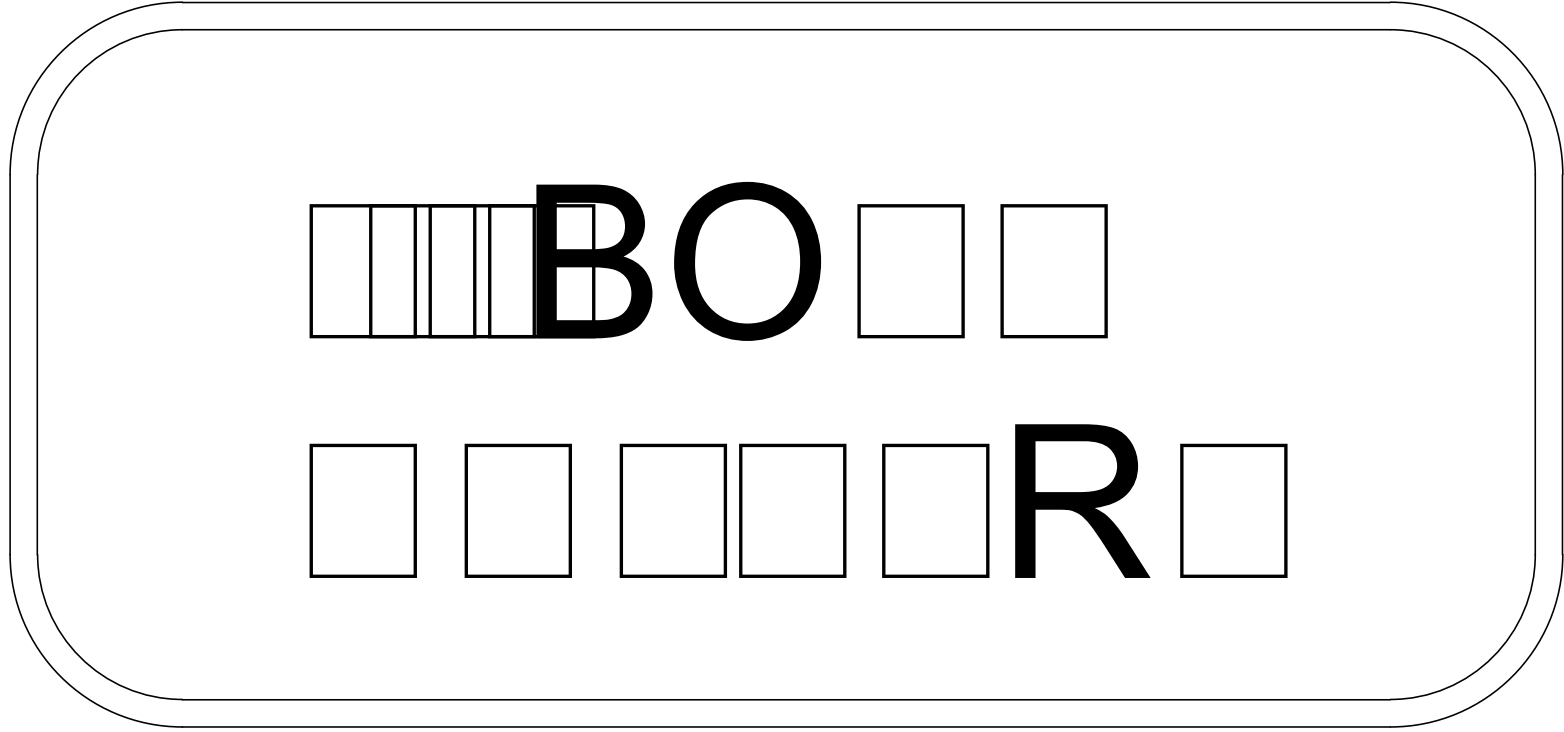


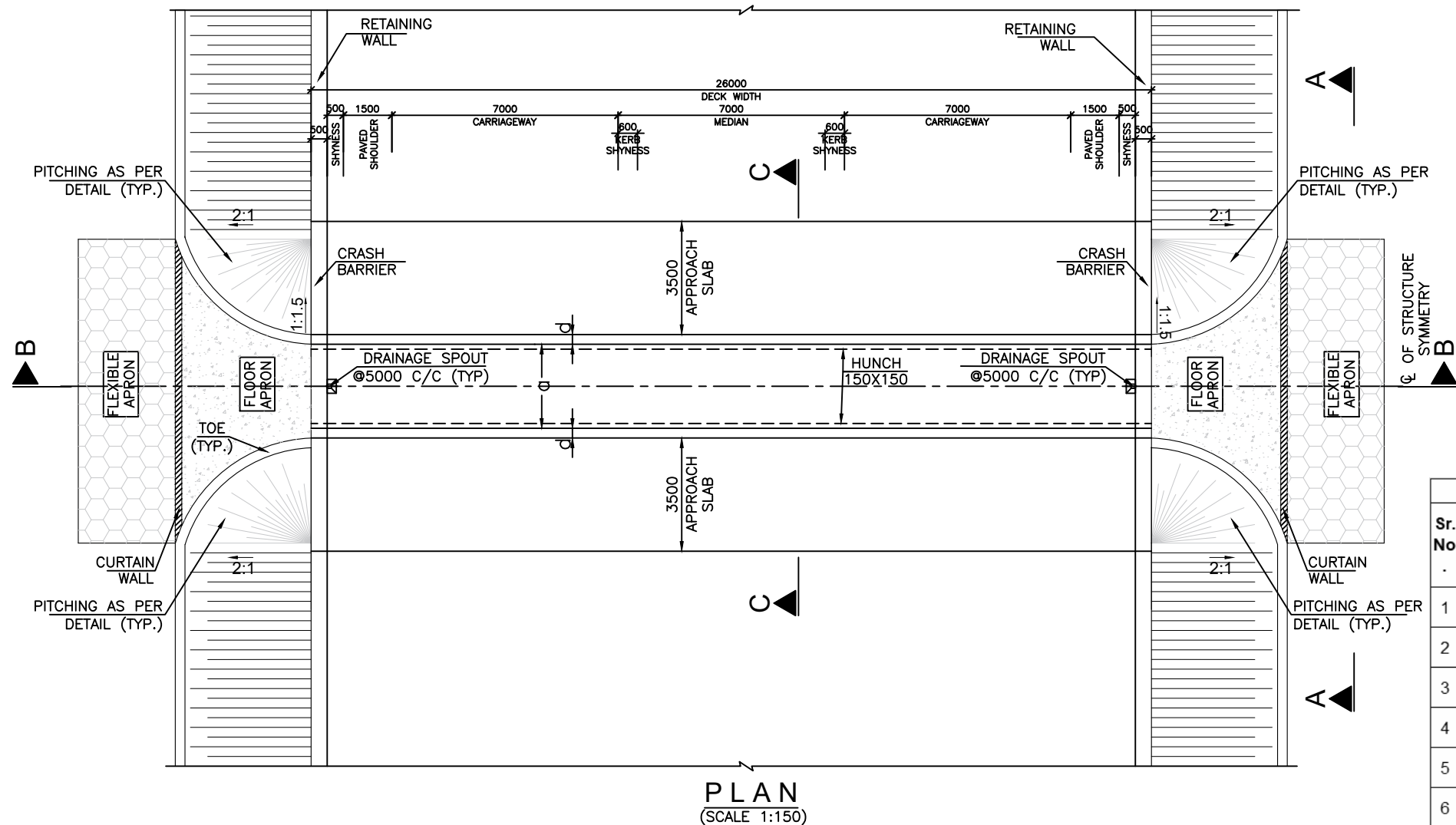
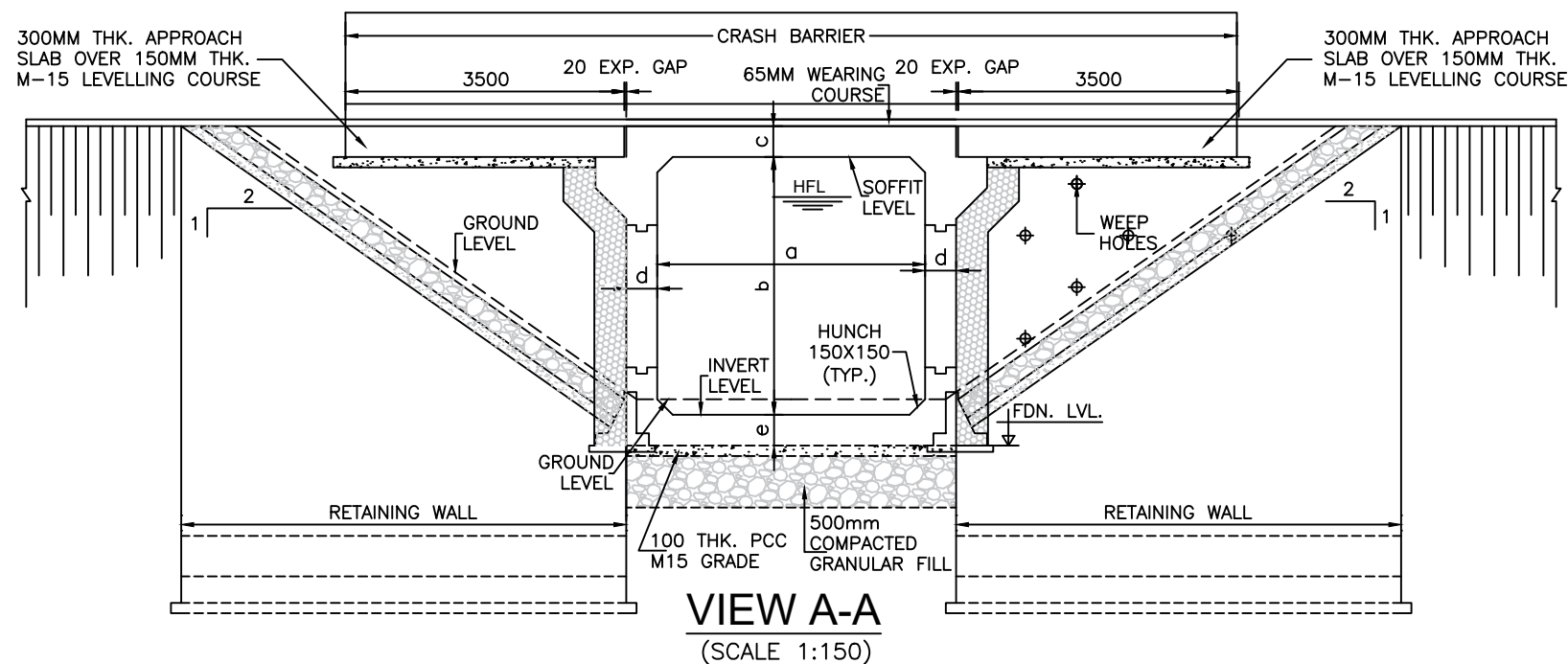
PROJECT :-

**Consultancy Services for Prepration of Detailed Project
Report for Devlopment of NH-133 from km 92.380 to km 129.370 in
Dumka and Deoghar District in
the state of Jharkhand**


Marc Technocrats Pvt. Ltd.
in Association with
Asian Geotech Research Services




Marc Technocrats Pvt. Ltd.
In Association with 
Asian Geotech Research Services



NOTES :-

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :
BOX STRUCTURE M35
PCC LEVELING COURSE M15
PARAPET/CRASH BARRIER M40
- ALL REINFORCEMENT SHALL BE OF GRADE Fe-500D CONFORMING TO IS : 1786-2008.
- BOX CULVERT HAS BEEN DESIGNED CONSIDERING SAFE BEARING CAPACITY OF 10 T/M².
- 65MM WEARING COAT SHALL BE PROVIDED AS PER MORTH SPECIFICATION.
- BACKFILLING SHALL BE DONE BY SELECTED GRANULAR MATERIAL CONFORMING TO APPENDIX-6 OF IRC:78-2014 HAVING PROPERTIES $\phi \geq 30^\circ$, $C = 0$.
- 100 ϕ WEEP HOLE @ 1000 C/C HORIZONTALLY & VERTICALLY AND 600mm THICK FILTER MEDIA AS PER APPENDIX-6, IRC:78-2014 SHALL BE PROVIDED BEHIND SIDE WALLS.
- SOFT & LOOSE PATCHES OF THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILL WITH LAYERS NOT EXCEEDING 300mm.
- DESIGN HAS BEEN DONE CONSIDERING SEVERE EXPOSURE CONDITION.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY PLAN & PROFILE DRAWINGS AND ALL LEVELS PROVIDED IN SCHEDULE SHALL BE VERIFIED AT SITE PRIOR TO CONSTRUCTION. VARIATION (IF ANY) SHALL BE REPORTED TO THE ENGINEER.
- FOR DETAILS OF CARRIAGEWAY, EXTRA WIDENING, PAVED SHOULDER ETC. RELEVANT HIGHWAY TCS AND PLAN & PROFILE DRAWINGS MAY BE REFERRED.
- PROPOSED CHAINAGE FOUNDATION LEVEL SHALL BE CHECKED AND CONFIRMED AS PER APPROVED P&P.
- U/S AND D/S SHALL BE VERIFIED AT SITE CONDITION AND ALSO CROSS CHECK WITH TOPO DATA.
- CLEAR COVER FOR NON EARTH FACE SHALL BE 40MM & 75MM FOR EARTHEN FACE.

LEGENDS:-

LVL.	- LEVEL
FRL	- FINISHED ROAD LEVEL
THK.	- THICK
F.L.	- FOUNDING LEVEL
G.L.	- GROUND LEVEL
IL	- INVERT LEVEL
BH	- BORE HOLE

DIMENSION DETAILS OF BOX CULVERT

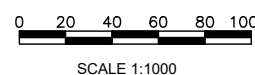
CLEAR SPAN	CLEAR HEIGHT	TOP SLAB	SIDE WALL	BOTTOM SLAB
a	b	c	d	e
2000	2000	200	250	250

STRUCTURE DETAILS

Sr. No.	Design Chainage	Tcs	Recommended Proposal for Structure	Type of Structure	Span Arrangement (m)	FRL	SOFFIT LEVEL	INVERT LEVEL	FOND. LEVEL
1	113+740	1	New Construction	Box Culvert	1x2x2	238.260	237.580	235.580	235.280
2	113+990	1	New Construction	Box Culvert	1x2x2	237.380	235.740	233.740	233.440
3	116+960	1	New Construction	Box Culvert	1x2x2	228.240	225.430	223.430	223.130
4	117+520	1	New Construction	Box Culvert	1x2x2	231.030	230.390	228.390	228.090
5	119+900	1	New Construction	Box Culvert	1x2x2	242.800	235.770	233.770	233.470
6	120+400	1	New Construction	Box Culvert	1x2x2	237.260	236.620	234.620	234.320

REV	DATE	DESCRIPTION OF REVISION

SCALE :-



CLIENT:-



CONSULTANT:-



M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service

PROJECT:-

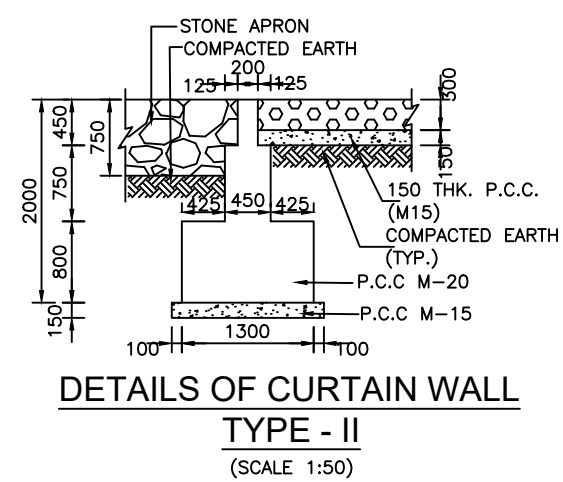
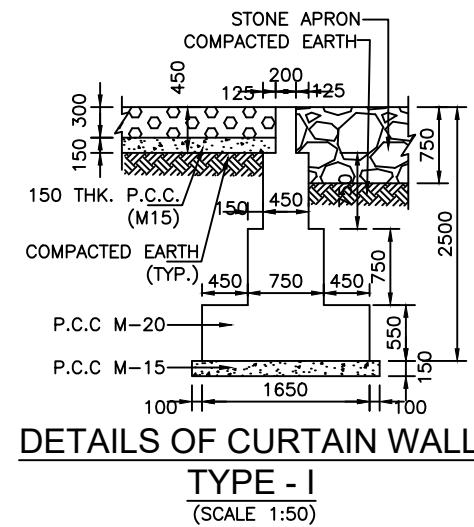
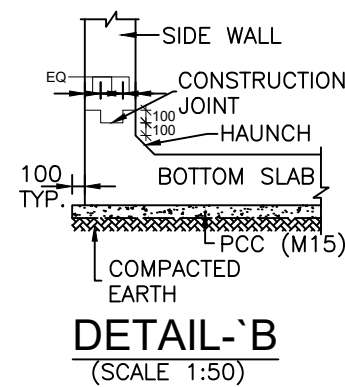
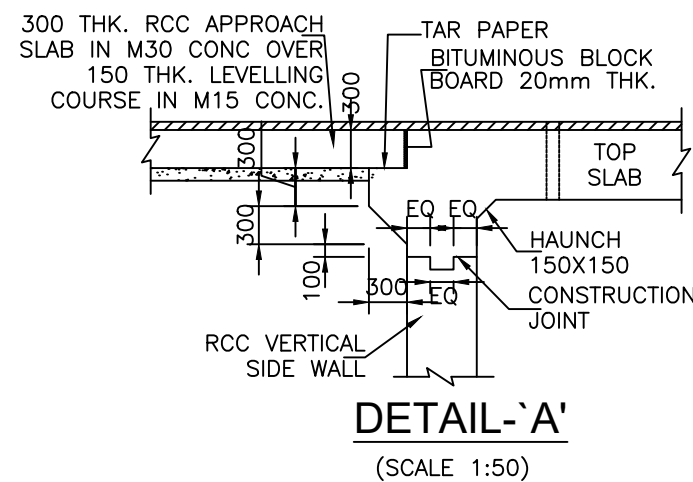
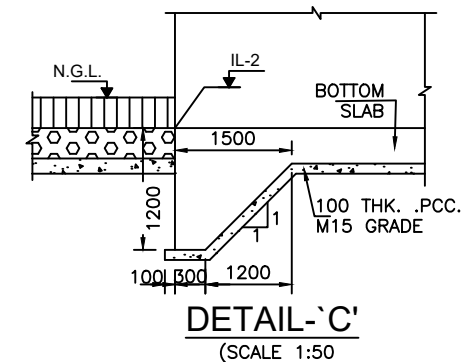
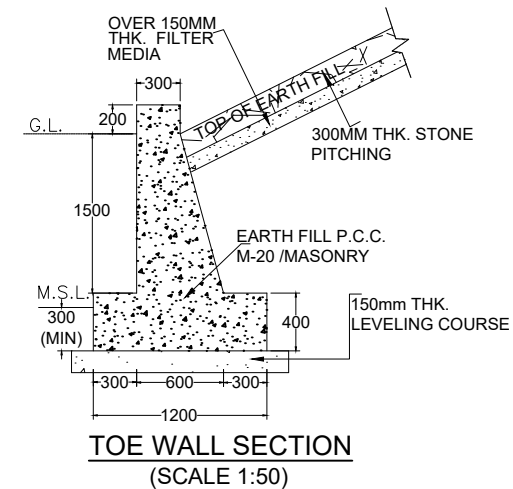
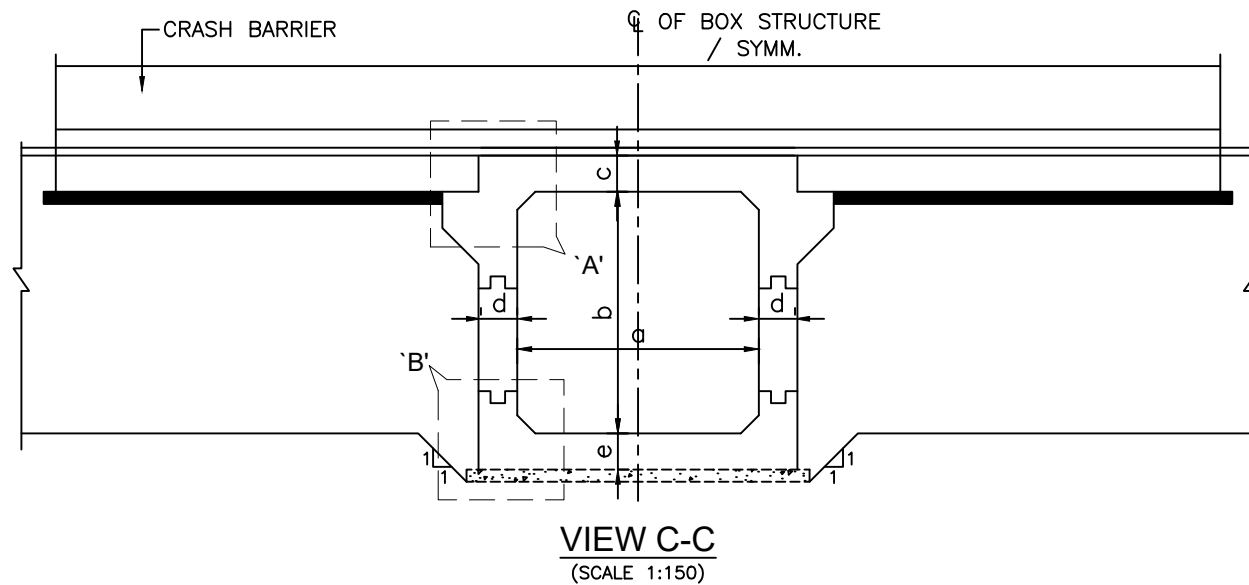
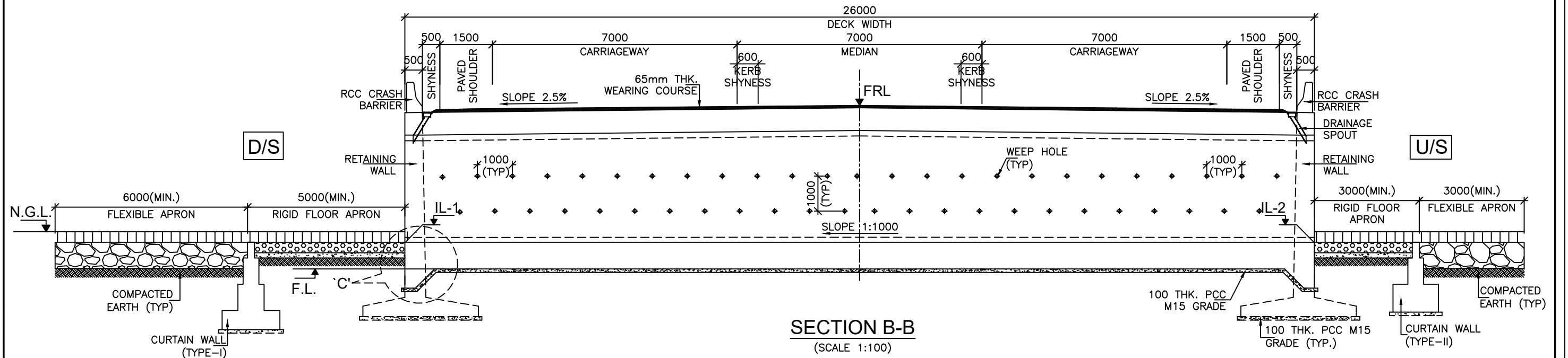
Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-

