



Government of Nepal  
Ministry of Physical Infrastructure and Transport  
**Department Of Roads**  
Development Cooperation Implementation Division  
**Strategic Road Connectivity & Trade Improvement Project**  
**(SRCTIP)**

**Detailed Design of Upgradation of Kamala- Dhalkebar- Pathlaiya  
Road Section (130km) of Mahendra Highway and Bridges**

**Final Design Report**  
**Volume IIIB**  
**Design Report & Drawing of VUP and PUP**

**VUP Location- Birendra Bazar**  
**Volume-2**  
**Detailed Drawing**

**March, 2024**

**eptisa** EPTISA Servicios De Ingenieria  
Madrid, Spain

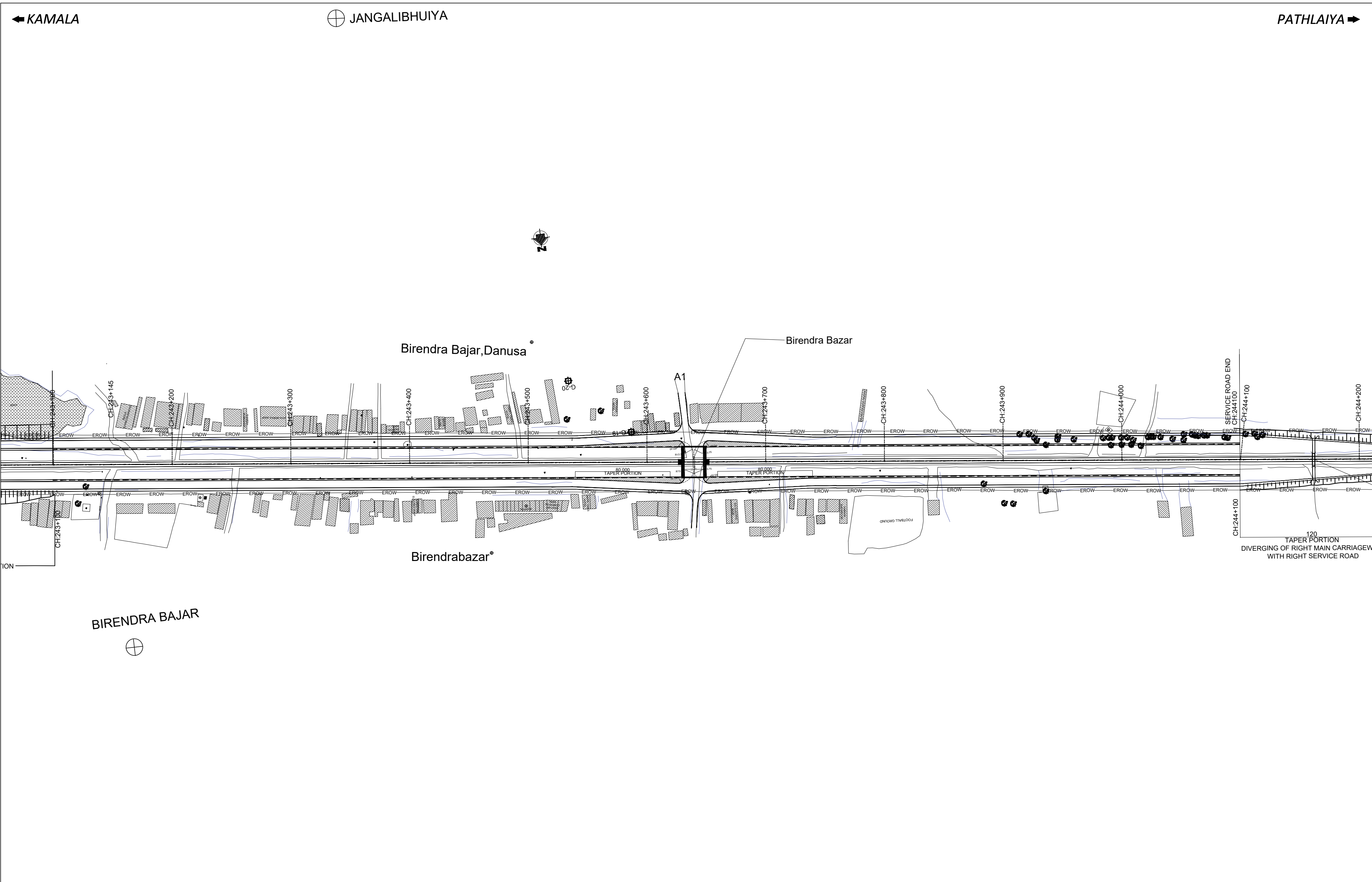
**Joint Venture Of:**



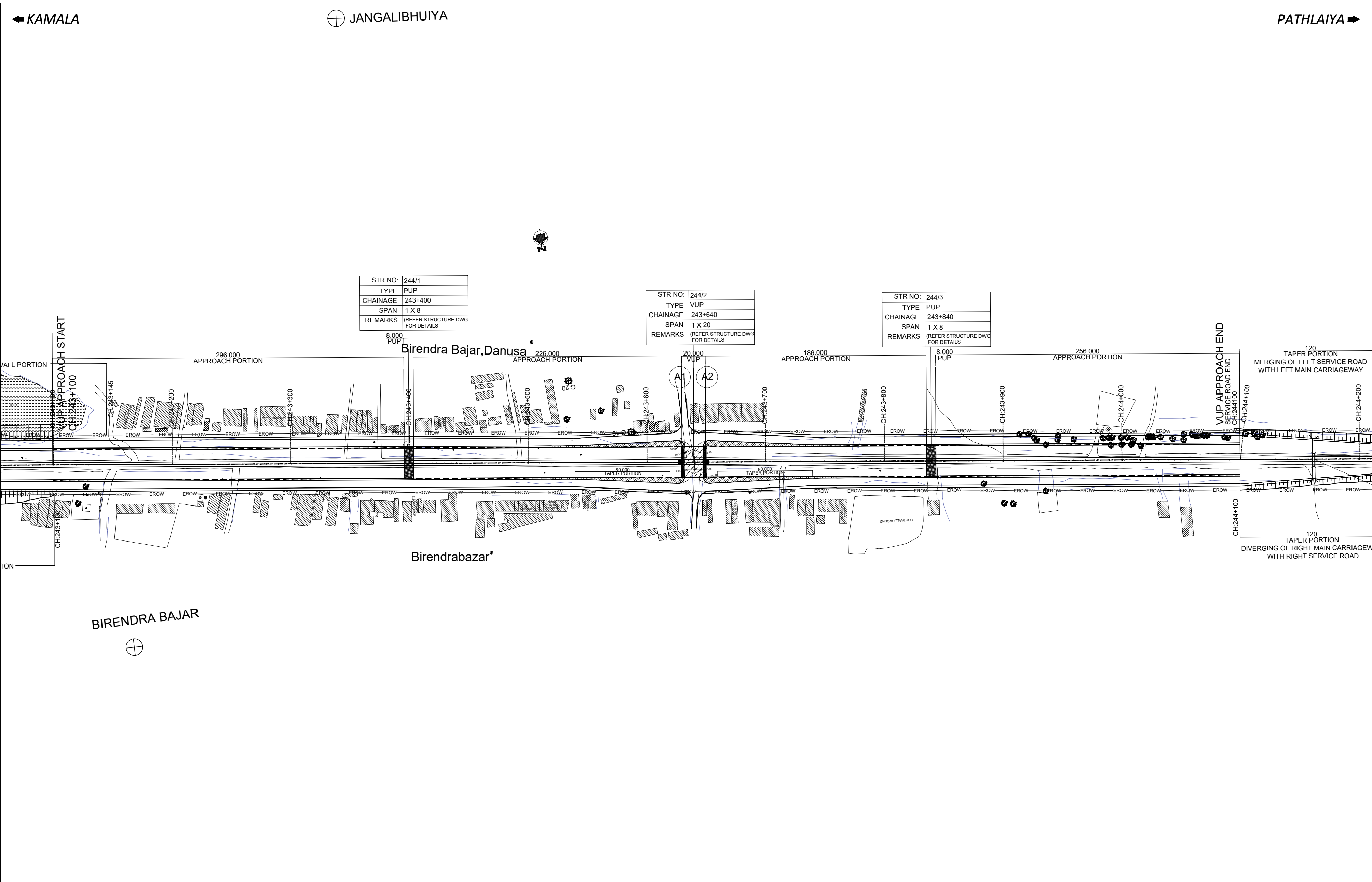
**STUP Consultants Private Limited**  
Kolkata, India

In Association With  
Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited

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| EMPLOYER                                                                                                                                                                                                                                     | PROJECT                                                                                                                                                                                              | DESIGN CONSULTANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Designed By                                                                                                                                | Drawing Name:                                                                                           | Scale:                 | Date:                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------------------|
| <br>Government of Nepal<br>Ministry of Physical Infrastructure and Transport<br>Department of Roads<br>Development Cooperation Implementation<br>Division | Strategic Road Connectivity & Trade Improvement<br>Project (SRCTIP)<br><br>Detailed Design of Upgradation of Kamala–<br>Dhalkebar–Pathlaiya Road Section (130 KM)<br>of Mahendra Highway and Bridges |   <br>Joint Venture of<br>EPTISA Servicios De Ingenieria Madrid, Spain<br>STUP Consultants Private Limited Kolkatta, India<br><br>In Association With<br>Udaya Consultancy, Geocom International, Sundar Kriti<br>Consultant and Rays Consultant Private Limited | Mr. SUMAN<br>KARSING<br>RAJBHANDARI<br>Nec No: 265 CMI "A"<br>Checked By<br>Mr. SANJIB MITRA<br>Approved By<br>Mr. HARI KRISHNA<br>BHAVSAR | Detailed Survey Topographic Map (Existing Condition)<br>of VUP AT CH 243+640<br><br>Reference Drawings: | AS NOTED<br><br>1:2000 | JUNE, 2023<br><br>Drawing No.:<br>KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-2<br><br>Sheet No.:<br>1 / 1 |



| EMPLOYER                                                                                                                                                                                                                                     | PROJECT                                                                                                                                                                                              | DESIGN CONSULTANT                                                                                                                                                                                                                                                                                                                                                                                                                            | Designed By                                                 | Drawing Name:                                                              | Scale:                 | Date:                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------|------------------------|----------------------------------------------------|
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|                                                                                                                                                                                                                                              |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                              | Mr.SANJIB MITRA                                             | Reference Drawings:                                                        |                        | Drawing No.:<br>KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-3 |
|                                                                                                                                                                                                                                              |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                              | Mr.HARI KRISHNA<br>BHAVSAR                                  |                                                                            |                        | Sheet No.:<br>1/1                                  |

A. GENERAL

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. DIMENSIONS ARE NOT TO BE SCALED.
3. THE LAYOUT OF THE BRIDGE/CULVERT SHALL BE SET AS PER RELEVANT HIGHWAY PLAN AND PROFILE DRAWING,
4. THE FORMATION LEVEL GIVEN IN THIS DRAWING SHALL BE VERIFIED FROM THE RELEVANT HIGHWAY DRAWING. IN CASE OF ANY DISCREPANCY THE HIGHWAY DRAWING SHALL BE CONSIDERED CORRECT.

B. DESIGN CRITERIA

1. THE DESIGN HAS BEEN PREPARED BASED ON THE FOLLOWING CODES:

- a) NEPAL ROADS STANDARD 2070
- b) IRC-5 2015
- c) IRC-6 2017
- d) IRC-78 2014
- e) IRC-112 2020
- f) IRC SP-13 2022

1. THE TOTAL WIDTH OF THE VUP & PUP IS 25.9 M. THERE ARE TWO PUP IN THE TWO APPROACHES OF THE VUP, WHICH IS A BOX TYPE STRUCTURE OF CLEAR WIDTH OF 8.0 M AND 3.1M HEIGHT, CONNECTING THE LEFT SIDE SERVICE ROAD WITH RIGHT SIDE SERVICE ROAD. THE VUP CONSISTS OF TWO SEPARATE SUPERSTRUCTURE OF 11.4 M WIDE (10.5 M WIDE CARRIAGEWAY +CRASH BARRIER) WITH A CLEAR GAP OF 3.1 M AND EACH OF THE SUPERSTRUCTURE IS SUPPORTED BY WALL TYPE ABUTMENT ON PILE FOUNDATION. EACH OF THE VUP AND PUP IS DESIGNED FOR THE FOLLOWING CARRIAGEWAY LIVE LOADS AS PER IRC:6-2017

- a) One lane of IRC Class 70R (wheeled) for two lanes + one lane of IRC Class A
- b) THREE LANES OF IRC CLASS A

2. SEISMIC ZONE CONSIDERED IN THE DESIGN IS ZONE-V.
3. LAYING, COMPACTION, & EXTENT OF BACKFILL BEHIND PUP WALL WALLS SHALL CONSIST OF SELECTED EARTH CONFORMING TO THE APPENDIX-6 OF IRC:78-2014 HAVING PROPERTIES C=0,  $\phi=30^\circ$  & DENSITY=20KN/m3.
4. 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTAL AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE PUP ABOVE GL. IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
5. RE WALL TO BE PROVIDED BEHIND THE ABUTMENT AND IN THE APPROACH PORTION AS PER SPECIFICATION.

C. STRUCTURAL AND OTHER DATA: -

1. SPAN ARRANGEMENT: :1 X 20 = 20 m
2. SUPERSTRUCTURE:  
PRECAST RCC LONGITUDINAL GIRDERS & CAST-IN-SITU RCC CROSS GIRDERS AND DECK SLAB.
3. SUBSTRUCTURE  
A) ABUTMENTS - RCC WALL TYPE
4. FOUNDATIONS  
A) ABUTMENT - 1200 DIA BORED CAST-IN-SITU PILE  
DESIGN WORKING LOAD ON PILE : 214 Ton  
RCC BORED PILES SHOULD BE CONSTRUCTED AS PER IS: 2911(PART 1/SEC 2)-2010.
5. BEARINGS  
ELASTOMERIC BEARINGS
6. WEARING COAT:  
65 MM THICK ASPHALTIC CONCRETE WEARING COAT AS PER STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE WORKD (2073) ,  
DEPARTMENT OF ROADS.
7. EXPANSION JOINT -  
SLAB SEAL TYPE EXPANSION JOINT OF PROVEN QUALITY SHALL BE PROVIDED IN ACCORDANCE WITH IRC:SP-69-2005 (GUIDELINES AND SPECIFICATIONS OF EXPANSION JOINT)
8. DRAINAGE SPOUTS - AS PER STANDARD SPECIFICATION FOR ROAD & BRIDGE WORKS 2073
9. RAILINGS/CRASH BARRIER:  
RCC CRASH BARRIER AT EDGES OF CARRIAGEWAY AND FOOTPATH

10. CONCRETE: -

- a. PILE..... M35 (CEMENT CONTENT AS PER SPECIFICATION)
- b. PILE CAP.....M35
- c. BEARING PEDESTALS.....M40
- d. ABUTMENT .....M35
- e. RETURN WALL.....M35
- f. LEVELING COURSE: I) BELOW APPROACH SLAB.....M15  
II) BELOW PILE CAP .....M15
- g. APPROACH SLAB .....M30
- h. CAST-IN-SITU CRASH BARRIER .....M40
- i. KERB .....M35
- j. DECK SLAB FOR RCC GIRDERS.....M35
- k. PRECAST RCC GIRDERS .....M35
- l. CAST-IN-SITU CROSS GIRDER FOR RCC GIRDERS.....M35

11. REINFORCEMENT STEEL: -

- a. H.Y.S.D. BARS - GRADE 500 CONFORMING TO IS 1786
- b. REINFORCEMENT WHERE EVER NECESSARY SHALL BE LOCALLY BENT OR ADJUSTED TO ENSURE PROPER CONCRETING.

12. CONCRETE COVER

- a. DECK SLAB, GIRDER, PEDESTAL, CAP : 40 MM
- b. SUBSTRUCTURE AND FOUNDATION AND PUP : 75mm

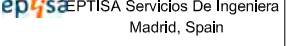
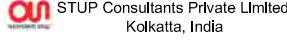
13. LAPS (Ls) ARE TO BE STAGGERED AND MINIMUM LAP LENGTH ARE TO BE AS FOLLOWS: S:

- a) FOR M 30 GRADE CONCRETE : 57.2  $\phi$
- b) FOR M 35 GRADE CONCRETE : 51.48  $\phi$
- c) FOR M 40 GRADE CONCRETE : 48.62  $\phi$
- (WHERE  $\phi$  IS THE DIAMETER OF THE BAR)

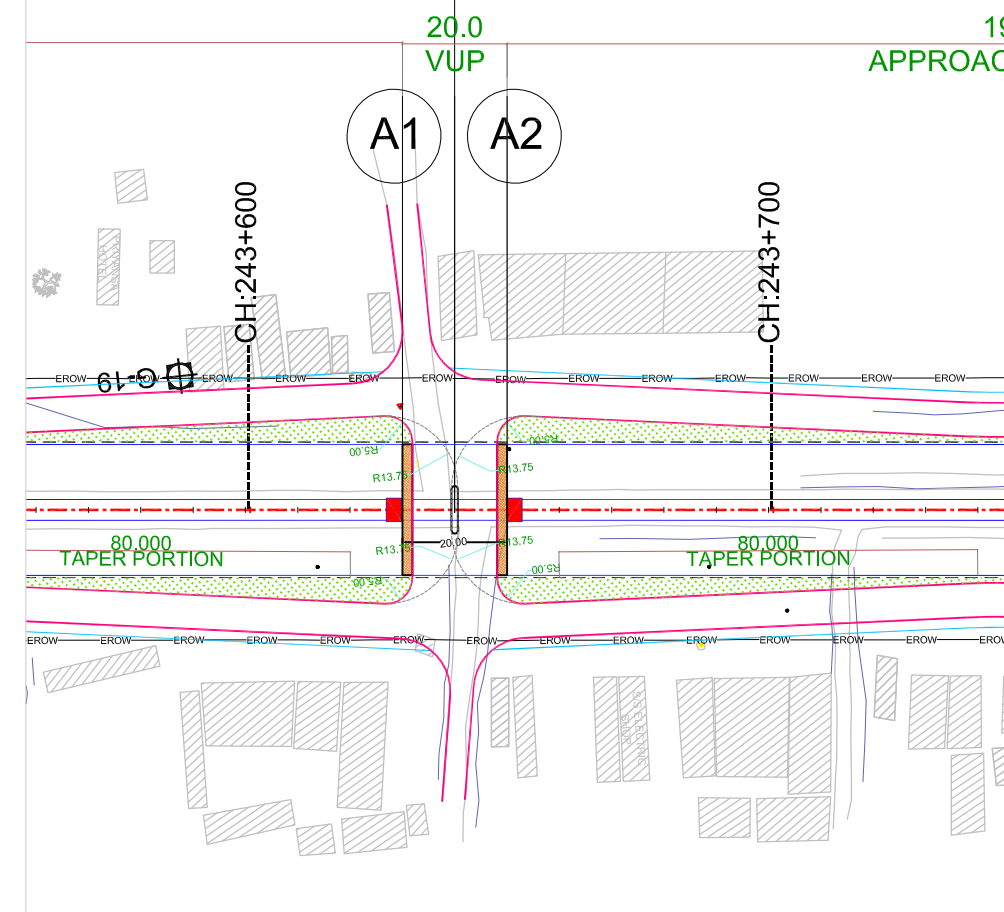
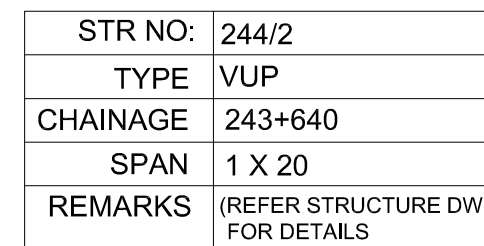
14. LAP LENGTH SHALL BE INCREASED BY A FACTOR BASED ON THE PERCENTAGE OF LAPPED BAR RELATIVE TO THE TOTAL CROSS SECTIONAL AREA. . LAP LENGTH FOR DIFFERENT GRADE OF CONCRETE AS WELL AS DIFFERENT PERCENTAGE OF LAP LENGTH ARE AS FOLLOWS:

| GRADE OF CONCRETE          | M30          | M35          | M40          | M45          |
|----------------------------|--------------|--------------|--------------|--------------|
| LAPPED BAR <25%            | 57.2 $\phi$  | 51.48 $\phi$ | 48.62 $\phi$ | 45.76 $\phi$ |
| 25% $\leq$ LAPPED BAR <33% | 65.78 $\phi$ | 62.65 $\phi$ | 55.91 $\phi$ | 52.62 $\phi$ |
| 33% $\leq$ LAPPED BAR <50% | 80.08 $\phi$ | 72.07 $\phi$ | 68.07 $\phi$ | 64.06 $\phi$ |
| 50% $\leq$ LAPPED BAR      | 85.8 $\phi$  | 77.22 $\phi$ | 72.93 $\phi$ | 68.64 $\phi$ |

15. THE LAP LENGTH SHALL BE STAGGERED BY MINIMUM DISTANCE OF 1.3 TIMES THE LAP LENGTH.
16. HELICAL REINFORCEMENT SHALL BE LAPPED BY 1.5 TURNS.
17. INSTEAD OF LAPPING SPLICING OF REINFORCEMENT CAN BE DONE WITH WELDED JOINT AS PER CL. 15.2.5.2 OF IRC 112-2020.WELD LENGTH SHALL NOT BE LESS TAN 18D.
18. SHARP EDGES OF CONCRETE TO BE CHAMFERED MINIMUM 50 X 50

| EMPLOYER                                                                                                                                                                                                                                  | PROJECT NAME                                                                                                                                                                               | DESIGN CONSULTANTS                                                                                                                                                                                                                                                                              | Designed By                                                                                                                                   | Drawing Name                | Scale:                   | Date:                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------|----------------------------------------------------|
| <br>Government of Nepal<br>Ministry of Physical Infrastructure and Transport<br>Department of Roads<br>Development Cooperation Implementation Division | Strategic Road Connectivity & Trade Improvement Project (SRCTIP)<br><br>Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges | Joint Venture of<br> EPTISA Servicios De Ingenieria Madrid, Spain<br> STUP Consultants Private Limited Kolkata, India | Mr.SUMAN NARSING RAJSHANDARI<br>Nec.No. 265 CIVIL/A*<br> | GENERAL NOTES               | AS SHOWN                 | JUNE, 2023                                         |
|                                                                                                                                                                                                                                           |                                                                                                                                                                                            | In Association With<br>Udaya Consultancy, Geocom International, Sundar Krti Consultant and Rays Consultant Private Limited                                                                                                                                                                      | Checked By<br>Mr. SANJIB MITRA<br>                       | Reference Drawings<br><br>— | Chainage:<br><br>243+640 | Drawing No.-<br>KDP/DPR/STR/BR/BIRENDRA BAZAR/DD-4 |
|                                                                                                                                                                                                                                           |                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                 | Approved By<br>Mr. HARI KRISHNA BHAVSAR<br>              |                             |                          | Sheet No. 1 / 1                                    |

