:
DOHWA Engineering Co. Ltd.

an Association with

(P.) Ltd., SILT Consultants (P.) L

DIGICON (P.) Ltd

Mrs. Elizabeth A. Matthews

Consultant

Team Leader : YOO CHANGMIN

Team Leader: YOO CHANGMIN

Reviewed By : YAGYA BAHADU

Reviewed by: TAOHA BANAUD

Client

•

Approved By _____

APPROVED BY _____

Checked By:

Scale

As Shown

PEDESTRIAN CROSSINGS & LANE MARKINGS

THE OTTAWA JOURNAL

TILOTTAMA URBAN ROADS

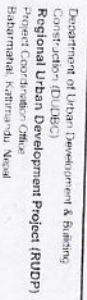
TILLOTTAMA MUNICIPALITY

REV : DEC 2024

• TYPICAL

TITLE : TYPICAL

DRG NO : TWB/TT



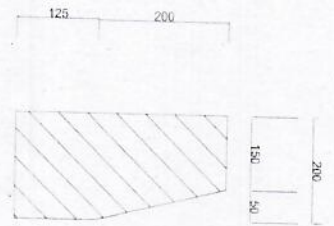
DOHWVA Engineering Co Ltd

Introduction

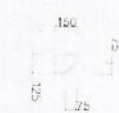
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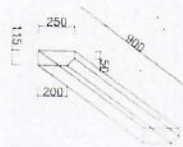




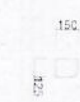
KERB STONE DETAIL
Scale 1:35



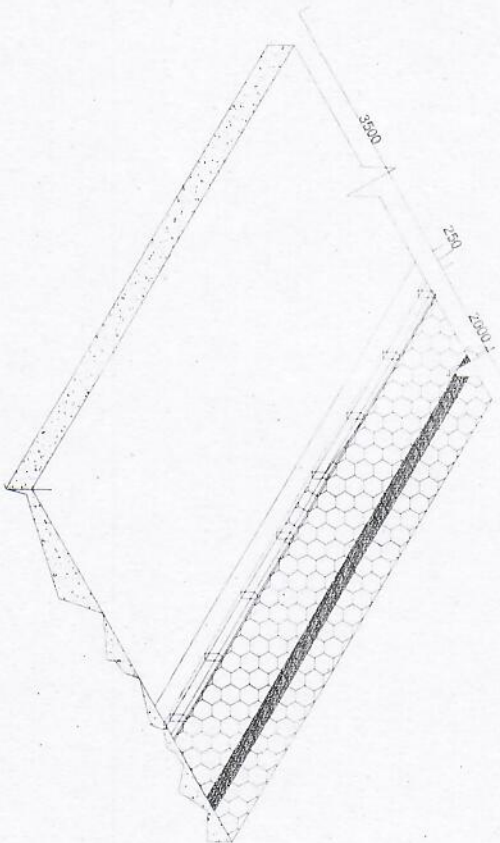
SPAYED KERB
Scale 1:35



PRECAST KERB
Scale 1:35



BULL NOSED KERB
Scale 1:35



Isometric view of Raised cross walk & Kerb Detail



Department of Urban Development & Housing
Construction (DUBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Bubbarahalli, Kattahalli, Bengal

Reviewed & Designed By:
DOHWA Engineering Co. Ltd.
of Bangalore
ERMC (P) Ltd. & ERMC (P) Ltd. and
DIGICON (P) Ltd. and
The Bangalore Architects
The Bangalore Architects

Consultant
Team Leader: YOO CHANGMIN
Reviewed By: YAOYA BAYADUR MALLA
Drawn By: SHRIJANA SHRESTHA

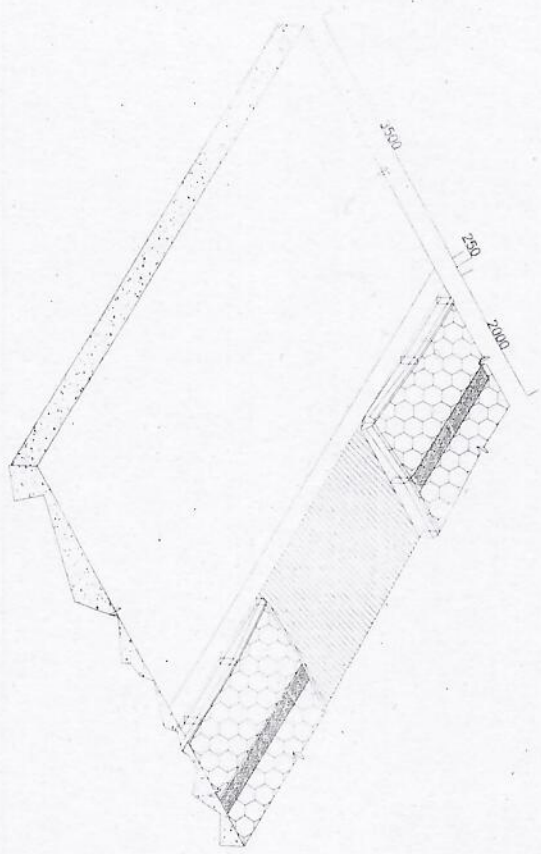
Client
Approved By:
Checked By:

Scale
As Shown

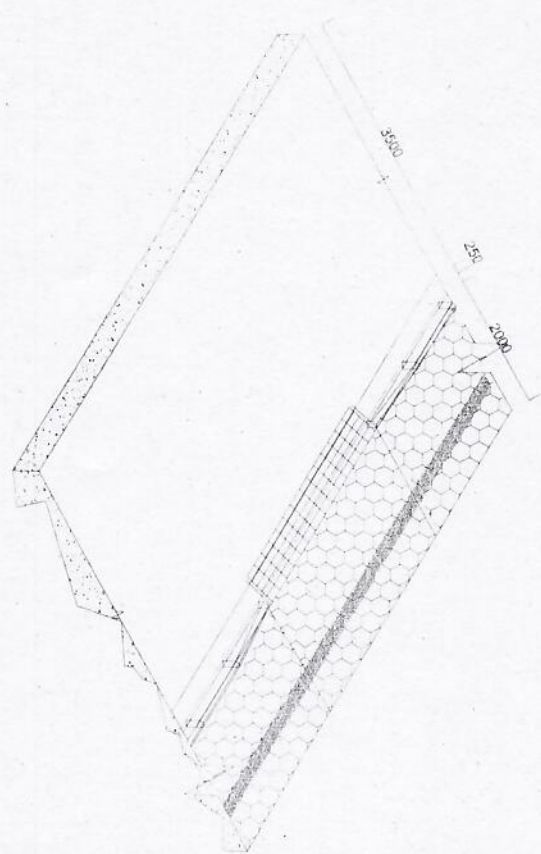
ISOMETRIC VIEW OF FOOTPATH & KERBS
TILOTTAMA URBAN ROADS
TILOTTAMA MUNICIPALITY
CH: 0+000 - 23+560.09 Km

REV : DEC 2024
TITLE : TYPICAL DRAWINGS
DRG NO : TM/ND/ID/22
SHEET NO : 22


 ಕರ್ನಾಟಕ ಸರ್ಕಾರ
 ಸಾರ್ವಜನಿಕ ಕಾರ್ಯಾಲಯ
 ಸಂಪನ್ಮೂಲ, ಸಾರ್ವಜನಿಕ ಕಾರ್ಯ
 ಇಲಾಖೆ
 ಬೆಂಗಳೂರು

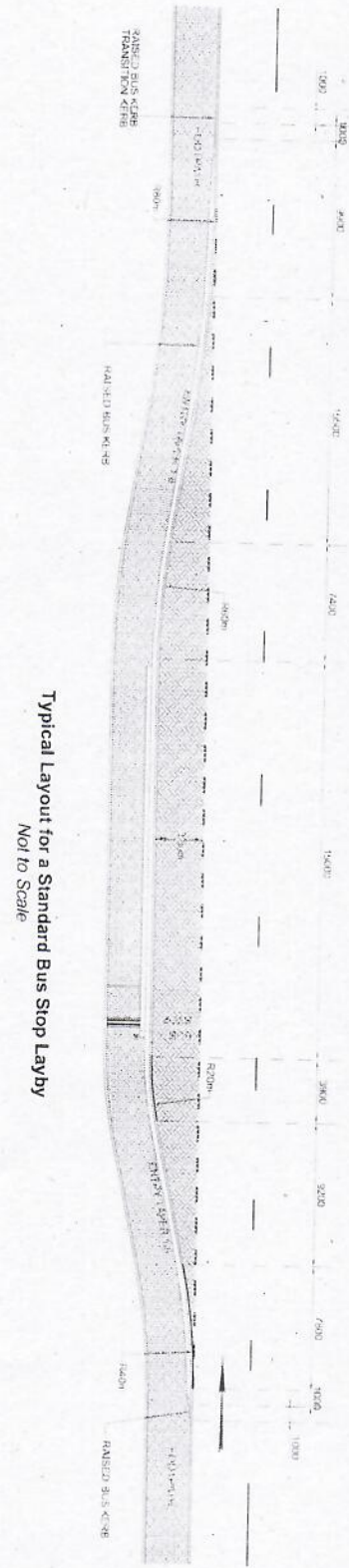
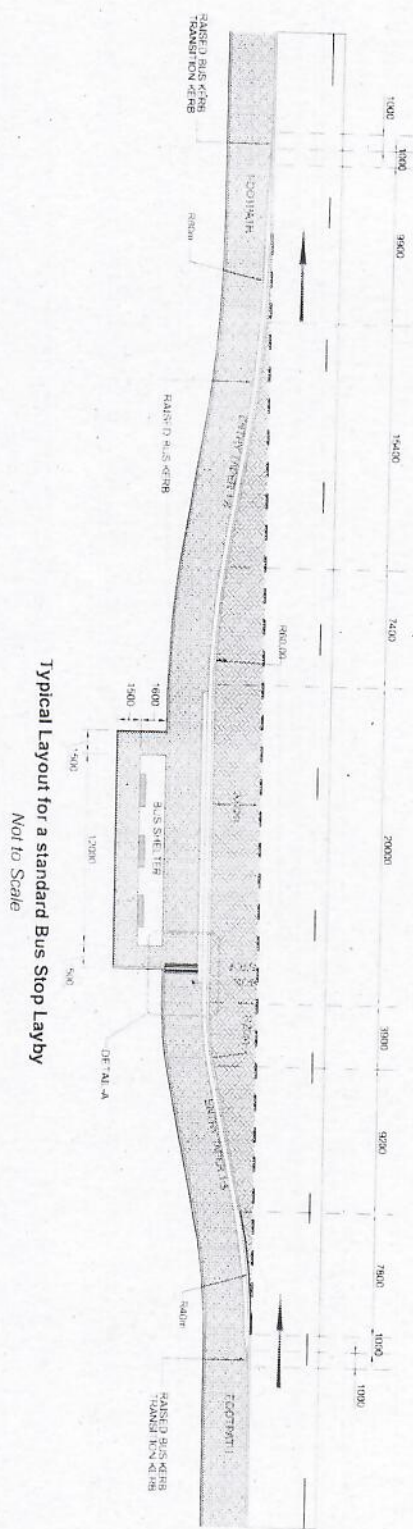
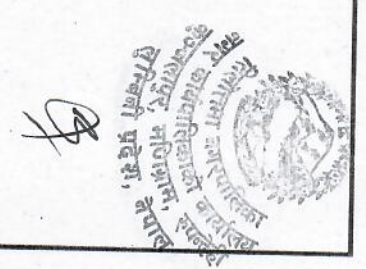


