

1. Road signs shall be erected as per IRC:67-2012.
2. Sizes of arrows, letters and numerals for road signs shall be as per IRC:67-2012
3. Route marker signs, letters and numerals shall be erected as per IRC:2-1968.
4. 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.
5. CS1 can also be used for compulsory right turn and straight ahead by rotating.
6. All items indicated in this drawing may not be relevant for the subject project, these shall be used depending upon the requirement.
7. Besides the above, standards and specifications mentioned in IRC:67-2012 shall be followed strictly whenever applicable.

**NATIONAL HIGHWAYS AND INFRASTRUCTURE  
DEVELOPMENT CORPORATION LTD.  
(MINISTRY OF ROAD TRANSPORT AND HIGHWAYS)  
GOVERNMENT OF INDIA**

**CONSULTANCY SERVICES FOR PREPARATION OF  
DETAILED PROJECT REPORT FOR DEVELOPMENT OF  
ECONOMIC CORRIDORS, INTER CORRIDORS AND FEEDER  
ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT  
MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA  
(LOT-1:PACKAGE IV)**

**VOYANTS SOLUTIONS PVT LTD.**  
403, 4th Floor, Park Centra,  
Sector-30, NH-8  
Gurugram-122001, Haryana, India  
CIN- U74140HR2004PTC046918  
Ph: 0124-4598200, Fax: 0124-4019051,  
E-mail: [info@voyants.in](mailto:info@voyants.in), [www.voyants.in](http://www.voyants.in)

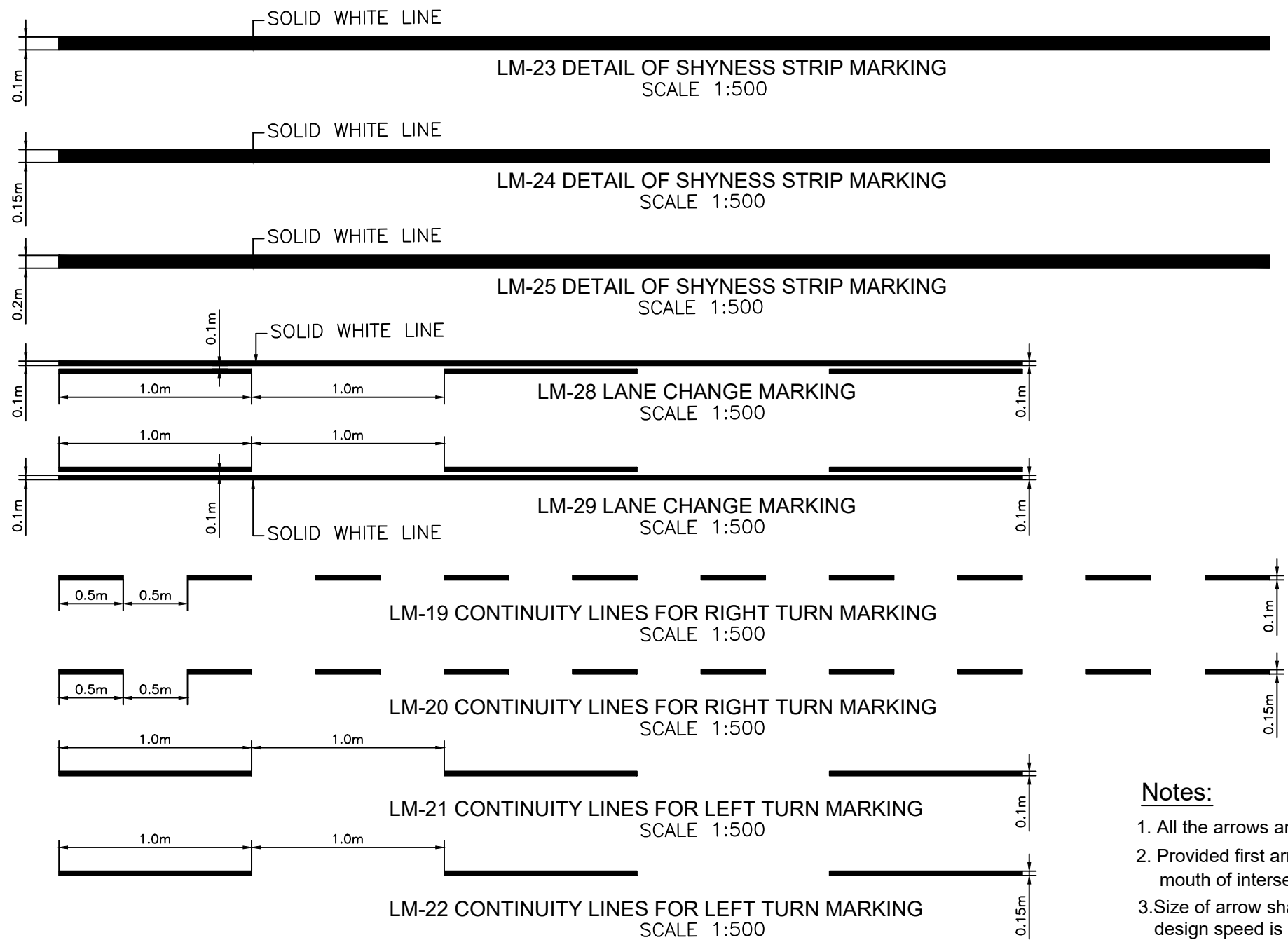
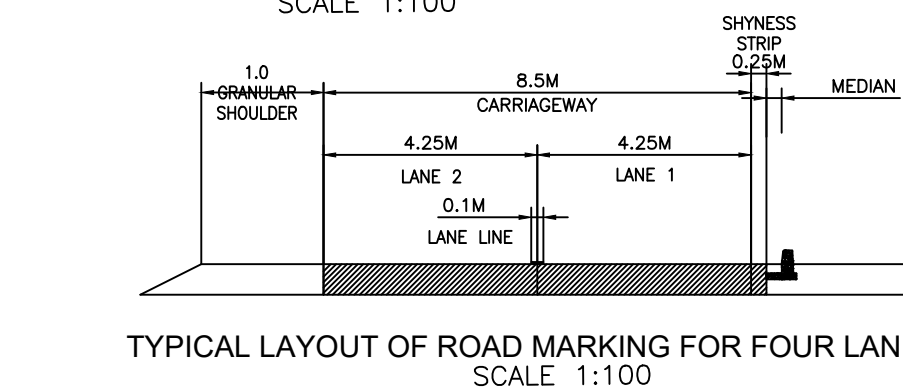
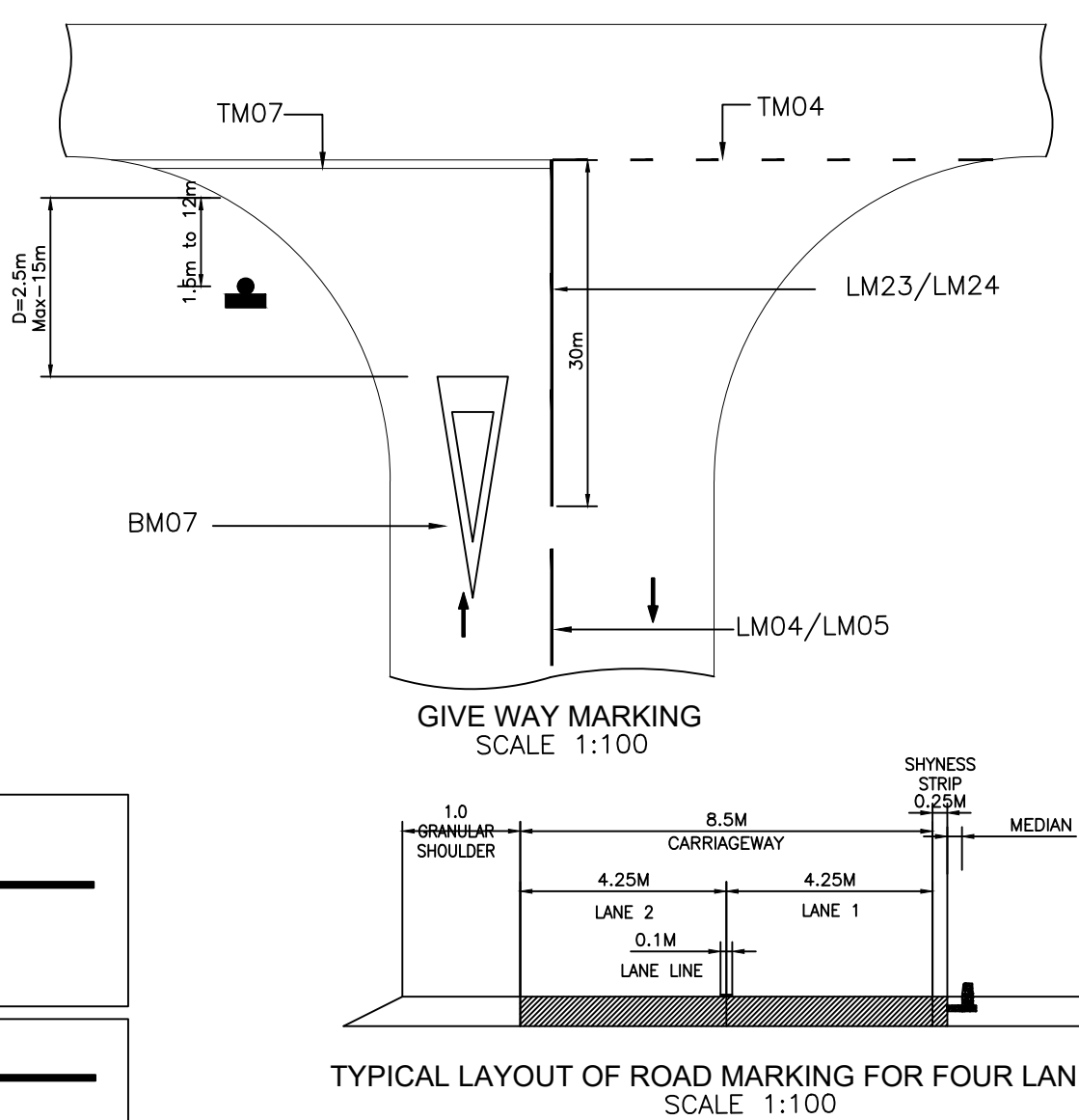
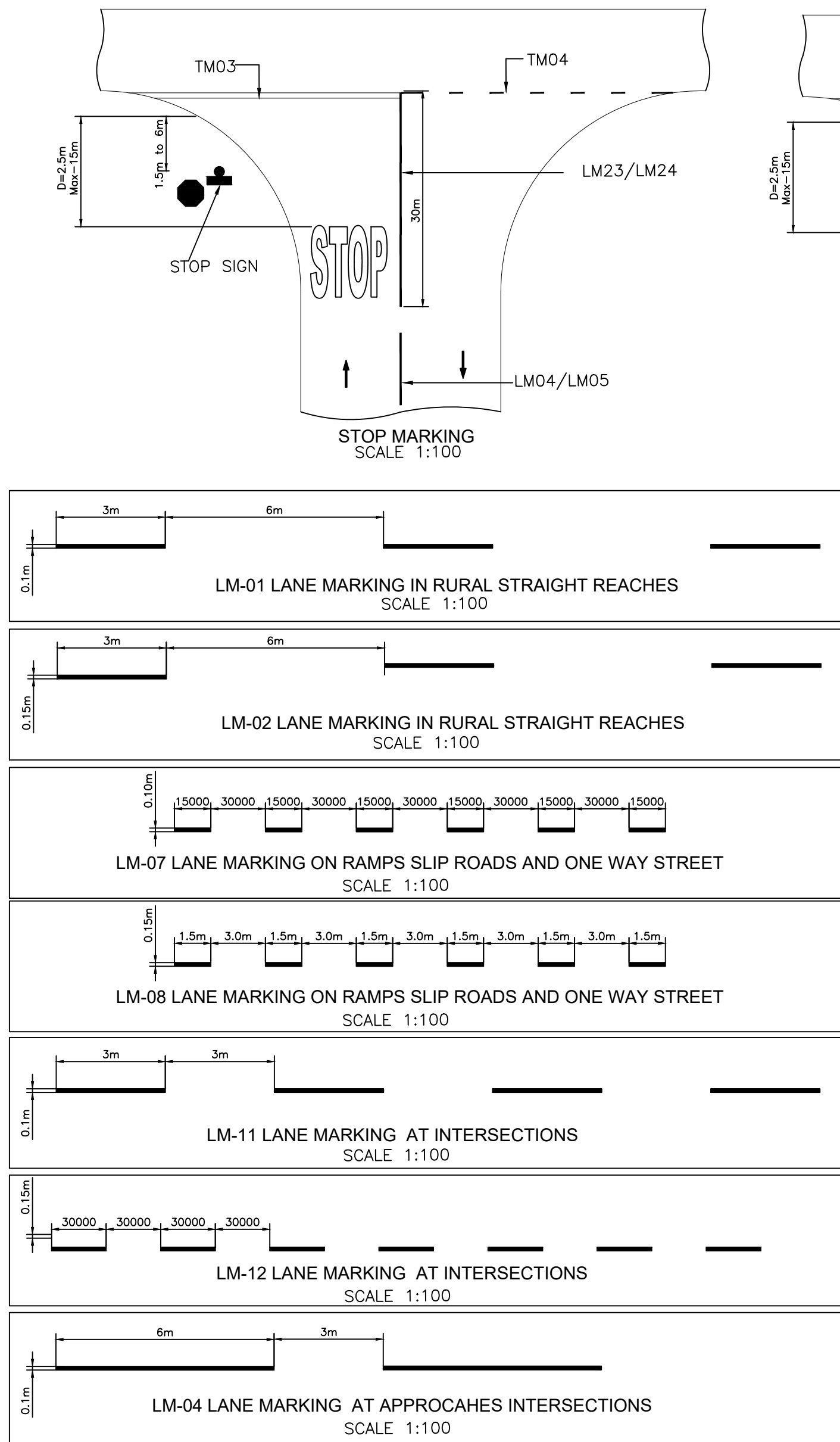
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VSPL/1718-082/DPR/PKG-4/NH-515/MIS-01 (Sheet 03 of 03)

|                                                                      |              |
|----------------------------------------------------------------------|--------------|
| TITLE :<br><b>Road Sign &amp; Road Delineators</b>                   |              |
| DRG. No. :<br>VSPL/1718-082/DPR/PKG-4/NH-515/MIS-01 (Sheet 03 of 03) |              |
| REVISION:R1                                                          | January 2023 |

PATH: C:\Shampa\0\Project\1718082\_Bharatmala\_Assam\_P-4\NH-515\3.January\_2022\Drawing\_Vol\_NH-515\_Sec-3\7.Misc\MIS\_02\_Road\_Marking.dwg



- 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:35-2015) for design speed is less than 50km/hr.

CLIENT :



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DEVELOPMENT CORPORATION LTD.  
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PROJECT :

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ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT  
MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA  
(LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:



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Ph: 0124-4598200, Fax: 0124-4019051,  
E-mail: info@voyants.in, www.voyants.in

**Detailed Project Report**

| REV. | DATE | DESCRIPTION |
|------|------|-------------|
|      |      |             |
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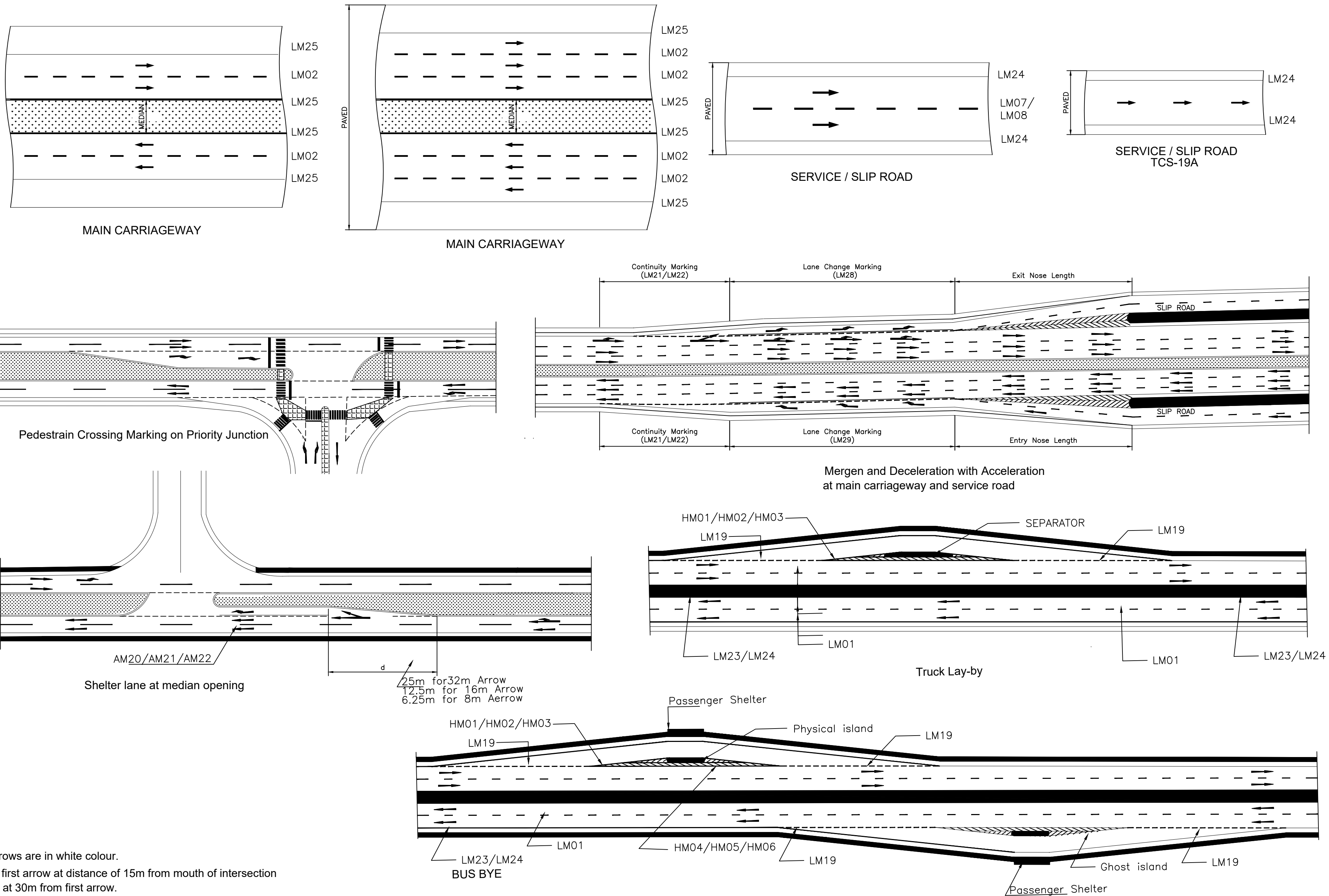
| DESIGNED BY | DRAWN BY   | CHECKED BY | APPROVED BY |
|-------------|------------|------------|-------------|
| PD/PS       | SS/SP      | DGR        | SKC         |
|             |            |            |             |
| SCALE :     | SHEET SIZE | A2         |             |

TITLE :

**Road / Kerb Marking**

DRG. No. :  
VSPL/1718-082/DPR/PKG-4/NH-515/MIS- 02 (Sheet 01 of 04)  
REVISION:R1  
January 2023

PATH: C:\Shappa\0\Project\1718082\_Bharatmala\_Asam\_P-4\NH-515\3\_January\_2022\Drawing\_Vol\_NH-515\_Sec-3\7\_Misc\MIS\_02\_Road\_Marking.dwg



- 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:35-2015) for design speed is less than 50km/hr.

CLIENT :

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GOVERNMENT OF INDIA

PROJECT :

**CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT FOR DEVELOPMENT OF ECONOMIC CORRIDORS, INTER CORRIDORS AND FEEDER ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA (LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:

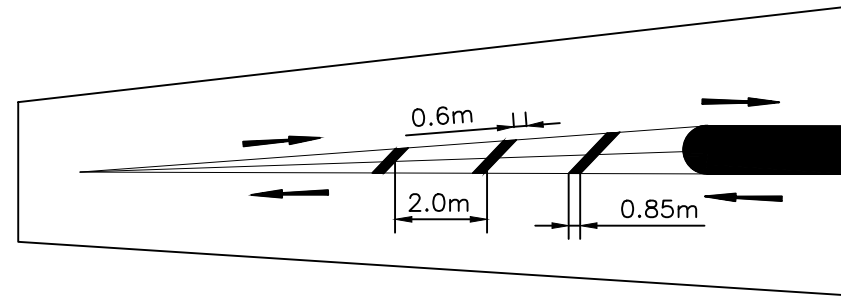
**VOYANTS SOLUTIONS PVT LTD.**  
403, 4th Floor, Park Centra,  
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Gurugram-122001, Haryana, India  
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| Detailed Project Report |      |             |
|-------------------------|------|-------------|
| REV.                    | DATE | DESCRIPTION |

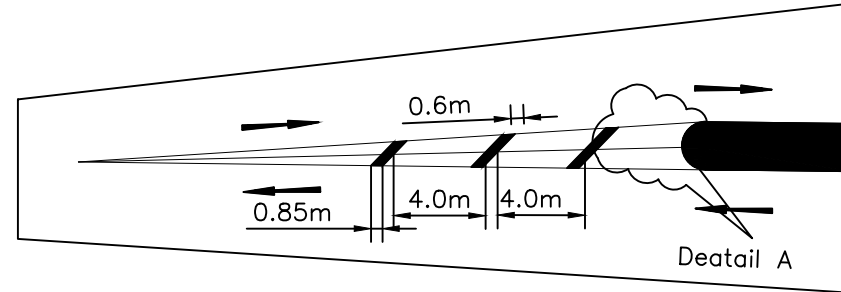
| DESIGNED BY | DRAWN BY   | CHECKED BY | APPROVED BY |
|-------------|------------|------------|-------------|
| PD/PS       | SS/SP      | DGR        | SKC         |
| SCALE :     | SHEET SIZE | A2         |             |

| TITLE :                                                            |              |
|--------------------------------------------------------------------|--------------|
| Road / Kerb Marking                                                |              |
| DRG. No. : VSPL/1718-082/DPR/PKG-4/NH-515/MIS- 02 (Sheet 02 of 04) |              |
| REVISION:R1                                                        | January 2023 |

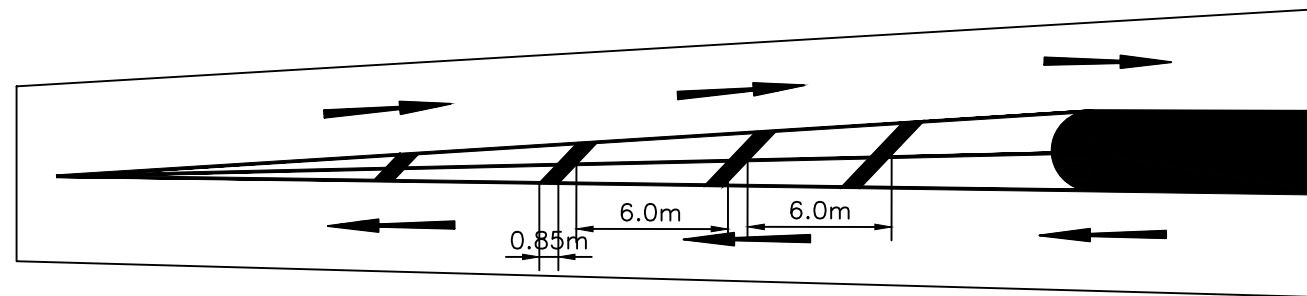




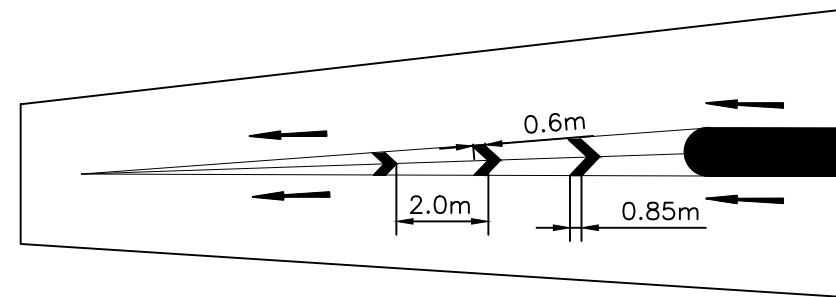
Total Length Of marking <10m



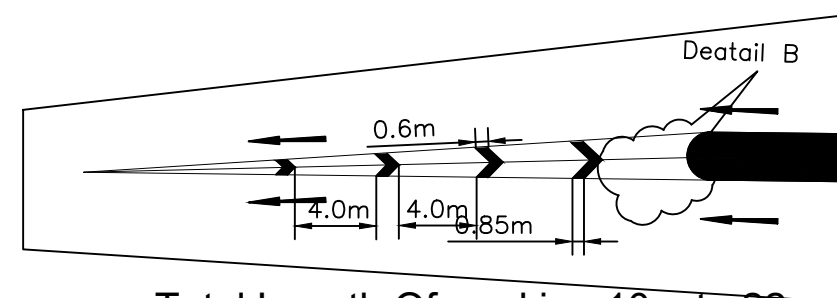
Total Length Of marking 10m to 22m



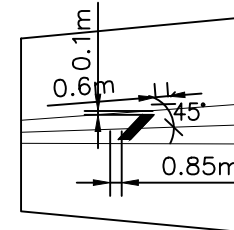
Total Length Of marking >22m  
Diagonal Marking



