

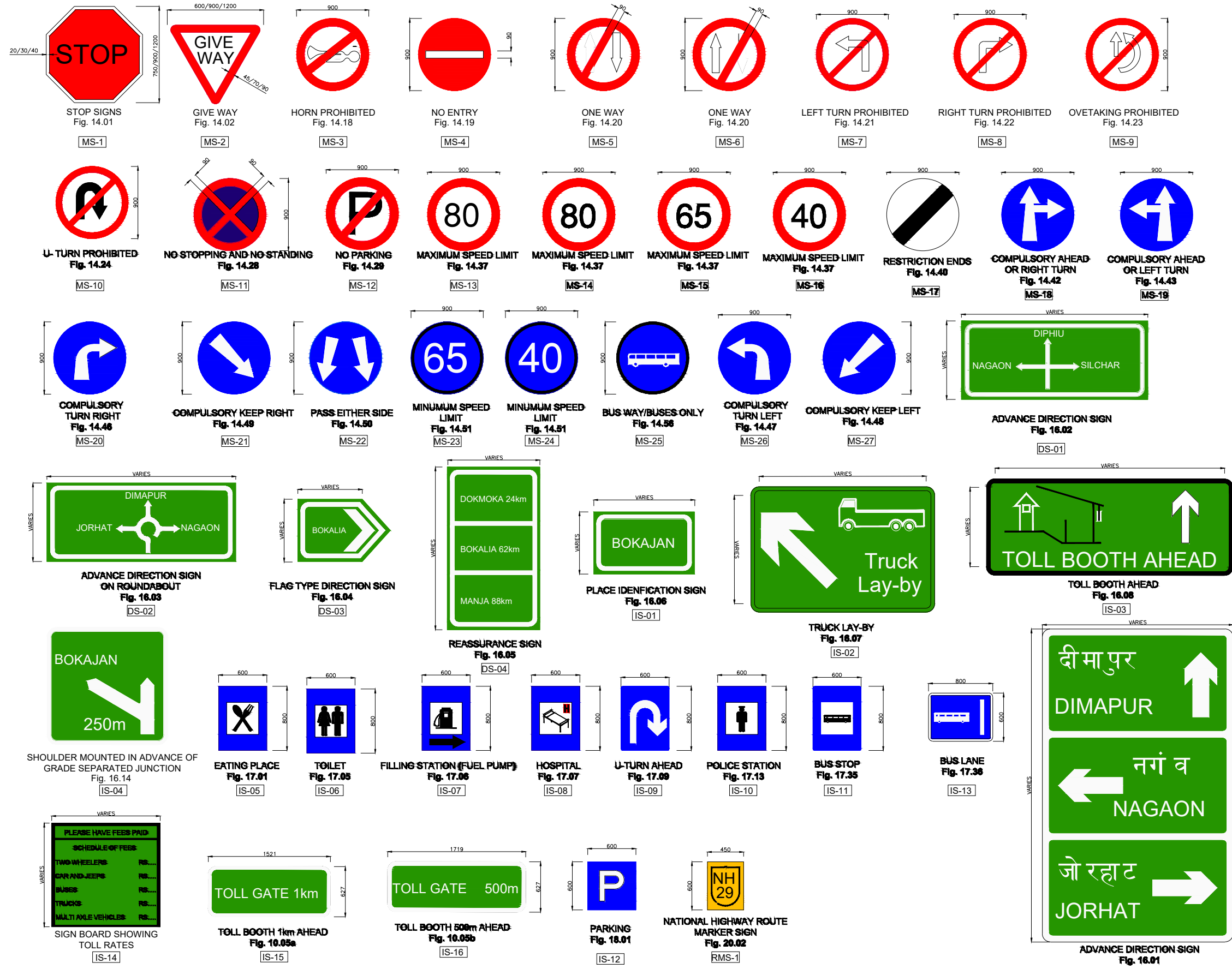


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## MISCELLANEOUS DRAWING

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Note:  
1. The dimension of the road sign given as in as per 100kmph design speed, dimension should be change of design speed according to IRC-67


REV.	DATE	REVISIONS

CLIENT:



**NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
1st & 2nd Floor,  
Tower A, World Trade Centre, Nauroji Nagar,  
New Delhi - 110029  
Contact No- 011-26768950, E-mail - info@nhidcl.com

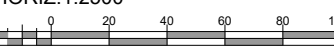
DESIGN CONSULTANT:



**Global Infra Solutions**  
in JV with Krishna Techno Consultants Pvt. Ltd. and association with Infycons Creative Software Pvt. Ltd.  
F-2, E-8/11A, Sukhsagar Apartment, Trilanga, Bhopal -462039  
e: globalinfra.solutions@gmail.com web: globalinfra.solutions.org

PROJECT:  
DEVELOPMENT, MAINTENANCE, MANAGEMENT AND OPERATION OF GREENFIELD HIGH-SPEED CORRIDOR FROM MAWLYNGKHUNG (NEAR SHILLONG) IN MEGHALAYA TO PANCHGRAM (NEAR SILCHAR) IN ASSAM BY 4-LANING WITH PAVED SHOULDERS ON HYBRID ANNUITY BASIS. (PACKAGE-1: FROM KM 0+000 TO KM 45+645, DESIGN LENGTH - 45+645 KM)

SCALE AT A3 SIZE DRAWING  
HORIZ. 1:2500  
VER. 1:250



TITLE:  
**Miscellaneous**


CLIENT APPROVAL: \_\_\_\_\_ SEAL & SIGNATURE: \_\_\_\_\_  
DWG NO.: \_\_\_\_\_  
DRAWN: \_\_\_\_\_ CHECKED: \_\_\_\_\_ DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
DSP SK AD  
Team Leader



Note:  
1. The dimension of the road sign given as in as per 80kmph design speed, dimension should be change of design speed according to IRC-67

REV.	DATE	REVISIONS

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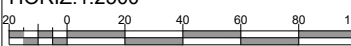
DESIGN CONSULTANT:



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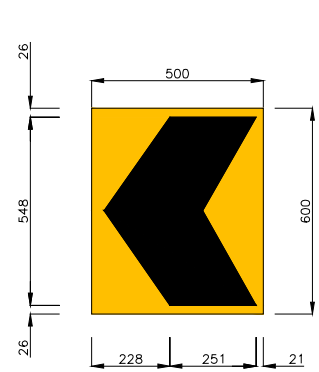
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VER. 1:250

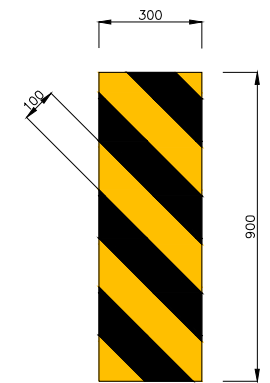


TITLE:  
**Miscellaneous**

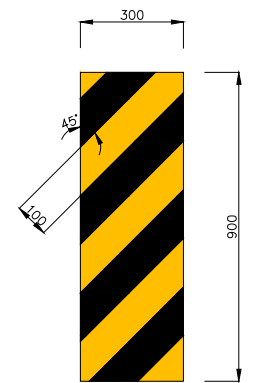
CLIENT APPROVAL: \_\_\_\_\_ SEAL & SIGNATURE: \_\_\_\_\_  
DWG NO.: \_\_\_\_\_  
DRAWN: \_\_\_\_\_ CHECKED: \_\_\_\_\_ DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
DSP SK SS AD  
Team Leader



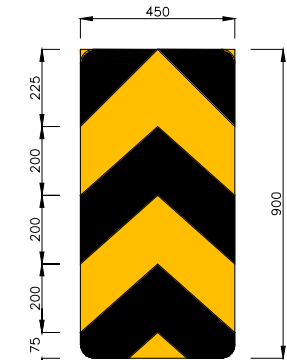
SINGLE CHEVRON  
Fig. 15.72  
TA-1  
SCALE 1:15000



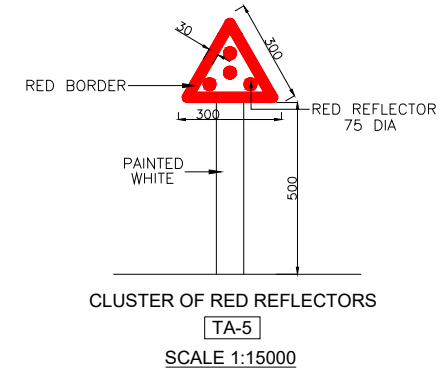
OBJECT HAZARD (LEFT)  
Fig. 15.76  
TA-2  
SCALE 1:15000



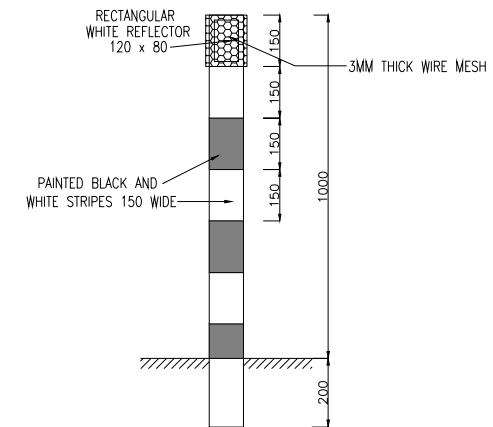
OBJECT HAZARD (RIGHT)  
Fig. 15.77  
TA-3  
SCALE 1:15000



TWO WAY HAZARD MARKER  
Fig. 15.78  
TA-4  
SCALE 1:15000



CLUSTER OF RED REFLECTORS  
TA-5  
SCALE 1:15000




ROAD DELINEATORS WITH RECTANGULAR REFLECTOR  
TA-6  
SCALE 1:15000

**Notes:**

- Road signs shall be erected as per IRC:67
- Sizes of arrows, letters and numerals for road signs shall be as per IRC:67
- Route marker signs, letters and numerals shall be erected as per IRC:2-1968.
- Spacing of TA2 on kerb face shall be 250mm C/C and that on metal beam crash barrier shall be 3000mm C/C. The number of reflector at island/median tips shall be as instructed by the Engineer, but in no case shall be less than five number at a tip.
- CS1 can also be used for compulsory right turn and straight ahead by rotating.
- All items indicated in this drawing may not be relevant for the subject project, these shall be used depending upon the requirement.
- Besides the above, standards and specifications mentioned in IRC:67 shall be followed strictly whenever applicable.


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DESIGN CONSULTANT:  

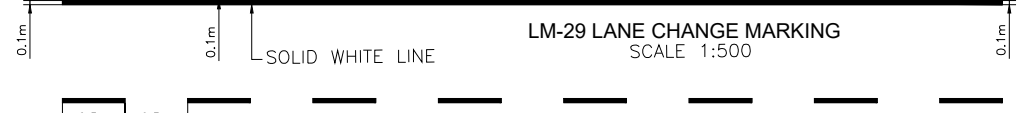
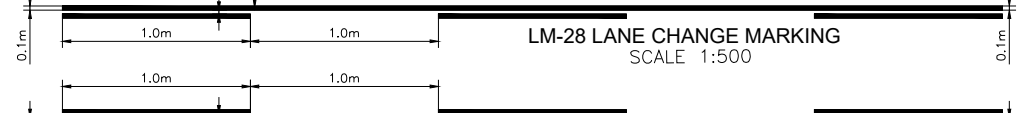
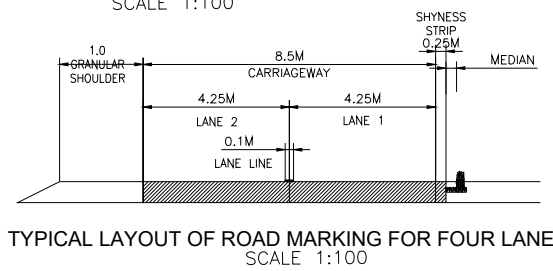
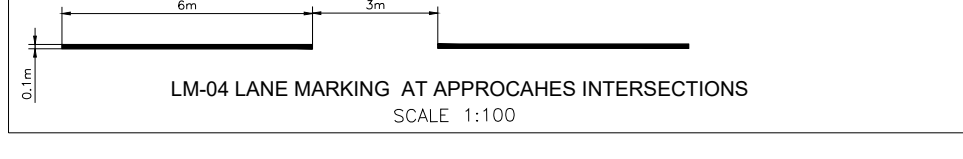
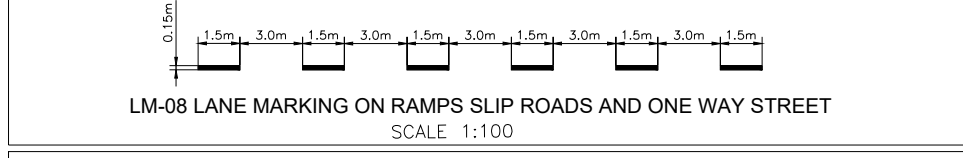
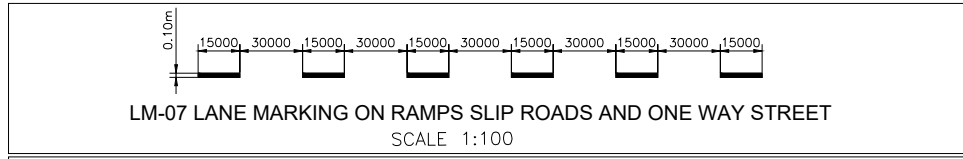
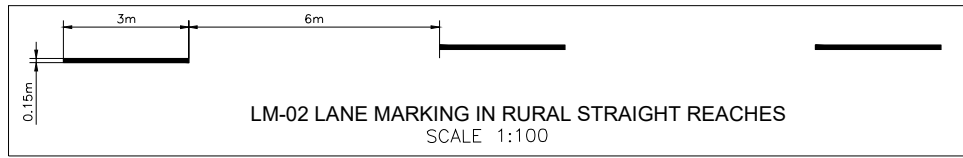
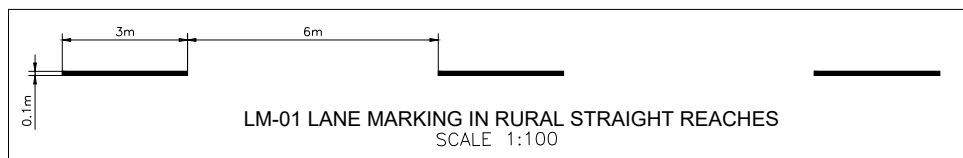
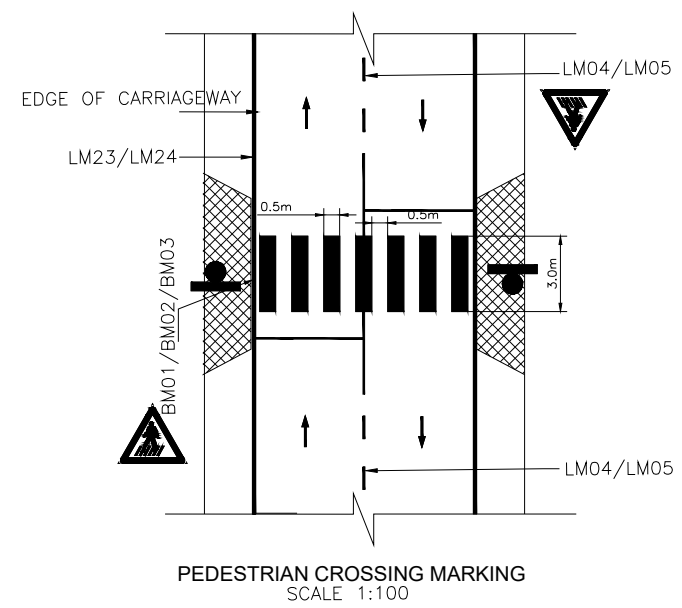
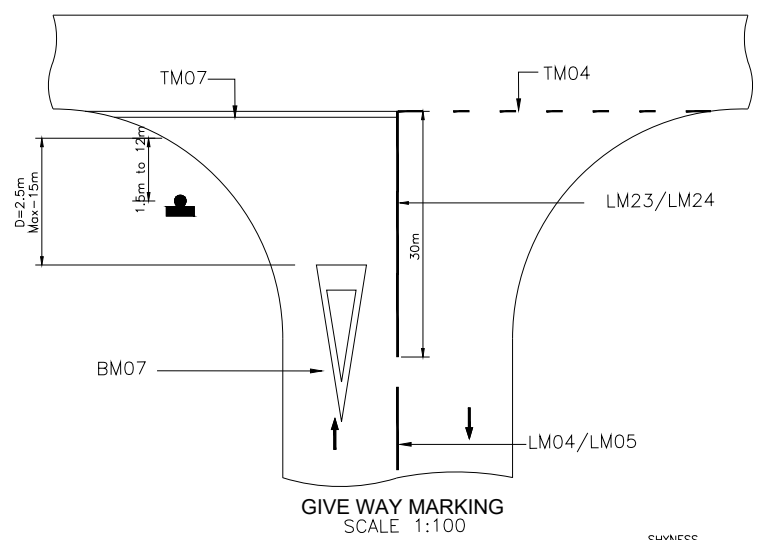
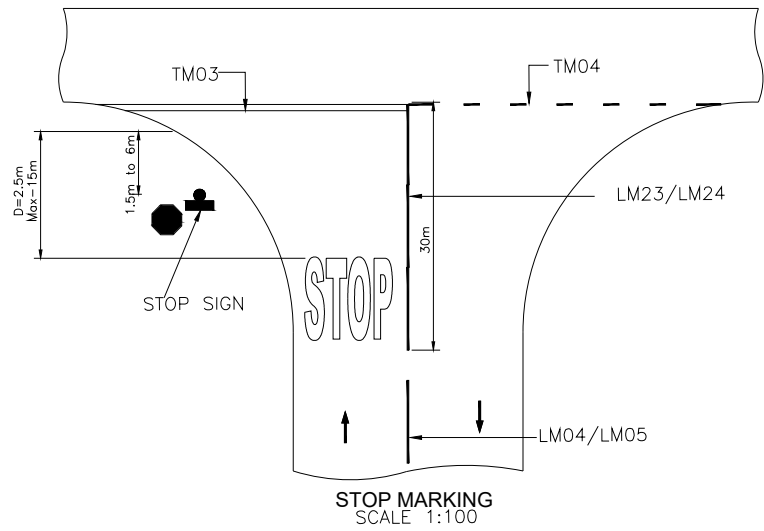
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SCALE AT A3 SIZE DRAWING  
 HORIZ. 1:2500  
  
 VER. 1:250

TITLE:  
**Miscellaneous**

CLIENT APPROVAL: \_\_\_\_\_ SEAL & SIGNATURE: \_\_\_\_\_  
 DWG NO:- \_\_\_\_\_  
 DRAWN: \_\_\_\_\_ CHECKED: \_\_\_\_\_ DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
 DSP SK SS AD  

- Notes:**
1. All the arrows and marking are in white colour.
  2. Provided first arrow at distance of 15m from mouth of intersection & second at 30m from first arrow.
  3. Size of arrow shall be 3.5m (As per of IRC:35)

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HORIZ.1:2500

VER.1:250

TITLE:

**Miscellaneous**

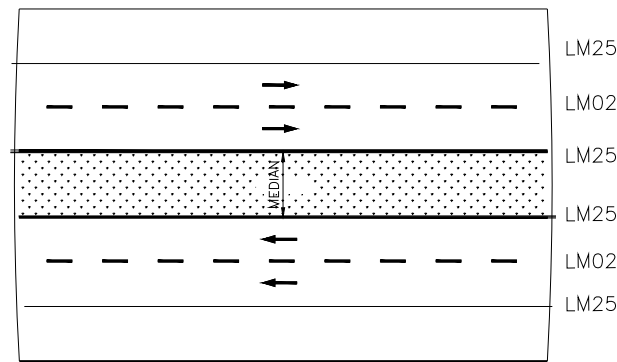
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DWG NO: \_\_\_\_\_

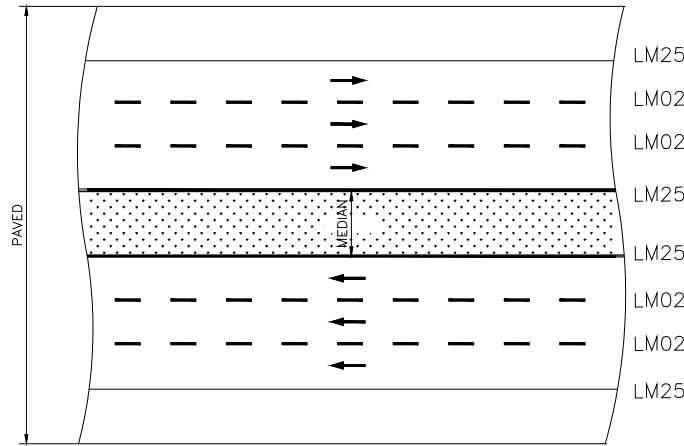
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DSP: SKA/SS/AD

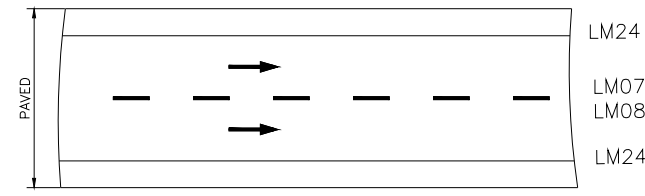
Team Leader



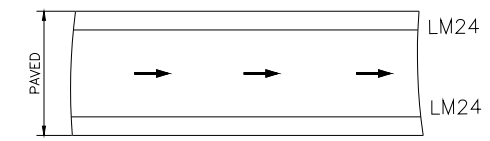
MAIN CARRIAGEWAY



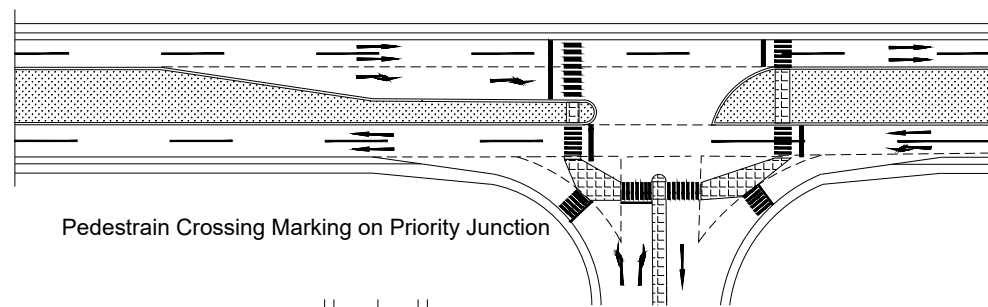
MAIN CARRIAGEWAY



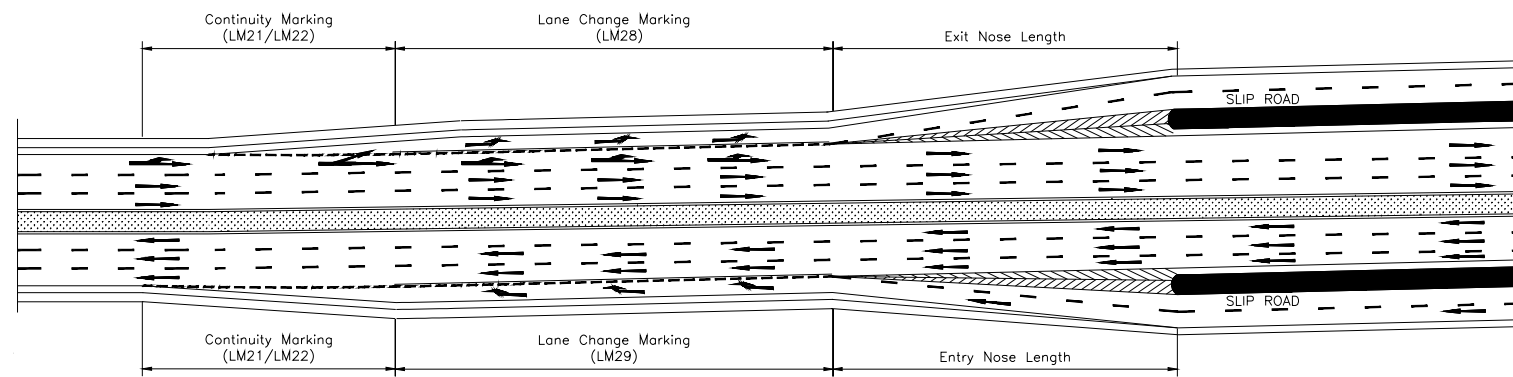
SERVICE / SLIP ROAD



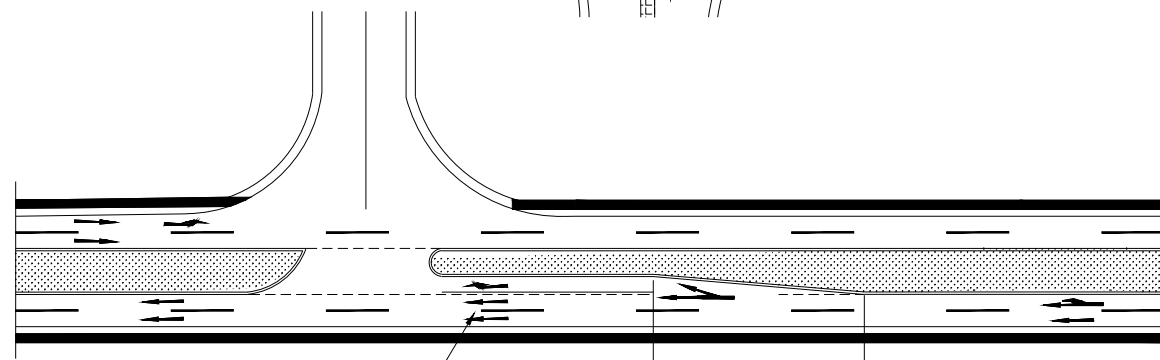
SERVICE / SLIP ROAD  
TCS-19A



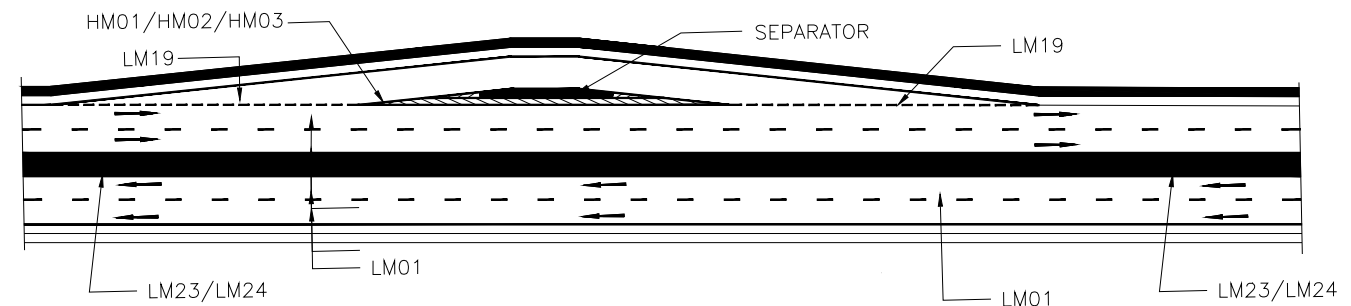
Pedestrian Crossing Marking on Priority Junction



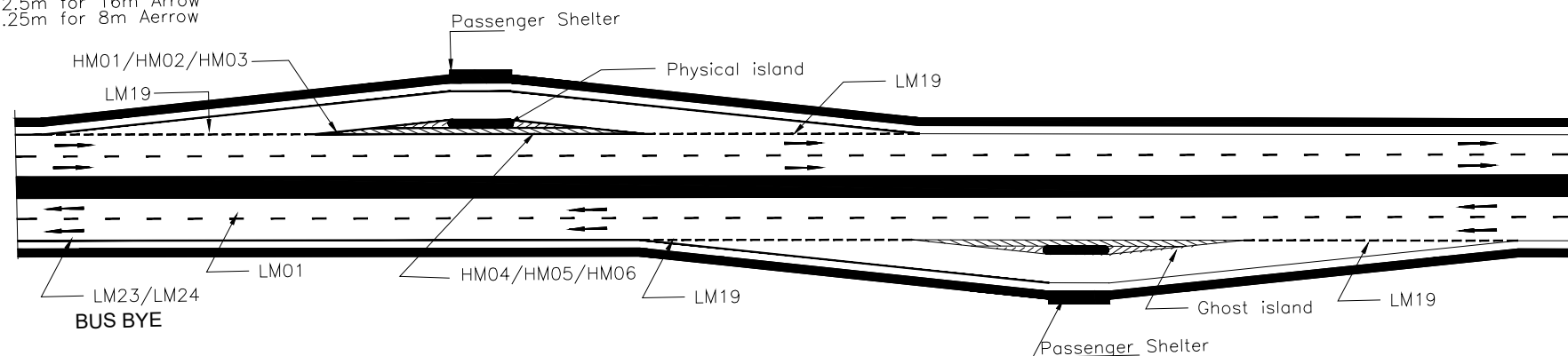
Merge and Deceleration with Acceleration  
at main carriageway and service road



Shelter lane at median opening



Truck Lay-by





BUS BYE

**Notes:**

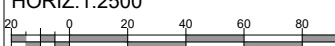
1. All the arrows are in white colour.
2. Provided first arrow at distance of 15m from mouth of intersection & second at 30m from first arrow.
3. Size of arrow shall be 3.5m (As per fig.21 of IRC:35)

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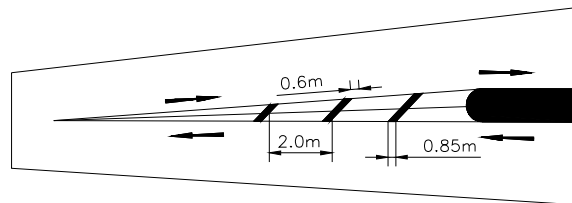
DESIGN CONSULTANT:  

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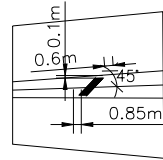
SCALE AT A3 SIZE DRAWING  
 HORIZ.1:2500  
  
 VER.1:250

TITLE:  
**Miscellaneous**

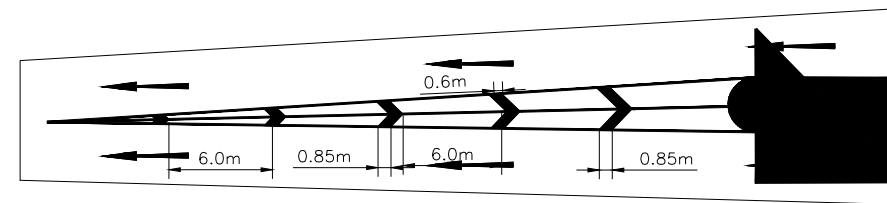
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 DWG NO.: \_\_\_\_\_  
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 DSP SKA/SS/AD  

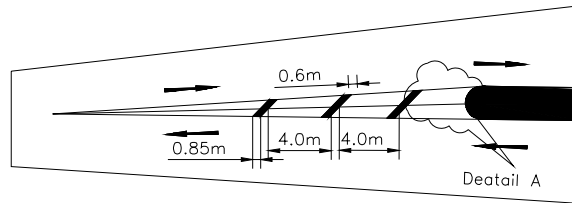
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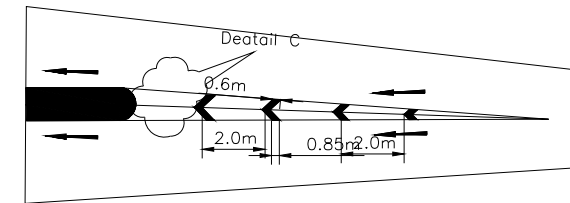
Detail A



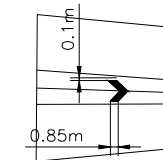
Total Length Of marking >22m  
Chevron Marking (Merging)



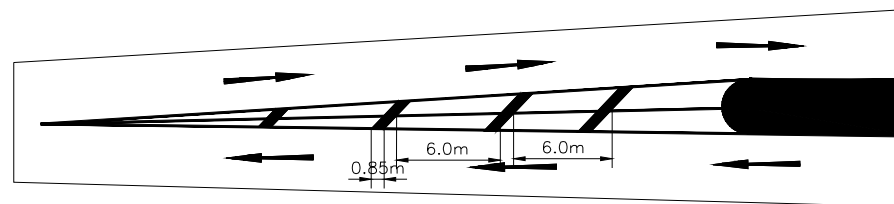
Total Length Of marking 10m to 22m



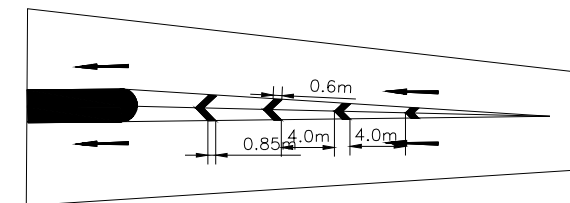
Total Length Of marking <10m



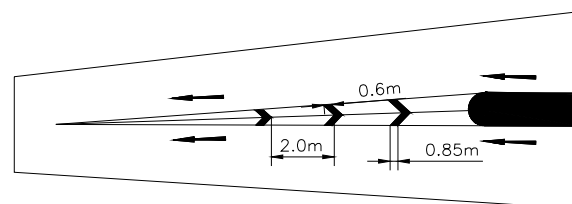
Detail C



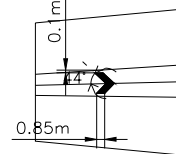
Total Length Of marking >22m  
Diagonal Marking



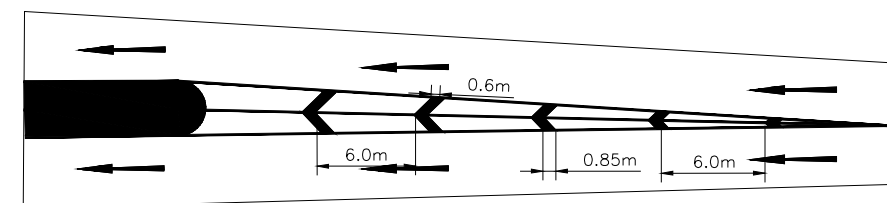
Total Length Of marking 10m to 22m



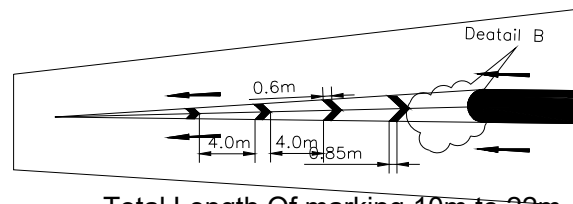
Total Length Of marking <10m



Detail B



Total Length Of marking >22m  
Chevron Marling (Diverging)





Total Length Of marking 10m to 22m

**Notes:**


1. All the arrows are in white colour.
2. Provided first arrow at distance of 15m from mouth of intersection & second at 30m from first arrow.
3. Size of arrow shall be 3.5m (As per fig.21 of IRC:35)

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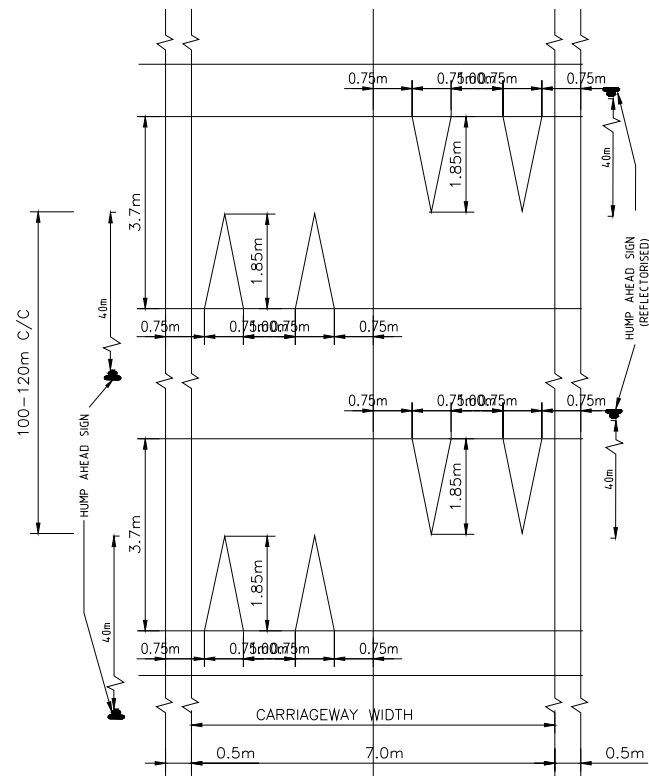
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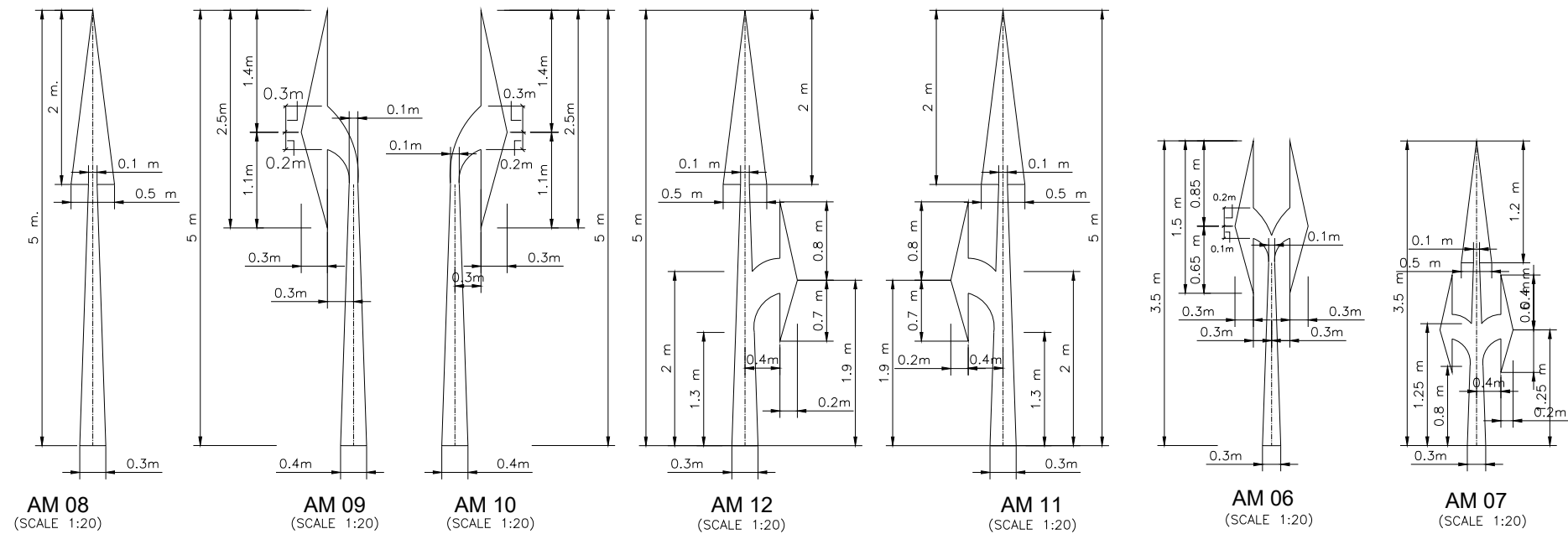
SCALE AT A3 SIZE DRAWING  
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 VER. 1:250