PATHLAIYA



1. ALL DIMENSIONS, LEVELS AND CHAINAGES ARE IN METERS UNLESS OTHERWISE INDICATED.

2. HORIZONTAL GEOMETRY IS DESIGNED WITH RESPECT TO REFERENCE LINE OF ALIGNMENT AS SHOWN IN PLAN.

**LEGEND:**

|                           |                                                                                       |
|---------------------------|---------------------------------------------------------------------------------------|
| PROPOSED ALIGNMENT        | — — — — —                                                                             |
| PROPOSED MAIN CARRIAGEWAY | —————                                                                                 |
| PROPOSED SERVICE ROAD     | —————                                                                                 |
| PROPOSED CYCLE TRACK      | —————                                                                                 |
| PROPOSED EARTHEN SHOULDER | —————                                                                                 |
| EXISTING CARRIAGEWAY      | —————                                                                                 |
| EXISTING BRIDGE           |  |
| PROPOSED BRIDGE           | - - - - -                                                                             |
| EXISTING RIGHT OF WAY     | — EROW —                                                                              |



|             |                           |
|-------------|---------------------------|
| Date:       | JUNE, 2023                |
| Drawing No. | KDP/DDR/STR/VUP/BIRENDRAB |
| Sheet No.   | 1 / 1                     |



Government of Nepal  
Ministry of Physical Infrastructure and Transport  
**Department of Roads**  
**Development Cooperation Implementation**  
**Division**

|                                                                                                                  |  |
|------------------------------------------------------------------------------------------------------------------|--|
| PROJECT                                                                                                          |  |
| Strategic Road Connectivity & Trade Improvement Project (SRCTIP)                                                 |  |
| Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlai Road Section (130 KM) of Mahendra Highway and Bridges |  |



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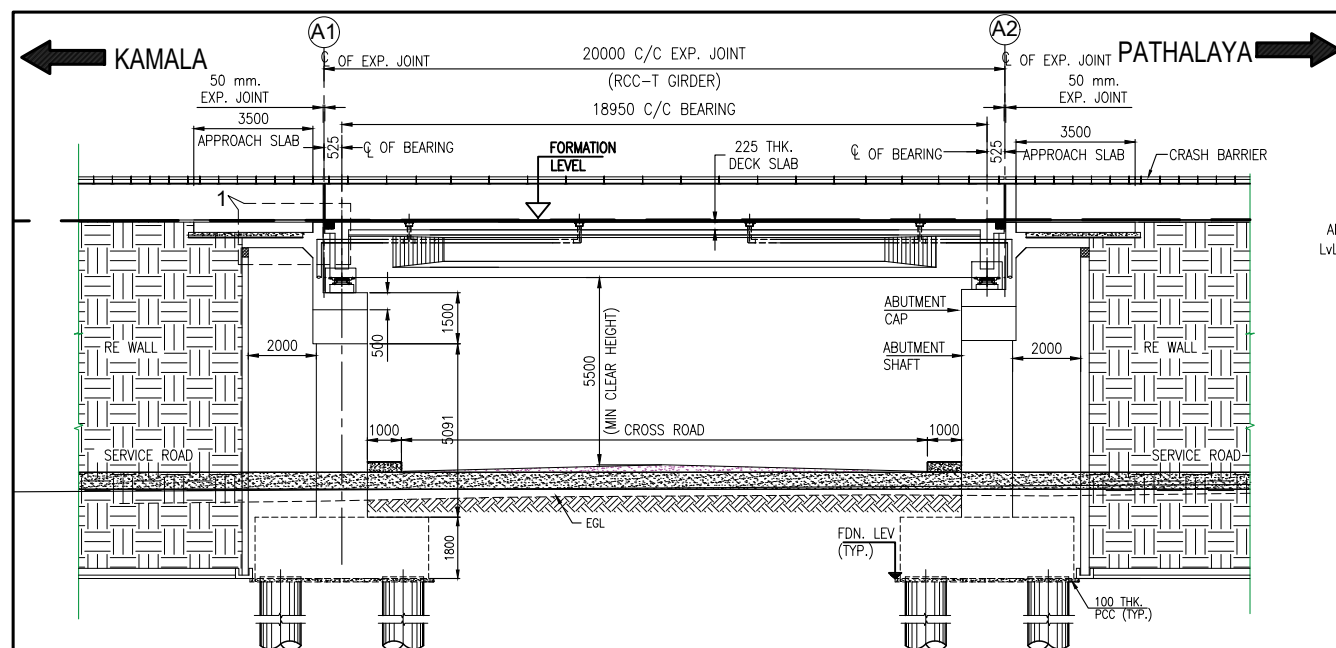


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Consultant Private Limited

|             |                                                             |                                                                                                    |
|-------------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Designed By | Mr.SUMAN<br>NARSING<br>RAJBHANDARI<br>Nec.No. 265 Civil "A" | <br>Signature |
| Checked By  | Mr.SANJIB<br>MITRA                                          | <br>Signature |
| Approved By | Mr.HARI<br>KRISHNA<br>BHAVSAR                               | <br>Signature |

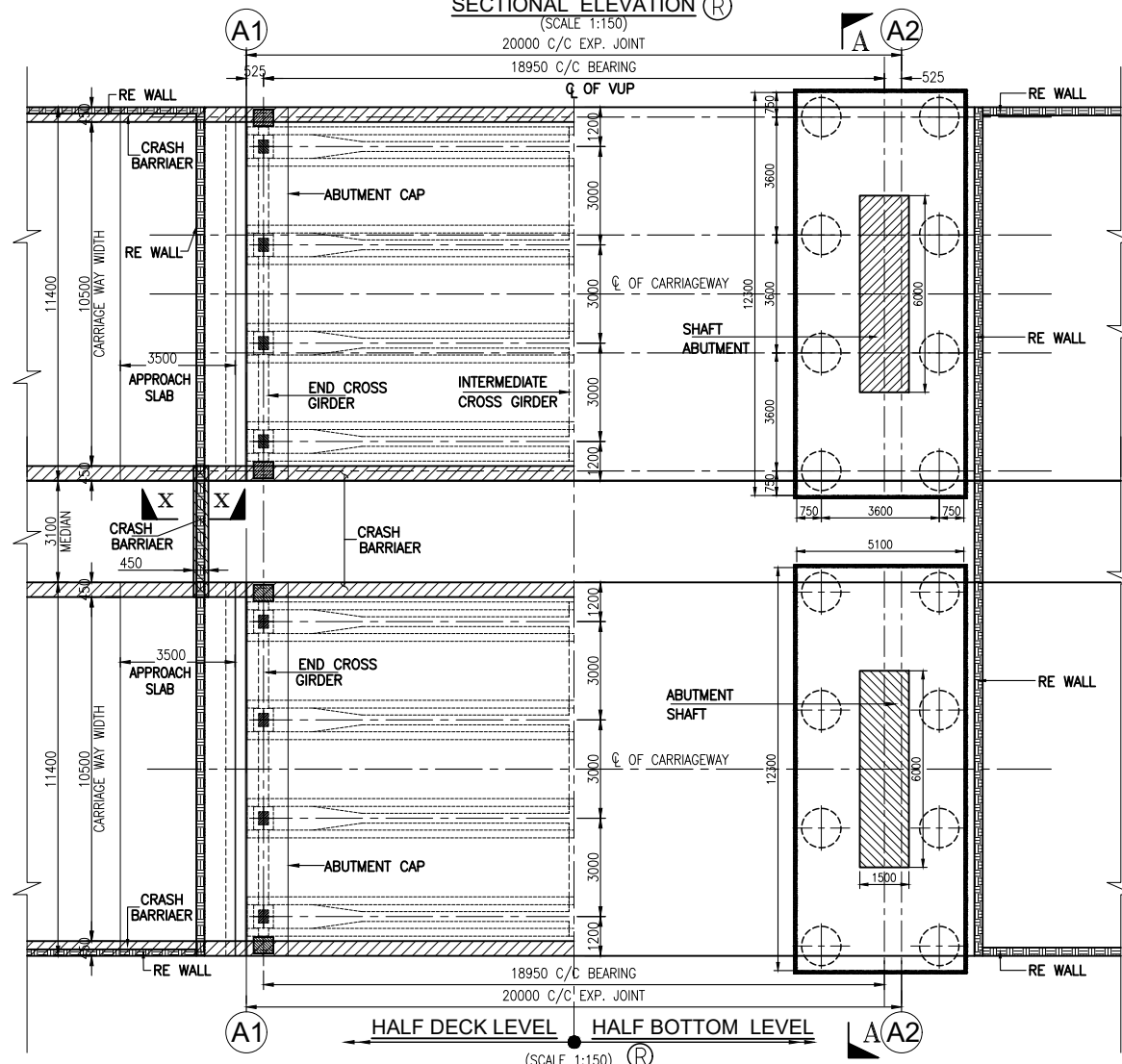
|              |                                                                                 |  |
|--------------|---------------------------------------------------------------------------------|--|
|              | NE                                                                              |  |
| Drawing Name | PLAN AND LAYOUT OF VEHICULAR UNDERPASS & PEDESTRIAN UNDERPASS<br>AT CH- 243+640 |  |



|                          |         |         |         |
|--------------------------|---------|---------|---------|
| Finish Road Level        | 143.155 | 143.169 | 143.159 |
| Service Road Level (LHS) | 135.268 | 135.328 | 135.388 |
| Service Road Level (RHS) | 135.382 | 135.452 | 135.520 |
| Existing Ground Level    | 135.072 | 135.155 | 135.206 |
| Chainage                 | 243+630 | 243+640 | 243+650 |

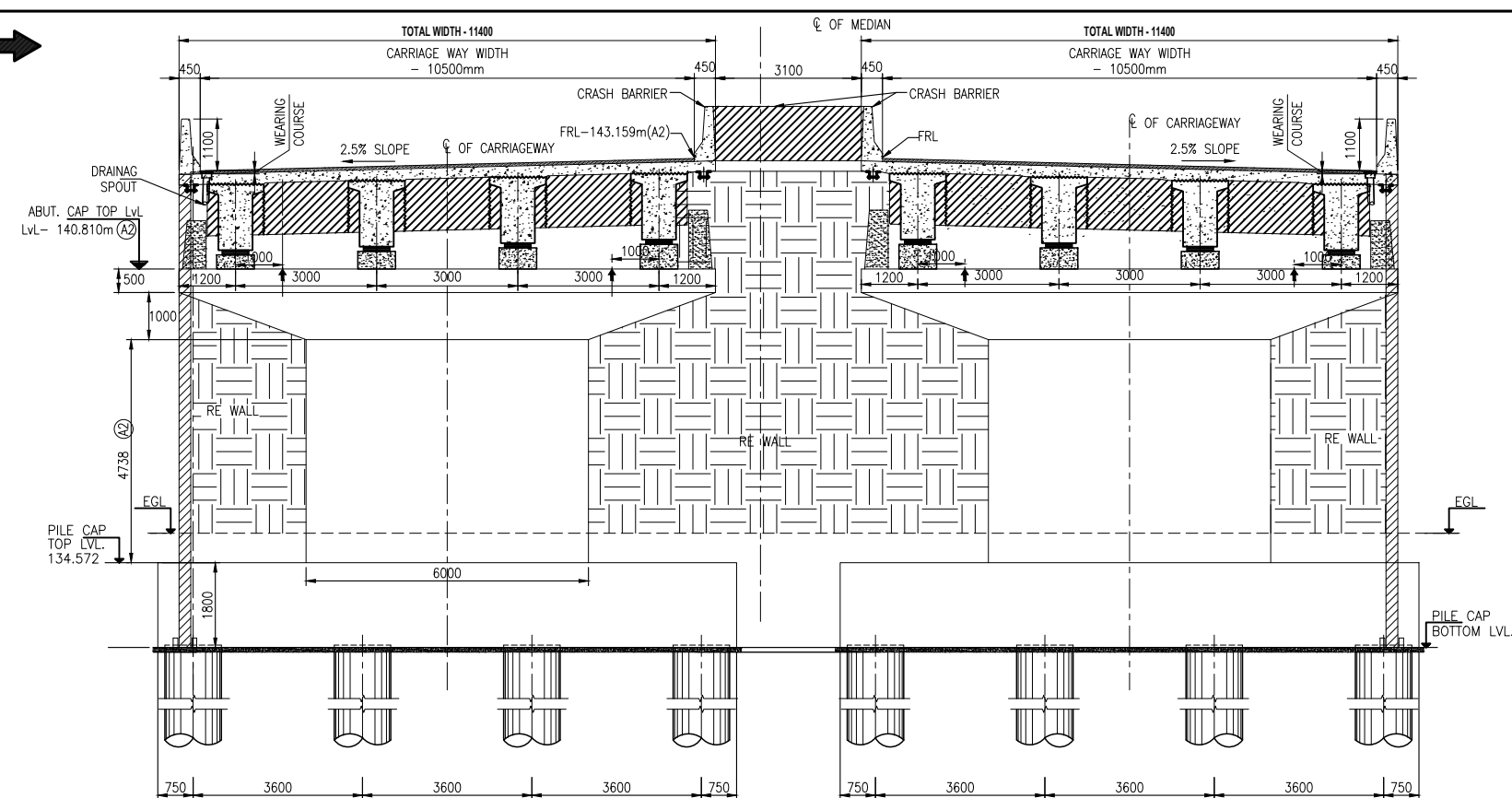
SECTIONAL ELEVATION (R)

(SCALE 1:150)



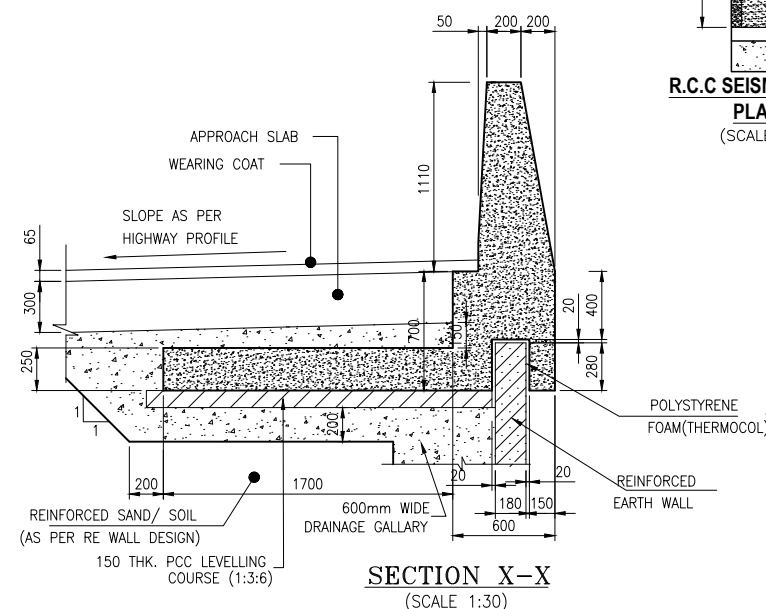
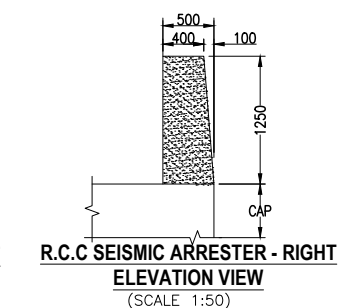
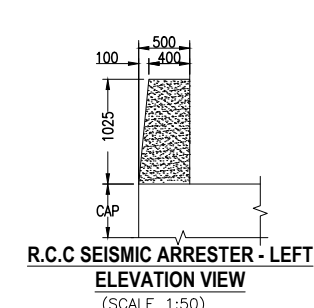
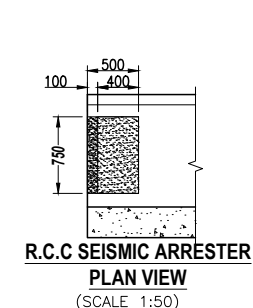
HALF DECK LEVEL HALF BOTTOM LEVEL

(SCALE 1:150)



SECTION OF A-A (R)

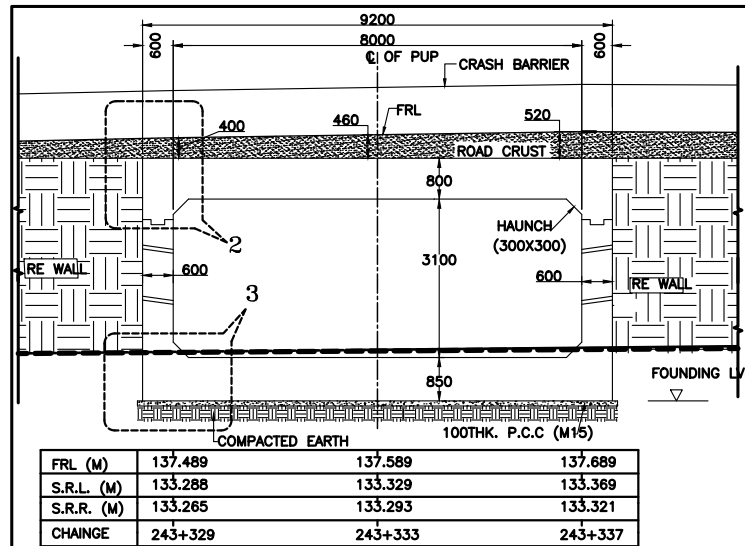
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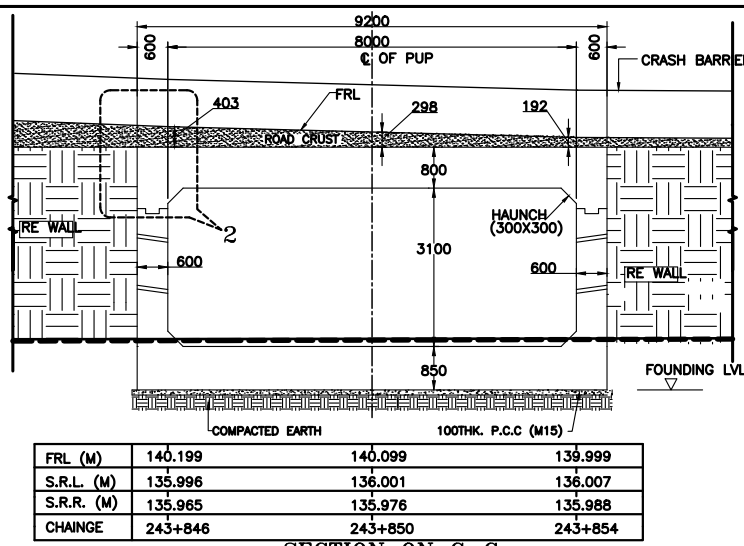
## NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS ARE IN METERS. AND CHAINAGE ARE IN KILOMETERS. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THIS DRAWING SHALL BE READ IN CONJUNCTION TO THE HIGHWAY DRAWINGS. IF THERE IS ANY DIFFERENCE IN CHAINAGE OR LEVELS H/W DRAWINGS WILL PREVAIL.