GENERAL ARRANGEMENT DRAWING OF BOX CULVERT - 1x2x2M

CHAINAGE:- TCS-01

Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 01			
Date : FEB 2025		Sheet No : 01 OF 02	
DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)



LEGENDS:-			
LVL.	-	LEVEL	
FRL	-	FINISHED ROAD LEVEL	
THK.	-	THICK	
F.L.	-	FOUNDING LEVEL	
G.L.	-	GROUND LEVEL	
IL	-	INVERT LEVEL	

REV	DATE	DESCRIPTION OF REVISION

SCALE :-
0 20 40 60 80 100
SCALE 1:1000

CLIENT:-

MINISTRY OF ROAD TRANSPORT & HIGHWAYS
ROADS & BUILDINGS DEPARTMENT

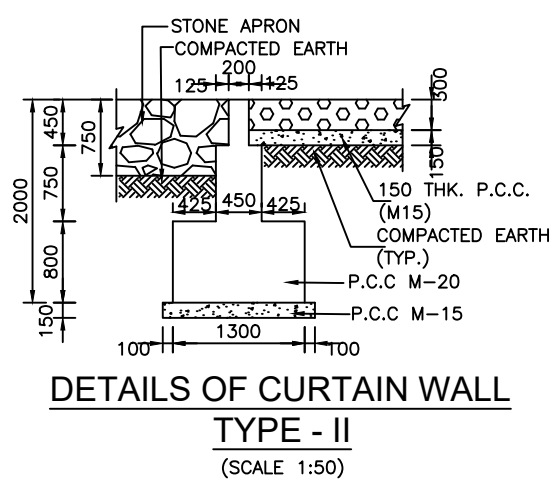
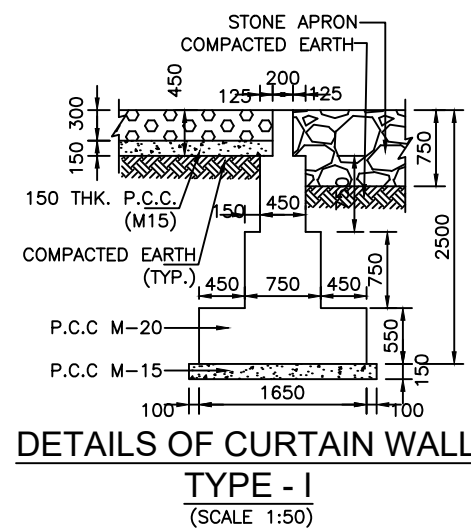
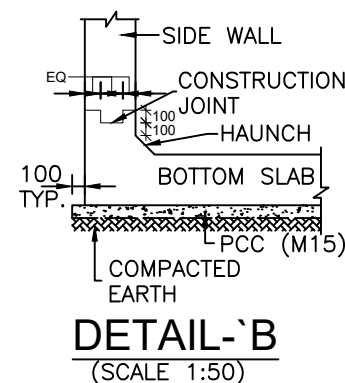
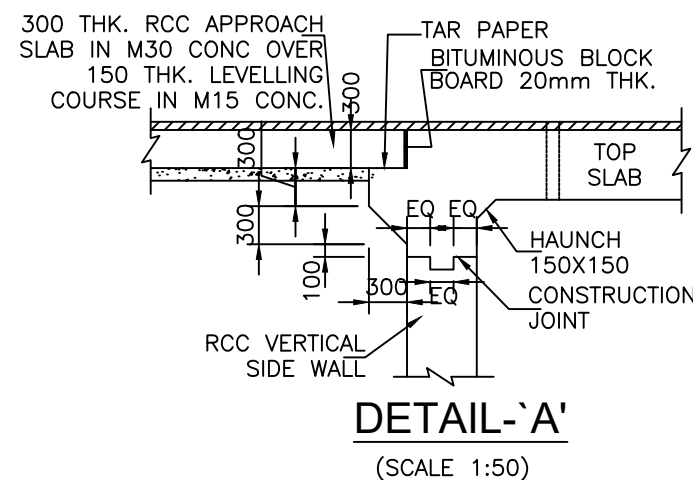
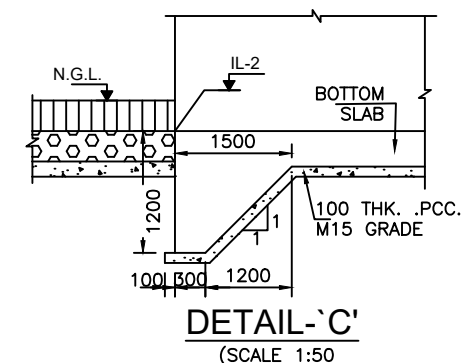
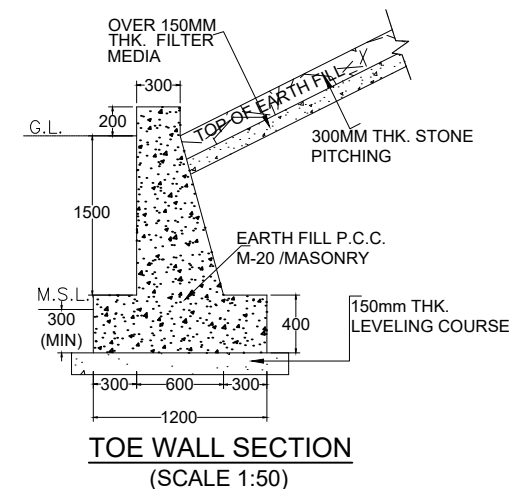
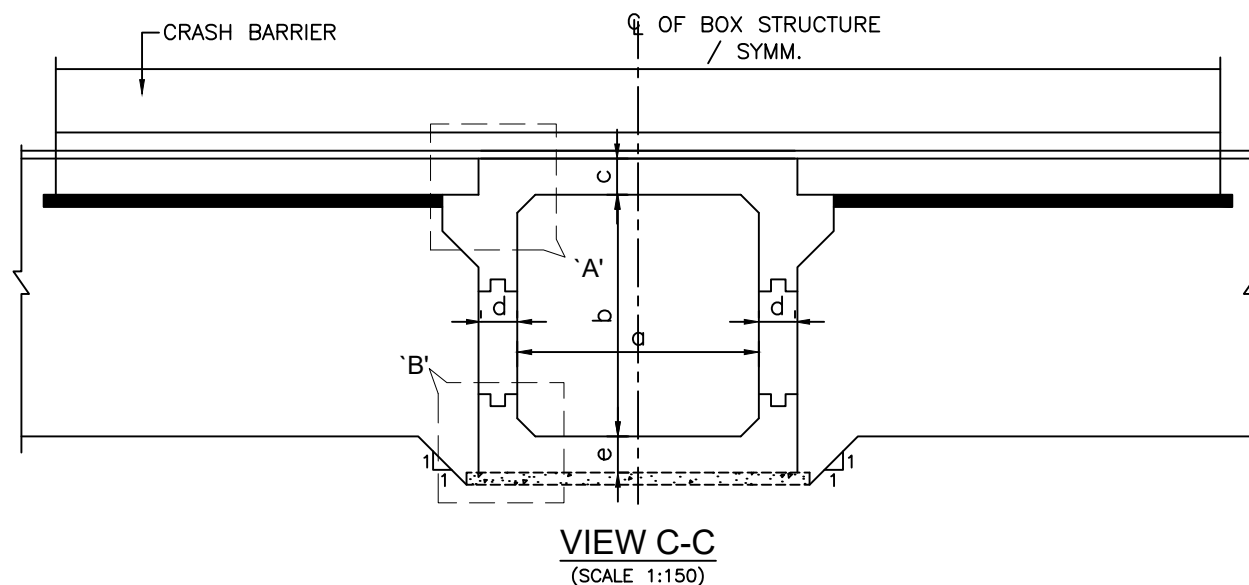
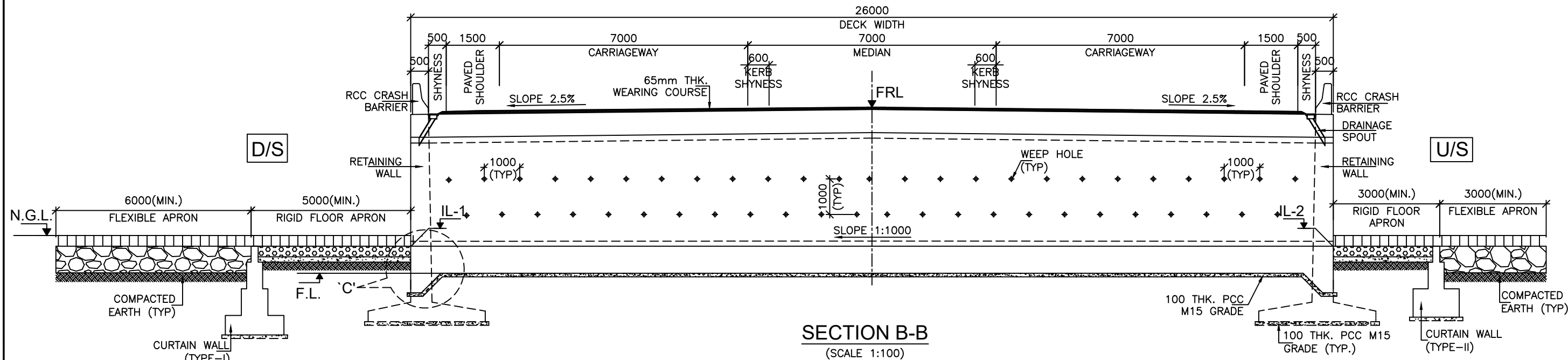
CONSULTANT:-

M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service

PROJECT:-
Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-
GENERAL ARRANGEMENT
DRAWING OF BOX
CULVERT - 1x2x2M
CHAINAGE:- TCS-01

Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 02	Sheet No. : 02 OF 02
Date : FEB 2025	
DRAWN(A)	DESIGN (B)
CHECK (C)	APPROVED (D)



LEGENDS:-			
LVL.	-	LEVEL	
FRL	-	FINISHED ROAD LEVEL	
THK.	-	THICK	
F.L.	-	FOUNDING LEVEL	
G.L.	-	GROUND LEVEL	
IL	-	INVERT LEVEL	

REV	DATE	DESCRIPTION OF REVISION

SCALE :-
0 20 40 60 80 100
SCALE 1:1000

CLIENT:-

MINISTRY OF ROAD TRANSPORT & HIGHWAYS
ROADS & BUILDINGS DEPARTMENT

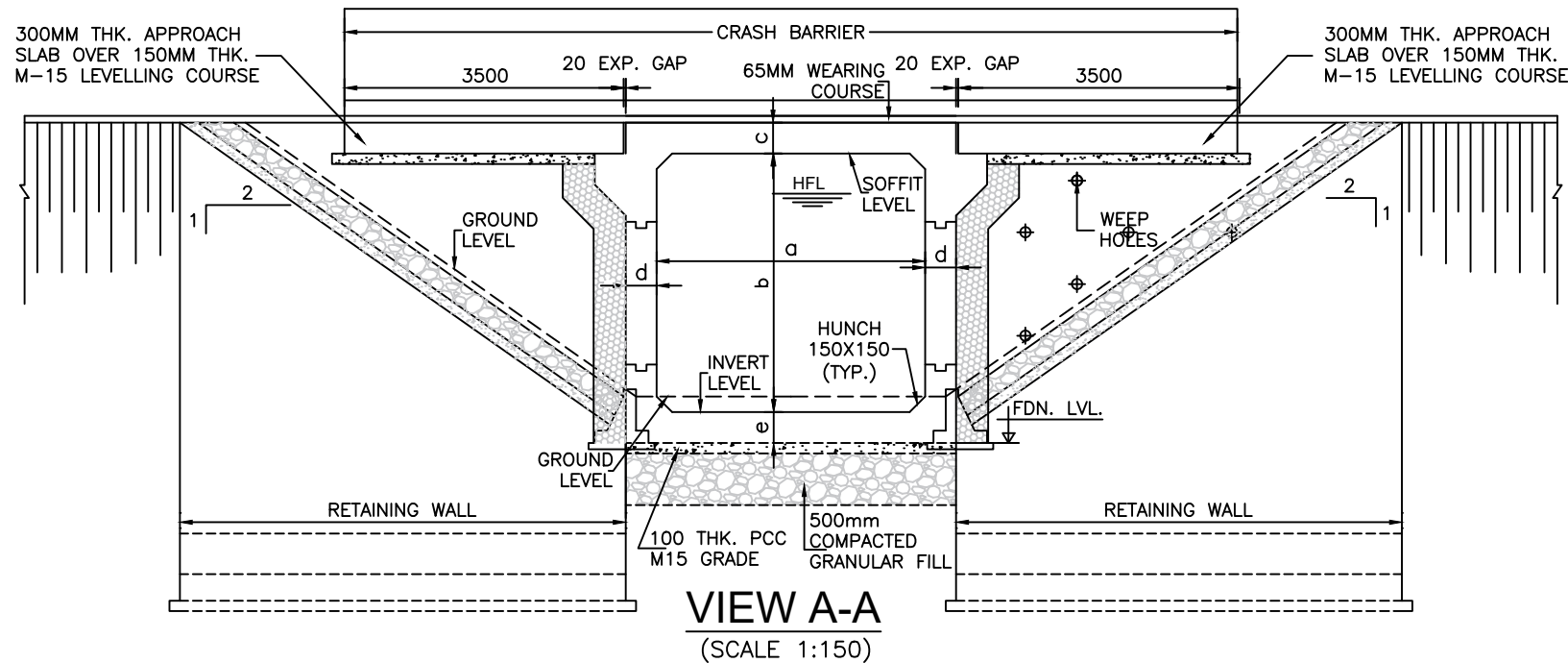
CONSULTANT:-

M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service

PROJECT:-
Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

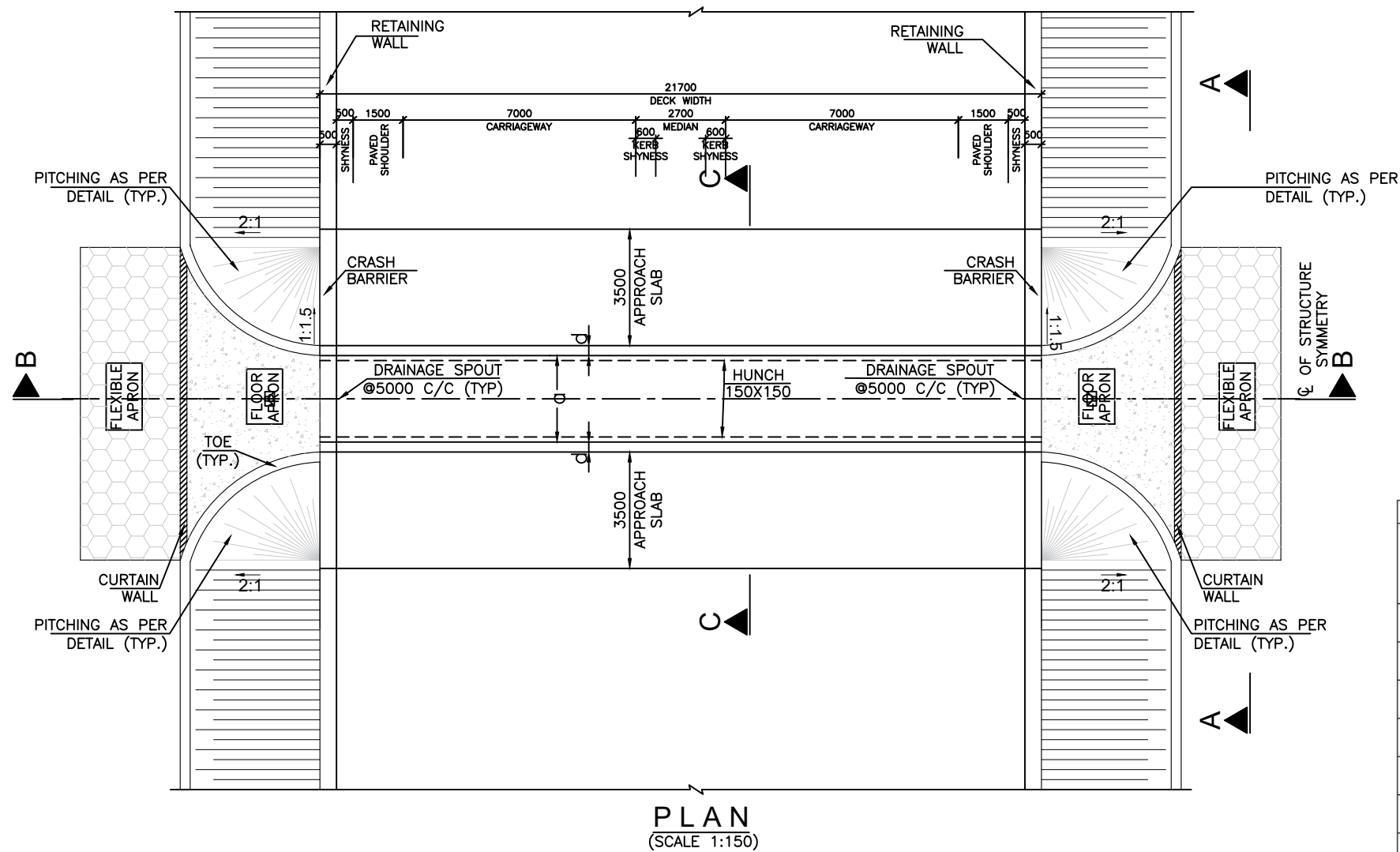
TITLE:-
GENERAL ARRANGEMENT
DRAWING OF BOX
CULVERT - 1x2x2M
CHAINAGE:- TCS-02

Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 02	Sheet No. : 02 OF 02
Date : FEB 2025	
DRAWN(A)	DESIGN (B)
CHECK (C)	APPROVED (D)



NOTES :-

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BOX STRUCTURE M35
PCC LEVELING COURSE M15
PARAPET/CRASH BARRIER M40
- ALL REINFORCEMENT SHALL BE OF GRADE Fe-500D CONFORMING TO IS : 1786-2008.
- BOX CULVERT HAS BEEN DESIGNED CONSIDERING SAFE BEARING CAPACITY OF 10 T/M².
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- CLEAR COVER FOR NON EARTH FACE SHALL BE 40MM & 75MM FOR EARTHEN FACE.



