

सत्यमेव जयते

सड़क परिवहन और राजमार्ग मंत्रालय MINISTRY OF ROAD TRANSPORT & HIGHWAYS

भारत सरकार

Government of India

Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over Kataiya Hydrel tail race & canal on NH-131(106) in the State of Bihar.

FINAL DETAILED PROJECT REPORT

DRAWINGS

DECEMBER, 2025

INDIA

BIHAR

SUPAUL

Project location

Project Title :
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Client :
सड़क परिवहन और राजमार्ग मंत्रालय
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
Government of India
MORT&H THROUGH CHIEF ENGINEER
(SOUTH) N.H.WING,ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title :
PROJECT LOCATION MAP
Drawing Number :
VKSIMPL/P-145/MORTH/ PL_MAP/01
Scale :
AS SHOWN
Drawn By :
SKG
Designed By :
GKG
Checked By :
ARK
Date :
SEP, 2025

Design Consultant :
VKS **VKS INFRATECH MANAGEMENT PVT. LTD.**
Consulting Engineers, Planners & Managers
Ragunath Bhawan, B-17/882, Block-B, Opp Prachin
Shiv Mandir, New Ashok Nagar, Delhi - 110096
(Ph: 011-45061563)



Google Earth

Image © 2025 Airbus

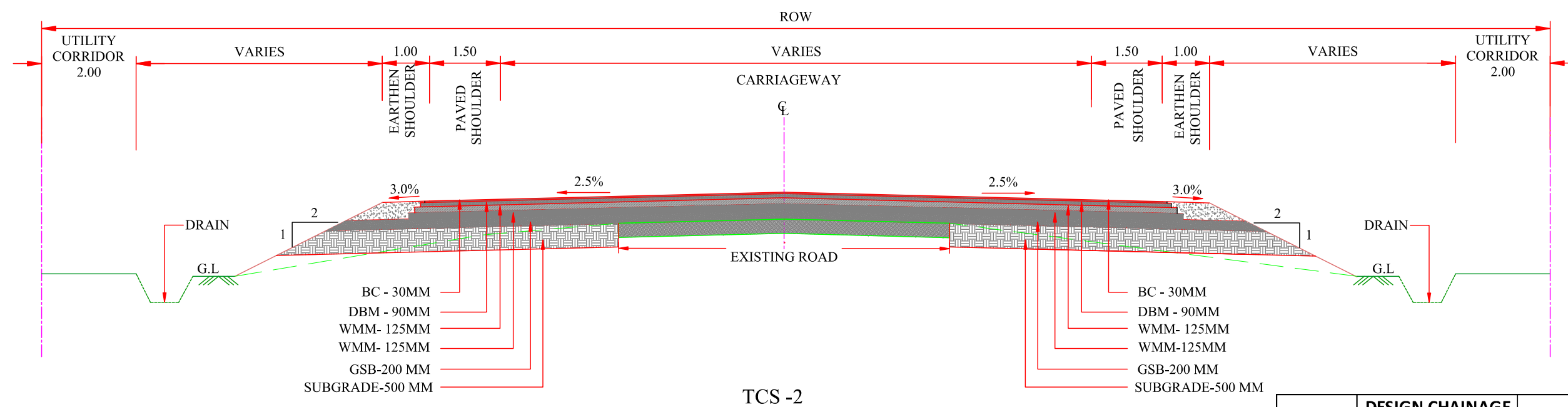
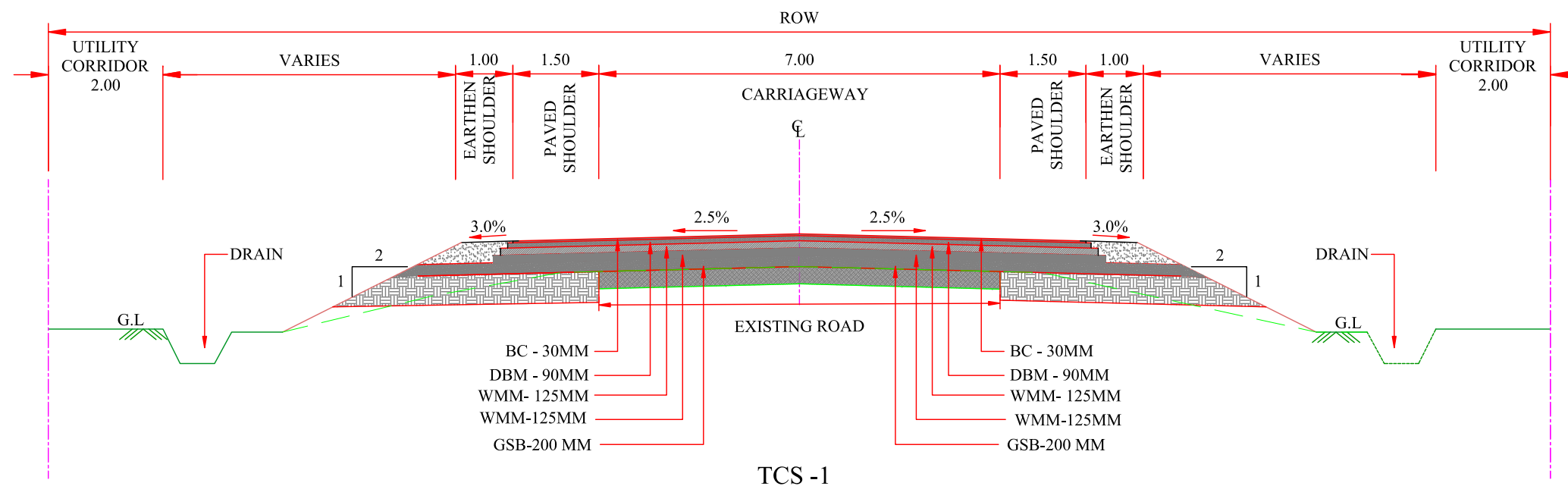
Revision Details	By	Chk	Date	Suffix

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Drawing Title :
INDEX MAP
Drawing Number :
VKSIMPL/P-145/MORTH/ INDEX_MAP/01
Scale :
AS SHOWN
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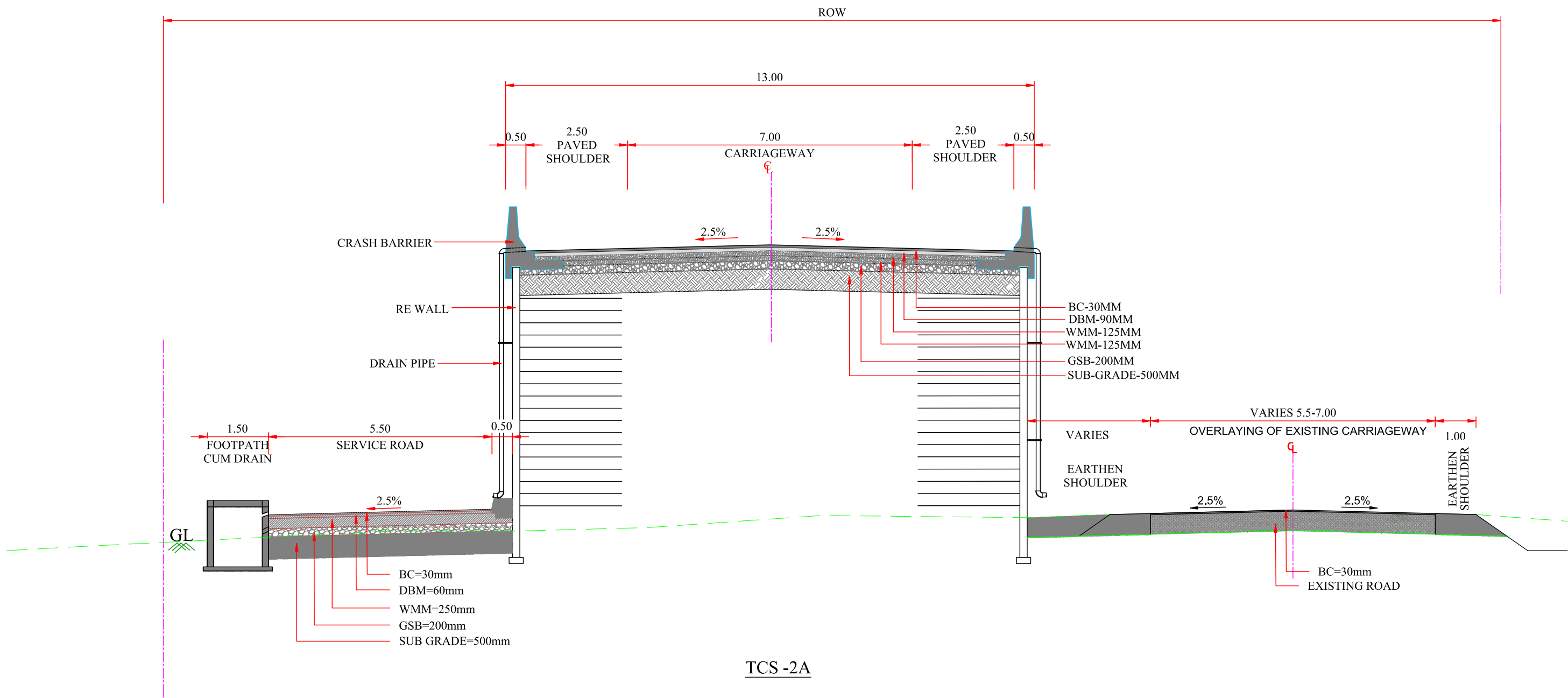
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(SOUTH) N.H.WING,ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title : TYPICAL CROSS SECTION			
Drawing Number : VKSIMPL/P-147/MORTH/TCS/01 SHEET 1 OF			
Scale : 1:100			
Drawn By : SKG	Designed By : GKG	Checked By : ARK	Date : OCT, 2025



TCS -2A

SR. NO	DESIGN CHAINAGE		LENGTH	TCS TYPE
	FROM	TO		
1	2+030	2+192	162	TCS-2A

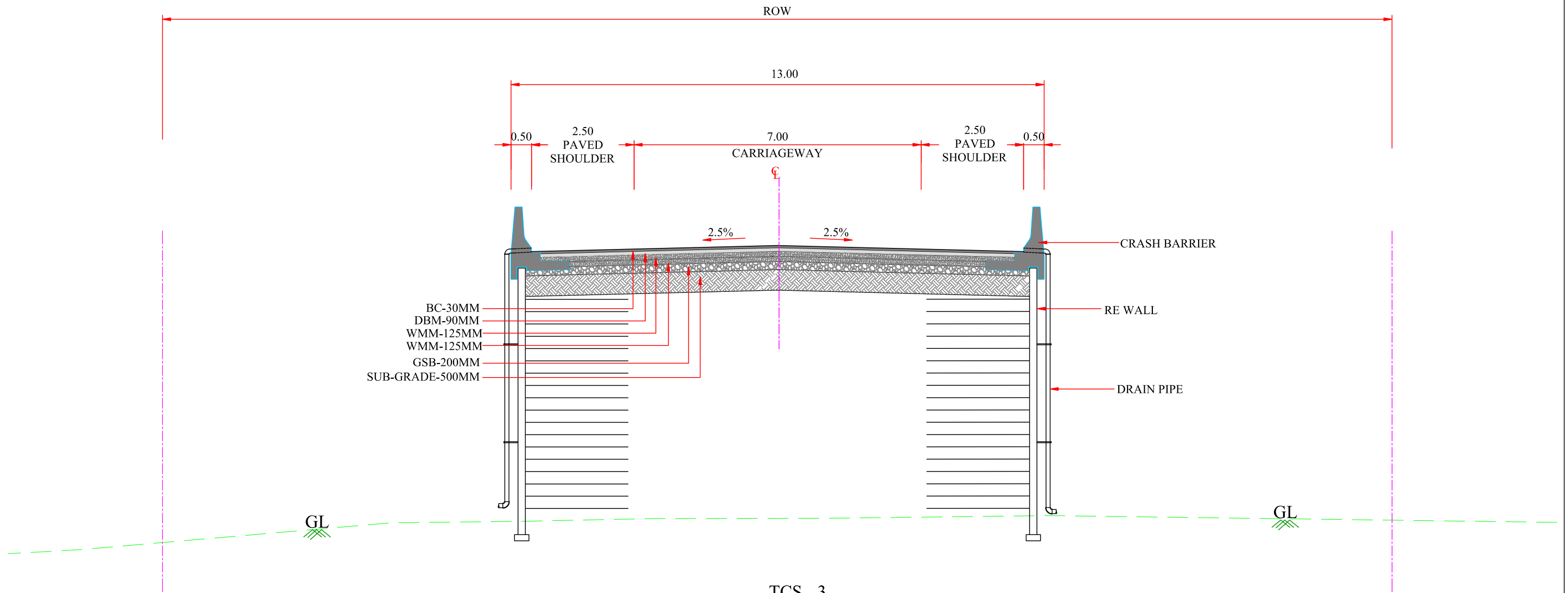
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Drawing Title :
TYPICAL CROSS SECTION
Drawing Number :
VKSIMPL/P-147/MORTH/TCS/01 SHEET 2 OF 5
Scale :
1:100
Drawn By :
SKG
Designed By :
GKG
Checked By :
ARK
Date :
OCT, 2025

Design Consultant :
VKS INFRATECH MANAGEMENT PVT. LTD.
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SR. NO	DESIGN CHAINAGE		LENGTH	TCS TYPE
	FROM	TO		
1	02+199	02+240	41.0	TCS-3
2	02+395	02+427	32.0	TCS-3
3	02+559	02+619	60.0	TCS-3
4	02+649	02+705	56.0	TCS-3

Revision	Details	By	Date
		chk	
			Suffix

Project Title :
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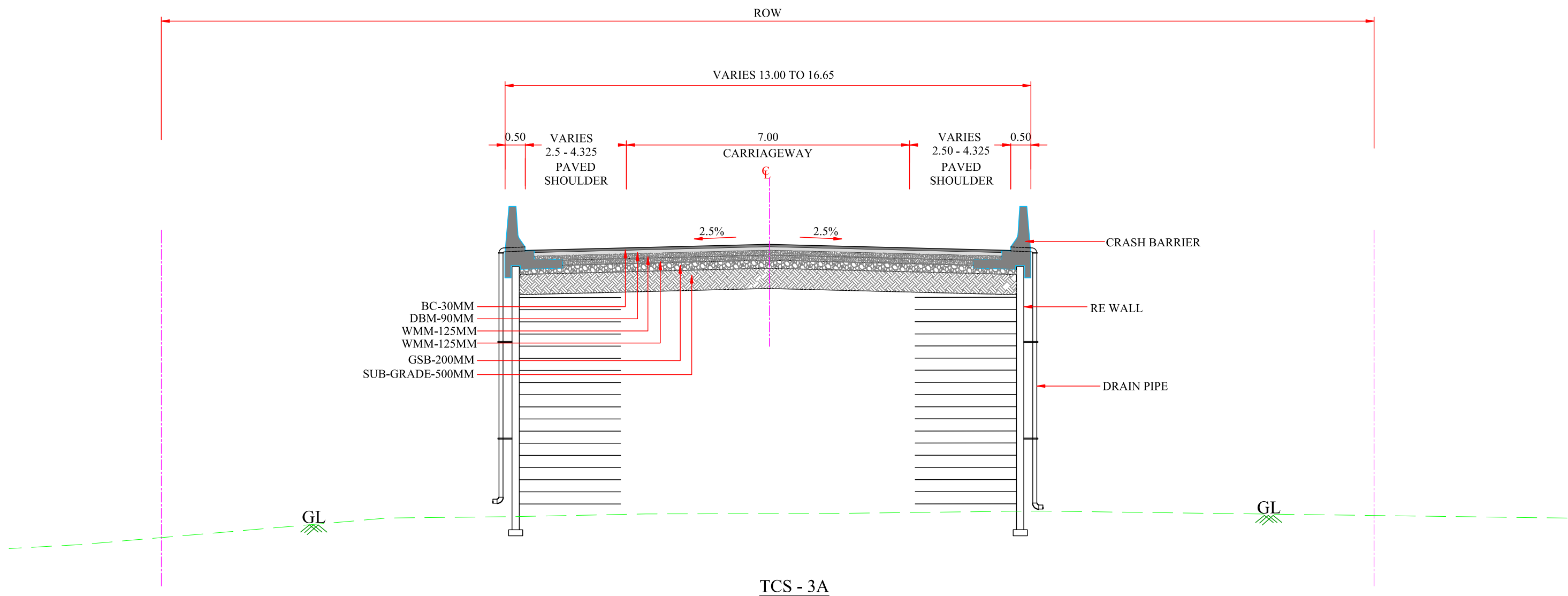
Client :

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Drawing Title :
TYPICAL CROSS SECTION
Drawing Number :
VKSIMPL/P-147/MORTH/TCS/01 SHEET 3 OF 5
Scale :
1:100
Drawn By : SKG
Designed By : GKG
Checked By : ARK
Date : OCT, 2025

Design Consultant :

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SR. NO	DESIGN CHAINAGE		LENGTH
	FROM	TO	
02+240	02+267	27	TCS-3A
02+367	02+395	28	TCS-3A
02+427	02+454	27	TCS-3A
02+514	02+525	11	TCS-3A
02+532	02+559	27	TCS-3A

Revision	Details	By	Date
		chk	Suffix

Project Title :
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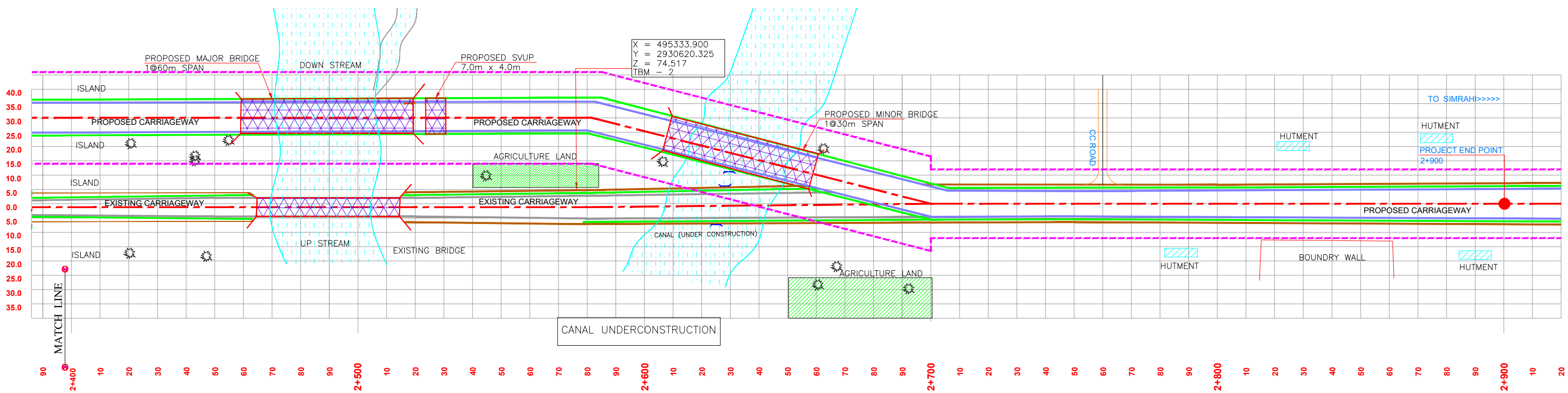
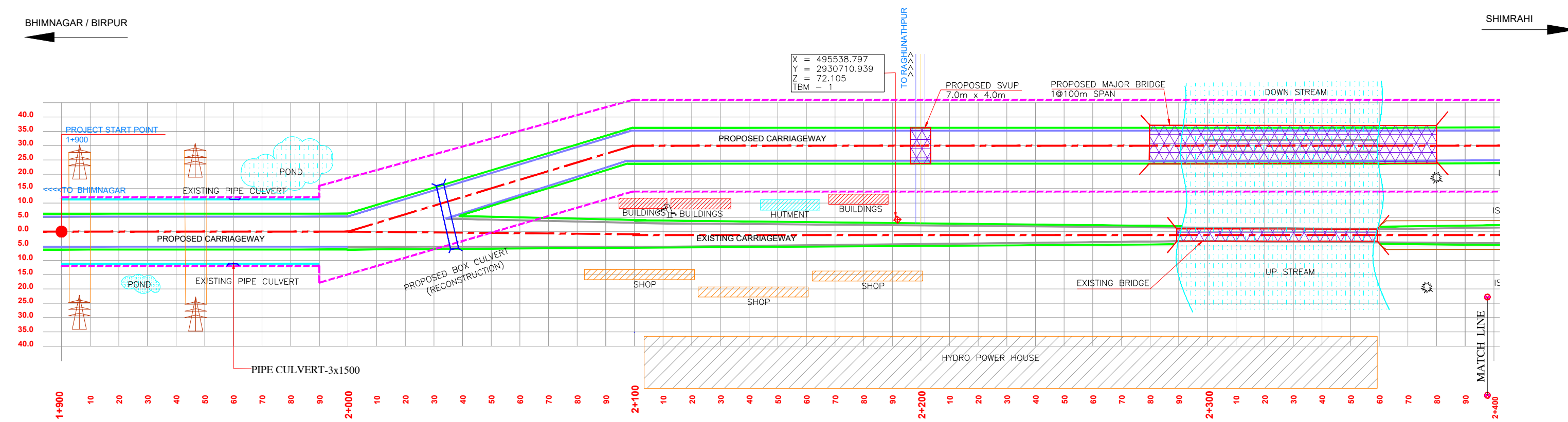
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Drawing Title :
TYPICAL CROSS SECTION
Drawing Number :
VKSIMPL/P-147/MORTH/TCS/01 SHEET 4 OF 5
Scale :
1:100
Drawn By : SKG
Designed By : GKG
Checked By : ARK
Date : OCT, 2025