Isometric view of Main Road and Side Road Junction



Isometric view of Ramp with Footpath

 Department of Urban Development & Building Construction (DUBC) Regional Urban Development Project (RUDP) Project Coordination Office Balmahal, Kottavalasa, Model		Reviewed & Designed By: DOWA Engineering Co. Ltd. in Association with DISCON (P) Ltd. No. 2, 3rd Floor, Kottavalasa, Model		Consultant Team Leader: YOO CHANGMIN Reviewed By: YAGYA BAHADUR MALLA Drawn By: SHRIJANA SHRESHA		Client Approved By: Checked By:		Scale As Shown		Isometric View of Footpaths and Kerbs TILOTTAMA URBAN ROADS TILOTTAMA MUNICIPALITY CH: 0+000 - 23+560.09 Km		REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : TMRD/1D23 SHEET NO : 23	
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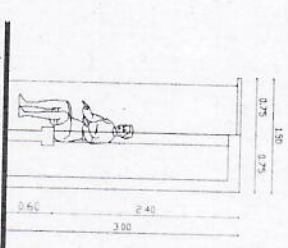
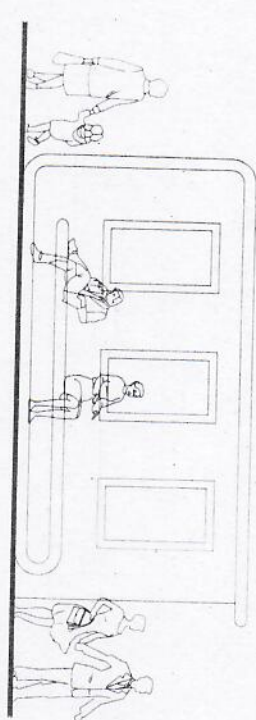


Typical Layout for a Standard Bus Stop Layby
Not to Scale

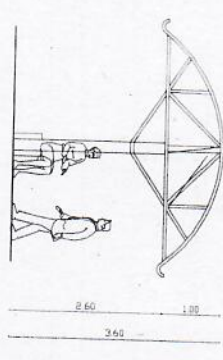
NOTES

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

 Department of Urban Development & Building Construction (CUBDC) Regional Urban Development Project (RUDP) Project Coordination Office Bashundhara, Kathmandu, Nepal		Reviewed & Designed By : DOHWA Engineering Co. Ltd. in Association with DGC Consultants (P) Ltd. and DGC Consultants (P) Ltd. and DGC Consultants (P) Ltd. Tel: 01-4250102		Consultant Team Leader : YOO CHANGMIN Reviewed By : YAGYA RAMADUR MALLA Drawn By : SHRIJANA SHRESTHA		Client Approved By : Checked By :		Scale As Shown		TYPICAL BUS LAYBYS TILOTTAMA URBAN ROADS TILOTTAMA MUNICIPALITY CH: 0+000 - 23+560.09 Km		REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : TWRD/TD/25 SHEET NO : 25
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BUS STAND