LEGENDS:-

LVL.	- LEVEL
FRL	- FINISHED ROAD LEVEL
THK.	- THICK
F.L.	- FOUNDING LEVEL
G.L.	- GROUND LEVEL
IL	- INVERT LEVEL
BH	- BORE HOLE

DIMENSION DETAILS OF BOX CULVERT

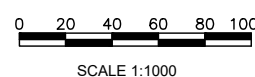
CLEAR SPAN	CLEAR HEIGHT	TOP SLAB	SIDE WALL	BOTTOM SLAB
a	b	c	d	e
2000	2000	200	250	250

STRUCTURE DETAILS

Sr. No.	Design Chainage	Tcs	Recommended Proposal for Structure	Type of Structure	Span Arrangement (m)	FRL	SOFFIT LEVEL	INVERT LEVEL	FOND. LEVEL
1	97+260	3	Reconstruction	Box Culvert	1x2x2	200.710	200.123	198.123	197.823
2	97+840	3	Reconstruction	Box Culvert	1x2x2	200.070	199.483	197.483	197.183
3	104+210	3	Reconstruction	Box Culvert	1x2x2	207.830	207.243	205.243	204.943
4	111+400	3	Reconstruction	Box Culvert	1x2x2	229.810	229.223	227.223	226.923
5	111+800	3	Reconstruction	Box Culvert	1x2x2	231.680	231.040	229.040	228.740
6	112+740	3	Reconstruction	Box Culvert	1x2x2	235.160	234.573	232.573	232.273
7	128+920	3	Reconstruction	Box Culvert	1x2x2	248.350	247.763	245.763	245.463

REV	DATE	DESCRIPTION OF REVISION

SCALE :-



CLIENT:-



CONSULTANT:-



PROJECT:-

Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-

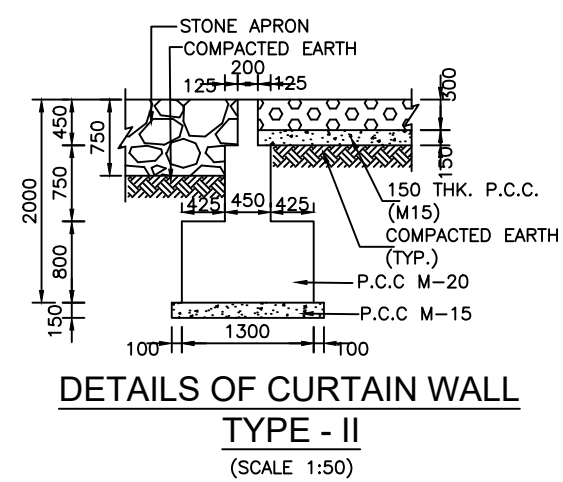
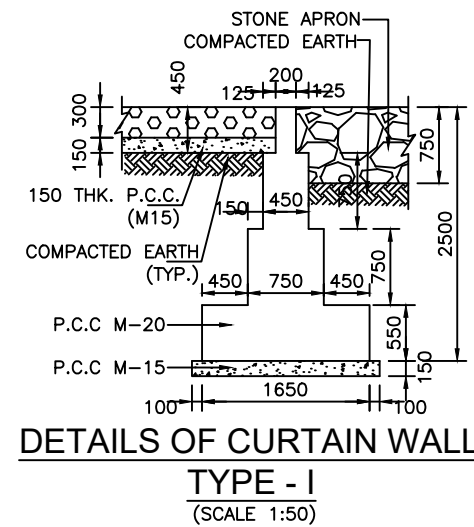
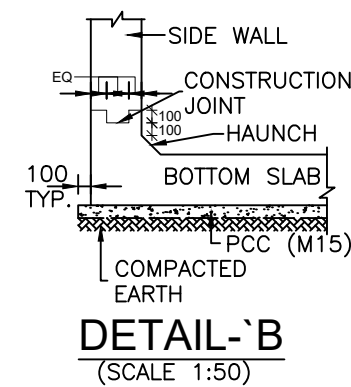
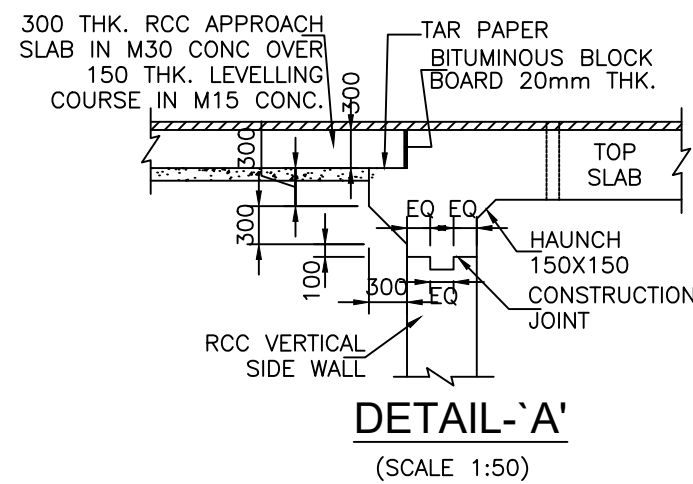
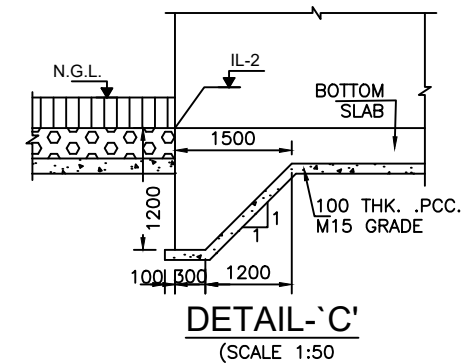
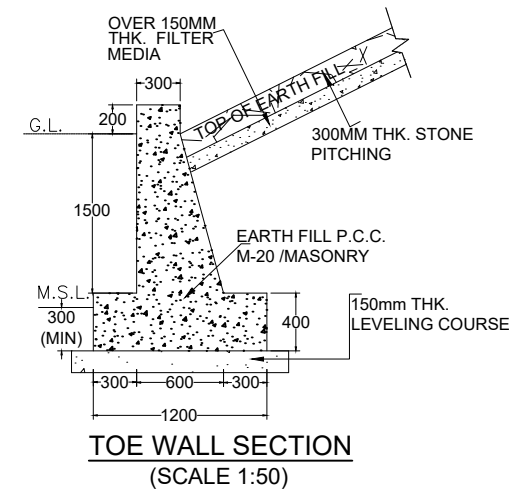
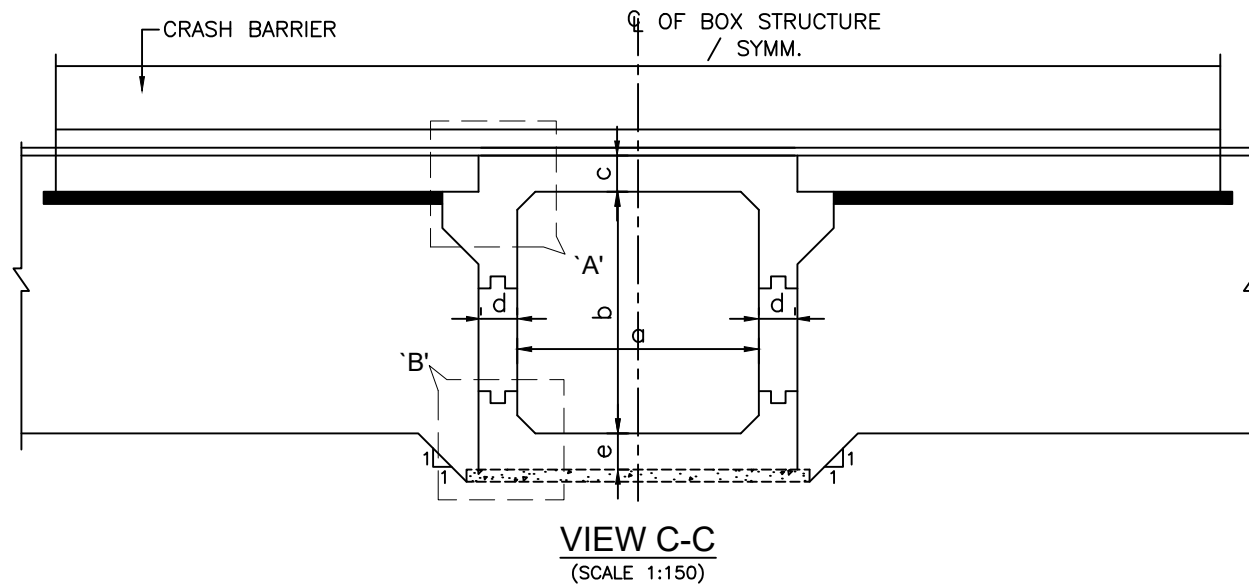
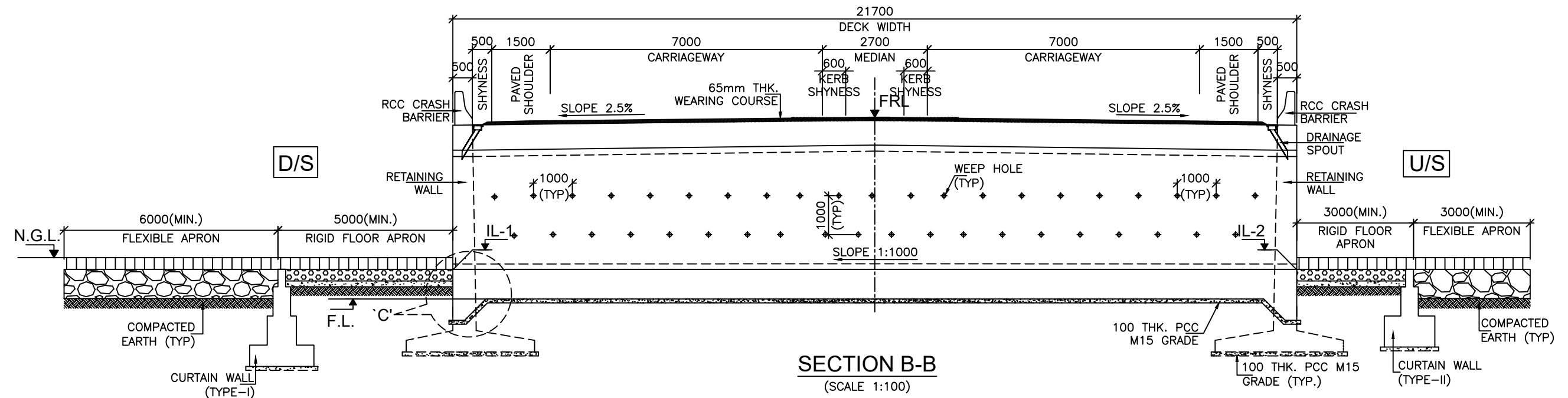
GENERAL ARRANGEMENT
DRAWING OF BOX
CULVERT - 1x2x2M

CHAINAGE:- TCS-03

Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 01

Date : FEB 2025 Sheet No : 01 OF 02

DRAWN(A) DESIGN (B) CHECK (C) APPROVED (D)



LEGENDS:-			
LVL.	-	LEVEL	
FRL	-	FINISHED ROAD LEVEL	
THK.	-	THICK	
F.L.	-	FOUNDING LEVEL	
G.L.	-	GROUND LEVEL	
IL	-	INVERT LEVEL	

REV	DATE	DESCRIPTION OF REVISION

SCALE :-
0 20 40 60 80 100
SCALE 1:1000

CLIENT:-
 **MINISTRY OF ROAD TRANSPORT & HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-
 **M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service**

PROJECT:-
Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

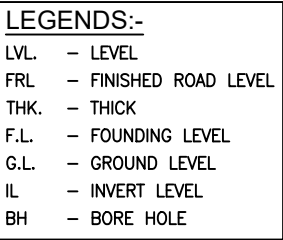
TITLE:-
GENERAL ARRANGEMENT
DRAWING OF BOX
CULVERT - 1x2x2M
CHAINAGE:- TCS-03

Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 02	Date : FEB 2025	Sheet No : 02 OF 02
DRAWN(A)	DESIGN (B)	CHECK (C)



1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
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3. CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :

BOX STRUCTURE	M35
PCC LEVELING COURSE	M15
PARAPET/CRASH BARRIER	M40
4. ALL REINFORCEMENT SHALL BE OF GRADE Fe-500D CONFORMING TO IS : 1786-2008.
5. BOX CULVERT HAS BEEN DESIGNED CONSIDERING SAFE BEARING CAPACITY OF 10 T/M².
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APPENDIX-6 OF IRC:78-2014 HAVING PROPERTIES $\phi \geq 30^\circ$, $C = 0$.
8. 100 ϕ WEEP HOLE @ 1000 C/C HORIZONTALLY & VERTICALLY AND 600mm THICK FILTER MEDIA AS PER APPENDIX-6, IRC:78-2014 SHALL BE PROVIDED BEHIND SIDE WALLS.
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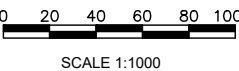


CLEAR SPAN	CLEAR HEIGHT	TOP SLAB	SIDE WALL	BOTTOM SLAB
a	b	c	d	e
2000	2000	200	250	250

STRUCTURE DETAILS									
Sr. No	Design Chainage	Tcs	Recommended Proposal for Structure	Type of Structure	Span Arrangement (m)	FRL	SOFFIT LEVEL	INVERT LEVEL	FOND. LEVEL
1	120+700	4	New Construction	Box Culvert	1x2x2	237.390	235.260	233.260	232.960
2	122+080	4	New Construction	Box Culvert	1x2x2	241.210	240.570	238.570	238.270

[illegible]

SCALE :-



CLIENT:-



**MINISTRY OF ROAD TRANSPORT
& HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-



**M/s Marc Technocrats Pvt. Ltd in JV
with Asian Geotech research service**

PROJECT:-

Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-

GENERAL ARRANGEMENT
DRAWING OF BOX
CULVERT - 1x2x2M

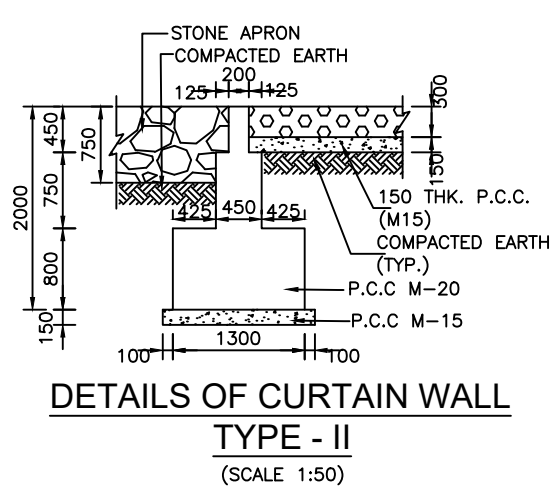
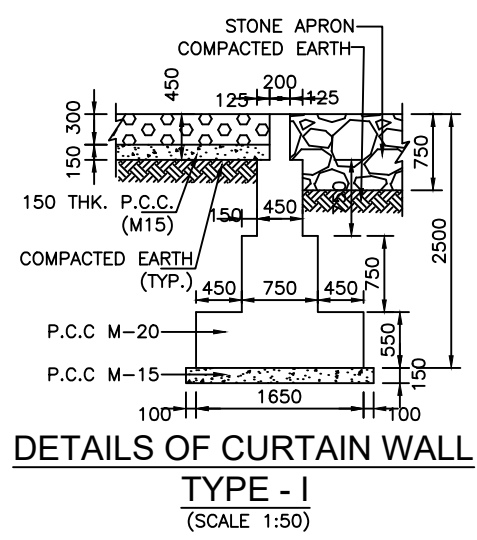
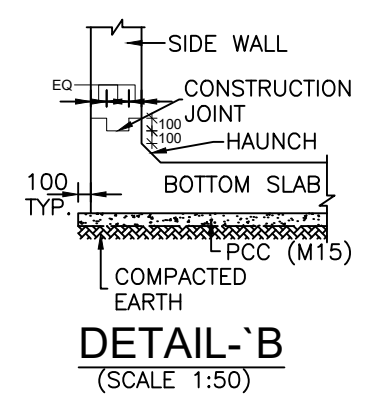
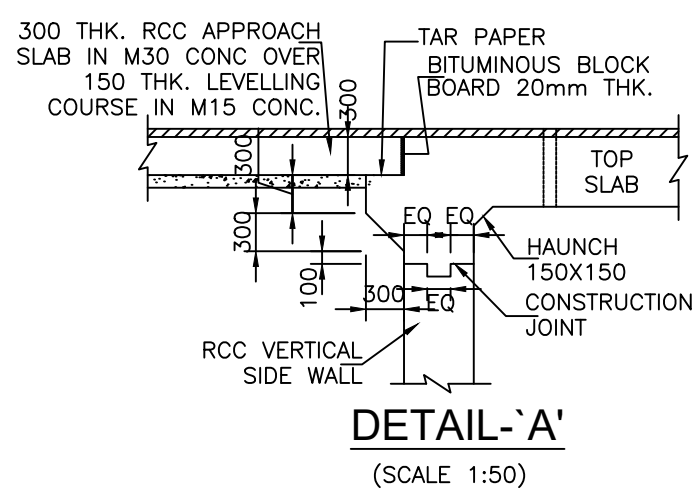
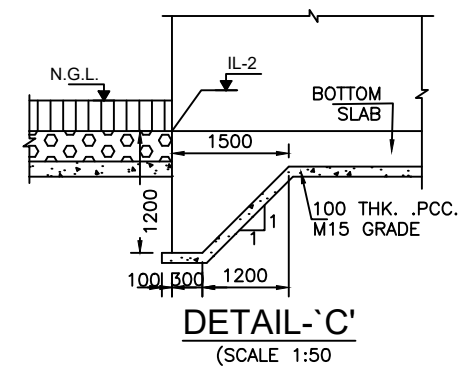
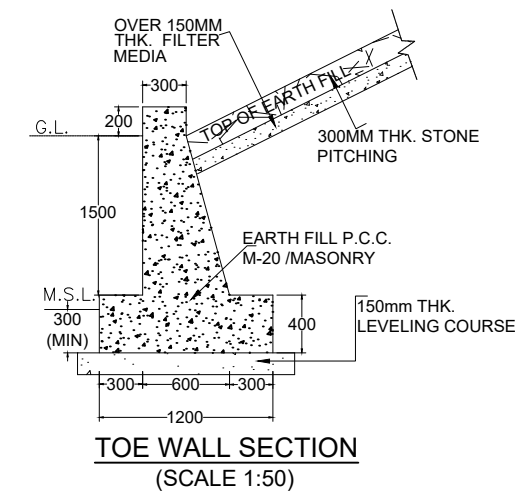
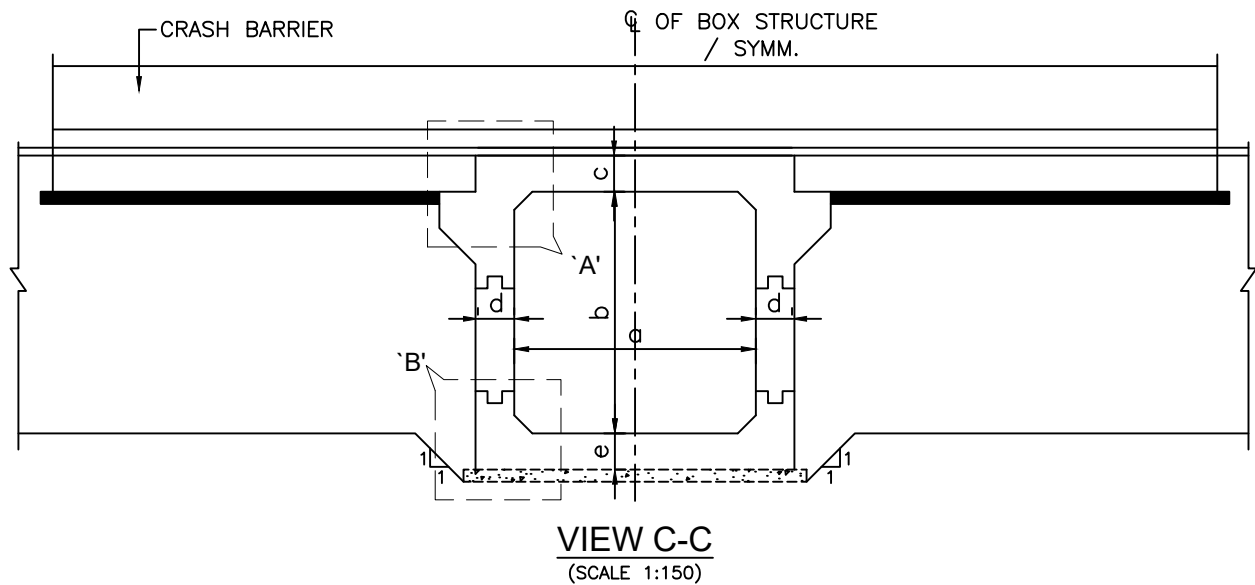
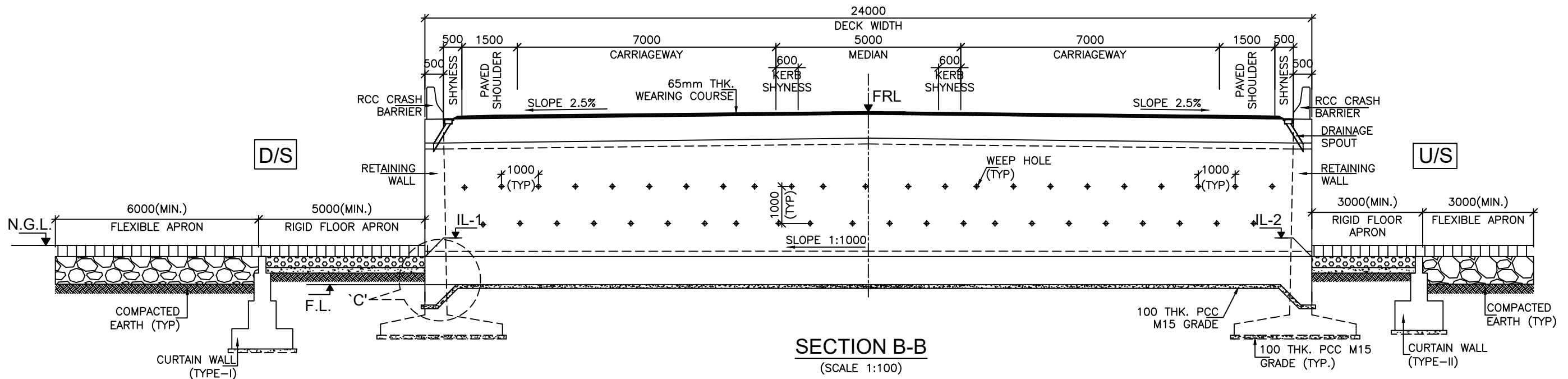
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Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 01