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LEGEND:-

Center Line	Existing Road	Culvert	Tree-3
Carriageway Line	Hutment	Bridge	Tree-4
Shoulder Edge	Shop Line	River Line	Electric Pole
Row	Building	TBM	Telephone Pole
Toe Wall	Fencing	Tree-2	

Revision Details

By: Date: Suffix:

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MORT&H THROUGH CHIEF ENGINEER (SOUTH) N.H,WING,ROAD CONSTRUCTION DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title :

STRIP PLAN CH:1+900 TO 2+925

Drawing Number :

VKSIMPL/P-147/MORTH/STRIP PLAN/01

Scale :

H=1:2000

Drawn By :

SK

Designed By :

GKG

Checked By :

ARK

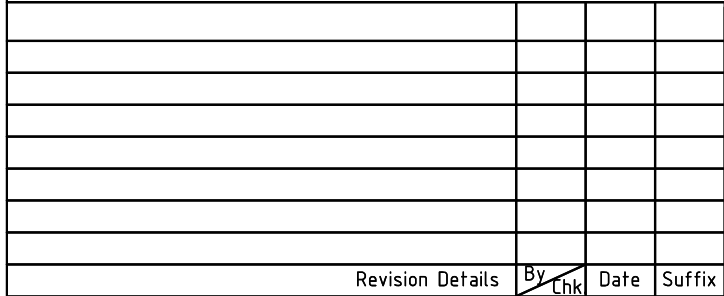
Date :

SEP, 2025

Design Consultant :

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STRUCTURE DRAWINGS



Project Title :

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Client :

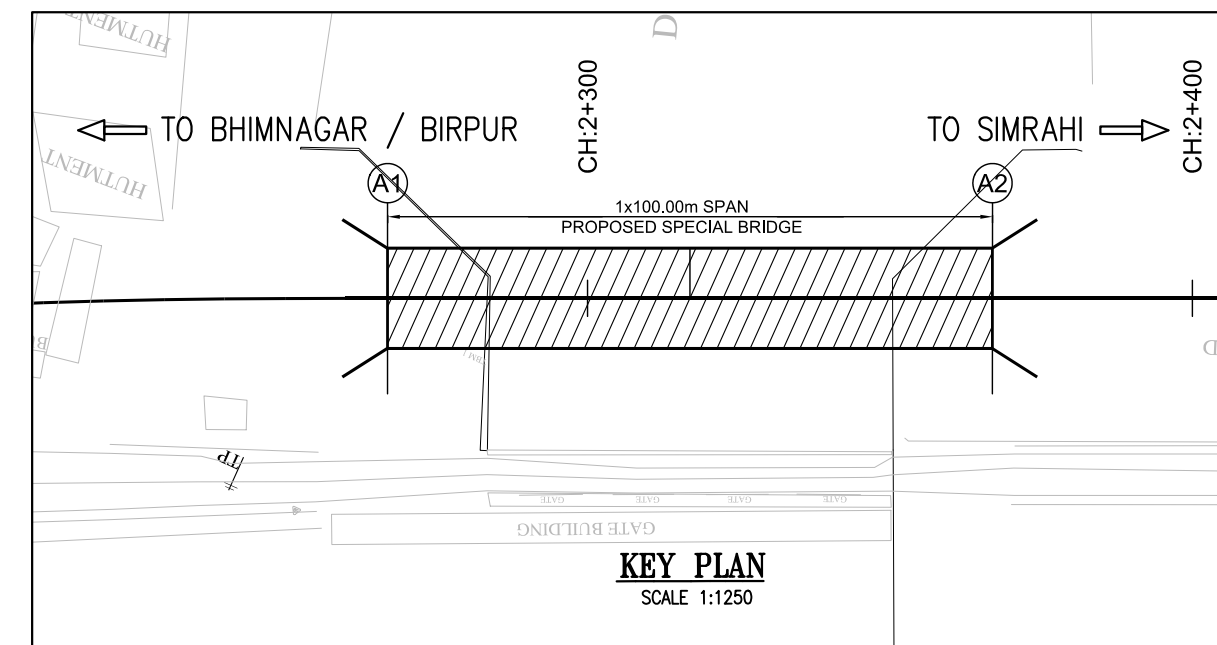
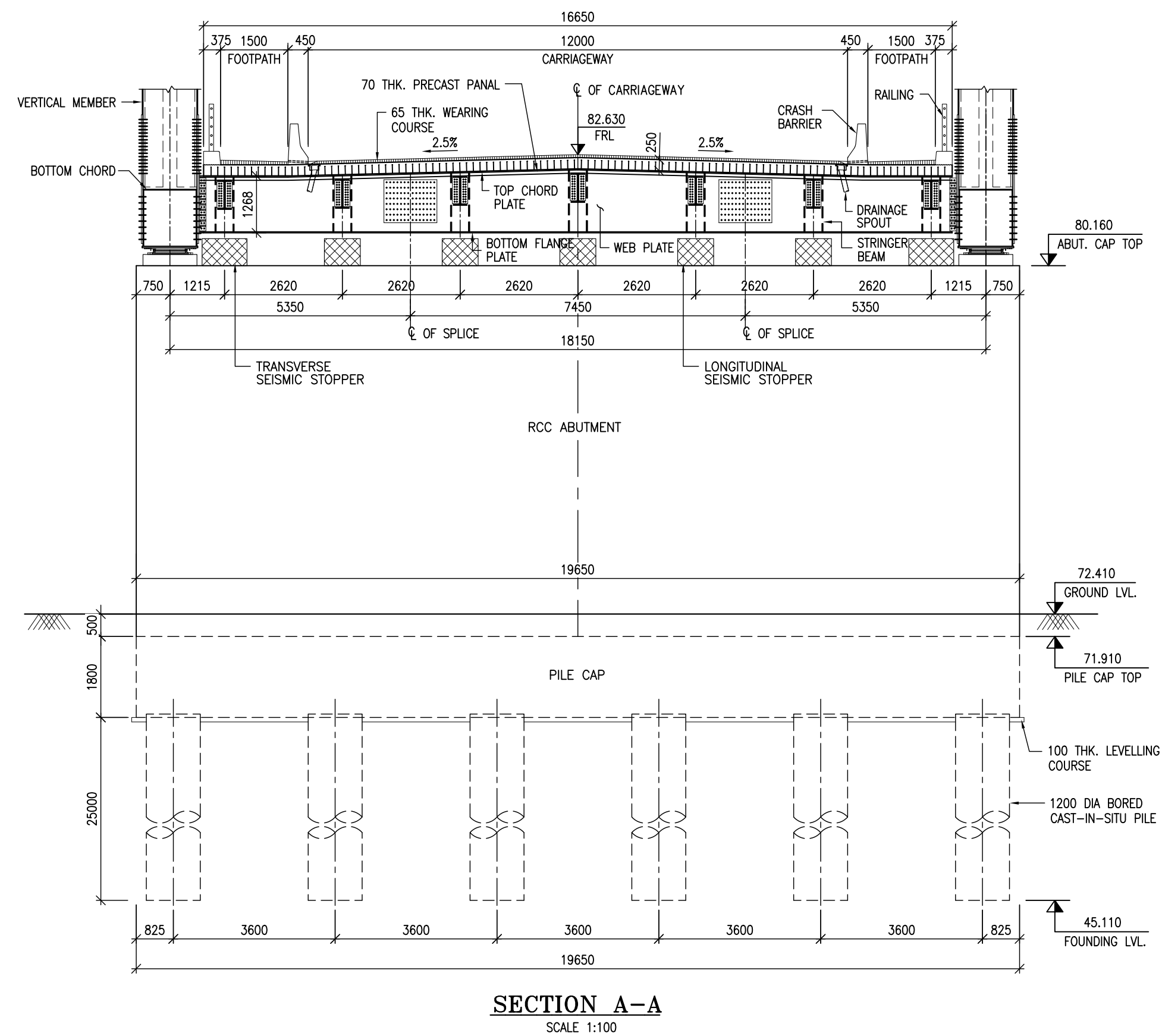
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भारत सरकार Government of India

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(NORTH) N.H.WING,ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title : GENERAL ARRANGEMENT DRAWING AT CH. 2+317 Km (1X100.00m SPAN)			
Drawing Number : VKSIMPL/P-147/MORTH/BR/MJB-2/01			
Scale : AS SHOWN		SH. 1 OF 2	
Drawn By : SKG	Designed By : PMY	Checked By : ARK	Date : Oct, 2025

Design Consultant :

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- NOTES:

1. ALL DIMENSIONS ARE IN mm AND LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
2. THE STRUCTURE IS DESIGNED FOR LIVE LOAD COMBINATION AS PER TABLE 6A OF IRC-6:2017 OR SPECIAL VEHICLE LOADING, WHICHEVER GOVERNS.
3. CONCRETE:

RCC DECK SLAB	—	M40
RCC CRASH BARRIER	—	M40
PEDESTAL	—	M35
SUBSTRUCTURE & FOUNDATION	—	M35
APPROACH SLAB	—	M30
LEVELLING COURSE (PCC)	—	M15
4. REINFORCEMENT STEEL SHALL BE HYSD BARS OF GRADE DESIGNATION Fe-500D CONFORMING TO IS:1786.
5. ALL STRUCTURAL STEEL SHALL BE OF GRADE E350 FE490 (B0).
6. MINIMUM CONCRETE COVER, MINIMUM CEMENT CONTENT AND MAXIMUM W/C RATIO SHALL BE AS PER SEVERE CONDITION OF EXPOSURE AS PER PROVISION OF IRC:112:2020.
7. STRIP SEAL TYPE EXPANSION SHALL BE PROVIDED AS PER IRC:SP:69.
8. 65mm TH. WEARING COURSE COMPRISING OF UNDER LAYER OF 40mm THK. BITUMINOUS CONCRETE OVERLAID WITH 25mm THK. MASTIC ASPHALT.
9. BACK FILLING BEHIND VERTICAL WALLS SHALL CONSIST OF SELECTED EARTH CONFORMING TO IRC:78
10. 600 THK FILTER MEDIA BEHIND ABUTMENT/RETAINING WALL SHALL BE PROVIDED AS PER IRC:78

[illegible]

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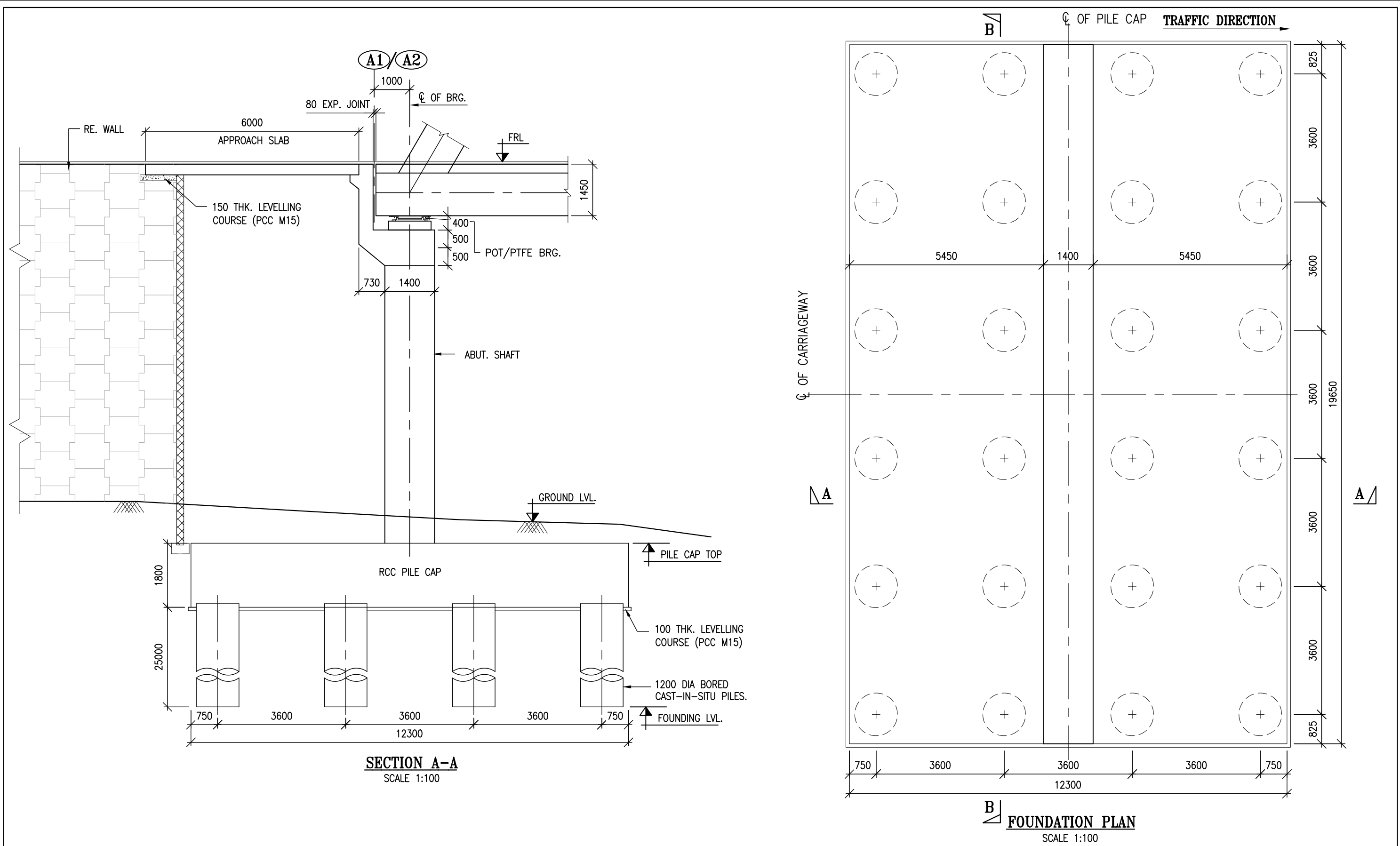
Scale : AS SHOWN SH. 2 OF 2

Drawn By : SKG	Designed By : PMY	Checked By : ARK	Date : Oct, 2025
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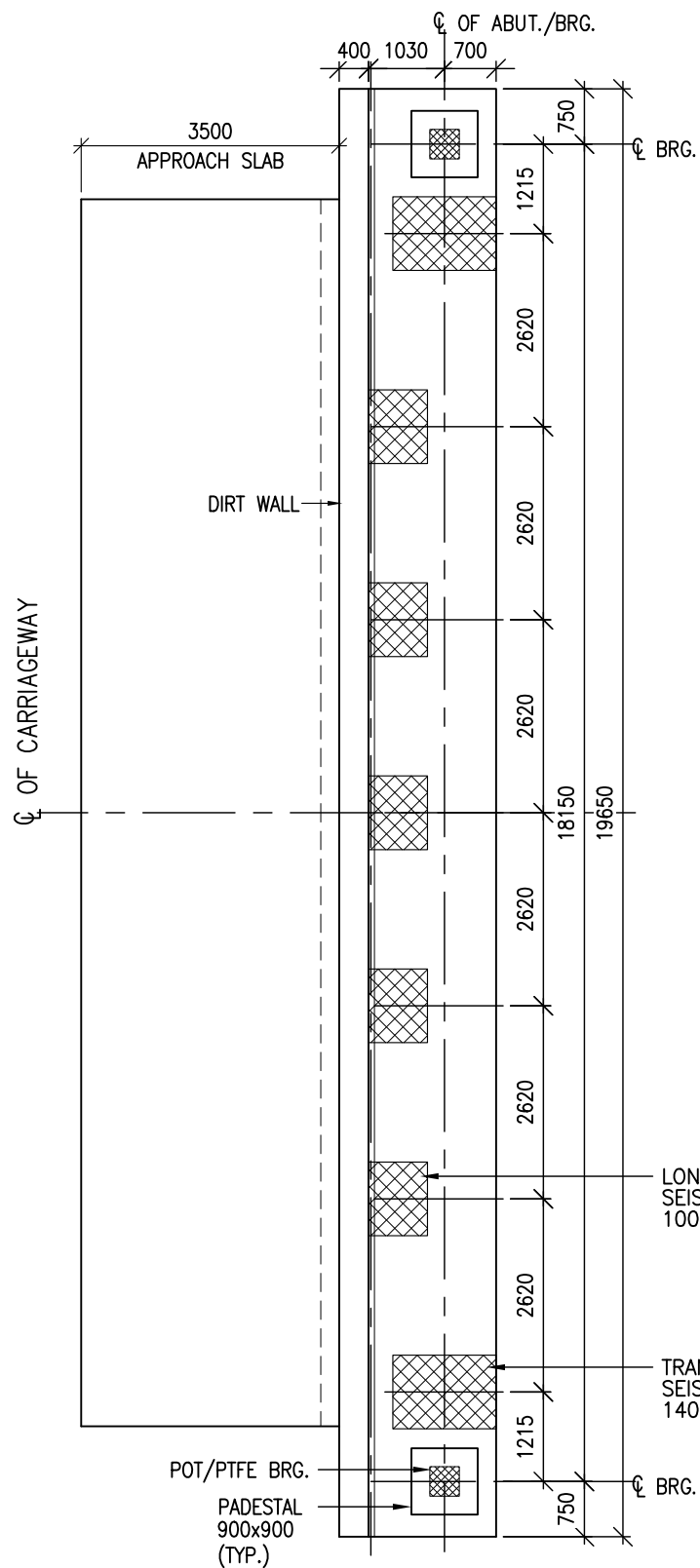
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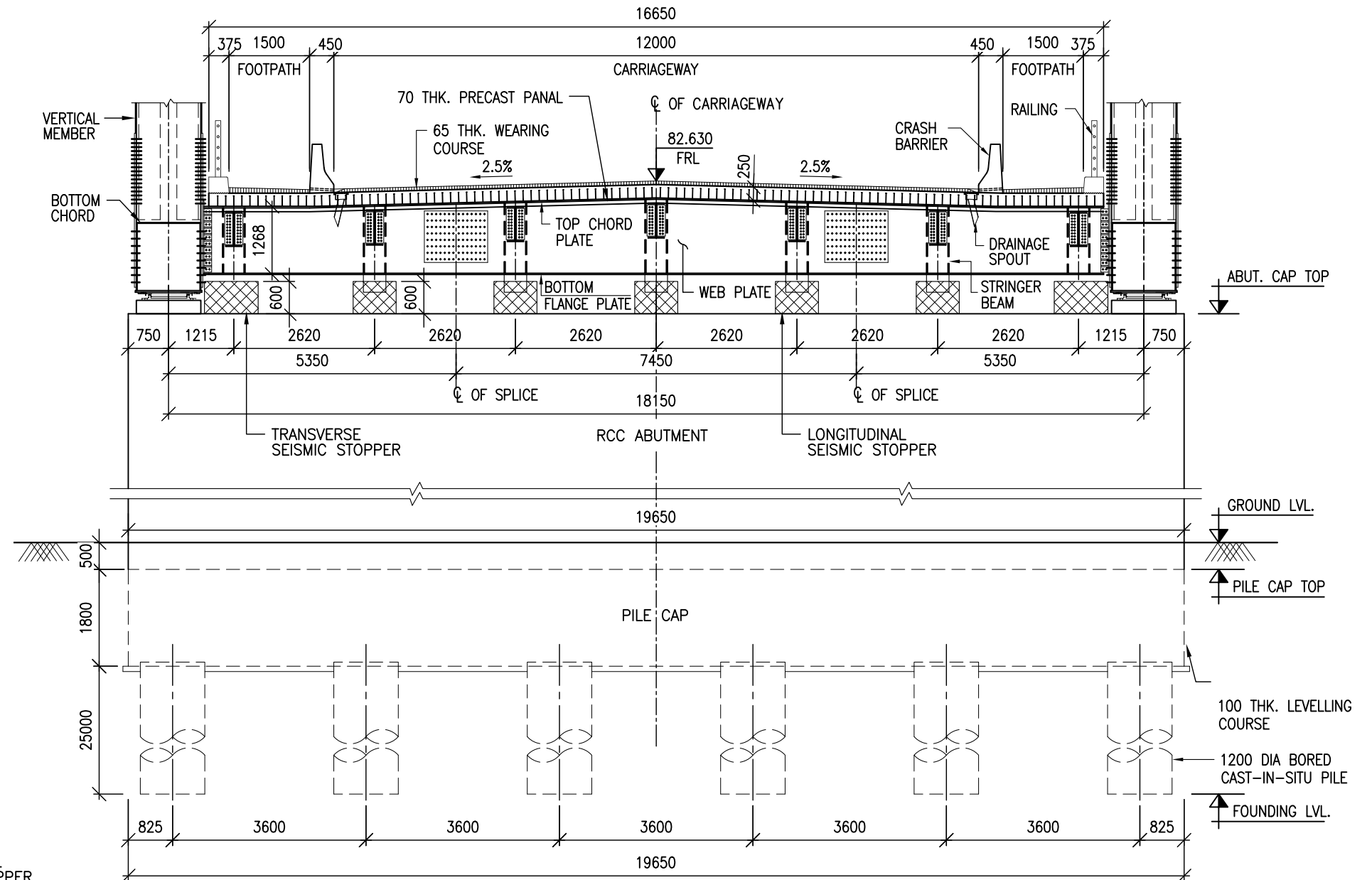
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PLAN OF ABUTMENT CAP
SCALE 1:100