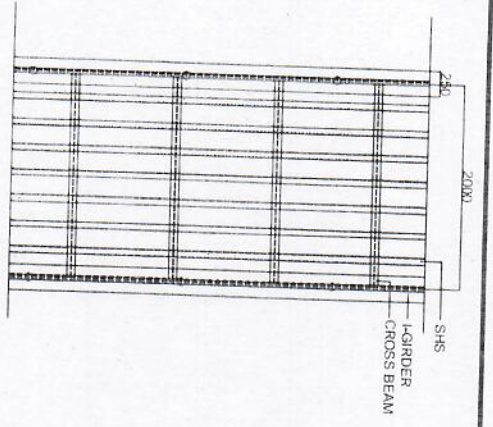
WOODEN RESTING BENCH



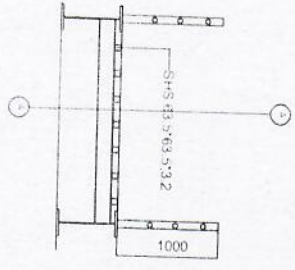
RESTWAITING STATIONS WITH SHEDS

WOODEN RESTING BENCH

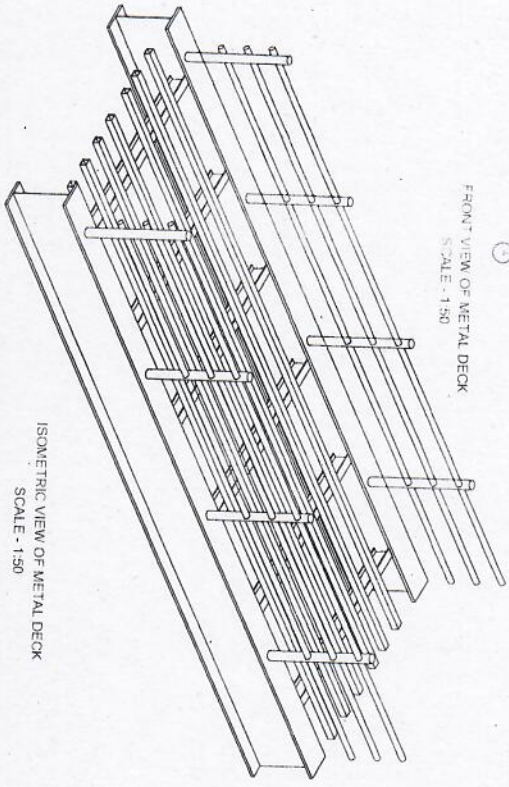
		Department of Urban Development & Planning Construction (DUEBC) Regional Urban Development Project (RUDP) Regional Coordination Office Babamahal, Hyderabad, India		Reviewed & Designed By: DOOWA Engineering Co. Ltd. Associate Architect JALCOON (P) Ltd. and JALCOON (P) Ltd. No. 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100		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 TILLOTTAMA URBAN ROADS TILLOTTAMA MUNICIPALITY, CH: 0+000 - 23+560.09 Km		REV : DEC 2024 TITLE : TYPICAL DRAWINGS DRG NO : TMRD/026 SHEET NO : 26	
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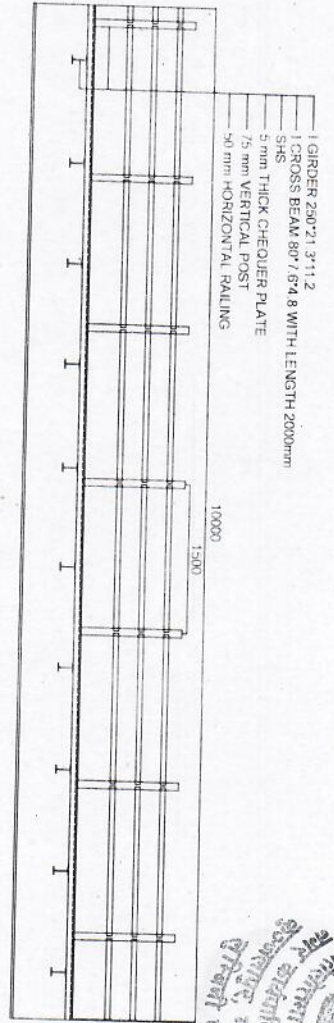
PLAN VIEW OF METAL DECK