Date : FEB 2025

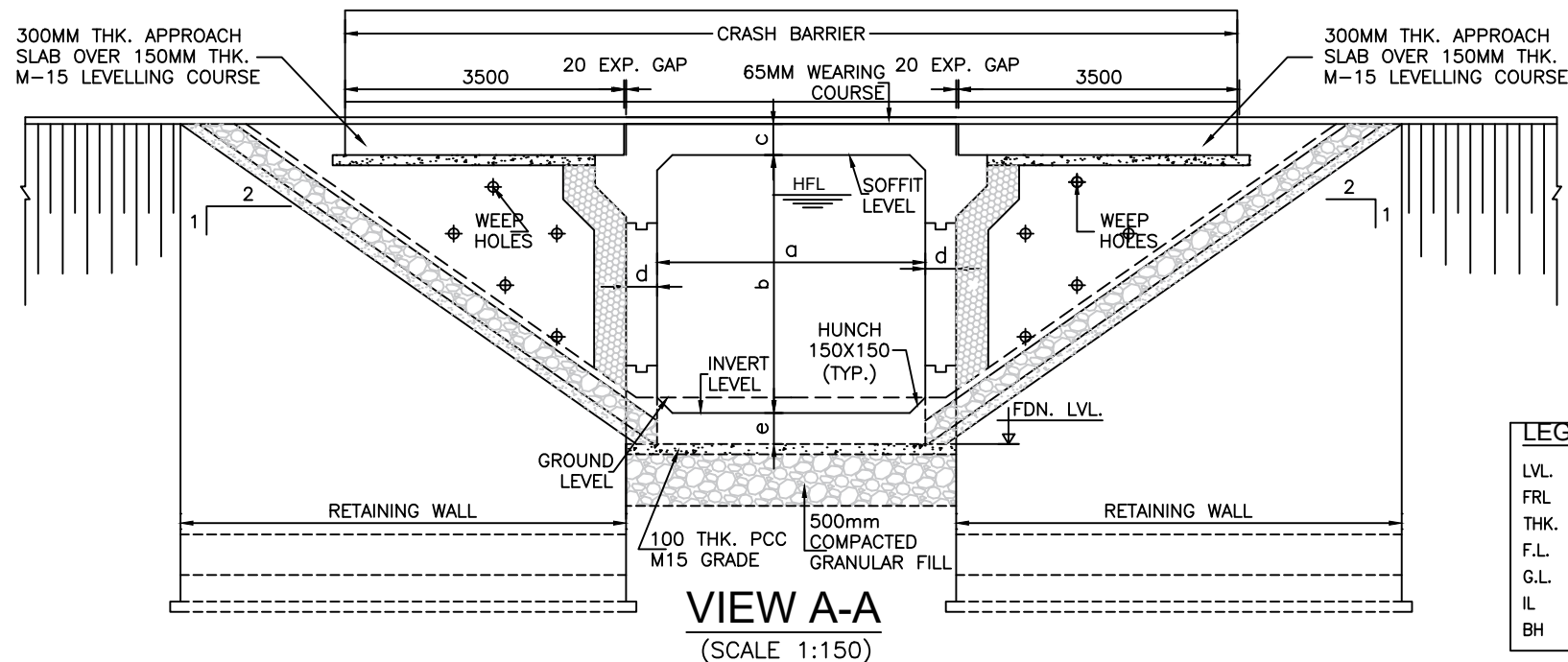
Sheet No : 01 OF 02

DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)
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LEGENDS:-

LVL.	- LEVEL
FRL	- FINISHED ROAD LEVEL
THK.	- THICK
F.L.	- FOUNDING LEVEL
G.L.	- GROUND LEVEL
IL	- INVERT LEVEL



LEGENDS:-

LVL.	- LEVEL
FRL	- FINISHED ROAD LEVEL
THK.	- THICK
F.L.	- FOUNDING LEVEL
G.L.	- GROUND LEVEL
IL	- INVERT LEVEL
BH	- BORE HOLE

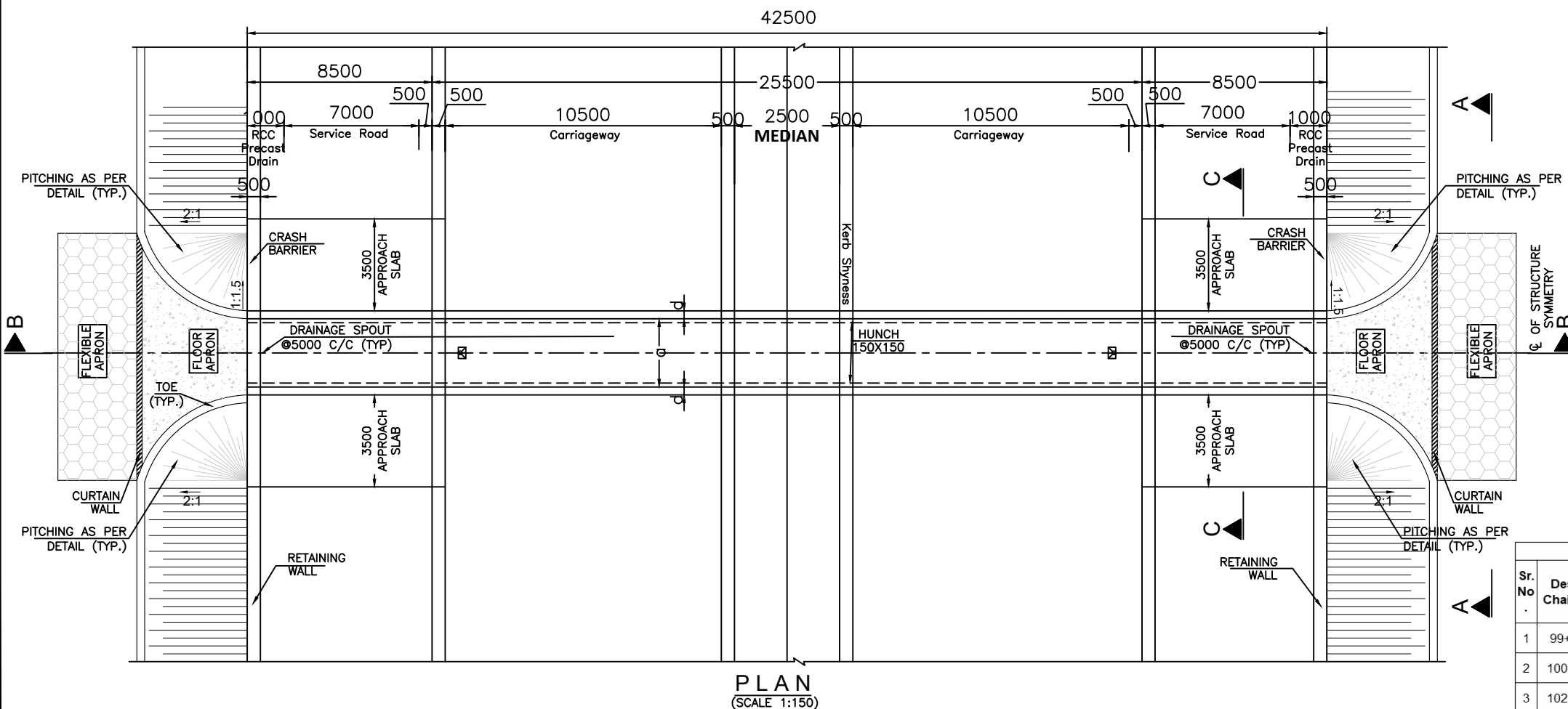
NOTES :-

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- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :

BOX STRUCTURE	M35
PCC LEVELING COURSE	M15
PARAPET/CRASH BARRIER	M40
- ALL REINFORCEMENT SHALL BE OF GRADE Fe-500D CONFORMING TO IS : 1786-2008.
- BOX CULVERT HAS BEEN DESIGNED CONSIDERING SAFE BEARING CAPACITY OF 10 T/M².
- 65MM WEARING COAT SHALL BE PROVIDED AS PER MORTH SPECIFICATION.
- BACKFILLING SHALL BE DONE BY SELECTED GRANULAR MATERIAL CONFORMING TO APPENDIX-6 OF IRC:78-2014 HAVING PROPERTIES $\phi \geq 30^\circ$, $C = 0$.
- 100 ϕ WEEP HOLE @ 1000 C/C HORIZONTALLY & VERTICALLY AND 600mm THICK FILTER MEDIA AS PER APPENDIX-6, IRC:78-2014 SHALL BE PROVIDED BEHIND SIDE WALLS.
- SOFT & LOOSE PATCHES OF THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILL WITH LAYERS NOT EXCEEDING 300mm.
- DESIGN HAS BEEN DONE CONSIDERING SEVERE EXPOSURE CONDITION.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY PLAN & PROFILE DRAWINGS AND ALL LEVELS PROVIDED IN SCHEDULE SHALL BE VERIFIED AT SITE PRIOR TO CONSTRUCTION. VARIATION (IF ANY) SHALL BE REPORTED TO THE ENGINEER.
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- CLEAR COVER FOR NON EARTH FACE SHALL BE 40MM & 75MM FOR EARTHEN FACE.

DIMENSION DETAILS OF BOX CULVERT

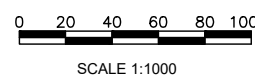
CLEAR SPAN	CLEAR HEIGHT	TOP SLAB	SIDE WALL	BOTTOM SLAB
a	b	c	d	e
2000	2000	200	250	250



STRUCTURE DETAILS									
Sr. No.	Design Chainage	Tcs	Recommended Proposal for Structure	Type of Structure	Span Arrangement (m)	FRL	SOFFIT LEVEL	INVERT LEVEL	FOND. LEVEL
1	99+220	5	Reconstruction	Box Culvert	1x2x2	202.850	200.970	198.970	198.670
2	100+430	5	New Construction	Box Culvert	1x2x2	198.340	196.940	194.940	194.640
3	102+250	5	Reconstruction	Box Culvert	1x2x2	203.860	203.273	201.273	200.973
4	104+860	5	Reconstruction	Box Culvert	1x2x2	213.830	210.030	208.030	207.730
5	105+820	5	Reconstruction	Box Culvert	1x2x2	213.920	210.570	208.570	208.270
6	124+640	5	New Construction	Box Culvert	1x2x2	233.360	227.490	225.490	225.190
7	125+980	5	New Construction	Box Culvert	1x2x2	237.820	231.820	229.820	229.520

REV	DATE	DESCRIPTION OF REVISION

SCALE :-



CLIENT:-



CONSULTANT:-



PROJECT:-

Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-

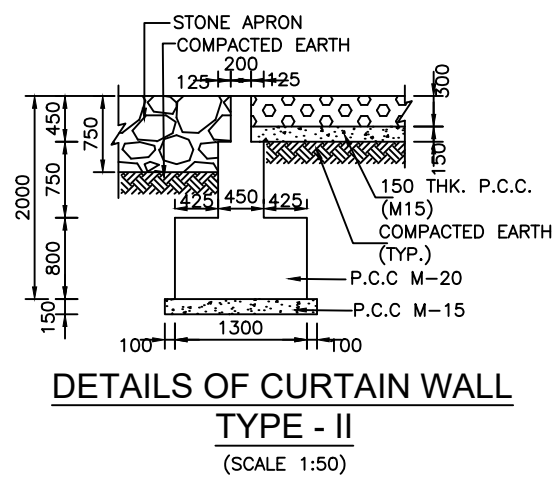
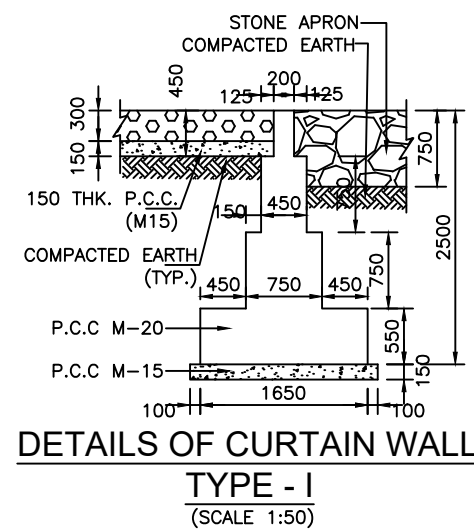
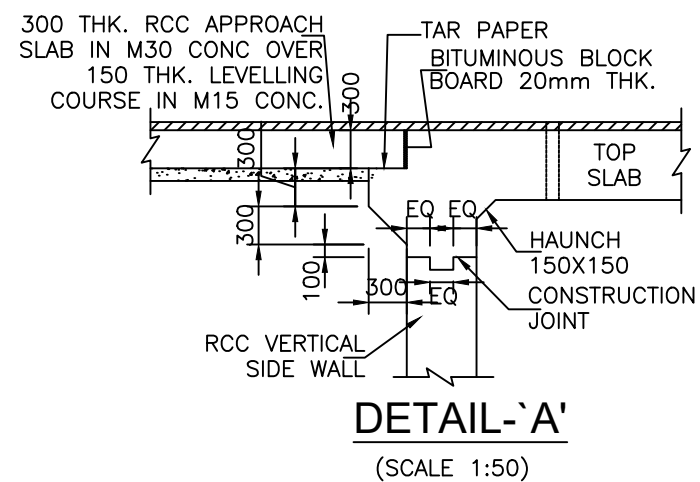
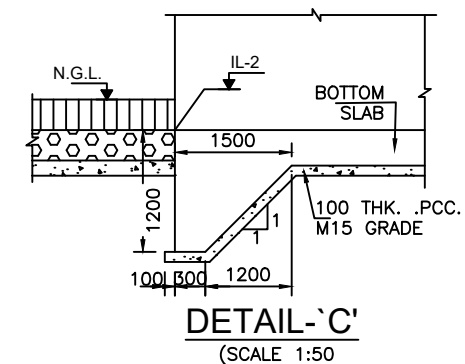
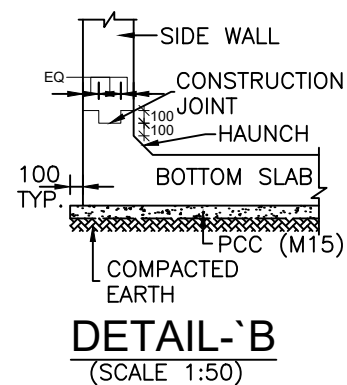
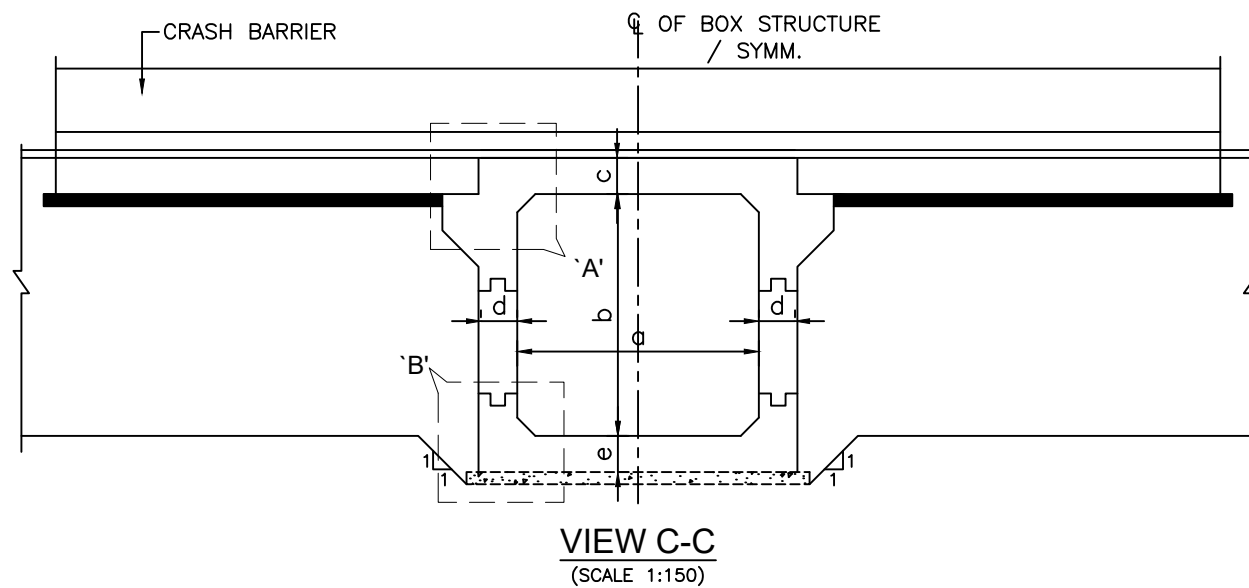
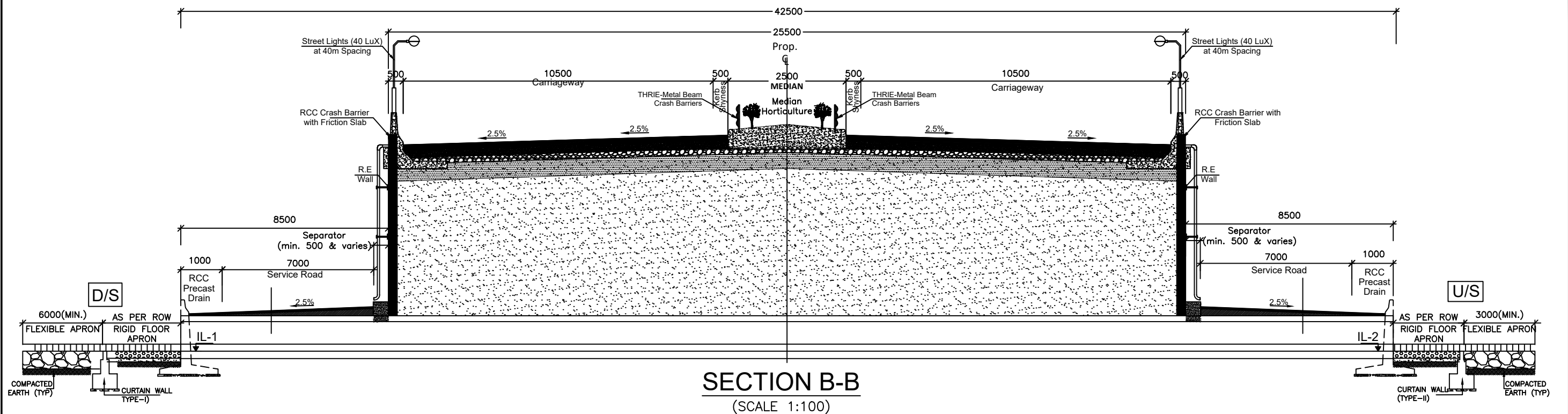
GENERAL ARRANGEMENT
DRAWING OF BOX CULVERT - 1x2x2M