TITLE:  
**Miscellaneous**

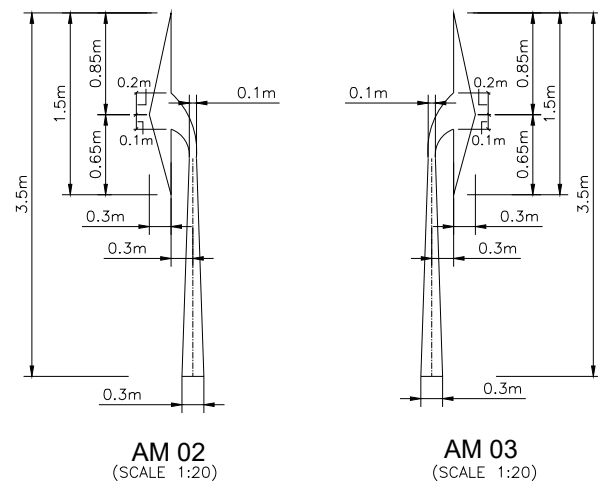
CLIENT APPROVAL: \_\_\_\_\_ SEAL & SIGNATURE: \_\_\_\_\_  
 DWG NO.: \_\_\_\_\_  
 DRAWN: \_\_\_\_\_ CHECKED: \_\_\_\_\_ DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
 DSP: \_\_\_\_\_ SK: \_\_\_\_\_ SS: \_\_\_\_\_ AD: \_\_\_\_\_  

BM-04 TYPICAL DETAIL FOR SPEED BREAKER  
(SCALE 1:100)

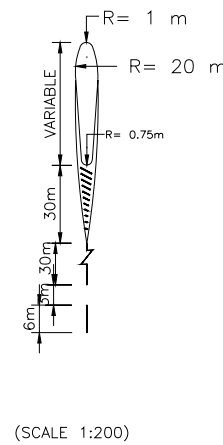


ARROW MARKING FOR ROUTE DIRECTION



AM 02  
(SCALE 1:20)

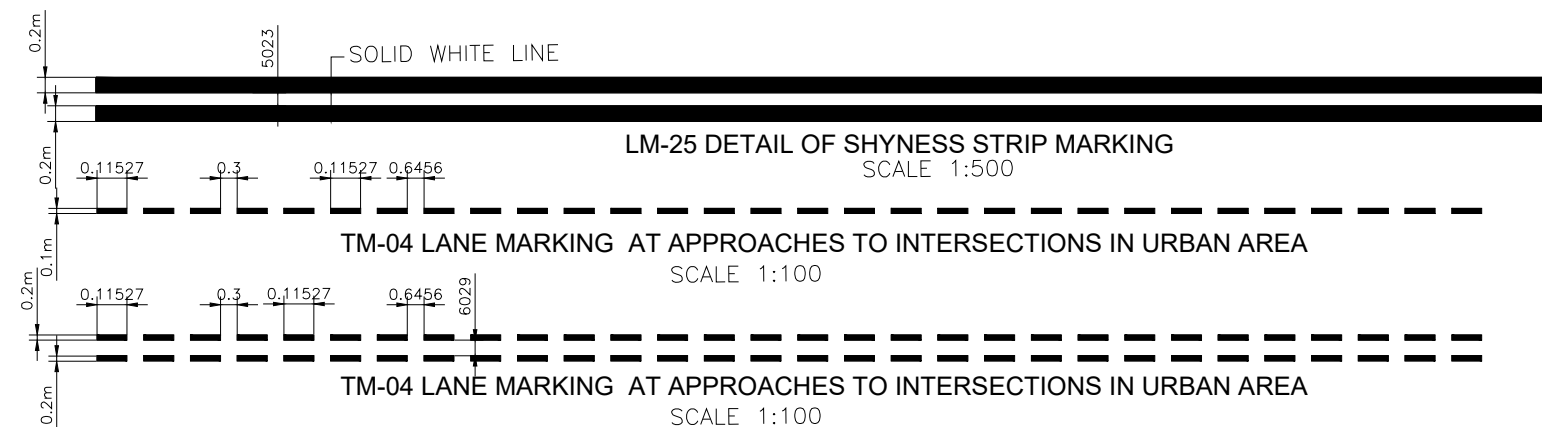
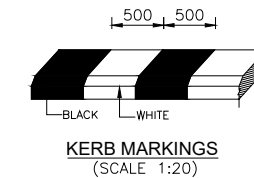
AM 03  
(SCALE 1:20)



(SCALE 1:200)

DIAGONAL MARKING IN  
ADVANCE OF DIRECTIONAL ISLAND

TOTAL LENGTH OF MARKING (M)	SPACING BETWEEN BARS OR CHEVRONS (MM)	
	LOW SPEED (75 KM/H)	HIGH SPEED (75 KM/H)
< 5.7	2100	--
5.7 to 22.5	3500	--
>22.5	5000	--
< 10.5	--	4000
> 10.5	--	6000



- Notes:**
1. All the arrows are in white colour.
  2. Provided first arrow at distance of 15m from mouth of intersection & second at 30m from first arrow.
  3. Size of arrow shall be 3.5m (As per fig.21 of IRC:35).

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Contact No- 011-26768950, E-mail - info@nhidcl.com

DESIGN CONSULTANT: Global Infra Solutions  
in JV with Krishna Techno Consultants Pvt. Ltd. and association with Infycons Creative Software Pvt. Ltd.  
F-2, E-8/11A, Sukhsagar Apartment, Trianga, Ghopai - 462039  
e: globalinfra@infra.com web: globalinfra.com

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SCALE AT A3 SIZE DRAWING  
HORIZ.1:2500  
VER.1:250

TITLE: Miscellaneous

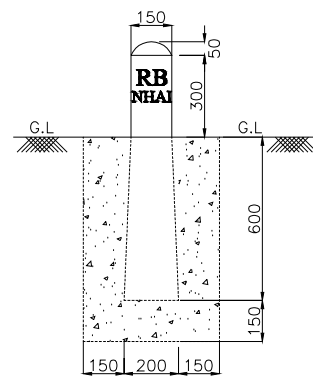
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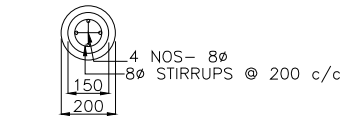
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DSP: SK [Blank] SS [Blank] AD [Blank]

Team Leader



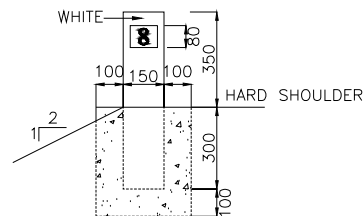
**ELEVATION**



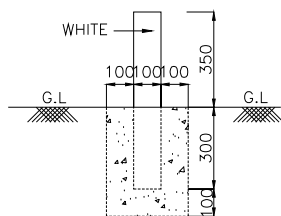
**SECTIONAL PLAN**

**BOUNDARY STONE**

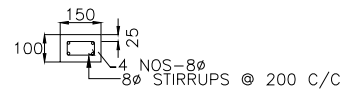
SCALE-1:20



**FRONT ELEVATION**



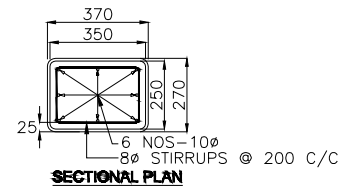
**SIDE ELEVATION**



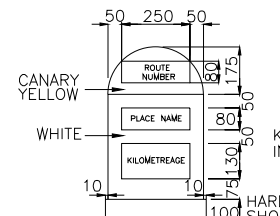
**SECTION PLAN**

**HECTOMETRE STONE**

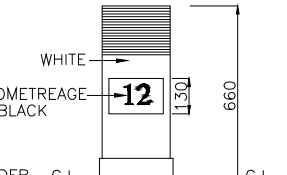
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**SECTIONAL PLAN**



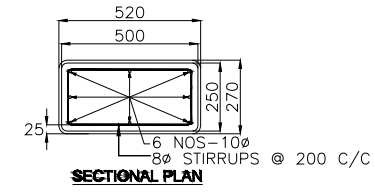
**FACE-I & II ELEVATION**



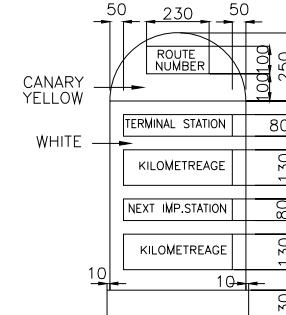
**SIDE ELEVATION**

**KILOMETRE STONE**

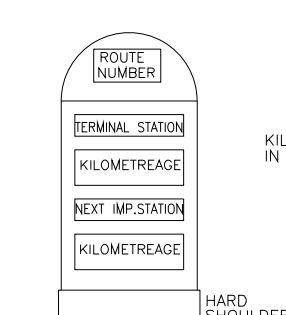
SCALE-1:20



**SECTIONAL PLAN**



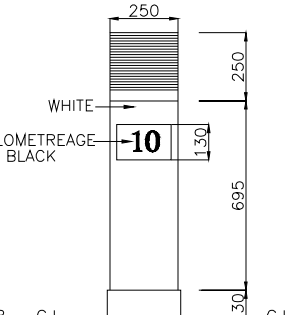
**FACE-I ELEVATION**



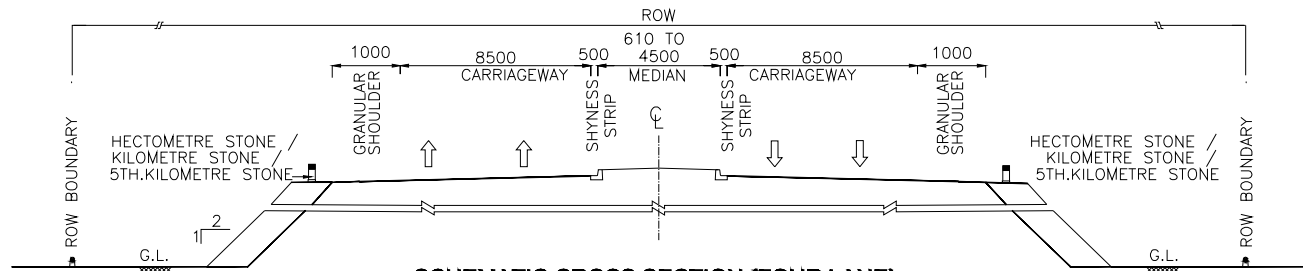
**FACE-II**

**FIFTH KILOMETRE STONE**

SCALE-1:20

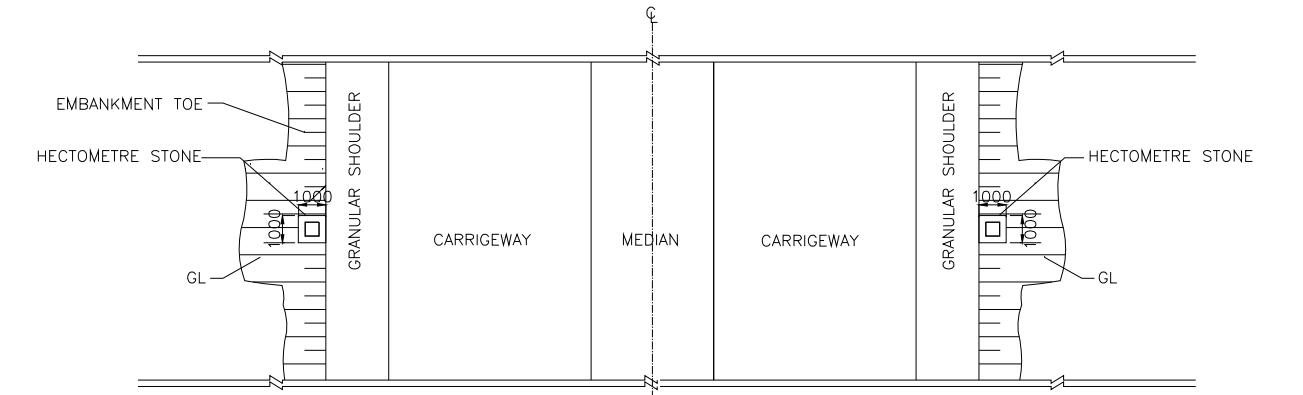


**SIDE ELEVATION**



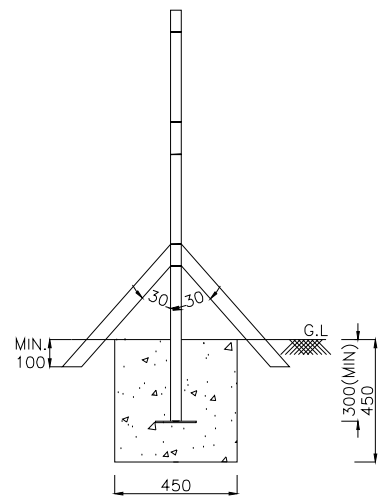
**SCHEMATIC CROSS SECTION (FOUR LANE)**

SCALE-1:200



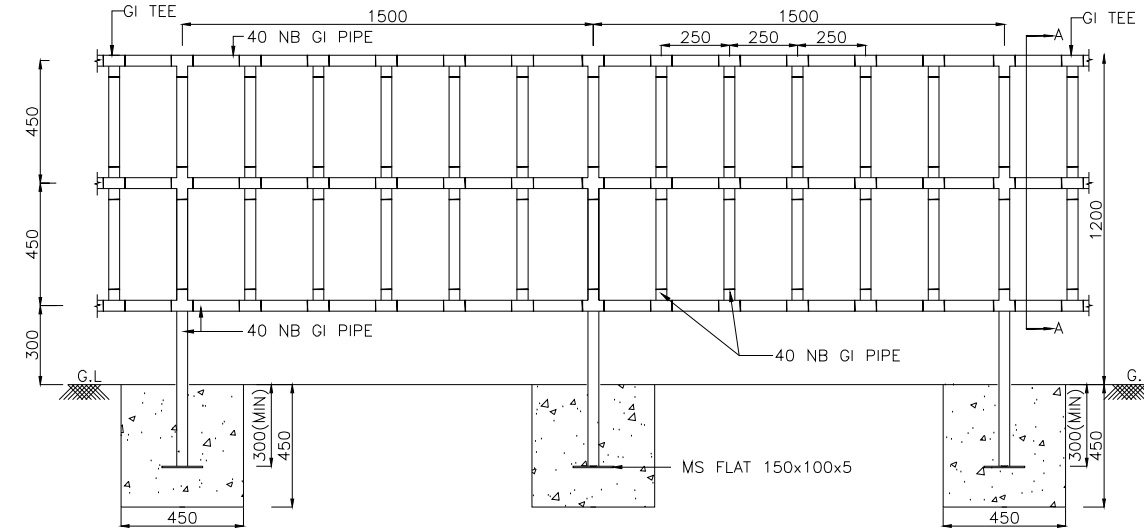
**LOCATION OF HECTOMETRE STONE**

SCALE-NONE



**DETAIL - A (AT OPENING)**

SCALE-1:20




**TYPICAL PEDESTRIAN GUARD RAILING**

SCALE-1:200

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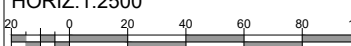
DESIGN CONSULTANT:



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e: globalinfrasolutions@gmail.com web: globalinfrasolutions.org

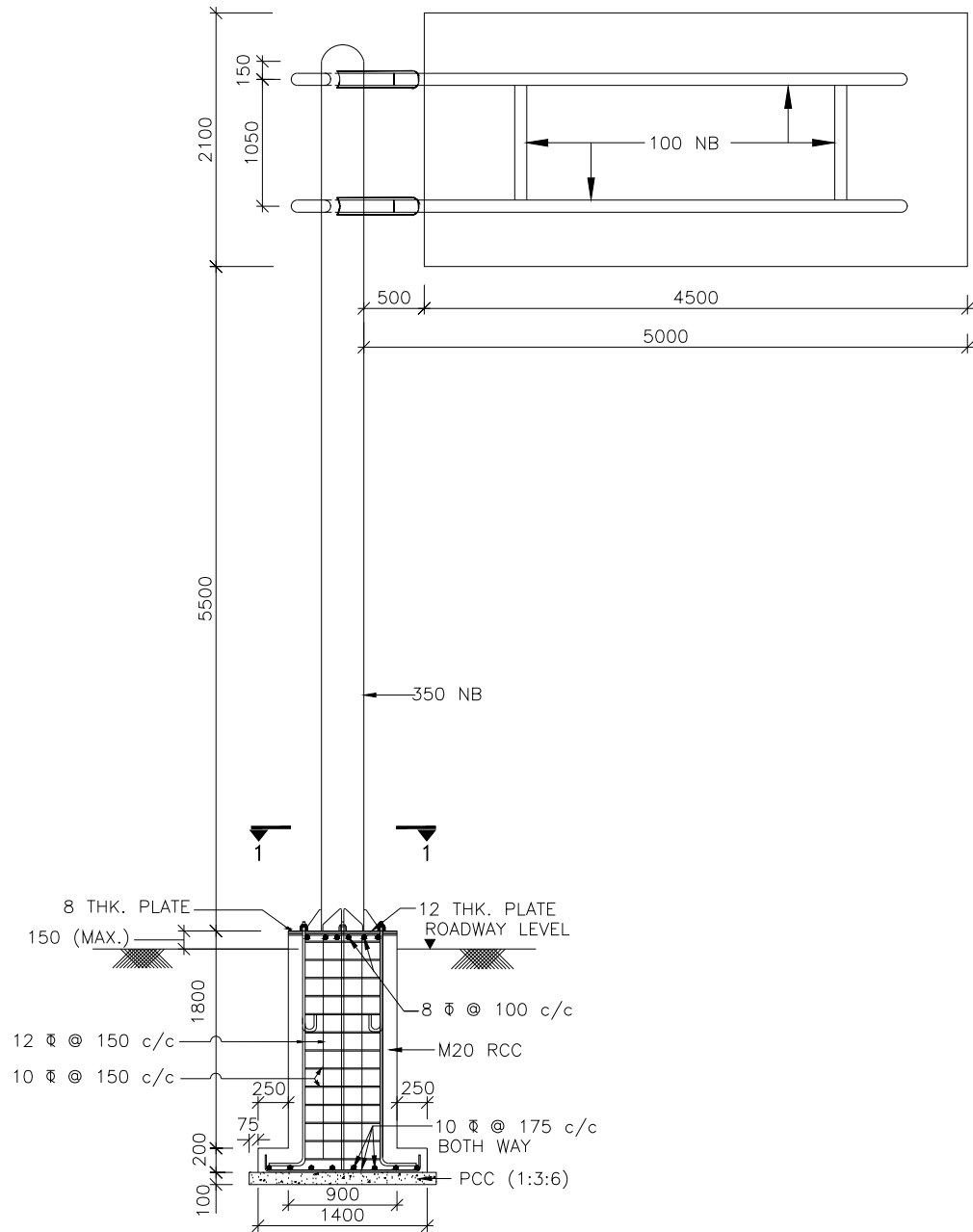
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VER.1:250