SECTION B-B
SCALE 1:100

TABLE:

S.NO	ABUTMENT LOCATION	FORMATION LVL.	EXISTING GROUND LVL.	ABUTMENT CAP TOP LVL.	PILE CAP TOP LVL.	FOUNDING LVL.
1	A1	82.630	72.704	80.160	71.910	45.110
2	A2	82.630	72.416	80.160	71.658	44.858

Revision Details	By	Chk	Date	Suffix

Project Title :

Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

Client :


MORT&H THROUGH CHIEF ENGINEER
(NORTH) N.H.WING, ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title:

DIMENSION DETAILS OF ABUTMENT

Drawing Number:

VKSIMPL/P-147/MORTH/BR/MJB-2/02

Scale: **AS SHOWN**

Sheet: **SH. 2 OF 2**

Drawn By:

Designed By:

Checked By:

Date:

SKG

PMY

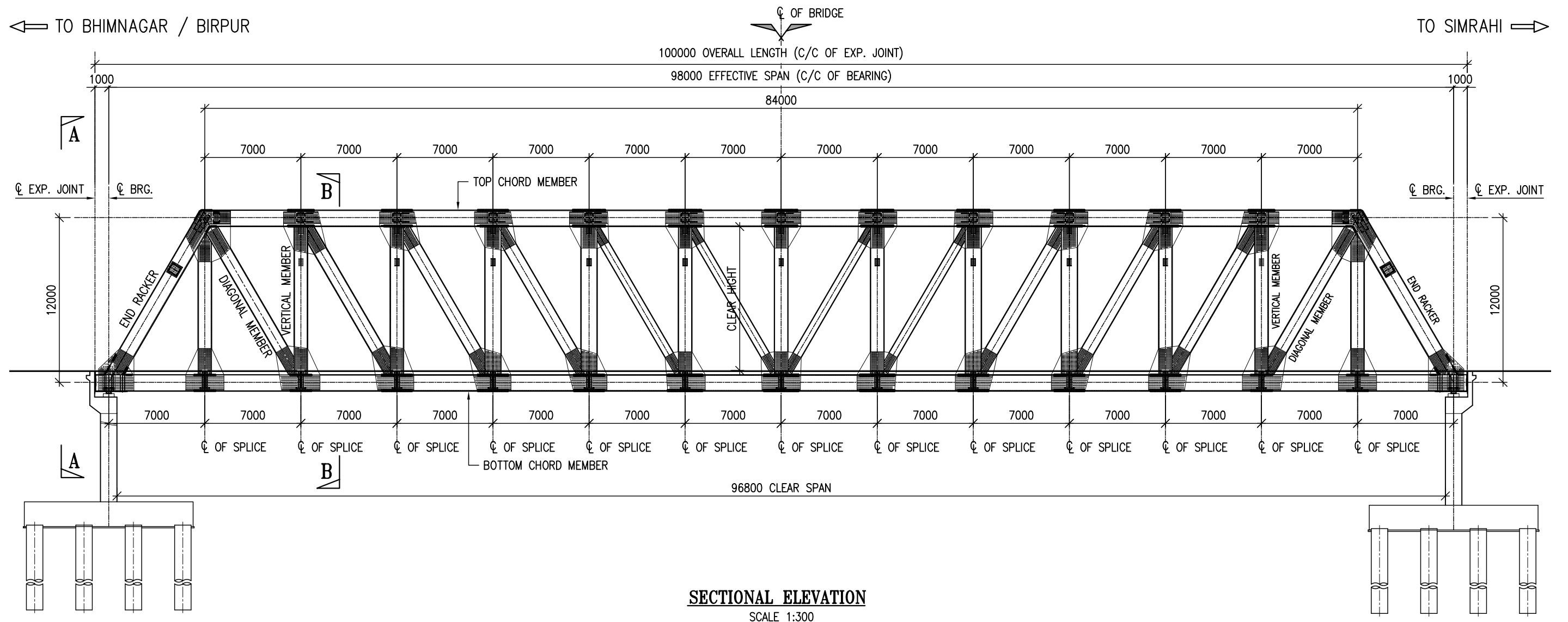
ARK

Oct, 2025

Design Consultant :



VKS INFRATECH MANAGEMENT PVT. LTD.
Consulting Engineers, Planners & Managers
Raghunath Bhawan, B-17/882, Block-B, Opp Prachin
Shiv Mandir, New Ashok Nagar, Delhi - 110096
(Ph: 011-45061563)



Revision Details	By	Chk	Date	Suffix

Project Title :

Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

Client :

 **सड़क परिवहन और राजमार्ग मंत्रालय**
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
भारत सरकार Government of India

MORT&H THROUGH CHIEF ENGINEER
(NORTH) N.H.WING,ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title:
GENERAL ARRANGEMENT OF SUPER STRUCTURE

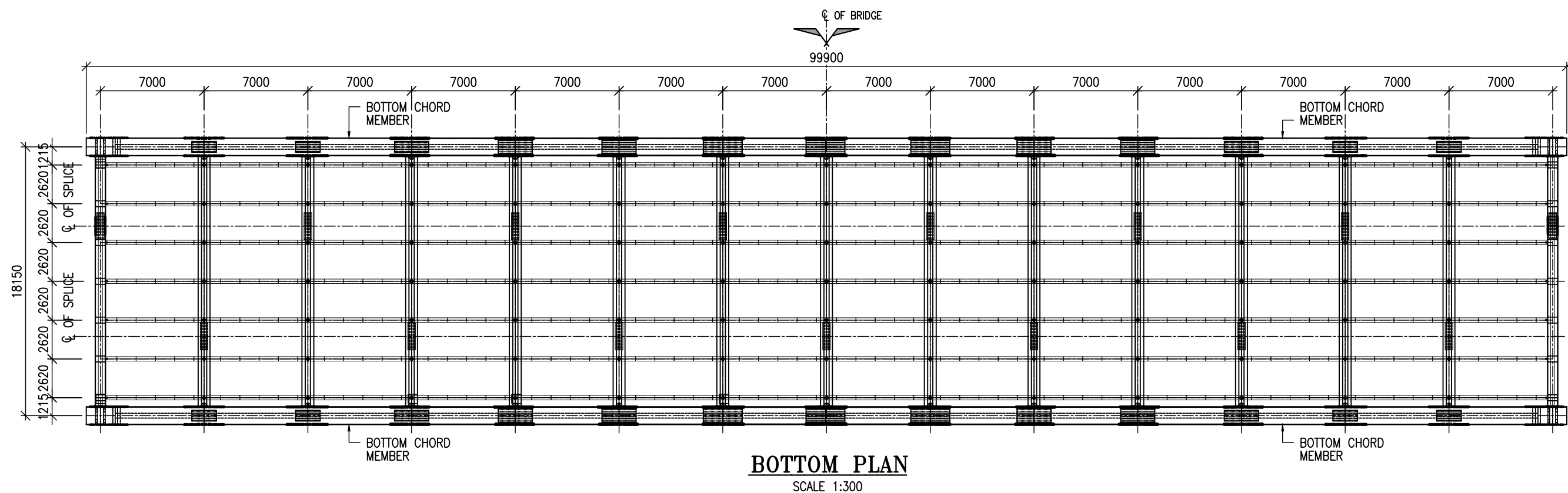
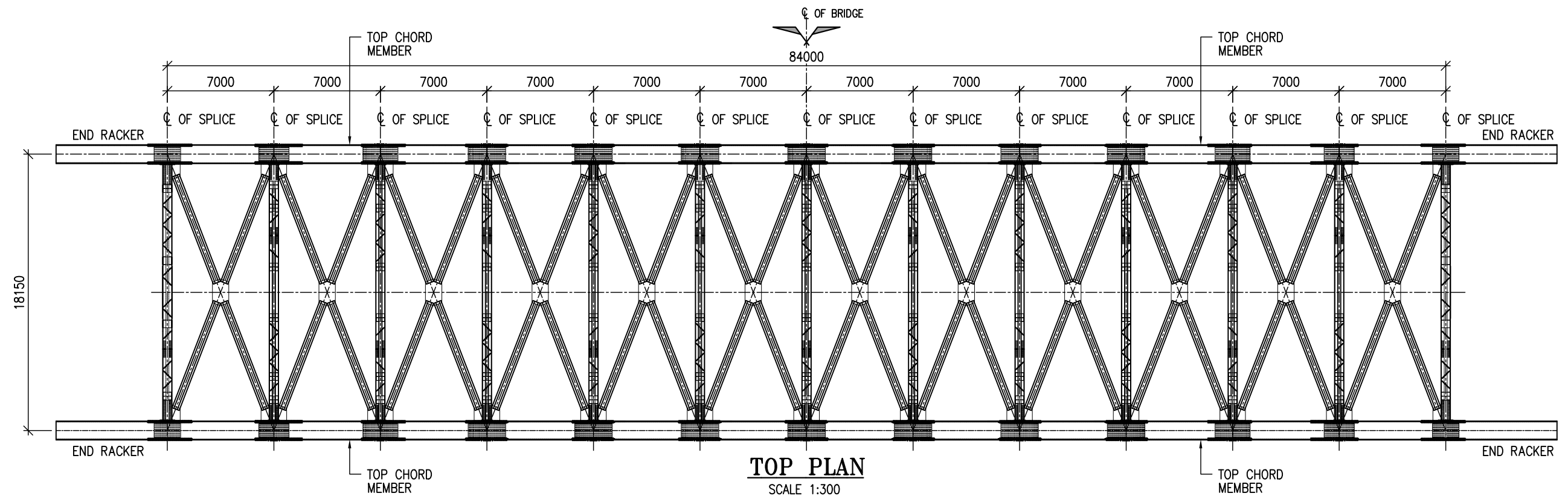
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VKSIMPL/P-147/MORTH/BR/MJB-2/03

Scale: **AS SHOWN** Sheet: **SH. 1 OF 2**

Drawn By: **SKG** Designed By: **PMY** Checked By: **ARK** Date: **Oct, 2025**

Design Consultant :

 **VKS INFRATECH MANAGEMENT PVT. LTD.**
Consulting Engineers, Planners & Managers
Raghunath Bhawan, B-17/882, Block-B, Opp Prachin Shiv Mandir, New Ashok Nagar, Delhi - 110096
(Ph: 011-45061563)



Revision Details	By	Chk	Date	Suffix

Project Title :

Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

Client :

 **सड़क परिवहन और राजमार्ग मंत्रालय**
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
Government of India

MORT&H THROUGH CHIEF ENGINEER
(NORTH) N.H.WING, ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title:
GENERAL ARRANGEMENT OF SUPER STRUCTURE

Drawing Number:
VKSIMPL/P-147/MORTH/BR/MJB-2/03

Scale: **AS SHOWN** Sheet: **SH. 2 OF 2**

Drawn By: **SKG** Designed By: **PMY** Checked By: **ARK** Date: **Oct, 2025**

Design Consultant :

 **VKS INFRATECH MANAGEMENT PVT. LTD.**
Consulting Engineers, Planners & Managers
Raghunath Bhawan, B-17/882, Block-B, Opp Prachin Shiv Mandir, New Ashok Nagar, Delhi - 110096
(Ph: 011-45061563)

TO SIMRAHI →



RE. WALL

FOOTPATH

RAILING

CRASH BARRIER

DRAINAGE SPOUT

DIRT WALL

APPROACH SLAB

CARRIAGEWAY

16650

12000

1500

450

375

3500

29980

350

825

3750

3600

750

1500

450

375

12000

450

375

825

3750

3600

750

1500

450

375

PLAN

SCALE 1:200

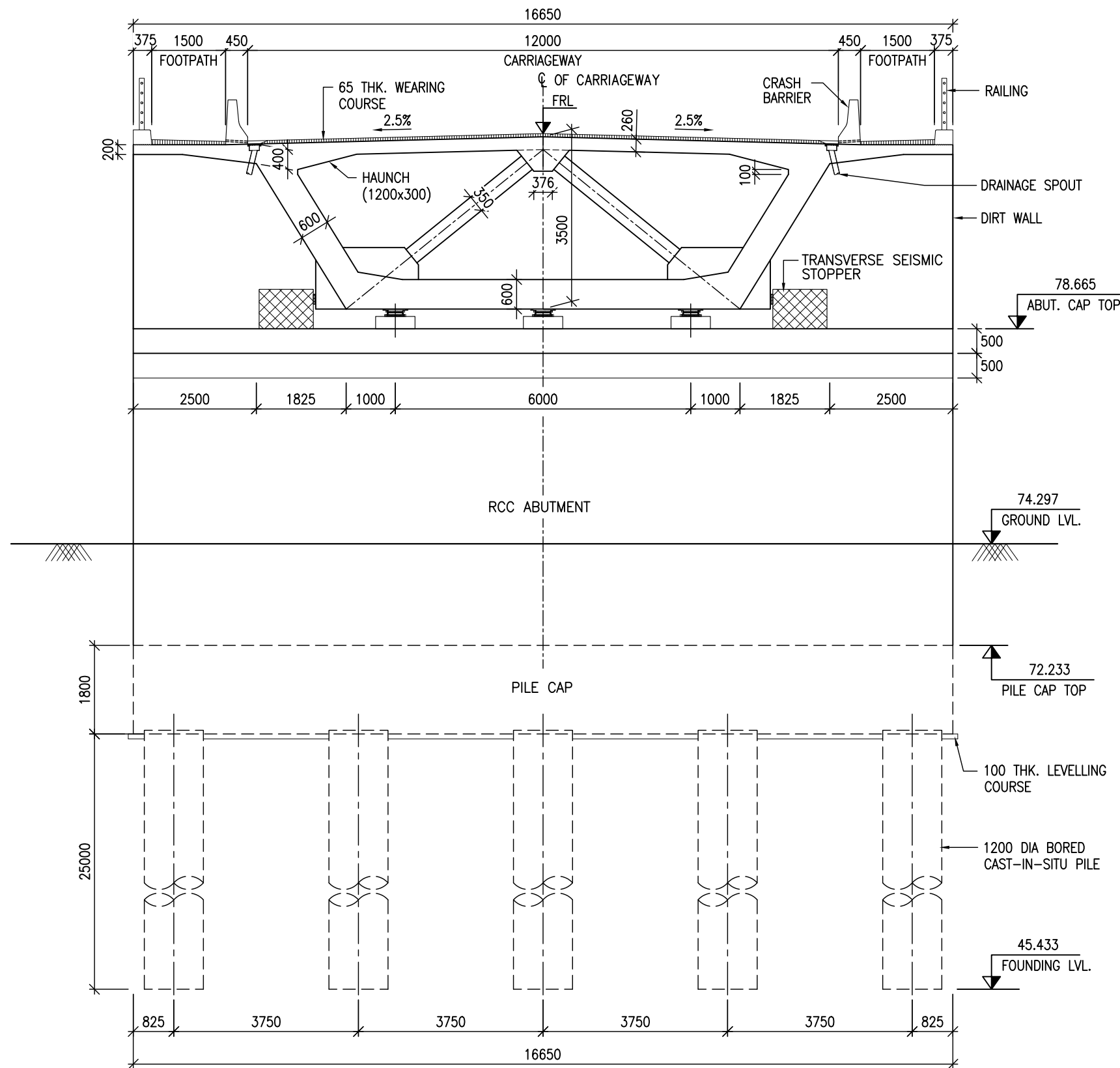
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Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

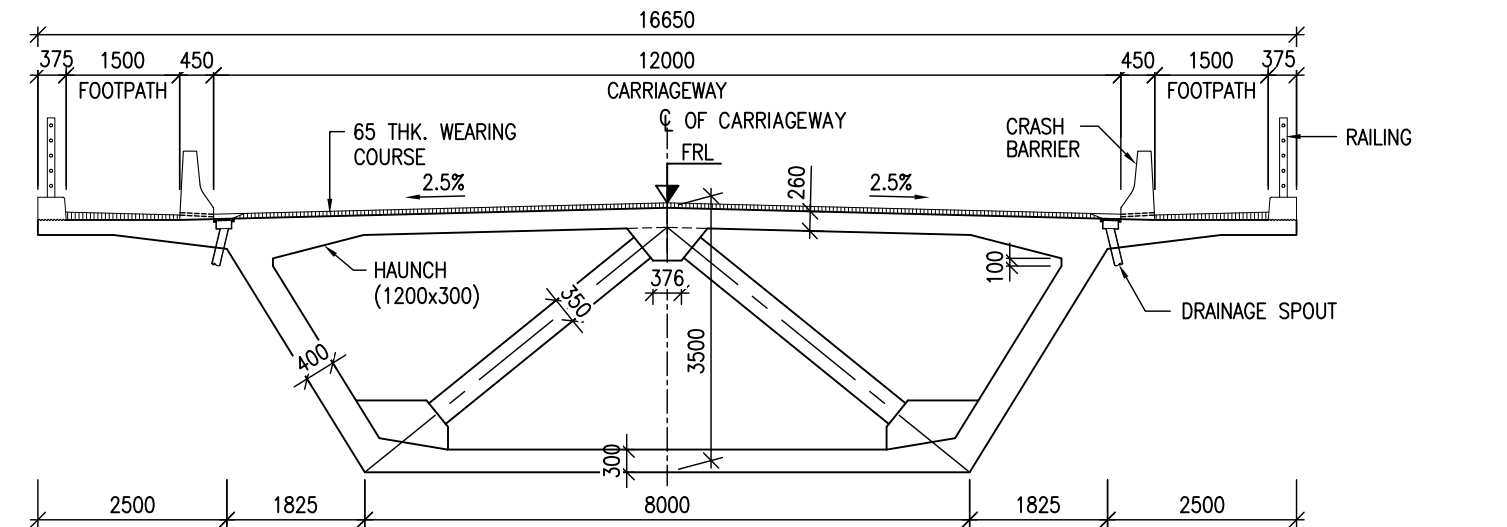
Drawing Title : GENERAL ARRANGEMENT DRAWING AT CH. 2+484 Km (1x60.00m SPAN) & SVUP AT CH. 2+528			
Drawing Number : VKSIMPL/P-147/MORTH/BR/MJB-1/01			
Scale : AS SHOWN			SH. 1 OF 2
Drawn By : SKG	Designed By : PMY	Checked By : ARK	Date : Oct, 2025