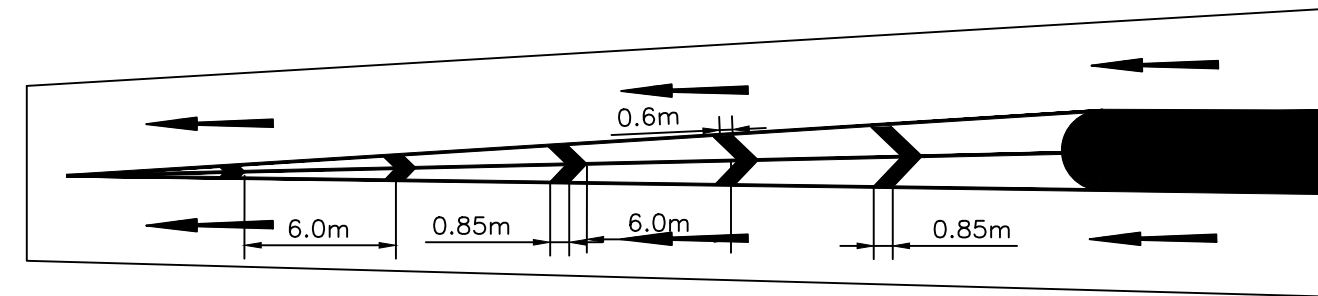
Total Length Of marking <10m



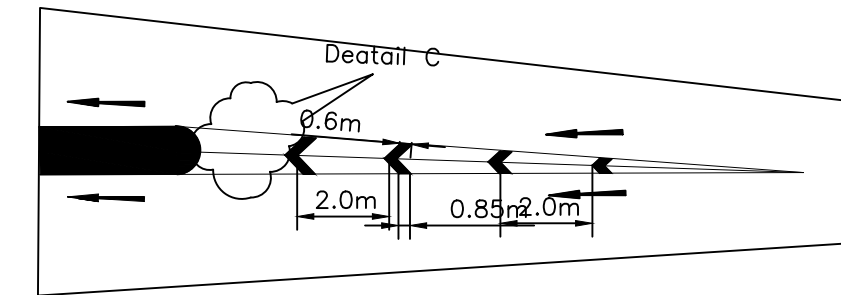
Total Length Of marking 10m to 22m



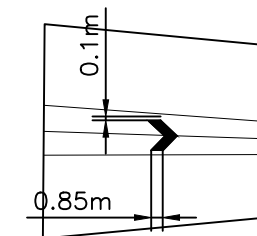
Detail A



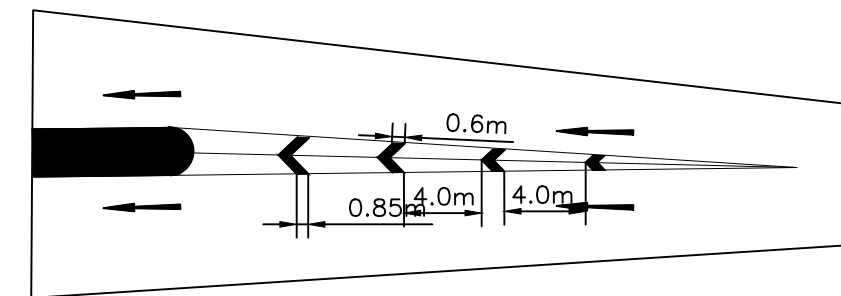
Total Length Of marking >22m  
Chevron Marking (Merging)



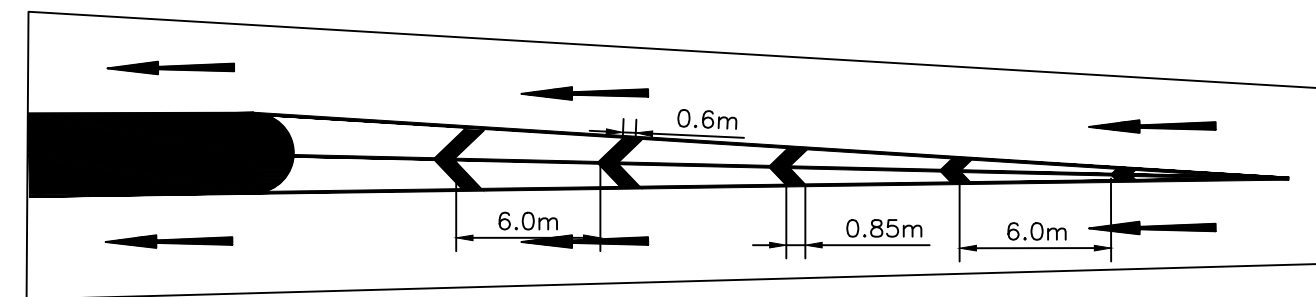
Total Length Of marking <10m



Detail C



Total Length Of marking 10m to 22m



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

**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:35-2015) for design speed is less than 50km/hr.

CLIENT :



**NATIONAL HIGHWAYS AND INFRASTRUCTURE  
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PROJECT :

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ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT  
MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA  
(LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:



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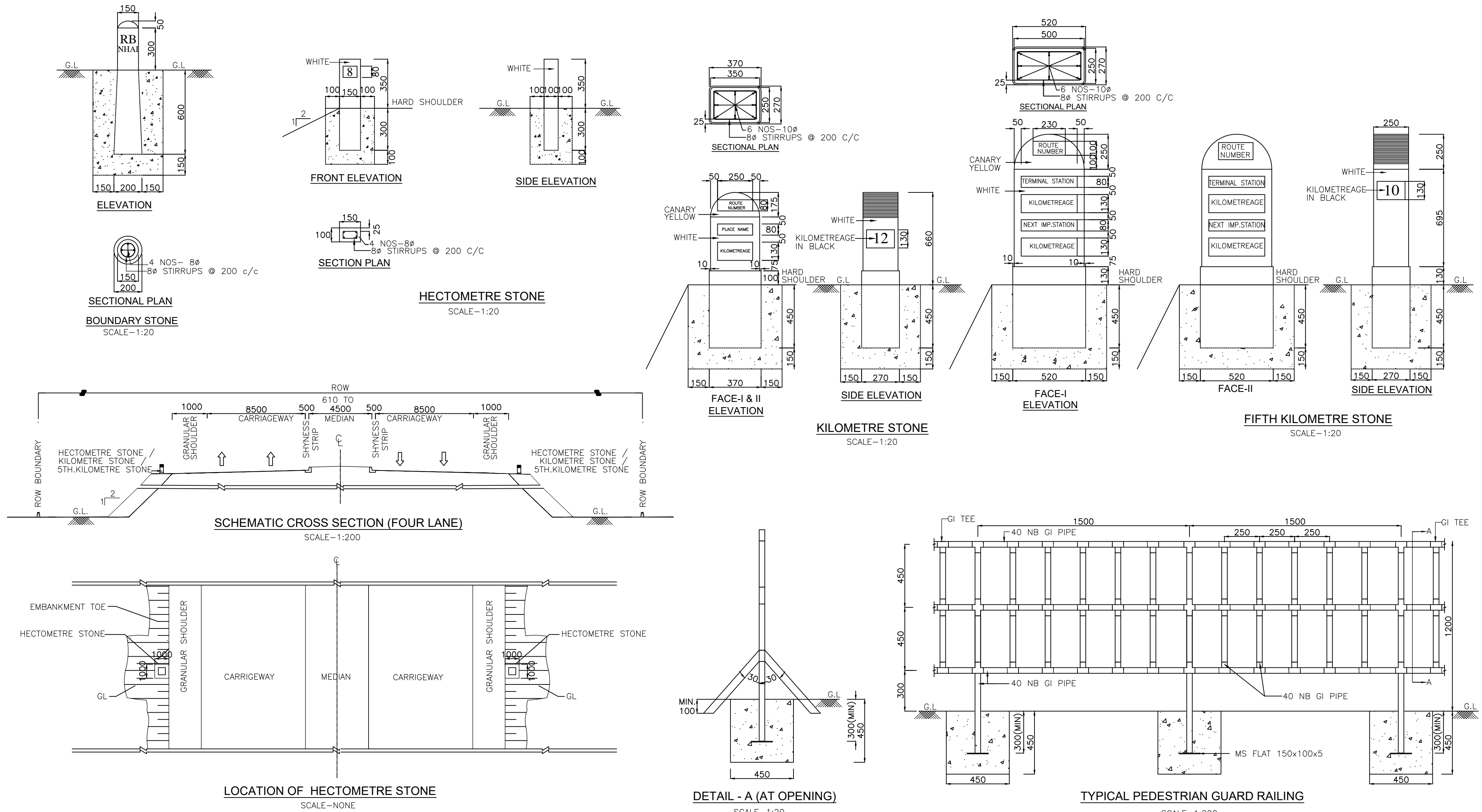
**Detailed Project Report**

| REV. | DATE | DESCRIPTION |
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| DESIGNED BY | DRAWN BY | CHECKED BY | APPROVED BY | TITLE :                                                               |
|-------------|----------|------------|-------------|-----------------------------------------------------------------------|
| PD/PS       | SS/SP    | DGR        | SKC         | Road / Kerb Marking                                                   |
|             |          |            |             | DRG. No. :<br>VSPL/1718-082/DPR/PKG-4/NH-515/MIS- 02 (Sheet 03 of 04) |
| SCALE :     |          | SHEET SIZE | A2          | REVISION:R1<br>January 2023                                           |







#### Notes:

1. Details of kilometre stone and 5th kilometre stone are generally based on IRC:8-1980
2. Details of 200m stones are generally based on IRC:26-1967.
3. The distance stones shall be provided on left side of the road as shown independently for each direction of traffic flow.
4. The letters and numerals on distance stones shall be as per IRC:8-1980.
5. Details of boundary stones are generally based on IRC:25-1967.
6. Besides the above, standards and specifications mentioned in IRC : SP : 84-2014 shall be followed strictly whenever applicable.
7. All dimensions are in millimetres unless otherwise mentioned.

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#### Detailed Project Report

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| REV. | DATE | DESCRIPTION |
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DESIGNED BY

PD/PS

*Signature*

SCALE :

DRAWN BY

SS/SP

*Signature*

N.T.S

CHECKED BY

DGR

*Signature*

SHEET SIZE

APPROVED BY

SKC

*Signature*

A2

TITLE :

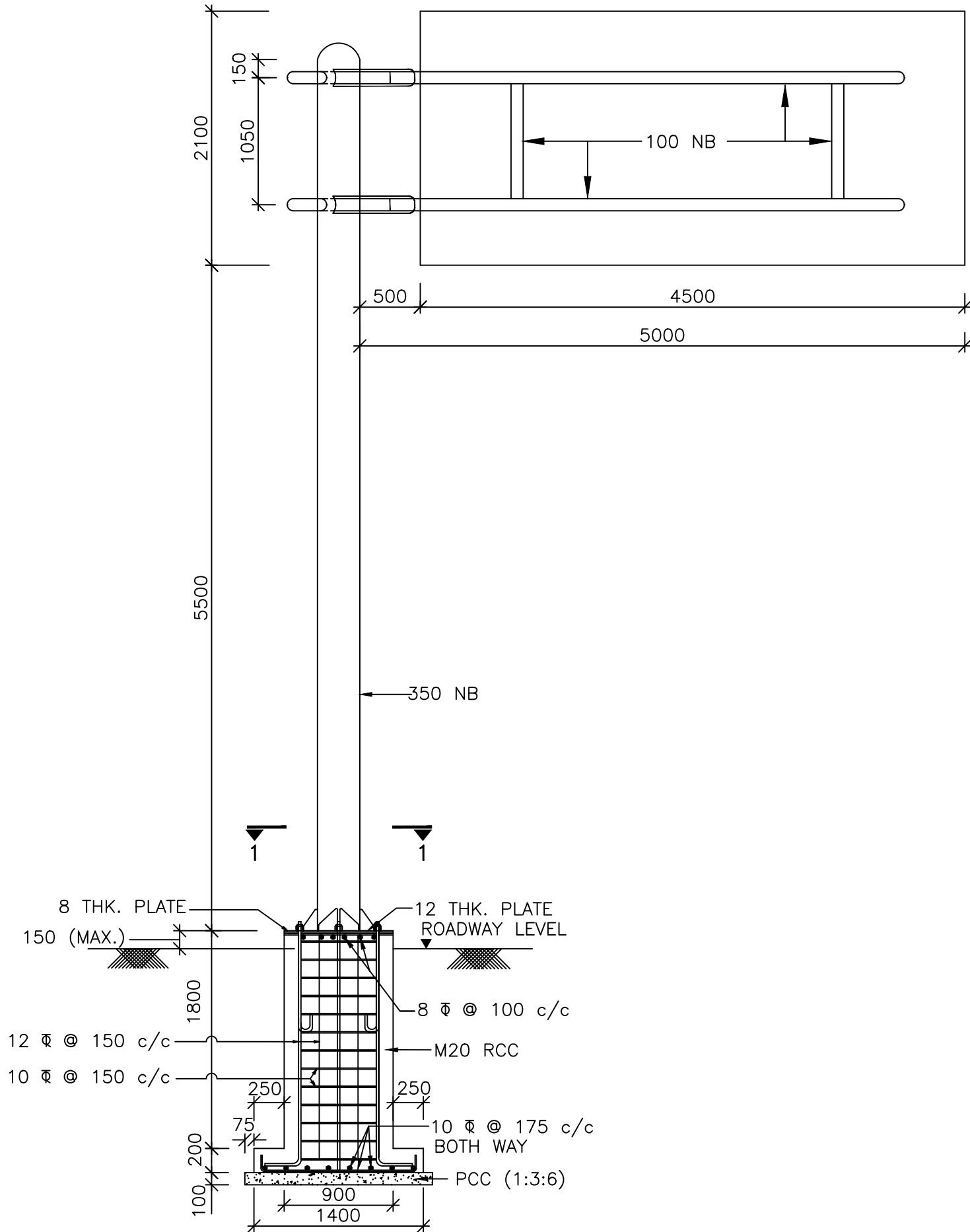
**Typical Deatils of Distance  
Stone, Boundary Stone &  
Guard Post**

DRG. No. :  
VSPL/1718-082/DPR/PKG-4/NH-515/MIS-03

REVISION:R1

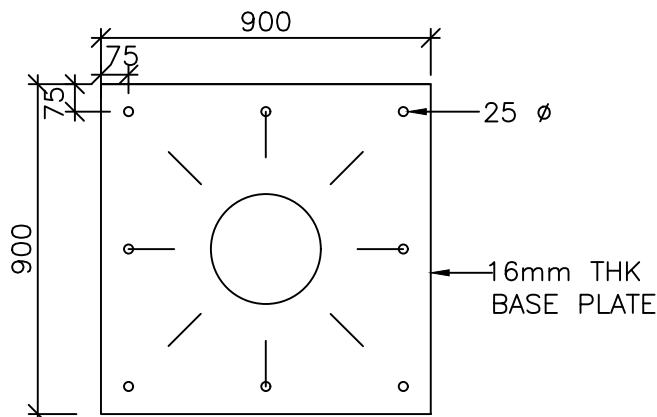
January 2023

PATH: C:\Shampa\0\Project\1718082\_Bharatmala\_Assam\_P-4\NH-515\3\_January\_2022\Drawing\_Vol\_NH-515\_Sec-3\7.Misc\MIS\_04\_Over\_Head\_Sign.dwg



DETAILS FOR CANTILEVER  
 TYPE OVERHEAD SIGN

SCALE-1:50



SECTION 1-1

SCALE-1:25

| SIGN                     | MARK | SHAPE                                                                           | C O L O U R     |                  |                                         | DIMENSION                                                                                                                  |
|--------------------------|------|---------------------------------------------------------------------------------|-----------------|------------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
|                          |      |                                                                                 | BORDER          | BACKGROUND       | SYMBOL                                  |                                                                                                                            |
| WARNING                  | WS   | EQUILATEROL TRIANGLE WITH APEX POINTING UPWARDS                                 | RED REFLECTIVE  | WHITE REFLECTIVE | BLACK                                   | SIDE =900MM<br>CORNER=900MM RADIUS<br>BORDER=70MM                                                                          |
| MANDATORY/<br>REGULATORY | MS   | GENERALLY CIRCULAR BUT FOR STOP SIGN OCTOGONAL AND TRIANGULAR FOR GIVE WAY SIGN | RED REFLECTIVE  | WHITE REFLECTIVE | ARROWS : BLACK<br>BAND : RED            | DIA =600MM<br>BORDER =65MM<br>BEND =60MM<br>OCTAGON SIDE =370MM<br>BORDER =30MM<br>TRIANGULAR SIDE =900MM<br>BORDER =900MM |
| INFORMATORY              | IS   | RECTANGULAR WITH LONGER SIDE VERTICAL                                           | BLUE REFLECTIVE | WHITE REFLECTIVE | BLACK OR RED REFLECTIVE SQUARE IN WHITE | OVERALL = 800X600<br>CENTRAL SQUARE = 400X400                                                                              |
| DIRECTION                | DS   | RECTANGULAR WITH LONGER SIDE HORIZONTAL                                         | BACK REFLECTIVE | WHITE REFLECTIVE | BLACK                                   | VARIES<br>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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 MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA  
 (LOT-1:PACKAGE IV)

DESIGN CONSULTANT:



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Detailed Project Report

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|------|------|-------------|

| DESIGNED BY | DRAWN BY | CHECKED BY | APPROVED BY |
|-------------|----------|------------|-------------|
| PD/PS       | SS/SP    | DGR        | SKC         |
|             |          |            |             |
| SCALE :     | N.T.S    | SHEET SIZE | A2          |

TITLE :

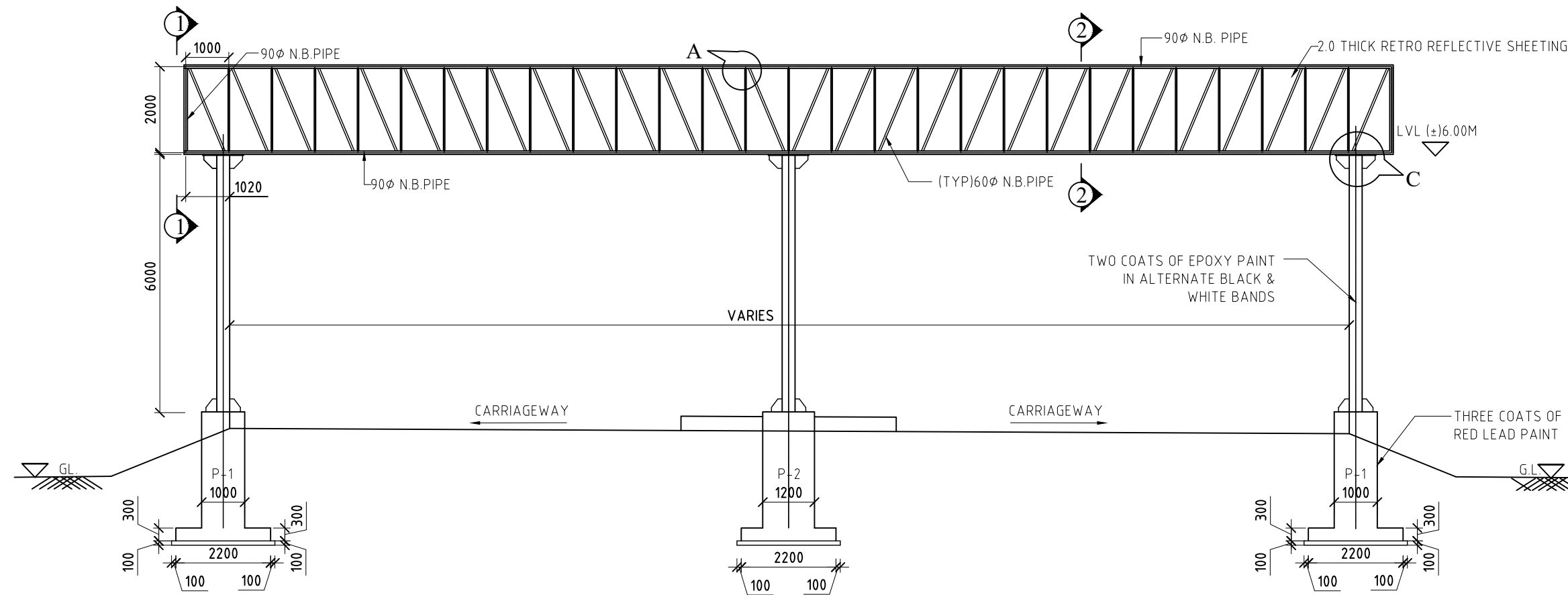
Typical Details of Overhead Sign

DRG. No. :  
 VSPL/1718-082/DPR/PKG-4/NH-515/MIS- 04 (Sheet 01 of 02)