CHAINAGE:- TCS-05

Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 01

Date : FEB 2025 Sheet No : 01 OF 02

DRAWN(A) DESIGN (B) CHECK (C) APPROVED (D)



LEGENDS:-	
LVL.	- LEVEL
FRL	- FINISHED ROAD LEVEL
THK.	- THICK
F.L.	- FOUNDING LEVEL
G.L.	- GROUND LEVEL
IL	- INVERT LEVEL

REV	DATE	DESCRIPTION OF REVISION

SCALE :-
0 20 40 60 80 100
SCALE 1:1000

CLIENT:-
 **MINISTRY OF ROAD TRANSPORT & HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-
 **M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service**

PROJECT:-
Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-
GENERAL ARRANGEMENT
DRAWING OF BOX
CULVERT - 1x2x2M
CHAINAGE:- TCS-05

Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 02	Sheet No. : 02 OF 02
Date : FEB 2025	
DRAWN(A)	DESIGN (B)
CHECK (C)	APPROVED (D)



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BOX STRUCTURE	M35
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PARAPET/CRASH BARRIER	M40
4. ALL REINFORCEMENT SHALL BE OF GRADE Fe-500D CONFORMING TO IS : 1786-2008.
5. BOX CULVERT HAS BEEN DESIGNED CONSIDERING SAFE BEARING CAPACITY OF 10 T/M².
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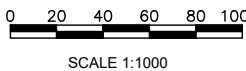
DIMENSION DETAILS OF BOX CULVERT

CLEAR SPAN	CLEAR HEIGHT	TOP SLAB	SIDE WALL	BOTTOM SLAB
a	b	c	d	e
3000	3000	250	300	300

STRUCTURE DETAILS								
Sr. No.	Design Chainage	Tcs	Type of Structure	Span Arrangement (m)	FRL	SOFFIT LEVEL	INVERT LEVEL	FOND. LEVEL
1	94+450	1	Box Culvert	1x3x3	184.540	178.980	175.980	175.680
2	123+000	1	Box Culvert	1x3x3	241.690	241.050	238.050	237.750

[illegible]

SCALE :-



CLIENT:-



**MINISTRY OF ROAD TRANSPORT
& HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-



**M/s Marc Technocrats Pvt. Ltd in JV
with Asian Geotech research service**

PROJECT:-

Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-

GENERAL ARRANGEMENT
DRAWING OF BOX
CULVERT - 1x3x3M

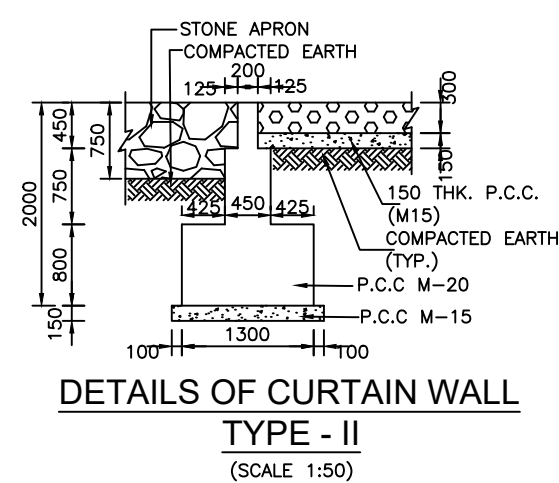
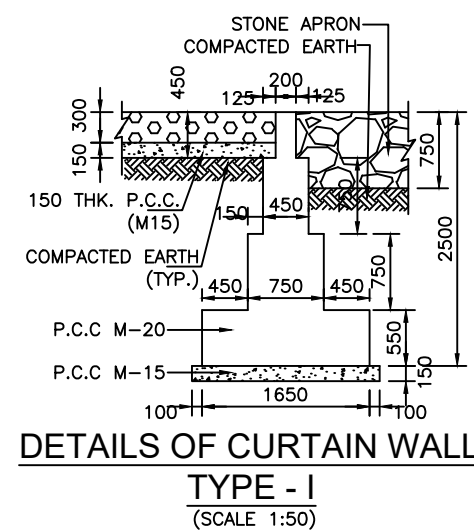
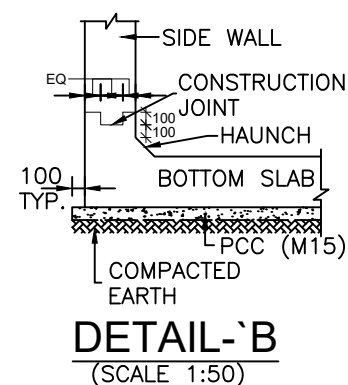
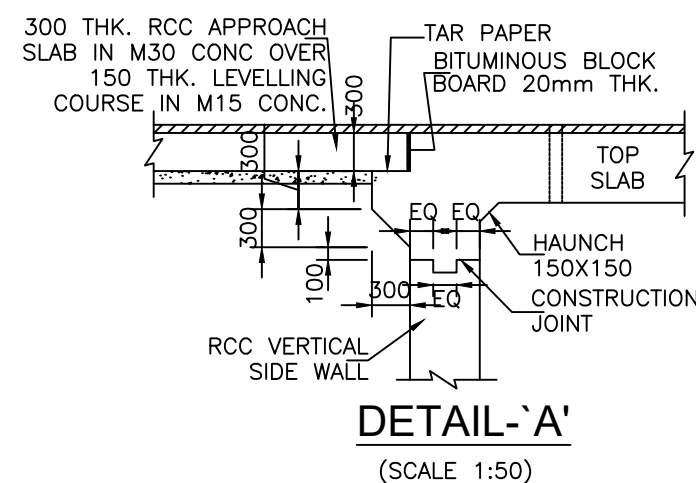
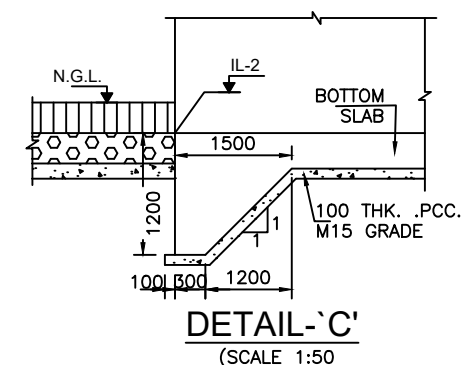
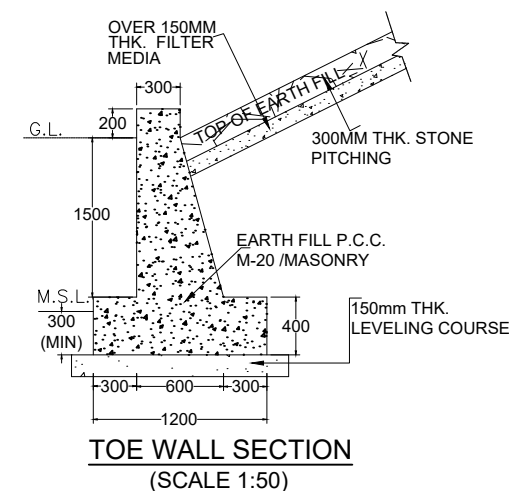
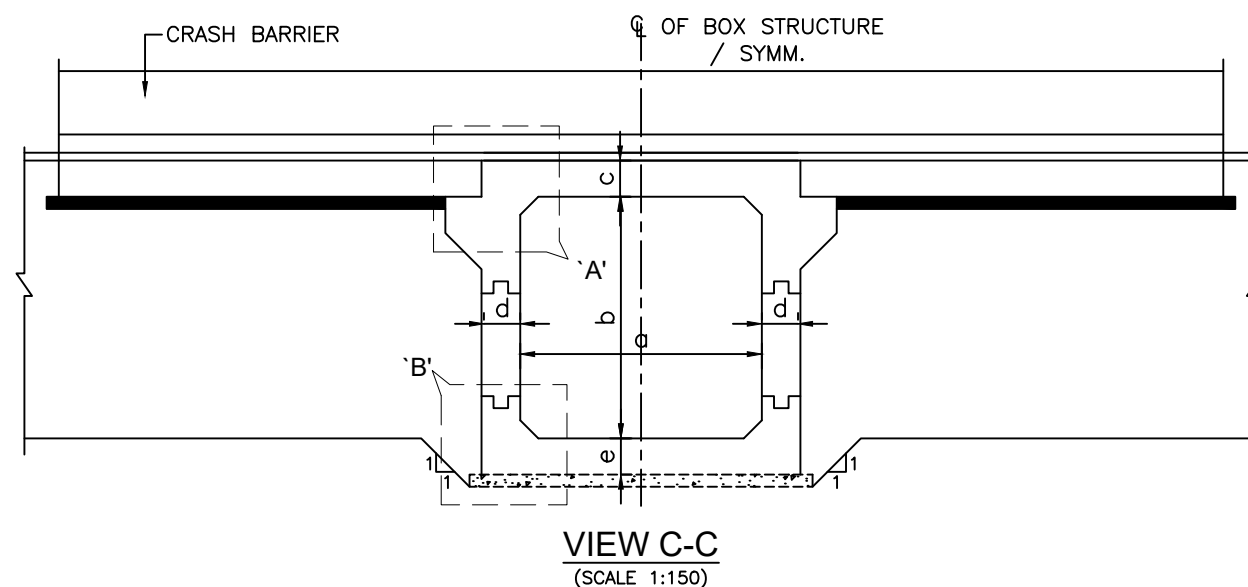
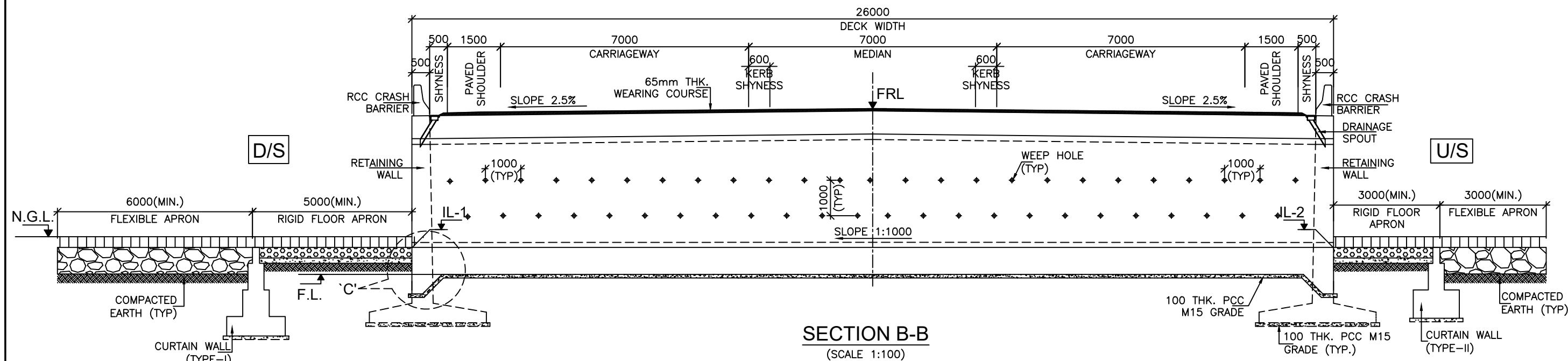
CHAINAGE:- TCS-01

Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 01

Date : FEB 2025

Sheet No : 01 OF 02

DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)
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LEGENDS:-

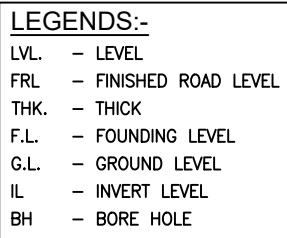
LVL.	-	LEVEL
FRL	-	FINISHED ROAD LEVEL
THK.	-	THICK
F.L.	-	FOUNDING LEVEL
G.L.	-	GROUND LEVEL
IL	-	INVERT LEVEL

[illegible]



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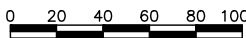
DIMENSION DETAILS OF BOX CULVERT

CLEAR SPAN	CLEAR HEIGHT	TOP SLAB	SIDE WALL	BOTTOM SLAB
a	b	c	d	e
3000	3000	250	300	300

STRUCTURE DETAILS								
Sr. No.	Design Chainage	Tcs	Type of Structure	Span Arrangement (m)	FRL	SOFFIT LEVEL	INVERT LEVEL	FOND. LEVEL
1	109+520	3	Box Culvert	1x3x3	217.310	216.723	213.723	213.423

REV	DATE	DESCRIPTION OF REVISION

SCALE :-



SCALE 1:1000

CLIENT:-



**MINISTRY OF ROAD TRANSPORT
& HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-



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TITLE:-

GENERAL ARRANGEMENT
DRAWING OF BOX
CULVERT - 1x3x3M

CHAINAGE:- TCS-03

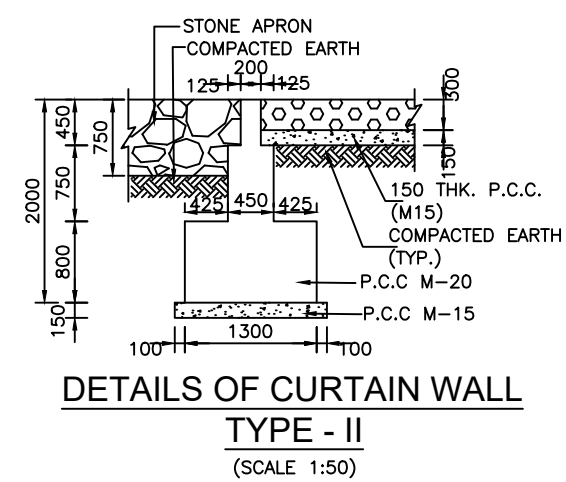
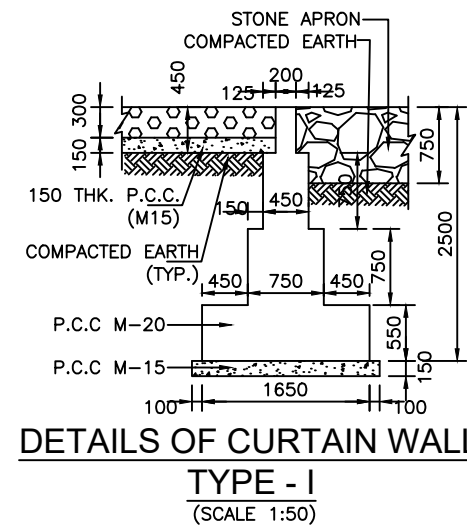
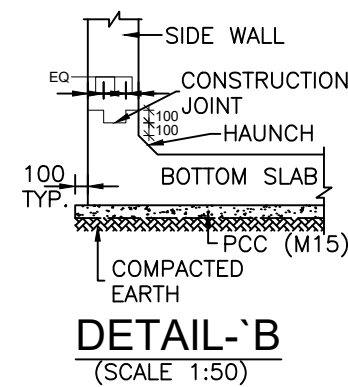
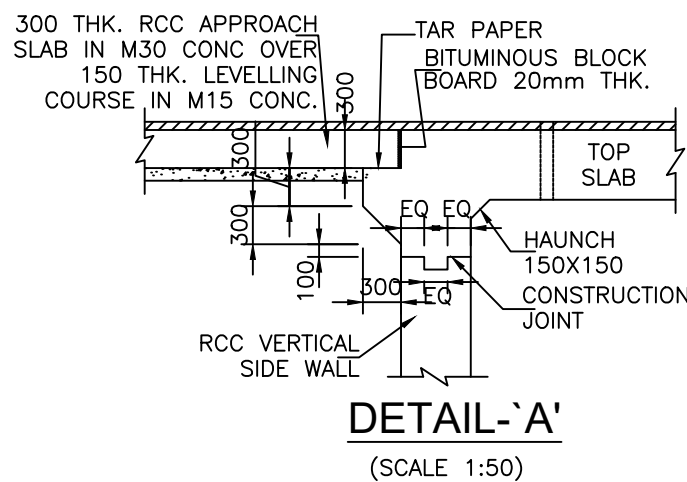
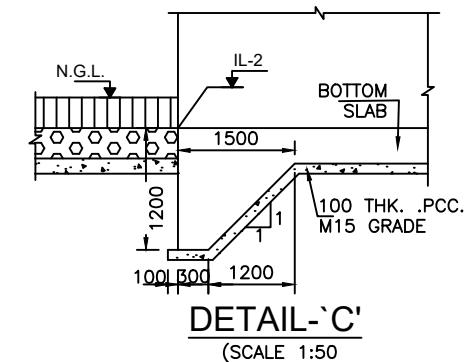
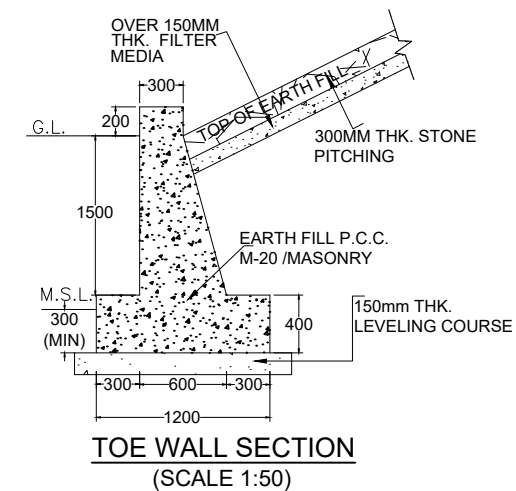
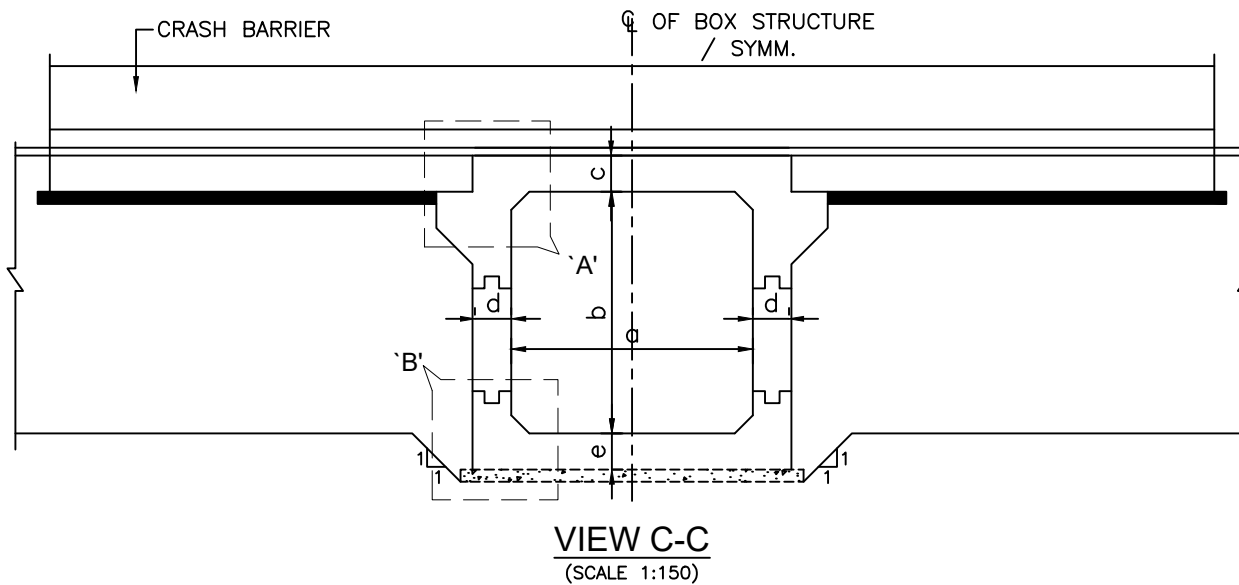
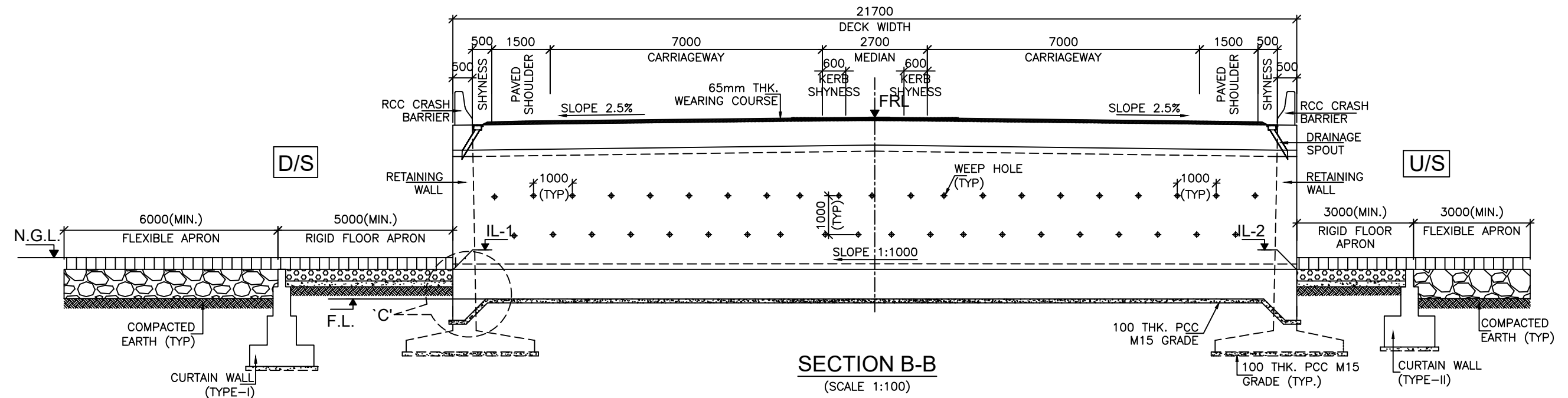
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Date : FEB 2025