Design Consultant :

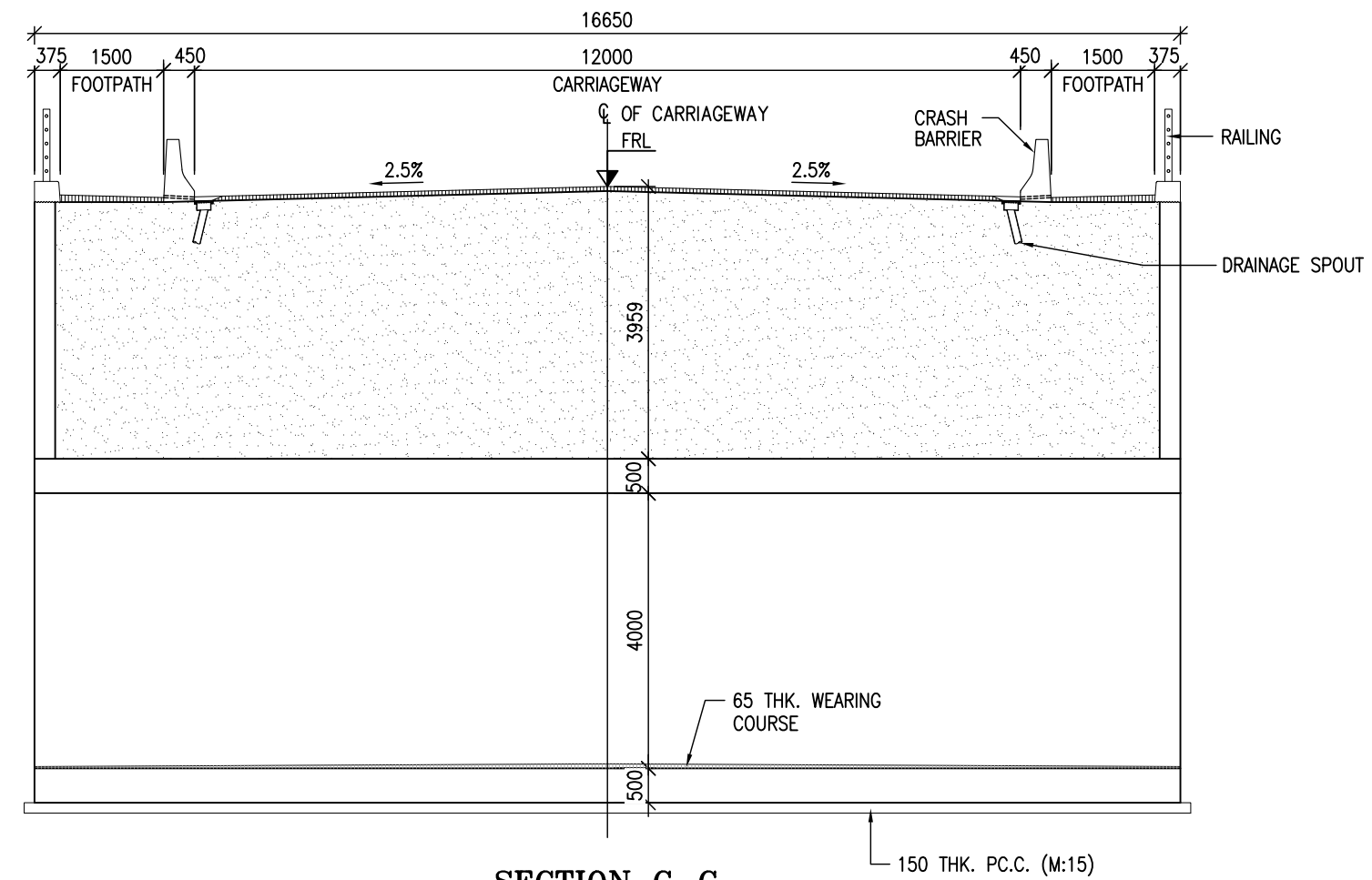
 **VKS INFRATECH MANAGEMENT PVT. LTD.**
Consulting Engineers, Planners & Managers
 Raghunath Bhawan, B-17/882, Block-B, Opp Prachin
 Shiv Mandir, New Ashok Nagar, Delhi - 110096
 (Ph: 011-45061563)



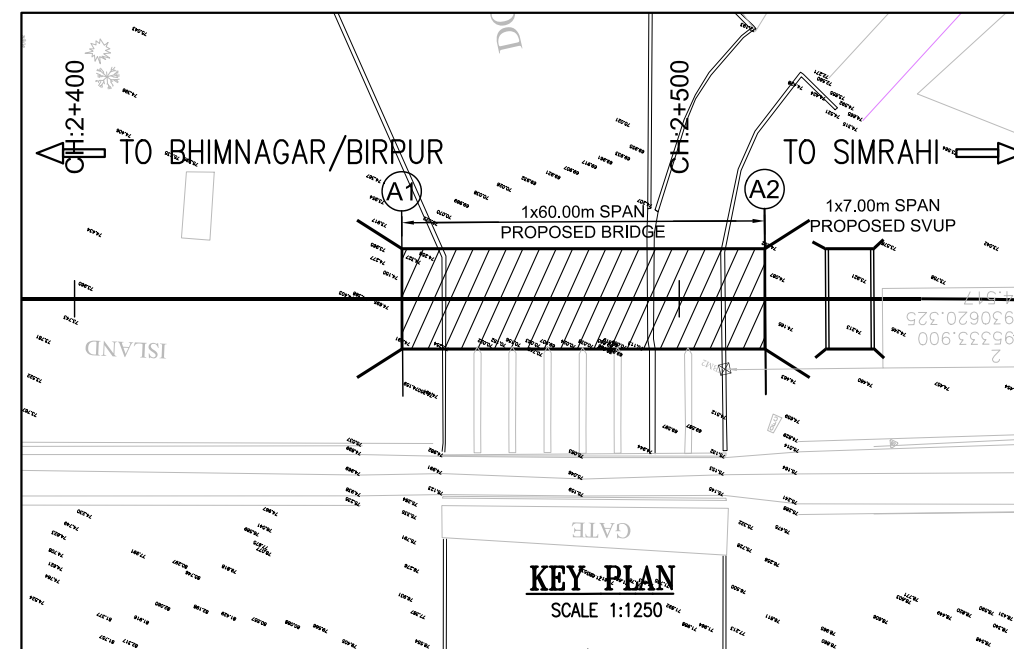
SECTION A-A
SCALE 1:100



SECTION B-B
SCALE 1:100



SECTION C-C
SCALE 1:100



NOTES:

- ALL DIMENSIONS ARE IN mm AND LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
- THE STRUCTURE IS DESIGNED FOR LIVE LOAD COMBINATION AS PER TABLE 6A OF IRC-6:2017 OR SPECIAL VEHICLE LOADING, WHICHEVER GOVERNS.
- CONCRETE:
PSC BOX GIRDER - M60
PEDESTAL - M35
SUBSTRUCTURE & FOUNDATION - M35
VUP - M35
APPROACH SLAB - M30
LEVELLING COURSE (PCC) - M15
- REINFORCEMENT STEEL SHALL BE HYSD BARS OF GRADE DESIGNATION Fe-500D CONFORMING TO IS:1786.
- MINIMUM CONCRETE COVER, MINIMUM CEMENT CONTENT AND MAXIMUM W/C RATIO SHALL BE AS PER SEVERE CONDITION OF EXPOSURE AS PER PROVISION OF IRC:112
- STRIP SEAL TYPE EXPANSION SHALL BE PROVIDED AS PER IRC:SP:69.
- 65mm TH. WEARING COURSE COMPRISING OF UNDER LAYER OF 40mm THK. BITUMINOUS CONCRETE OVERLAID WITH 25mm THK. MASTIC ASPHALT.
- BACK FILLING BEHIND VERTICAL WALLS SHALL CONSIST OF SELECTED EARTH CONFORMING TO IRC:78
- 600 THK FILTER MEDIA BEHIND ABUTMENT/RETAINING WALL SHALL BE PROVIDED AS PER IRC:78
- WEEP HOLES, SPACED AT 1000 c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN ABUTMENT, RETURN WALL & RETAINING WALL.

Revision Details	By	CHK	Date	Suffix

Project Title :
Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

Client :
सड़क परिवहन और राजमार्ग मंत्रालय
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
Government of India
MORT&H THROUGH CHIEF ENGINEER
(NORTH) N.H.WING, ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title :
GENERAL ARRANGEMENT DRAWING
AT CH. 2+484 Km (1x60.00m SPAN) & SVUP AT CH. 2+528
Drawing Number :
VKSIMPL/P-147/MORTH/BR/MJB-1/01
Scale :
AS SHOWN
SH. 2 OF 2
Drawn By :
SKG
Designed By :
PMY
Checked By :
ARK
Date :
Oct, 2025

Design Consultant :
VKS
VKS INFRATECH MANAGEMENT PVT. LTD.
Consulting Engineers, Planners & Managers
Raghunath Bhawan, B-17/882, Block-B, Opp Prachin Shiv Mandir, New Ashok Nagar, Delhi - 110096 (Ph: 011-45061563)

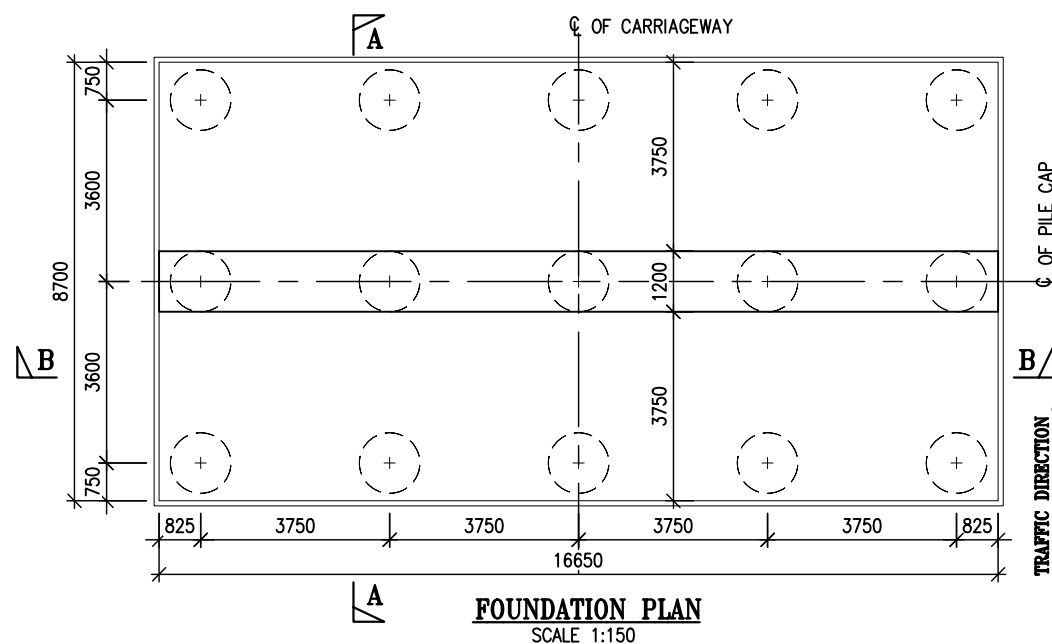
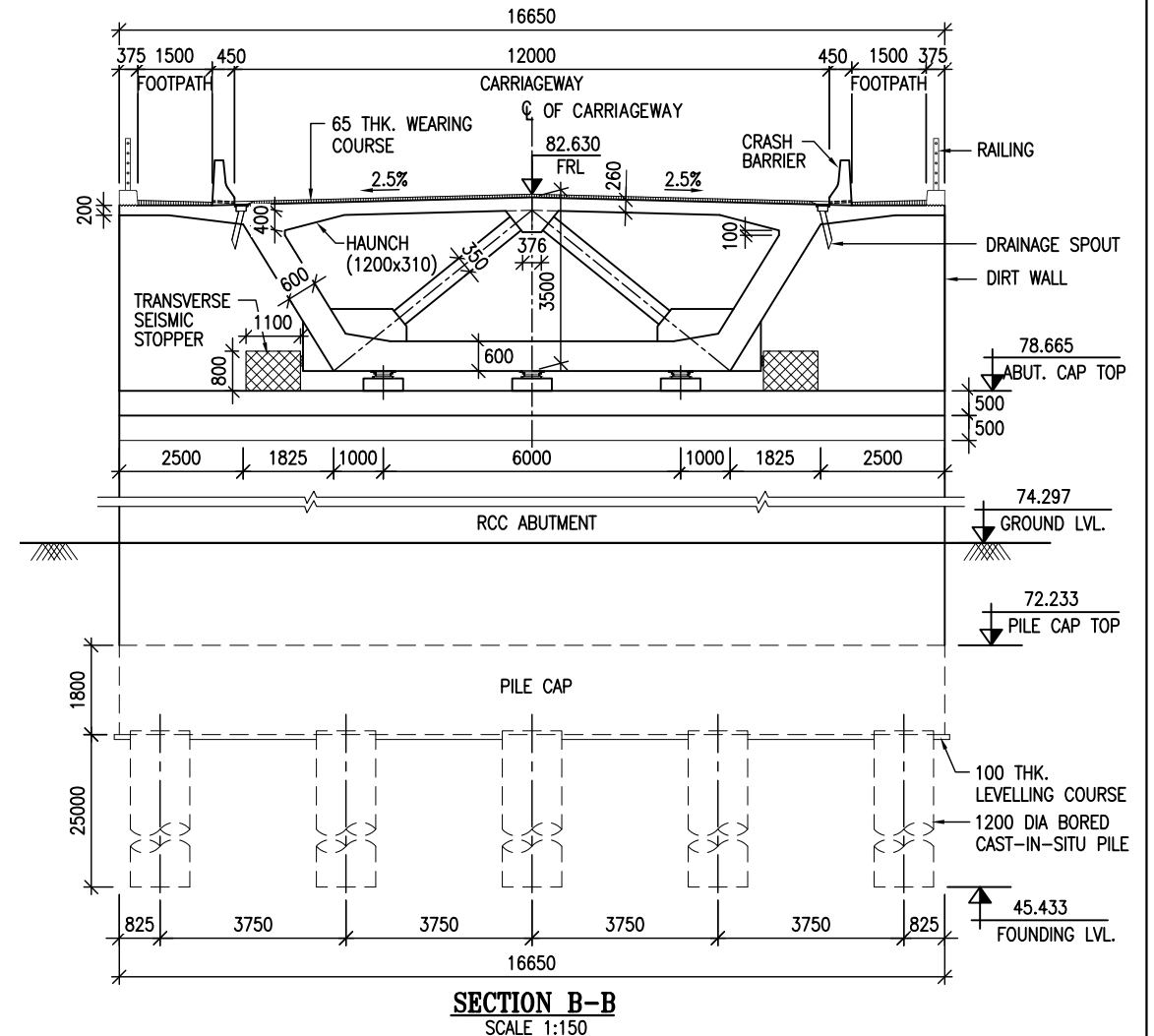
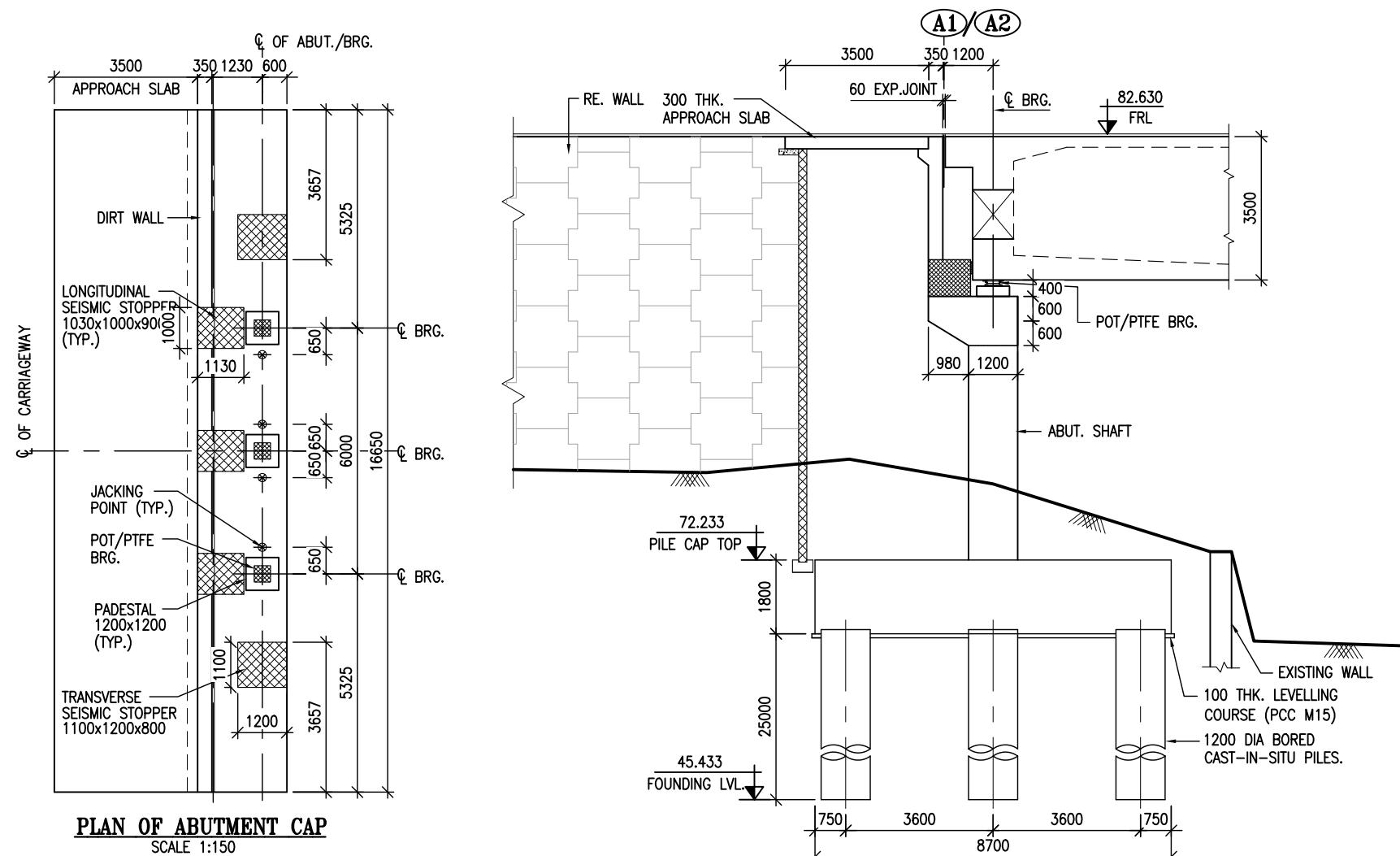


TABLE:

S.NO	ABUTMENT LOCATION	FORMATION LVL.	EXISTING GROUND LVL.	ABUTMENT CAP TOP LVL.	PILE CAP TOP LVL.	FOUNDING LVL.
1	A1	82.630	74.297	78.665	72.233	45.433
2	A2	82.630	74.334	78.665	73.717	46.917

Revision Details	By	Chk	Date	Suffix

Project Title :

Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

Client :

सड़क परिवहन और राजमार्ग मंत्रालय
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
Government of India

MORT&H THROUGH CHIEF ENGINEER
(NORTH) N.H.WING,ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title:
DIMENSION DETAILS OF ABUTMENT
AT CH. 2+484 Km (1x60.00m SPAN)

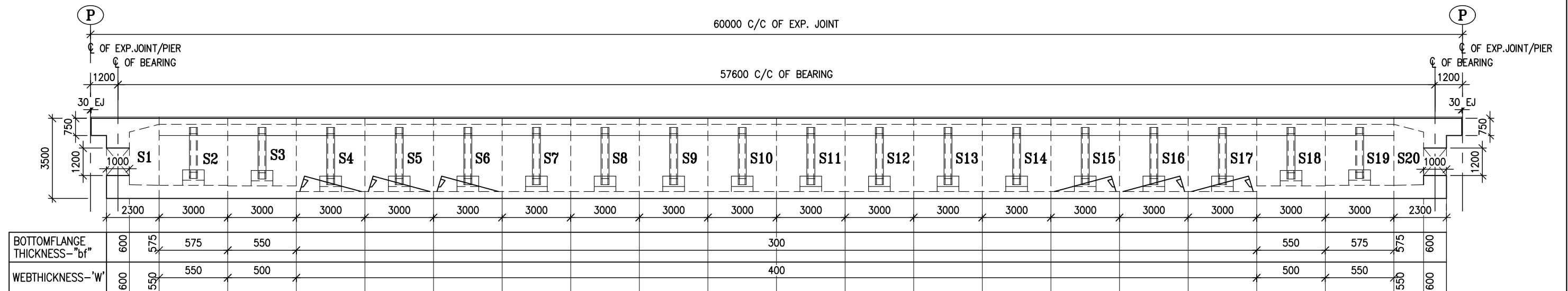
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Scale: **AS SHOWN** Sheet:

Drawn By: **SKG** Designed By: **PMY** Checked By: **ARK** Date: **May, 2025**

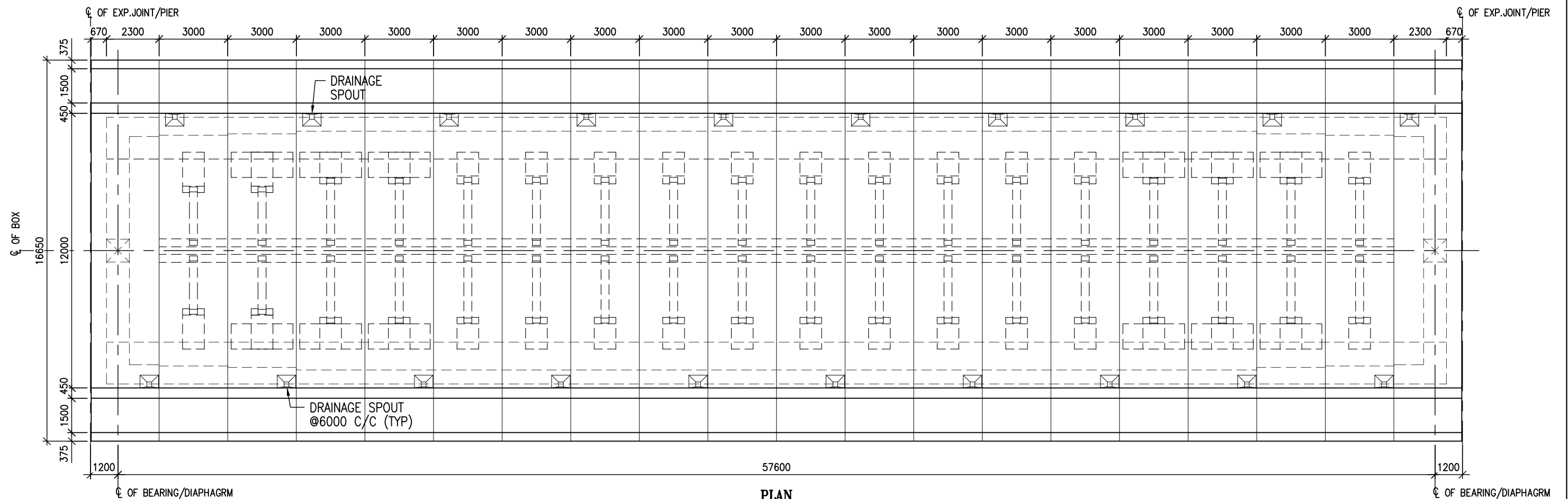
Design Consultant :

VKS **VKS INFRATECH MANAGEMENT PVT. LTD.**
Consulting Engineers, Planners & Managers
Raghunath Bhawan, B-17/882, Block-B, Opp Prachin
Shiv Mandir, New Ashok Nagar, Delhi - 110096
(Ph: 011-45061563)



SECTIONAL ELEVATION

SCALE 1:175



PLAN

SCALE 1:175

Revision Details	By	Chk	Date	Suffix

Project Title :

Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

Client :

 सड़क परिवहन और राजमार्ग मंत्रालय
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
Government of India

MORT&H THROUGH CHIEF ENGINEER
(NORTH) N.H.WING, ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title:
DIMENSION DETAIL OF SUPER STRUCTURE
FOR PSC BOX GIRDER (60m SPAN)

Drawing Number:
VKSIMPL/P-147/MORTH/BR/MJB-1/03

Scale: AS SHOWN	Sheet: SH. 1 OF 2
Drawn By: SKG	Designed By: PMY
Checked By: ARK	Date: Oct, 2025

Design Consultant :

 VKS INFRATECH MANAGEMENT PVT. LTD.
Consulting Engineers, Planners & Managers
Raghunath Bhawan, B-17/882, Block-B, Opp Prachin
Shiv Mandir, New Ashok Nagar, Delhi - 110096
(Ph: 011-45061563)

[illegible]

Project Title : **Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar**

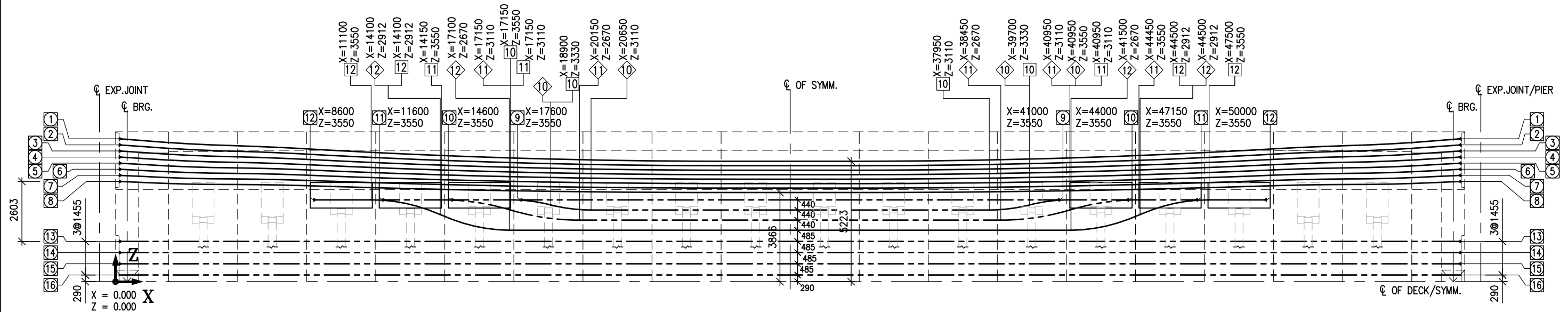
Client :  सड़क परिवहन और राजमार्ग मंत्रालय
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
भारत सरकार Government of India

**MORT&H THROUGH CHIEF ENGINEER
(NORTH) N.H.WING,ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA**

Drawing Title:			
DIMENSION DETAIL OF SUPER STRUCTURE FOR PSC BOX GIRDER (60m SPAN)			
Drawing Number:			
VKSIMPL/P-147/MORTH/BR/MJB-1/03			
Scale: AS SHOWN		Sheet: SH. 2 OF 2	
Drawn By:	Designed By:	Checked By:	Date:
SKG	PMY	ARK	Oct, 2025

Design Consultant :

 **VKS INFRATECH MANAGEMENT PVT. LTD.**
Consulting Engineers, Planners & Managers
Raghubath Bhawan, B-17/882, Block-B, Opp Prachin
Shiv Mandir, New Ashok Nagar, Delhi - 110096
(Ph: 011-45061563)



PLAN LAYOUT (CABLE PROFILE)
SCALE 1:175

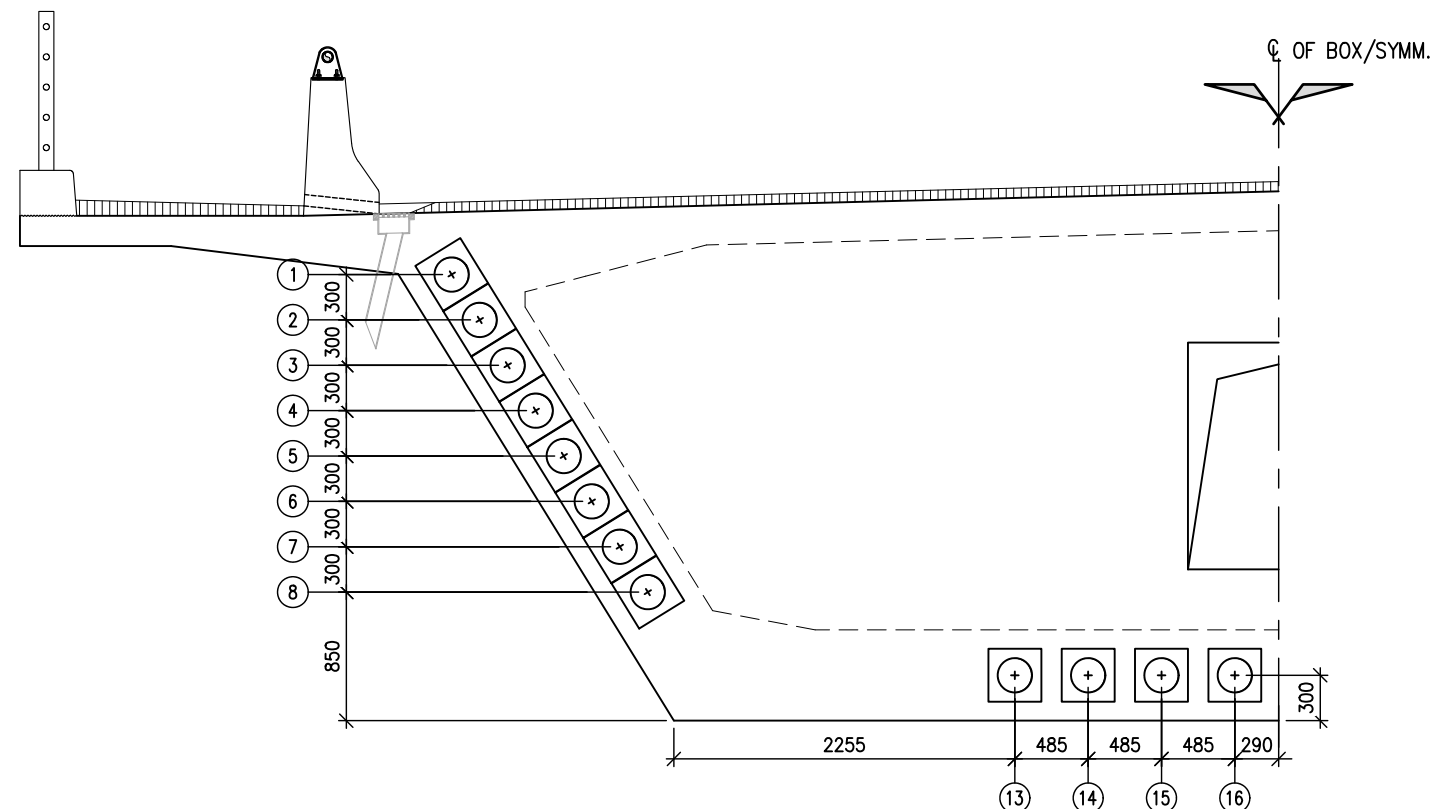
LEGEND: -

- - INDICATED END OF CABLE.
- - INDICATED CABLE NUMBER.
- - INDICATED START OF CURVE IN ELEVATION.
- △ - INDICATED END OF CURVE IN ELEVATION.
- - INDICATED START OF CURVE IN PLAN.
- ◇ - INDICATED END OF CURVE IN PLAN.

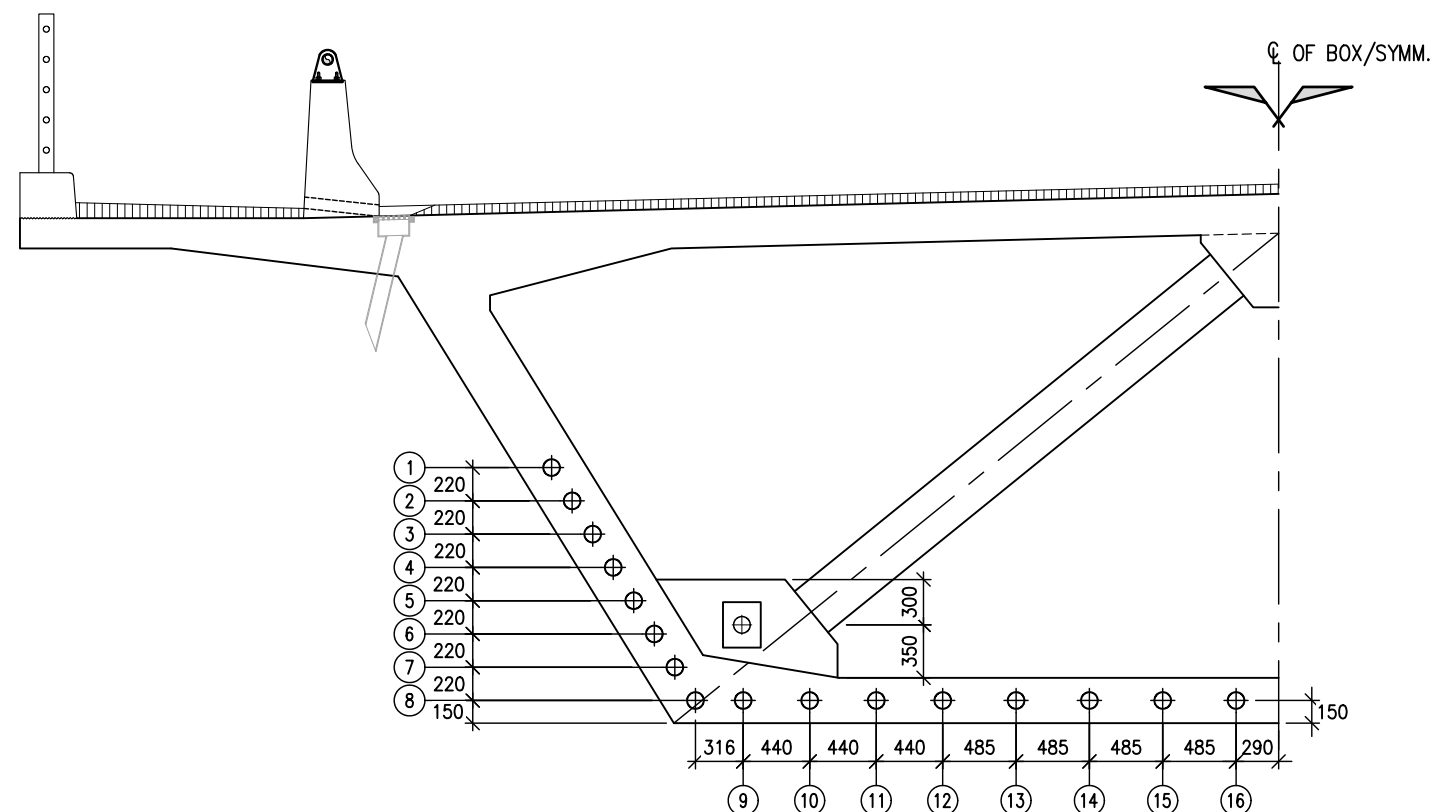
TABLE-1

LOCATION OF CABLE	CABLE NO.	NO. OF T15 STRANDS PER CABLE	LENGTH OF CABLE (mm)	JACKING END	JACKING FORCE (KN)	ELONGATION AT EACH END (MM)
WEB CABLES	1	18	59426	BOTH ENDS	3670	208
	2	18	59410	BOTH ENDS	3670	208
	3	18	59395	BOTH ENDS	3670	208
	4	18	59381	BOTH ENDS	3670	208
	5	18	59368	BOTH ENDS	3670	208
	6	18	59356	BOTH ENDS	3670	208
	7	18	59346	BOTH ENDS	3670	208
	8	18	59337	BOTH ENDS	3670	208
BOTTOM CABLES	9	18	24527	BOTH ENDS	3670	82
	10	18	30600	BOTH ENDS	3670	98
	11	18	36697	BOTH ENDS	3670	117
	12	18	42904	BOTH ENDS	3670	132
	13	18	59304	BOTH ENDS	3670	210
	14	18	59304	BOTH ENDS	3670	210
	15	18	59304	BOTH ENDS	3670	210
	16	18	59304	BOTH ENDS	3670	210

Revision Details	Project Title :	Client :	Drawing Title:	Design Consultant :	
		Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar	MORT&H THROUGH CHIEF ENGINEER (NORTH) N.H.WING,ROAD CONSTRUCTION DEPARTMENT, GOVT. OF BIHAR, PATNA	PRESTRESSING CABLE PROFILE DETAILS FOR PSC BOX GIRDER (60m Span)	VKS INFRATECH MANAGEMENT PVT. LTD. Consulting Engineers, Planners & Managers Raghunath Bhawan, B-17/882, Block-B, Opp Prachin Shiv Mandir, New Ashok Nagar, Delhi - 110096 (Ph: 011-45061563)
				Drawing Number: VKSIMPL/P-147/MORTH/BR/MJB-1/04	
				Scale: AS SHOWN Sheet: SH. 2 OF 3	
				Drawn By: SKG Designed By: PMY Checked By: ARK Date: Oct, 2025	