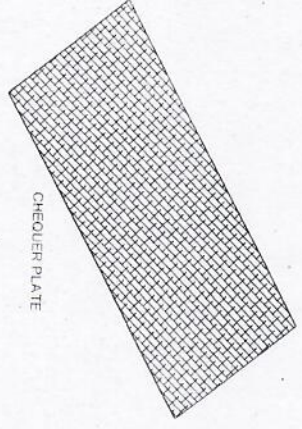
FRONT VIEW OF METAL DECK
SCALE - 1:50



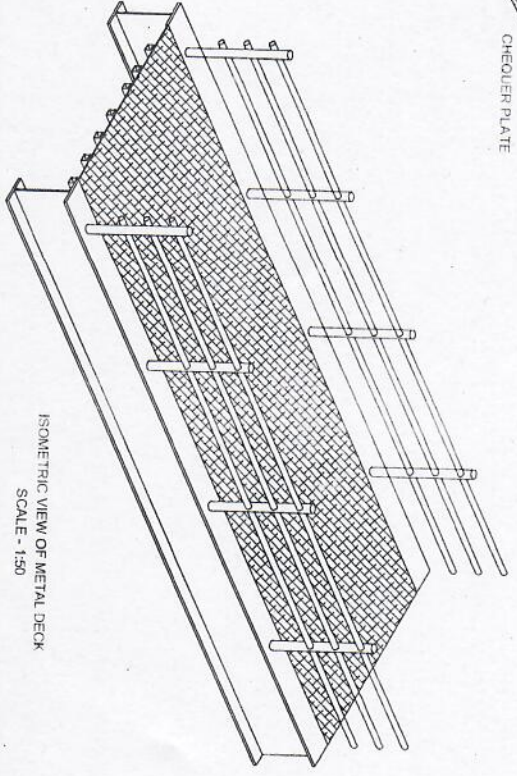
ISOMETRIC VIEW OF METAL DECK
SCALE - 1:50



SECTION A-A



CHEQUER PLATE



ISOMETRIC VIEW OF METAL DECK
SCALE - 1:50



Department of Urban Development & Building
Government of Odisha
Regional Urban Development Project (RUDP)
Project Office, New Office
Bhubaneswar, Odisha, India

Reviewed & Designed By :
COIWA Engineering Co. Ltd.
S. K. SINGH
DIPLOMA (P) 11th
T. N. SINGH

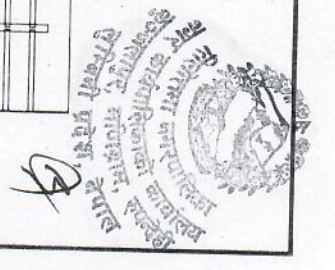
Consultant
Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BAHADUR MALLA
Drawn By : SHRIJANA SHRESTHA

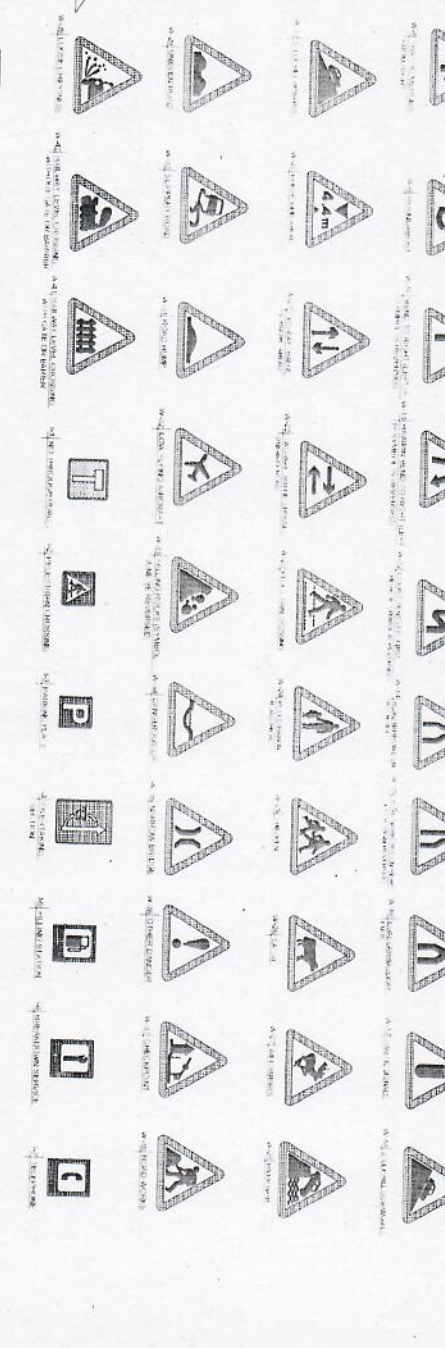
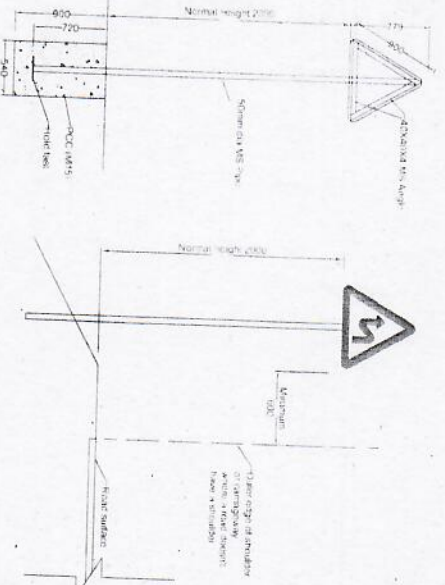
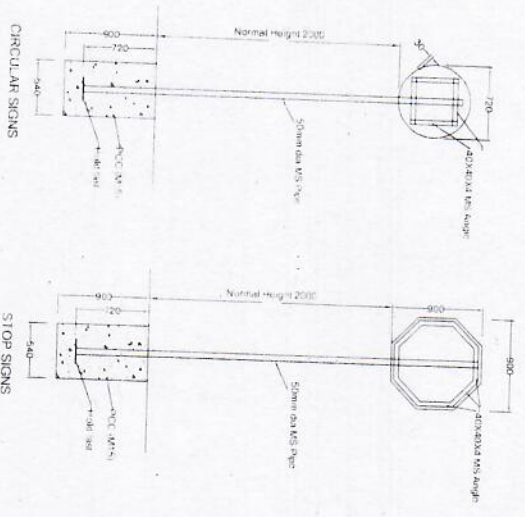
Client
Approved By :
Checked By :