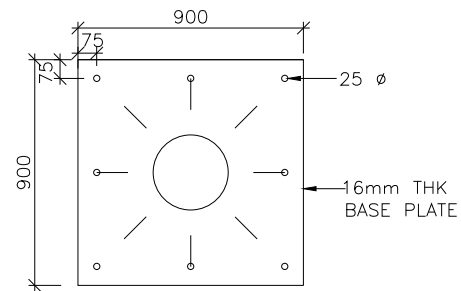
TITLE:  
**Miscellaneous**

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DWG NO.: \_\_\_\_\_  
DRAWN: \_\_\_\_\_ CHECKED: \_\_\_\_\_ DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
DSP: SKA/SS/AD  
Team Leader



**DETAILS FOR CANTILEVER  
TYPE OVERHEAD SIGN**

SCALE - 1:50




**SECTION 1-1**  
SCALE - 1:25

SIGN	MARK	SHAPE	COLOUR			DIMENSION
			BORDER	BACKGROUND	SYMBOL	
WARNING	WS	EQUILATEROL TRIANGLE WITH APEX POINTING UPWARDS	RED REFLECTIVE	WHITE REFLECTIVE	BLACK	SIDE = 900MM CORNER=900MM RADIUS BORDER=70MM
MANDATORY/ REGULATORY	MS	GENERALLY CIRCULAR BUT FOR STOP SIGN OCTOGONAL AND TRIANGULAR FOR GIVE WAY SIGN	RED REFLECTIVE	WHITE REFLECTIVE	ARROWS : BLACK BAND : RED	DIA = 600MM BORDER = 65MM BEND = 60MM OCTAGON SIDE = 370MM BORDER = 30MM BORDER = 30MM TRIANGULAR SIDE = 900MM BORDER = 900MM
INFORMATORY	IS	RECTANGULAR WITH LONGER SIDE VERTICAL	BLUE REFLECTIVE	WHITE REFLECTIVE	BLACK OR RED REFLECTIVE SQUARE IN WHITE	OVERALL = 800X600 CENTRAL SQUARE = 400X400
DIRECTION	DS	RECTANGULAR WITH LONGER SIDE HORIZONTAL	BACK REFLECTIVE	WHITE REFLECTIVE	BLACK	VARIES BORDER = 50MM

	KERBED ROAD	UN-KERBED ROADS
MINIMUM CLEARANCE (C)	>6 cm	2-3 METRE
BOTTOM EDGE OF SIGN HEIGHT (H) SHOULD BE	>2m ABOVE KERB	>1.5m ABOVE CROWN OF THE PAVEMENT


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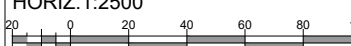
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e: globalinfraolutions@gmail.com web: globalinfraolutions.org

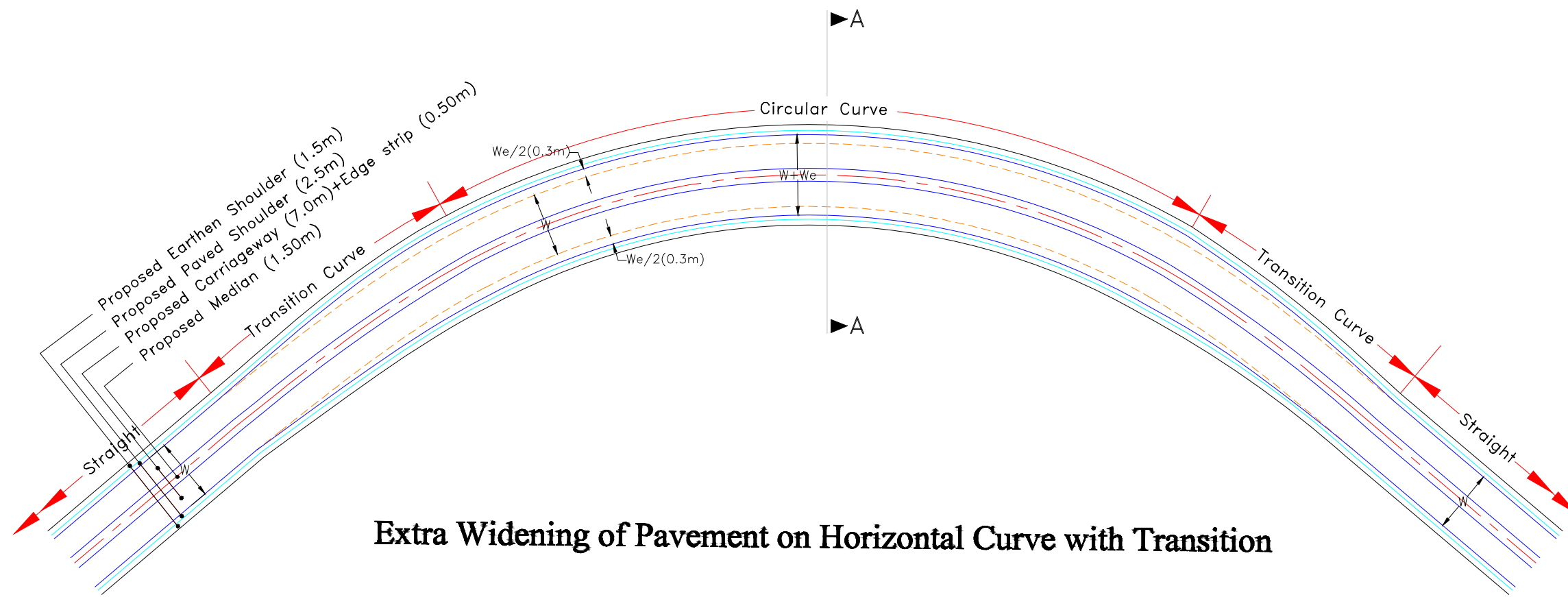
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ASSAM BY 4-LANING WITH PAVED SHOULDERS ON HYBRID ANNUITY  
BASIS. (PACKAGE-1: FROM KM 0+000 TO KM 45+645, DESIGN  
LENGTH - 45+645 KM)

SCALE AT A3 SIZE DRAWING  
HORIZ.1:2500  
VER.1:250

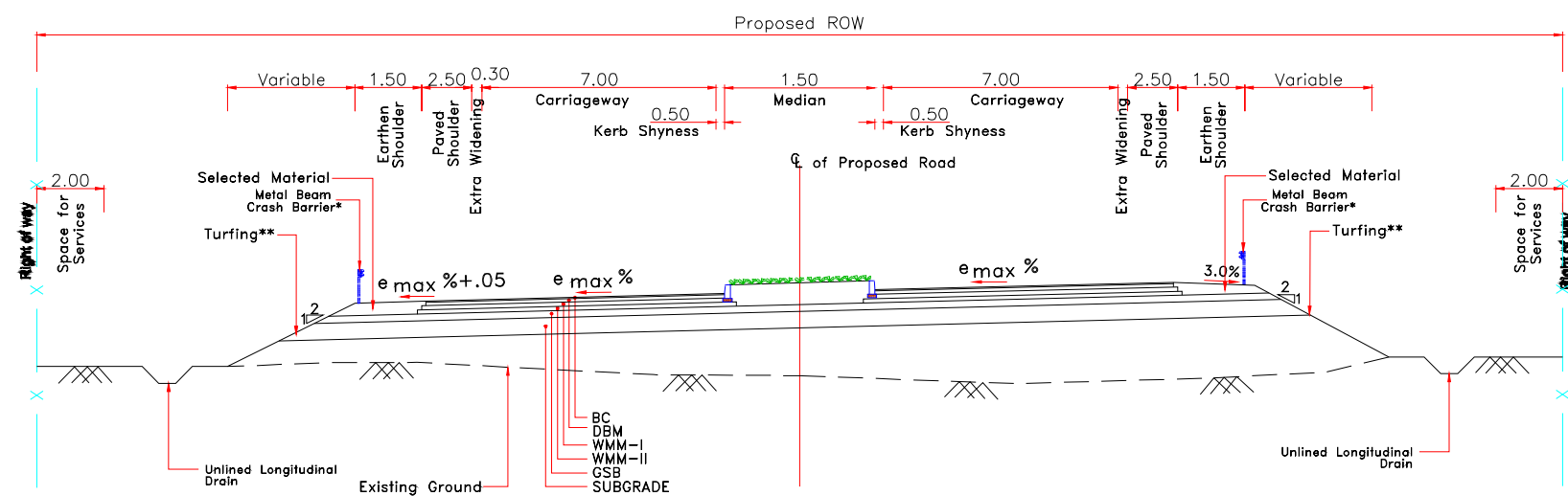


TITLE:  
**Miscellaneous**

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DRAWN: \_\_\_\_\_ CHECKED: \_\_\_\_\_ DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
DSP SKA SS AD  
Team Leader





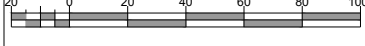
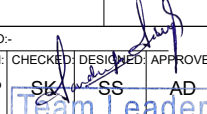
### Extra Widening of Pavement on Horizontal Curve with Transition



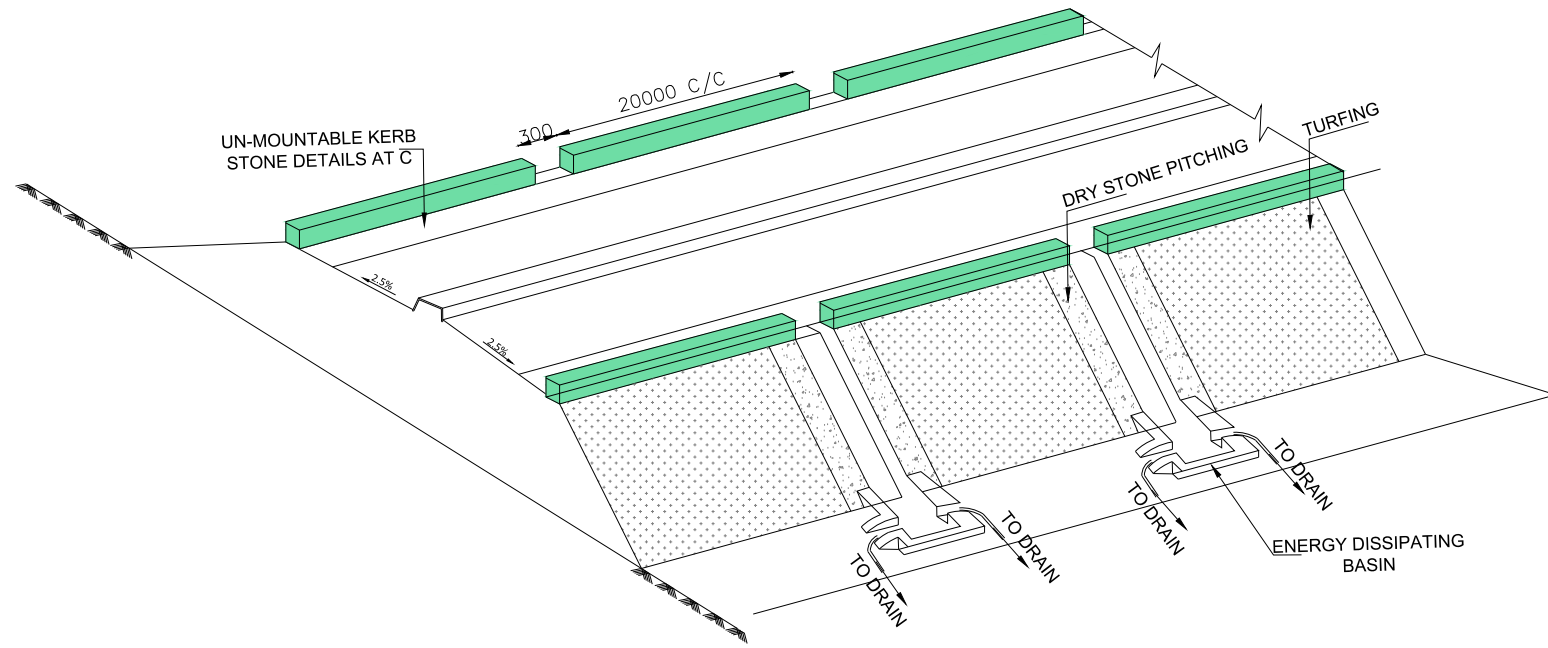
### SECTION A-A

**Notes:**

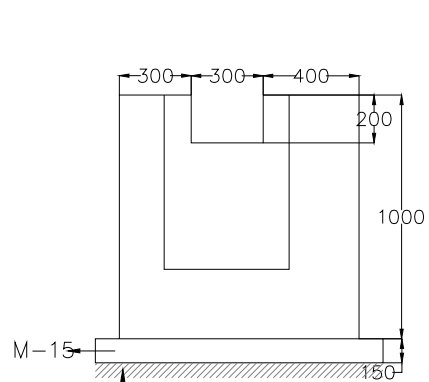
1. All dimensions are in metres unless otherwise mentioned.
2. Standards and specifications mentioned in IRC:SP:84 shall be followed strictly whenever applicable.
3. This drawing is applicable for the stretches with raised median.

CLIENT:  <b>NATIONAL HIGHWAYS &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> 1st & 2nd Floor, Tower A, World Trade Centre, Nauroji Nagar, New Delhi - 110029 Contact No- 011-26768950, E-mail - info@nhidcl.com			DESIGN CONSULTANT:  <b>Global Infra Solutions</b> in JV with Krishna Techno Consultants Pvt. Ltd. and association with Infycons Creative Software Pvt. Ltd. P-2, E-8/11A, Sukhsagar Apartment, Trianga, Bhopal - 462039 e: globalinfraolutions@gmail.com web: globalinfraolutions.org			PROJECT: DEVELOPMENT, MAINTENANCE, MANAGEMENT AND OPERATION OF GREENFIELD HIGH-SPEED CORRIDOR FROM MAWLYNGKHUNG (NEAR SHILLONG) IN MEGHALAYA TO PANCHGRAM (NEAR SILCHAR) IN ASSAM BY 4-LANING WITH PAVED SHOULDERS ON HYBRID ANNUITY BASIS. (PACKAGE-1: FROM KM 0+000 TO KM 45+645, DESIGN LENGTH - 45+645 KM)			SCALE AT A3 SIZE DRAWING HORIZ.1:2500  VER.1:250			TITLE: <h2>Miscellaneous</h2>			CLIENT APPROVAL: _____ SEAL & SIGNATURE: _____ DRAWN: _____ CHECKED: _____ DESIGNED: _____ APPROVED: _____ DSP: SKA SS AD 		
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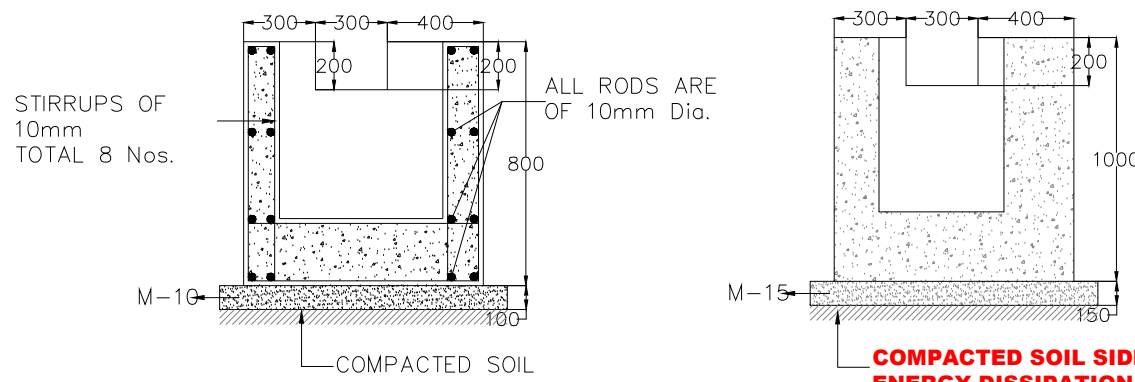