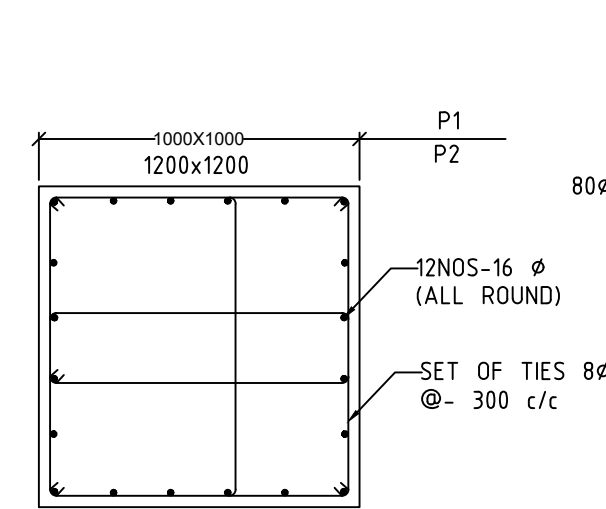
REVISION:R1

January 2023



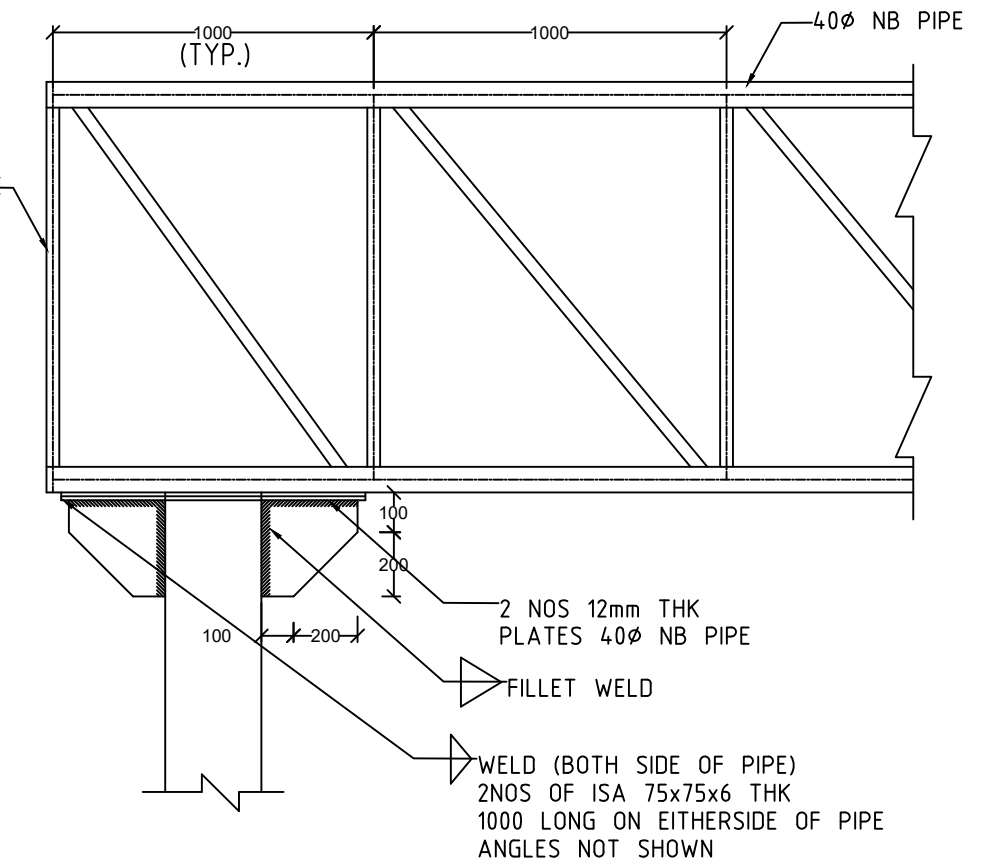


ELEVATION



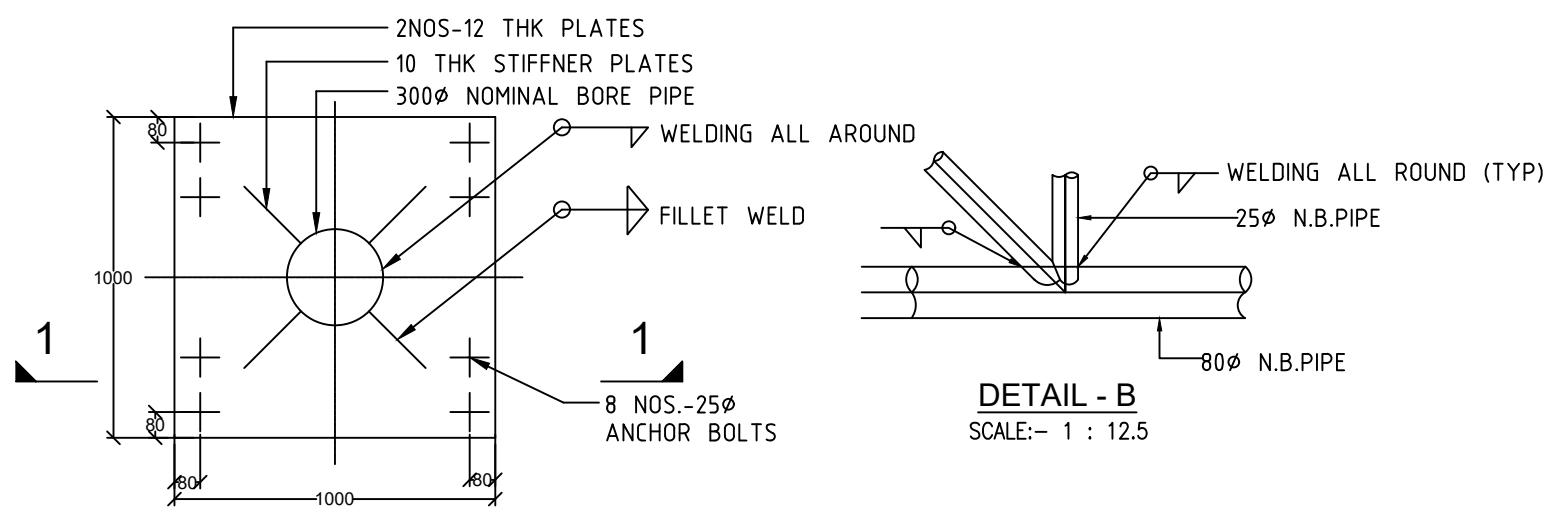
SECTION 4-4

SCALE:- 1 : 25



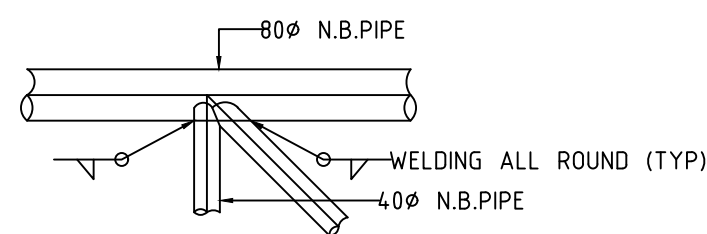
SECTION 2-2

SCALE:- 1 : 25



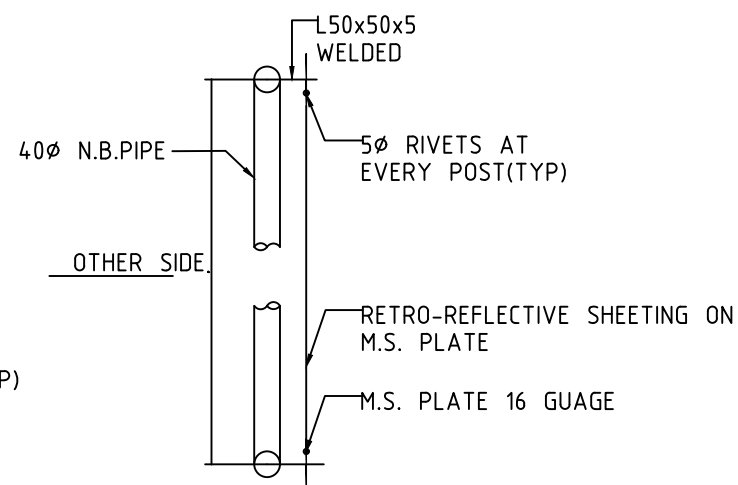
DETAILS OF COLUMN BASE P-1

SCALE:- 1 : 25



DETAIL - A

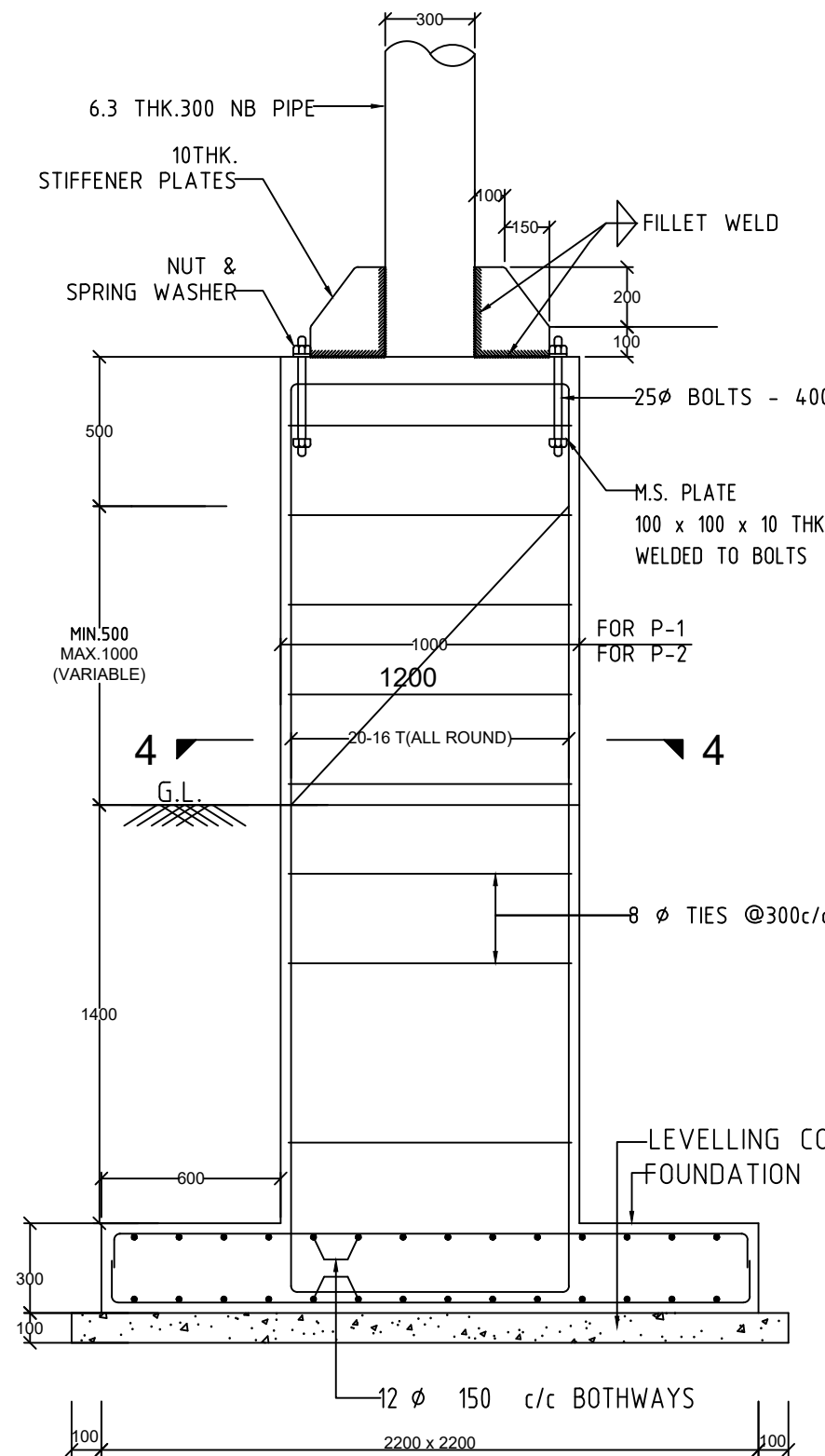
SCALE:- 1 : 12.5



SECTION 3-3

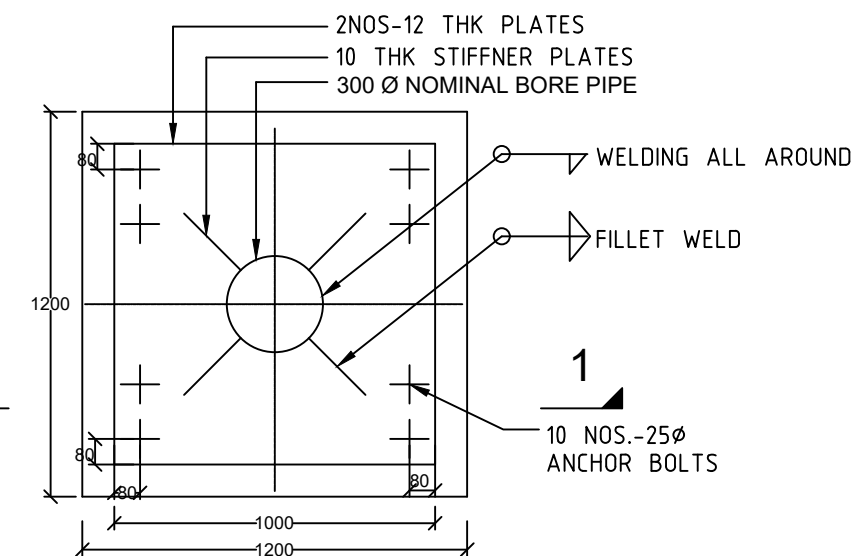
(SIMILAR ARRANGEMENT SHALL BE ON THE OTHER SIDE)

SCALE:- 1 : 25



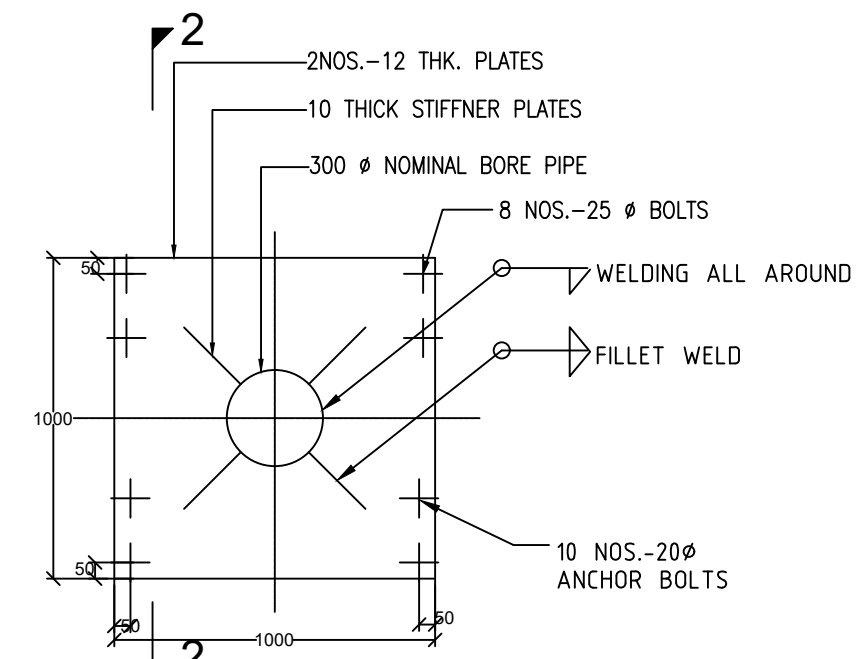
SECTION 1-1

SCALE:- 1 : 25



DETAILS OF COLUMN BASE P-2

SCALE:- 1 : 25



DETAILS C

SCALE:- 1 : 25

NOTES :

1. ALL DIMENSIONS ARE IN mm, UNLESS OTHERWISE MENTIONED.
2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, AND NO DIMENSIONS SHALL BE SCALED.
3. SAFE BEARING CAPACITY HAS BEEN TAKEN AS 10 MN/Sqm.
4. THE CONCRETE GRADE SHALL BE M-20 IN FOUNDATION AND M-15 IN LEVELING COURSE
5. CLEAR COVER TO THE OUTER MOST STEEL SHALL BE  
i) PEDESTAL - 40mm  
ii) FOUNDATION - 50mm
6. STEEL TUBES ARE DESIGNATED BY THEIR NOMINAL BORES INDICATED ON DRAWING.
7. STEEL TUBES USED ARE CLASSIFIED MEDIUM TYPE STEEL TUBES.
8. STEEL TUBES SHALL CONFORM TO GRADE Yst 210.
9. STEEL TUBES USED SHALL BE CONFORMING TO IS:1611-1998.
10. TUBULAR MEMBERS SHALL HAVE ANNULAR CUT HEAD SMOOTH FINISHED SO AS TO HAVE PROPER SEAT OVER THE SUPPORTING TUBE.
11. ELECTRODE USED SHALL CONFORM TO RELEVANT I.S. SPECIFICATIONS AND THE CHEMICAL COMPOSITION OF ELECTRODE & THE TUBE SHOULD MATCH.
12. SLAG SHALL BE REMOVED BEFORE MEASURING THE DIMENSIONS OF FILLET WELD.
13. WELDING SHALL BE DONE BY ARC WELDING.
14. 4.5mm SIZE WELD SHALL BE MADE WITH A SINGLE PASS.
15. WELD SIZE SHALL BE 4.5mm UNLESS OTHERWISE MENTIONED AND SHALL BE DONE ALL ROUND ON THE CONTACT LENGTH OF MEMBERS.
16. HIGH STRENGTH BOLTS SHALL CONFORM TO IS:4000-1992.
17. DIA. OF HOLES IN MS PLATES SHALL BE MACHINE MADE & AS FOLLOWS  
DIA OF BOLTS                      DIA OF HOLES.  
i) 20mm.                              21.5mm.  
ii) 25mm.                              26.5mm.
18. SIZE OF LETTERS AND COLOUR OF PAINT SHALL BE DECIDED BY THE ENGINEER.  
i) IRC : 67-2001  
ii) IRC : 30-1968
19. SHADE OF ANTICORROSIVE PAINT FOR PIPES SHALL BE DECIDED BY THE ENGINEER.
20. RETRO-REFLECTIVE SHEETING SHALL BE BOLTED WITH 40 MM Ø PIPE WITH 20 MM HIGH STRENGTH BOLT.

CLIENT :



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MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA  
(LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:

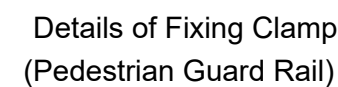


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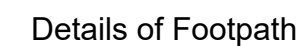
**Detailed Project Report**

| REV. | DATE | DESCRIPTION |
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| DESIGNED BY | DRAWN BY | CHECKED BY | APPROVED BY | TITLE :                                                              |
|-------------|----------|------------|-------------|----------------------------------------------------------------------|
| PD/PS       | SS/SP    | DGR        | SKC         | Typical Details of Overhead Sign                                     |
|             |          |            |             | DRG. No. :<br>VSPL/1718-082/DPR/PKG-4/NH-515/MIS-04 (Sheet 02 of 02) |
| SCALE :     | N.T.S    | SHEET SIZE | A2          | REVISION:R1<br>January 2023                                          |



\*h - Depends on thickness (BC + DBM)



1. All dimensions are in millimetres unless otherwise mentioned.
2. All fillet welds shall be 3 mm thick.
3. Details of pedestrian guard rails are for typical modules in straight. Length of modules shall need some adjustments to fit in the individual runs of the fencing between discontinuities at locations of cross roads, driveways etc. A fencing plan finalising the details shall be prepared by the concessioner/contractor after final setting out and as approved by the Engineer.
4. After erection, kerbs shall be painted with one coat of primer and two coats of colour paint. All colour paints shall be ready mix oil bound and shall be approved by the Engineer.
5. Kerb shall be provided at every location except some selected stretches where kerb with channel shall be provided.
6. Besides the above, standards and specifications mentioned in IRC : SP : 84-2014 shall be followed strictly whenever applicable.

**NATIONAL HIGHWAYS AND INFRASTRUCTURE  
DEVELOPMENT CORPORATION LTD.  
(MINISTRY OF ROAD TRANSPORT AND HIGHWAYS)  
GOVERNMENT OF INDIA**

**CONSULTANCY SERVICES FOR PREPARATION OF  
DETAILED PROJECT REPORT FOR DEVELOPMENT OF  
ECONOMIC CORRIDORS, INTER CORRIDORS AND FEEDER  
ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT  
MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA  
(LOT-1:PACKAGE IV)**

**VOYANTS SOLUTIONS PVT LTD.**  
 403, 4th Floor, Park Centra,  
 Sector-30, NH-8  
 Gurugram-122001, Haryana, India  
 CIN- U71410HR2004PTC046918  
 Ph: 0124-4598200, Fax: 0124-4019051,  
 E-mail: [info@voyants.in](mailto:info@voyants.in), [www.voyants.in](http://www.voyants.in)

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Sas.



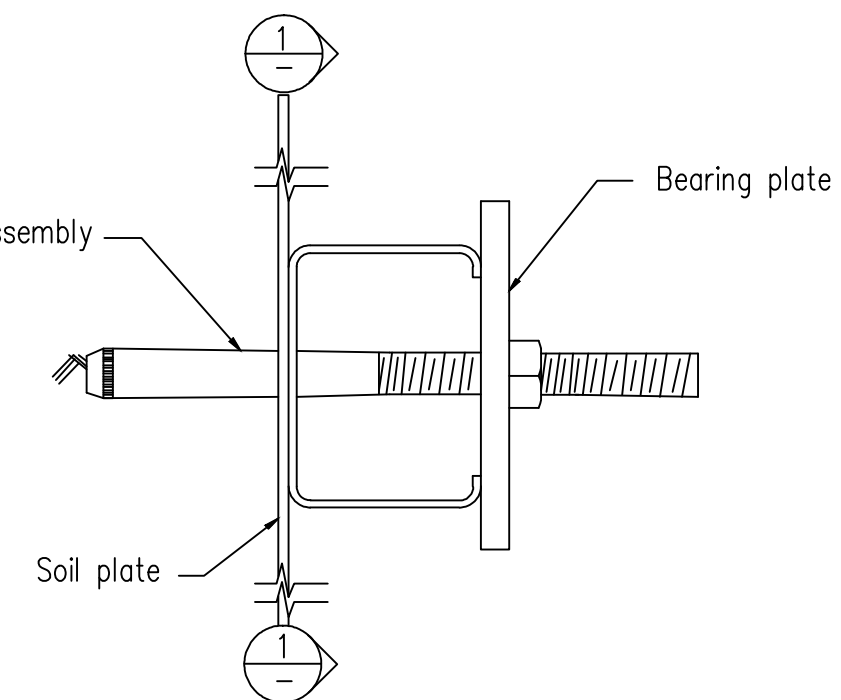
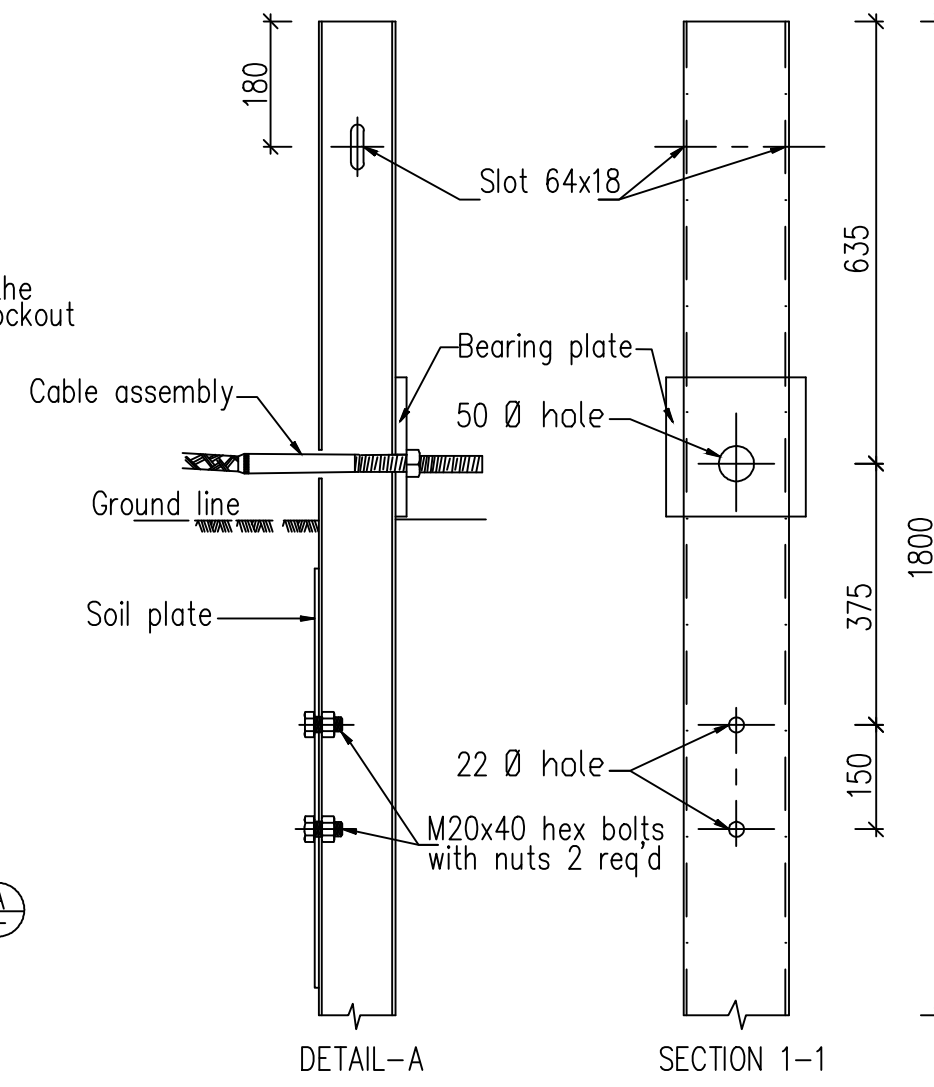
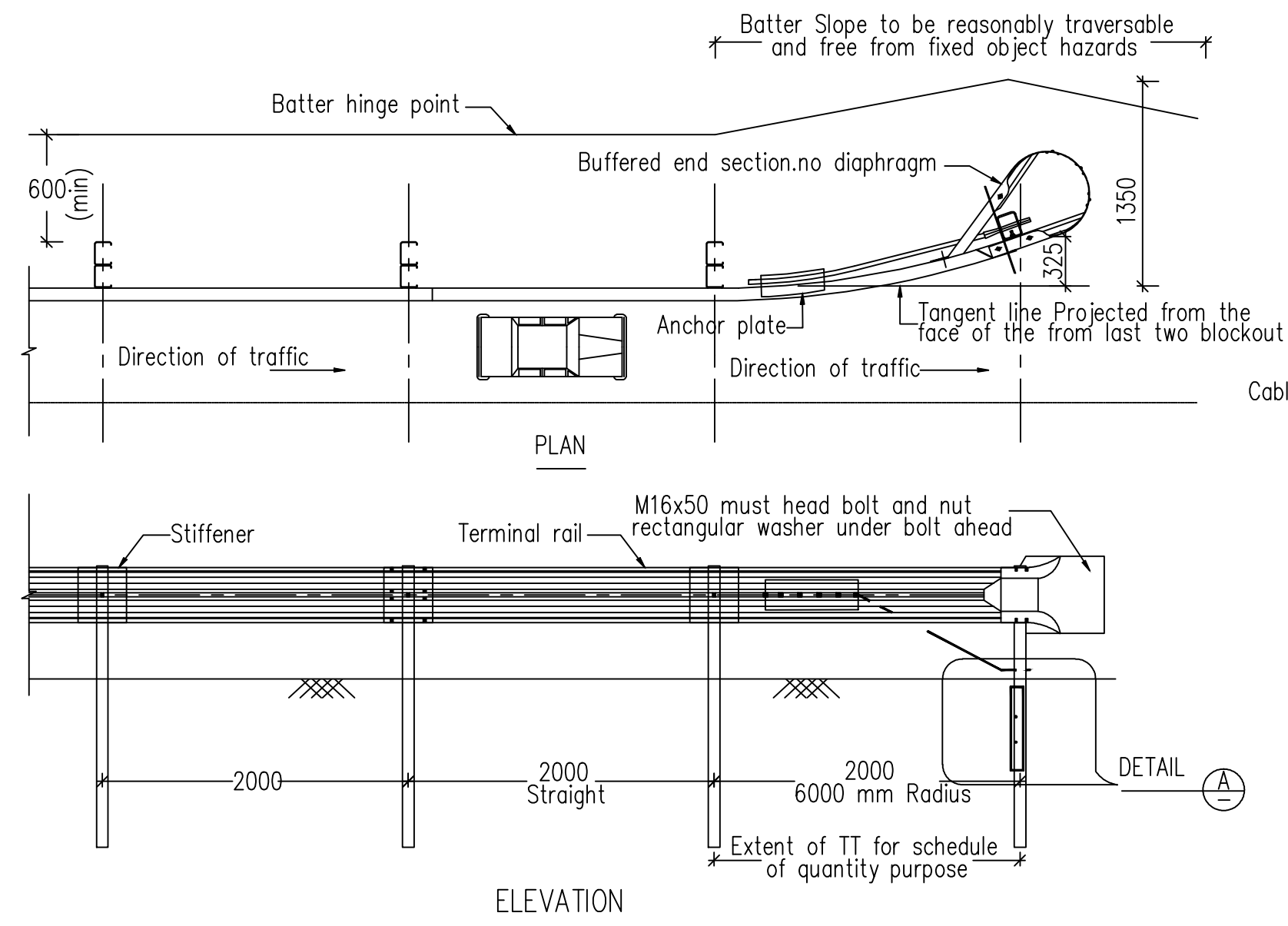
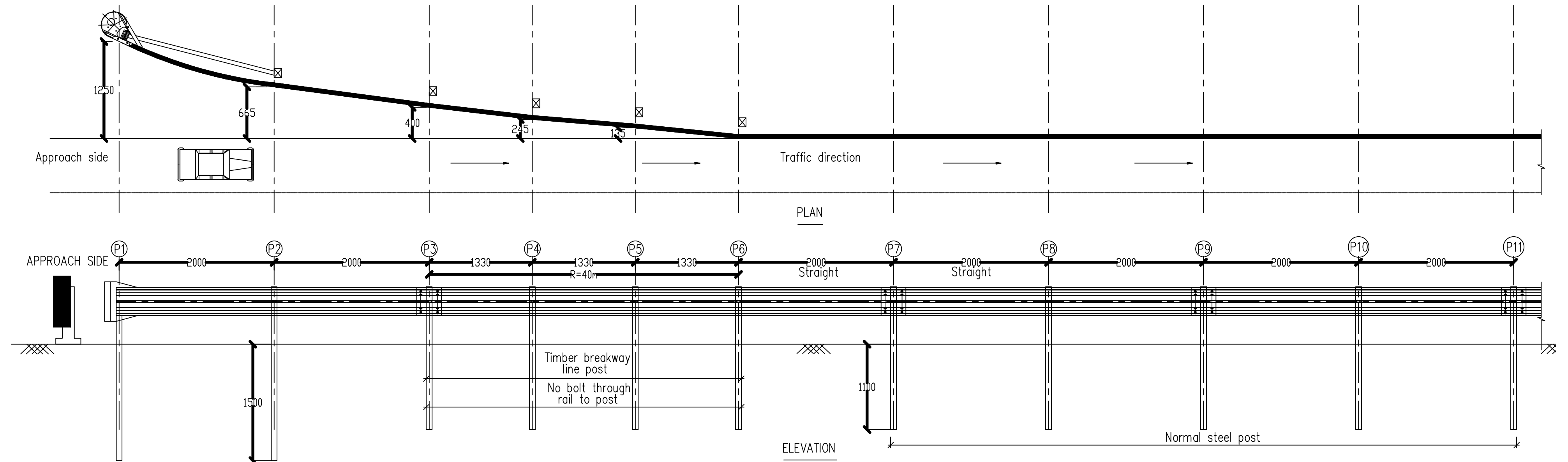
duhonor MB



DRG. No. :  
VSPL/1718-082/DPR/PKG-4/NH-515/MIS-05

REVISION:R1

January 2023



- Notes:
1. All dimensions are in millimeter unless otherwise specified.
  2. Hot dipped galvanized section as per mort & h specification shall be used for vertical post & spacer.
  3. Thickness of W-beam shall be 3 mm.
  4. Thickness of channel section shall be 5 mm.