Scale
As Shown

PEDESTRIAN CROSSING IN SLAB EXPANSION
TILLOTAMA URBAN ROADS
TILLOTAMA MUNICIPALITY
CH-0+000 - 23+560.09 Km

REV : DEC 2024
TITLE : TYPICAL DRAWINGS
DRG NO : TMRD/TD27
SHEET NO : 27





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 & Planning
Government of Nepal
Regional Urban Development Project (RUDP)
Project Coordination Office
Bhatmandi, Kathmandu, Nepal

Reviewed & Designed By:
DOHWA Engineering Co. Ltd.
EWC (P) Ltd. S.L.T. Co. Pvt. Ltd. and
DICCOP (P) Ltd.
Nepal Engineering Services Pvt. Ltd.

Team Leader : YOO CHANGMIN
Reviewed By : YAGYA BHADUR PALLA
Drawn By : SHRIJANA SRESTHA

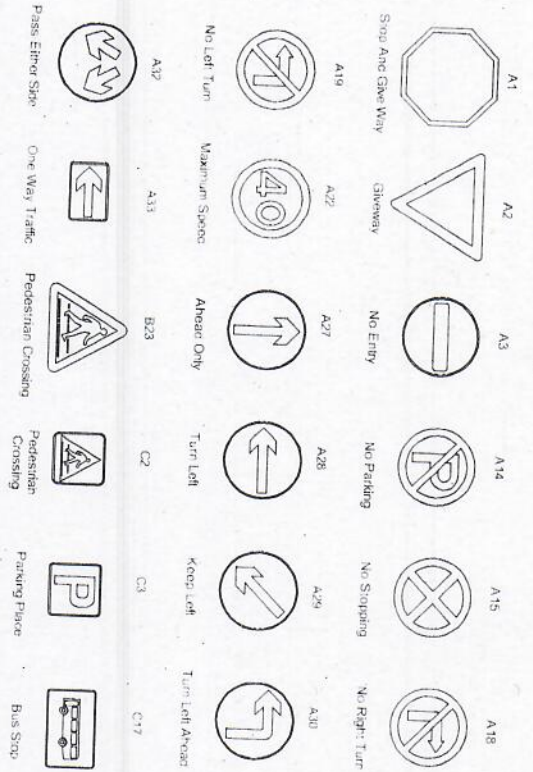
Client
Approved By :

Scale
Not to Scale

TRAFFIC CONTROL MEASURES
TILOTTAMA URBAN ROADS
TILOTTAMA MUNICIPALITY
CH: 0+000 - 23+550.09 Km
REV : DEC 2024
TITLE : TYPICAL DRAWINGS
DRG NO : TWRD/DT28
SHEET NO : 28



RECTO-REFLECTIVE SIGN TYPICAL



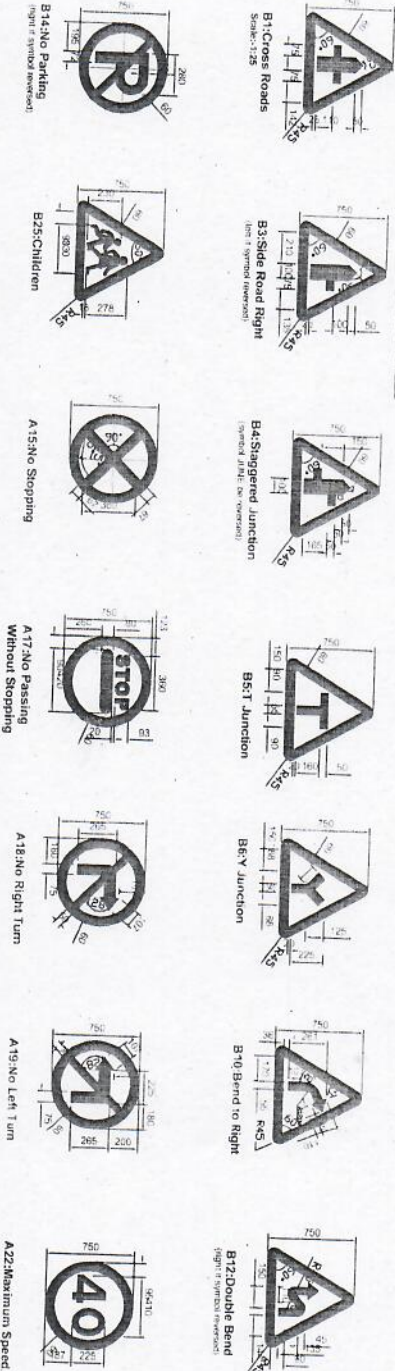
SIZE OF REGULATORY SIGNS (Reviews)