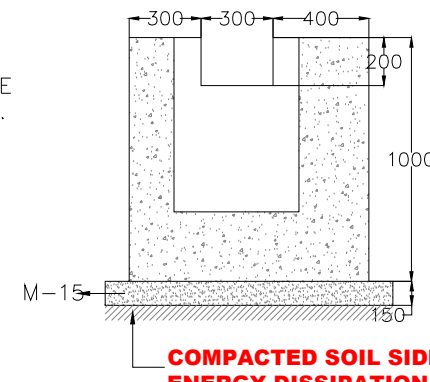
**A SCHEMATIC VIEW OF SLOPE PROTECTION ARRANGEMENT WITH PLAIN CHUTE/ FLUME**



**COMPACTED SOIL SIDE VIEW ENERGY DISSIPATION BASIN**

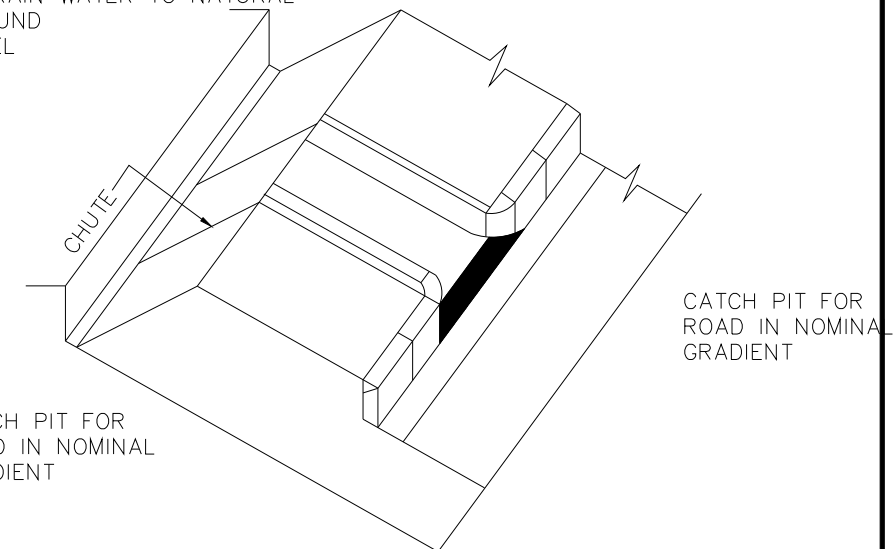


**TYPICAL CROSS-SECTION OF ENERGY DISSIPATION BASIN AT SECTION X-X**



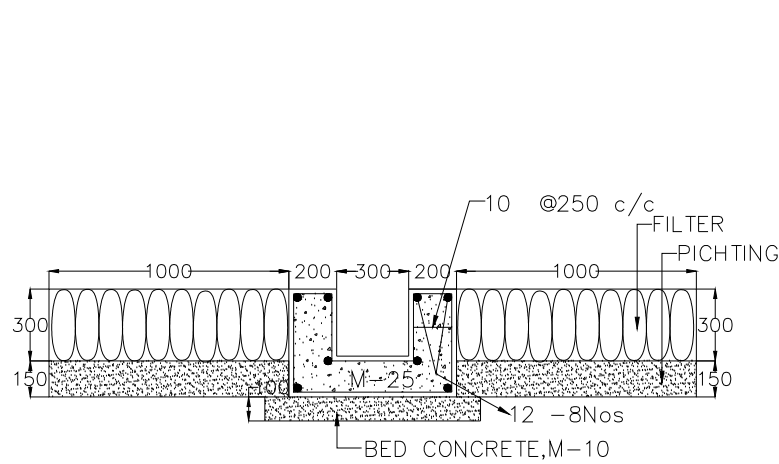
**COMPACTED SOIL SIDE VIEW ENERGY DISSIPATION BASIN**

DRAINAGE ARRANGEMENT FOR VERTICAL COLLECTION AND FLOW OF RAIN WATER TO NATURAL GROUND LEVEL

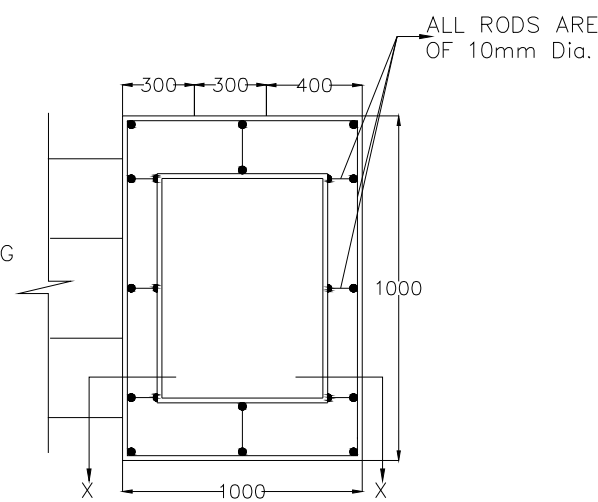


CATCH PIT FOR ROAD IN NOMINAL GRADIENT

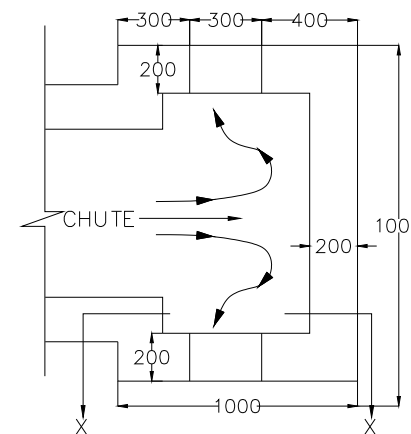
CATCH PIT FOR ROAD IN NOMINAL GRADIENT



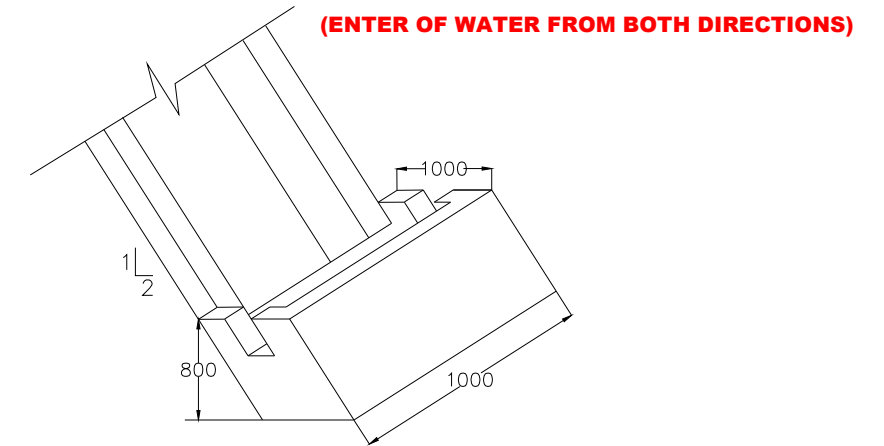
**TYPICAL CROSS-SECTION OF FLUME/CHUTE WITH REINFORCEMENT DETAILS**



**PLAN OF ENERGY DISSIPATION BASIN SHOWING REINFORCEMENT**




**PLAN OF ENERGY DISSIPATION BASIN**



**ENERGY DISSIPATION BASIN AT TOE TO CHUTE WHERE HEIGHT OF EMBANKMENT IS MORE THAN 3.0 M**

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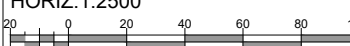
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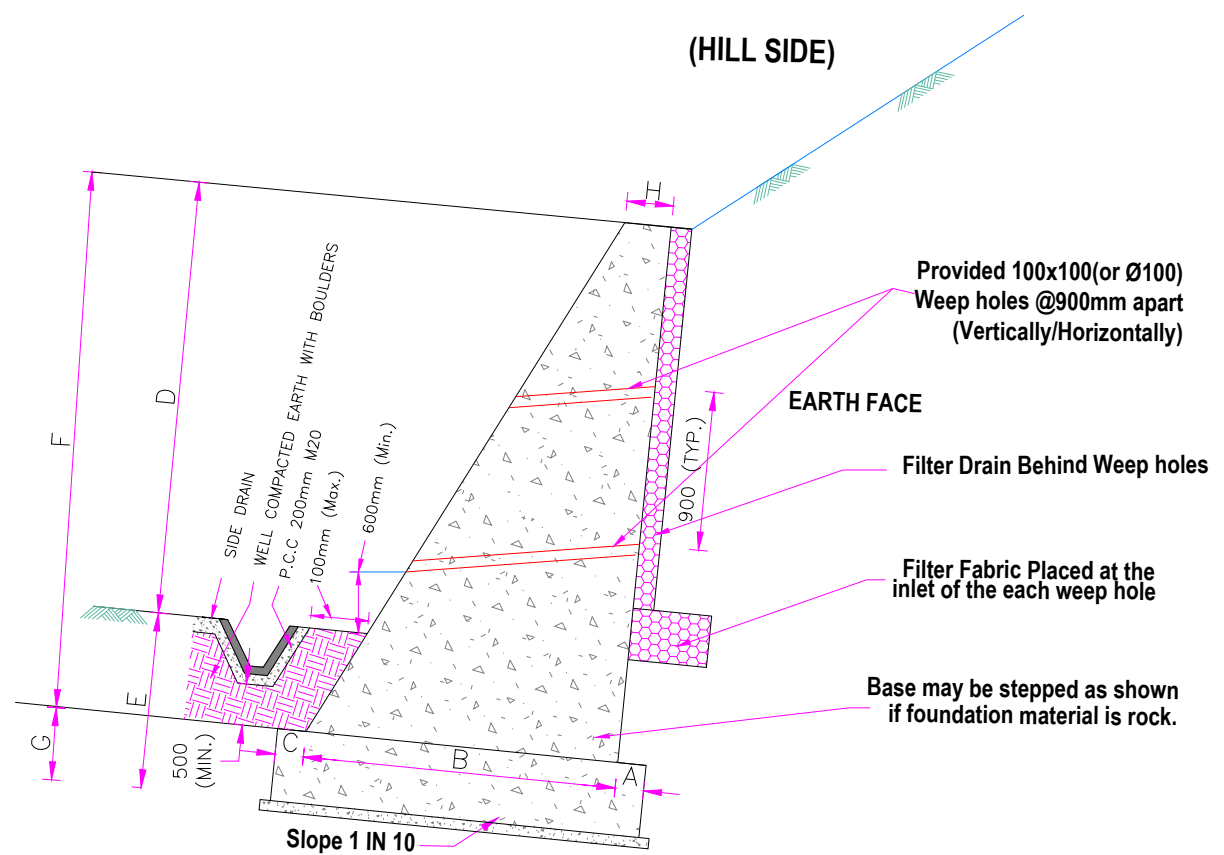
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SCALE AT A3 SIZE DRAWING  
HORIZ.1:2500  
VER.1:250



TITLE:  
**Miscellaneous**

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**TYPICAL CROSS SECTION OF BREAST WALL  
(Embankment Section)**


**NOTES:-**

- 1) ALL DIMENSIONS IN MILLIMETERS AND LEVELS IN METERS UNLESS WRITTEN OTHERWISE.
- 2) NO DIMENSION SHALL BE SCALED FROM THIS DRAWING, ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
- 3) C.R STONE MASONRY IN C.M 1:5 ABOVE BED LEVEL AND 1:4 BELOW BED LEVEL.
- 4) SEISMIC DESIGN FOR ZONE-5 ADOPTED AS PER IS:1893 PART 2 AND PERMISSIBLE STRESSES INCREASED BY 50% UNDER SEISMIC CONDITION.
- 5) THESE SECTIONS ARE FOR GUIDENCE AND FOR ESTIMATION. EXACT STABILITY CALCULATIONS TO BE DONE WITH SITE PARAMETRE.
- 6) BACK FILLING SHALL BE DONE AS PER APPENDIX-6 OF IRC:78
- 7) WEEP HOLES SHALL BE PROVIDED AT 1.0m c/c HORIZONTALLY AND VERTICALLY IN A STAGGERED MANNER.
- 8) LEVELLING COURSE BELOW SHOULD BE PROVIDED WITH SUITABLE OFFSET (0.15m Min.) TO RESTRICT BASE PRESSURE ON SOIL WITHIN PERMISSIBLE LIMITS.
- 9) WIDTH OF BASE SHALL BE INCREASED/DECREASED AS PER SBC REQUIREMENT.
- 10) THE PROPERTIES OF THE RETAINED EARTH/BACK FILL HAVE BEEN ASSUMED AS FOLLOWS:
 

DRY DENSITY	---	18 Kn/m <sup>3</sup>
ANGLE OF INTERNAL FRICTION	---	30°
ANGLE OF WALL FRICTION	---	20°
COHESION (c)	---	= 0
- 11) LIVE LOAD SURCHARGE 1.2m FOR RETAINING WALLS EQUIVALENT HEIGHT DUT TO ON VALLY SIDE.
- 12) FACTOR OF SAFETY FOR OVERTURNING IS 2.0 FOR NON SEISMIC CONDITION AND 1.5 FOR SEISMIC CONDITION.
- 13) PERMISSIBLE TENSILE STRESS UNDER NON SEISMIC CONDITION IS ASSUMED TO BE 70 Kn/m<sup>2</sup> FOR STONE MASONRY IN CM (1:5).
- 14) WEEP HOLES SHALL BE PROVIDED IN MASONRY WALLS AT A SPACING OF 900MM IN EITHER DIRECTION.
- 15) SIZE OF PVC SHALL BE 100MM TO 150MM PVC.
- 16) IMPERVIOUS SILTY SOIL LAYER OR BACK FILL OF ABOUT 300MM ON THE TOP TO PREVENT SEEPAGE OF RAIN WATER IN THE BACKFILL OR IN FOUNDATION.
- 17) NATURAL GULLIES SHALL BE DIVERTED AWAY FROM THE SILT. SO THAT FLOW OF RAIN WATER DOES NOT CAUSE EROSSION OF BREAST WALL ON TOPMOST TERRACE.
- 18) GRASS TURFING SHALL BE LAID ON THE GROUND SLOPE TO PREVENT EROSION.
- 19) SIDE WATER DRAINS SHALL BE AVOIDED NEAR THE TOP OF THE BREAST WALLS AS THEY ALLOW SEEPAGE OF WATER IN UNMAINTAINED CONDITIOS INTO THE OUT & DESTABILISE
- 20) SIDE WATER DRAINS TO BE PROVIDED AT THE TOE OF THE RETAINING WALLS
- 21) FOUNDATION TO BE 500MM BELOW THE SIDE DRAIN WITHIN SOIL OR HIGHLY JOINTED ROCK SIDE DRAIN
- 22) INCASE SIDE DRAINS AT TOE OF THE RETAINING WALL ARE NOT PROVIDED THEN DRY STONE PITCHING OF SIZE 150MM. MAY BE LAID ON SLOPE FOR A DISTANCE OF 1MTS BELOW THE TOE OF THE RETAINING WALLS.
- 23) FOR ERODABLE SOILS AND WEAK FOUNDATIONS (CLAY, WEAK SAND ETC.) GABION WALLS SHALL BE PREFERRED AS THEY WITH STAND HIGH DIFFERENTIAL SETTLEMENTS.

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HORIZ.1:2500



VER.1:250

TITLE:

**Miscellaneous**

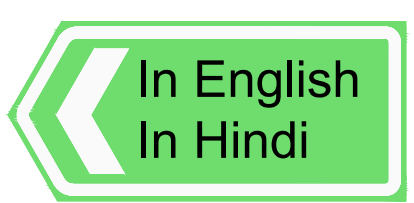
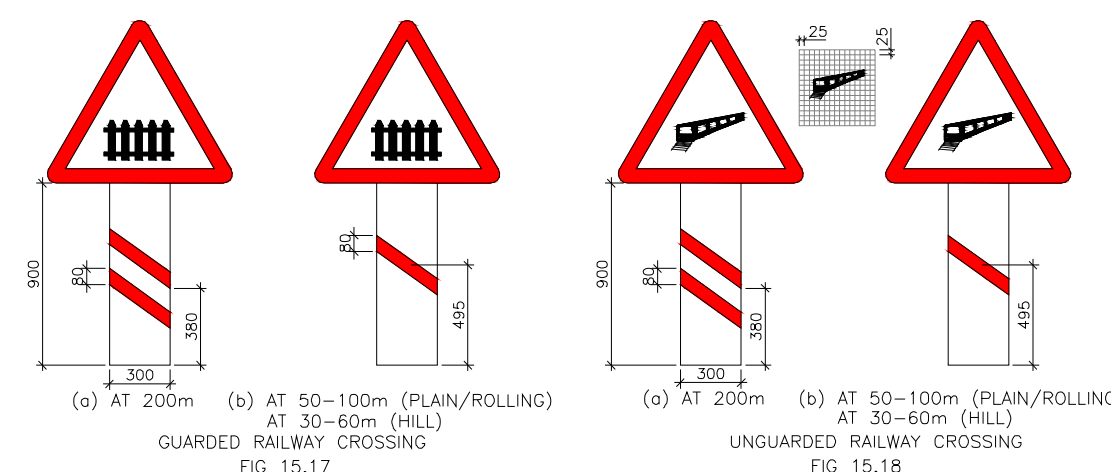
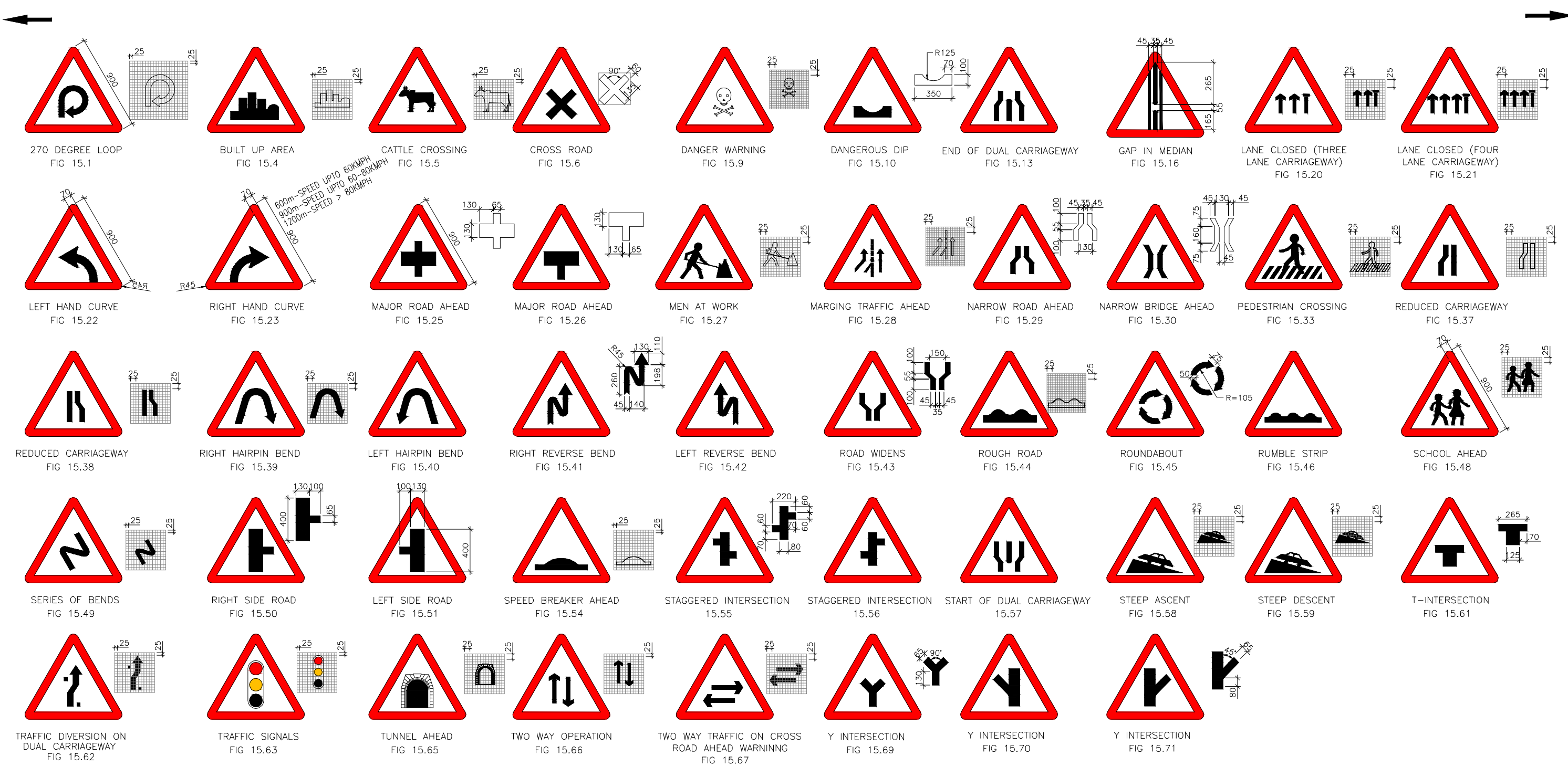
CLIENT APPROVAL: \_\_\_\_\_ SEAL & SIGNATURE: \_\_\_\_\_

DWG NO: \_\_\_\_\_

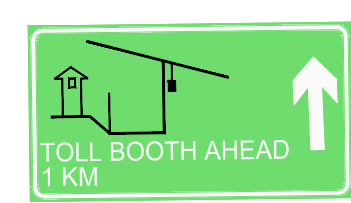
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DSP: SKA/SS/AD