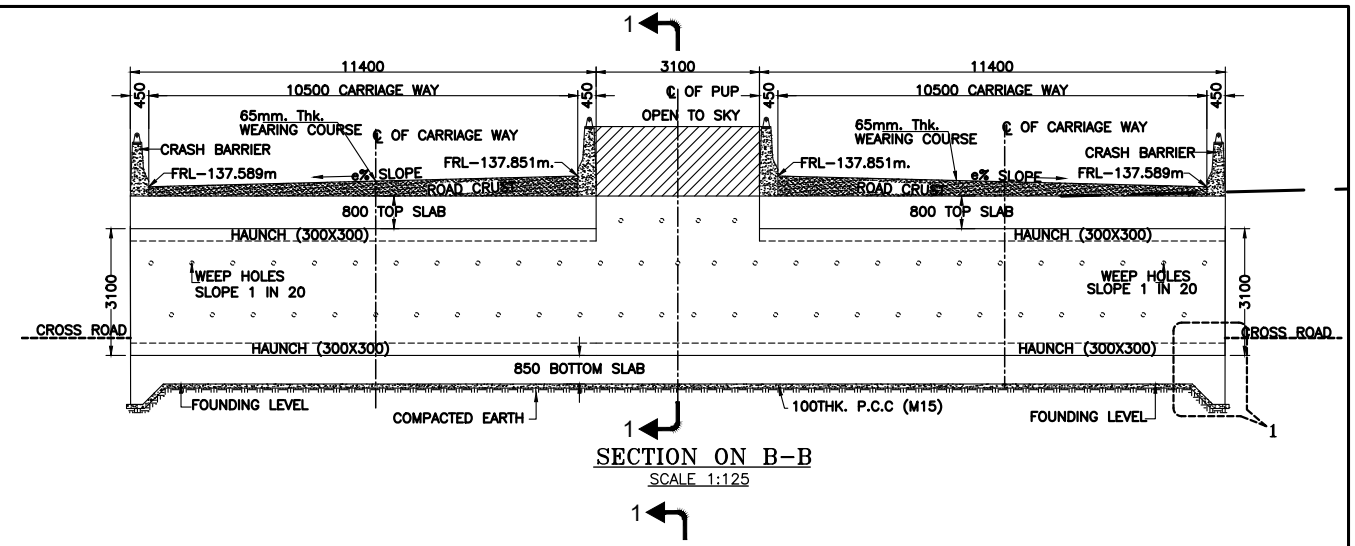
| EMPLOYER                                                                                                                                           | PROJECT                                                                                                                                                                                           | DESIGN CONSULTANT                                                                                                                                                                                                                                               | Designed By                                                                                                                         | Drawing Name:                                                                                                              | Scale:   | Date:                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|----------|-------------------------------------------------------------------------------|
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|                                                                                                                                                    |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                 |                                                                                                                                     |                                                                                                                            |          | Drawing No.:<br>KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-06<br>Sheet No.:<br>01 OF 01 |



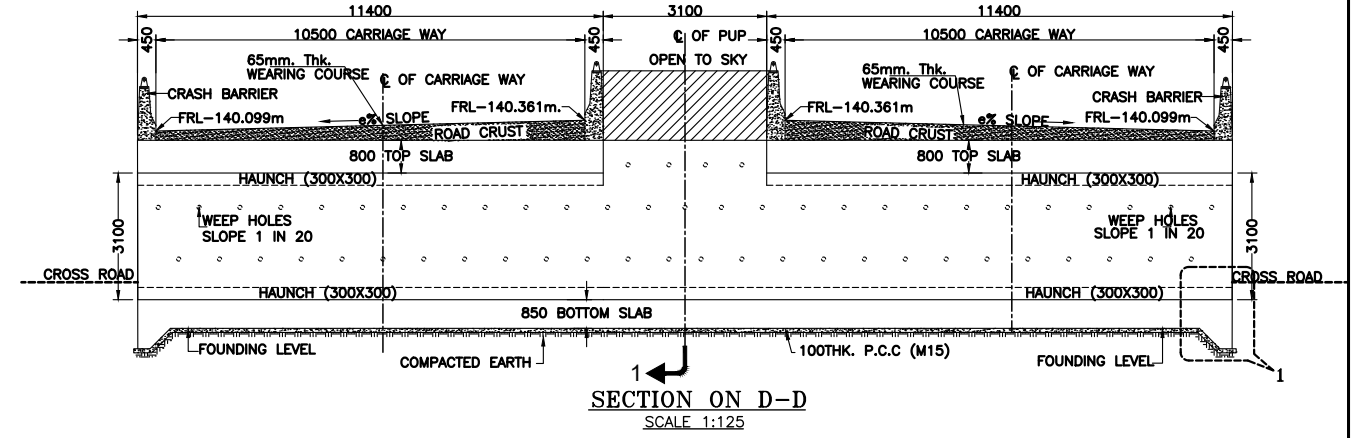
SECTION ON A-A  
SCALE 1:100



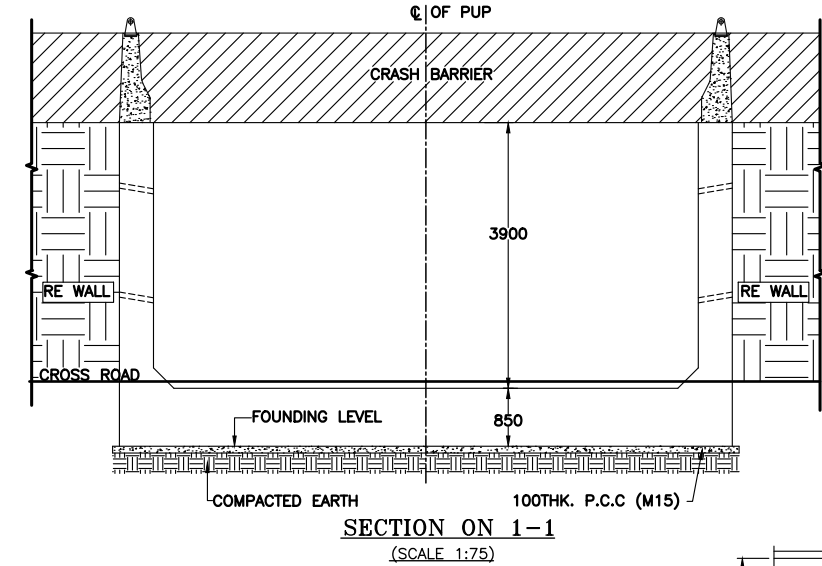
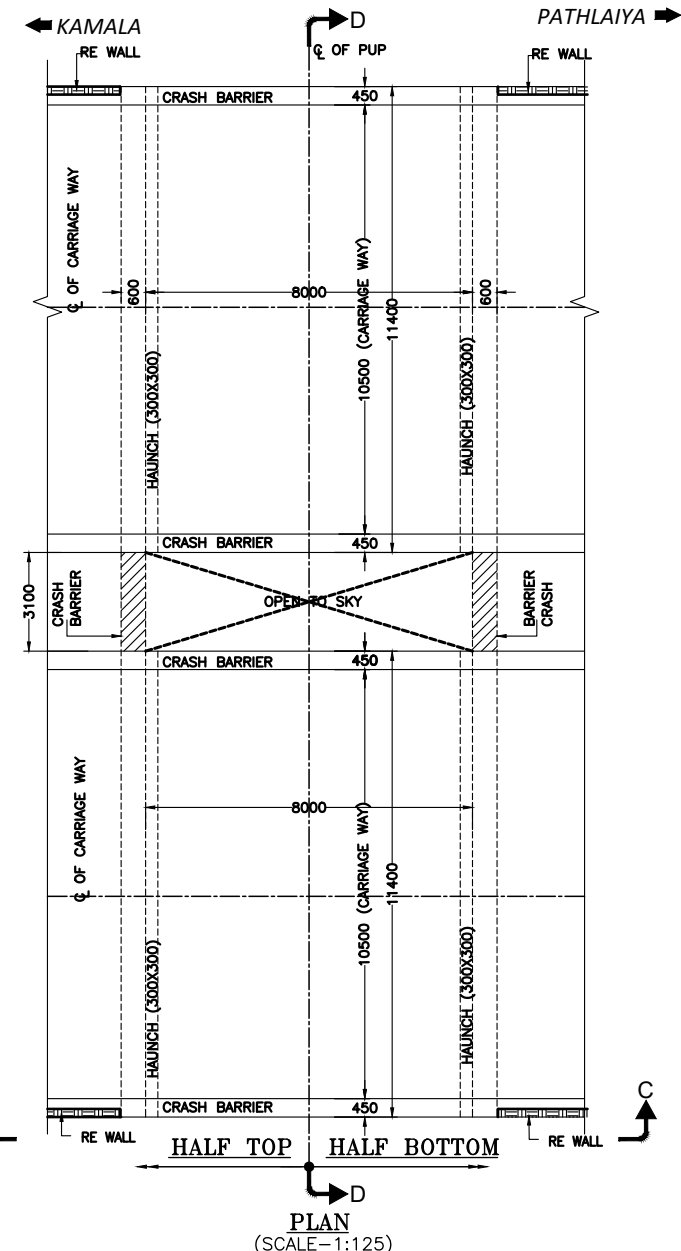
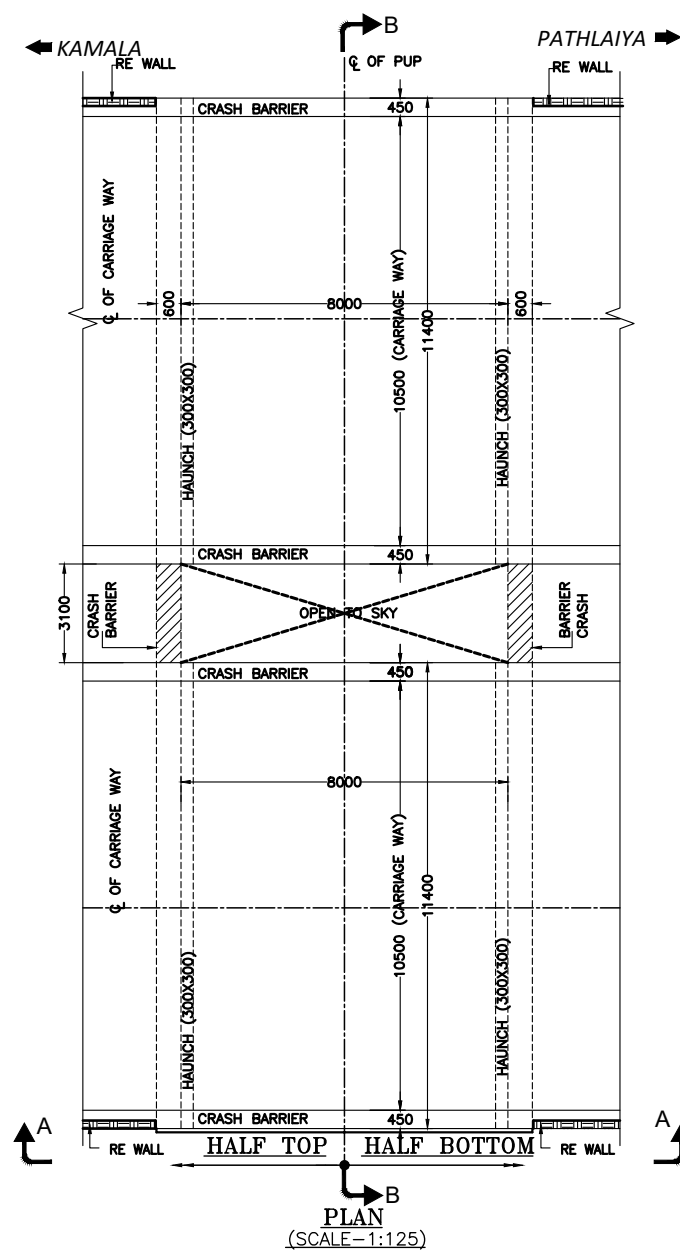
SECTION ON C-C  
SCALE 1:100



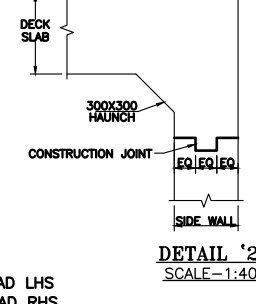
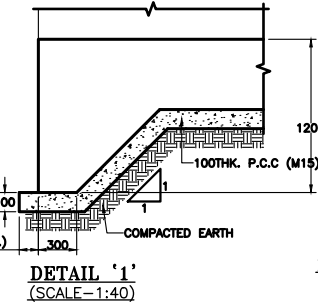
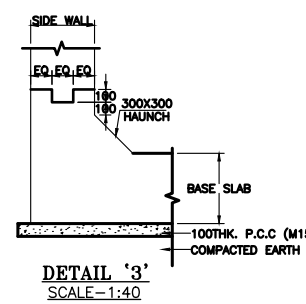
SECTION ON B-B  
SCALE 1:125



SECTION ON D-D  
SCALE 1:125

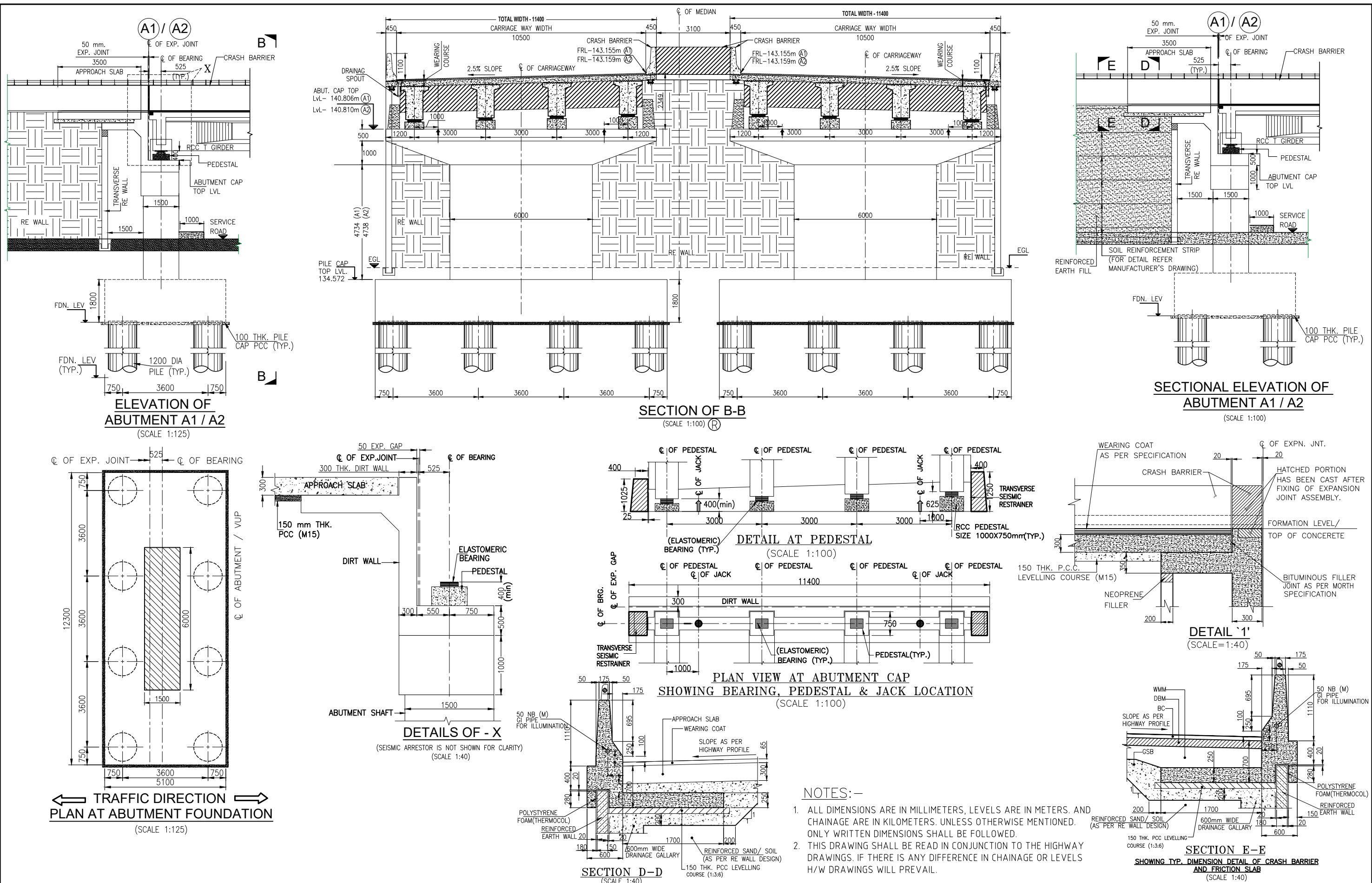


SECTION ON 1-1  
SCALE 1:75



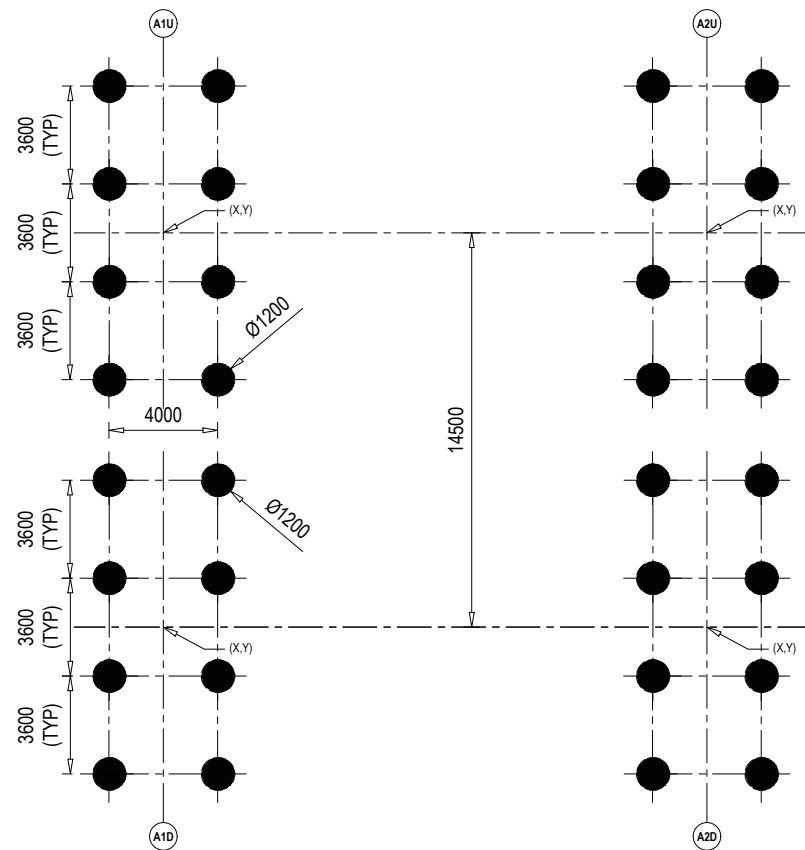
LEGEND  
a) S.R.L.- SERVICE ROAD LHS  
b) S.R.R.- SERVICE ROAD RHS

| EMPLOYER                                                                                                                                              | PROJECT                                                                                                                                                                                              | DESIGN CONSULTANT                                                                                                                                                                                                                                               | Designed By                                                                                            | Drawing Name:                                                                                                                                                                                                                  | Scale:   | Date:                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------|
| Government of Nepal<br>Ministry of Physical Infrastructure and Transport<br>Department of Roads<br>Development Cooperation Implementation<br>Division | Strategic Road Connectivity & Trade Improvement<br>Project (SRCTIP)<br><br>Detailed Design of Upgradation of Kamala-<br>Dhalkebar-Pathlaiya Road Section (130 KM)<br>of Mahendra Highway and Bridges | Joint Venture of<br>EPTISA Servicios De Ingenieria<br>Madrid, Spain<br>STUP Consultants Private Limited<br>Kolkata, India<br><br>In Association With<br>Udaya Consultancy, Geocom International, Sundar Kriti<br>Consultant and Rays Consultant Private Limited | Mr. SUMAN NARSING RAJBHANDARI<br>Nec No. 265 Civil 'A'<br>Mr. SANJIB MITRA<br>Mr. HARI KRISHNA BHAVSAR | GENERAL ARRANGEMENT DRAWING OF PEDESTRIAN UNDER PASS<br>AT CH 243+333 & 243+850<br>(SPAN ARRANGEMENT -1 x 8.0 x 3.1 M )<br><br>Reference Drawings:<br>• REINFORCEMENT DETAILS RCC BOX<br>• KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-12 | AS NOTED | February, 2024                                                                   |
|                                                                                                                                                       |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                 |                                                                                                        |                                                                                                                                                                                                                                |          | Drawing No.:<br>KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-07<br><br>Sheet No.: (01 OF 01) |



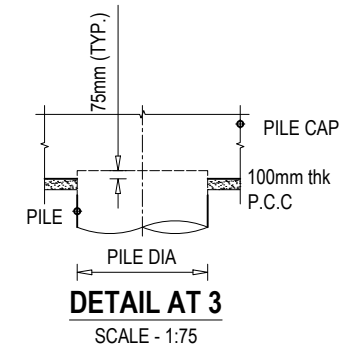
| EMPLOYER                                                                                                                                                                                                                                         | PROJECT                                                                                                                                                                                               | DESIGN CONSULTANT                                                                                                                                                                                                                                                                                                                                                                                                                                     | Designed By                                            | Drawing Name:                                                                                                           | Scale:   | Date:                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------|
|  <p>Government of Nepal<br/>Ministry of Physical Infrastructure and Transport<br/>Department of Roads<br/>Development Cooperation Implementation Division</p> | <p>Strategic Road Connectivity &amp; Trade Improvement Project (SRCTIP)</p> <p>Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges</p> | <p>Joint Venture of</p> <p> EPTISA Servicios De Ingenieria Madrid, Spain</p> <p> STUP Consultants Private Limited Kolkata, India</p> <p>In Association With</p> <p>Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited</p> | Mr. SUMAN NARSING RAJBHANDARI<br>Nec.No. 265 Civil "A" | <p>DIMENSION DETAILS OF ABUTMENT MKD (A1) &amp; (A2) VEHICULAR UNDER PASS AT CH- 243+640</p> <p>Reference Drawings:</p> | AS NOTED | December, 2023                                     |
|                                                                                                                                                                                                                                                  |                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Checked By<br>Mr. SANJIB MITRA                         |                                                                                                                         |          | Drawing No.:<br>KDP/DPR/STR/UP/BIRENDRABAZAR/DD-08 |
|                                                                                                                                                                                                                                                  |                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Approved By<br>Mr. HARI KRISHNA BHAVSAR                |                                                                                                                         |          | Sheet No.:<br>01 OF 01                             |