Sheet No : 01 OF 02

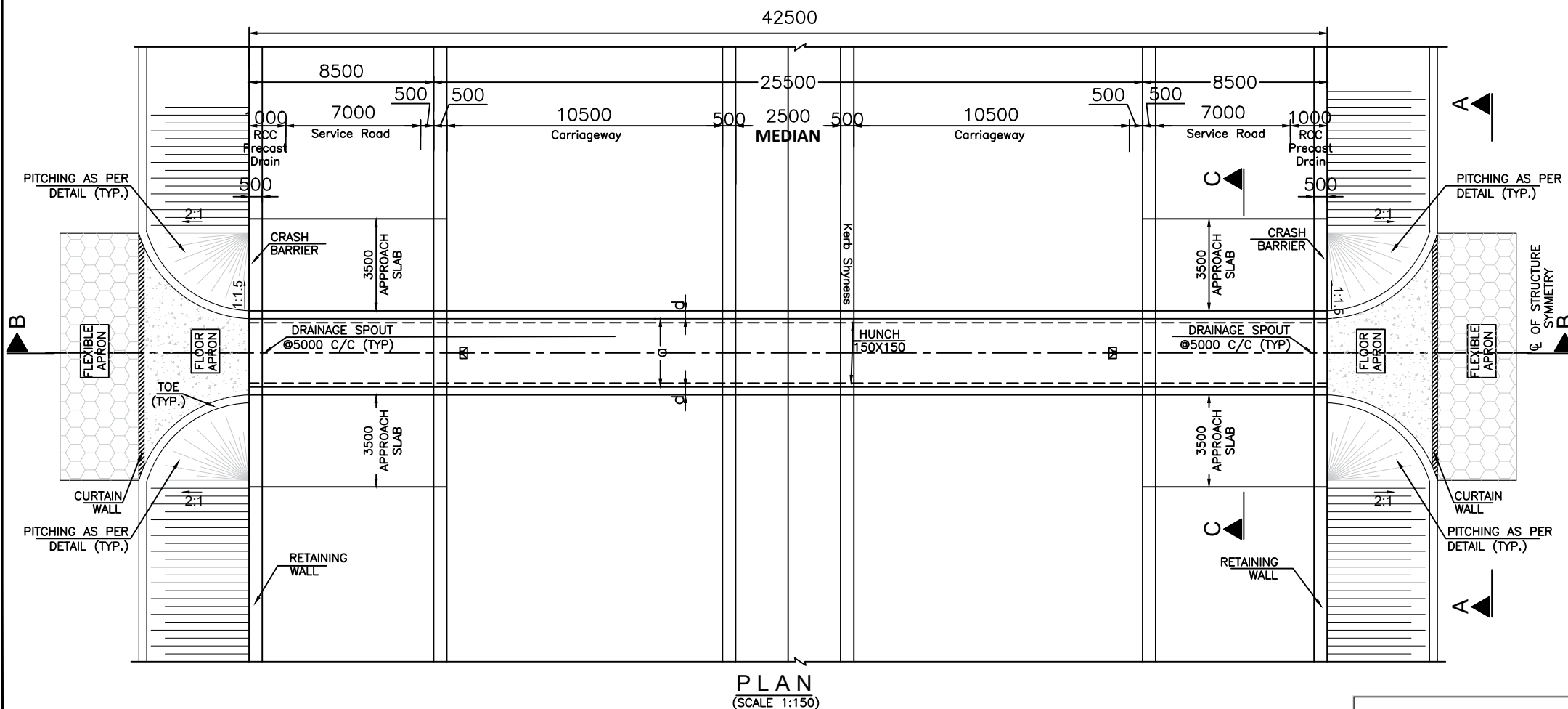
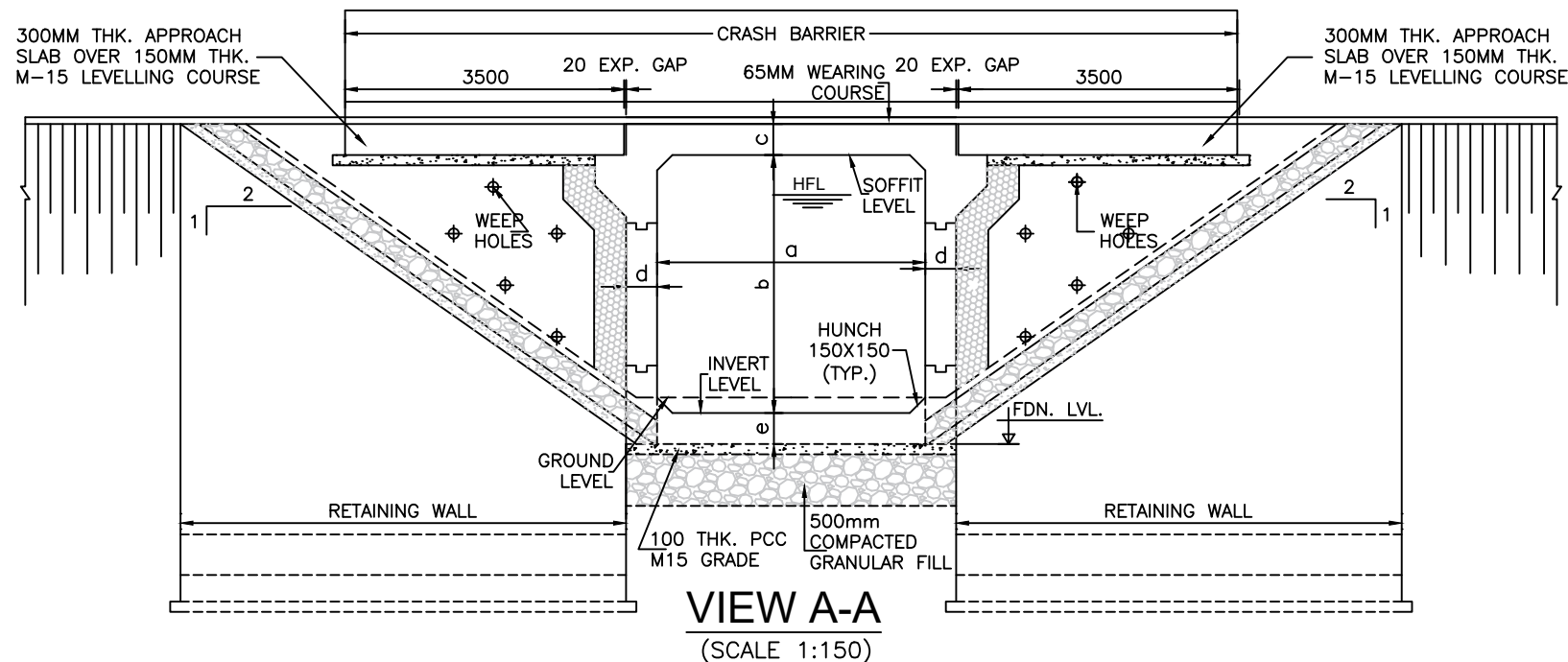
DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)
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LEGENDS:-			
LVL.	-	LEVEL	
FRL	-	FINISHED ROAD LEVEL	
THK.	-	THICK	
F.L.	-	FOUNDING LEVEL	
G.L.	-	GROUND LEVEL	
IL	-	INVERT LEVEL	

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NOTES :-

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- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :

BOX STRUCTURE	M35
PCC LEVELING COURSE	M15
PARAPET/CRASH BARRIER	M40
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DIMENSION DETAILS OF BOX CULVERT

CLEAR SPAN	CLEAR HEIGHT	TOP SLAB	SIDE WALL	BOTTOM SLAB
a	b	c	d	e
3000	3000	250	300	300

LEGENDS:-

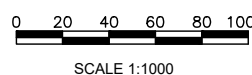
LVL.	- LEVEL
FRL	- FINISHED ROAD LEVEL
THK.	- THICK
F.L.	- FOUNDING LEVEL
G.L.	- GROUND LEVEL
IL	- INVERT LEVEL
BH	- BORE HOLE

STRUCTURE DETAILS

Sr. No.	Design Chainage	Tcs	Type of Structure	Span Arrangement (m)	FRL	SOFFIT LEVEL	INVERT LEVEL	FOND. LEVEL
1	125+540	5	Box Culvert	1x3x3	244.110	239.190	236.190	235.890

REV	DATE	DESCRIPTION OF REVISION

SCALE :-



CLIENT:-



CONSULTANT:-



PROJECT:-

Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-

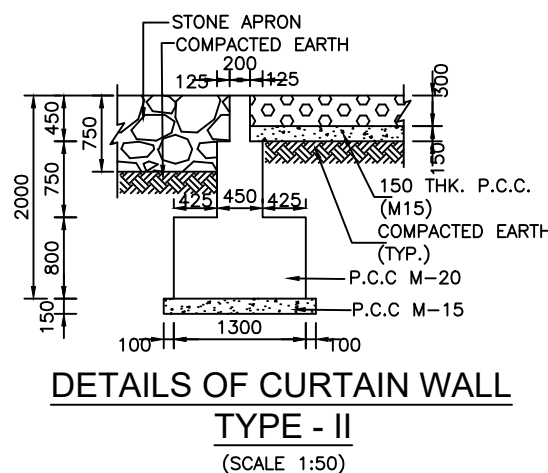
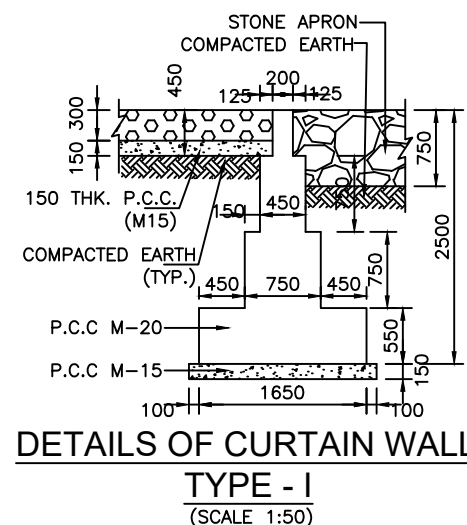
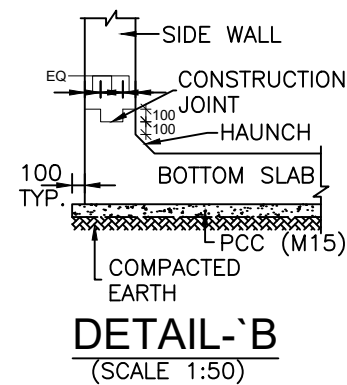
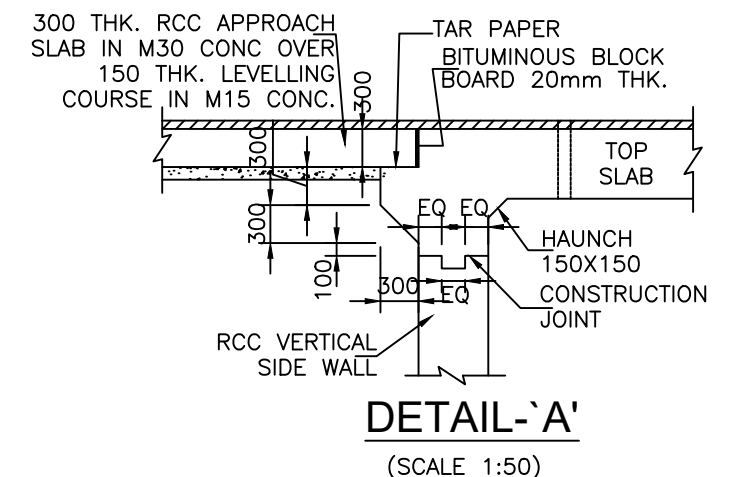
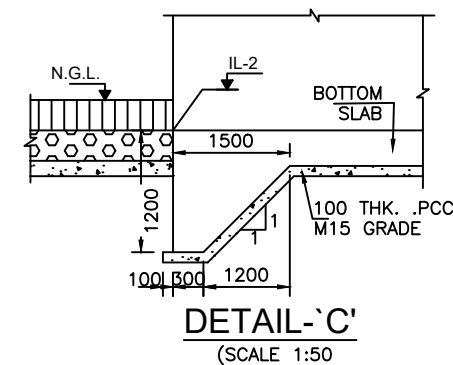
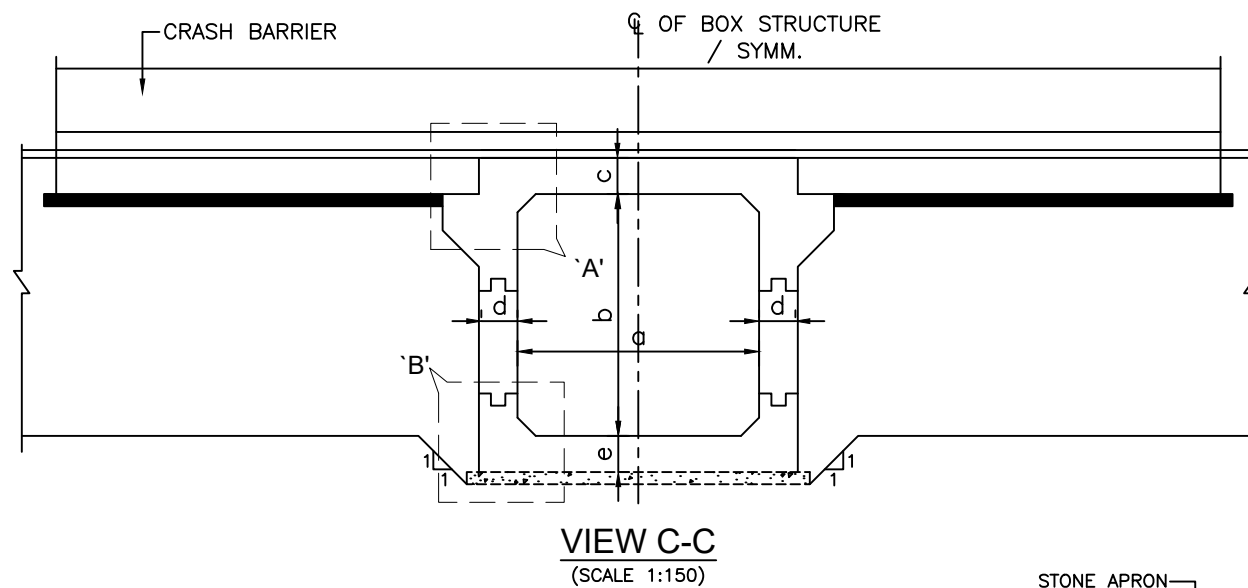
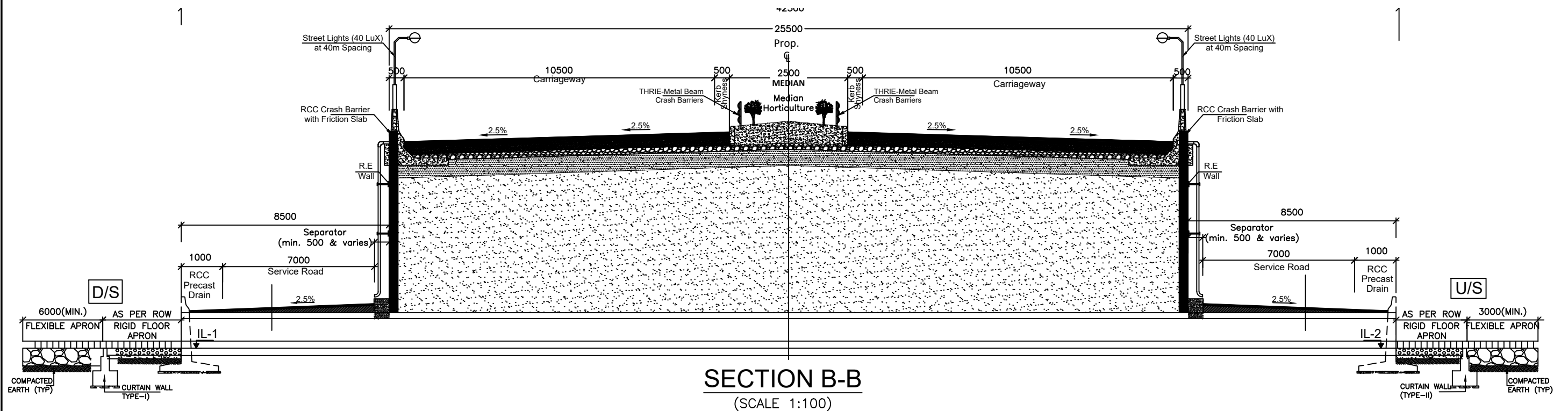
GENERAL ARRANGEMENT
DRAWING OF BOX CULVERT - 1x3x3M

CHAINAGE:- TCS-05

Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 01

Date : FEB 2025 Sheet No : 01 OF 02

DRAWN(A) DESIGN (B) CHECK (C) APPROVED (D)



LEGENDS:-	
LVL.	- LEVEL
FRL	- FINISHED ROAD LEVEL
THK.	- THICK
F.L.	- FOUNDING LEVEL
G.L.	- GROUND LEVEL
IL	- INVERT LEVEL