Team Leader



**FLAG TYPE DIRECTION SIGN (Fig.16.04)**



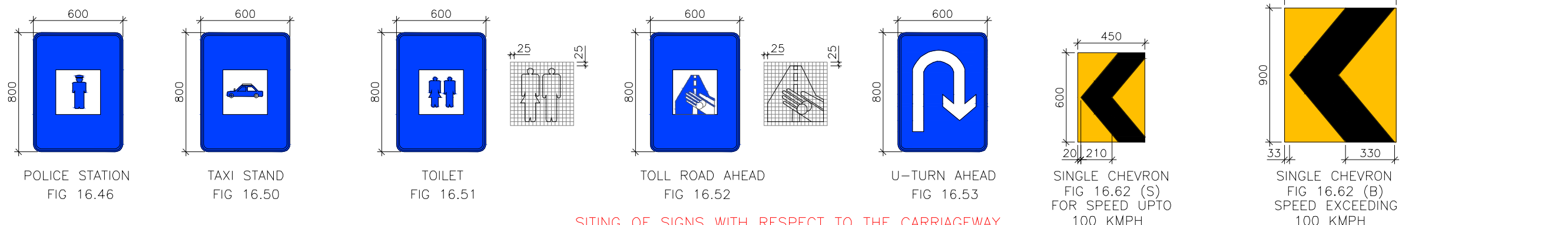
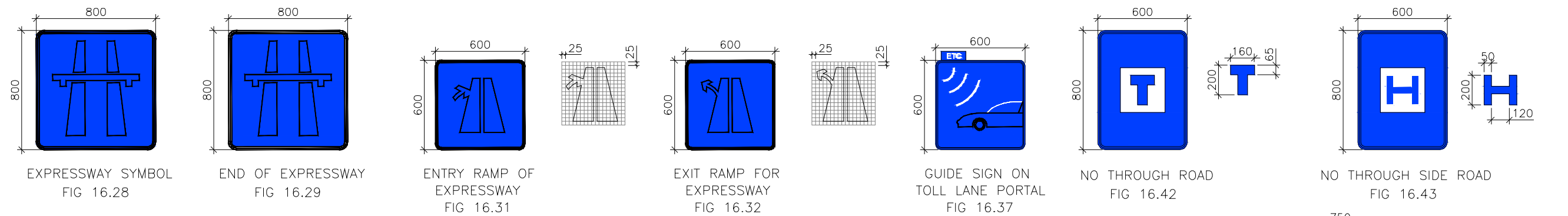
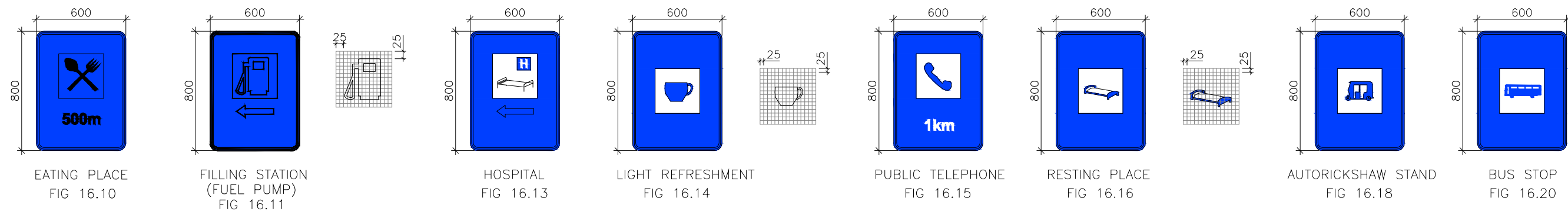
**FEE PLAZA AHEAD (Fig. 4.13)**

**SIZE & SITING OF CAUTIONARY/WARNING SIGNS**

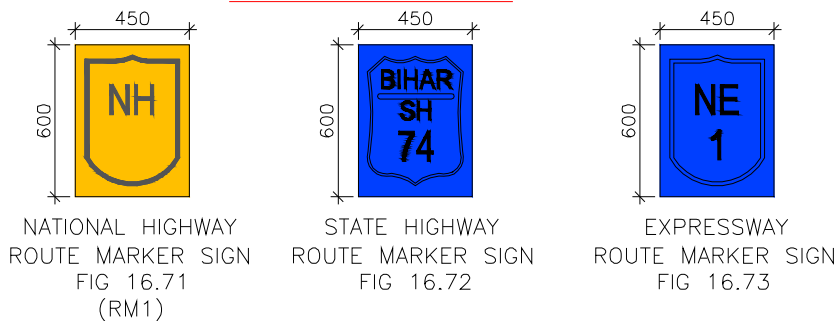
SIZE TYPE	LENGTH OF TRIANGLE(mm)	DISTANCE OF SIGN FROM HAZARD (m)
TRAFFIC SPEED UP TO 60 KMPH	600mm	45m-80m
60 - 80 KMPH	900mm	80m-120m
> 80 KMPH	1200mm	> 120m

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS SHALL NOT BE MEASURED FROM THE DRAWING. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
3. FIGURE NUMBER REFER TO IRC:67

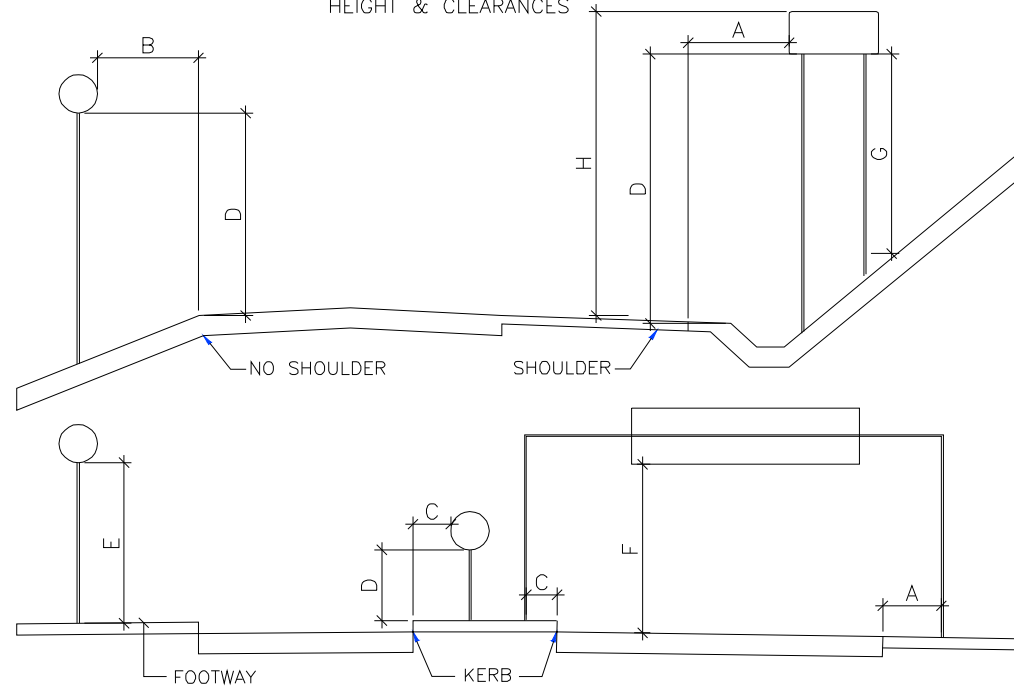


**ROUTE MARKER SIGN**



	MINIMUM (mm)	DESIRABLE (mm)	MAXIMUM (mm)
A	600	1000	2500
B	1000	2000	3000
C	300	600	1000
D	2000	2000	2500
E	2100	2100	2500
F	5500	6000	
G	750		
H			5000

**SITING OF SIGNS WITH RESPECT TO THE CARRIAGEWAY**  
HEIGHT & CLEARANCES



**NOTES:-**

1. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE MENTIONED.
  2. FIGURE NUMBER REFER TO IRC:67
  3. MANDATORY SIGNS (e.g. KEEP LEFT) ON TRAFFIC ISLANDS ARE NORMALLY MOUNTED SO THAT THE BOTTOM EDGE IS ABOUT 1000 mm ABOVE THE PAVED SURFACE.
- WHEN SEVERAL SIGNS HAVE TO BE PLACED ALONG THE SAME SECTION OF ROAD TAKE CARE THAT THEY DO NOT OBSCURE EACH OTHER. LOCATE THE SIGNS A MINIMUM OF 0.6V METRES APART (WHERE V IS THE 85 PERCENTILE SPEED IN km/H)
- SIGNS ARE NORMALLY ERECTED ON THE LEFT SIDE OF THE ROAD. BUT FOR EXTRA EMPHASIS A SECOND SIGN MAY BE PLACED ON THE RIGHT SIDE OF THE ROAD. THIS IS ESPECIALLY USEFUL ON LEFT HAND BENDS.

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e: globalinfraolutions@gmail.com web: globalinfraolutions.org

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SCALE AT A3 SIZE DRAWING

HORIZ.1:2500

VER.1:250

TITLE:

**Miscellaneous**

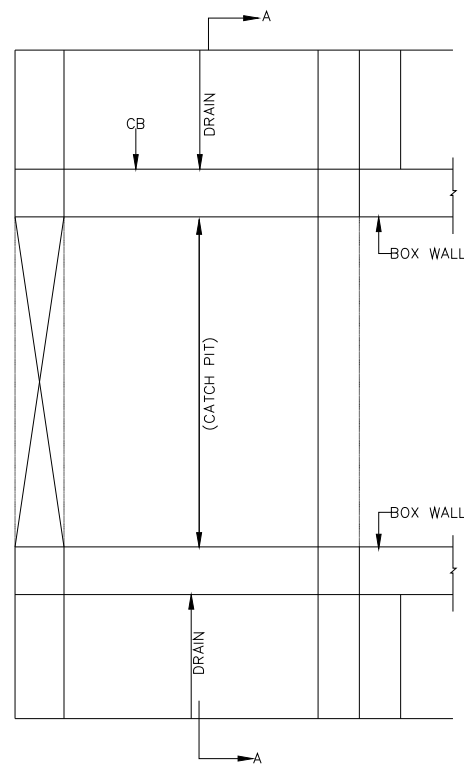
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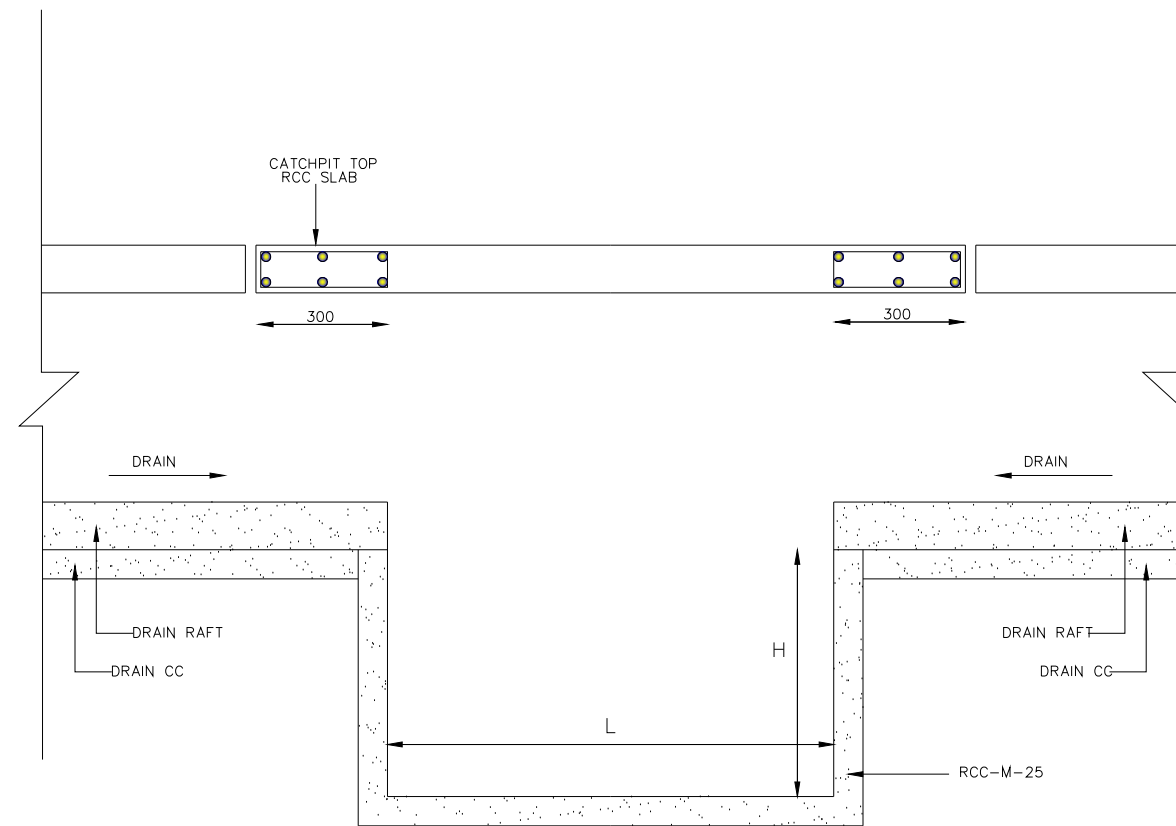
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DSP: SK/SS/AD

Team Leader




PLAN



DETAILS OF CATCHPIT  
(SECTION "A-A")


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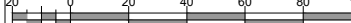


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LENGTH - 45+645 KM)

SCALE AT A3 SIZE DRAWING

HORIZ.1:2500



VER.1:250

TITLE:

**Miscellaneous**

CLIENT APPROVAL: \_\_\_\_\_ SEAL & SIGNATURE: \_\_\_\_\_

DWG NO: \_\_\_\_\_

DRAWN: \_\_\_\_\_ CHECKED: \_\_\_\_\_ DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_

DSP SKA SS AD

Team Leader

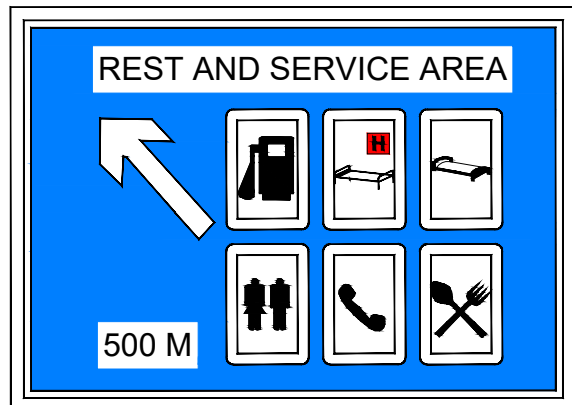


Fig 4.8 Rest and Service Area



Fig 4.13 Fee Plaza Ahead

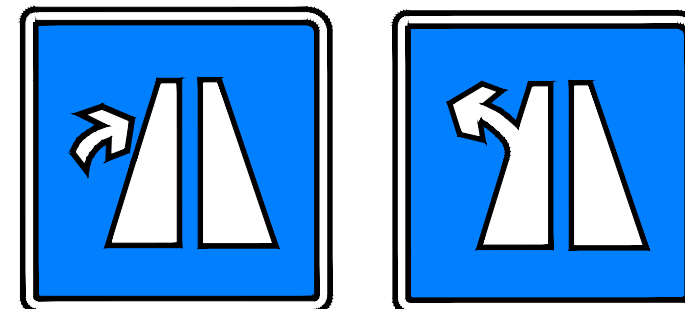


Fig 4.14 Expressway Exit and Entry Ramp

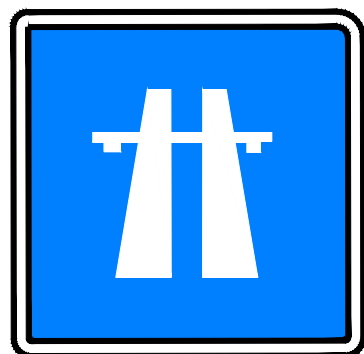


Fig 4.13 Expressway and Expressway End Symbol



Fig 4.12 Heavy Vehicle Keep Left

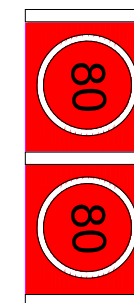


Fig 5.8 Speed Limit as Road Marking

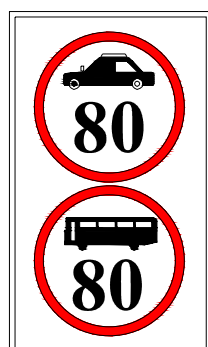


Fig 2.2 Speed Limit

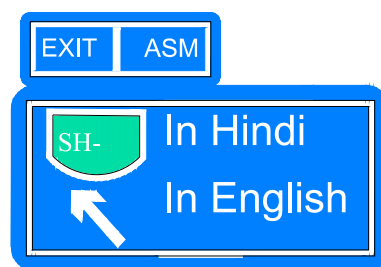


Fig 4.5 Advance Direction Sign 1 Km Before Exit

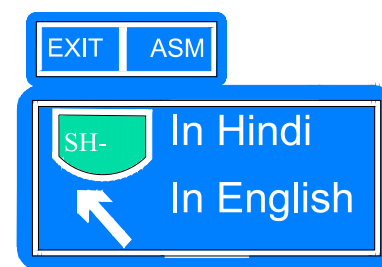


Fig 4.6 Advance Direction Sign 500 m Before Exit

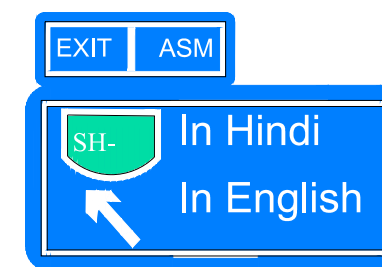





Fig 4.7 Advance Direction Sign at Exit Nosing

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SCALE AT A3 SIZE DRAWING  
 HORIZ.1:2500  
  
 VER.1:250

TITLE:  
**Miscellaneous**

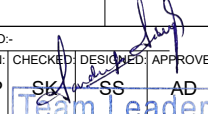
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 DWG NO:- \_\_\_\_\_  
 DRAWN: \_\_\_\_\_ CHECKED: \_\_\_\_\_ DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
 DSP: SKA/SS/AD  
  