SECTION A-A
SCALE 1:50



SECTION B-B
SCALE 1:50

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
- ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED. DIMENSIONS ARE NOT TO BE SCALED,
- PRESTRESSING SYSTEM
 - ALL PRE STRESSING STRANDS SHALL BE 15.2mm NOMINAL DIA. 7 PLY HIGH TENSILE STRANDS CONFORMING TO CLASS 2 AS PER IS 14268-1995.
 - CORRUGATED HDPE SHEATHING SHALL BE USED FOR ALL CABLES.
 - THE PARAMETERS ADOPTED FOR DESIGN ARE AS FOLLOWS:-
 - ANCHORAGE TYPE ----- 19 D 15
 - SLIP AT STRESSING END ----- 6 mm
 - COEFFICIENT OF FRICTION ----- $\mu = 0.17/\text{RADIAN}$
 - WOBBLE COEFFICIENT ----- $k = 0.0020/\text{m}$
 - NOMINAL AREA OF EACH STRAND----- 140 mm²
 - NOMINAL ULTIMATE BREAKING LOAD OF EACH STRAND ----- 260.40 kN
 - MODULUS OF ELASTICITY OF HIGH TENSILE STEEL ----- $1.95 \times 10^5 \text{ MPa}$
 - ALL THE DESIGN PARAMETERS SHALL BE VERIFIED AT SITE.
- LENGTH OF PRESTRESSING CABLES GIVEN IN TABLE I INCLUDES AN EXTRA LENGTH OF 500 mm. AT EACH END, REQUIRED FOR ATTACHING THE CABLE TO THE JACK. TOTAL LENGTH OF CABLE SHALL ALSO BE VERIFIED.
- ALL CABLES SHALL BE LAID IN SMOOTH PROFILE PASSING THROUGH THE GIVEN COORDINATES. FIRM SUPPORTS SHALL BE INSTALLED AT EVERY METRE.
- STRESSING SHALL BE DONE FROM BOTH ENDS SIMULTANEOUSLY USING MULTISTRAND JACKS, WHERE STRESSING IS REQUIRED TO DONE AT BOTH ENDS.
- ELONGATION GIVEN IN TABLE ARE WITHOUT SLIP TO BE MEASURED ACHIEVED AT THE TIME OF STRESSING (BEFORE LOCKING OF ANCHORAGE). LOSS UPTO 6 MM. SLIP OF ANCHORAGE IS NOT TO BE COMPENSATED DURING PRESTRESSING.
- ELONGATION INDICATED IN TABLE INCLUDE EXTENSION OF THE CABLE LYING BETWEEN END FACE AND GRIPPING POINT INSIDE THE JACK.
- MAXIMUM ELONGATION OF CABLE AND/OR MAXIMUM JACK PRESSURE IN ANY CASE, SHOULD NOT EXCEED 1.05 TIMES THE CORRESPONDING CALCULATED VALUES GIVEN IN TABLE.
- ELONGATION SHALL BE RECHECKED AFTER 24 HOURS OF ANCHORING TO OBSERVE FOR SLOW SLIPPAGE. THE MATTER SHALL BE REPORTED FOR ANY EXCESSIVE SLIPPAGE.
- EXTRA LENGTH OF STRANDS PROJECTING BEYOND THE ANCHORAGE SHALL NOT BE CUT JUST AFTER THE STRESSING PRIOR TO THE APPROVAL OF PRESTRESSING RESULTS. THESE SHALL BE CUT ONLY WHEN INSTRUCTIONS ARE ISSUED BY ENGINEER- IN CHARGE.
- GROUTING SHALL BE DONE IN THE SAME SEQUENCE AS STRESSING AND SHALL CONFORM TO IRC:112

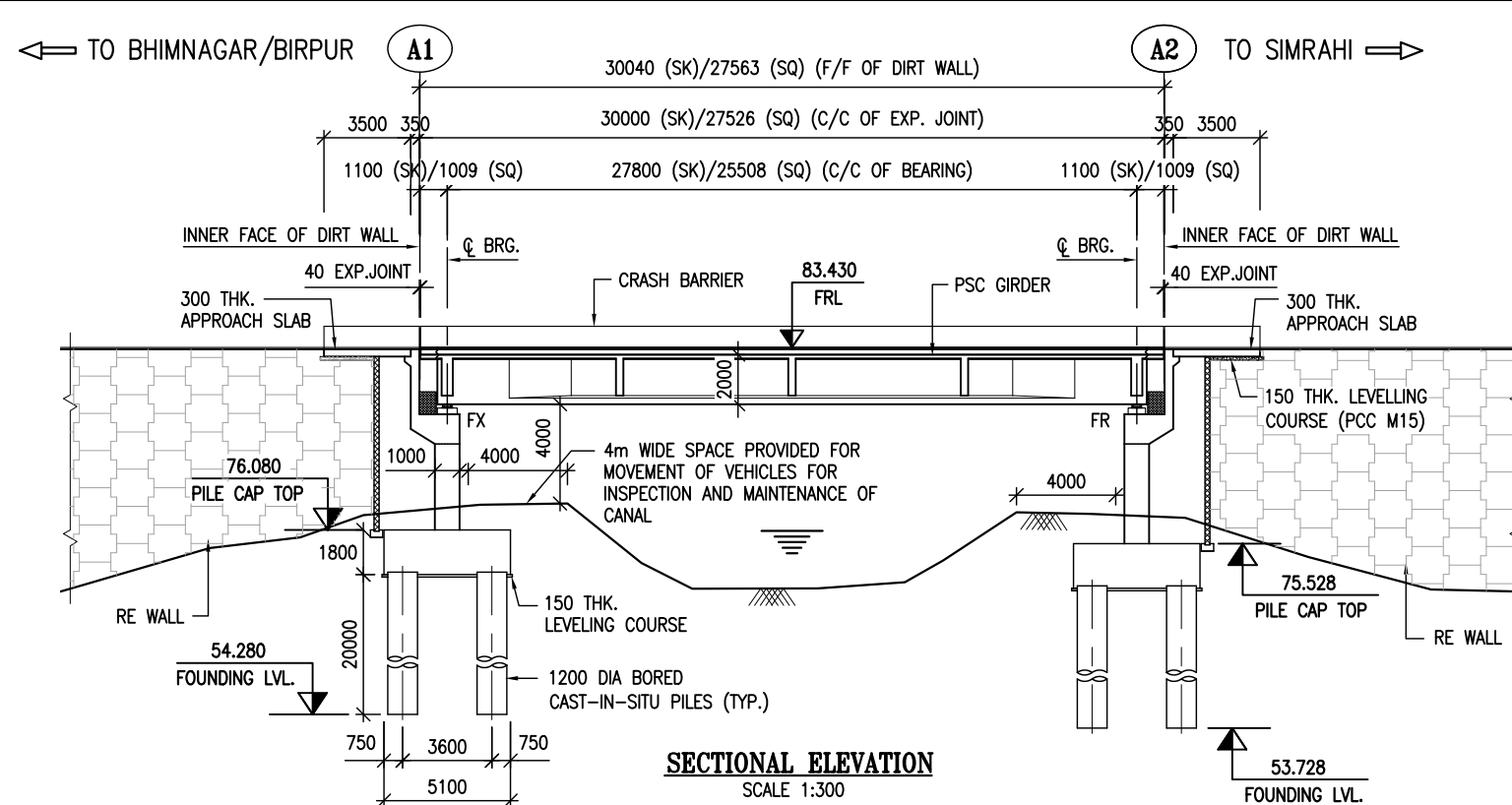
Revision Details	By	Chk	Date	Suffix

Project Title :
Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

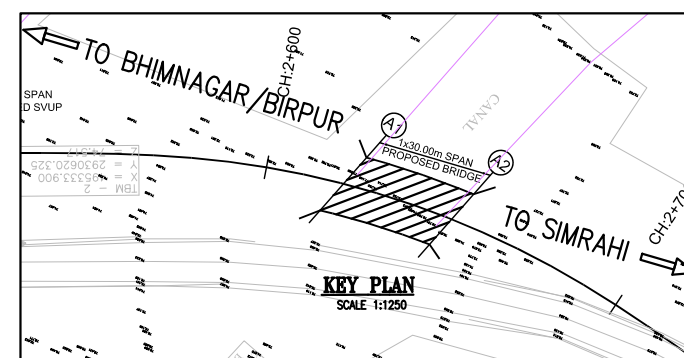
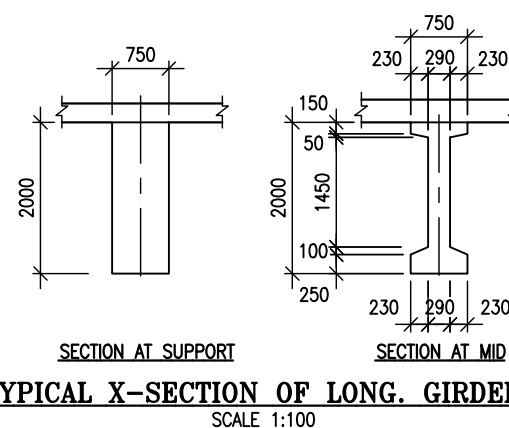
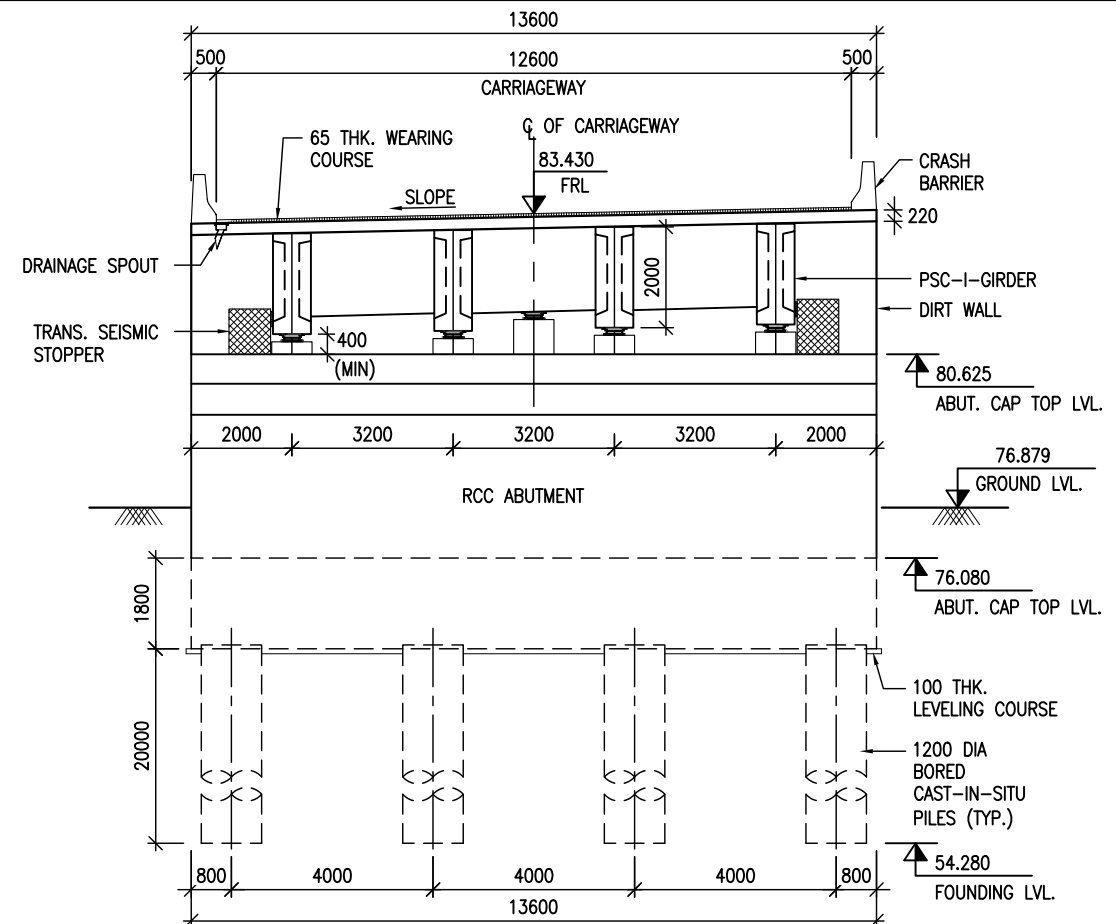
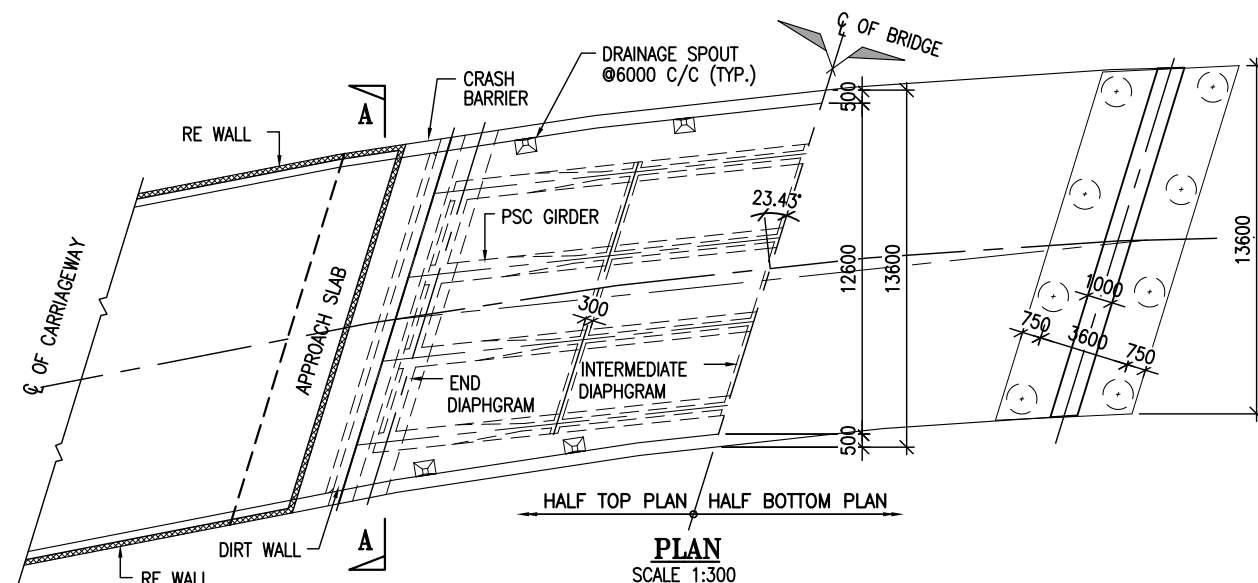
Client :
सड़क परिवहन और राजमार्ग मंत्रालय
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
Government of India
MORT&H THROUGH CHIEF ENGINEER
(NORTH) N.H.WING,ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title:
PRESTRESSING CABLE PROFILE DETAILS FOR PSC BOX GIRDER (60m Span)
Drawing Number:
VKSIMPL/P-147/MORTH/BR/MJB-1/04
Scale: **AS SHOWN** Sheet: **SH. 3 OF 3**
Drawn By: **SKG** Designed By: **PMY** Checked By: **ARK** Date: **Oct, 2025**

Design Consultant :
VKS **VKS INFRATECH MANAGEMENT PVT. LTD.**
Consulting Engineers, Planners & Managers
Raghunath Bhawan, B-17/882, Block-B, Opp Prachin Shiv Mandir, New Ashok Nagar, Delhi - 110096
(Ph: 011-45061563)



FORMATION LVL. (IN m)	83.430	83.430	83.430
GROUND LVL. (IN m)	76.879	73.720	76.606
CHAINAGE (IN km)	2+619	2+634	2+649



- NOTES:**

1. ALL DIMENSIONS ARE IN mm AND LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
2. THE STRUCTURE IS DESIGNED FOR LIVE LOAD COMBINATION AS PER TABLE 6A OF IRC-6:2017 OR SPECIAL VEHICLE LOADING, WHICHEVER GOVERNS.
3. CONCRETE:

PSC GIRDER	-	M45
RCC DECK SLAB	-	M40
CROSS GIRDERS	-	M40
PEDESTAL	-	M35
SUBSTRUCTURE & FOUNDATION	-	M35
APPROACH SLAB	-	M30
LEVELLING COURSE (PCC)	-	M15
4. REINFORCEMENT STEEL SHALL BE HYSD BARS OF GRADE DESIGNATION Fe-500D CONFORMING TO IS:1786.
5. MINIMUM CONCRETE COVER, MINIMUM CEMENT CONTENT AND MAXIMUM W/C RATIO SHALL BE AS PER SEVERE CONDITION OF EXPOSURE AS PER PROVISION OF IRC:112
6. STRIP SEAL TYPE EXPANSION SHALL BE PROVIDED AS PER IRC:SP:69.
7. 65mm TH. WEARING COURSE COMPRISING OF UNDER LAYER OF 40mm THK. BITUMINOUS CONCRETE OVERLAID WITH 25mm THK. MASTIC ASPHALT.
8. BACK FILLING BEHIND VERTICAL WALLS SHALL CONSIST OF SELECTED EARTH CONFORMING TO IRC:78

Revision Details	By	Date	Suffix

Project Title :

Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

Client :	
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MORT&H THROUGH CHIEF ENGINEER
(NORTH) N.H,WING,ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title:

**GENERAL ARRANGEMENT DRAWING
AT CH. 2+634 Km (1X30.0m SPAN)**

Drawing Number:

VKSIMPL/P-147/MORTH/BR/MNB-01/01

Scale: **AS SHOWN**

State:	AS SHOWN	
Drawn By:	Designer	

Designed By	
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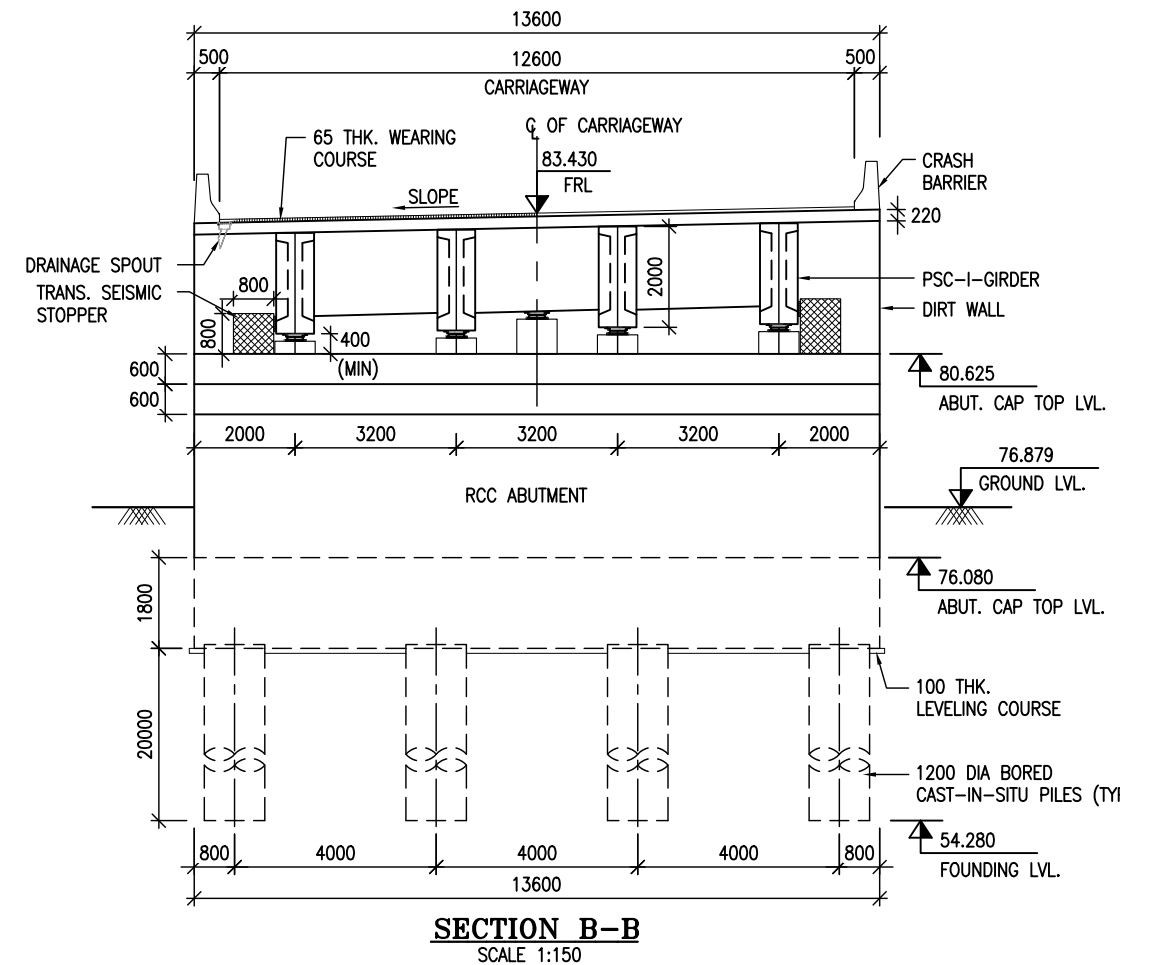
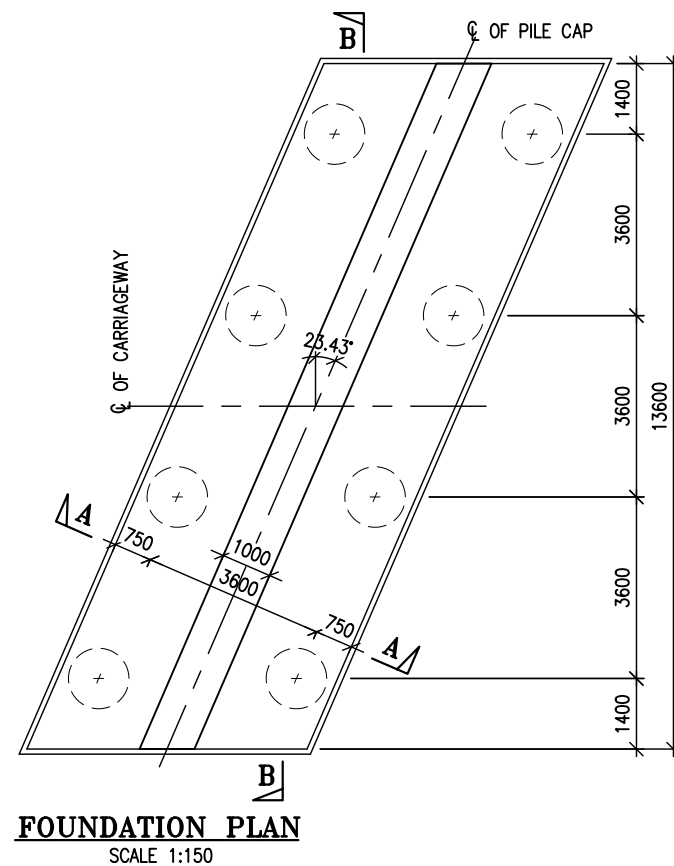
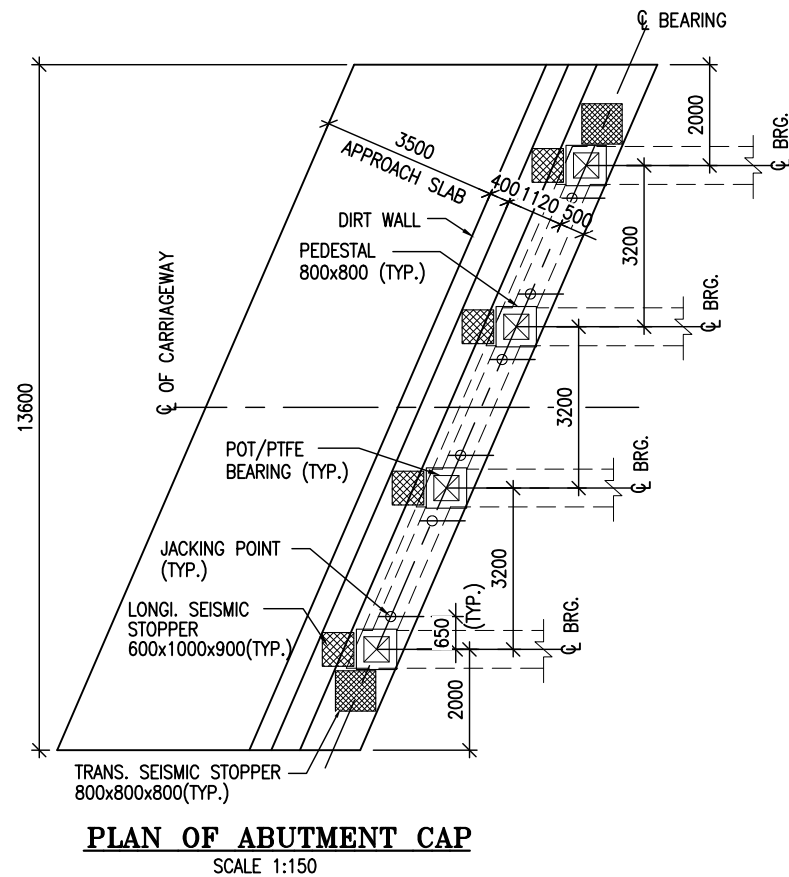
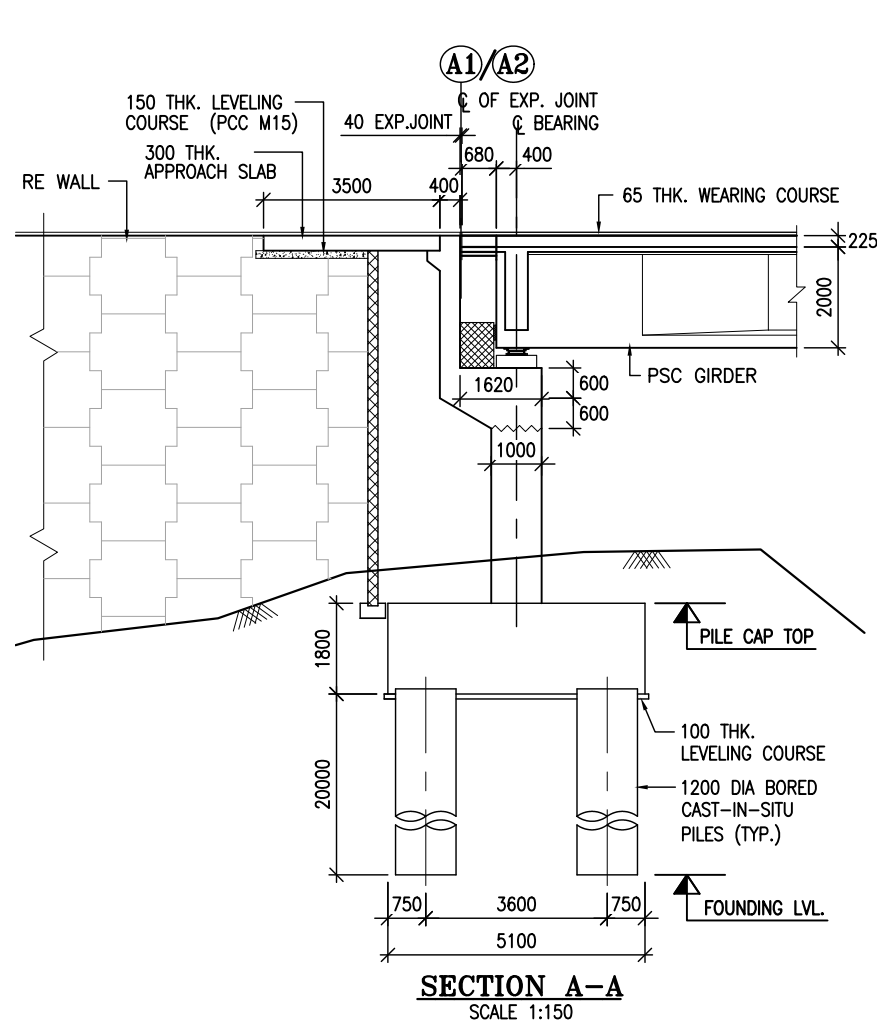
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By: | Date:

Design Consultant :



VKS INFRATECH MANAGEMENT PVT. LTD.
Consulting Engineers, Planners & Managers
Raghunath Bhawan, B-17/882, Block-B, Opp Prachin
Shiv Mandir, New Ashok Nagar, Delhi - 110096
(Ph: 011-45061563)



TABLE

S.NO	ABUTMENT LOCATION	FORMATION LVL. (FRL)	ABUT. CAP TOP LVL.	GROUND LVL.	FOUNDING LVL.
1	A1	43.430	80.625	76.879	54.280
2	A2	43.430	80.625	76.606	53.728

NOTES:

- ALL DIMENSIONS ARE IN mm AND LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED. NO DIMENSIONS SHALL BE SCALED. FOLLOWED. NO DIMENSIONS SHALL BE SCALED.

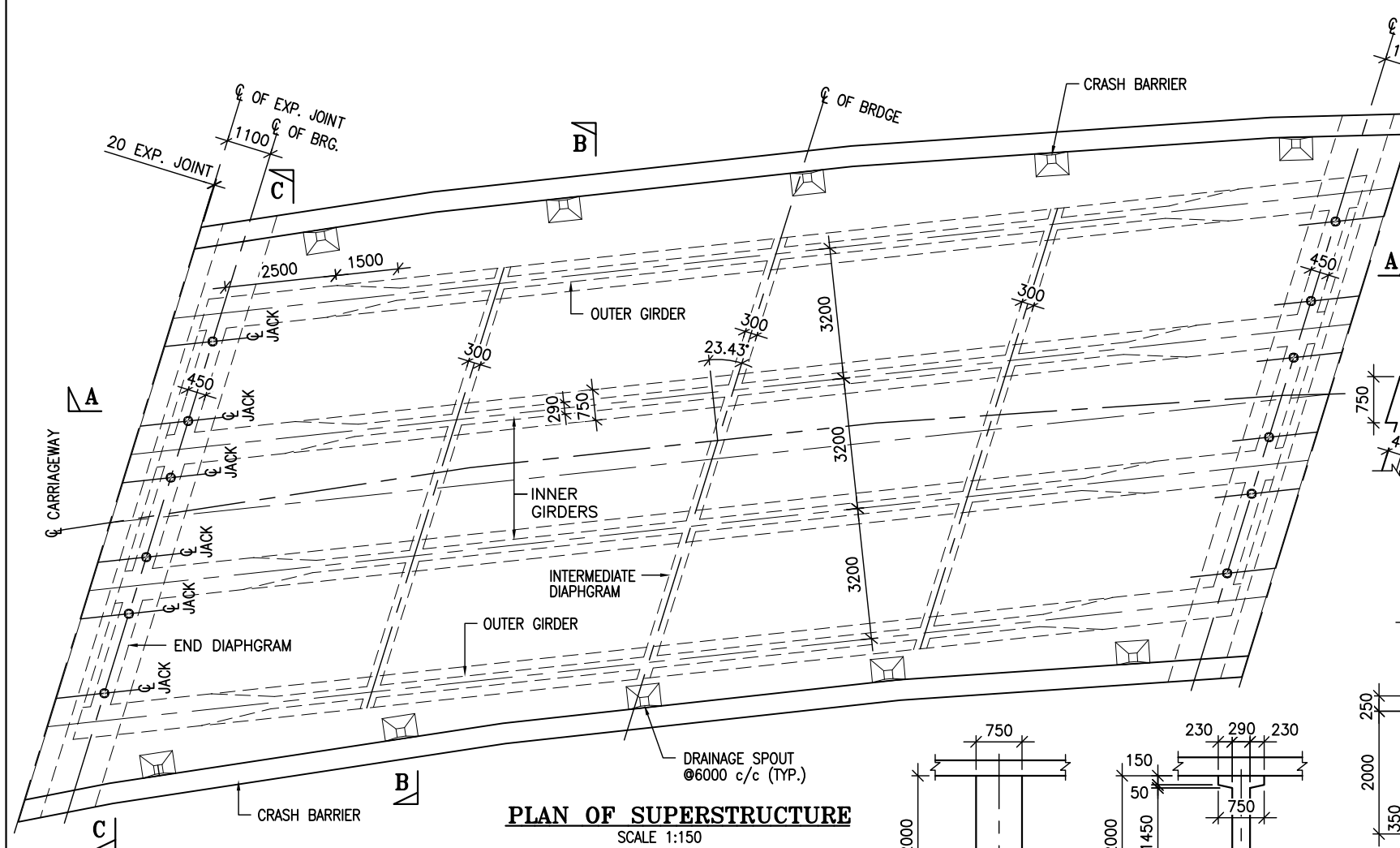
Revision Details	By	Chk	Date	Suffix

Project Title :
Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

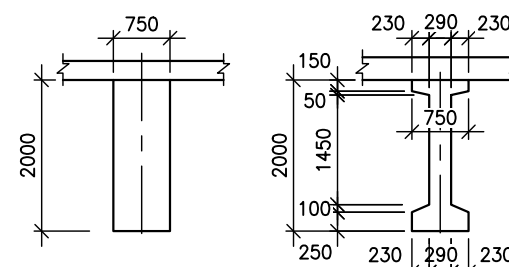
Client :
सड़क परिवहन और राजमार्ग मंत्रालय
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
Government of India
MORT&H THROUGH CHIEF ENGINEER (NORTH) N.H.WING,ROAD CONSTRUCTION DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title:
DIM. DETAILS OF SUBSTRUCTURE & FOUNDATION FOR ABUTMENT AT CH. 2+634 Km (1X30.0m SPAN)
Drawing Number:
VKSIMPL/P-147/MORTH/BR/MNB-01/02
Scale: **AS SHOWN**
Sheet:
Drawn By: **SKG** Designed By: **PMY** Checked By: **ARK** Date: **Oct, 2025**

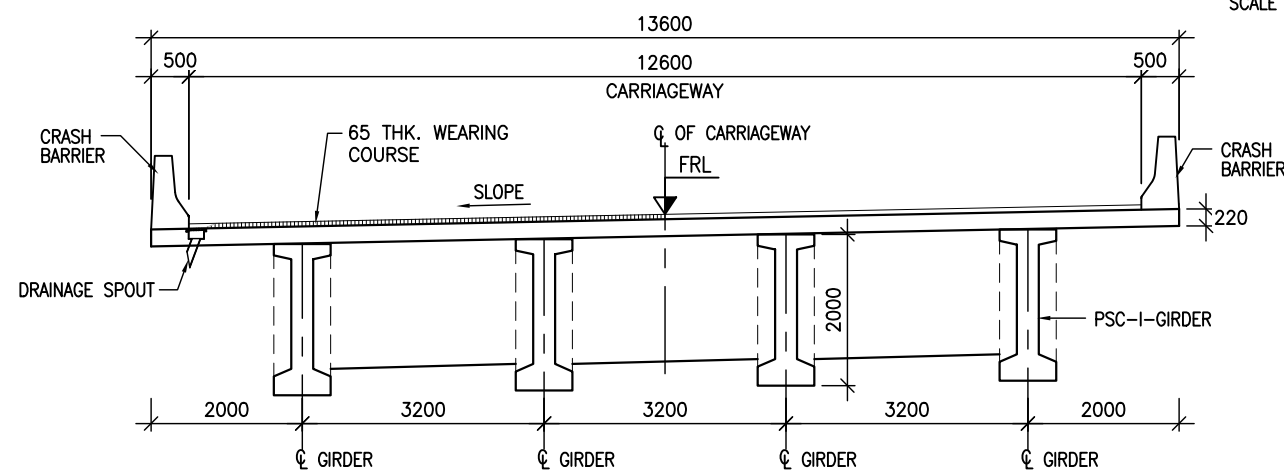
Design Consultant :
VKS
VKS INFRATECH MANAGEMENT PVT. LTD.
Consulting Engineers, Planners & Managers
Raghunath Bhawan, B-17/882, Block-B, Opp Prachin Shiv Mandir, New Ashok Nagar, Delhi - 110096
(Ph: 011-45061563)



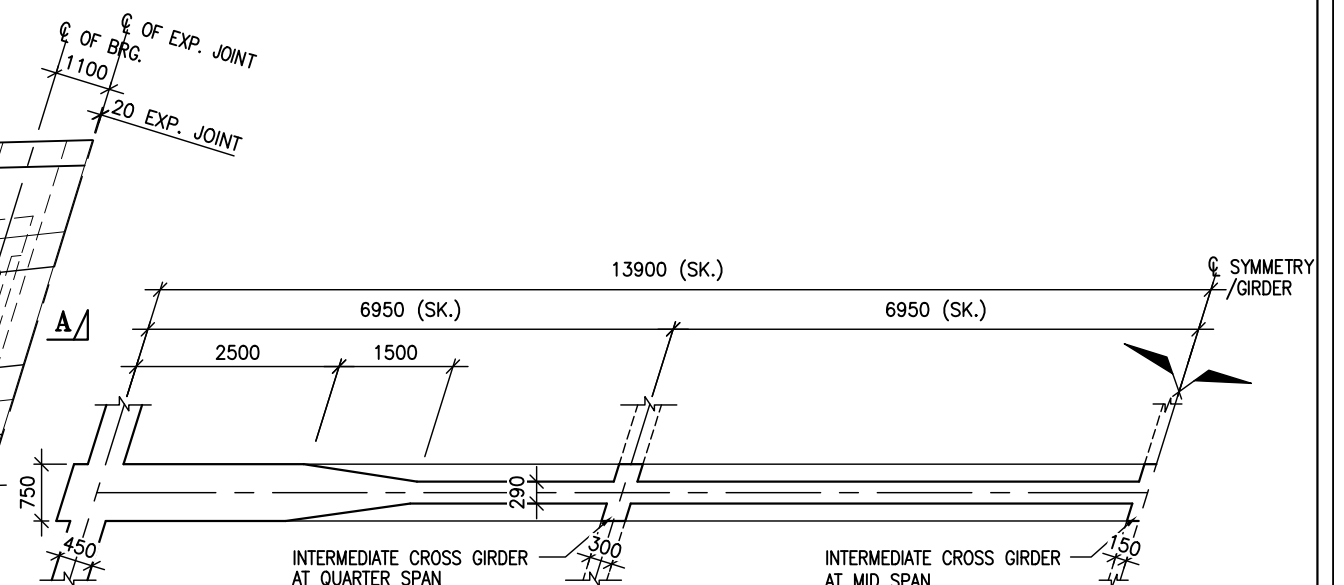
PLAN OF SUPERSTRUCTURE
SCALE 1:150



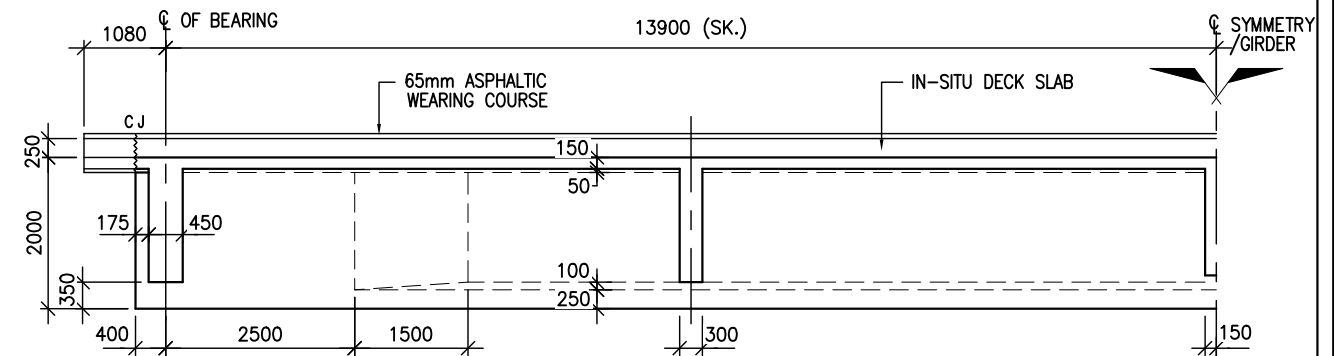
TYPICAL X-SECTION OF LONG GIRDER
SCALE 1:100