REV	DATE	DESCRIPTION OF REVISION

SCALE :-
0 20 40 60 80 100
SCALE 1:1000

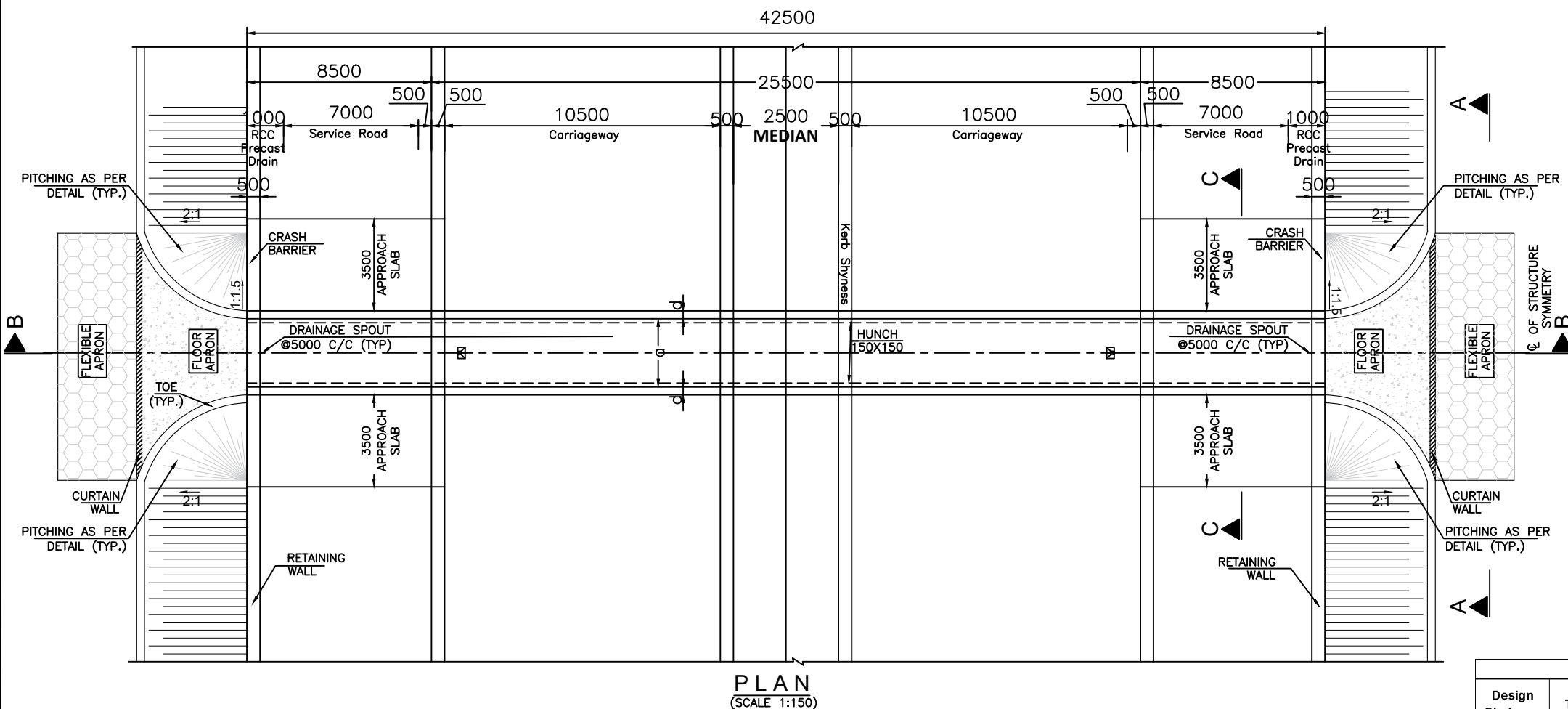
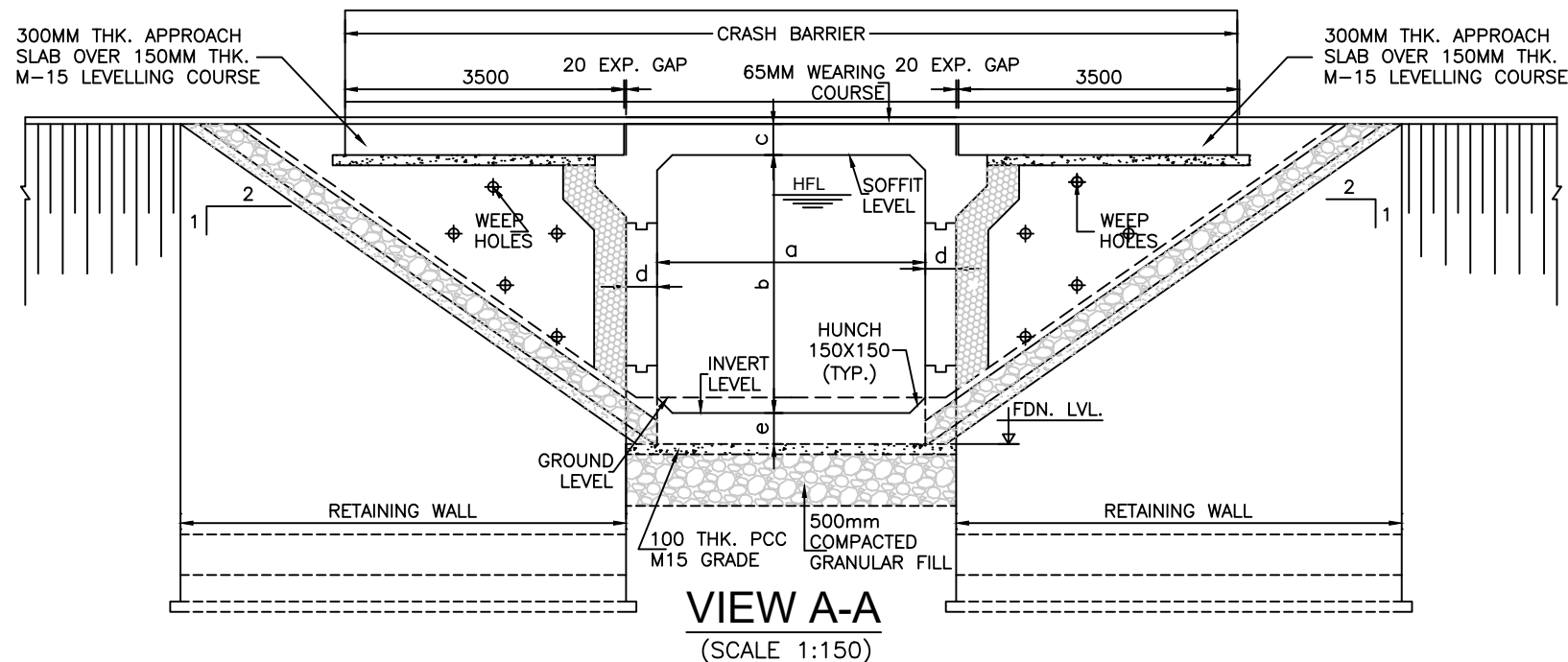
CLIENT:-
 **MINISTRY OF ROAD TRANSPORT & HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-
 **M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service**

PROJECT:-
Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-
GENERAL ARRANGEMENT
DRAWING OF BOX
CULVERT - 1x3x3M
CHAINAGE:- TCS-05

Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 02	Sheet No. : 02 OF 02
Date : FEB 2025	
DRAWN(A)	DESIGN (B)
CHECK (C)	APPROVED (D)



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DIMENSION DETAILS OF BOX CULVERT

CLEAR SPAN	CLEAR HEIGHT	TOP SLAB	SIDE WALL	BOTTOM SLAB
a	b	c	d	e
5000	3000	450	500	500

LEGENDS:-

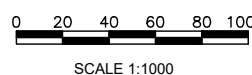
LVL.	- LEVEL
FRL	- FINISHED ROAD LEVEL
THK.	- THICK
F.L.	- FOUNDING LEVEL
G.L.	- GROUND LEVEL
IL	- INVERT LEVEL
BH	- BORE HOLE

STRUCTURE DETAILS

Design Chainage	Tcs	Recommended Proposal for Structure	Type of Structure	Span Arrangement (m)	FRL	SOFFIT LEVEL	INVERT LEVEL	FOND. LEVEL
93+400	5	New Construction	Box Culvert	1x5x3	179.680	175.390	172.390	171.890
93+580	5	New Construction	Box Culvert	1x5x3	185.370	178.460	175.460	174.960
106+600	5	Reconstruction	Box Culvert	1x5x3	219.250	214.550	211.550	211.050

REV	DATE	DESCRIPTION OF REVISION

SCALE :-



CLIENT:-



CONSULTANT:-



PROJECT:-

Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-

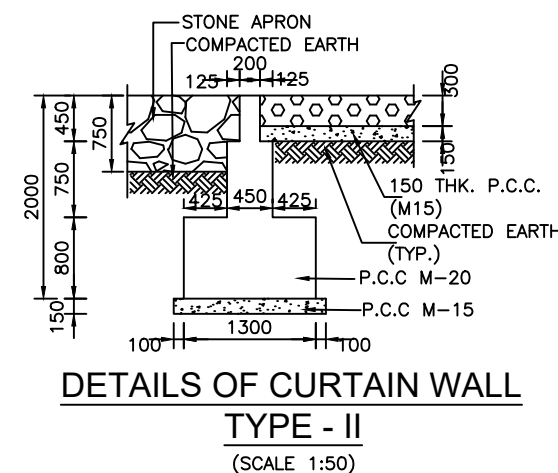
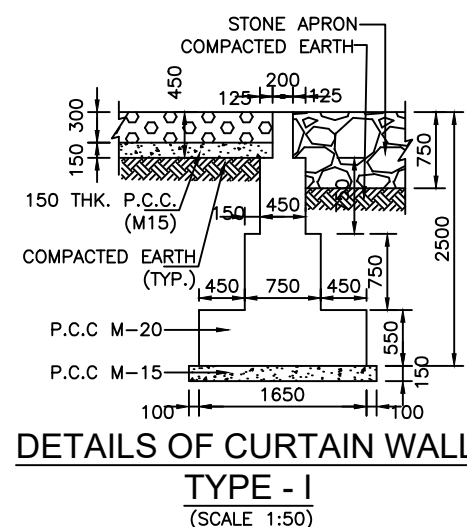
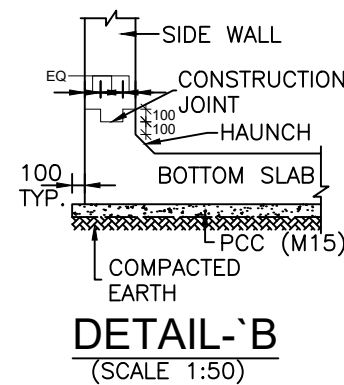
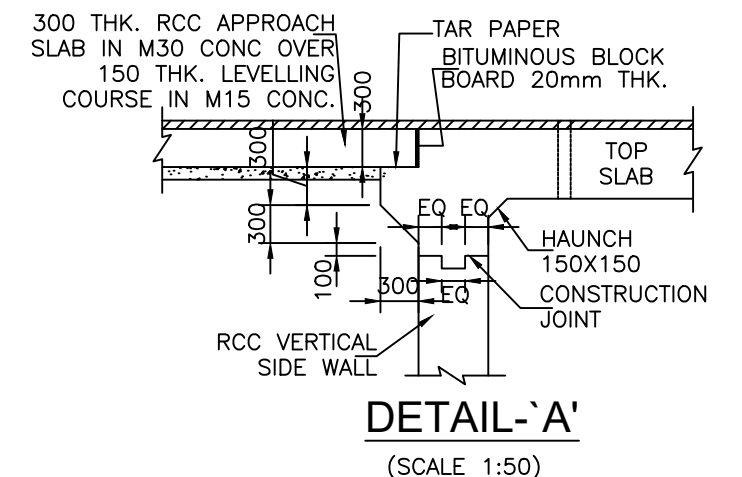
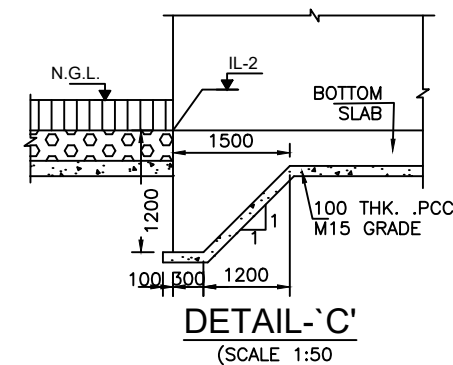
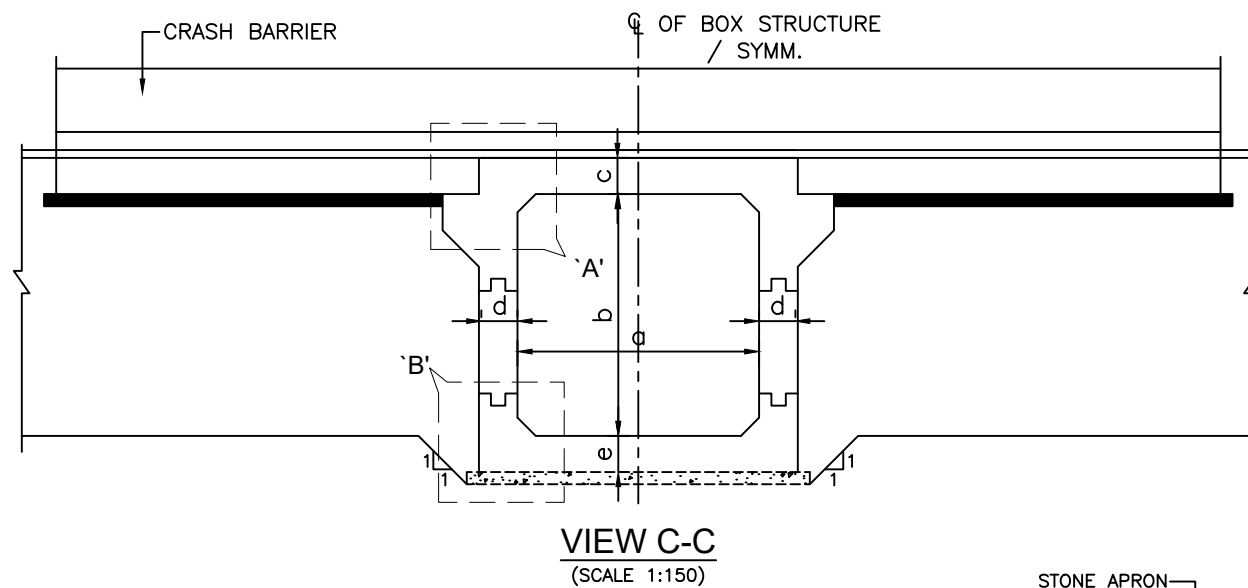
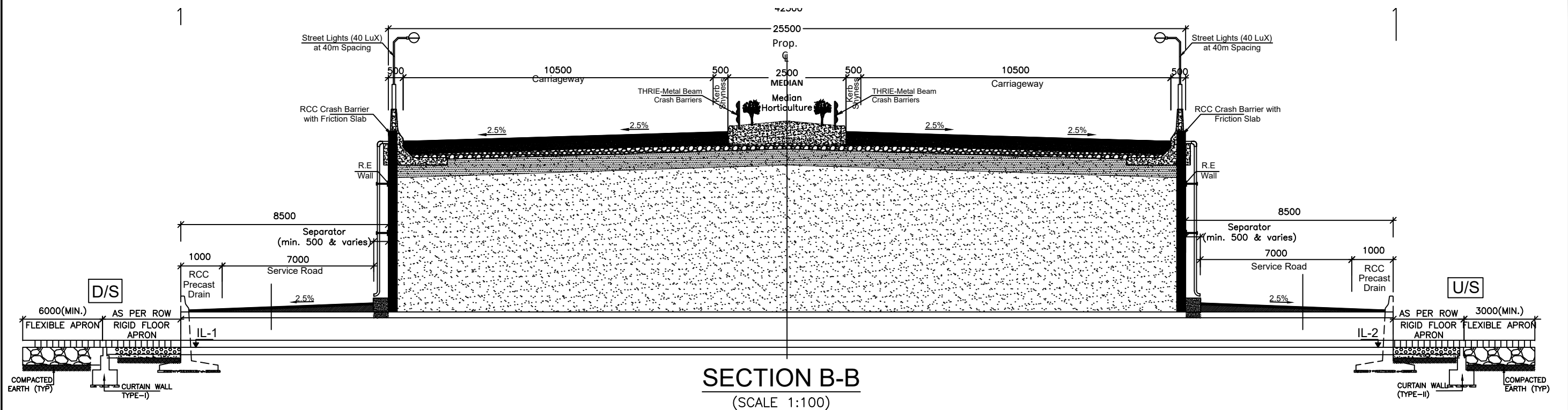
GENERAL ARRANGEMENT
DRAWING OF BOX CULVERT - 1x5x3M

CHAINAGE:- TCS-05

Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 01

Date : FEB 2025 Sheet No : 01 OF 02

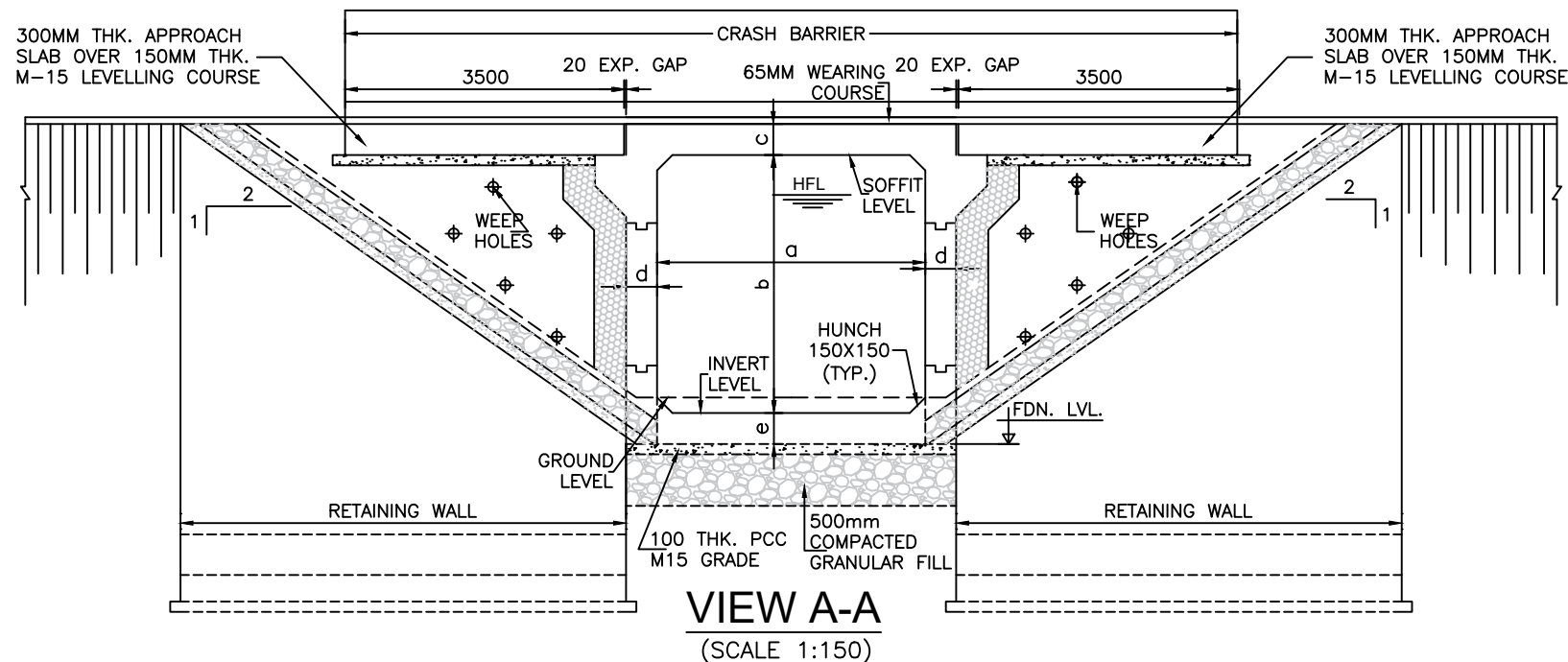
DRAWN(A) DESIGN (B) CHECK (C) APPROVED (D)