←  
TO KAMALA

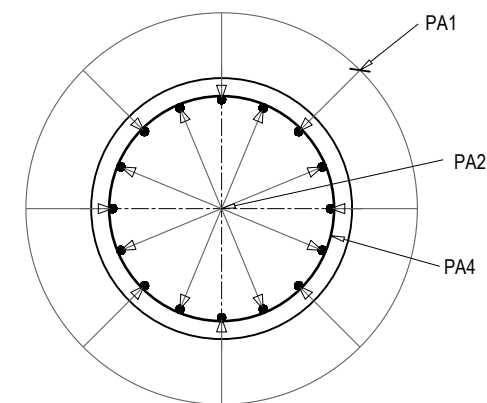


**DETAILS AT PILE LAYOUT**  
SCALE - 1:200

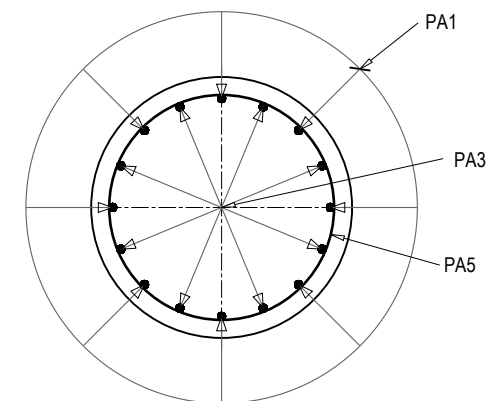
→  
TO PATHLAIYA



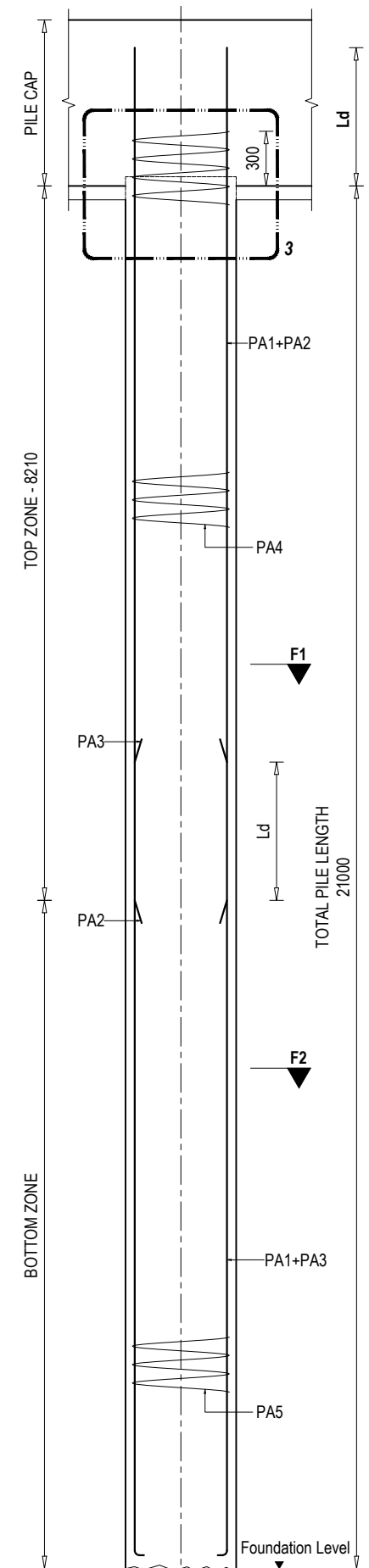
**DETAIL AT 3**  
SCALE - 1:75



**SECTIONAL VIEW AT F1 - F1**  
SCALE - 1:75



**SECTIONAL VIEW AT F2 - F2**  
SCALE - 1:75



**ELEVATION VIEW  
BAR DETAIL AT PILE**  
SCALE - 1:75

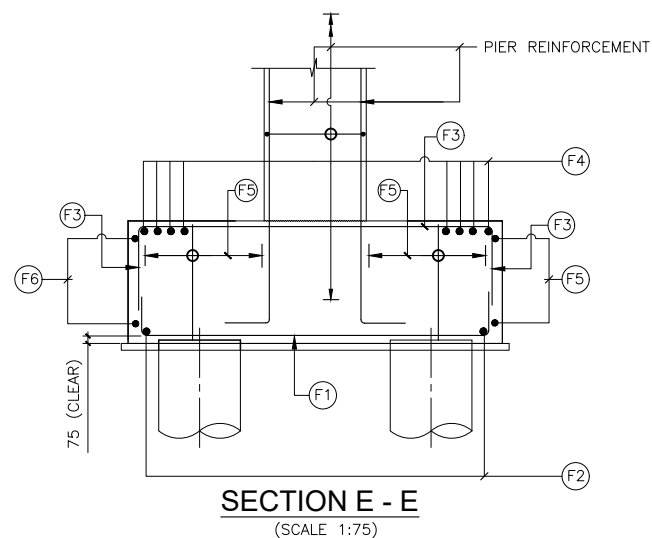
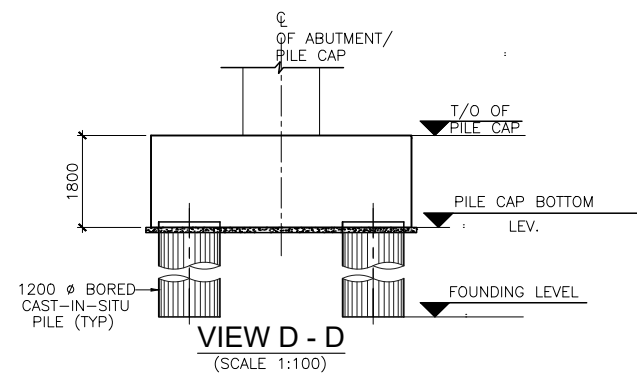
| BAR BENDING SCHEDULE OF ABUTMENT PILE |          |                    |              |              |                |             |                    |                   |
|---------------------------------------|----------|--------------------|--------------|--------------|----------------|-------------|--------------------|-------------------|
| S.No.                                 | BAR MARK | DESCRIPTION OF BAR | BAR DIA.(MM) | SPACING (MM) | BAR LENGTH (M) | No. OF BARS | UNIT WEIGHT (Kg/m) | TOTAL WEIGHT (Kg) |
| 1                                     | PA1      | 22650              | 25           |              | 22.950         | 8           | 3.858              | 708.33            |
| 2                                     | PA2      | 9935               | 25           |              | 9.935          | 8           | 3.858              | 306.64            |
| 3                                     | PA3      | 14215              | 12           |              | 14.515         | 8           | 0.889              | 103.22            |
| 4                                     | PA4      | Dia. 1050          | 16           | 110          | 3.301          | 79          | 1.580              | 412.10            |
| 5                                     | PA5      | Dia. 1050          | 12           | 110          | 3.301          | 117         | 0.889              | 343.30            |
| TOTAL (KG) :                          |          |                    |              |              |                |             |                    | 1873.59           |
| NOS. OF PILE                          |          |                    |              |              |                |             |                    | 8.00              |
| TOTAL WEIGHT (KG) :                   |          |                    |              |              |                |             |                    | 14988.69          |

| DESIGN WORKING LOAD ON PILE |          |                           |
|-----------------------------|----------|---------------------------|
| SN.                         | DIA.(mm) | DESIGN WORKING LOAD (Ton) |
| 1                           | 1200     | 214                       |

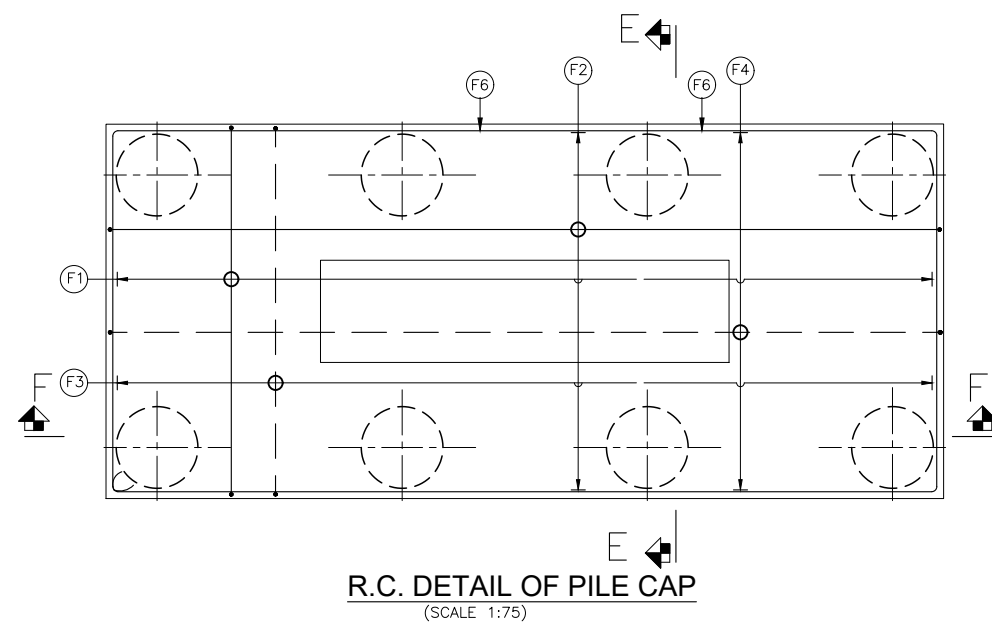
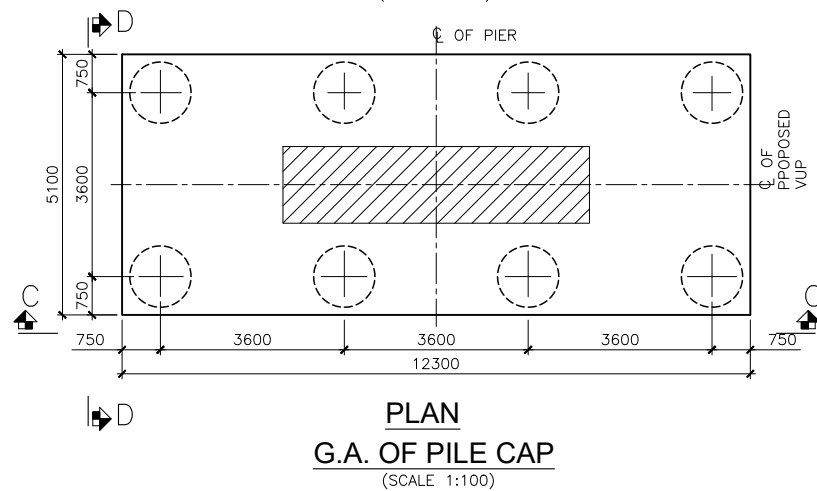
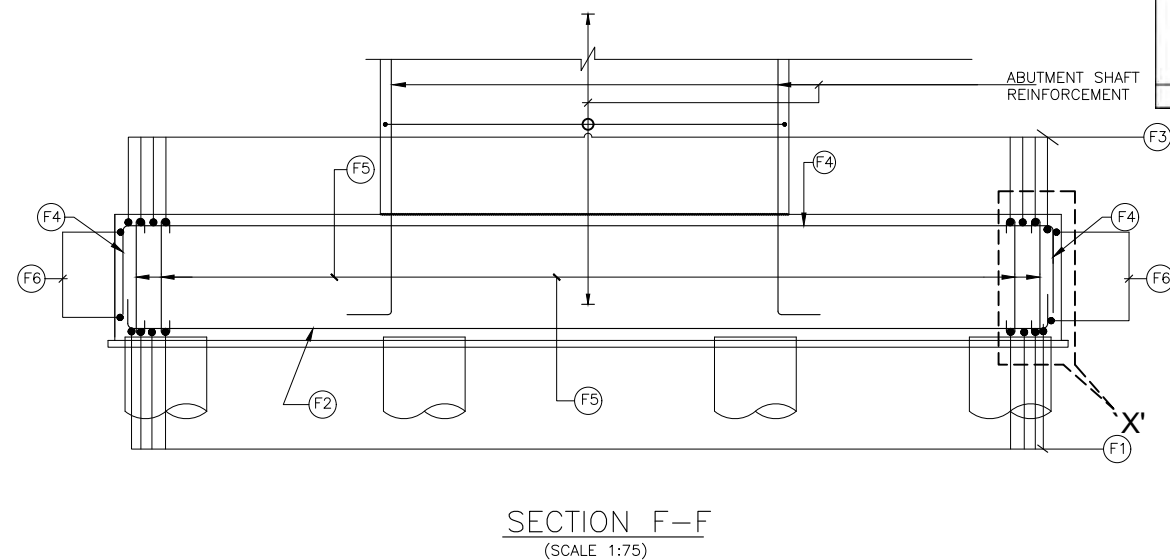
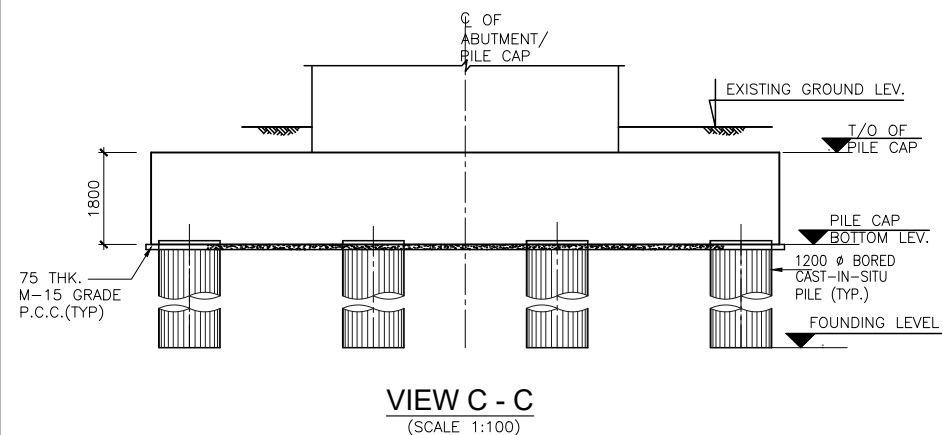
**CO ORDINATES OF PILE LOCATION OF PROPOSED BRIDGE**

| SN. | ABUTMENT/PIER  | EASTING (X) | NORTHING (Y) |
|-----|----------------|-------------|--------------|
| 1   | ABUTMENT (A1U) | 408811.111  | 2975739.741  |
| 2   | ABUTMENT (A2U) | 408791.228  | 2975741.897  |
| 3   | ABUTMENT (A1D) | 408809.548  | 2975725.325  |
| 4   | ABUTMENT (A2D) | 408789.664  | 2975727.482  |

| EMPLOYER                                                                                                                                               | PROJECT                                                                                                                                                                                    | DESIGN CONSULTANT                                                                                                                                                                                                    | Designed By                                              | Signature | Drawing Name:                                                           | Scale:               | Date:                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------|-------------------------------------------------------------------------|----------------------|-----------------------------------------------------|
| <br>Government of Nepal<br>Ministry of Physical Infrastructure and Transport<br>Department of Roads<br>Development Cooperation Implementation Division | Strategic Road Connectivity & Trade Improvement Project (SRCTIP)<br><br>Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges | Joint Venture of<br>EPTISA Servicios De Ingenieria Madrid, Spain  Kolkatta, India<br><br>In Association With<br>Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited | Mr. Suman Narsingh Raj Bhandari<br>Nec.No. 265 Civil "A" |           | LAYOUT AND DETAIL OF PILE FOUNDATION FOR VEHICULAR UNDERPASS AT 243+640 | AS NOTED             | March, 2024                                         |
|                                                                                                                                                        |                                                                                                                                                                                            |                                                                                                                                                                                                                      | Mr. Sanjib Mitra                                         |           | Reference Drawings:                                                     | CHAINAGE:<br>243+640 | Drawing No.:<br>KDP/ DPR/STR/VUP/BIRENDRABAZAR/DD-9 |
|                                                                                                                                                        |                                                                                                                                                                                            |                                                                                                                                                                                                                      | Mr. Harikrishna Bhavsar                                  |           |                                                                         |                      | Sheet No.: 1/1                                      |

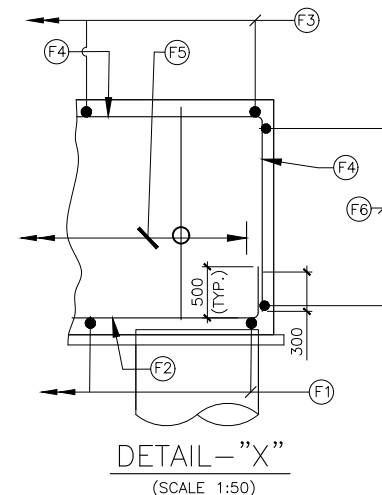


| BAR BENDING SCHEDULE OF PILE CAP |          |                    |              |                    |                |             |                    |                   |  |
|----------------------------------|----------|--------------------|--------------|--------------------|----------------|-------------|--------------------|-------------------|--|
| S.No.                            | BAR MARK | DESCRIPTION OF BAR | BAR DIA.(MM) | SPACING (MM)       | BAR LENGTH (M) | No. OF BARS | UNIT WEIGHT (Kg/m) | TOTAL WEIGHT (Kg) |  |
| 1                                | F1       | 500 4950 500       | 25           | 100                | 5.950          | 123         | 3.858              | 2823.50           |  |
| 2                                | F2       | 500 12150 500      | 25           | 100                | 13.150         | 51          | 3.858              | 2587.38           |  |
| 3                                | F3       | 1450 4950 1450     | 16           | 100                | 7.850          | 123         | 1.580              | 1525.81           |  |
| 4                                | F4       | 1450 12150 1450    | 16           | 100                | 15.050         | 51          | 1.580              | 1212.92           |  |
| 5                                | F5       | 1650 100 100       | 12           | Long 210 Trans 250 | 1.85           | 1160        | 0.889              | 1907.56           |  |
| 6                                | F6       | 4950 12150 150     | 12           | 150                | 34.500         | 11          | 0.889              | 337.33            |  |
| TOTAL (KG) :                     |          |                    |              |                    |                |             |                    | 10394.49          |  |

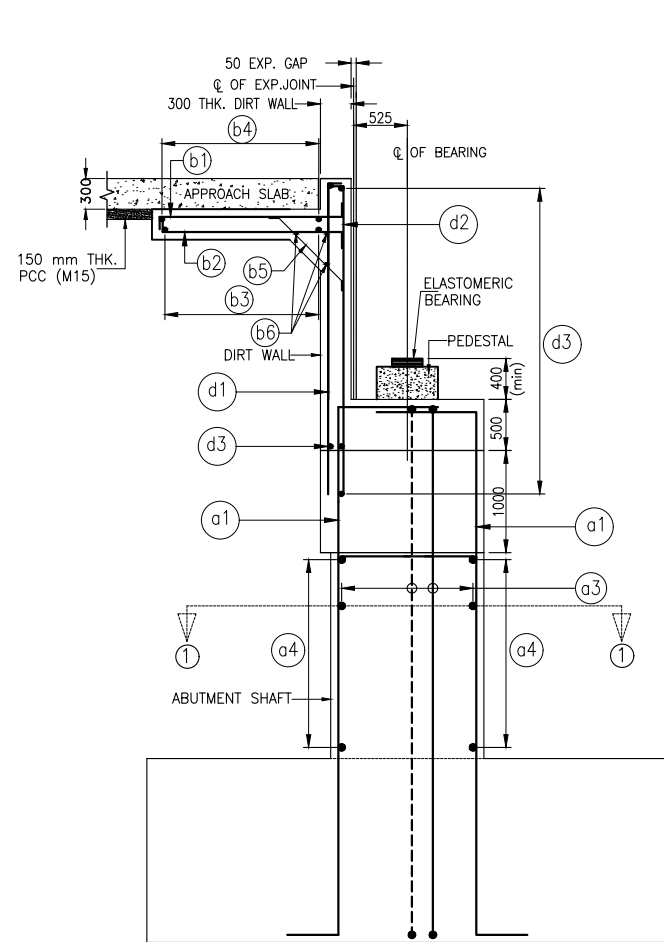


LEGEND:

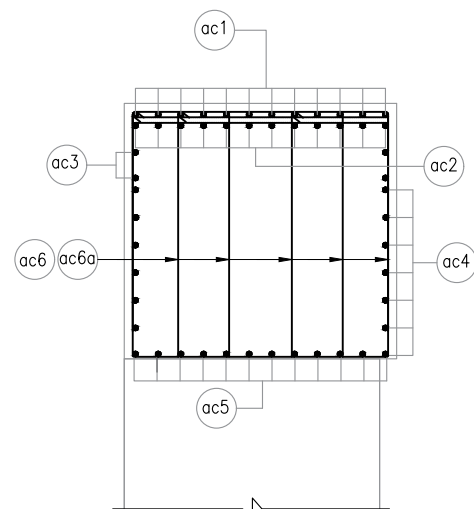
TOP BAR: -----  
 BOTTOM BAR: \_\_\_\_\_



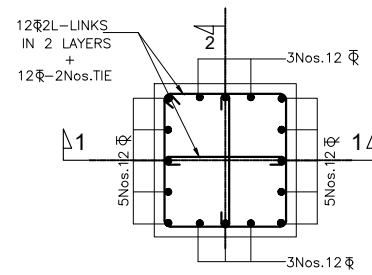
| EMPLOYER                                                                                                                                                                                                                                      | PROJECT                                                                                                                                                                                    | DESIGN CONSULTANT                                                                                                                                                                                                                                                             | Designed By                                                              | Checked By              | Approved By                         | Drawing Name:                                                                            | Scale:   | Date:                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------|-------------------------------------|------------------------------------------------------------------------------------------|----------|------------------------------------------------------------------------------------------------------|
|  Government of Nepal<br>Ministry of Physical Infrastructure and Transport<br><b>Department of Roads</b><br>Development Cooperation Implementation Division | Strategic Road Connectivity & Trade Improvement Project (SRCTIP)<br><br>Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges | Joint Venture of<br><b>ep4sa</b> EPTISA Servicios De Ingeniera Madrid, Spain<br><b>on</b> STUP Consultants Private Limited Kolkatta, India<br><br>In Association With<br>Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited | Mr.SUMAN NARSING RAJBHANDARI<br>Nec.No. 285 Civil "A"<br>Mr.SANJIB MITRA | Mr.HARI KRISHNA BHAVSAR | Signature<br>Signature<br>Signature | RC DETAIL OF PILE CAP FOR VEHICULAR UNDER PASS AT CH- 243+640<br><br>Reference Drawings: | AS NOTED | December, 2022<br><br>Drawing No.: KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-10<br><br>Sheet No.: (SH 1 OF 1) |



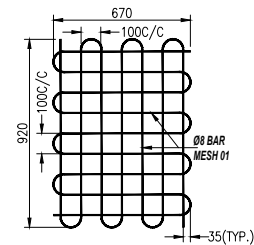
**SECTION B-B**  
(SCALE 1:50)



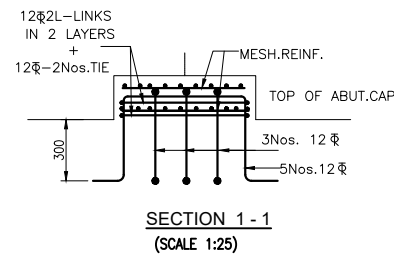
**SECTION A-A**  
SCALE 1:30



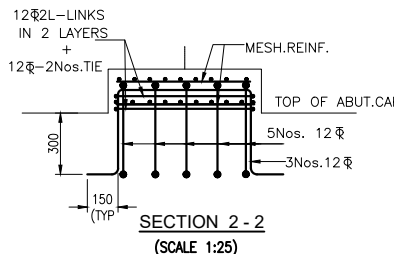
**PEDESTAL IN PLAN**  
(SCALE 1:25)