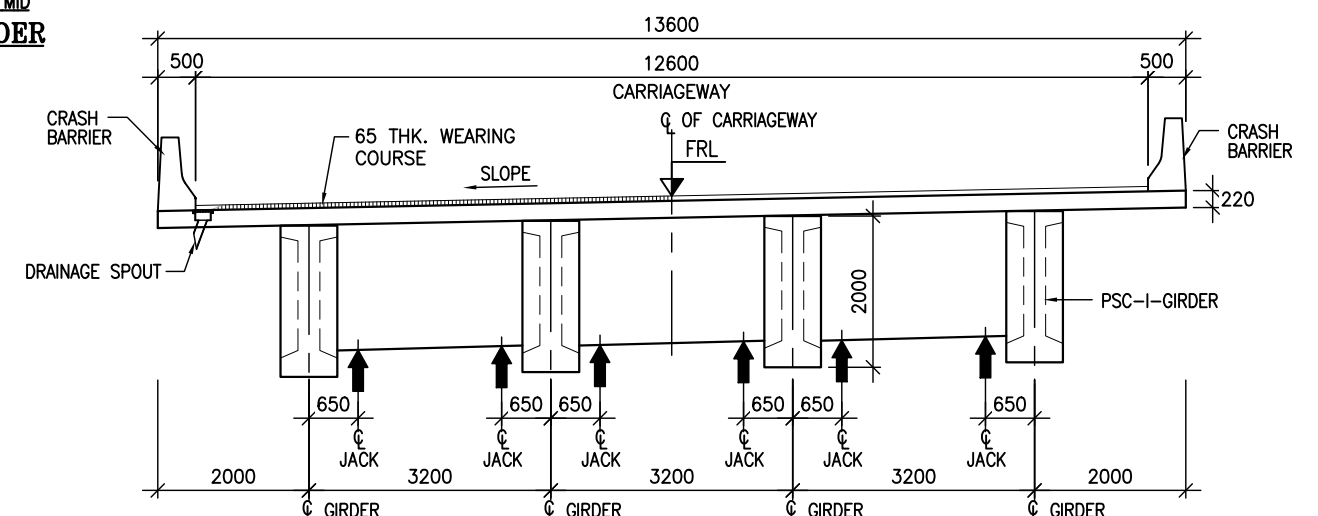
SECTION B-B AT MID SPAN
SCALE 1:100



SECTIONAL PLAN OF GIRDER
SCALE 1:100



SECTIONAL ELEVATION A-A
SCALE 1:100



SECTION C-C AT SUPPORT
SCALE 1:100

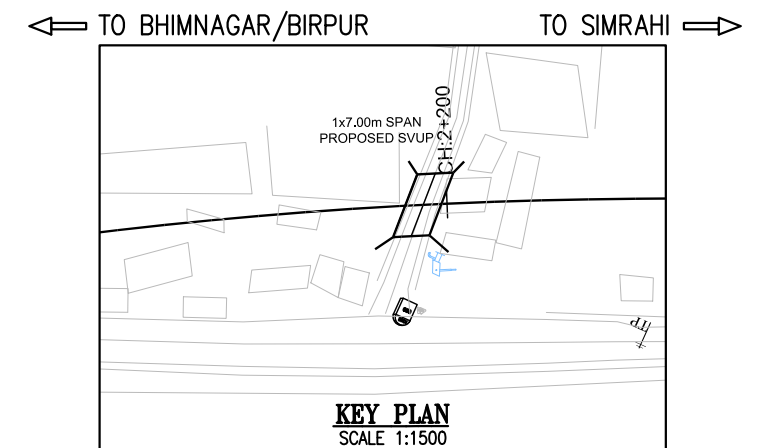
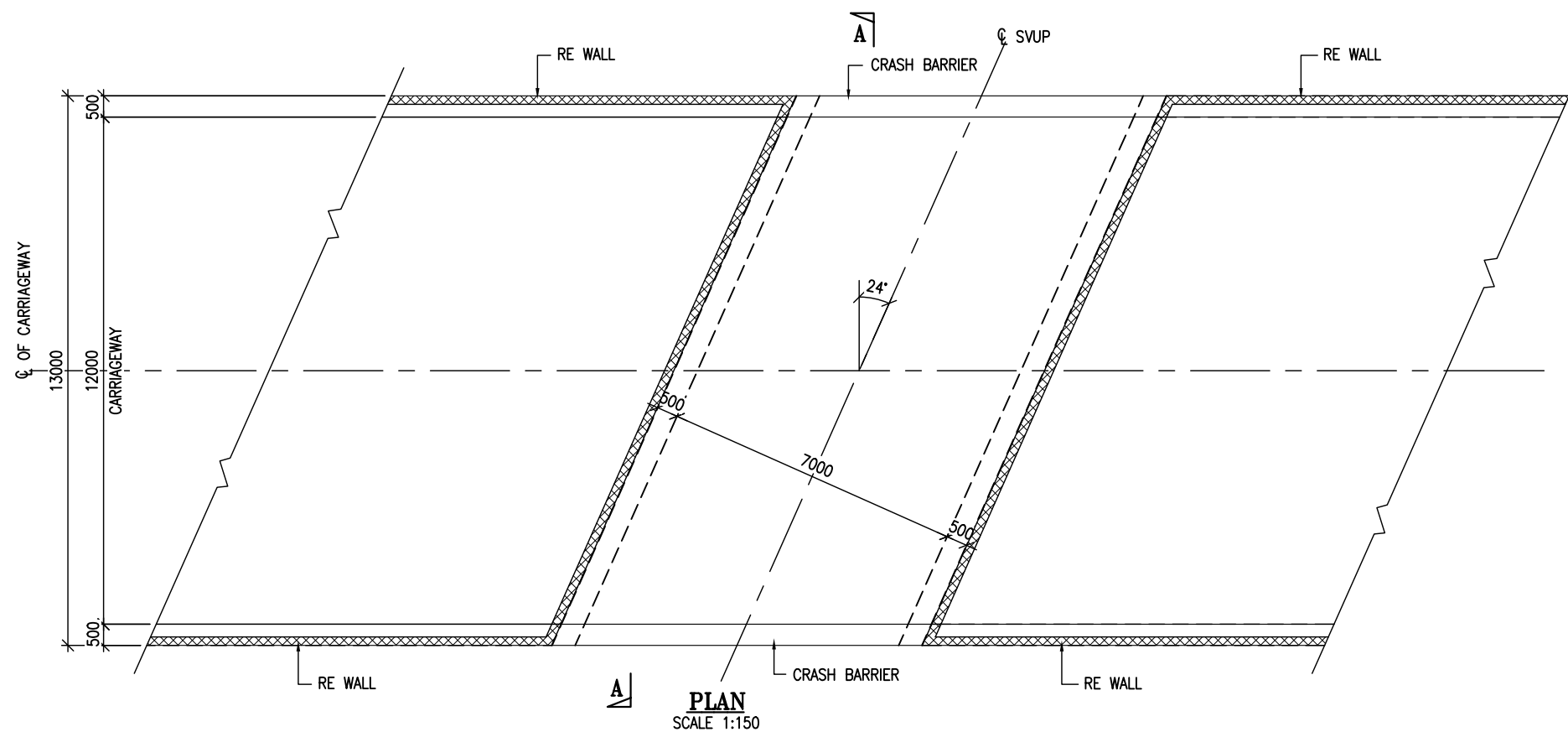
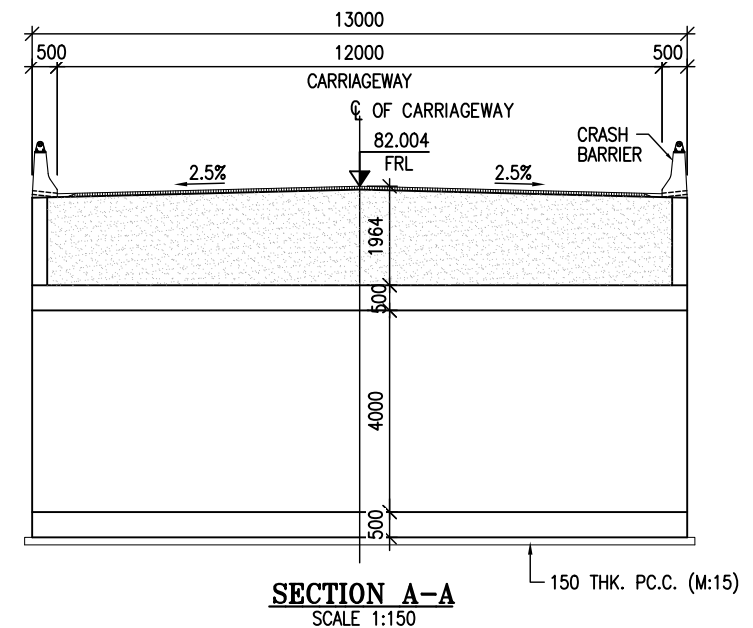
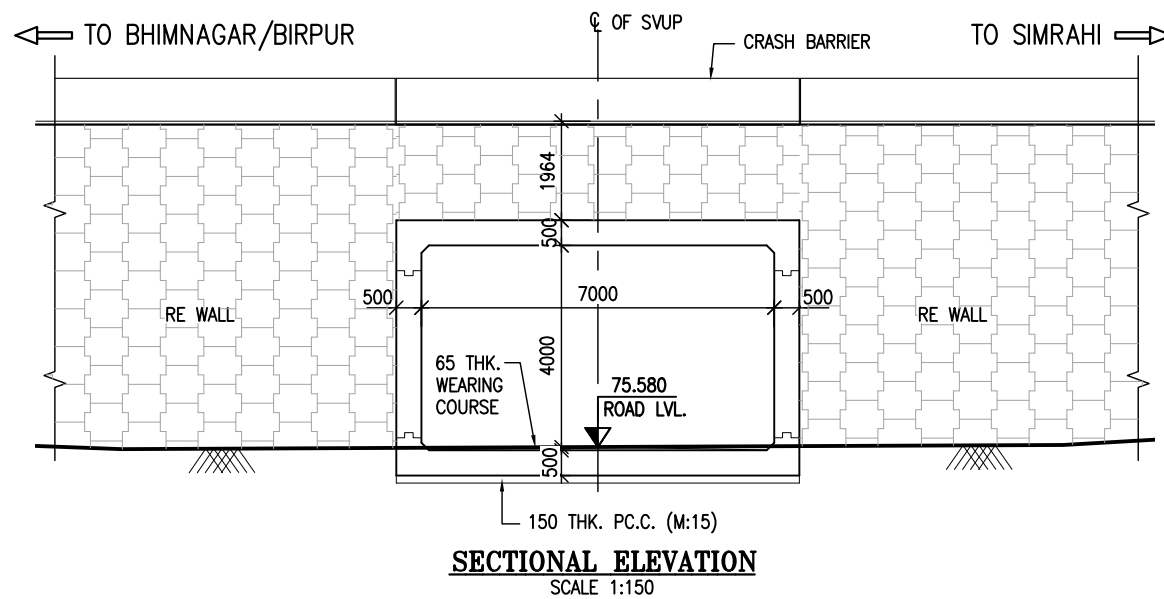
Revision Details	By	Chk	Date	Suffix

Project Title :
Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

Client :
सड़क परिवहन और राजमार्ग मंत्रालय
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
Government of India
MORT&H THROUGH CHIEF ENGINEER
(NORTH) N.H.WING, ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title:
DIMENSION DETAILS OF SUPERSTRUCTURE
AT CH. 2+634 Km (1X30.0m SPAN)
Drawing Number:
VKSIMPL/P-147/MORTH/BR/MNB-01/03
Scale: **AS SHOWN** Sheet:
Drawn By: **SKG** Designed By: **PMY** Checked By: **ARK** Date: **Oct, 2025**

Design Consultant :
VKS INFRATECH MANAGEMENT PVT. LTD.
Consulting Engineers, Planners & Managers
Raghunath Bhawan, B-17/882, Block-B, Opp Prachin
Shiv Mandir, New Ashok Nagar, Delhi - 110096
(Ph: 011-45061563)



NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- THE STRUCTURE IS DESIGNED FOR LIVE LOAD COMBINATION AS PER TABLE 6A OF IRC-6:2017 OR SPECIAL VEHICLE LOADING, WHICHEVER GOVERNS.
- CONCRETE:
 - RCC CRASH BARRIER -----M40
 - RCC BOX -----M35
 - PCC LEVELLING COURSE -----M15
- REINFORCEMENT STEEL SHALL BE HYSD BARS OF GRADE DESIGNATION Fe-500D CONFORMING TO IS:1786.
- MINIMUM CONCRETE COVER, GRADE OF CONCRETE, MINIMUM CEMENT CONTENT AND MAXIMUM W/C RATIO SHALL BE AS PER SEVERE CONDITION OF EXPOSURE AS PER PROVISION OF IRC:112
- 600 THICK FILTER MEDIA SHALL BE PROVIDED BEHIND WALLS, AS PER IRC: 78
- BACK FILLING BEHIND VERTICAL WALLS SHALL CONSIST OF SELECTED EARTH CONFORMING TO IRC:78

Revision Details	By	Chk	Date	Suffix

Project Title :

Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

Client :

सड़क परिवहन और राजमार्ग मंत्रालय
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
Government of India
MORT&H THROUGH CHIEF ENGINEER
(NORTH) N.H.WING,ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawing Title:

GENERAL ARRANGEMENT DRAWING OF SVUP AT CH. 2+195 Km (1x7.0m SPAN)

Drawing Number:

VKSIMPL/P-147/MORTH/BR/SVUP/01

Scale: **AS SHOWN**

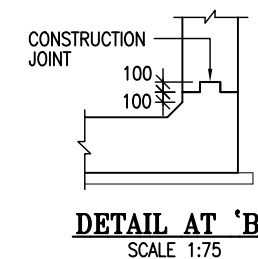
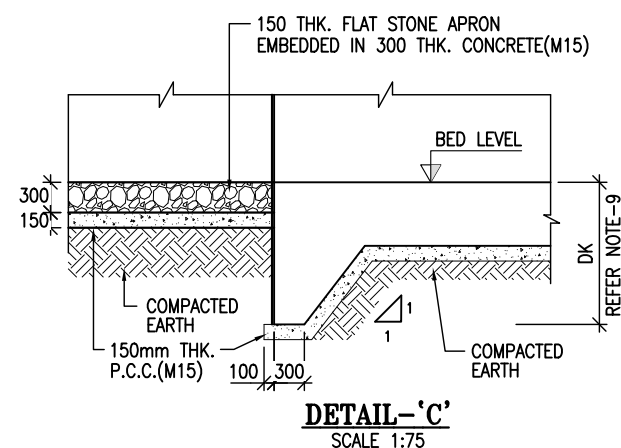
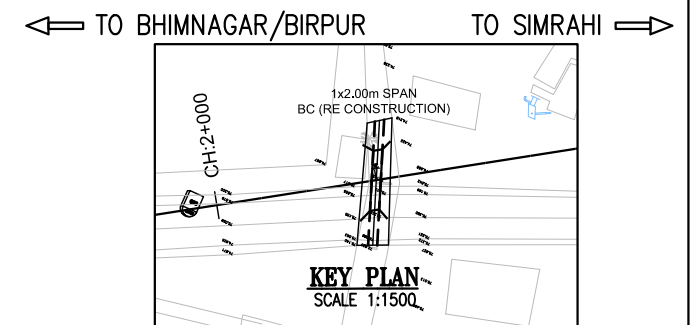
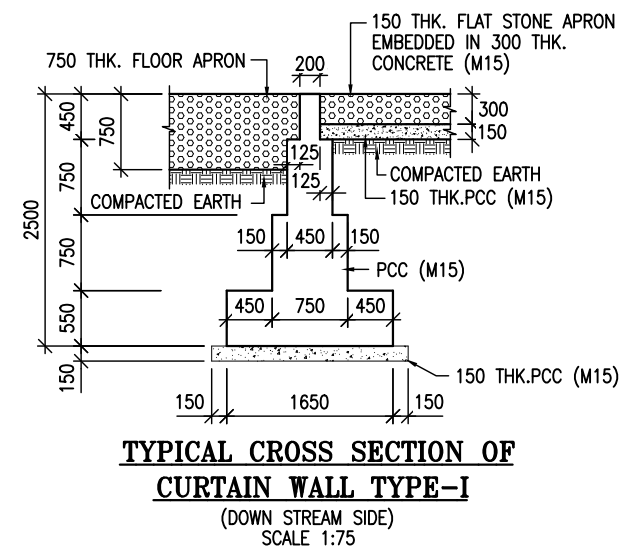
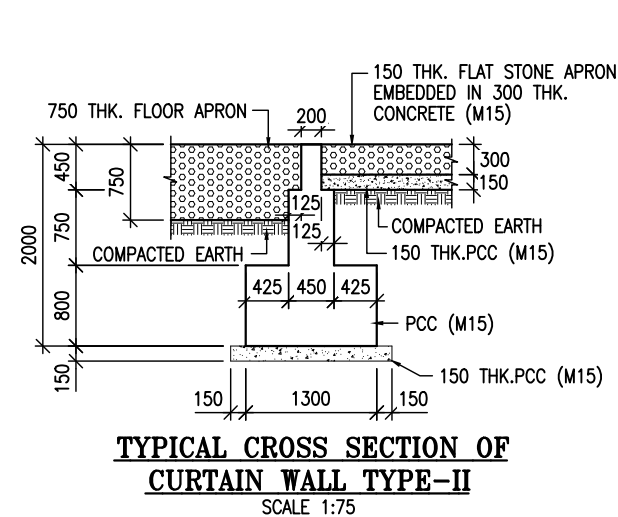
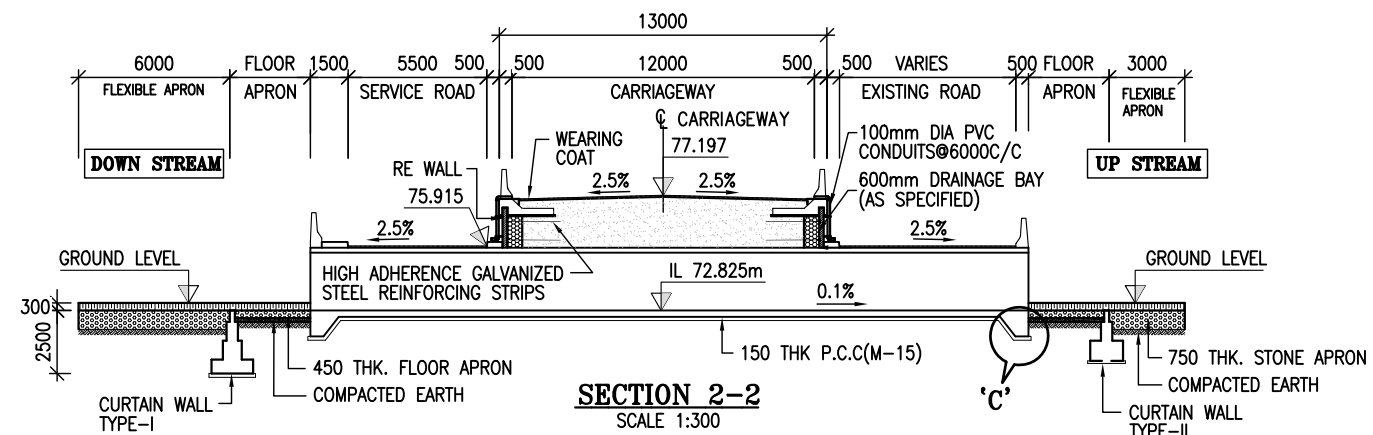
Sheet:

Drawn By: SKG
Designed By: PMY
Checked By: ARK
Date: Oct, 2025

Design Consultant :



VKS INFRATECH MANAGEMENT PVT. LTD.
Consulting Engineers, Planners & Managers
Raghunath Bhawan, B-17/882, Block-B, Opp Prachin
Shiv Mandir, New Ashok Nagar, Delhi - 110096
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2. THE STRUCTURE IS DESIGNED FOR LIVE LOAD COMBINATION AS PER TABLE 6A OF IRC-6:2017 OR SPECIAL VEHICLE LOADING, WHICHEVER GOVERNS.
3. REINFORCEMENT STEEL SHALL BE HYSD BARS OF GRADE DESIGNATION Fe-500D CONFORMING TO IS:1786.
4. 65mm THK. WEARING COAT COMPRISING OF UNDERLAYER OF 40mm THK. BITUMINOUS CONCRETE OVERLAD WITH 25mm THK. MASTIC ASPHALT
5. MINIMUM CONCRETE COVER, GRADE OF CONCRETE, MINIMUM CEMENT CONTENT AND MAXIMUM W/C RATIO SHALL BE AS PER SEVERE CONDITION OF EXPOSURE AS PER PROVISION OF IRC:112
6. BACK FILLING BEHIND VERTICAL WALLS SHALL CONSIST OF SELECTED EARTH CONFORMING TO IRC:78

SCALE 1:500			
Revision Details	By <i>rk</i>	Date	Suffix

Consultancy services for Preparation of Detailed Project Report including LA and Other clearances for Construction of Bridges over KataiyaHydel tail race & canal on NH-131(106) in the State of Bihar

MORT&H THROUGH CHIEF ENGINEER
(NORTH) N.H,WING,ROAD CONSTRUCTION
DEPARTMENT, GOVT. OF BIHAR, PATNA

Drawn By:	Designed By:	Checked By:	Date:
SKG	PMY	ARK	Oct. 2025



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