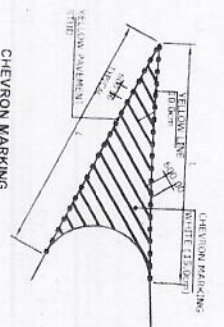
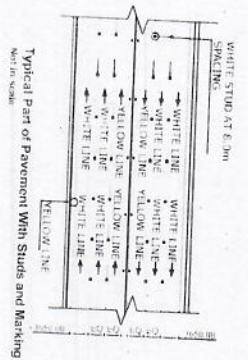
SIGN TYPE	A	B	C	D	E	F	G
a	750	864	750	600	865	300	600
b	750	750		450	600	300	375
REMARKS							
	A1	A2	A3-A32	A33	B1-B12	C2-C3	C17

NOTE:

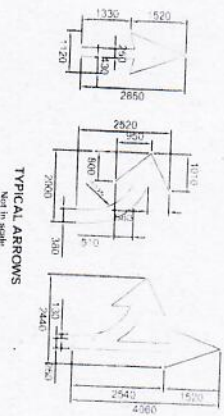
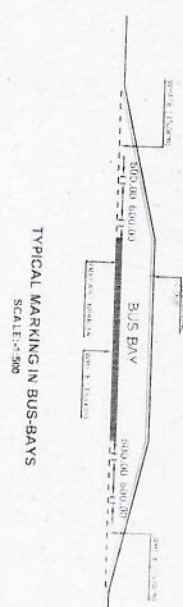
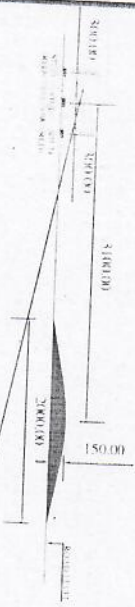
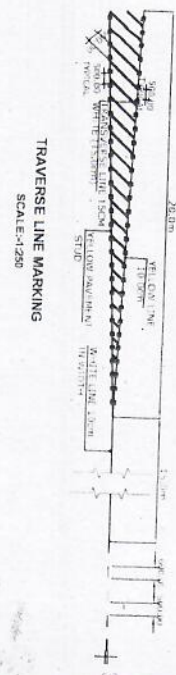
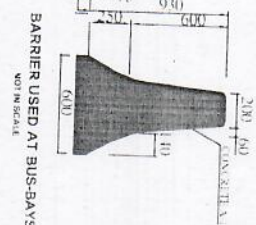
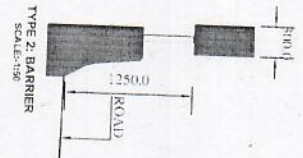
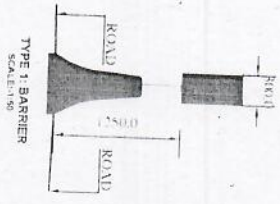
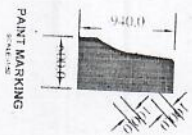
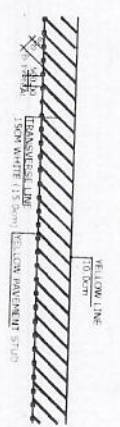
Refer 'Vehicular Traffic Sign Manual by D.O.R.

DETAILS OF FEW RECTO-REFLECTIVE SIGN TYPICAL



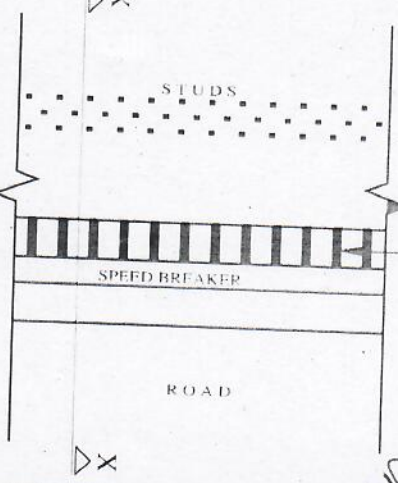


DETAIL OF TRAVERSE LINE MARKING
SCALE: 1:250



STUD
SCALE: 1:100

PLAN OF SPEED BREAKER
SCALE: 1:100



Department of Urban Development & Planning
Government of Karnataka
Regional Urban Development Project (RUDP)
Regional Urban Development Project (RUDP)
Regional Urban Development Project (RUDP)