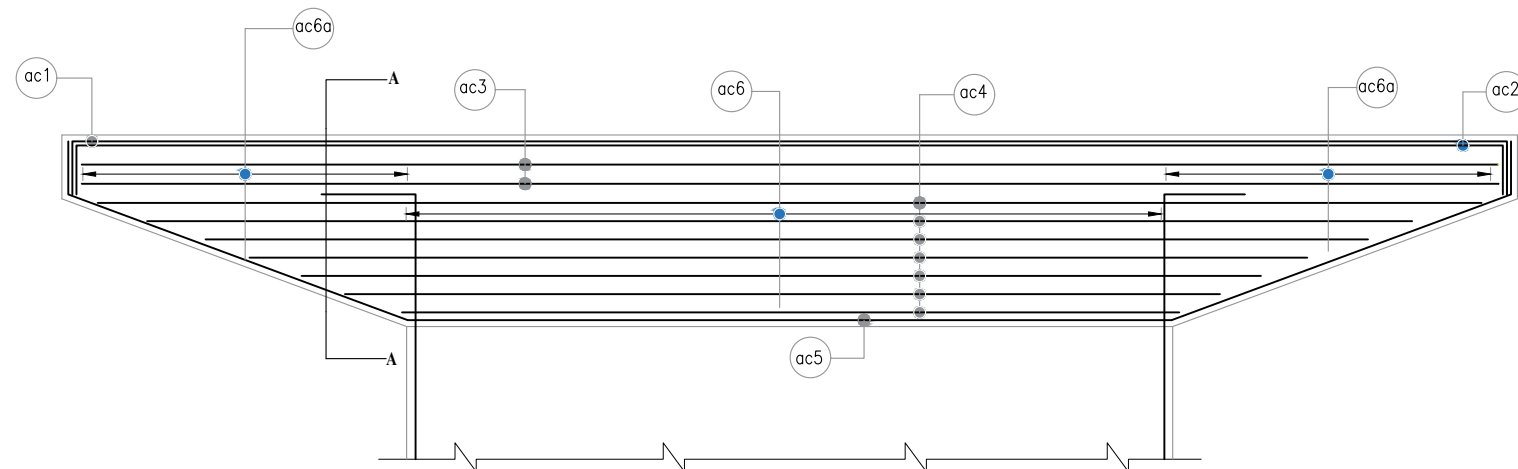
**REINFORCEMENT DETAILS OF BEARING MESH**  
SCALE - 1:25



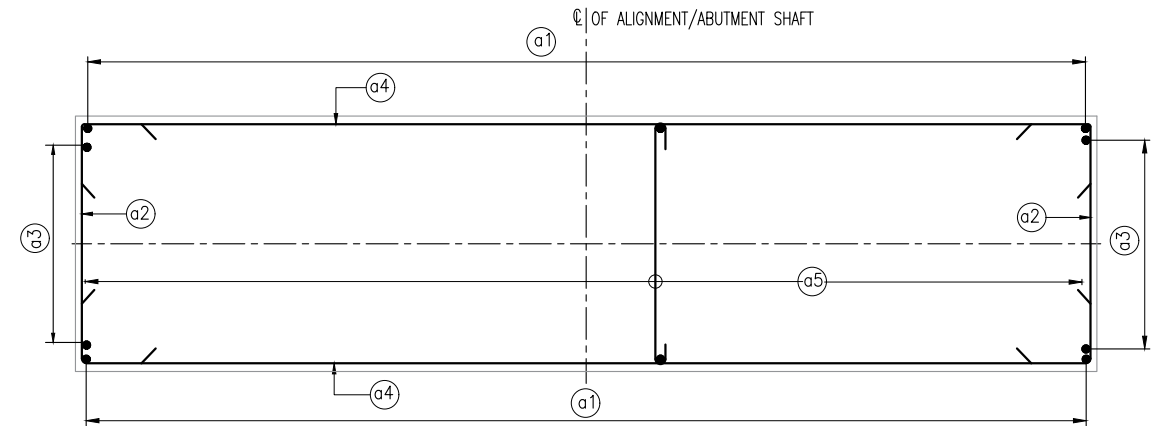
**SECTION 1-1**  
(SCALE 1:25)



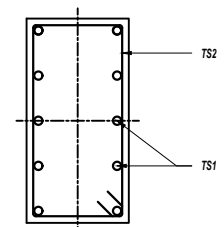
**SECTION 2-2**  
(SCALE 1:25)



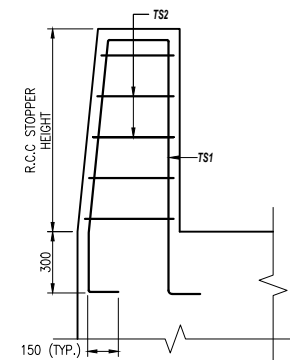
**DETAILS OF RCC ABUTMENT ABUTMENT CAP**  
SCALE 1:40



**REINFORCEMENT DETAILS OF ABUTMENT SHAFT IN PLAN AT 1-1**  
(SCALE 1:30)



**REINFORCEMENT DETAIL OF R.C.C SEISMIC ARRESTER**  
**PLAN VIEW**  
SCALE - 1:25



**REINFORCEMENT DETAIL OF R.C.C SEISMIC ARRESTER**  
**ELEVATION VIEW**  
SCALE - 1:25

**NOTES:**

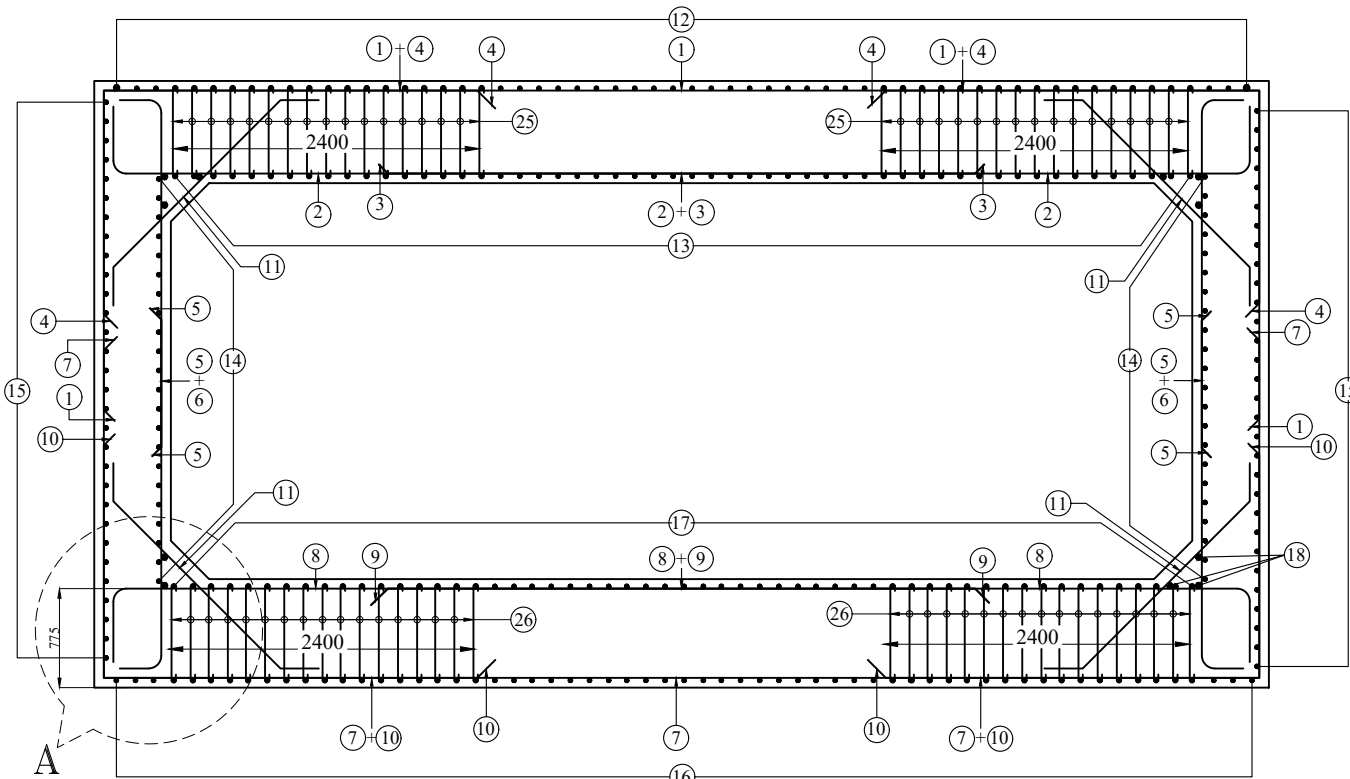
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

**LEGEND:**

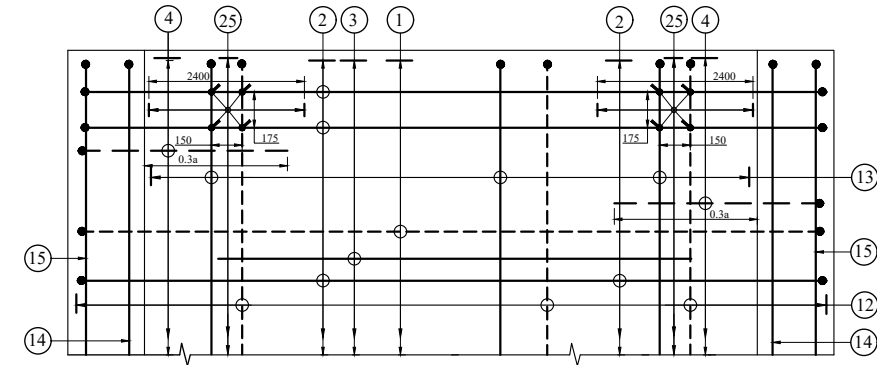
- TOP FACE / NEAR FACE BAR
- BOTTOM FACE / FAR FACE BAR

| EMPLOYER                                                                                                                                                                                                                                         | PROJECT                                                                                                                                                                                               | DESIGN CONSULTANT                                                                                                                                                                                                                                                             | Designed By                                              | Signature                                                                             | Drawing Name:                                                                                                                                                                                                                                      | Scale:   | Date:                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------------------|
|  <p>Government of Nepal<br/>Ministry of Physical Infrastructure and Transport<br/>Department of Roads<br/>Development Cooperation Implementation Division</p> | <p>Strategic Road Connectivity &amp; Trade Improvement Project (SRCTIP)</p> <p>Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges</p> | <p>Joint Venture of</p> <p> EPTISA Servicios De Ingeniera Madrid, Spain</p> <p> Kolkatta, India</p> | Mr. Suman Narsingh Raj Bhandari<br>Nec.No. 265 Civil "A" |  | <p>REINFORCEMENT DETAILS FOR ABUTMENT DRAWING AT CH. 243+640</p> <p>Reference Drawings:</p> <ul style="list-style-type: none"> <li>• GENERAL ARRANGEMENT DRAWING OF VEHICULAR UNDER PASS</li> <li>• KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-06</li> </ul> | AS NOTED | August, 2023                        |
|                                                                                                                                                                                                                                                  |                                                                                                                                                                                                       | In Association With                                                                                                                                                                                                                                                           | Checked By                                               | Signature                                                                             |                                                                                                                                                                                                                                                    |          | Drawing No.:                        |
|                                                                                                                                                                                                                                                  |                                                                                                                                                                                                       | Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited                                                                                                                                                                          | Mr. Sanjib Mitra                                         |  |                                                                                                                                                                                                                                                    |          | KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-11 |
|                                                                                                                                                                                                                                                  |                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                               | Approved By                                              | Signature                                                                             |                                                                                                                                                                                                                                                    |          | Sheet No.:                          |
|                                                                                                                                                                                                                                                  |                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                               | Mr. Harikrishna Bhavsar                                  |  |                                                                                                                                                                                                                                                    |          | (01 OF 02)                          |

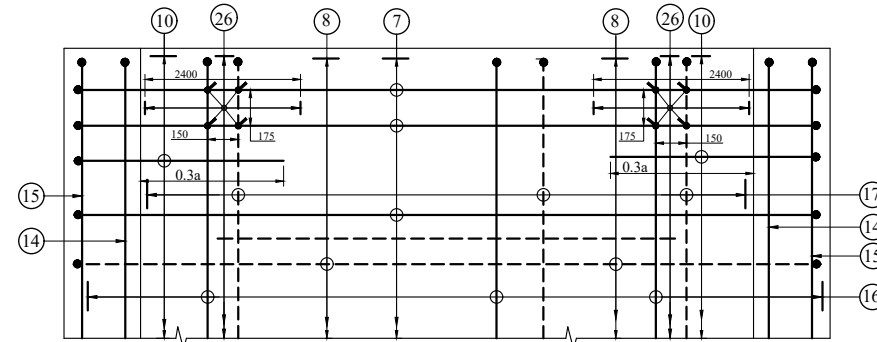




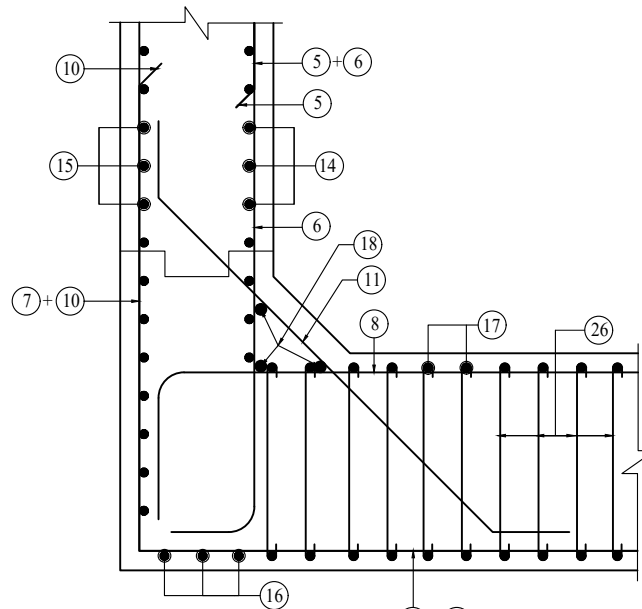
REINFORCEMENT DETAILS OF  
SINGLE CELL BOX CULVERT  
SCALE : 1:40



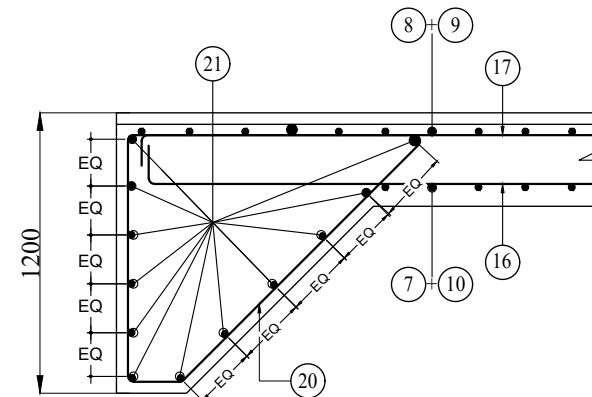
TOP SLAB R/F PLAN  
HAUNCH LINE NOT SHOWN FOR CLARITY  
SCALE : 1:60



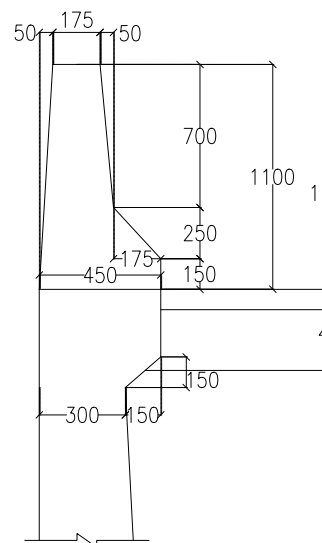
BOTOM SLAB R/F PLAN  
HAUNCH LINE NOT SHOWN FOR CLARITY  
SCALE : 1:60



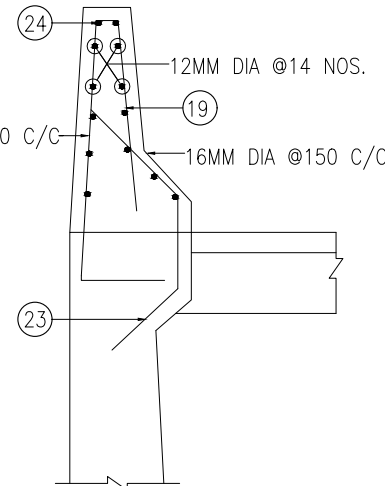
DETAIL 'A'  
SCALE : 1:25



R/F DETAIL OF SHEARKEY  
SCALE : 1:25



DIM. DETAILS



REIN. DETAILS

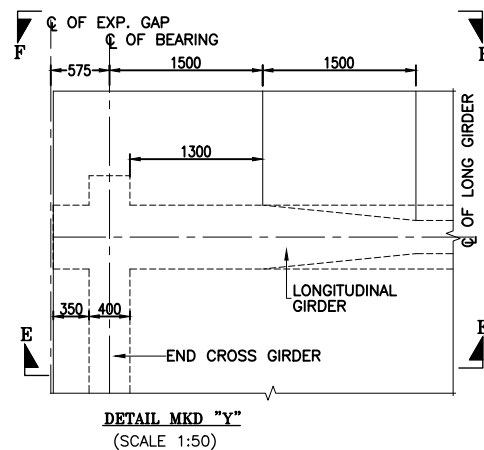
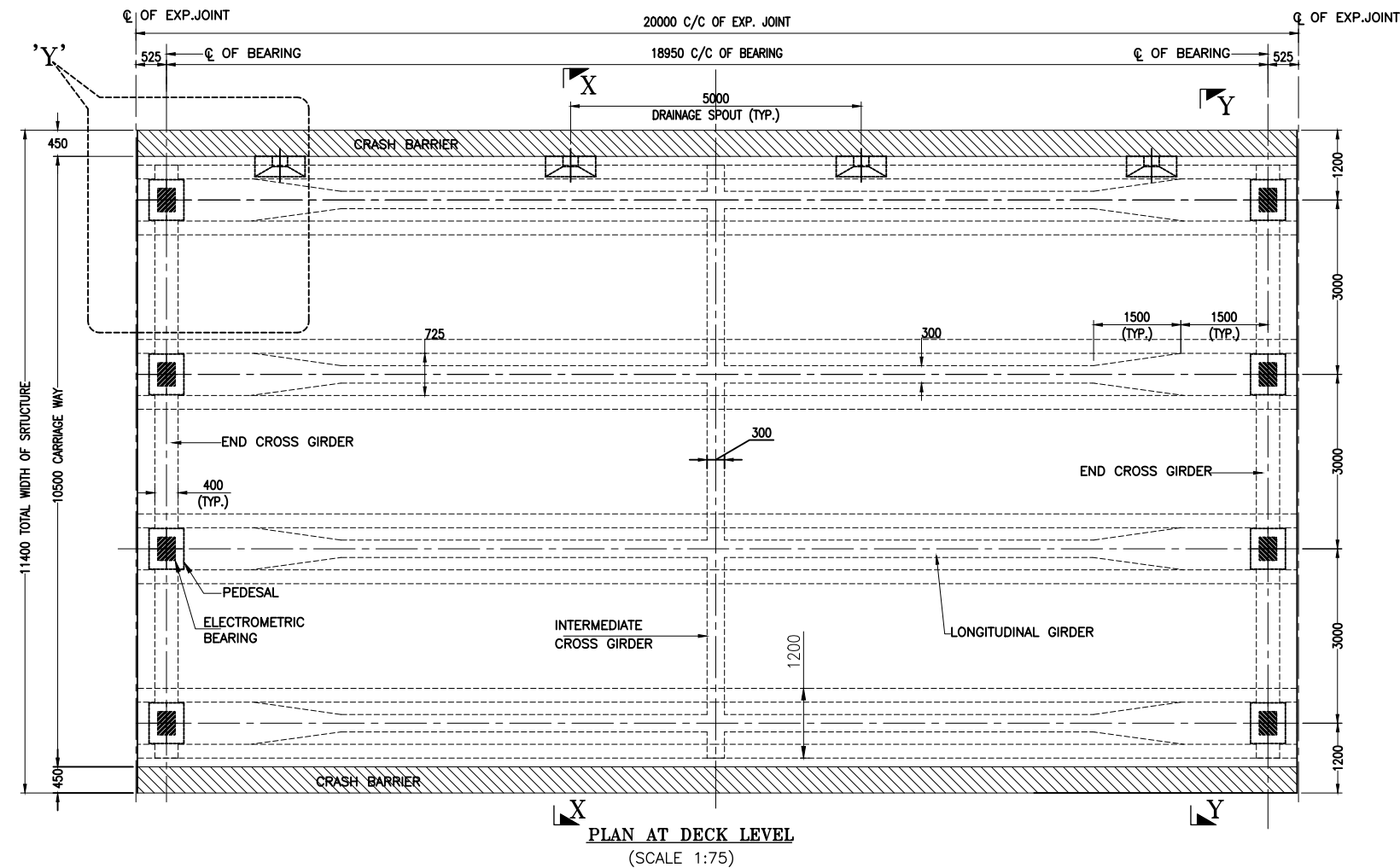
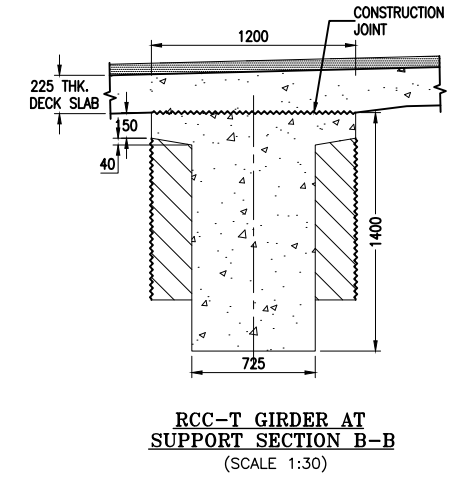
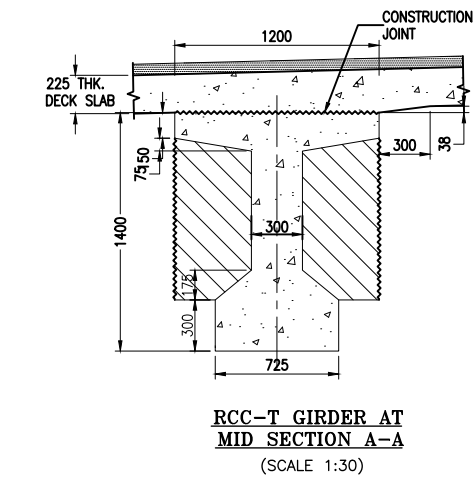
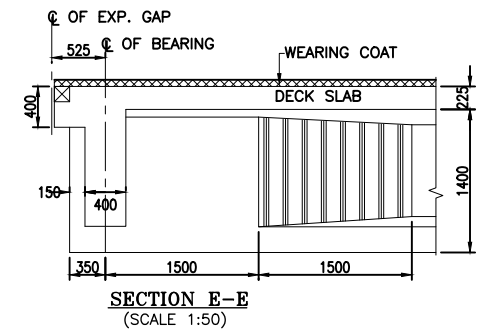
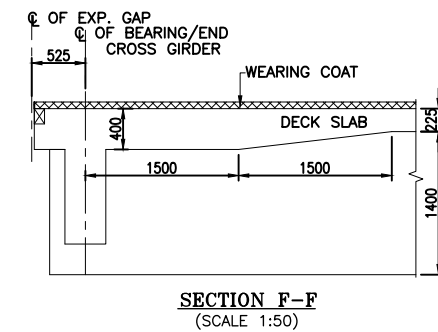
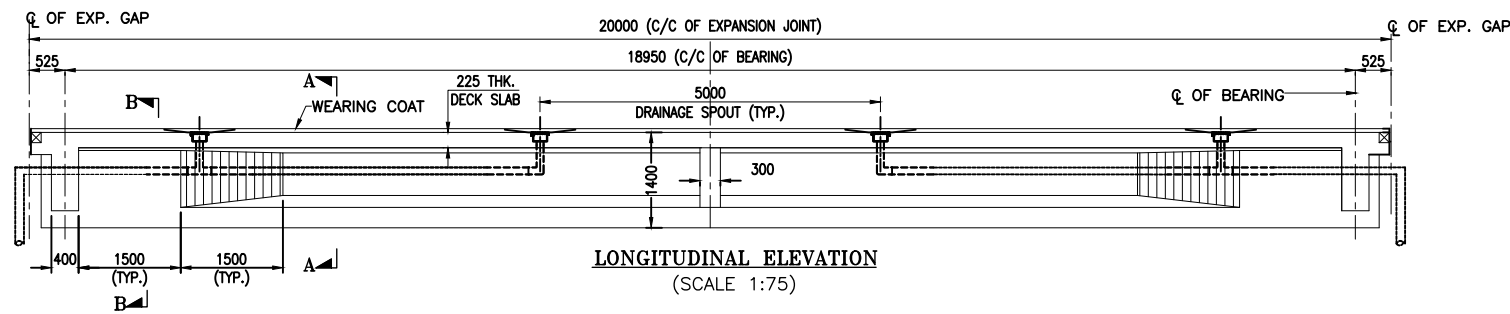
DETAILS OF CRASH BARRIER  
SCALE : 1:25