CLIENT :

**NATIONAL HIGHWAYS AND INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT AND HIGHWAYS)  
GOVERNMENT OF INDIA

PROJECT :

**CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT FOR DEVELOPMENT OF ECONOMIC CORRIDORS, INTER CORRIDORS AND FEEDER ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA (LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:

**VOYANTS SOLUTIONS PVT LTD.**  
403, 4th Floor, Park Centra,  
Sector-30, NH-8  
Gurugram-122001, Haryana, India  
CIN- U74140HR2004PTC046918  
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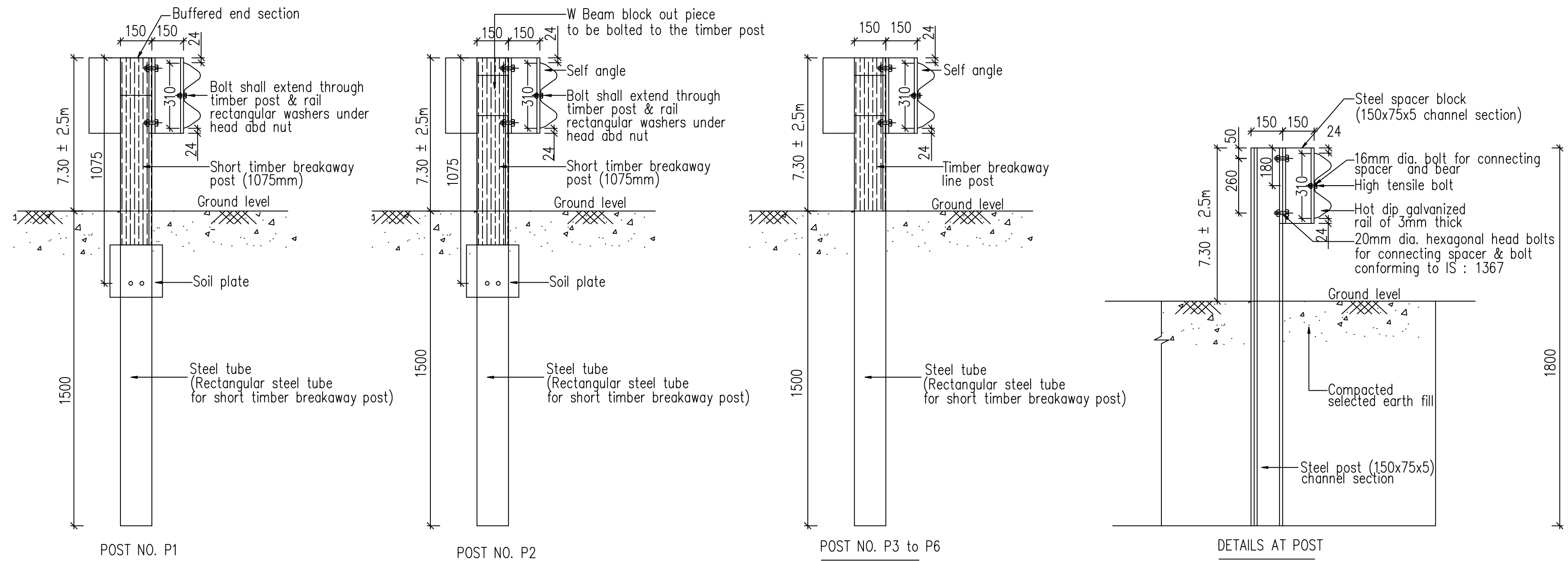
### Detailed Project Report

REV. DATE DESCRIPTION

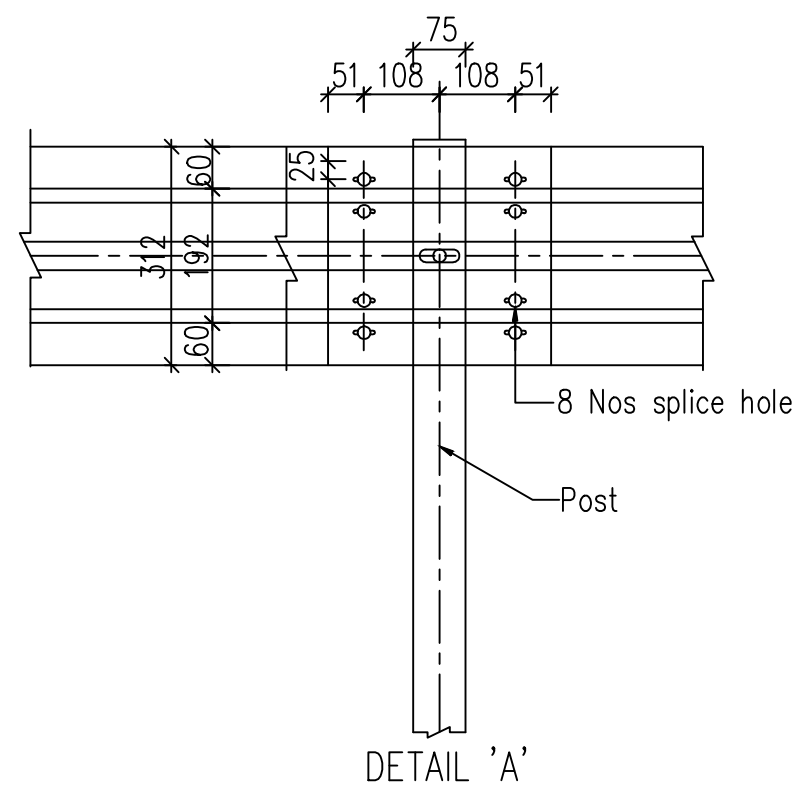
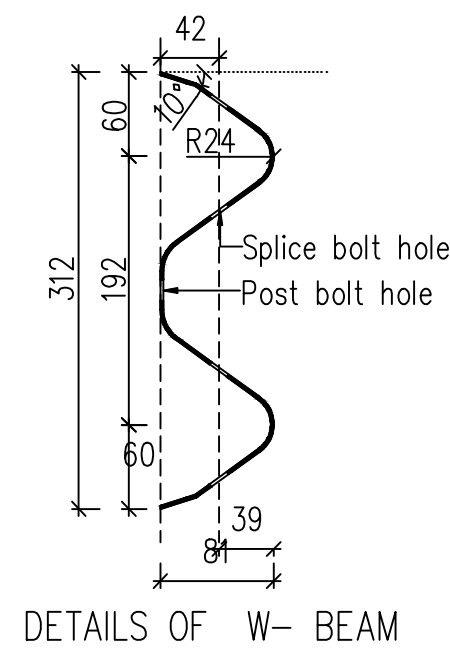
| DESIGNED BY | DRAWN BY  | CHECKED BY | APPROVED BY |
|-------------|-----------|------------|-------------|
| PD/PS       | SS/SP     | DGR        | SKC         |
| <i>Sar.</i> | <i>SP</i> | <i>SKC</i> | <i>SKC</i>  |
| SCALE :     | N.T.S     | SHEET SIZE | A2          |

|                                             |                                                        |
|---------------------------------------------|--------------------------------------------------------|
| TITLE :                                     |                                                        |
| Typical Details of Metal Beam Crash Barrier |                                                        |
| DRG. No. :                                  | VSPL/1718-082/DPR/PKG-4/NH-515/MIS-06 (Sheet 01 of 03) |
| REVISION:R1                                 | January 2023                                           |

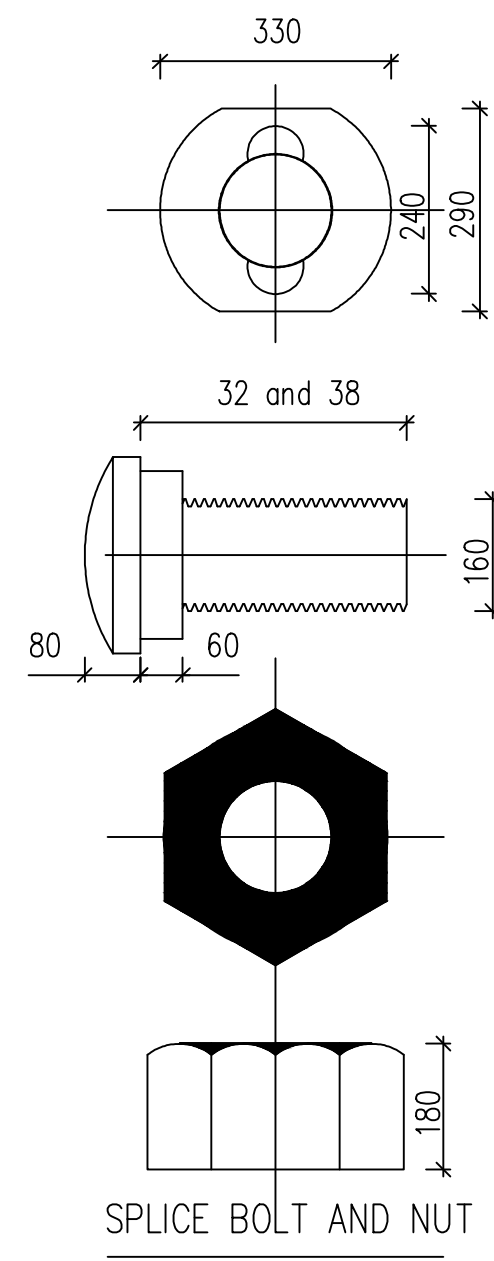




MODIFIED ECCENTRIC LOADER TERMINAL (MELT)  
GENERAL ARRANGEMENT



CHANNEL SECTION FOR  
POST & SPACER



- Notes:
1. All dimensions are in millimeter unless otherwise specified.
  2. Hot dipped galvanized section as per mort & h specification shall be used for vertical post & spacer.
  3. Thickness of W-beam shall be 3 mm.
  4. Thickness of channel section shall be 5 mm.

CLIENT :

**NATIONAL HIGHWAYS AND INFRASTRUCTURE  
DEVELOPMENT CORPORATION LTD.  
(MINISTRY OF ROAD TRANSPORT AND HIGHWAYS)  
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PROJECT :

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ECONOMIC CORRIDORS, INTER CORRIDORS AND FEEDER  
ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT  
MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA  
(LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:

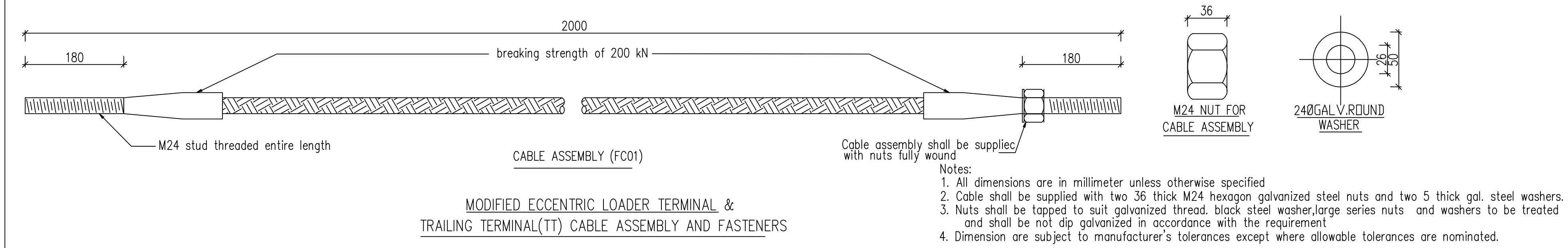
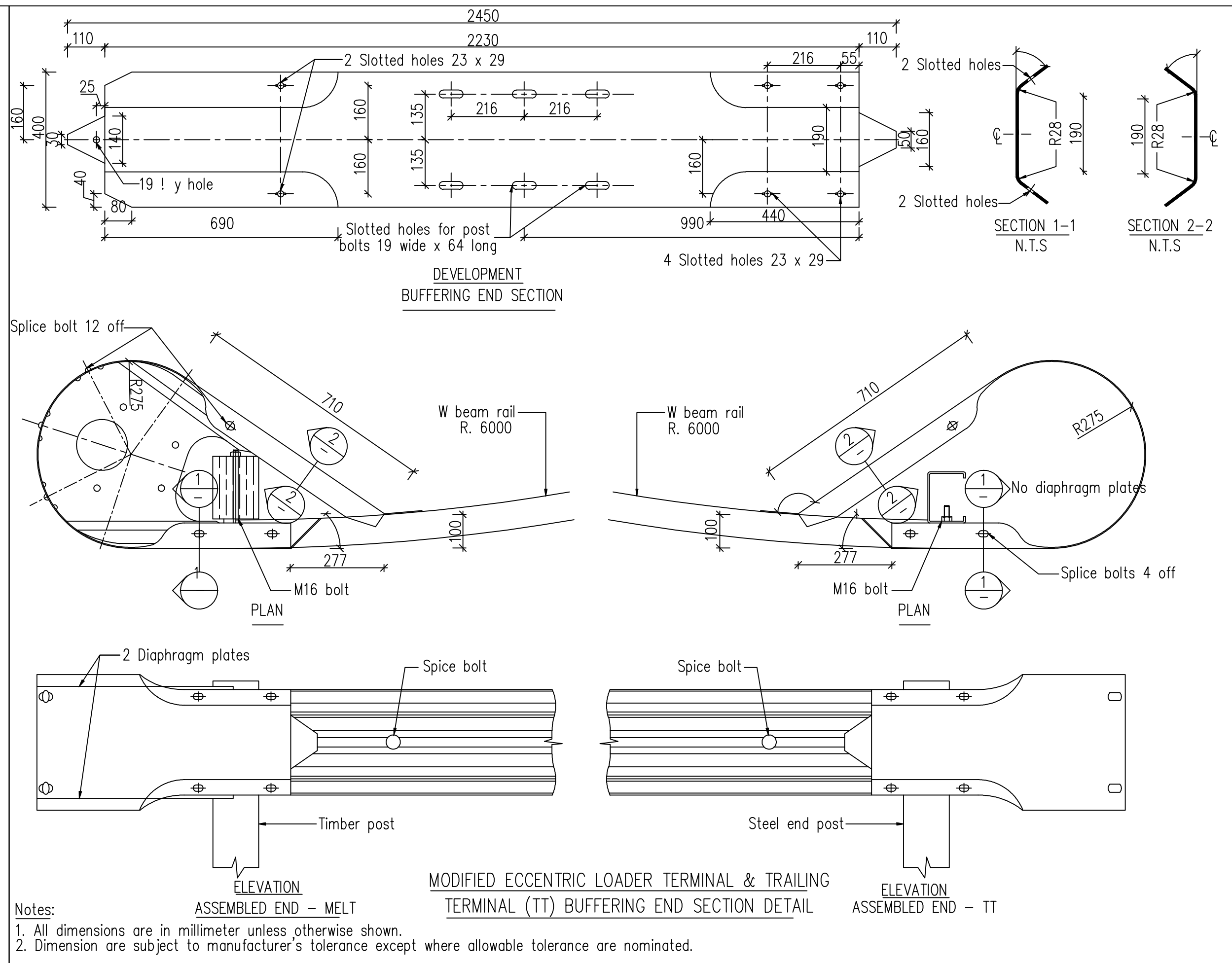
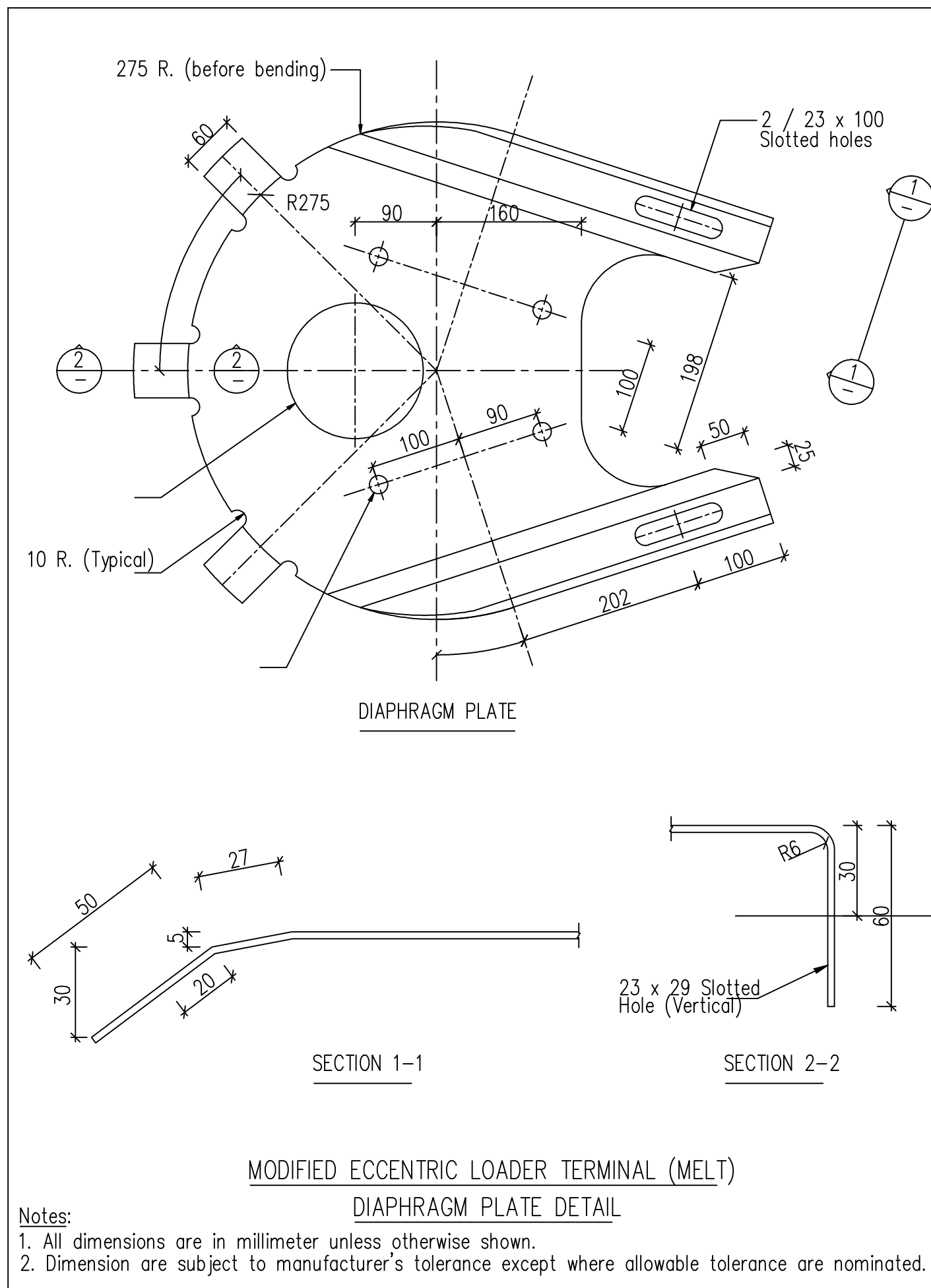
**VOYANTS SOLUTIONS PVT LTD.**  
403, 4th Floor, Park Centra,  
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Gurugram-122001, Haryana, India  
CIN- U74140HR2004PTC046918  
Ph: 0124-4598200, Fax: 0124-4019051,  
E-mail: info@voyants.in, www.voyants.in

**Detailed Project Report**

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| DESIGNED BY | DRAWN BY  | CHECKED BY | APPROVED BY | TITLE :                                                              |
|-------------|-----------|------------|-------------|----------------------------------------------------------------------|
| PD/PS       | SS/SP     | DGR        | SKC         | Typical Details of Metal Beam<br>Crash Barrier                       |
| <i>Sas.</i> | <i>SP</i> | <i>SKC</i> | <i>SKC</i>  | DRG. No. :<br>VSPL/1718-082/DPR/PKG-4/NH-515/MIS-06 (Sheet 02 of 03) |
| SCALE :     | N.T.S     | SHEET SIZE | A2          | REVISION:R1<br>January 2023                                          |

PATH: C:\Shappa\0\Project\1718082\_Bharatmala\_Asam\_P-4\NH-515\_3\_January\_2022\_Drawing\_Vol\_NH-515\_Sec-3\7\_Misc\MIS\_06\_Metal\_Beam\_Barrier.dwg



CLIENT :

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(LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:

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**Detailed Project Report**

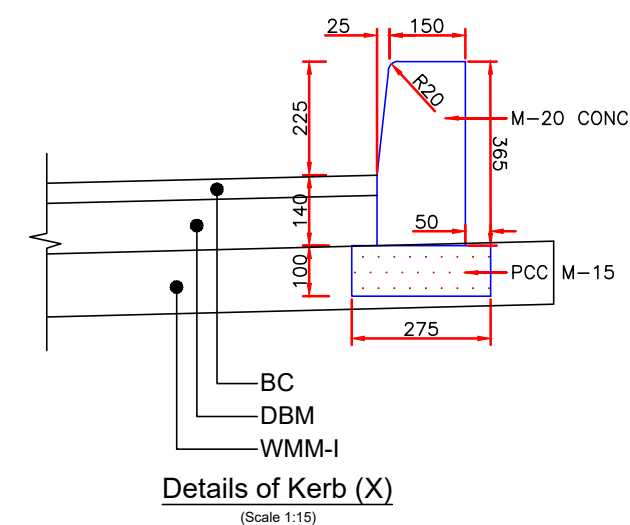
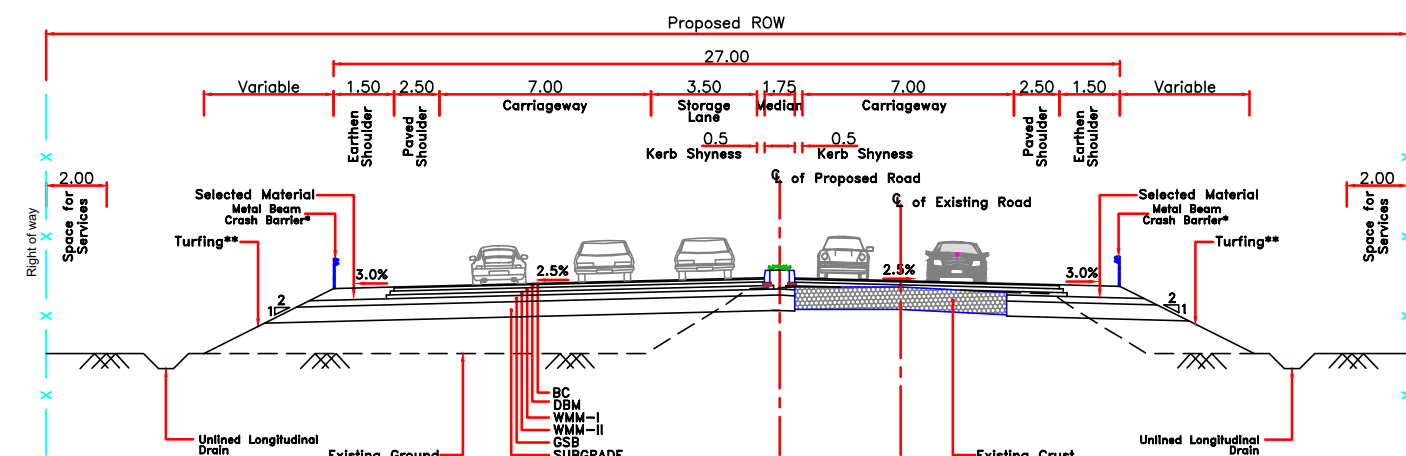
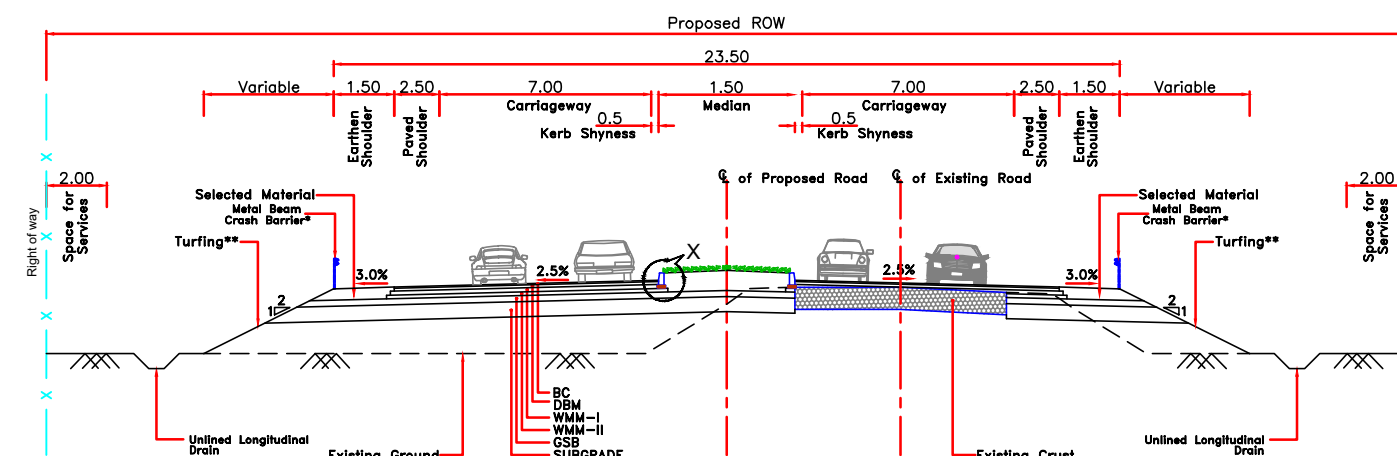
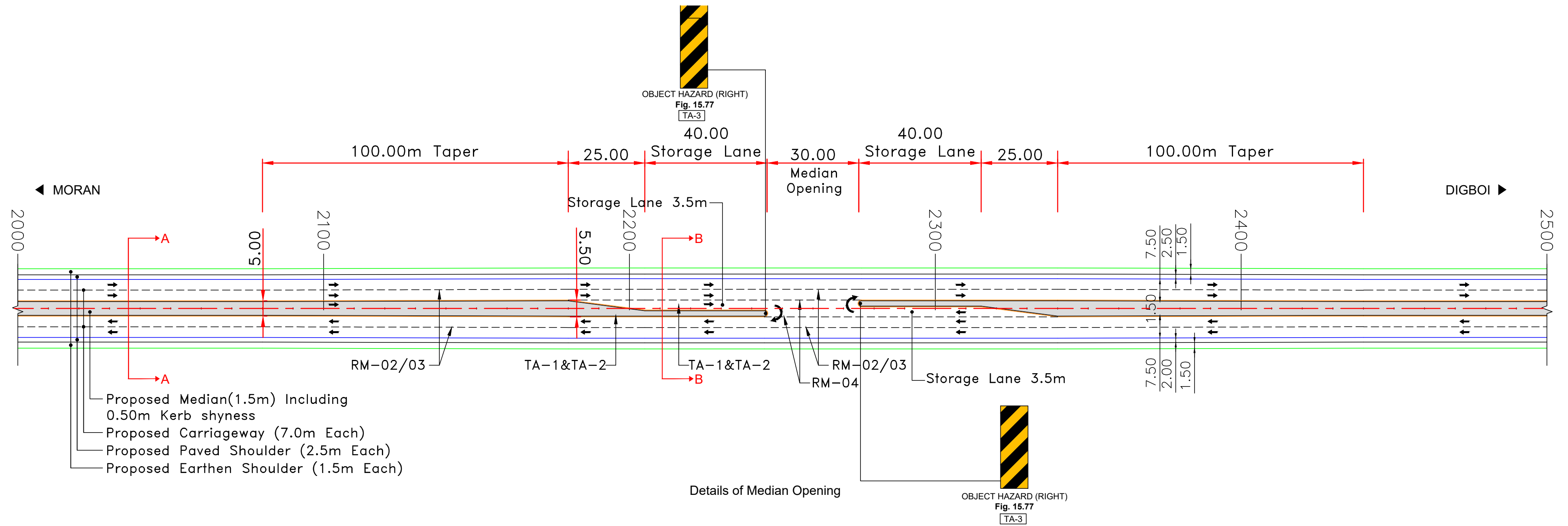
| REV. | DATE | DESCRIPTION |
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| DESIGNED BY | DRAWN BY | CHECKED BY | APPROVED BY |
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| PD/PS       | SS/SP    | DGR        | SKC         |
|             |          |            |             |
| SCALE :     | N.T.S    | SHEET SIZE | A2          |

TITLE :

**Typical Details of Metal Beam  
Crash Barrier**

DRG. No. :  
VSPL/1718-082/DPR/PKG-4/NH-515/MIS-06 (Sheet 03 of 03)  
REVISION:R1  
January 2023



Note:  
1. All dimensions are in meter unless otherwise specified.  
2. \* Applicable where embankment height is >3.0m  
3. \*\* Applicable where <3.0m embankment height Turfing with sods of perennial turf forming grass.

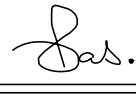
CLIENT :  
  
**NATIONAL HIGHWAYS AND INFRASTRUCTURE  
DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT AND HIGHWAYS)  
GOVERNMENT OF INDIA

PROJECT :  
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ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT  
MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA  
(LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:  
  
**VOYANTS SOLUTIONS PVT LTD.**  
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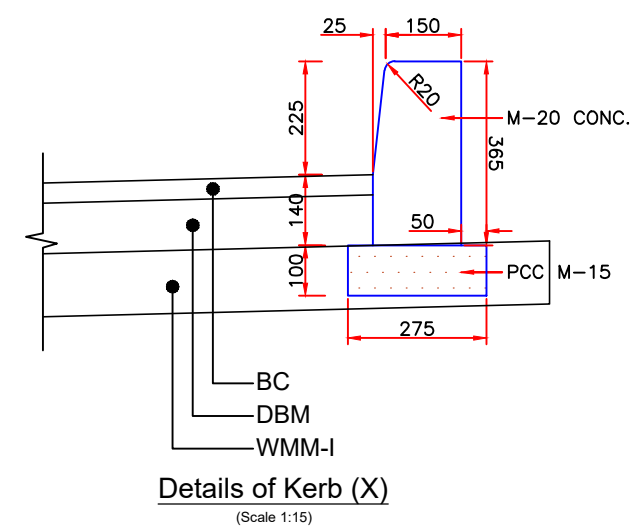
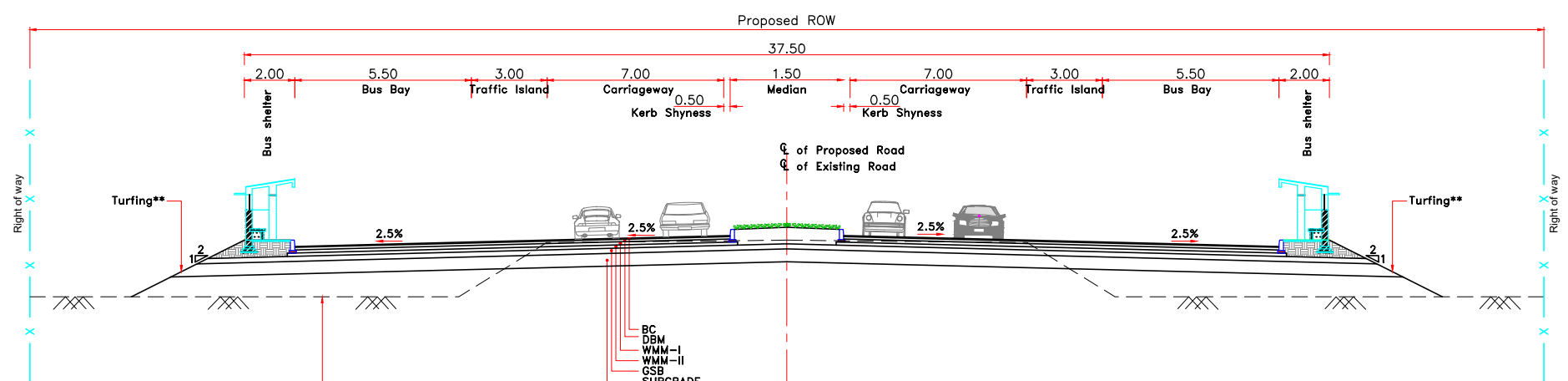
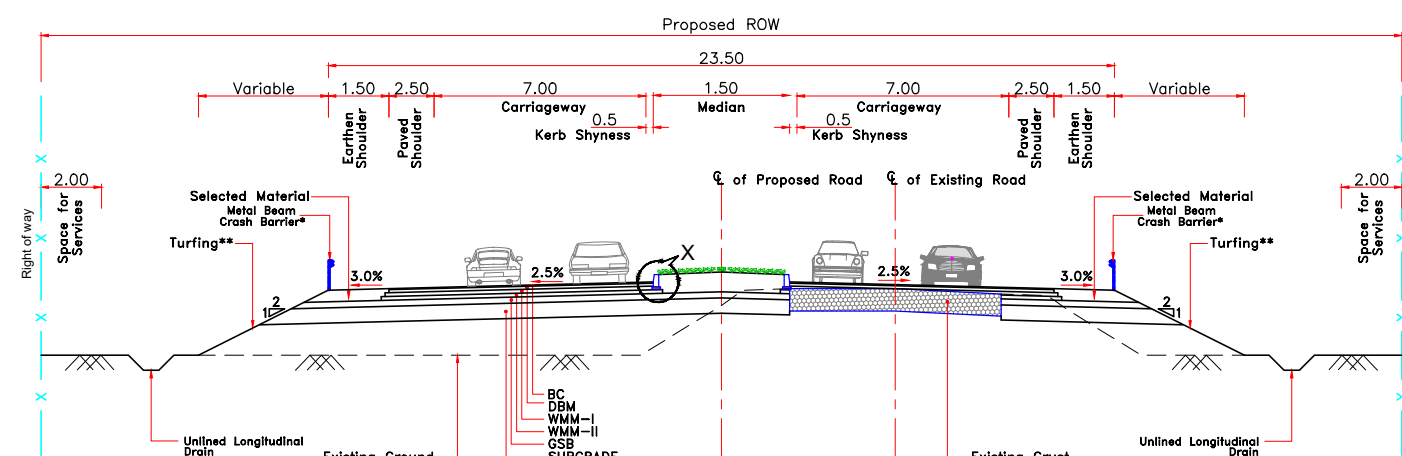
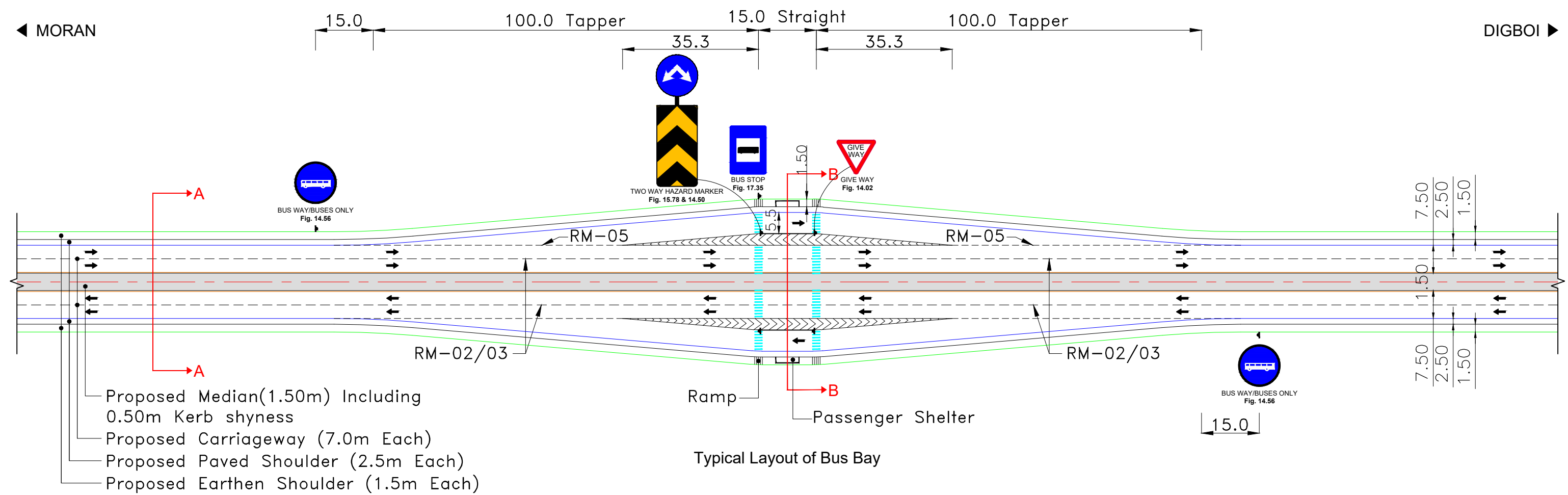
### Detailed Project Report

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| DESIGNED BY                                                                           | DRAWN BY                                                                              | CHECKED BY                                                                            | APPROVED BY                                                                           |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| PD/PS                                                                                 | SS/SP                                                                                 | DGR                                                                                   | SKC                                                                                   |
|  |  |  |  |
| SCALE :                                                                               | N.T.S                                                                                 | SHEET SIZE                                                                            | A2                                                                                    |

| TITLE :                                             |
|-----------------------------------------------------|
| Typical Detail of Median<br>Opening                 |
| DRG. No. :<br>VSPL/1718-082/DPR/PKG-4/NH-515/MIS-07 |
| REVISION:R1                                         |
| January 2023                                        |





Note:  
 1. All dimensions are in meter unless otherwise specified.  
 2. \* Applicable where embankment height is >3.0m  
 3. \*\* Applicable where <3.0m embankment height Turfling with sods of perennial turf forming grass.

CLIENT :



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 GOVERNMENT OF INDIA

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 ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT  
 MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA  
 (LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:



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 Gurugram-122001, Haryana, India  
 CIN- U74140HR2004PTC046918  
 Ph: 0124-4598200, Fax: 0124-4019051,  
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### Detailed Project Report

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| DESIGNED BY | DRAWN BY | CHECKED BY | APPROVED BY |
|-------------|----------|------------|-------------|
| PD/PS       | SS/SP    | DGR        | SKC         |
|             |          |            |             |
| SCALE :     | N.T.S    | SHEET SIZE | A2          |

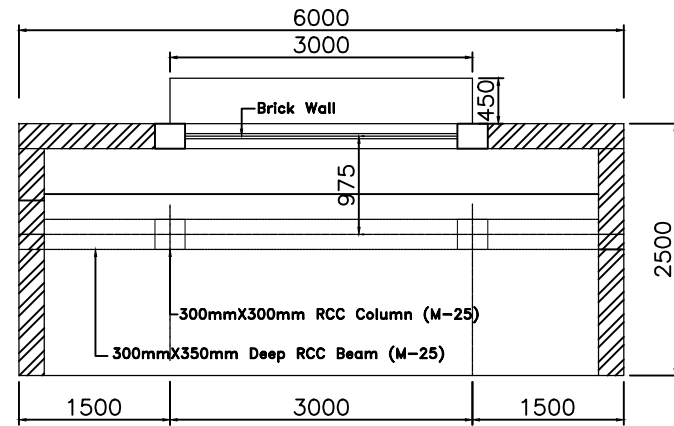
TITLE :

**Typical Detail of Bus Bay**

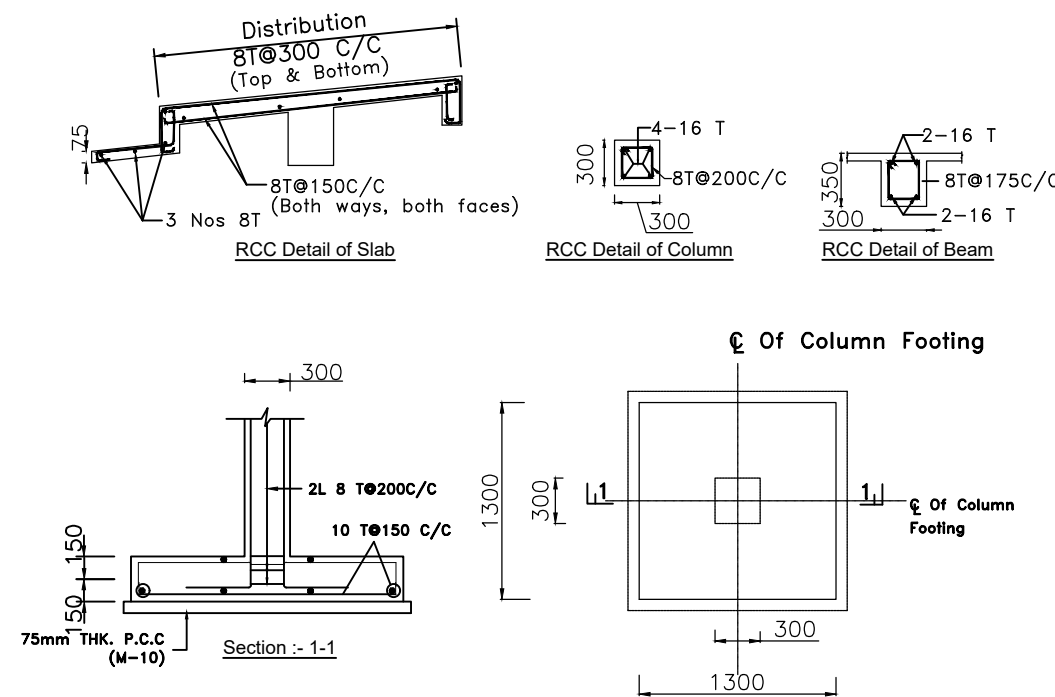
DRG. No. :  
 VSPL/1718-082/DPR/PKG-4/NH-515/MIS-08

REVISION:R1

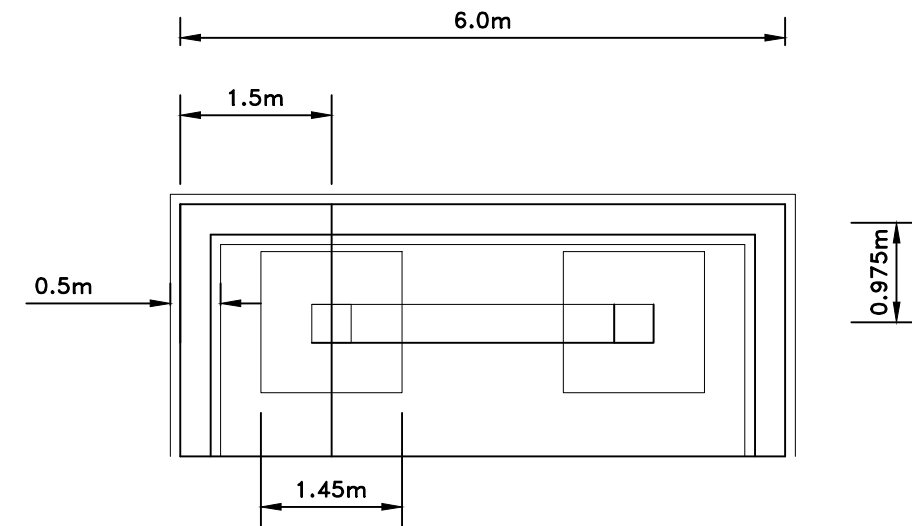
January 2023



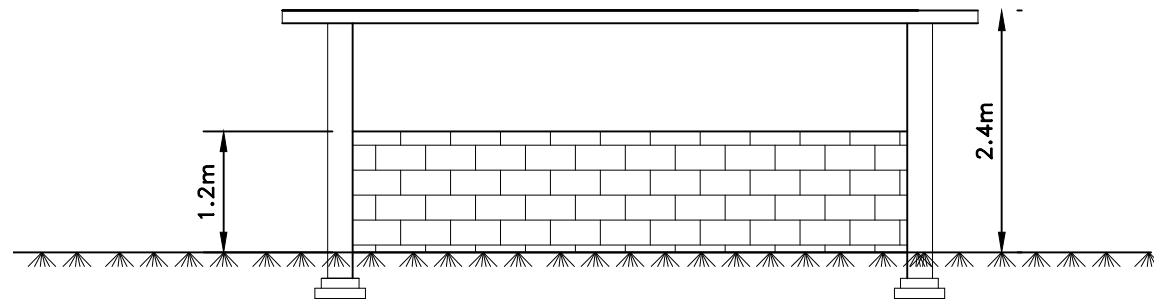
Plan of Passenger Shelter  
Scale 1:75



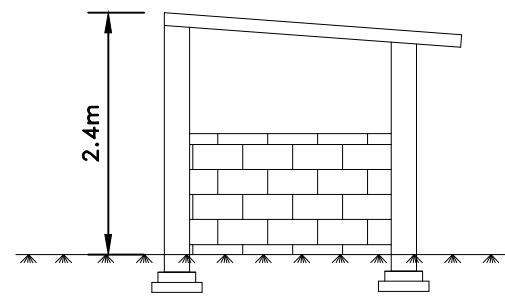
Plan Showing Column Foundation  
Scale 1:50



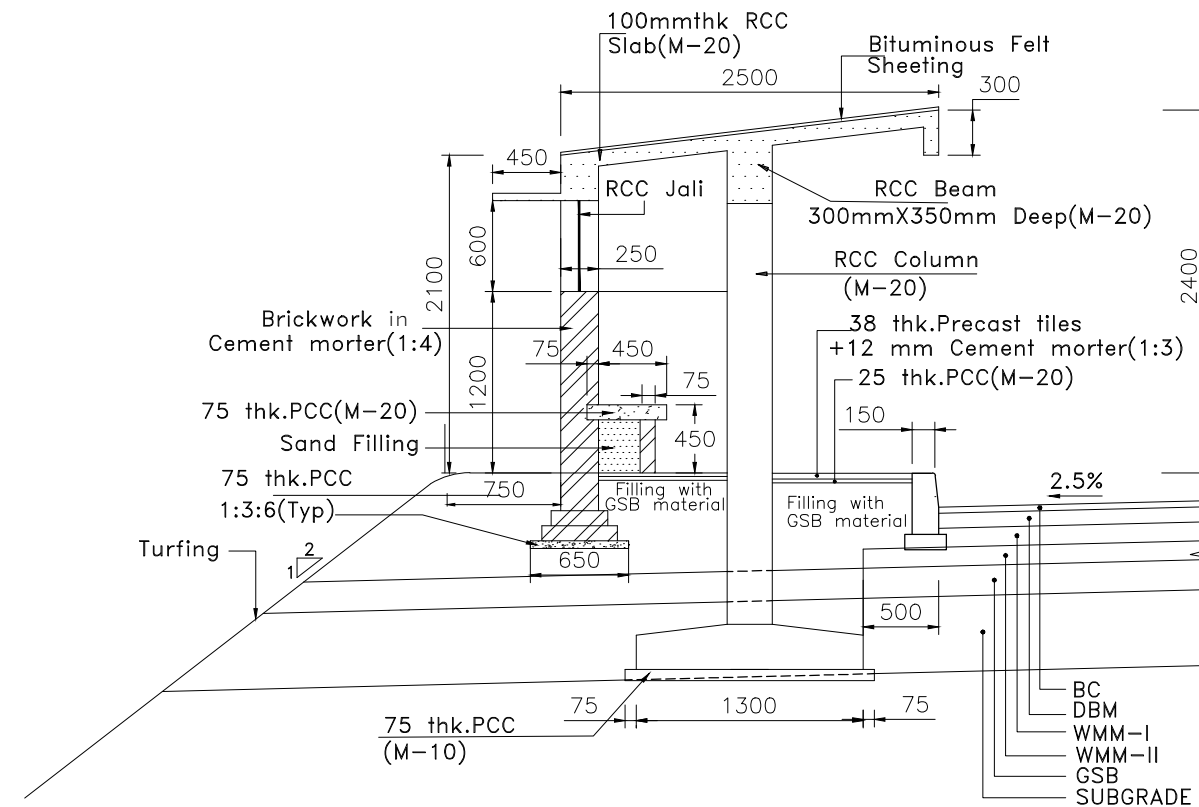
Foundation Plan  
Scale 1:75



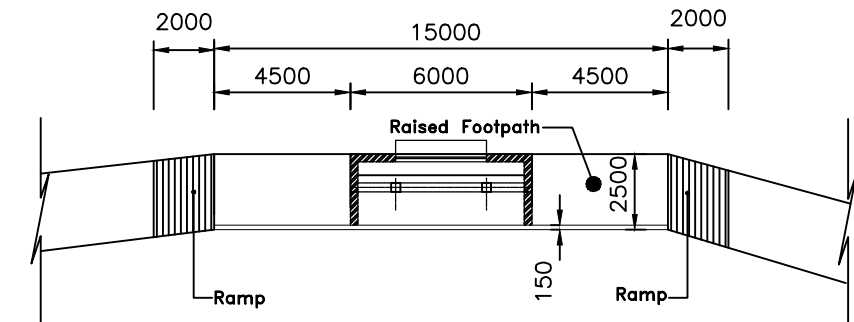
Front Elevation  
Scale 1:75



Side Elevation  
Scale 1:75



Section of Passenger Shelter  
Scale 1:50



Location of Passenger Shelter  
Scale 1:250

CLIENT :