 Team Leader



Fig 4.4 Advance Direction Sign 2 Km Before Exit for Expressway



Fig 4.1 Reassurance Sign

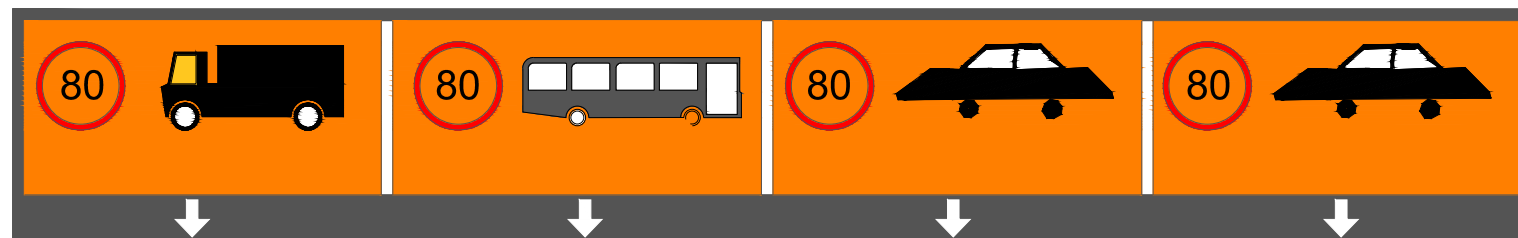
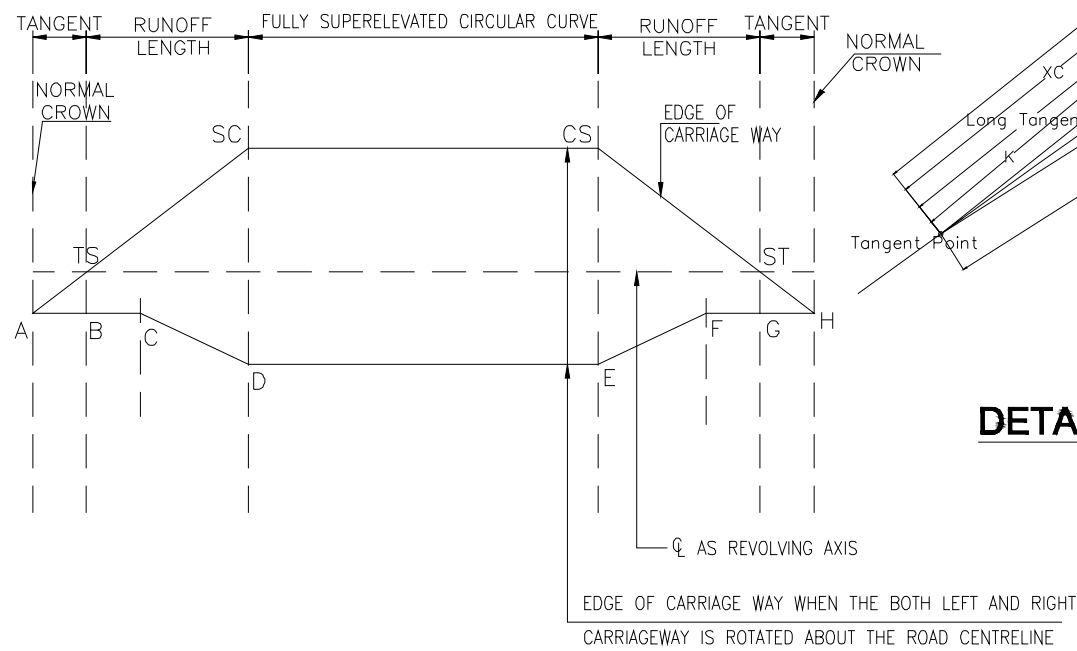
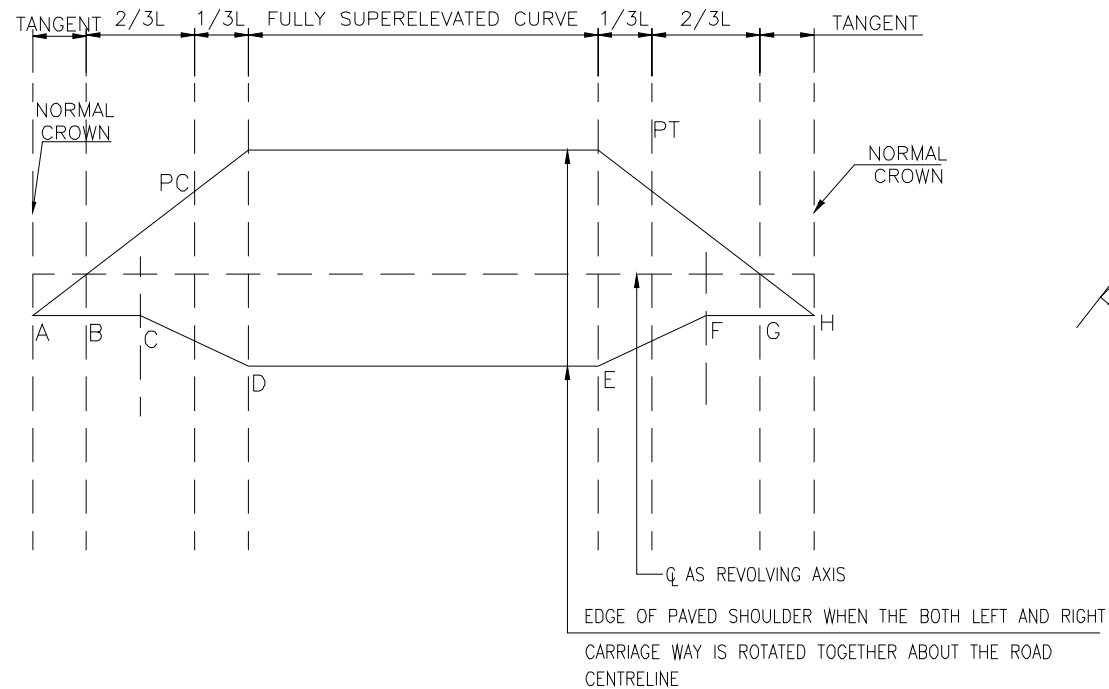


Fig 2.3 Speed Gantry

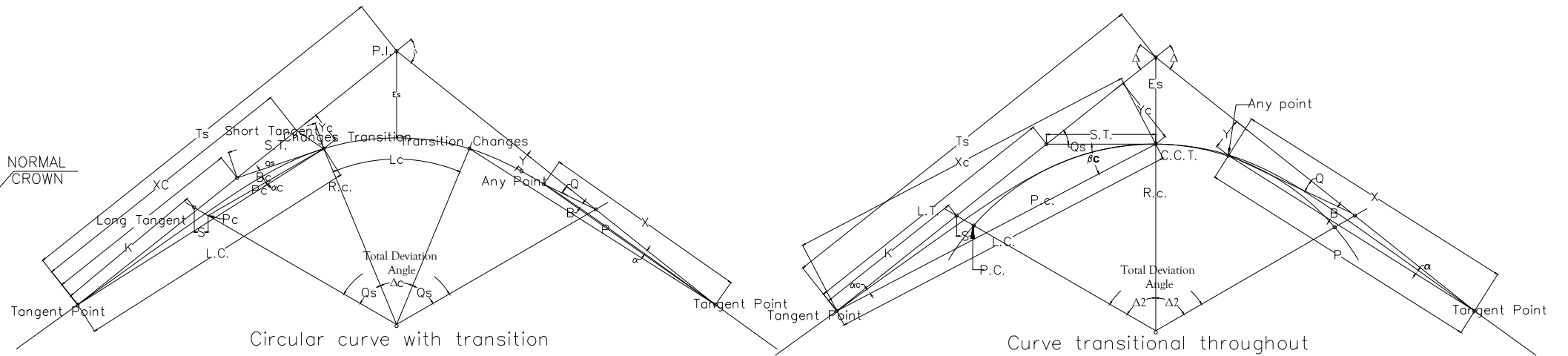
## DETAILS OF SUPERELEVATION



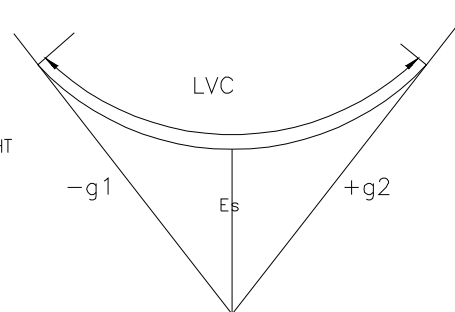
### FOR CURVILINEAR SECTION WITH TRANSITION CURVE



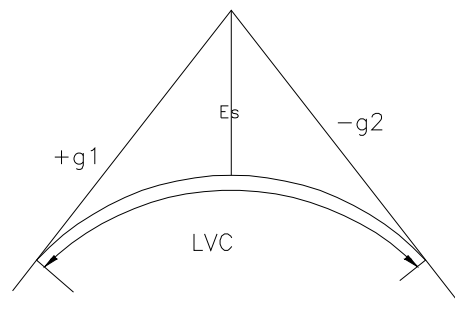
### FOR CURVILINEAR SECTION WITHOUT TRANSITION CURVE



## DETAILS OF VERTICAL CURVE



### FOR VALLEY CURVE




### FOR SUMMIT CURVE

No.	TERM	DEFINITION
01	Apex of a curve (vertex) (P.I.)	The point of intersection of the two straights connected by curve.
02	Apex distance (Es)	The shortest distance from the apex to the curve.
03	Curve radius (Re)	The minimum radius of the centre line of a curve.
04	Intersection angle (180-?)	The internal angle of intersection between the tangents at the two ends of a curve. This is the supplement of the deviation angle.
05	Long chord (Pc/L.C.)	The length of polar ray from beginning to end of transition i.e., T.P. to C.T.
06	Intersection angle (180-?)	The distance along the straight (T.P.-P.I.) from T.P. to the intersection of the tangent to the curve at C.T.
07	Shift (S)	The displacement of a circular curve from the straight to provide room to introduce of transition curve between it and the straight, the distance of P.C. from the straight T.P. - P.I.
08	Short tangent (S.T.)	The length of the tangent to the curve at C.T. from C.T. to the straight (T.P. - P.I.)
09	Tangent distance (Ts)	The length of the straight between the apex (P.I.) and the tangent point of the curve (P.T. or T.P.)
10	Tangent point (T.P. or P.T.)	The point where the straight alignment ceases and curvature begins. Also the point of reversal of curvature.
11	Total deviation angle (?)	The external angle at the intersection between the tangents at the ends of a curve. This measures the total change of direction in the alignment of the route. This is also the central angle of the complete curve.
12	Transition length (Ls)	The full length of the transition curve connecting a straight length of road with a curve which may be circular or transitional.
13	C.C.T.(refer Fig. 2)	The mid point of the curve transition throughout i.e., where the total deviation is effected through two transitional curves without a circular arc intervening.
14	C.T. and T.C.	The nearer and farther points on a curve where the transition changes to circular arc.
15	f	The coefficient of lateral friction between the tyre of a moving vehicle and road surface and equal to $\tan \theta$ .
16	g	The acceleration due to gravity in metre per second per second equals 9.8 metre per second <sup>2</sup> .
17	K	The distance along the straight from T.P. to P.C.
18	L	The length of the transition from T.P. to any point on the transition.
19	Lc	Length of circular arc C.T. to T.C.
20	Le	Length of transition from T.P. to the point where maximum designed superlevation is reached.
21	l	The wheel base of a vehicle in metres.
22	n	The number of traffic lanes provide in the carriageway width.
23	P.C.	The point on the circular curve produced nearest to the straight.
24	R	The radius of the curve in metres at the point under consideration.
25	Re	The radius of a transitional curve at the point where maximum designed superlevation is reached.
26	V	The speed in kilometres per hour.
27	v	The speed in kilometres per second.
28	W	The weight in kilograms of the moving body.
29	We	The extra width in metre to be provided at curves.
30	X, Y	Co-ordinates to any point on the transition with T.P. as origin, the straight T.P. -P.T. as x axis and Y axis at right angles to T.P.-P.I. at T.P.
31	Xc, Yc	Co-ordinates of C.T. Xc being measured from T.P. along the tangent T.P.-P.I. and Yc at right angle to it.
32	$\alpha$	polar deflection angle at T.P. from the straight to any point on the transition.
33	$\alpha c$	polar deflection angle (at T.P.) between the long tangent and the long chord. The long chord and the polar deflection angle define the position of C.T. or C.C.T.
34	$\beta$	The angle between the polar ray to any point on the transition and the tangent to the curve at that point


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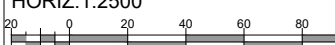
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SCALE AT A3 SIZE DRAWING

HORIZ.1:2500



VER.1:250

TITLE:

# Miscellaneous

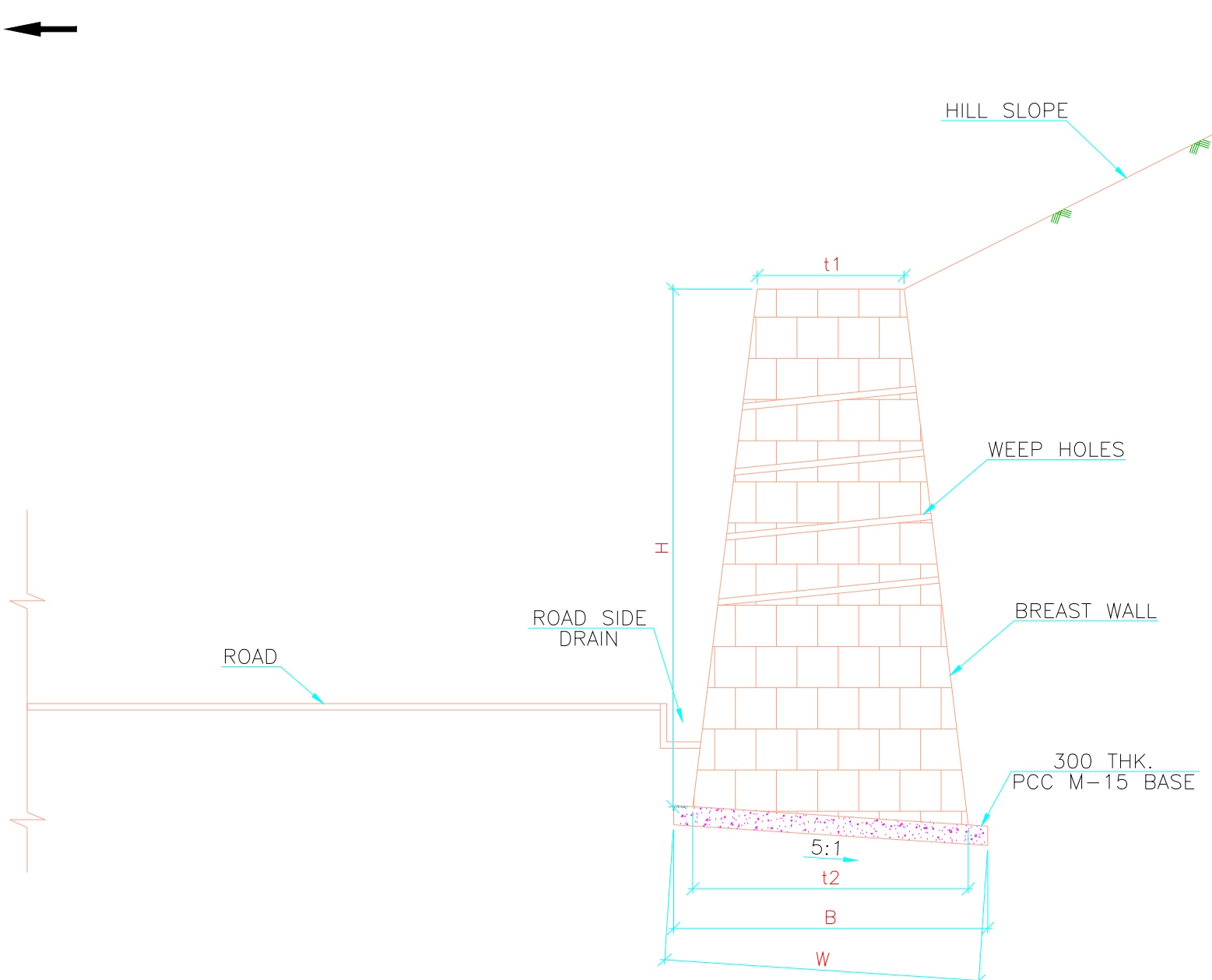
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DWG NO:- \_\_\_\_\_

DRAWN: \_\_\_\_\_ CHECKED: \_\_\_\_\_ DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_

DSP: SK, SS, AD

Team Leader



DIMENSIONAL DETAILS OF BREAST WALL					
Height (mm)	Wall		Base Width (mm)	Dip Slope of Base	Inclined Base Width (mm)
	Top Width (mm)	Bottom Width (mm)			
(H)	(t1)	(t2)	(B)		(W)
1000	300	700	1300	5 : 1	1326
1500	400	1000	1600	5 : 1	1632
2000	500	1300	1900	5 : 1	1938
2500	600	1700	2300	5 : 1	2346
3000	650	1910	2510	5 : 1	2560
3500	700	2500	3100	5 : 1	3161
4000	750	3200	3800	5 : 1	3875
4500	800	4100	4700	5 : 1	4793
5000	850	5000	5600	5 : 1	5711
5500	900	6100	6700	5 : 1	6833
6000	1000	8410	9010	5 : 1	9188


**DETAILS OF STONE MASONRY BREAST WALL**

**NOTES:**

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. LEVELS ARE IN METERS.
- MIN. 600 MM THK. FILTER MEDIA SHALL BE PROVIDED BEHIND BREAST WALL ABOVE GROUND LEVEL.
- 100 Ø WEEP HOLES WITH A.C. PIPE @ 1.0 M C/C VERTICALLY & HORIZONTALLY STAGGERED SHALL BE PROVIDED ABOVE G.L.
- WALL GEOMETRY: FRONT FACE INCLINED, BACK FACE INCLINED, BASE INCLINED WITH HILL.
- BACKFILL TOP: INCLINED WITH SURCHARGE

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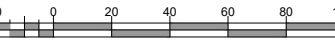
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SCALE AT A3 SIZE DRAWING

HORIZ.1:2500



VER.1:250

TITLE:

**Miscellaneous**

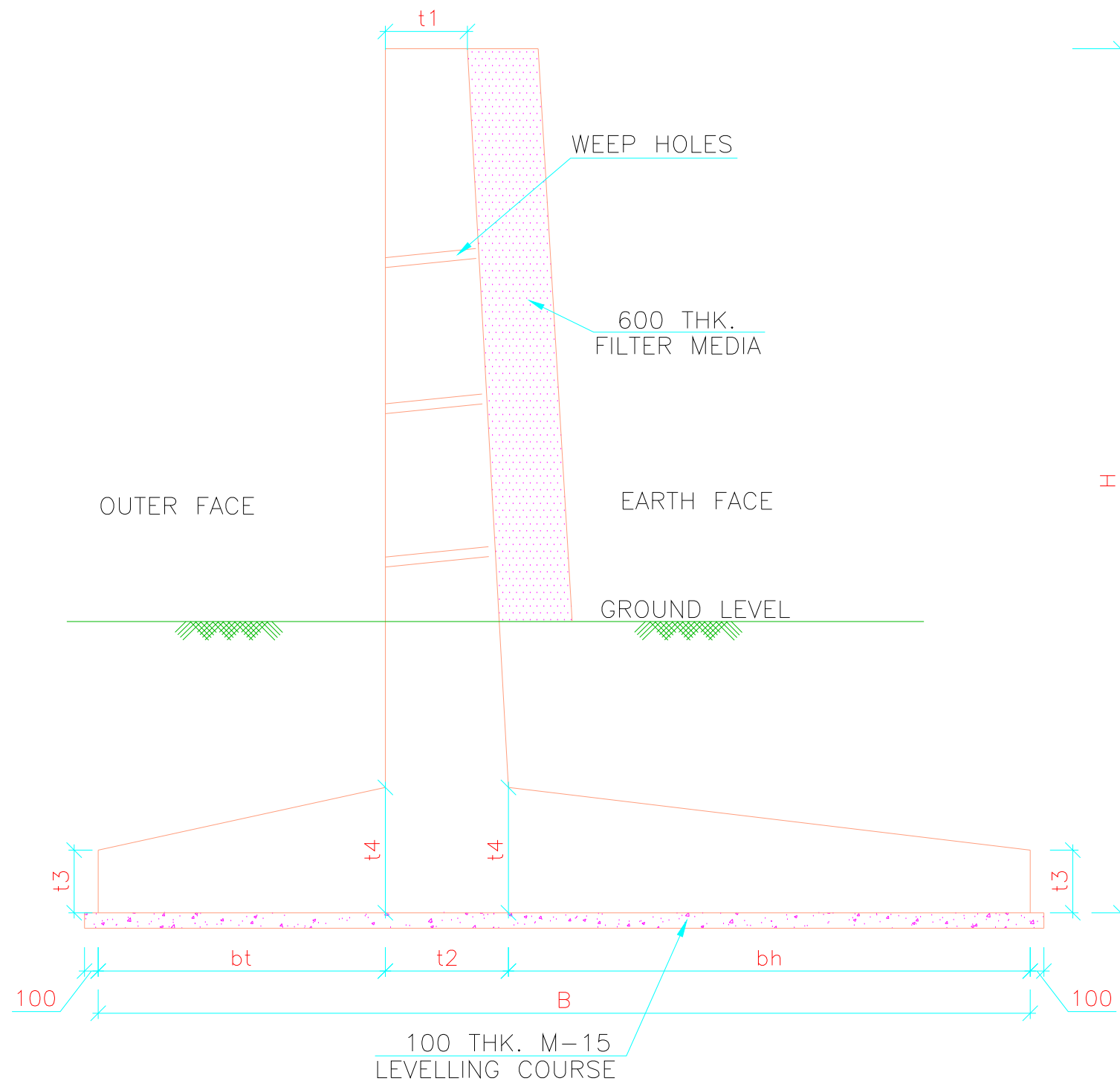
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DSP: \_\_\_\_\_ SK: \_\_\_\_\_ SS: \_\_\_\_\_ AD: \_\_\_\_\_