| BAR BENDING SCHEDULE OF PUP |          |                    |              |                    |                |             |                    |                    |          |
|-----------------------------|----------|--------------------|--------------|--------------------|----------------|-------------|--------------------|--------------------|----------|
| S.No.                       | BAR MARK | DESCRIPTION OF BAR | BAR DIA.(MM) | SPACING (MM)       | BAR LENGTH (M) | No. OF BARS | UNIT WEIGHT (Kg/m) | TOTAL WEIGHT (Kg)  |          |
| 1                           | 1        | 2625 9050 2625     | 16           | 175                | 14.300         | 149         | 1.580              | 3366.51            |          |
| 2                           | 2        | 425 9050 425       | 16           | 175                | 9.900          | 149         | 1.580              | 2330.66            |          |
| 3                           | 3        | 4800               | 16           | 175                | 4.800          | 149         | 1.580              | 1130.016           |          |
| 4                           | 4        | 2925 1725          | 16           | 175                | 4.650          | 149         | 1.580              | 1094.703           |          |
| 5                           | 5        | 1000               | 12           | 100                | 1.000          | 2 x 259     | 0.889              | 461.020            |          |
| 6                           | 6        | 4850 225           | 12           | 100                | 5.300          | 2 x 259     | 0.889              | 2444.790           |          |
| 7                           | 7        | 2625 9050 2625     | 16           | 175                | 14.300         | 149         | 1.580              | 3366.506           |          |
| 8                           | 8        | 475 9050 475       | 16           | 175                | 10.000         | 149         | 1.580              | 2354.200           |          |
| 9                           | 9        | 4800               | 16           | 175                | 4.800          | 149         | 1.580              | 1130.016           |          |
| 10                          | 10       | 2925 1775          | 16           | 175                | 4.700          | 149         | 1.580              | 1106.474           |          |
| 11                          | 11       | 300 1850 300       | 12           | 100                | 2.450          | 4 x 259     | 0.889              | 2259.920           |          |
| 12                          | 12       | 25750              | 10           | 150                | 25.75          | 62          | 0.617              | 989.830            |          |
| 13                          | 13       | 25750              | 10           | 150                | 25.750         | 54          | 0.617              | 862.110            |          |
| 14                          | 14       | 25750              | 10           | 150                | 25.750         | 2 x 35      | 0.617              | 1117.550           |          |
| 15                          | 15       | 25750              | 10           | 150                | 25.750         | 2 x 34      | 0.617              | 1085.620           |          |
| 16                          | 16       | 25750              | 10           | 150                | 25.750         | 62          | 0.617              | 989.830            |          |
| 17                          | 17       | 25750              | 10           | 150                | 25.750         | 55          | 0.617              | 878.075            |          |
| 18                          | 18       | 25750              | 10           |                    | 25.750         | 3 x 4       | 0.617              | 191.580            |          |
| 19                          | 19       | 80 1230 1975 310   | 16           | 150                | 2.600          | 591         | 1.580              | 2423.160           |          |
| 20                          | 20       | 1050 1702 1831 200 | 16           | 125                | 4.780          | 2 x 74      | 1.580              | 1118.460           |          |
| 21                          | 21       | 9050               | 16           |                    | 9.05           | 2 x 24      | 1.580              | 686.360            |          |
| 23                          | 23       | 543 345 335        | 16           | 150                | 1.220          | 591         | 1.580              | 1142.010           |          |
| 24                          | 24       | 88450              | 12           |                    | 88.450         | 56          | 0.889              | 4408.350           |          |
| 25                          | 25       |                    | 8            | Long-150 Trans-175 | 0.800          | 5066        | 0.395              | 1600.856           |          |
| 26                          | 26       |                    | 8            | Long-150 Trans-175 | 0.850          | 5066        | 0.395              | 1700.910           |          |
|                             |          |                    |              |                    |                |             |                    | TOTAL WEIGHT(kg) : | 40239.51 |

NOTE:  
1. ALL DIMENSION ARE IN MM.  
2. FOR GENERAL NOTES REFER DRG. NO.- KDP/DPR/STR/BR/BIRENDRABAZAR/DD-04  
3. FOR GAD OF PUP REFER DRG. NO.- KDP/DPR/STR/BR/BIRENDRABAZAR/DD-07

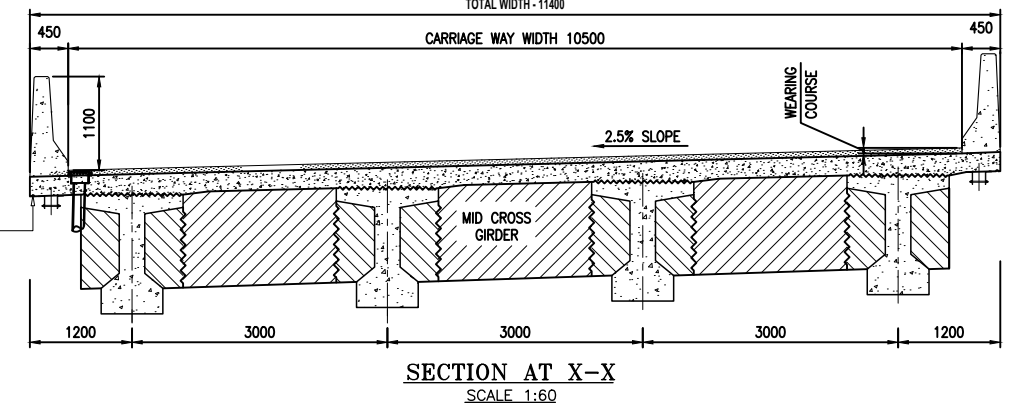
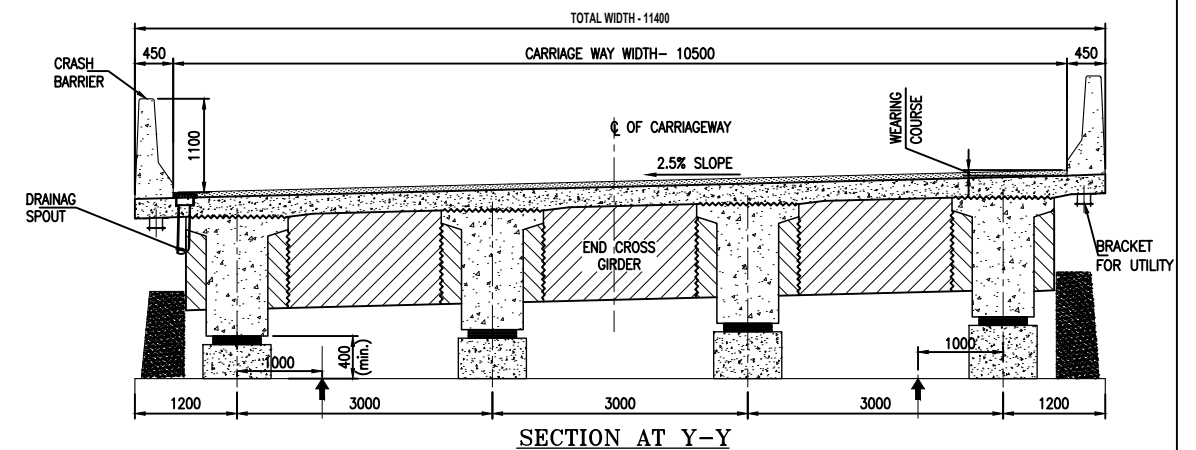
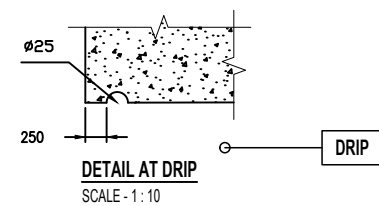
LEGEND:  
TOP/FRONT FACE BAR SHOWN THUS  
BOTTOM/REAR FACE BAR SHOWN THUS

| EMPLOYER                                                                                                                                                                                                                                     | PROJECT                                                                                                                                                                                              | DESIGN CONSULTANT                                                                                                                                                                                                                                                                                                                                                                                                                            | Designed By                                                 | Signature                                                                             | Drawing Name:                                                                                                                                                                                                          | Scale:   | Date:                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------------------------|
| <br>Government of Nepal<br>Ministry of Physical Infrastructure and Transport<br>Department of Roads<br>Development Cooperation Implementation<br>Division | Strategic Road Connectivity & Trade Improvement<br>Project (SRCTIP)<br><br>Detailed Design of Upgradation of Kamala-<br>Dhalkebar-Pathlaiya Road Section (130 KM)<br>of Mahendra Highway and Bridges | Joint Venture of<br> EPTISA Servicios De Ingenieria<br>Madrid, Spain<br> STUP Consultants Private Limited<br>Kolkatta, India<br><br>In Association With<br>Udaya Consultancy, Geocom International, Sundar Kriti<br>Consultant and Rays Consultant Private Limited | Mr. Suman Narsingh<br>Raj Bhandari<br>Nec.No. 265 Civil "A" |  | REINFORCEMENT DETAILS FOR<br>PEDESTRIAN UNDER PASS AT CH: 243+333 & 243+850<br>(SPAN ARRANGEMENT -1 x 8.0 x 3.0 M )<br><br>Reference Drawings:<br>• DIMENSION DETAILS RCC BOX<br>• KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-07 | AS NOTED | February, 2024                                      |
|                                                                                                                                                                                                                                              |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                              | Mr. Sanjib Mitra                                            |  |                                                                                                                                                                                                                        |          | Drawing No.:<br>KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-12 |
|                                                                                                                                                                                                                                              |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                              | Mr. Hanikrishna Bhavsar                                     |  |                                                                                                                                                                                                                        |          | Sheet No.:<br>(01 OF 01)                            |

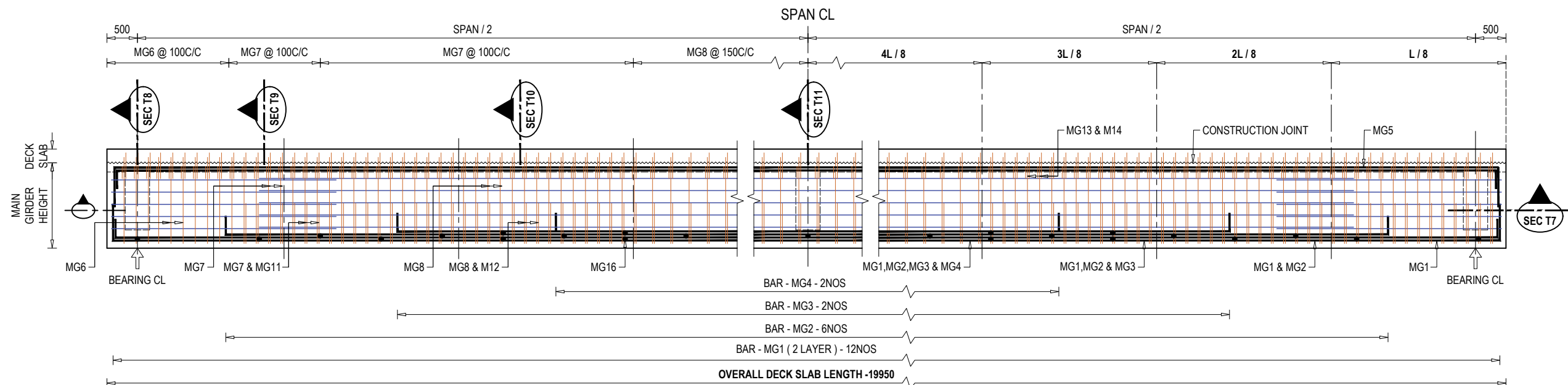


#### NOTES:-

- ALL DIMENSIONS ARE IN MM, AND LEVELS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- THIS DWG. SHALL BE READ ON CONJUNCTION WITH OTHER RELEVANT DWGS.
- THE GRADE OF CONCRETE FOR VARIOUS STRUCTURAL COMPONENTS SHALL BE AS FOLLOWS:-
  - DECK SLAB, T-BEAM GIRDER & CROSS GIRDER - M35
  - CRASH BARRIER - M40
- ALL REINFORCEMENT STEEL SHALL BE HIGH YIELD STRENGTH DEFORMED (TMT) BARS AND (GRADE-Fe 500). CONFORMING TO IS:1786.

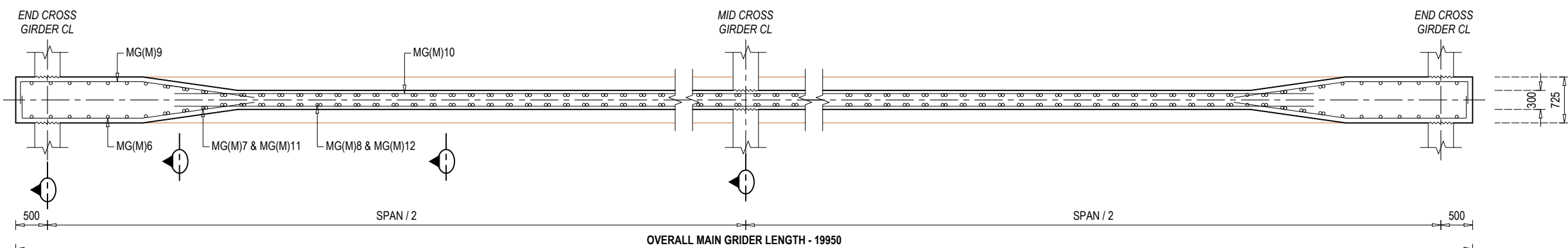


| EMPLOYER                                                                                                                                           | PROJECT                                                                                                                                                                                    | DESIGN CONSULTANT                                                                                                                                                                                                                                     | Designed By                                                                                                                          | Drawing Name:                                                                                                                                                                                                                 | Scale:   | Date:                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------------------------------------------------------------|
| Government of Nepal<br>Ministry of Physical Infrastructure and Transport<br>Department of Roads<br>Development Cooperation Implementation Division | Strategic Road Connectivity & Trade Improvement Project (SRCTIP)<br><br>Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges | Joint Venture of<br>EPTISA Servicios De Ingeniera Madrid, Spain<br>STUP Consultants Private Limited Kolkata, India<br><br>In Association With<br>Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited | Mr. SUMAN NARSING RAJBHANDARI<br>Nec. No. 265 Civil "A"<br>Checked By<br>Mr. SANJIB MITRA<br>Approved By<br>Mr. HARI KRISHNA BHAVSAR | DIMENSION DETAILS OF SUPERSTRUCTURE<br>DRAWING FOR 20M RCC T GIRDER<br>(SPAN ARRANGEMENT 1X20M)<br><br>Reference Drawings:<br>• REINFORCEMENT DETAILS RCC T GIRDER 20M SPAN<br>• KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-14 TO DD-17 | AS NOTED | August, 2023                                                                  |
|                                                                                                                                                    |                                                                                                                                                                                            |                                                                                                                                                                                                                                                       |                                                                                                                                      |                                                                                                                                                                                                                               |          | Drawing No.:<br>KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-13<br>Sheet No.:<br>01 OF 01 |



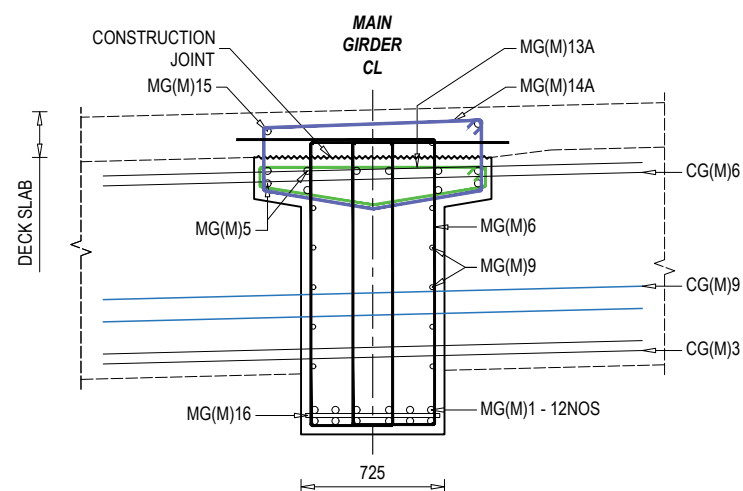
REINFORCEMENT DETAILS OF MAIN GIRDER - SECTIONAL ELEVATION VIEW

SCALE - 1 : 75



REINFORCEMENT DETAILS OF MAIN GIRDER (MID) - SECTIONAL PLAN VIEW AT T7(M)