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MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA  
(LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:



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**Detailed Project Report**

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| REV. | DATE | DESCRIPTION |
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| DESIGNED BY | DRAWN BY | CHECKED BY | APPROVED BY |
|-------------|----------|------------|-------------|
| PD/PS       | SS/SP    | DGR        | SKC         |
|             |          |            |             |
| SCALE :     | N.T.S    | SHEET SIZE | A2          |

TITLE :

**Typical Detail Passenger Shelter**

DRG. No. :  
VSPL/1718-082/DPR/PKG-4/NH-515/MIS-09

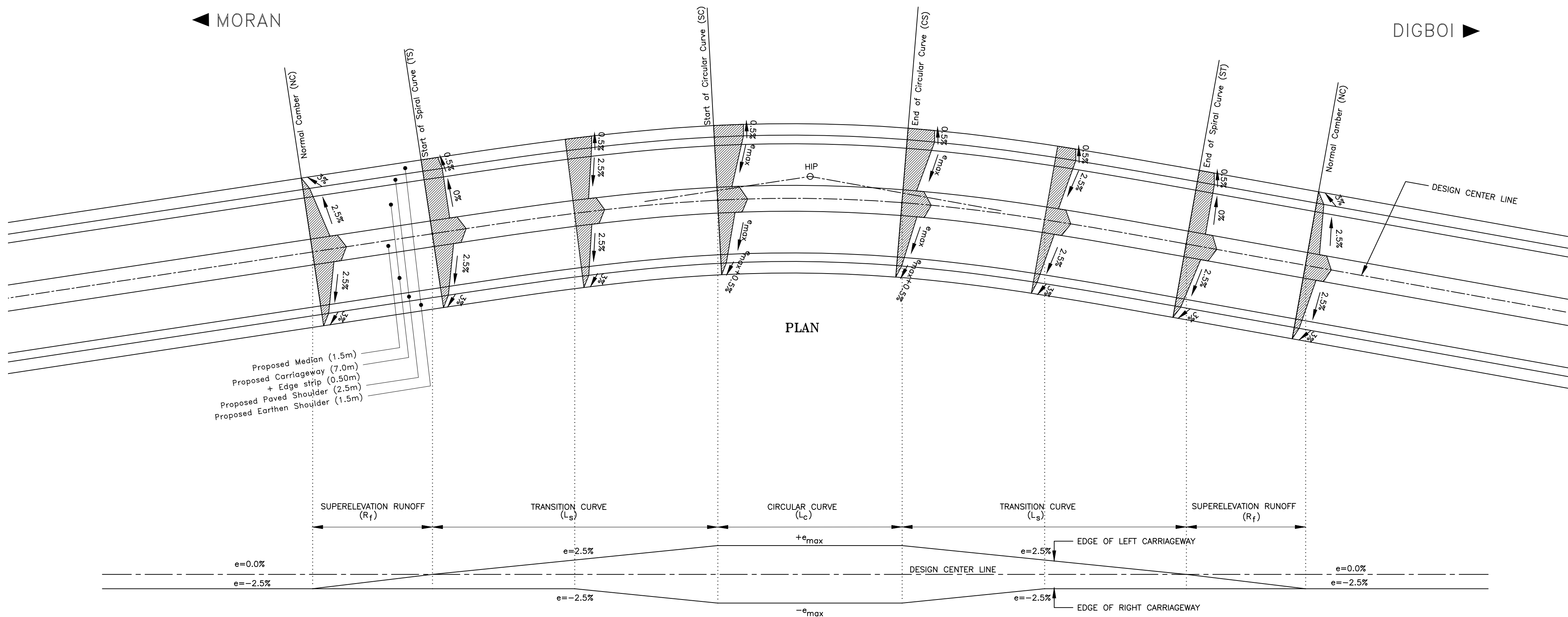
REVISION:R1

January 2023



|                                                                |              |
|----------------------------------------------------------------|--------------|
| TITLE :                                                        |              |
| <p align="center"><b>Typical Details of Extra Widening</b></p> |              |
| DRG. No. :<br>VSPL/1718-082/DPR/PKG-4/NH-515/MIS- 10           |              |
| REVISION:R1                                                    | January 2023 |





SCHEMATIC DIAGRAM FOR ATTAINMENT OF SUPERELEVATION

Notes:

1.  $R_f = L_s \times 2.5 / e_{max}$
2. Maximum Superelevation ( $e_{max}$ ) =  $v^2 / (225 \times R)$  Limited to 5%
3. Besides the above, standards and specifications mentioned in IRC:SP:84-2014 shall be followed strictly whenever applicable.
4. All dimensions are in metres unless otherwise mentioned.
5. This drawing is applicable for the stretches with raised median.
6. Provision of drainage arrangement shall be as per IRC:SP:42-2014 for superelevation portion.

CLIENT :



**NATIONAL HIGHWAYS AND INFRASTRUCTURE  
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(LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:



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|-------------|----------|------------|-------------|
| PD/PS       | SS/SP    | DGR        | SKC         |
|             |          |            |             |
| SCALE :     | N.T.S    | SHEET SIZE | A2          |

TITLE :

**Details of Superelevation**

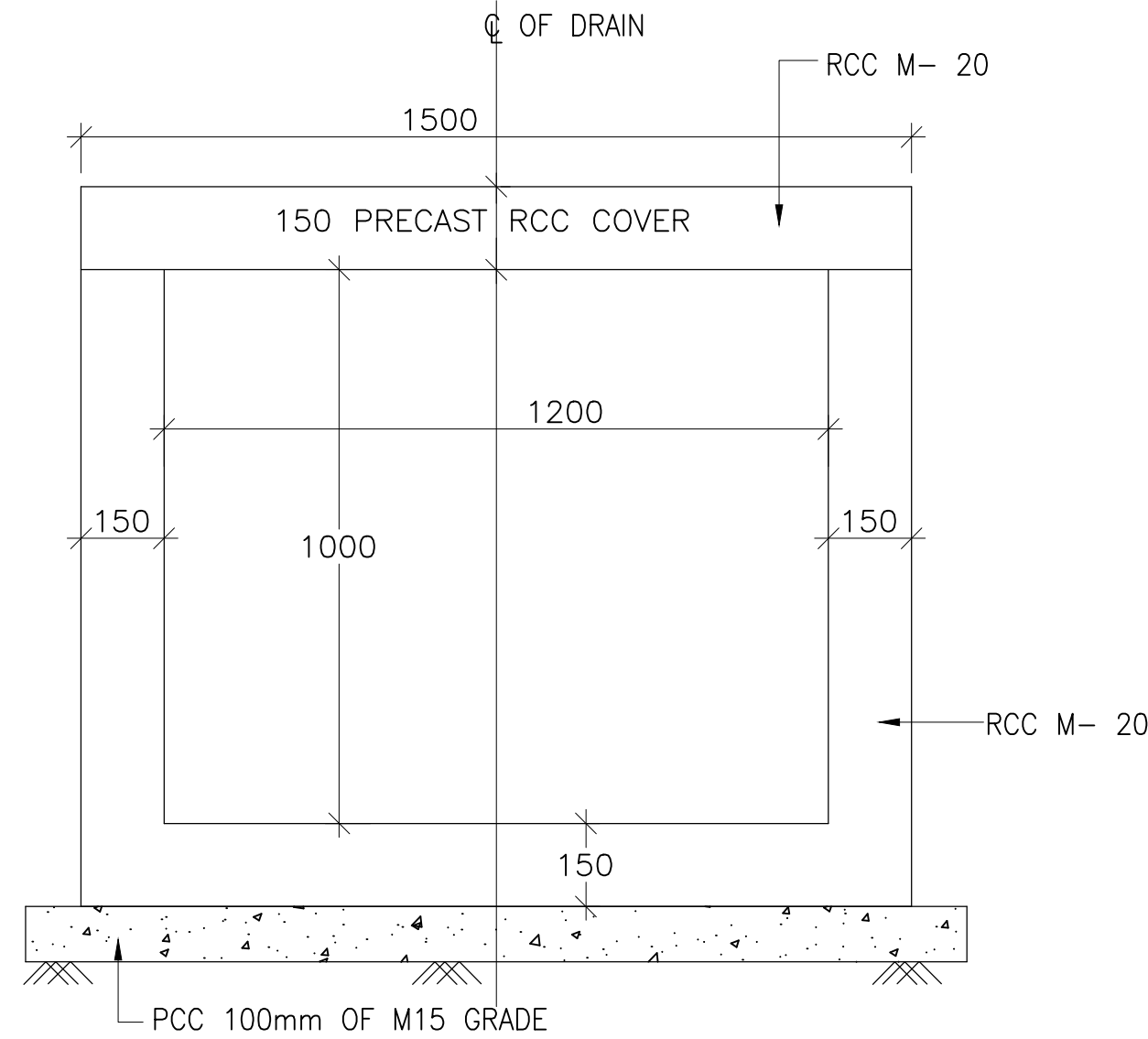
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VSPL/1718-082/DPR/PKG-4/NH-515/MIS-11

REVISION:R1

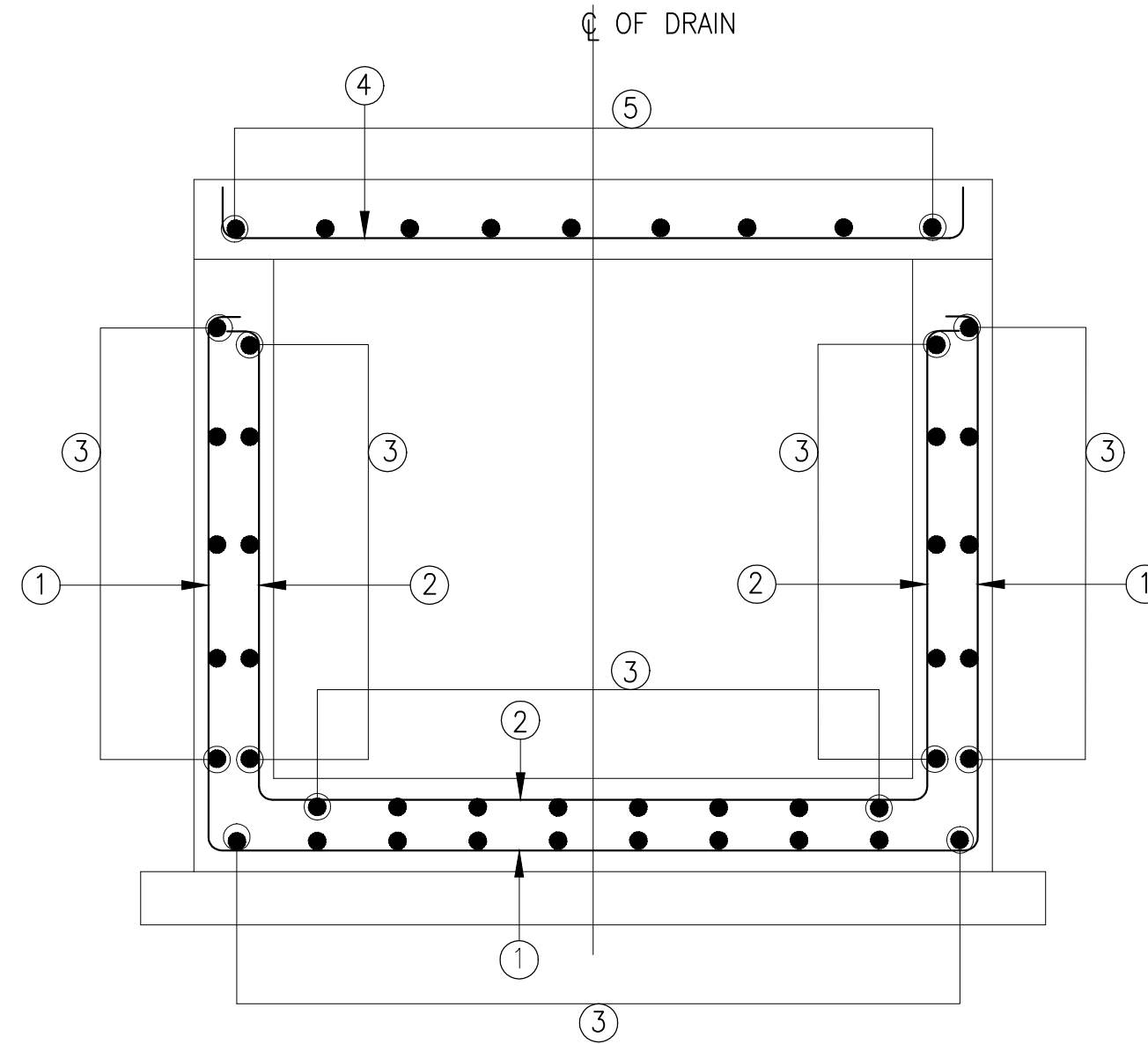
January 2023



DETAILS OF DRAIN AT BUILT UP SECTION



DETAILS OF DRAIN CROSS SECTION  
AT 2 LANE BUILT UP SECTION  
(SCALE 1:25)



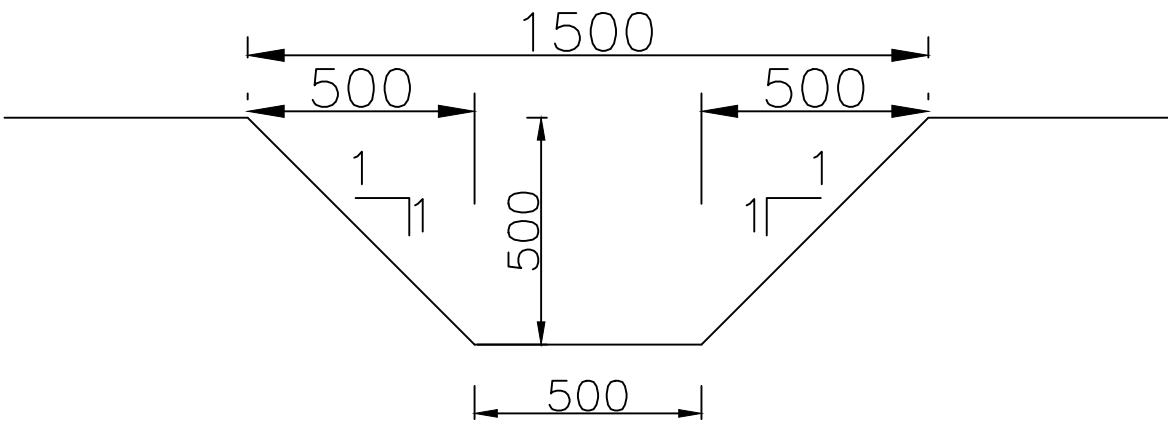
REINFORCEMENT DETAIL OF DRAIN  
(SCALE 1:25)

REINF. SCHEDULE

| BAR MARK | SHAPE OF BARS (NOT TO SCALE) | BAR DIA. in mm. | SPACING in mm. |
|----------|------------------------------|-----------------|----------------|
| ①        |                              | 10              | 200            |
| ②        |                              | 8               | 200            |
| ③        |                              | 8               | 250            |
| ④        |                              | 10              | 200            |
| ⑤        |                              | 8               | 250            |

Notes:

- All dimensions are in millimetres unless otherwise mentioned.
- Standards and specifications mentioned in IRC : SP: 73-2017 shall be followed strictly whenever applicable.



Trapezoidal Unlined Drain

CLIENT :



**NATIONAL HIGHWAYS AND INFRASTRUCTURE  
DEVELOPMENT CORPORATION LTD.**  
(MINISTRY OF ROAD TRANSPORT AND HIGHWAYS)  
GOVERNMENT OF INDIA

PROJECT :

**CONSULTANCY SERVICES FOR PREPARATION OF  
DETAILED PROJECT REPORT FOR DEVELOPMENT OF  
ECONOMIC CORRIDORS, INTER CORRIDORS AND FEEDER  
ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT  
MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA  
(LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:



**VOYANTS SOLUTIONS PVT LTD.**  
403, 4th Floor, Park Centra,  
Sector-30, NH-8  
Gurugram-122001, Haryana, India  
CIN- U74140HR2004PTC046918  
Ph: 0124-4598200, Fax: 0124-4019051,  
E-mail: info@voyants.in, www.voyants.in

Detailed Project Report

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| REV. | DATE | DESCRIPTION |
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| DESIGNED BY | DRAWN BY | CHECKED BY | APPROVED BY |
|-------------|----------|------------|-------------|
| PD/PS       | SS/SP    | DGR        | SKC         |
|             |          |            |             |
| SCALE :     | N.T.S.   | SHEET SIZE | A2          |

TITLE :

**Typical Details of Drain**

DRG. No. :  
VSPL/1718-082/DPR/PKG-4/NH-515/MIS-13

REVISION:R1 January 2023



≡ STRUCTURE WORKS ≡

# STRUCTURAL DRAWINGS

### **-: List of Drawings :-**

| SL. No. | Description                                                                                                 | Drawing No.                                  | Rev No. | Sheet No. |
|---------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------|---------|-----------|
| 01      | General Arrangement Drawings of Major Bridge at ch. km. 63+906.700. (Retained + New)                        | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MJB-01  | R1      | 02        |
| 02      | General Arrangement Drawings of Major Bridge at ch. km. 70+980.700. ( New )                                 | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MJB-02  | R1      | 02        |
| 03      | General Arrangement Drawings of Major Bridge at ch. km. 81+297.000 (Retained + New )                        | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MJB-03  | R1      | 02        |
| 04      | General Arrangement Drawings of Minor Bridge at ch. km. 55+335.00 ( Retained + New )                        | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MNB-01  | R1      | 01        |
| 05      | General Arrangement Drawings of Minor Bridge at ch. km. 56+744.00 ( Retained + New )                        | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MNB-02  | R1      | 01        |
| 06      | General Arrangement Drawings of Minor Bridge at ch. km. 58+215.0 & 59+910.00<br>( Retained + New )          | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MNB-03  | R1      | 01        |
| 07      | General Arrangement Drawings of Minor Bridge at ch. km. 66+210.00 ( New )                                   | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MNB-04  | R1      | 01        |
| 08      | General Arrangement Drawings of Minor Bridge PSC Box at ch. km. 66+654.0 ( New )                            | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MNB-05  | R1      | 02        |
| 09      | General Arrangement Drawings of Minor Bridge PSC Box at ch. km. 74+740.00<br>( Retained + New )             | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MNB-06  | R1      | 02        |
| 10      | General Arrangement Drawings of Minor Bridge at ch. km. 78+291.00 ( New )                                   | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MNB-07. | R1      | 01        |
| 11      | General Arrangement Drawings of Minor Bridge at ch. km. 80+590.00 ( Retained + New )                        | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MNB-08. | R1      | 01        |
| 12      | General Arrangement Drawings of Three Cell Box Type Minor Bridge at ch. Km. 57+030.00<br>( Retained + New ) | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MNB-09. | R1      | 02        |
| 13      | General Arrangement Drawings of Double Cell Box Type Minor Bridge. ( Typical )                              | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MNB-10. | R1      | 02        |
| 14      | General Arrangement Drawings of Vehicular Underpass at Ch. Km. 66+820.00                                    | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/VUP-01  | R1      | 02        |
| 15      | General Arrangement Drawings of Light Vehicular Underpass at Ch. Km. 69+936.00                              | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/LVUP-01 | R1      | 01        |
| 16      | General Arrangement Drawings of Small Vehicular Underpass at Ch. Km. 68+083.00                              | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/SVUP-01 | R1      | 01        |
| 17      | General Arrangement Drawings of Small Vehicular Underpass at Ch. Km. 70+807.260                             | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/SVUP-02 | R1      | 01        |
| 18      | General Arrangement Drawings of Small Vehicular Underpass at Ch. Km. 72+791.00                              | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/SVUP-03 | R1      | 01        |
| 19      | General Arrangement Drawings of Small Vehicular Underpass at Ch. Km. 74+609.00                              | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/SVUP-04 | R1      | 01        |
| 20      | General Arrangement Drawings of Box Culvert (Retained + New Construction)                                   | VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/BC-01.  | R1      | 03        |
|         |                                                                                                             |                                              |         |           |

CLIENT :



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FREIGHT MOVEMENTS IN INDIA UNDER  
BHARATMALA PARIYOJANA (LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:



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## Detaild Project Report

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| DESIGNED BY | DRAWN BY | CHECKED BY | APPROVED BY |
| SB          | G. Das   | SG         | SKC         |
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| SCALE :     | AS SHOWN | SHEET SIZE | A2          |

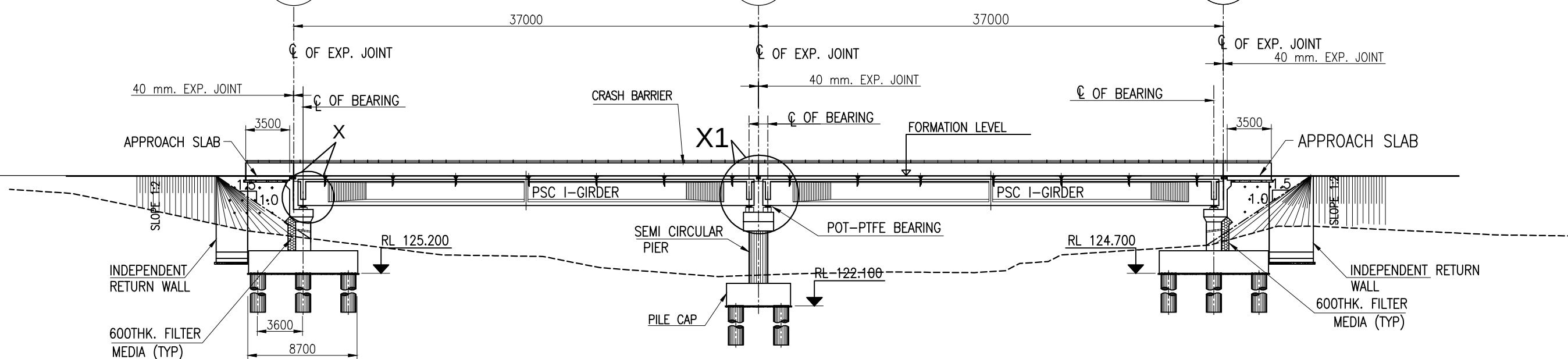
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| ✓ | TITLE : |
|---|---------|

## LIST OF DRAWING

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| DRG. No. :<br>VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/LOD-01. |    |               |
| REVISION:                                                  | R1 | January, 2023 |