Team Leader



## DETAILS OF RCC RETAINING WALL


DIMENSIONAL DETAILS OF RETAINING WALL							
H (mm)	B (mm)	$b_t$ (mm)	$b_h$ (mm)	$t_1$ (mm)	$t_2$ (mm)	$t_3$ (mm)	$t_4$ (mm)
2000	1400	420	810	170	170	300	200
2500	1750	530	1010	210	210	300	250
3000	2100	630	1220	250	250	300	300
3500	2450	740	1410	300	300	300	350
4000	2800	840	1620	300	340	300	400
4500	3150	950	1820	300	380	300	450
5000	3500	1050	2030	300	420	300	500
5500	3850	1160	2230	300	460	300	550
6000	4200	1260	2440	300	500	300	600
6500	4550	1370	2630	300	550	300	650
7000	4900	1470	2840	300	590	300	700
7500	5250	1580	3040	300	630	380	750
8000	5600	1680	3250	300	670	400	800
8500	5950	1790	3450	300	710	430	850
9000	6300	1890	3660	300	750	450	900
9500	6650	2000	3850	300	800	480	950
10000	7000	2100	4060	300	840	500	1000
10500	7350	2210	4260	300	880	530	1050
11000	7700	2310	4470	300	920	550	1100
11500	8050	2420	4670	300	960	580	1150
12000	8400	2520	4880	300	1000	600	1200
12500	8750	2630	5070	300	1050	630	1250
13000	9100	2730	5280	300	1090	650	1300

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2. MIN. 600 MM THK. FILTER MEDIA SHALL BE PROVIDED BEHIND BREAST WALL ABOVE GROUND LEVEL.
3. BACKFILLING BEHIND BOX SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC: 78 HAVING PROPERTIES DENSITY=2 T/CUM, PHI=30, DELTA=15
4. 100  $\phi$  WEEP HOLES WITH A.C. PIPE @ 1.0 M C/C VERTICALLY & HORIZONTALLY STAGGERED SHALL BE PROVIDED ABOVE G.L.


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Contact No- 011-26768950, E-mail - info@nhidcl.com

DESIGN CONSULTANT:



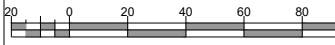
**Global Infra Solutions**  
in JV with Krishna Techno Consultants Pvt. Ltd. and association with Infycons Creative Software Pvt. Ltd.  
F-2, E-8/11A, Sukhsagar Apartment, Trianga, Bhopal - 462039  
e: globalinfrasolutions@gmail.com web: globalinfrasolutions.org

PROJECT:

DEVELOPMENT, MAINTENANCE, MANAGEMENT AND OPERATION OF GREENFIELD HIGH-SPEED CORRIDOR FROM MAWLYNGKHUNG (NEAR SHILLONG) IN MEGHALAYA TO PANCHGRAM (NEAR SILCHAR) IN ASSAM BY 4-LANING WITH PAVED SHOULDERS ON HYBRID ANNUITY BASIS. (PACKAGE-1: FROM KM 0+000 TO KM 45+645, DESIGN LENGTH - 45+645 KM)

SCALE AT A3 SIZE DRAWING

HORIZ.1:2500



VER.1:250

TITLE:

# Miscellaneous

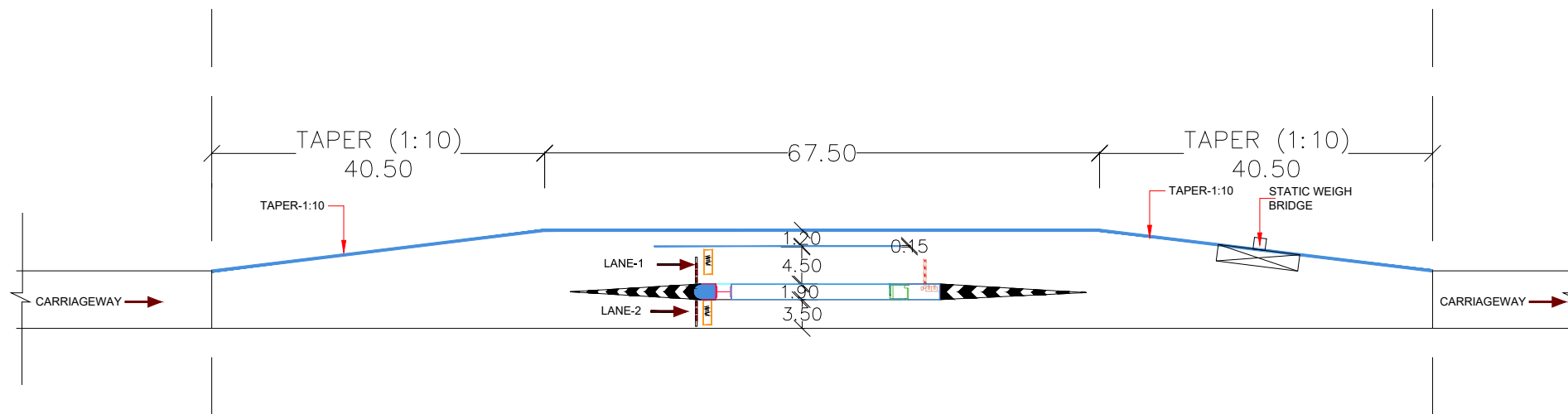
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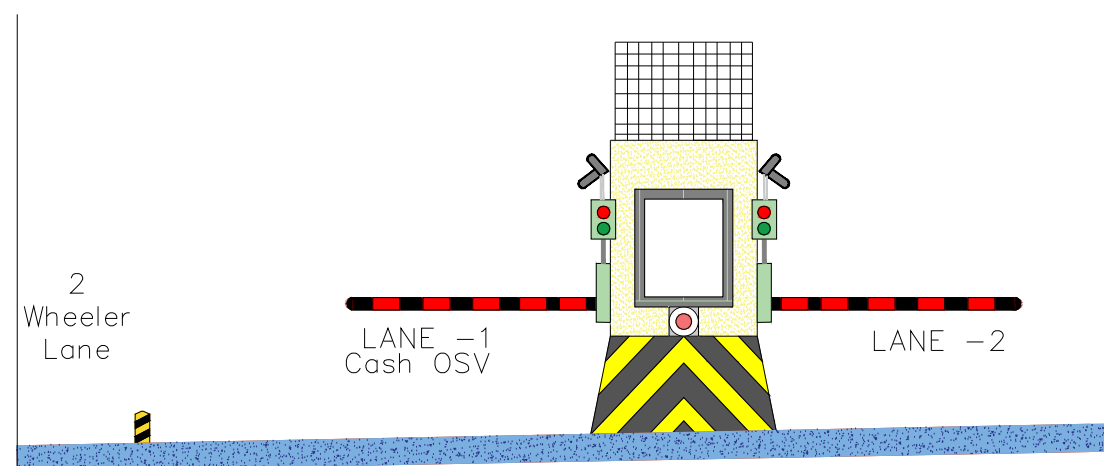
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DSP: \_\_\_\_\_ SK: \_\_\_\_\_ SS: \_\_\_\_\_ AD: \_\_\_\_\_

Team Leader

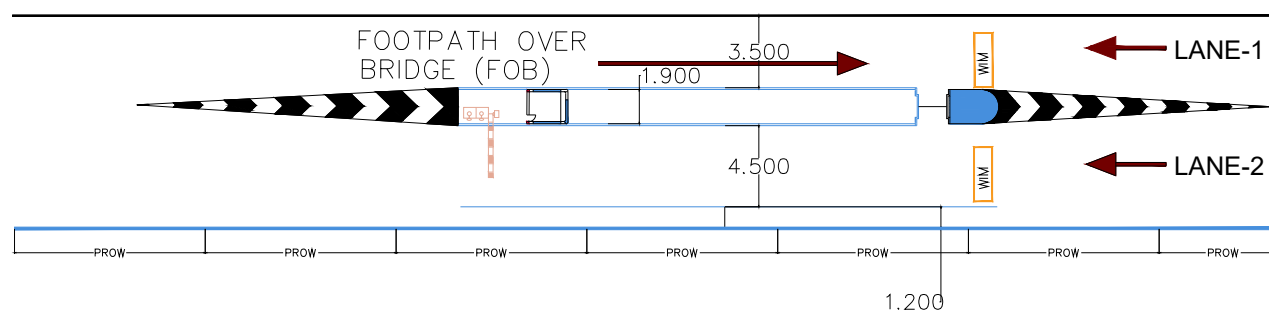


TYPICAL LAYOUT PLAN OF 2 LANE TOLL PLAZA




SECTIONAL ELEVATION OF 2 LANE TOLL PLAZA

VIEW OF LANES



REV.	DATE	REVISIONS

CLIENT:



**NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
1st & 2nd Floor,  
Tower A, World Trade Centre, Nauroji Nagar,  
New Delhi - 110029  
Contact No- 011-26768950, E-mail - info@nhidcl.com

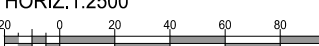
DESIGN CONSULTANT:



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in JV with Krishna Techno Consultants Pvt. Ltd. and  
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F-2, E-8/11A, Sukhsagar Apartment, Trilanga, Bhopal -462039  
e: globalinfrasolutions@gmail.com web: globalinfrasolutions.org

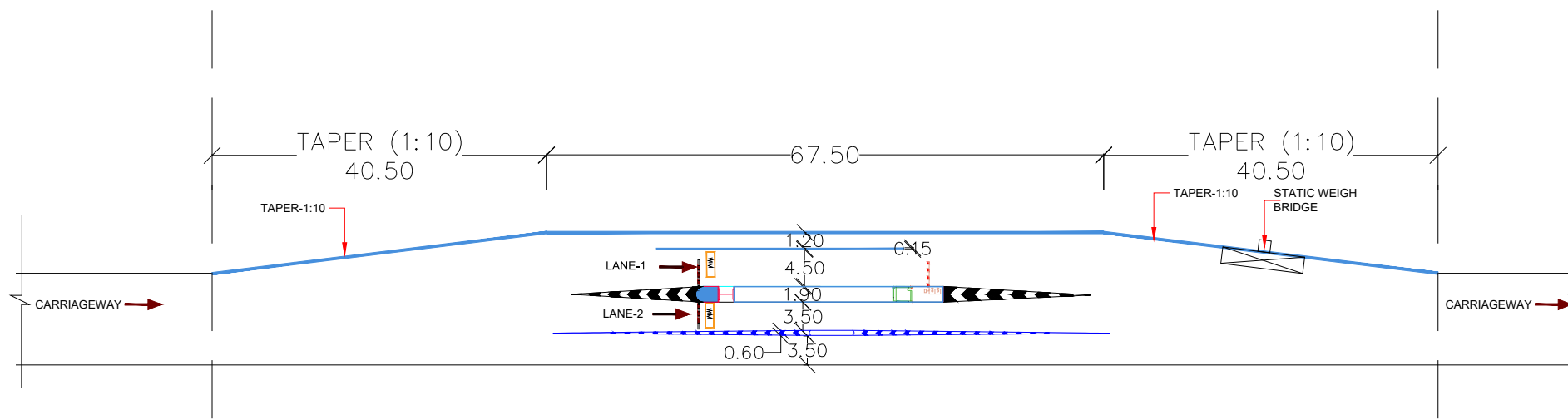
PROJECT:  
DEVELOPMENT, MAINTENANCE, MANAGEMENT AND OPERATION OF  
GREENFIELD HIGH-SPEED CORRIDOR FROM MAWLYNGKHUNG (NEAR  
SHILLONG) IN MEGHALAYA TO PANCHGRAM (NEAR SILCHAR) IN  
ASSAM BY 4-LANING WITH PAVED SHOULDERS ON HYBRID ANNUITY  
BASIS. (PACKAGE-1: FROM KM 0+000 TO KM 45+645, DESIGN  
LENGTH - 45+645 KM)

SCALE AT A3 SIZE DRAWING  
HORIZ. 1:2500  
VER. 1:250

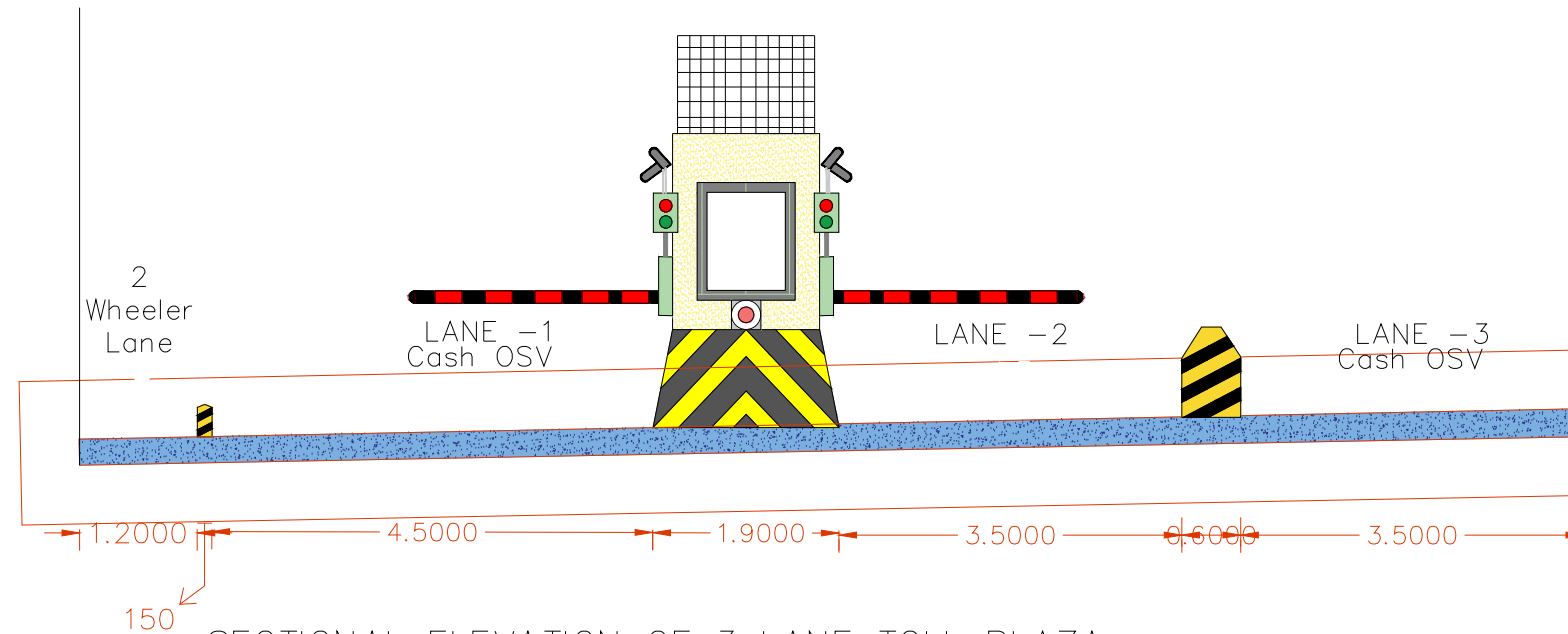


TITLE:  
**Miscellaneous**

CLIENT APPROVAL: SEAL & SIGNATURE:  
DRAWN: DSP CHECKED: SK DESIGNED: APPROVED: *Tsamabader*

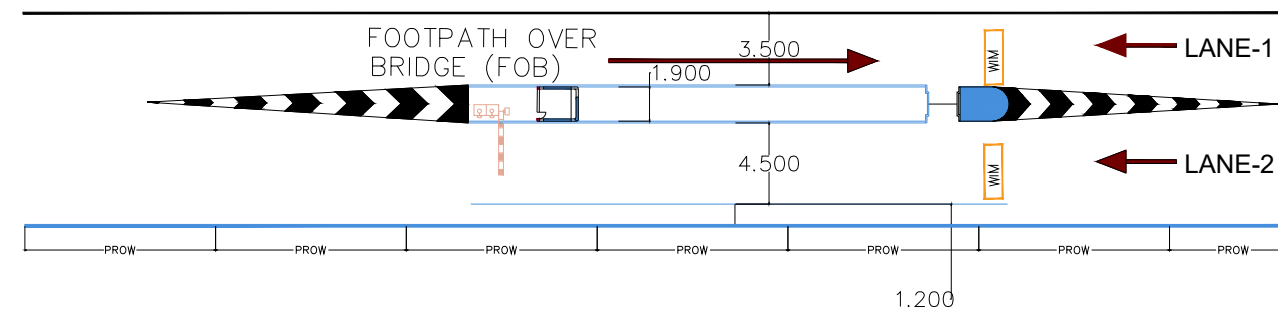


TYPICAL LAYOUT PLAN OF 3 LANE TOLL PLAZA




SECTIONAL ELEVATION OF 3 LANE TOLL PLAZA

VIEW OF LANES



REV.	DATE	REVISIONS

CLIENT:



**NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
1st & 2nd Floor,  
Tower A, World Trade Centre, Nauroji Nagar,  
New Delhi - 110029  
Contact No- 011-26768950, E-mail - info@nhidcl.com

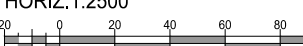
DESIGN CONSULTANT:



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F-2, E-8/11A, Sukhsagar Apartment, Trilanga, Bhopal -462039  
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SCALE AT A3 SIZE DRAWING  
HORIZ. 1:2500  
VER. 1:250



TITLE: **Miscellaneous**

CLIENT APPROVAL: \_\_\_\_\_ SEAL & SIGNATURE: \_\_\_\_\_  
DWG NO.: \_\_\_\_\_  
DRAWN: \_\_\_\_\_ CHECKED: \_\_\_\_\_ DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
DSP SK 