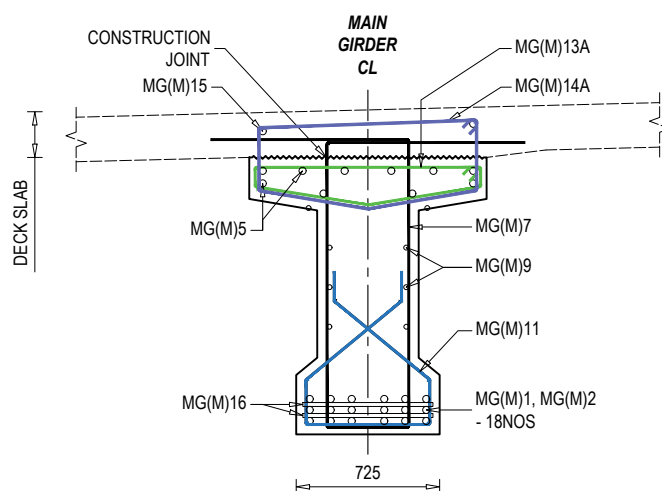
SCALE - 1 : 75



REINFORCEMENT DETAILS OF MAIN GIRDER

SECTIONAL VIEW AT T8

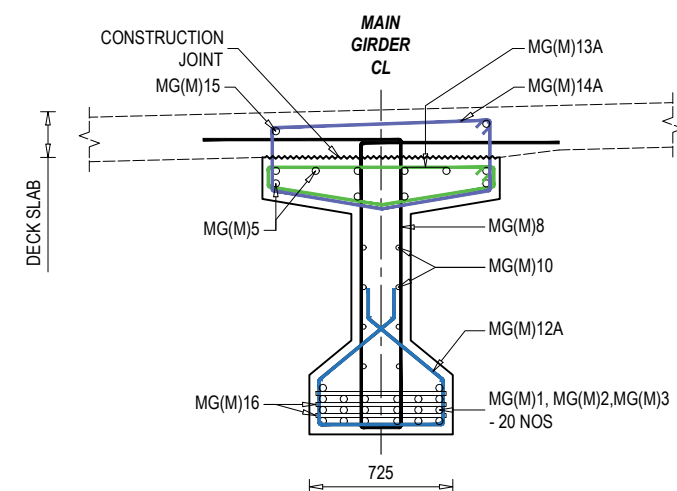
SCALE - 1 : 50



REINFORCEMENT DETAILS OF MAIN GIRDER

SECTIONAL VIEW AT T9

SCALE - 1 : 50



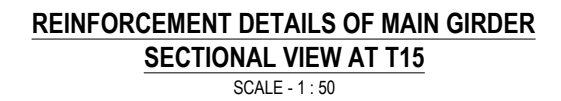
REINFORCEMENT DETAILS OF MAIN GIRDER

SECTIONAL VIEW AT T10

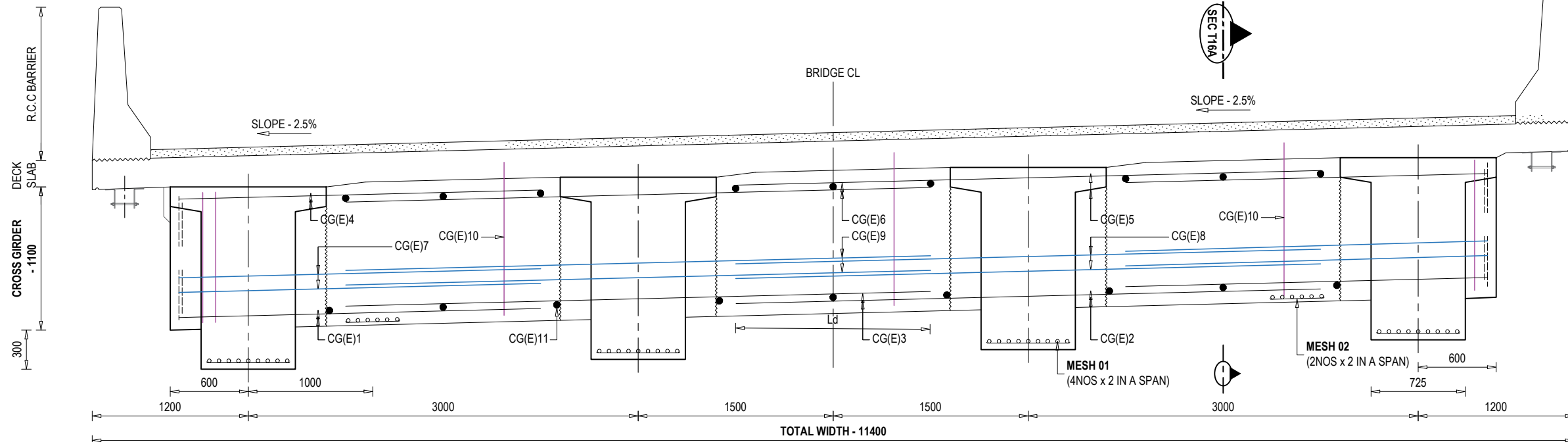
SCALE - 1 : 50

NOTE  
READ THIS DRAWING IN CONJUNCTION WITH  
DRG NO. KDP/DPR/STR/VUP/BREANDRABAZAR/DD-4

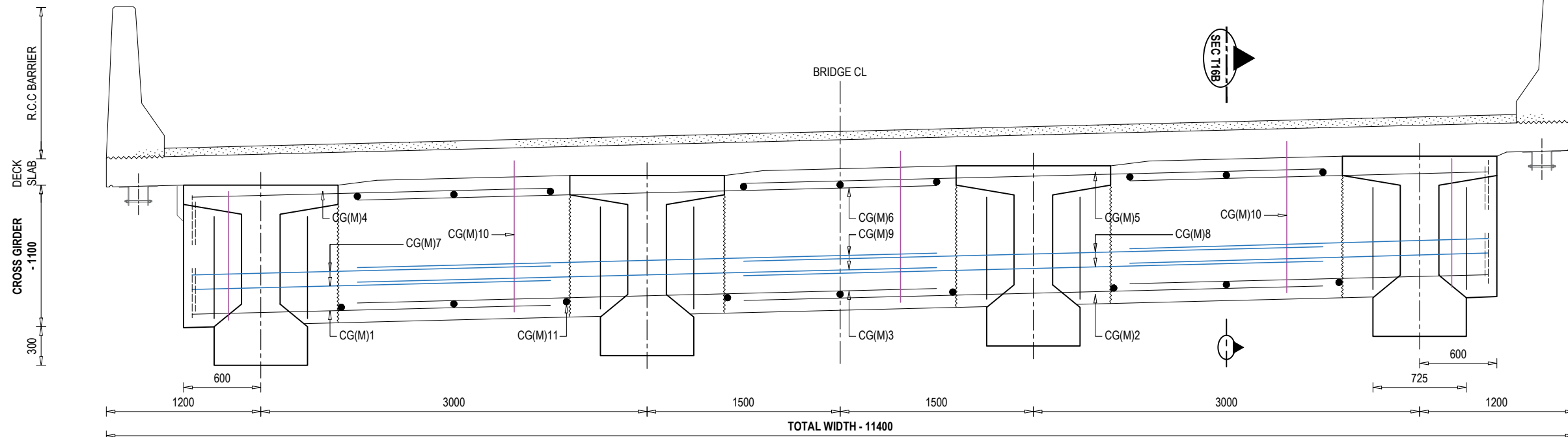
| EMPLOYER                                                                                                                                           | PROJECT NAME                                                                                                                                                                           | DESIGN CONSULTANTS                                                                                                                                                                                                                                 | Designed By                                                                                            | Drawing Name                                                                                                                                              | Scale:                           | Date:                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------|
| Government of Nepal<br>Ministry of Physical Infrastructure and Transport<br>Department of Roads<br>Development Cooperation Implementation Division | Strategic Road Connectivity & Trade Improvement Project (SRCTIP)<br>Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges | Joint Venture of<br>EPTISA Servicios De Ingenieria Madrid, Spain<br>STUP Consultants Private Limited Kolkata, India<br>In Association With<br>Udaya Consultancy, Geocom International, Sundar Kirti Consultant and Rays Consultant Private Limited | Mr. SUMAN NARSING RAJBHANDARI<br>Nec.No. 265 Civil "A"<br>Mr. SANJIB MITRA<br>Mr. HARI KRISHNA BHAVSAR | RCC DETAILS OF SUPERSTRUCTURE FOR RCC T GIRDER OF SPAN 20 M (c/c OF EXP JOINT) & WIDTH 11.40<br>Reference Drawings<br>KDP/DPR/STR/VUP/BREANDRABAZAR/DD-17 | AS SHOWN<br>Chainage:<br>243+640 | JUNE, 2023                                                          |
|                                                                                                                                                    |                                                                                                                                                                                        |                                                                                                                                                                                                                                                    |                                                                                                        |                                                                                                                                                           |                                  | Drawing No - KDP/DPR/STR/VUP/BREANDRABAZAR/DD-14<br>Sheet No. 1 / 2 |



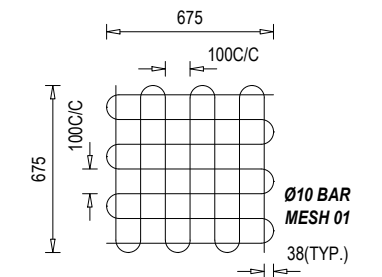
|                 |                                     |
|-----------------|-------------------------------------|
| Date:           | JUNE, 2023                          |
| Drawing No. -   | KDP/DPR/STR/VUP/BREANDRABAZAR/DD-14 |
| Sheet No. 2 / 2 |                                     |



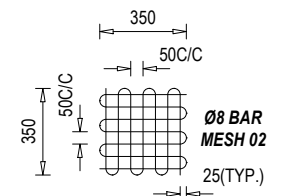
**REINFORCEMENT DETAILS OF END CROSS GIRDER**  
SCALE - 1 : 50



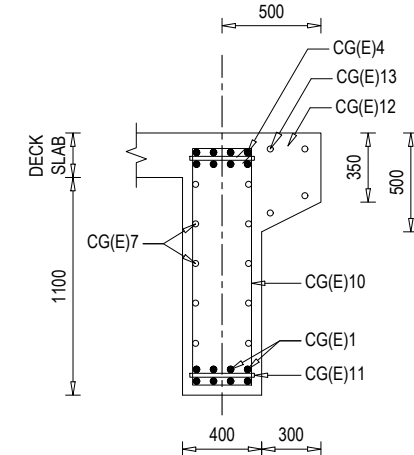
**REINFORCEMENT DETAILS OF MID CROSS GIRDER**  
SCALE - 1 : 50



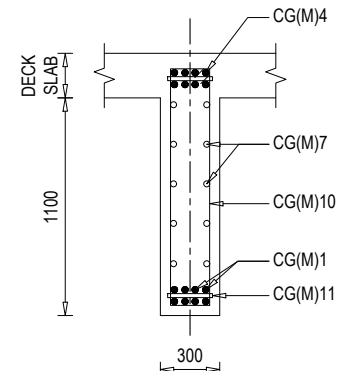
**REINFORCEMENT DETAILS OF BEARING MESH**  
SCALE - 1 : 50



**REINFORCEMENT DETAILS OF LIFTING MESH**  
SCALE - 1 : 50



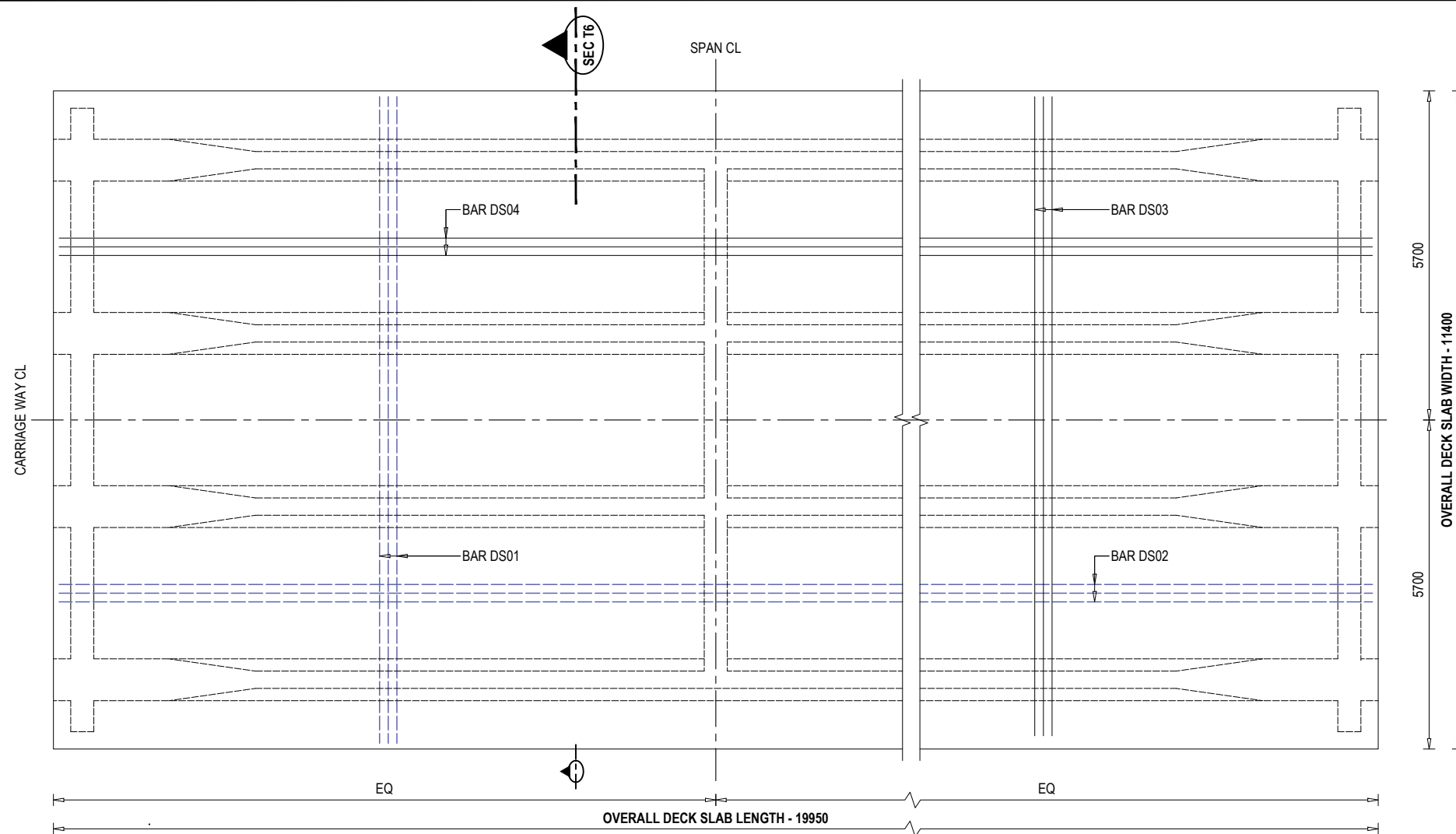
**SECTIONAL REINFORCEMENT DETAILS OF END CROSS GIRDER - SEC T16A**  
SCALE - 1 : 50



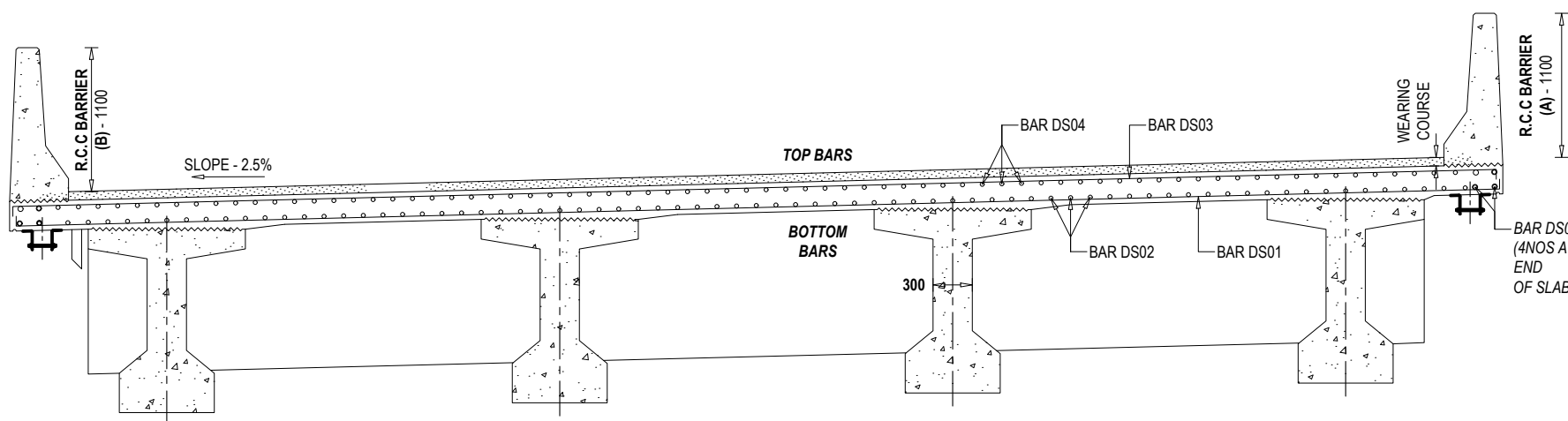
**SECTIONAL REINFORCEMENT DETAILS OF MID CROSS GIRDER - SEC T16B**  
SCALE - 1 : 50

NOTE  
READ THIS DRAWING IN CONJUNCTION WITH  
DRG NO. KDP/DPR/STR/VUP/BREANDRA BAZAR/DD-4

| EMPLOYER                                                                                                                                                                                                                                                | PROJECT NAME                                                                                                                                                                                          | DESIGN CONSULTANTS                                                                                                                                                                                                                                                                                                                                                                                                                                     | Designed By                                                    | Drawing Name                                                                                                                                                               | Scale:                                          | Date:                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|  <p>Government of Nepal<br/>Ministry of Physical Infrastructure and Transport<br/><b>Department of Roads</b><br/>Development Cooperation Implementation Division</p> | <p>Strategic Road Connectivity &amp; Trade Improvement Project (SRCTIP)</p> <p>Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges</p> | <p>Joint Venture of</p> <p> EPTISA Servicios De Ingenieria Madrid, Spain</p> <p> STUP Consultants Private Limited Kolkatta, India</p> <p>In Association With</p> <p>Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited</p> | <p>Mr. SUMAN NARSING RAJBHANDARI<br/>Nec.No. 265 Civil "A"</p> | <p>RCC DETAILS OF CROSS GIRDER FOR RCC I GIRDER OF SPAN 20 M (c/c OF EXP JOINT) &amp; WIDTH 11.40</p> <p>Reference Drawings</p> <p>KDP/DPR/STR/VUP/BREANDRABAZAR/DD-17</p> | <p>AS SHOWN</p> <p>Chainage:</p> <p>243+640</p> | <p>JUNE, 2023</p> <p>Drawing No.-</p> <p>KDP/DPR/STR/VUP/BREANDRABAZAR/DD-15</p> <p>Sheet No. 1 / 1</p> |
|                                                                                                                                                                                                                                                         |                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Checked By</p> <p>Mr. SANJIB MITRA</p>                      |                                                                                                                                                                            |                                                 |                                                                                                         |
|                                                                                                                                                                                                                                                         |                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Approved By</p> <p>Mr. HARI KRISHNA BHAVSAR</p>             |                                                                                                                                                                            |                                                 |                                                                                                         |
|                                                                                                                                                                                                                                                         |                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Signature</p> <p>Signature</p> <p>Signature</p>             |                                                                                                                                                                            |                                                 |                                                                                                         |



**REINFORCEMENT DETAILS OF DECK SLAB - PLAN VIEW**  
SCALE - 1 : 100

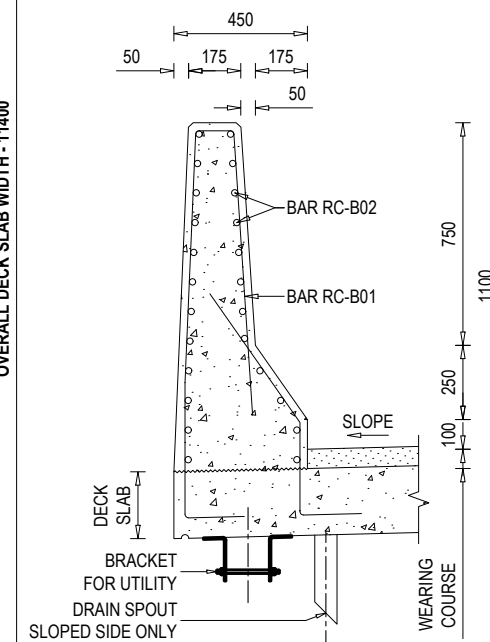


**REINFORCEMENT DETAILS OF DECK SLAB - SECTIONAL VIEW AT T6**  
SCALE - 1 : 50

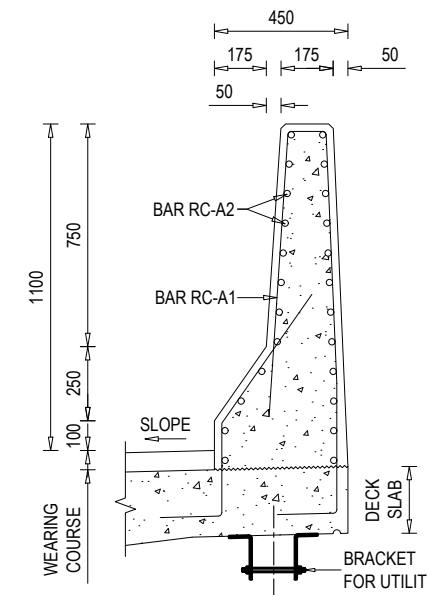
**LEGEND FOR REINFORCEMENT BAR**

| CODE | FULL FORM       | CG | - CROSS GIRDER  |
|------|-----------------|----|-----------------|
| DS   | - DECK SLAB     | AS | - APPROACH SLAB |
| RB   | - R.C.C BARRIER | ST | - STOPPER       |
| MG   | - MAIN GIRDER   | ** | - ***           |

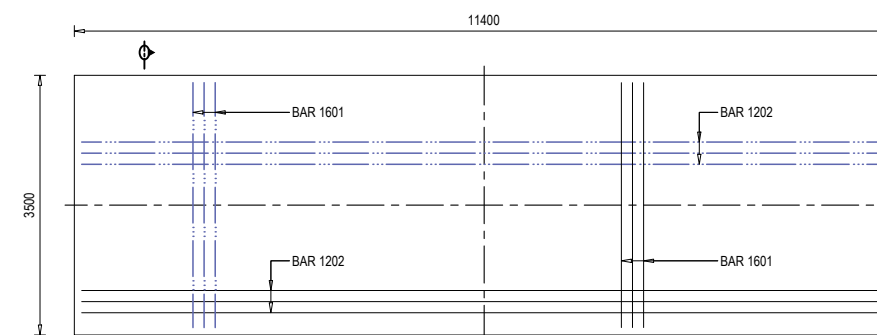
— TOP BAR OR NEAR FACE REINFORCEMENT  
 --- BOTTOM BAR OR FAR FACE REINFORCEMENT



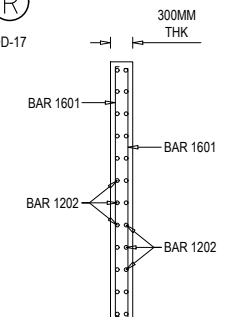
**REINFORCEMENT DETAILS OF R.C.C BARRIER (B)- SECTIONAL VIEW**  
SCALE - 1 : 25



**REINFORCEMENT DETAILS OF R.C.C BARRIER (A)- SECTIONAL VIEW**  
SCALE - 1 : 25



**SECTIONAL PLAN VIEW REINFORCEMENT DETAILS AT APPROACH SLAB**  
SCALE - 1 : 100 @ A3 PAPER  
FOR BBS OF APPROACH SLAB REFER DRAWING NO. - KDP/DPR/STR/VUP/BIRENDRABAZAR/DD-17

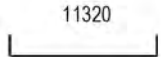
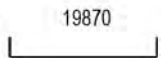
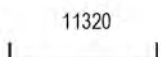
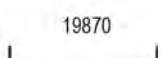
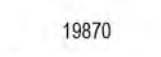


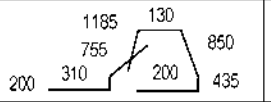
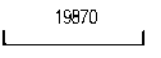
**SECTIONAL ELEVATION VIEW AT SEC T20**

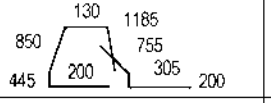
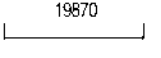
NOTE  
READ THIS DRAWING IN CONJUNCTION WITH  
DRG NO. KDP/DPR/STR/VUP/BREANDRABAZAR/DD-4