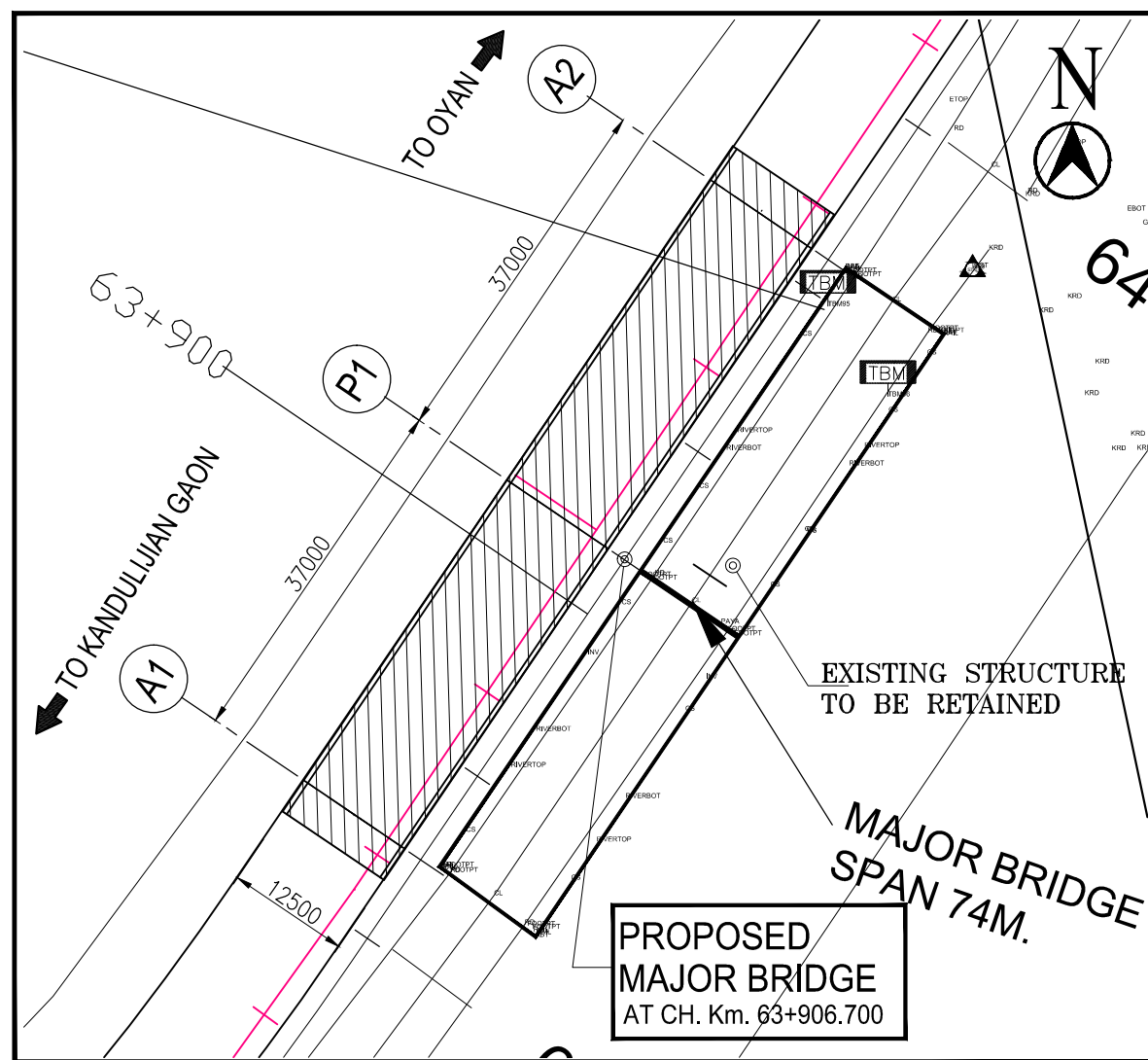
← TO KULAJAN GAON A1 P1 A2 TO OYAN →



DATUM = 113.00

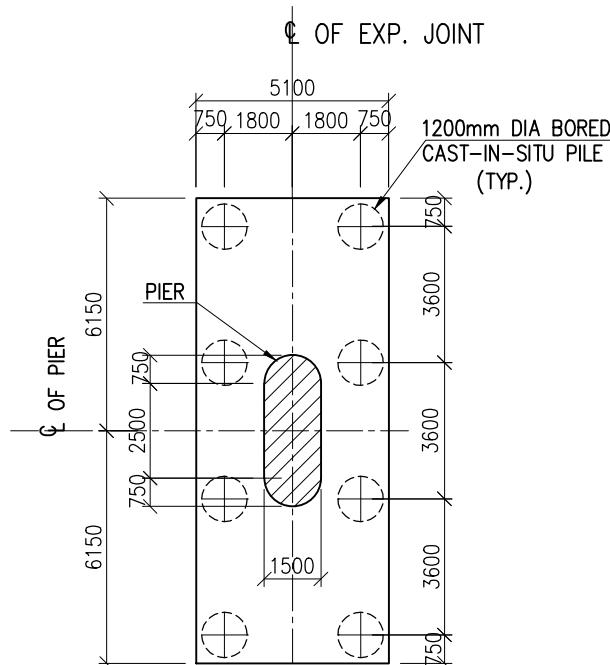
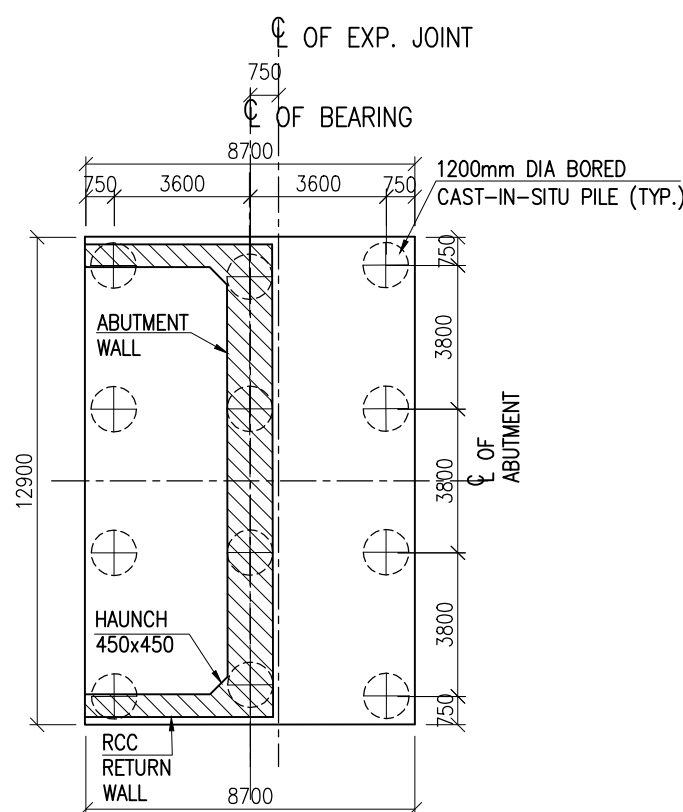
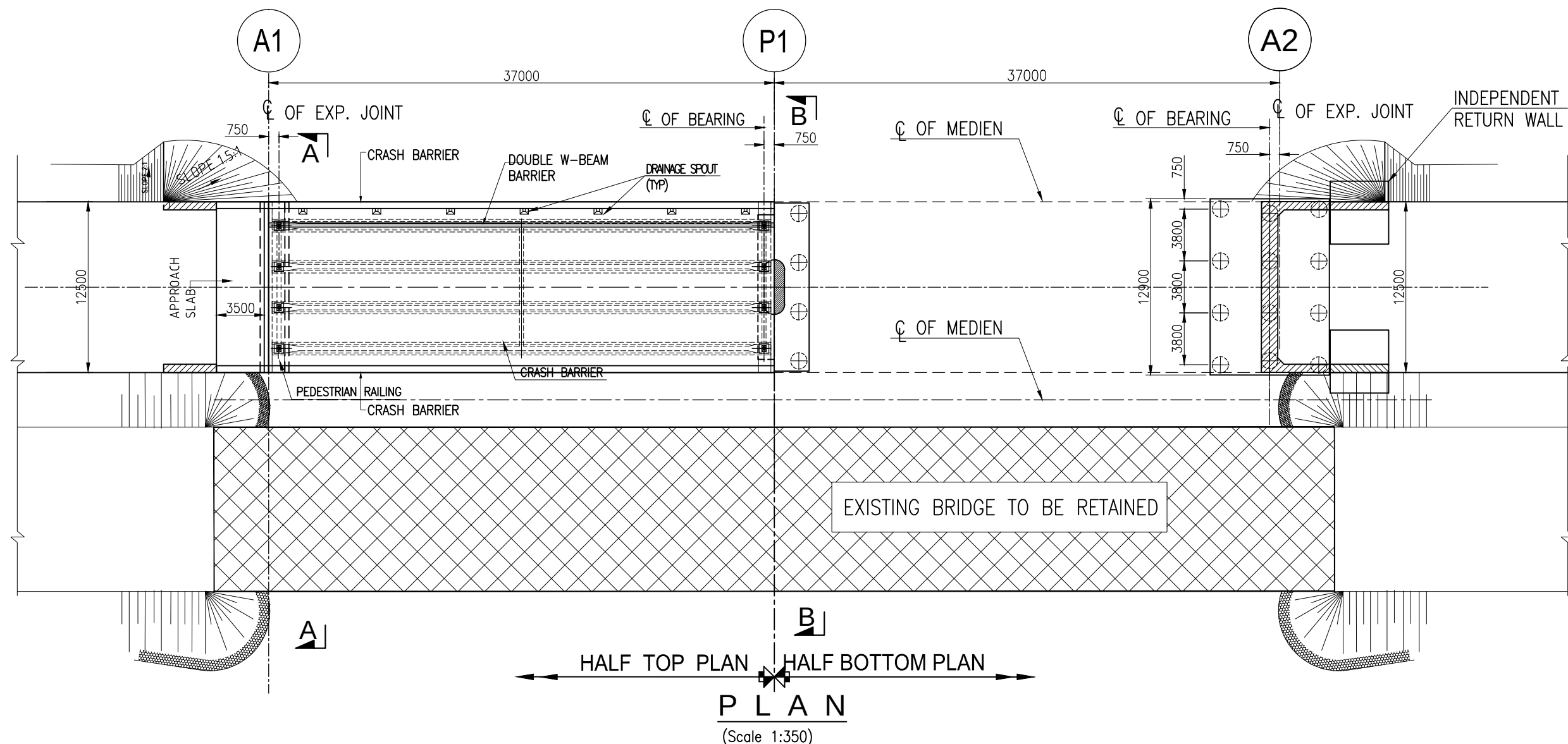
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|--------------------------------|------------|------------|------------|
| PROPOSED RME PROFILE LEVEL (m) | 132.335    | 132.335    | 132.335    |
| EXISTING GROUND LEVEL RME (m)  | 127.482    | 124.410    | 127.099    |
| CHAINAGE (m)                   | 63+869.780 | 63+906.780 | 63+943.780 |

SECTIONAL ELEVATION  
(SCALE 1:350)



← TO KULAJAN GAON

TO OYAN →



NOTES:-

FOR NOTE DETAILS REFER DWG NO:  
VSPL/1718-081/DPR/PKG-4/SEC-3/NH-515/MJB-01\_Sht-2

CLIENT :



NATIONAL HIGHWAYS AND INFRASTRUCTURE  
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ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT  
MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA  
(LOT-1:PACKAGE IV)

DESIGN CONSULTANT:

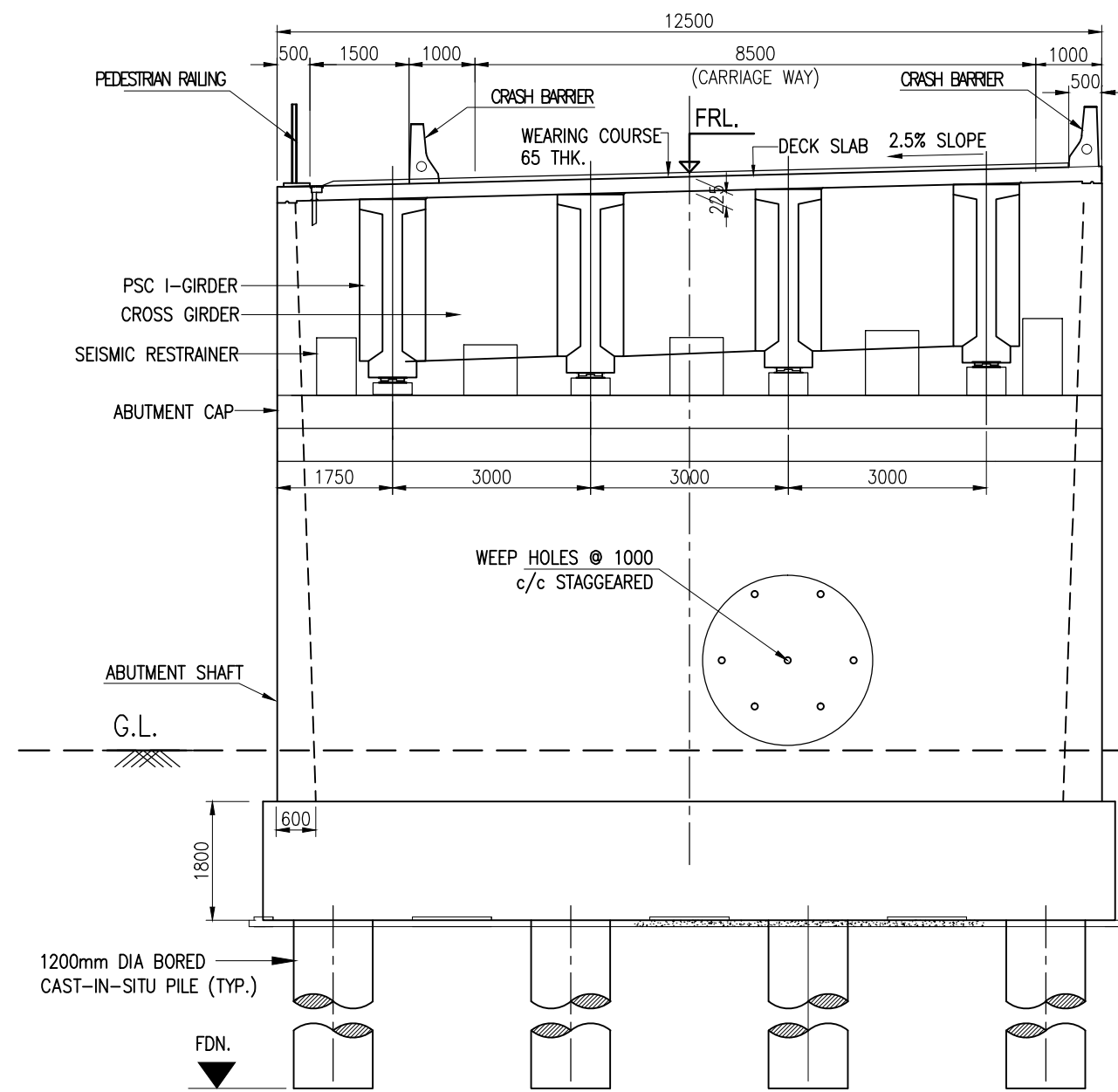
VOYANTS SOLUTIONS PVT LTD.  
403, 4th Floor, Park Centra,  
Sector-30, NH-8  
Gurgaon-122001, Haryana, India  
CIN- U74140HR2004PTC046918  
Ph: 0124-4598200, Fax: 0124-4019051,  
E-mail: info@voyants.in, www.voyants.in

Detaild Project Report

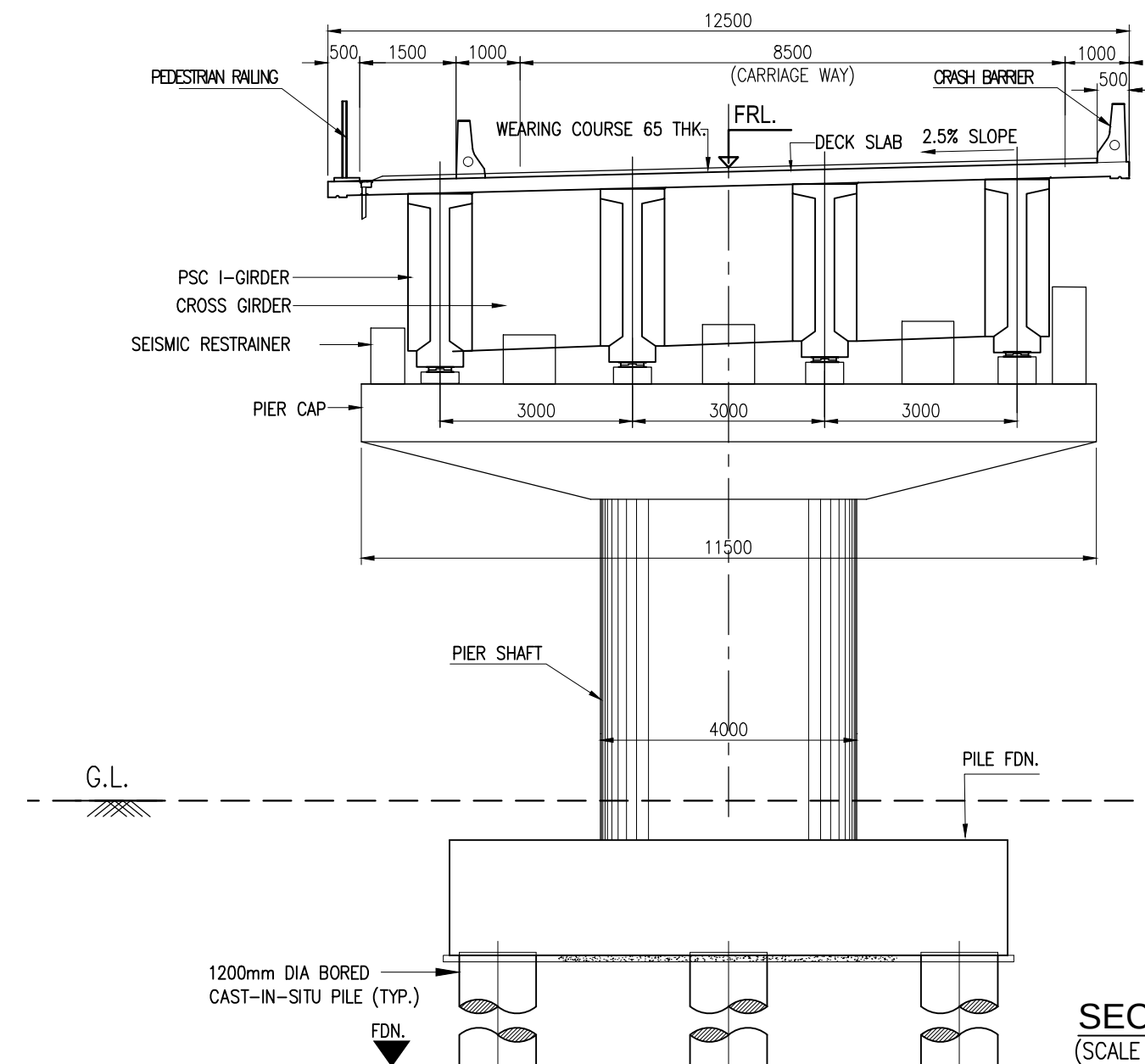
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| DESIGNED BY | DRAWN BY | CHECKED BY | APPROVED BY |
| SLM         | G. Das   | MK         | SKC         |
|             |          |            |             |
| SCALE :     | AS SHOWN | SHEET SIZE | A2          |

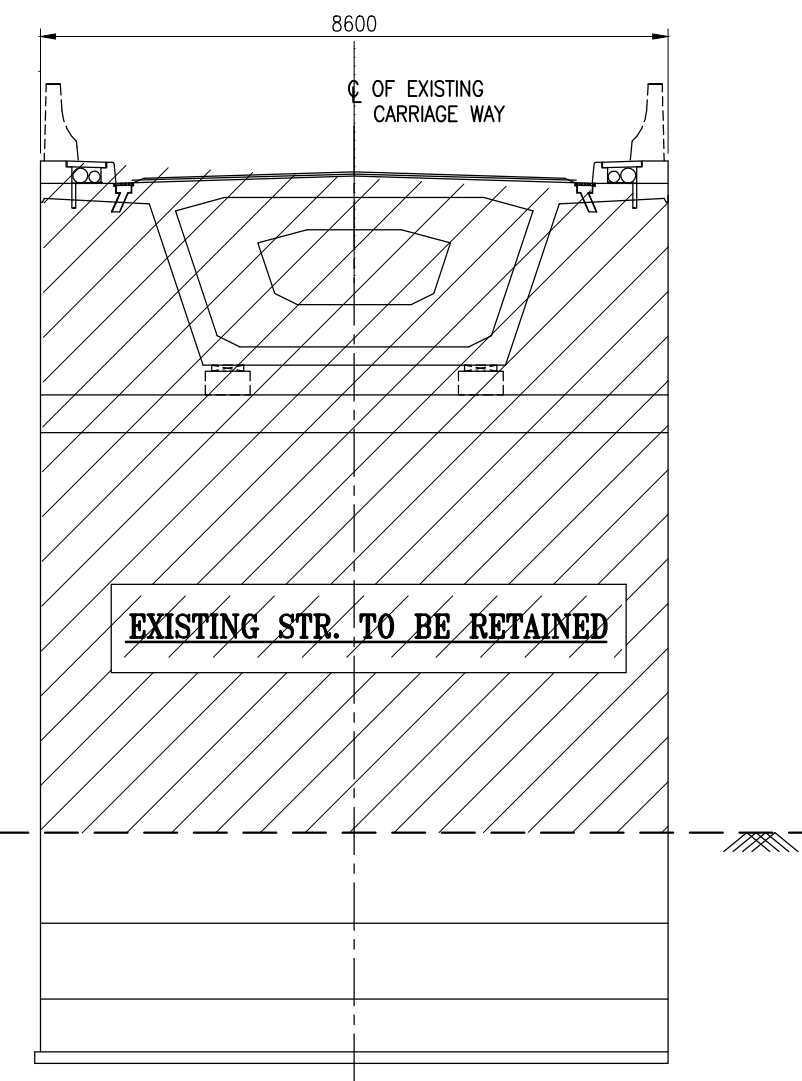
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| TITLE :                                                                            |    |               |
| GENERAL ARRANGEMENT DRAWING<br>OF MAJOR BRIDGE<br>AT Km. 63+906.700 (RETAINED+NEW) |    |               |
| DRG. No. :                                                                         |    |               |
| VSPL/1718-081/DPR/PKG-4/SEC-3/NH-515/MJB-01 (Sht. 1 of 2)                          |    |               |
| REVISION:                                                                          | R1 | January, 2023 |



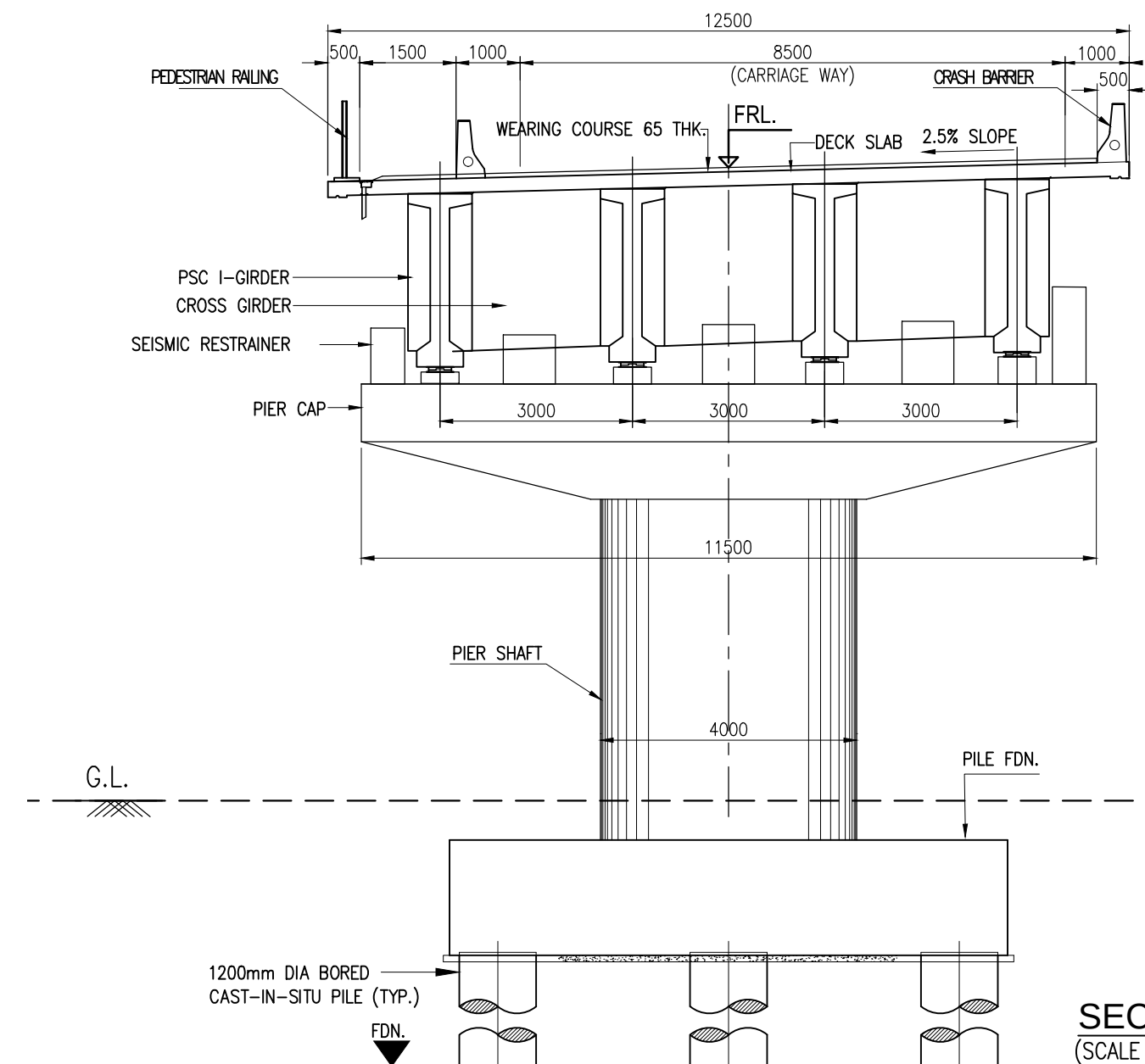
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(SCALE 1:100)