Reviewed & Designed By:
DOHWA Engineering Co. Ltd.
ERAC (P) Ltd., Silt Consultants (P) Ltd., and
JAGCON (P) Ltd.
No. 01-468183

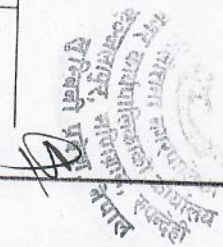
Client:
Team Leader: YOO CHANGMIN
Reviewed By: YAGYA BHADUR MALLA
Drawn By: SHRIJANA SHRESTHA

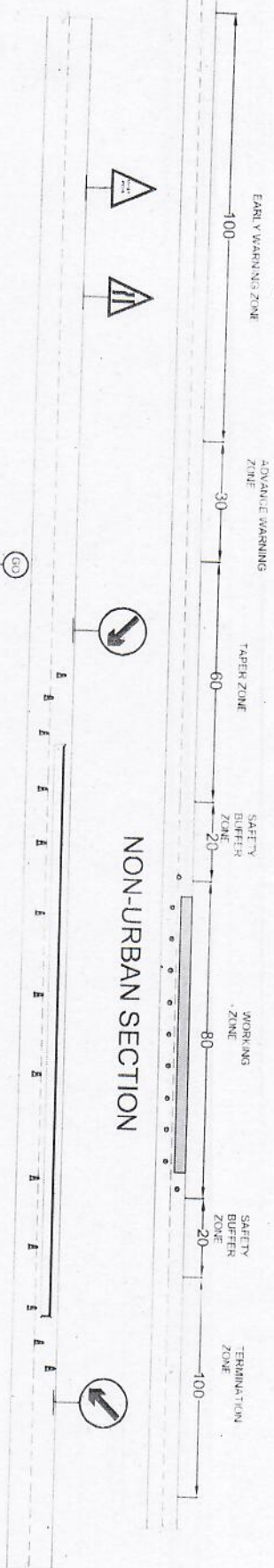
Approved By:

Scale:
As Shown

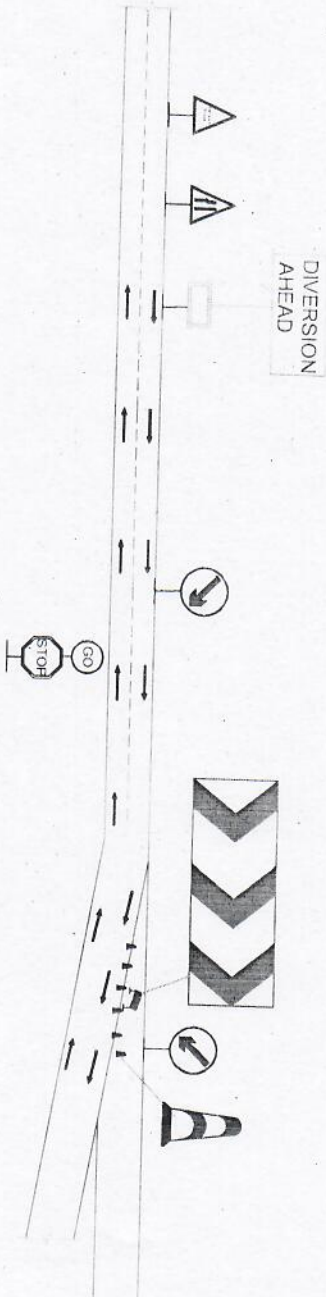
SPECIAL TRAFFIC CONTROL MEASURES
TILOTTAMA URBAN ROADS
TILOTTAMA MUNICIPALITY
CH: 0+000 - 23+560.09 Km

REV: DEC 2024
TITLE: TYPICAL DRAWINGS
DRG NO: TWRD/1D/30
SHEET NO: 30





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 (DUBC)
Regional Urban Development Project (RUDP)
Project Coordination Office
Babbarhalli, Kattahalli, Bengaluru

Reviewed & Designed By:
DOHWA Engineering Co. Ltd.
in Association with
ERMC (P) Ltd., SLT Consultants (P) Ltd. and
DIGCON (P) Ltd.
Web Designer: Architects
(08 00 4200000)

Consultant
Team Leader: YOO CHANGMIN
Reviewed By: YAGYA BHADUR MALIA
Drawn By: SHRIJANA SHRESTHA

Client
Approved By:
Checked By:

Scale
As Shown

TRAFFIC MANAGEMENT PLAN
TILOTTAMA URBAN ROADS
TILOTTAMA MUNICIPALITY
CH: 0+000 - 23+500.09 Km

REV : DEC 2024
TITLE : TYPICAL DRAWINGS
DRG NO : TWRD/TD/31
SHEET NO : 31