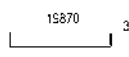
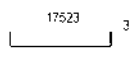
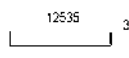
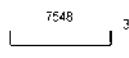
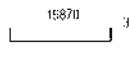
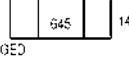
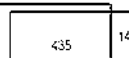
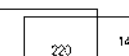
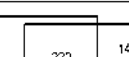
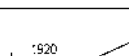
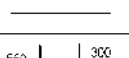
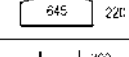
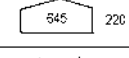
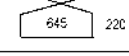
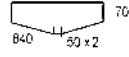
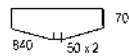
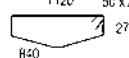
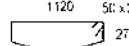
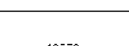
| EMPLOYER                                                                                                                                                                                                                                      | PROJECT NAME                                                                                                                                                                               | DESIGN CONSULTANTS                                                                                                                                                                                                                                                                                                                                                                                                             | Designed By                                                         | Drawing Name                                                                                                                                             | Scale:                               | Date:                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------------------------------------------|
|  Government of Nepal<br>Ministry of Physical Infrastructure and Transport<br><b>Department of Roads</b><br>Development Cooperation Implementation Division | Strategic Road Connectivity & Trade Improvement Project (SRCTIP)<br><br>Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges | Joint Venture of<br> EPTISA Servicios De Ingenieria Madrid, Spain<br> STUP Consultants Private Limited Kolkata, India<br>In Association With<br>Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited | Mr. SUMAN NARSING RAJBHANDARI<br>Nec.No. 265 Civil "A"<br>Signature | RCC DETAILS OF DECK SLAB FOR RCC 1 GIRDER OF SPAN 20 M (c/c OF EXP JOINT) & WIDTH 11.40<br><br>Reference Drawings<br>KDP/DPR/STR/VUP/BREANDRABAZAR/DD-17 | AS SHOWN<br><br>Chainage:<br>243+640 | December, 2023                                      |
|                                                                                                                                                                                                                                               |                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                | Checked By<br>Mr. SANJIB MITRA<br>Signature                         |                                                                                                                                                          |                                      | Drawing No.-<br>KDP/DPR/STR/VUP/BREANDRABAZAR/DD-16 |
|                                                                                                                                                                                                                                               |                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                | Approved By<br>Mr. HARI KRISHNA BHAVSAR<br>Signature                |                                                                                                                                                          |                                      | Sheet No. 1 / 1                                     |
|                                                                                                                                                                                                                                               |                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                     |                                                                                                                                                          |                                      |                                                     |

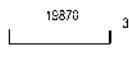
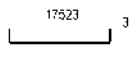
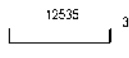
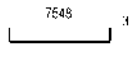
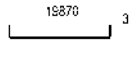
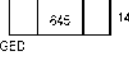
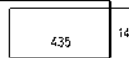
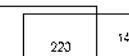
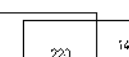
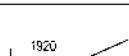
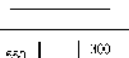
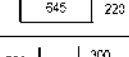
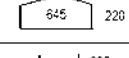
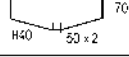
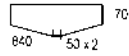
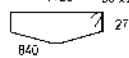
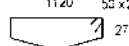
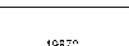
Ⓡ

| BAR BENDING SCHEDULE OF DECK SLAB (1SPAN) |          |                                                                                           |              |              |                |             |                    |                   |
|-------------------------------------------|----------|-------------------------------------------------------------------------------------------|--------------|--------------|----------------|-------------|--------------------|-------------------|
| S.No.                                     | BAR MARK | DESCRIPTION OF BAR                                                                        | BAR DIA.(MM) | SPACING (MM) | BAR LENGTH (M) | No. OF BARS | UNIT WEIGHT (Kg/m) | TOTAL WEIGHT (Kg) |
| 1                                         | DS01     | 150  150 | 16           | 150          | 11.620         | 134         | 1.580              | 2460.57           |
| 2                                         | DS02     | 150  150 | 10           | 100          | 20.170         | 111         | 0.617              | 1382.02           |
| 3                                         | DS03     | 150  150 | 16           | 150          | 11.620         | 134         | 1.580              | 2460.57           |
| 5                                         | DS04     | 150  150 | 10           | 100          | 20.170         | 111         | 0.617              | 1382.02           |
| 6                                         | DS05     |  19870   | 16           |              | 19.870         | 8           | 1.580              | 251.20            |
| TOTAL (KG) :                              |          |                                                                                           |              |              |                |             | 7936.37            |                   |

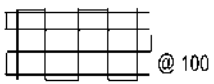
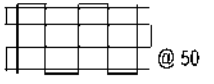
| BAR BENDING SCHEDULE OF R.C.C BARRIER (A) (1SPAN) |          |                                                                                             |              |              |                |             |                   |
|---------------------------------------------------|----------|---------------------------------------------------------------------------------------------|--------------|--------------|----------------|-------------|-------------------|
| S.No.                                             | BAR MARK | DESCRIPTION OF BAR                                                                          | BAR DIA.(MM) | SPACING (MM) | BAR LENGTH (M) | No. OF BARS | TOTAL WEIGHT (Kg) |
| 1                                                 | RC-A1    |  435     | 16           | 150          | 4.065          | 134         | 860.78            |
| 2                                                 | RC-A2    | 150  150 | 10           | 150          | 20.170         | 16          | 199.21            |
| TOTAL (KG) :                                      |          |                                                                                             |              |              |                |             | 1059.99           |

| BAR BENDING SCHEDULE OF R.C.C BARRIER (B) (1SPAN) |          |                                                                                             |              |              |                |             |                   |
|---------------------------------------------------|----------|---------------------------------------------------------------------------------------------|--------------|--------------|----------------|-------------|-------------------|
| S.No.                                             | BAR MARK | DESCRIPTION OF BAR                                                                          | BAR DIA.(MM) | SPACING (MM) | BAR LENGTH (M) | No. OF BARS | TOTAL WEIGHT (Kg) |
| 1                                                 | RC-B1    |  200     | 16           | 150          | 4.070          | 134         | 861.84            |
| 2                                                 | RC-B2    | 150  150 | 10           | 150          | 20.170         | 16          | 199.21            |
| TOTAL (KG) :                                      |          |                                                                                             |              |              |                |             | 1061.04           |

| BAR BENDING SCHEDULE OF END MAIN GIRDER (1SPAN) |          |                                                                                                              |              |              |                |             |                    |                   |
|-------------------------------------------------|----------|--------------------------------------------------------------------------------------------------------------|--------------|--------------|----------------|-------------|--------------------|-------------------|
| S.No.                                           | BAR MARK | DESCRIPTION OF BAR                                                                                           | BAR DIA.(MM) | SPACING (MM) | BAR LENGTH (M) | No. OF BARS | UNIT WEIGHT (Kg/m) | TOTAL WEIGHT (Kg) |
| 1                                               | MG(E)1   | 300  300                  | 32           |              | 20.470         | 12          | 6.321              | 1552.89           |
| 2                                               | MG(E)2   | 300  300                  | 32           |              | 18.123         | 6           | 6.321              | 687.33            |
| 3                                               | MG(E)3   | 300  300                  | 32           |              | 13.135         | 2           | 6.321              | 166.05            |
| 4                                               | MG(E)4   | 300  300                  | 32           |              | 8.148          | 2           | 6.321              | 103.01            |
| 5                                               | MG(E)5   | 300  300                  | 12           |              | 20.470         | 10          | 0.889              | 181.96            |
| 6                                               | MG(E)6   | 450  1430<br>4 LEGGED     | 12           | 100          | 9.260          | 42          | 0.889              | 345.71            |
| 7                                               | MG(E)7   | 480  1430<br>AVG.         | 12           | 100          | 5.125          | 32          | 0.889              | 145.78            |
| 8                                               | MG(E)8A  | 480  1430                 | 12           | 100          | 4.480          | 81          | 0.889              | 322.56            |
| 9                                               | MG(E)8B  | 480  1430                 | 12           | 150          | 4.480          | 35          | 0.889              | 139.38            |
| 10                                              | MG(E)9   | 370  1920<br>2000         | 12           | 200          | 4.290          | 28          | 0.889              | 106.77            |
| 11                                              | MG(E)10  |  16950                   | 12           | 200          | 16.950         | 14          | 0.889              | 210.93            |
| 12                                              | MG(E)11  | 550  220<br>AVG.        | 12           | 100          | 2.785          | 32          | 0.889              | 79.22             |
| 13                                              | MG(E)12A | 700  220                | 12           | 150          | 3.085          | 81          | 0.889              | 222.12            |
| 14                                              | MG(E)12B | 700  220                | 12           | 150          | 3.085          | 35          | 0.889              | 95.98             |
| 15                                              | MG(E)13A | 1120  70<br>840 50 x 2  | 12           | 100          | 3.040          | 151         | 0.889              | 408.04            |
| 16                                              | MG(E)13B | 1120  70<br>840 50 x 2  | 12           | 150          | 3.040          | 35          | 0.889              | 94.58             |
| 17                                              | MG(E)14A | 1120  270<br>840 50 x 2 | 12           | 100          | 3.440          | 151         | 0.889              | 461.72            |
| 18                                              | MG(E)14B | 1120  270<br>840 50 x 2 | 12           | 150          | 3.440          | 35          | 0.889              | 107.02            |
| 19                                              | MG(E)15  |  19870                  | 12           |              | 19.870         | 2           | 0.889              | 35.32             |
| 19                                              | MG(E)16  |  1645                   | 32           | 1500         | 0.645          | 42          | 6.321              | 171.24            |
| TOTAL (KG) :                                    |          |                                                                                                              |              |              |                |             | 5637.40            |                   |

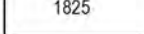
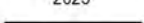
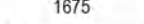
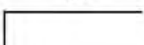
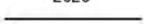
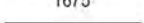
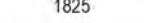
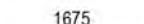
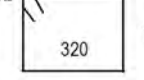
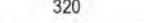
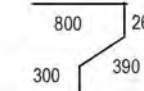
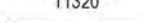
| BAR BENDING SCHEDULE OF MID MAIN GIRDER (1SPAN) |          |                                                                                                              |              |              |                |             |                    |                   |
|-------------------------------------------------|----------|--------------------------------------------------------------------------------------------------------------|--------------|--------------|----------------|-------------|--------------------|-------------------|
| S.No.                                           | BAR MARK | DESCRIPTION OF BAR                                                                                           | BAR DIA.(MM) | SPACING (MM) | BAR LENGTH (M) | No. OF BARS | UNIT WEIGHT (Kg/m) | TOTAL WEIGHT (Kg) |
| 1                                               | MG(M)1   | 300  300                  | 32           |              | 20.470         | 12          | 6.321              | 1552.89           |
| 2                                               | MG(M)2   | 300  300                  | 32           |              | 18.123         | 6           | 6.321              | 687.33            |
| 3                                               | MG(M)3   | 300  300                  | 32           |              | 13.135         | 2           | 6.321              | 166.05            |
| 4                                               | MG(M)4   | 300  300                  | 32           |              | 8.148          | 2           | 6.321              | 103.01            |
| 5                                               | MG(M)5   | 300  300                  | 12           |              | 20.470         | 10          | 0.889              | 181.96            |
| 6                                               | MG(M)6   | 450  1430<br>4 LEGGED     | 12           | 100          | 9.260          | 42          | 0.889              | 345.71            |
| 7                                               | MG(M)7   | 480  1430<br>AVG.         | 12           | 100          | 5.125          | 32          | 0.889              | 145.78            |
| 8                                               | MG(M)8A  | 480  1430                 | 12           | 100          | 4.480          | 81          | 0.889              | 322.56            |
| 9                                               | MG(M)8B  | 480  1430                 | 12           | 150          | 4.480          | 35          | 0.889              | 139.38            |
| 10                                              | MG(M)9   | 370  1920<br>2000         | 12           | 200          | 4.290          | 28          | 0.889              | 106.77            |
| 11                                              | MG(M)10  |  16950                   | 12           | 200          | 16.950         | 14          | 0.889              | 210.93            |
| 12                                              | MG(M)11  | 550  220<br>AVG.        | 12           | 100          | 2.785          | 32          | 0.889              | 79.22             |
| 13                                              | MG(M)12A | 700  220                | 12           | 150          | 3.085          | 81          | 0.889              | 222.12            |
| 14                                              | MG(M)12B | 700  220                | 12           | 150          | 3.085          | 35          | 0.889              | 95.98             |
| 15                                              | MG(M)13A | 1120  70<br>840 50 x 2  | 12           | 100          | 3.040          | 151         | 0.889              | 408.04            |
| 16                                              | MG(M)13B | 1120  70<br>840 50 x 2  | 12           | 150          | 3.040          | 35          | 0.889              | 94.58             |
| 17                                              | MG(M)14A | 1120  270<br>840 50 x 2 | 12           | 100          | 3.440          | 151         | 0.889              | 461.72            |
| 18                                              | MG(M)14B | 1120  270<br>840 50 x 2 | 12           | 150          | 3.440          | 35          | 0.889              | 107.02            |
| 19                                              | MG(M)15  |  19870                  | 12           |              | 19.870         | 2           | 0.889              | 35.32             |
| 19                                              | MG(M)16  |  1645                   | 32           | 1500         | 0.645          | 42          | 6.321              | 171.24            |
| TOTAL (KG) :                                    |          |                                                                                                              |              |              |                |             | 5637.40            |                   |

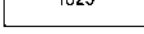
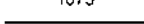
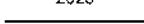
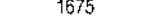
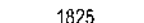
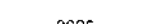
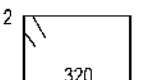
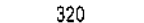
| EMPLOYER                                                                            |                                                                                                                                                    | PROJECT NAME                                                                                                                                                                               |                                                                                                                                    | DESIGN CONSULTANTS                                                                                                                    |                                                                                                      |                  | Drawing Name                                           |                                                                                       | Scale:                   | Date:                                                                                 |                          |                                                      |  |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------|---------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------|--|
|  | Government of Nepal<br>Ministry of Physical Infrastructure and Transport<br>Department of Roads<br>Development Cooperation Implementation Division | Strategic Road Connectivity & Trade Improvement Project (SRCTIP)<br><br>Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges | Joint Venture of                                                                                                                   |                                                                                                                                       |                                                                                                      | Designed By      | Mr. SUMAN NARSING RAJBHANDARI<br>Nec.No. 265 Civil "A" | BAR BENDING SCHEDULE FOR RCC I GIRDER OF SPAN 20.0 (c/c OF EXP JOINT) & WIDTH 11.40 M | AS SHOWN                 | December, 2023                                                                        |                          |                                                      |  |
|                                                                                     |                                                                                                                                                    |                                                                                                                                                                                            |  EPTISA Servicios De Ingenieria Madrid, Spain |  STUP Consultants Private Limited Kolkata, India | Checked By                                                                                           | Mr. SANJIB MITRA | Reference Drawings                                     |                                                                                       |                          |                                                                                       | Chainage:<br><br>243+640 | Drawing No. -<br>KDP/DPR/STR/VUP/BREANDRABAZAR/DD-17 |  |
|                                                                                     |                                                                                                                                                    |                                                                                                                                                                                            |                                                                                                                                    |                                                                                                                                       | In Association With                                                                                  |                  |                                                        | Approved By                                                                           | Mr. HARI KRISHNA BHAVSAR |  |                          |                                                      |  |
|                                                                                     |                                                                                                                                                    |                                                                                                                                                                                            |                                                                                                                                    |                                                                                                                                       | Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited |                  |                                                        |                                                                                       |                          |                                                                                       |                          |                                                      |  |

| BAR BENDING SCHEDULE OF MESH (1SPAN) |          |                                                                                                                |              |              |                |             |                    |                   |
|--------------------------------------|----------|----------------------------------------------------------------------------------------------------------------|--------------|--------------|----------------|-------------|--------------------|-------------------|
| S.No.                                | BAR MARK | DESCRIPTION OF BAR                                                                                             | BAR DIA.(MM) | SPACING (MM) | BAR LENGTH (M) | No. OF BARS | UNIT WEIGHT (Kg/m) | TOTAL WEIGHT (Kg) |
| 1                                    | MESH 01  | <div>675<br/><br/>@ 100</div> | 10           |              | 9.450          | 8           | 0.617              | 46.67             |
| 2                                    | MESH 02  | <div>350<br/><br/>@ 50</div>  | 8            |              | 4.900          | 4           | 0.395              | 7.74              |
| TOTAL (KG) :                         |          |                                                                                                                |              |              |                |             |                    | 616.32            |

| BAR BENDING SCHEDULE OF APPROACH SLAB (EACH) |          |                                                                                     |              |              |                |             |                    |                   |
|----------------------------------------------|----------|-------------------------------------------------------------------------------------|--------------|--------------|----------------|-------------|--------------------|-------------------|
| S.No.                                        | BAR MARK | DESCRIPTION OF BAR                                                                  | BAR DIA.(MM) | SPACING (MM) | BAR LENGTH (M) | No. OF BARS | UNIT WEIGHT (Kg/m) | TOTAL WEIGHT (Kg) |
| 1                                            | 1601     |  | 16           | 150          | 11.520         | 48          | 1.580              | 873.81            |
| 2                                            | 1202     |  | 12           | 150          | 3.620          | 154         | 0.889              | 495.54            |
| TOTAL (KG) :                                 |          |                                                                                     |              |              |                |             |                    | 1369.35           |



| BAR BENDING SCHEDULE OF END CROSS GIRDER (1SPAN) |          |                                                                                                                      |              |              |                |             |                    |                   |
|--------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------|--------------|--------------|----------------|-------------|--------------------|-------------------|
| S.No.                                            | BAR MARK | DESCRIPTION OF BAR                                                                                                   | BAR DIA.(MM) | SPACING (MM) | BAR LENGTH (M) | No. OF BARS | UNIT WEIGHT (Kg/m) | TOTAL WEIGHT (Kg) |
| 1                                                | CG(E)1   | <div>300<br/></div>               | 20           | 8 Nos.       | 2.125          | 8           | 2.469              | 41.98             |
| 2                                                | CG(E)2   |                                   | 20           | 8 Nos.       | 2.625          | 8           | 2.469              | 51.85             |
| 3                                                | CG(E)3   |                                   | 20           | 8 Nos.       | 1.675          | 8           | 2.469              | 33.09             |
| 4                                                | CG(E)4   | <div>1825<br/>300<br/></div>      | 20           | 8 Nos.       | 2.125          | 8           | 2.469              | 41.98             |
| 5                                                | CG(E)5   |                                   | 20           | 8 Nos.       | 2.625          | 8           | 2.469              | 51.85             |
| 6                                                | CG(E)6   |                                   | 20           | 8 Nos.       | 1.675          | 8           | 2.469              | 33.09             |
| 7                                                | CG(E)7   |                                   | 12           | 150          | 1.825          | 8           | 0.889              | 12.98             |
| 8                                                | CG(E)8   |                                 | 12           | 150          | 2.625          | 8           | 0.889              | 18.67             |
| 9                                                | CG(E)9   |                                 | 12           | 150          | 1.675          | 8           | 0.889              | 11.91             |
| 10                                               | CG(E)10  | <div>50 x 2<br/><br/>1220</div> | 12           | 200          | 1.640          | 39          | 0.889              | 56.85             |
| 11                                               | CG(E)11  |                                 | 20           | 1000         | 0.320          | 18          | 2.469              | 14.22             |
| 12                                               | CG(E)12  | <div><br/>300</div>             | 16           | 150          | 1.750          | 76          | 1.580              | 210.17            |
| 13                                               | CG(E)13  |                                 | 12           | 6 Nos.       | 11.320         | 6           | 0.889              | 60.37             |
| TOTAL (KG) :                                     |          |                                                                                                                      |              |              |                |             |                    | 639.00            |
| TOTAL NOS OF CROSS GIRDER :                      |          |                                                                                                                      |              |              |                |             |                    | 2.00              |
| TOTAL WEIGHT (KG) :                              |          |                                                                                                                      |              |              |                |             |                    | 1278.01           |

| BAR BENDING SCHEDULE OF MID CROSS GIRDER (1SPAN) |          |                                                                                                                      |              |              |                |             |                    |                   |
|--------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------|--------------|--------------|----------------|-------------|--------------------|-------------------|
| S.No.                                            | BAR MARK | DESCRIPTION OF BAR                                                                                                   | BAR DIA.(MM) | SPACING (MM) | BAR LENGTH (M) | No. OF BARS | UNIT WEIGHT (Kg/m) | TOTAL WEIGHT (Kg) |
| 1                                                | CG(M)1   | <div>300<br/></div>               | 20           |              | 1.920          | 8           | 2.469              | 37.93             |
| 2                                                | CG(M)2   |                                   | 20           |              | 2.945          | 8           | 2.469              | 58.17             |
| 3                                                | CG(M)3   |                                   | 20           |              | 1.995          | 8           | 2.469              | 39.41             |
| 4                                                | CG(M)4   | <div>1825<br/>300<br/></div>      | 20           |              | 1.920          | 8           | 2.469              | 37.93             |
| 5                                                | CG(M)5   |                                   | 20           |              | 2.625          | 8           | 2.469              | 51.85             |
| 6                                                | CG(M)6   |                                   | 20           |              | 1.675          | 8           | 2.469              | 33.09             |
| 7                                                | CG(M)7   |                                   | 12           | 150          | 1.620          | 8           | 0.889              | 11.52             |
| 8                                                | CG(M)8   |                                 | 12           | 150          | 2.625          | 8           | 0.889              | 18.67             |
| 9                                                | CG(M)9   |                                 | 12           | 150          | 1.675          | 8           | 0.889              | 11.91             |
| 10                                               | CG(M)10  | <div>50 x 2<br/><br/>1220</div> | 12           | 200          | 1.640          | 39          | 0.889              | 56.85             |
| 11                                               | CG(M)11  |                                 | 20           | 1000         | 0.320          | 18          | 2.469              | 14.22             |
| TOTAL (KG) :                                     |          |                                                                                                                      |              |              |                |             |                    | 371.54            |

| EMPLOYER                                                                            |                                                                                                                                                                  | PROJECT NAME                                                                                                                                                                               |                                                                                                                             | DESIGN CONSULTANTS |  |             | Drawing Name                                           |                    | Scale:   |                                                     | Date:   |                 |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|--|-------------|--------------------------------------------------------|--------------------|----------|-----------------------------------------------------|---------|-----------------|
|  | Government of Nepal<br>Ministry of Physical Infrastructure and Transport<br><b>Department of Roads</b><br><b>Development Cooperation Implementation Division</b> | Strategic Road Connectivity & Trade Improvement Project (SRCTIP)<br><br>Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges | Joint Venture of                                                                                                            |                    |  | Designed By | Mr. SUMAN NARSING RAJBHANDARI<br>Nec.No. 265 Civil "A" | AS SHOWN           | AS SHOWN | December, 2023                                      |         |                 |
|                                                                                     |                                                                                                                                                                  |                                                                                                                                                                                            | EPTISA Servicios De Ingenieria Madrid, Spain      STUP Consultants Private Limited Kolkata, India                           |                    |  | Checked By  | Mr. SANJIB MITRA                                       |                    |          | Drawing No. - KDP/DPRI/STR/VUP/BREANDRABAZAR/IDD-17 |         |                 |
|                                                                                     |                                                                                                                                                                  |                                                                                                                                                                                            | In Association With<br>Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited |                    |  | Approved By | Mr. HARI KRISHNA BHAVSAR                               | Reference Drawings |          | Chainage:                                           | 243+640 | Sheet No. 2 / 2 |