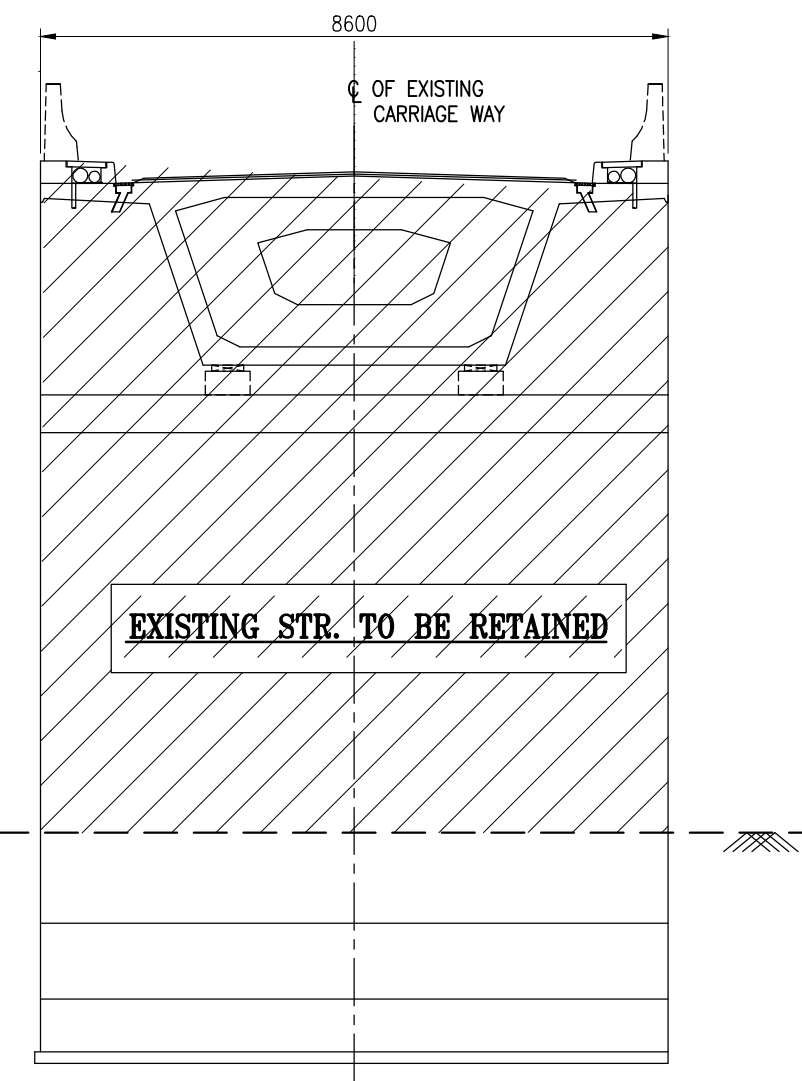
**SECTION B - B**  
(SCALE 1:100)



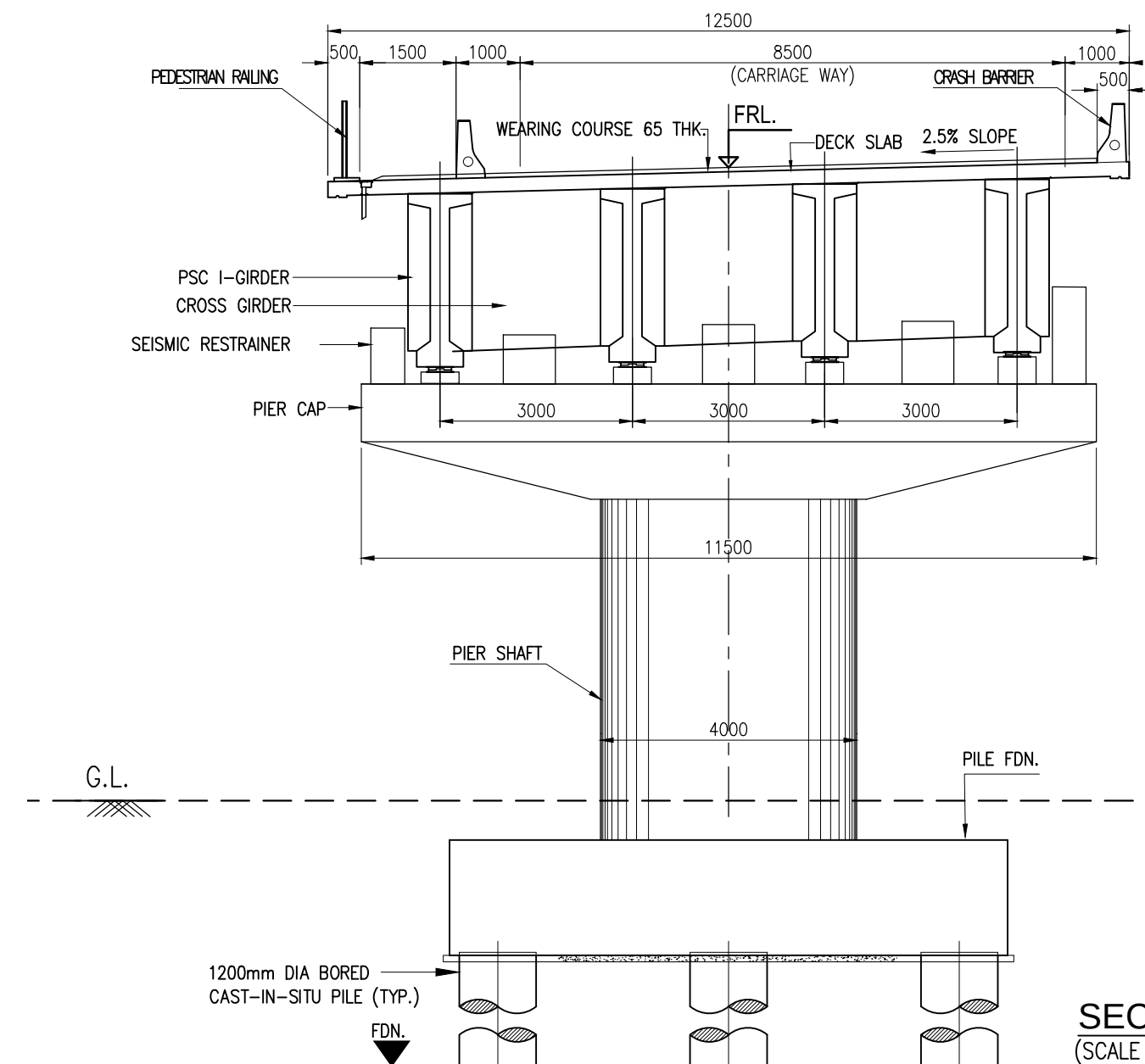
**SECTION A - A**  
(SCALE 1:100)



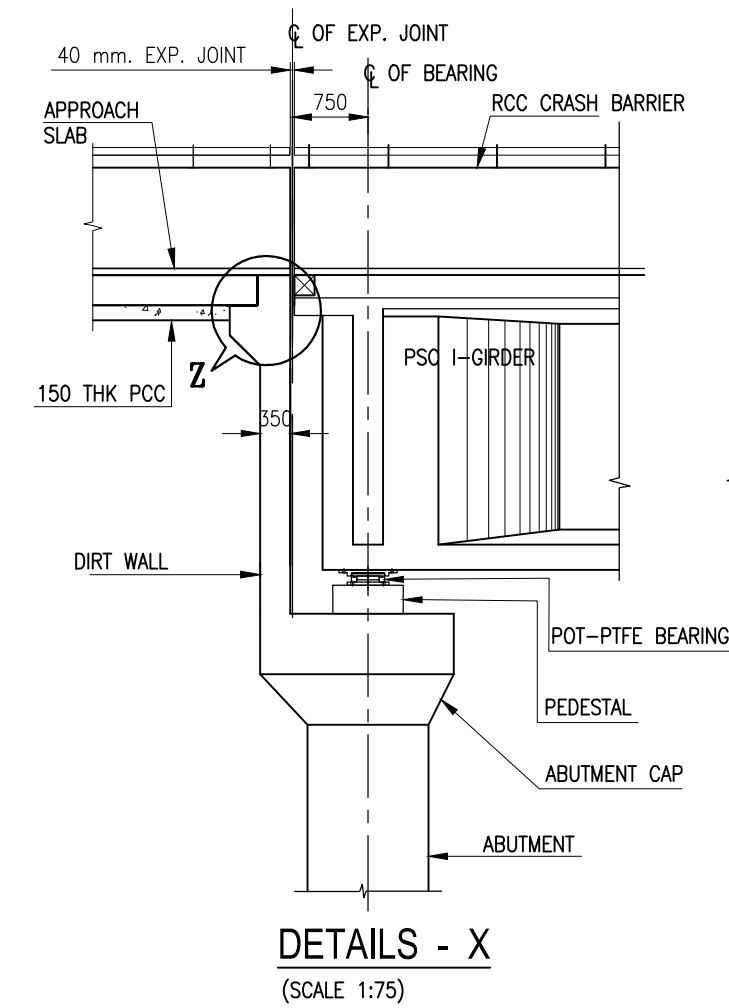
**SECTION B - B**  
(SCALE 1:100)



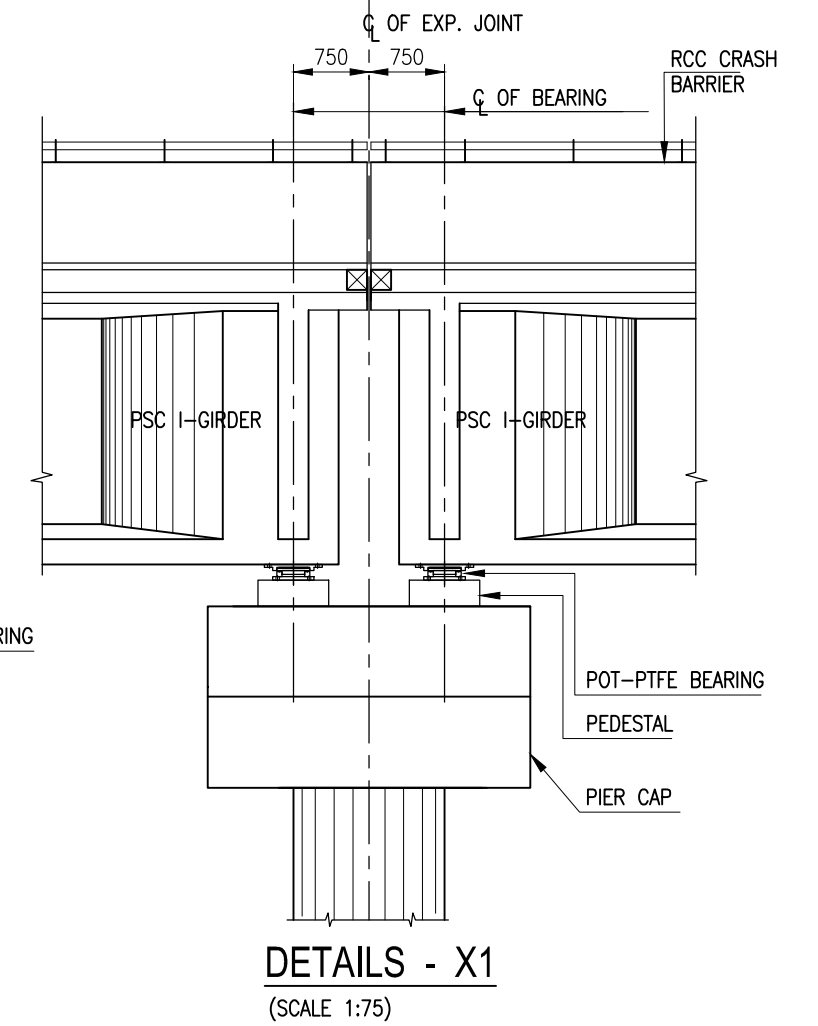
**SECTION A - A**  
(SCALE 1:100)



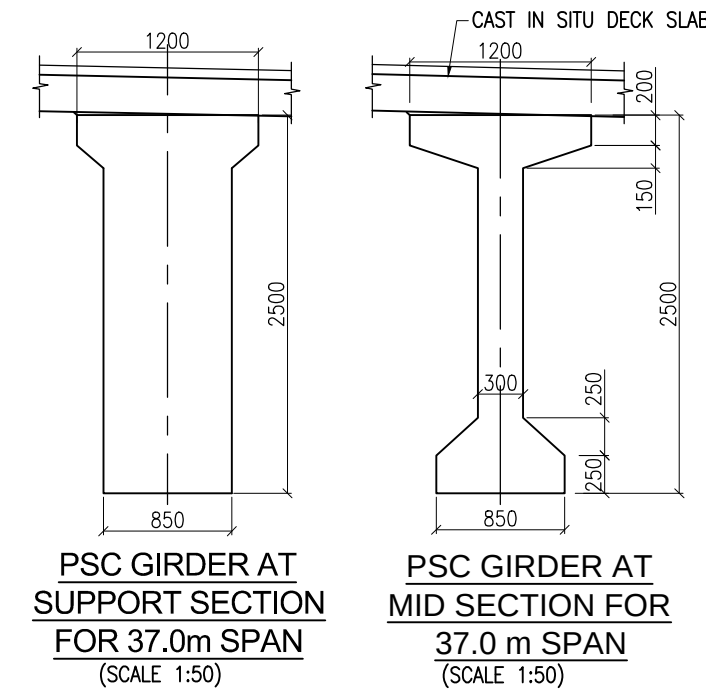
**SECTION B - B**  
(SCALE 1:100)



**DETAILS - X**  
(SCALE 1:75)



**DETAILS - X1**  
(SCALE 1:75)



**DETAILS - Z**  
(SCALE 1:25)

### NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES. UNLESS OTHERWISE SPECIFIED.
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS SHALL BE OF STRIP SEAL TYPE AS PER SPECIFICATION.
- POT PTFE BEARING SHALL BE USED.
- GRADE OF CONCRETE :-
  - PSC I-GIRDER M45
  - RCC CRASH BARRIER M40
  - ABUTMENT, ABUTMENT CAP M35
  - PIER, PIER CAP M35
  - PILE/PILE CAP M35
  - APPROACH SLAB M30
  - PCC LEVELING COURSE M15
- HIGH STRENGTH DEFORMED BARS SHALL BE OF GRADE Fe500 CONFORMING TO IS: 1786-1985.
- EXPANSION JOINT SHALL BE OF STRIP SEAL TYPE AS PER SPECIFICATION.
- DESIGN OF BRIDGE IS BASED ON LIVE LOAD COMBINATION OF 3-LANES OF CLASS A OR 70R + CLASS A OR SV WHICHEVER PRODUCE SEVER EFFECT.
- LAYING, COMPACTION & EXTENT OF BACKFILL BEHIND ABUTMENT & RETAINING WALLS SHALL CONSIST OF SELECTED EARTH CONFIRMING TO THE APPENDIX-6 OF IRC:78-2014 HAVING PROPERTIES C=0,  $\phi \geq 30^\circ$  & DENSITY=20KN/m.
- WEEP HOLES ON THE ABUTMENT & RETAINING WALLS SHALL BE SPACED 1000 c/c HORIZANTALLY & VERTICALLY IN STAGGERED MANNER FROM 500MM ABOVE LWL TO HFL.

CLIENT :



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ECONOMIC CORRIDORS, INTER CORRIDORS AND FEEDER  
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(LOT-1:PACKAGE IV)**

DESIGN CONSULTANT:

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### Detaild Project Report

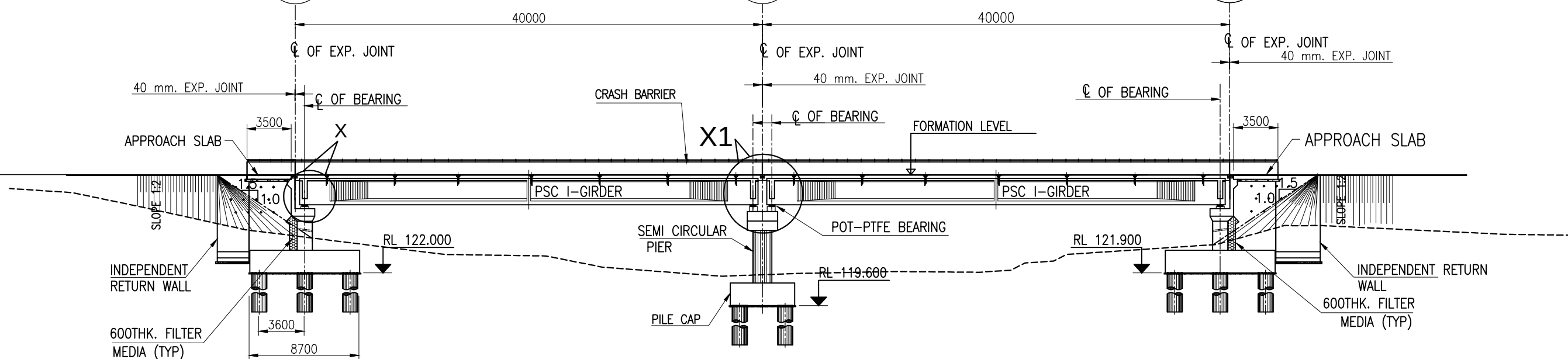
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| DESIGNED BY | DRAWN BY | CHECKED BY | APPROVED BY |
|-------------|----------|------------|-------------|
| SLM         | G. Das   | MK         | SKC         |
|             |          |            |             |
| SCALE :     | AS SHOWN | SHEET SIZE | A2          |

|                                                                                               |    |               |
|-----------------------------------------------------------------------------------------------|----|---------------|
| TITLE :<br>GENERAL ARRANGEMENT DRAWING<br>OF MAJOR BRIDGE<br>AT Km. 63+906.700 (RETAINED+NEW) |    |               |
| DRG. No. :<br>VSPL/1718-081/DPR/PKG-3/NH-515/MJB-01 (Sht. 2 of 2)                             |    |               |
| REVISION:                                                                                     | R1 | January, 2023 |



← TO KULAJAN GAON A1 P1 A2 TO OYAN →



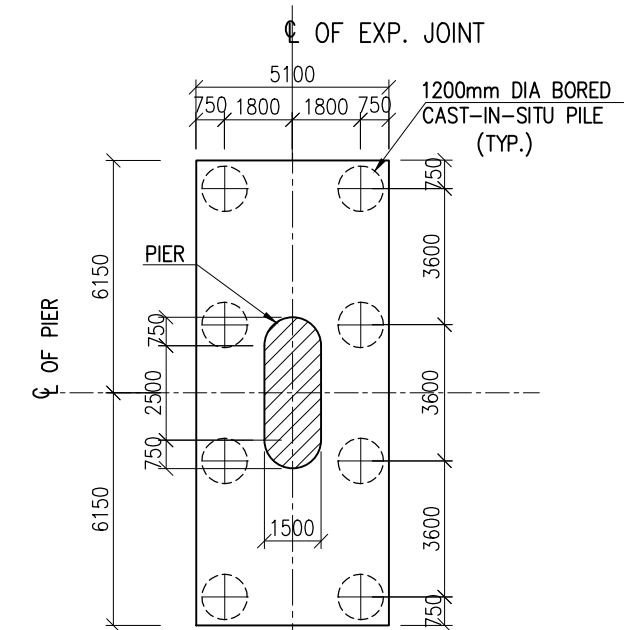
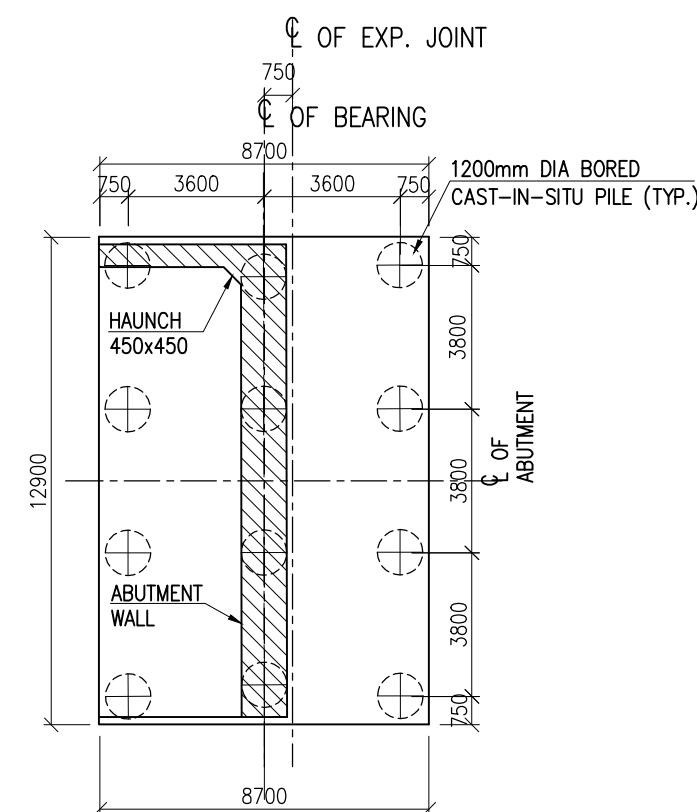
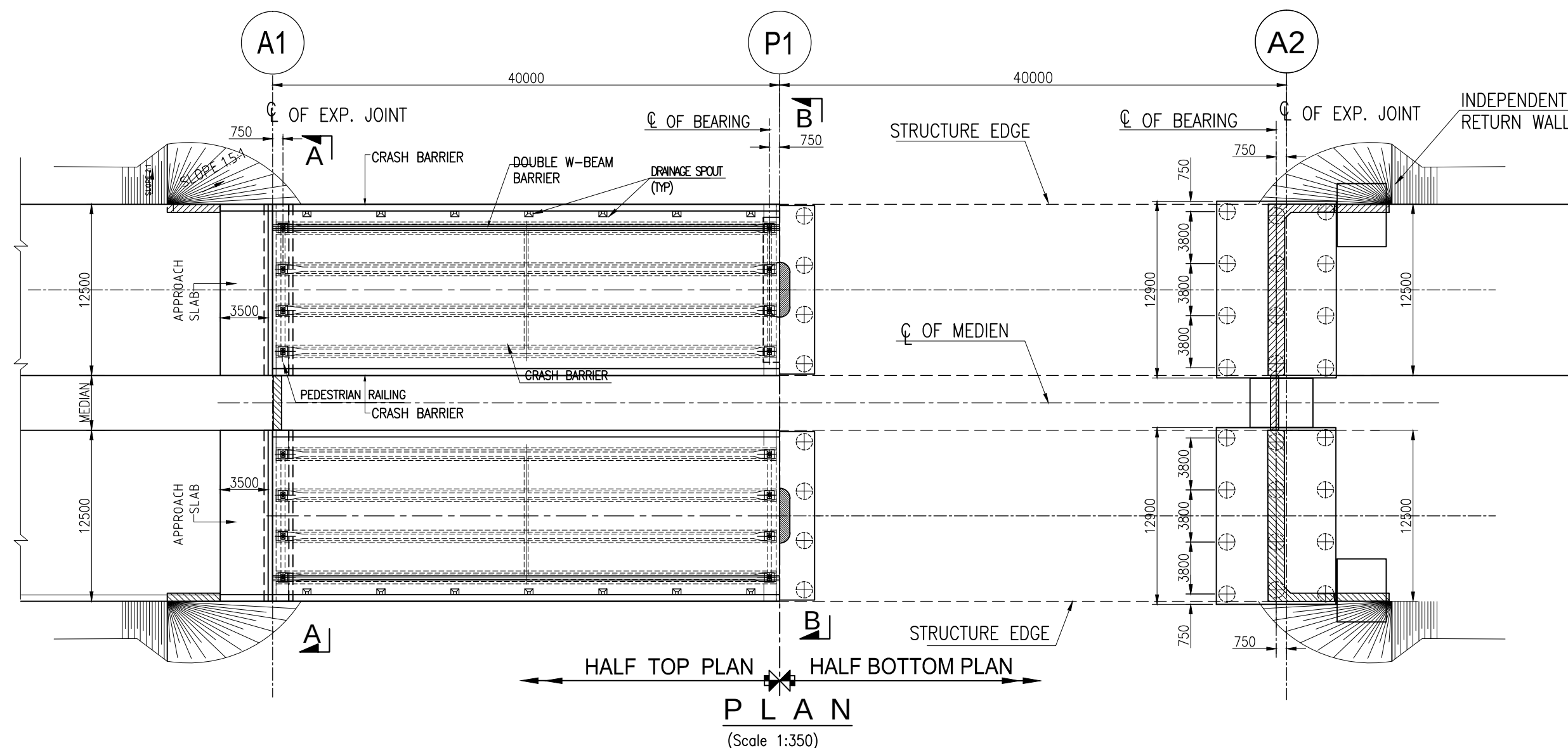
DATUM = 112.00

|                                |           |           |           |
|--------------------------------|-----------|-----------|-----------|
| PROPOSED RME PROFILE LEVEL (m) | 131.099   | 131.099   | 131.099   |
| EXISTING GROUND LEVEL RME (m)  | 124.266   | 121.902   | 124.198   |
| CHAINAGE (m)                   | 70+940.00 | 70+980.00 | 71+020.00 |

SECTIONAL ELEVATION  
(SCALE 1:350)

← TO KULAJAN GAON

TO OYAN →



NOTES:-

FOR NOTE DETAILS REFER DWG NO:  
VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MJB-02-Sht-2

CLIENT :



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(LOT-1:PACKAGE IV)

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| DESIGNED BY | DRAWN BY | CHECKED BY | APPROVED BY |
| SLM         | G. Das   | MK         | SKC         |
|             |          |            |             |
| SCALE :     | AS SHOWN | SHEET SIZE | A2          |

|                                                                                      |    |               |
|--------------------------------------------------------------------------------------|----|---------------|
| TITLE :<br>GENERAL ARRANGEMENT DRAWING<br>OF MAJOR BRIDGE<br>AT Km. 70+980.700 (NEW) |    |               |
| DRG. No. :<br>VSPL/1718-081/DPR/PKG-4/NH-515/SEC-3/MJB-02(Sht. 1 of 2)               |    |               |
| REVISION:                                                                            | R1 | January, 2023 |