LEGENDS:-

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FRL	- FINISHED ROAD LEVEL
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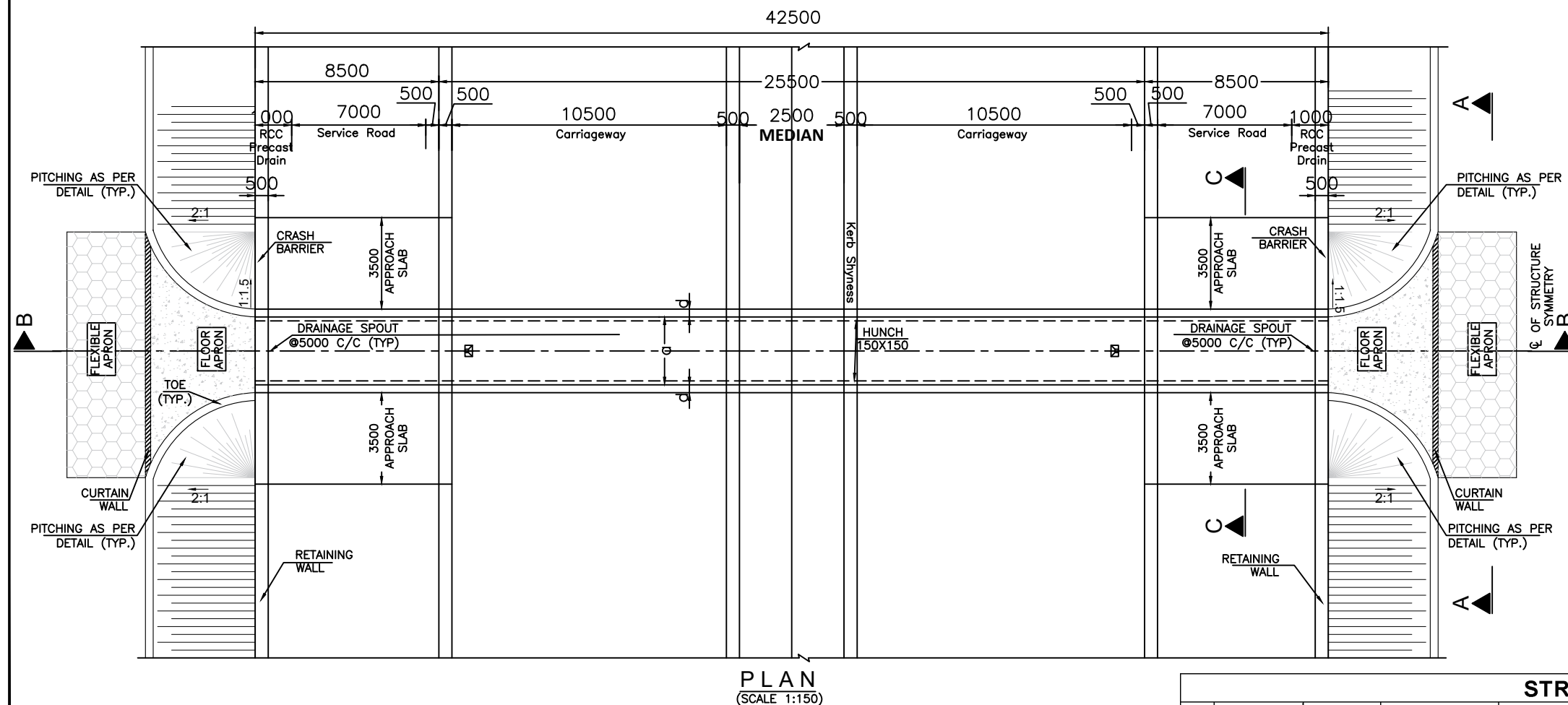
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NOTES :-

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :

BOX STRUCTURE	M35
PCC LEVELING COURSE	M15
PARAPET/CRASH BARRIER	M40
- ALL REINFORCEMENT SHALL BE OF GRADE Fe-500D CONFORMING TO IS : 1786-2008.
- BOX CULVERT HAS BEEN DESIGNED CONSIDERING SAFE BEARING CAPACITY OF 10 T/M².
- 65MM WEARING COAT SHALL BE PROVIDED AS PER MORTH SPECIFICATION.
- BACKFILLING SHALL BE DONE BY SELECTED GRANULAR MATERIAL CONFORMING TO APPENDIX-6 OF IRC:78-2014 HAVING PROPERTIES $\phi \geq 30^\circ$, $C = 0$.
- 100 ϕ WEEP HOLE @ 1000 C/C HORIZONTALLY & VERTICALLY AND 600mm THICK FILTER MEDIA AS PER APPENDIX-6, IRC:78-2014 SHALL BE PROVIDED BEHIND SIDE WALLS.
- SOFT & LOOSE PATCHES OF THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILL WITH LAYERS NOT EXCEEDING 300mm.
- DESIGN HAS BEEN DONE CONSIDERING SEVERE EXPOSURE CONDITION.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY PLAN & PROFILE DRAWINGS AND ALL LEVELS PROVIDED IN SCHEDULE SHALL BE VERIFIED AT SITE PRIOR TO CONSTRUCTION. VARIATION (IF ANY) SHALL BE REPORTED TO THE ENGINEER.
- FOR DETAILS OF CARRIAGEWAY, EXTRA WIDENING, PAVED SHOULDER ETC. RELEVANT HIGHWAY TCS AND PLAN & PROFILE DRAWINGS MAY BE REFERRED.
- PROPOSED CHAINAGE FOUNDATION LEVEL SHALL BE CHECKED AND CONFIRMED AS PER APPROVED P&P.
- U/S AND D/S SHALL BE VERIFIED AT SITE CONDITION AND ALSO CROSS CHECK WITH TOPO DATA.
- CLEAR COVER FOR NON EARTH FACE SHALL BE 40MM & 75MM FOR EARTHEN FACE.



DIMENSION DETAILS OF BOX CULVERT

CLEAR SPAN	CLEAR HEIGHT	TOP SLAB	SIDE WALL	BOTTOM SLAB
a	b	c	d	e
6000	4000	450	500	500

LEGENDS:-

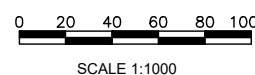
LVL.	- LEVEL
FRL	- FINISHED ROAD LEVEL
THK.	- THICK
F.L.	- FOUNDING LEVEL
G.L.	- GROUND LEVEL
IL	- INVERT LEVEL
BH	- BORE HOLE

STRUCTURE DETAILS

Sr. No.	Design Chainage	Tcs	Proposal for Structure	Type of Structure	Span Arrangement (m)	FRL	SOFFIT LEVEL	INVERT LEVEL	FOND. LEVEL
1	93+760	6	New Construction	Box Culvert	1x6x4	186.030	175.290	171.290	170.690

REV	DATE	DESCRIPTION OF REVISION

SCALE :-



CLIENT:-



CONSULTANT:-



PROJECT:-

Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-

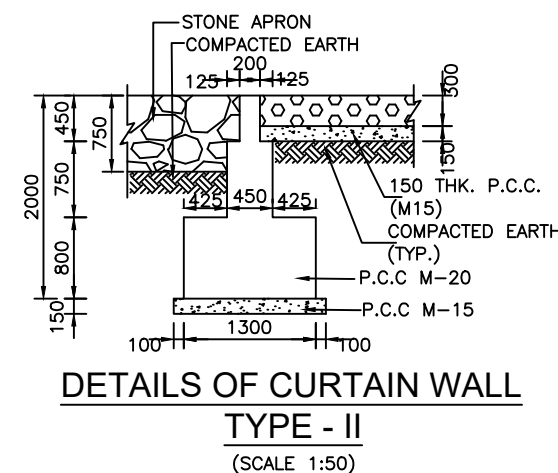
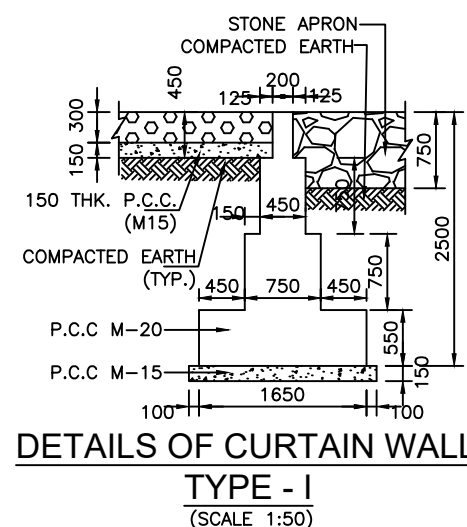
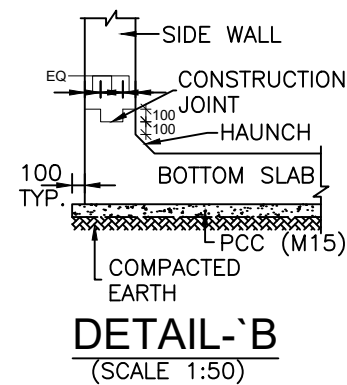
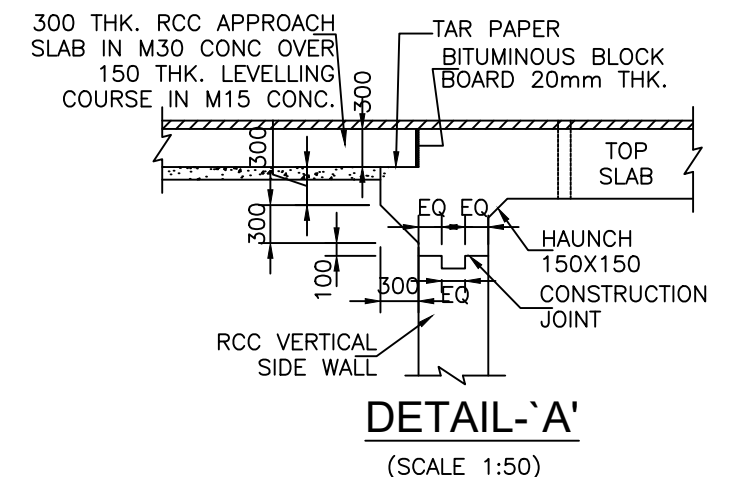
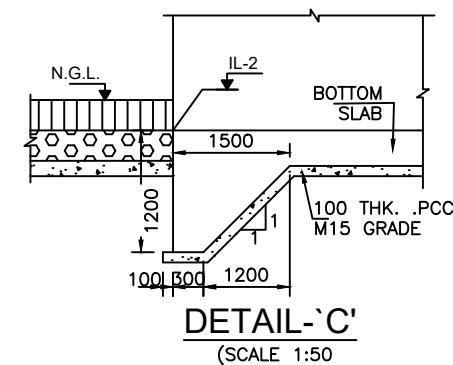
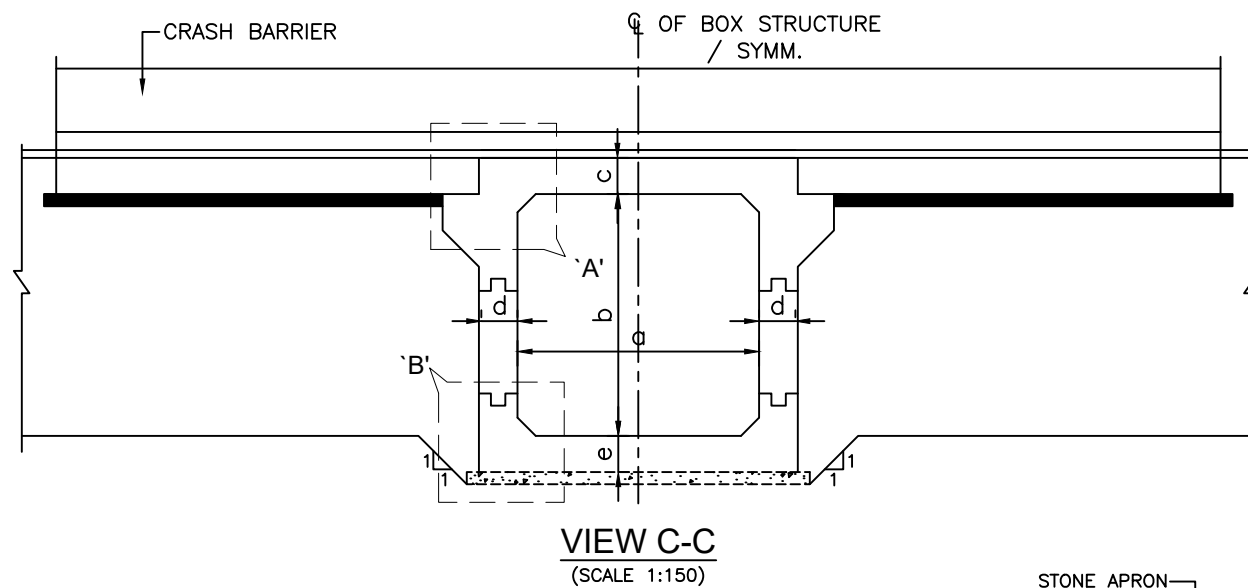
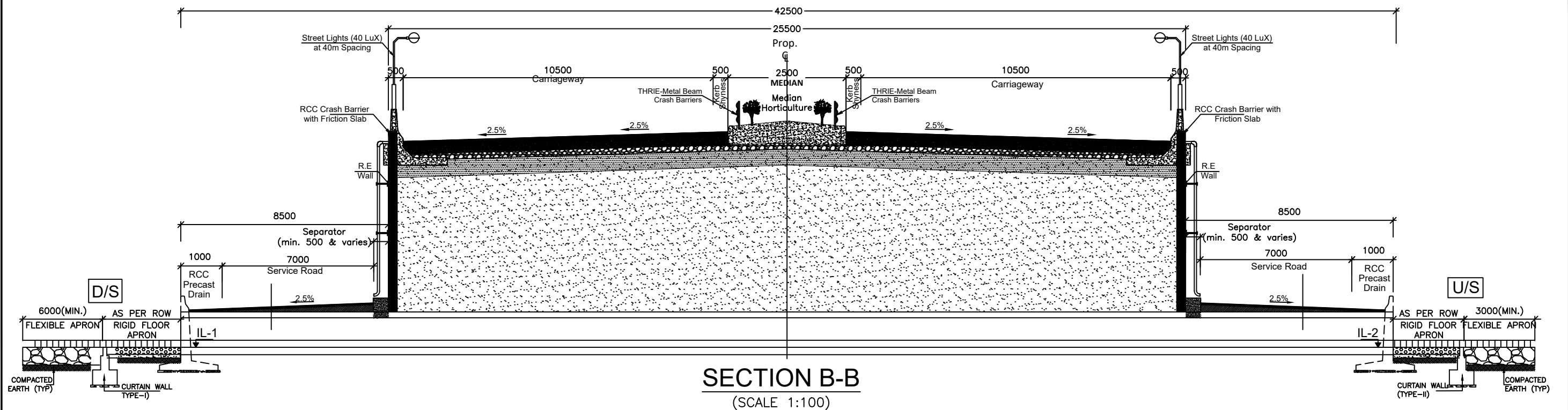
GENERAL ARRANGEMENT
DRAWING OF BOX CULVERT - 1x6x4M

CHAINAGE:- TCS-05

Drawing No. : MORTH/ BOX/ CULVERT/ GAD/ 01

Date : FEB 2025 Sheet No : 01 OF 02

DRAWN(A) DESIGN (B) CHECK (C) APPROVED (D)

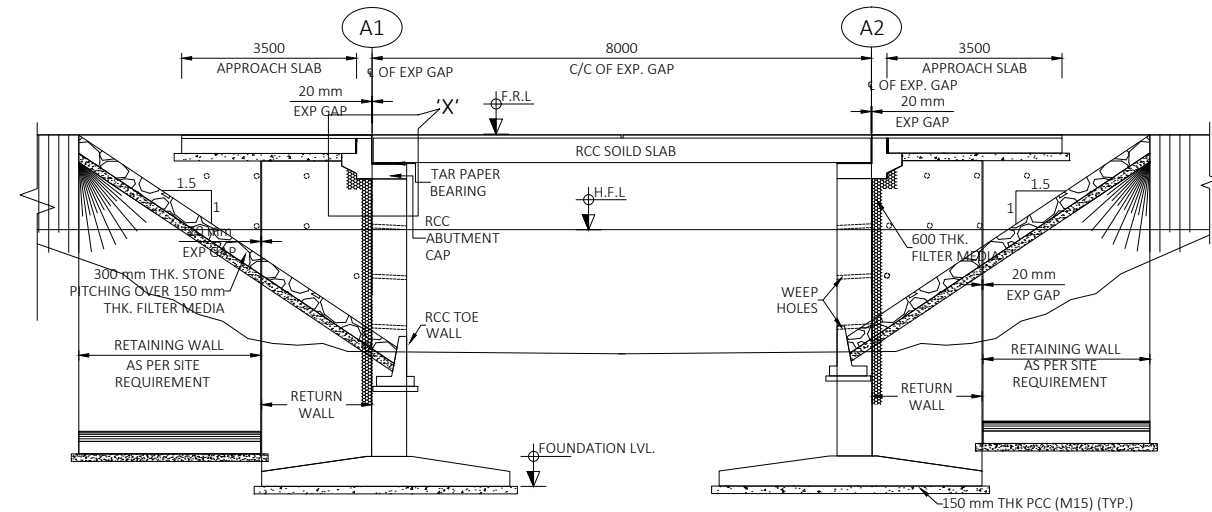
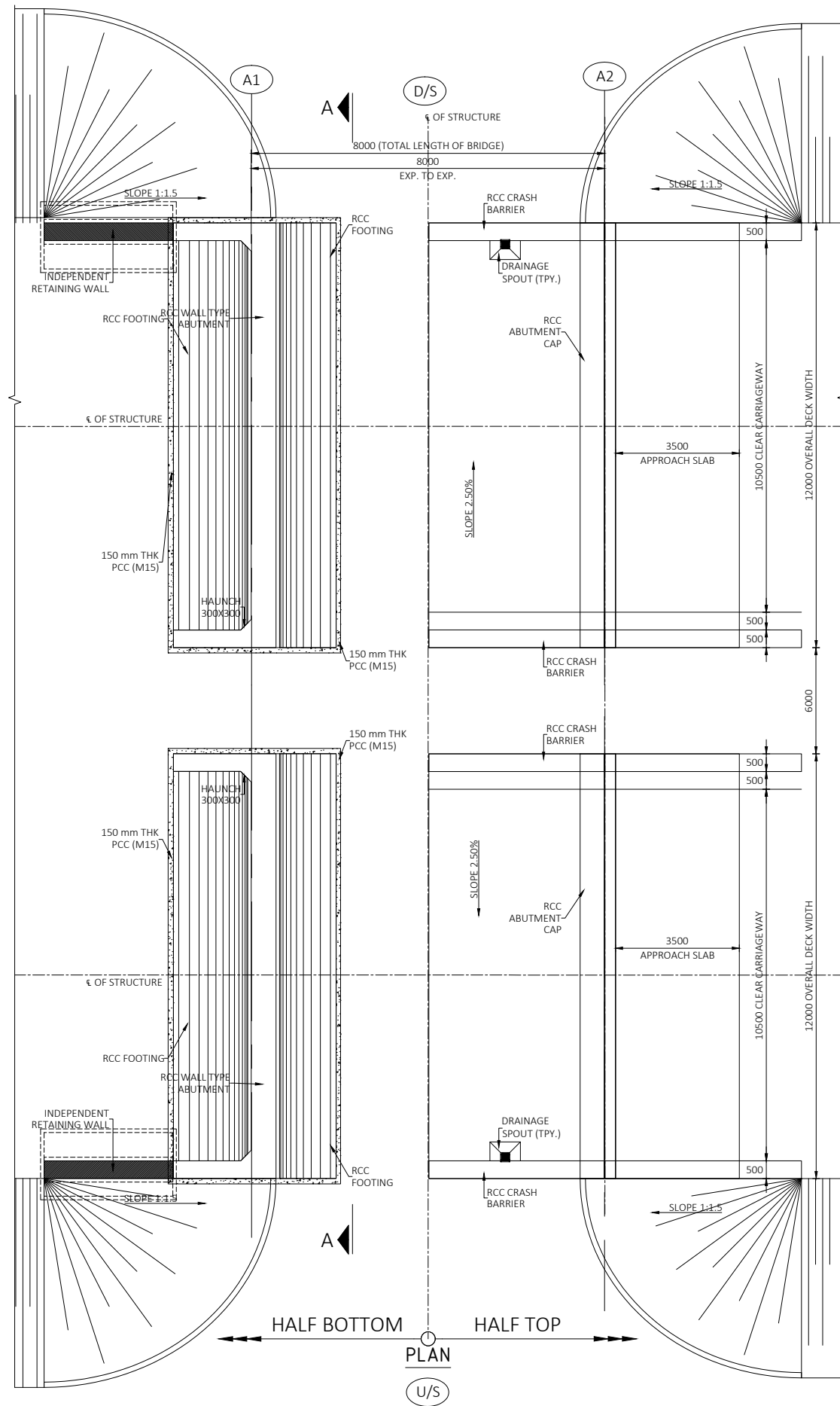


LEGENDS:-	
LVL.	- LEVEL
FRL	- FINISHED ROAD LEVEL
THK.	- THICK
F.L.	- FOUNDING LEVEL
G.L.	- GROUND LEVEL
IL	- INVERT LEVEL

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Marc Technocrats Pvt. Ltd.
in Association with
Asian Geotech Research Services



FRL (IN M)	229.690	229.690	229.690
HFL (IN M)	227.970	227.970	227.970
GROUND LEVEL	223.97	223.97	223.95
FOUNDING LEVEL	220.47	-	220.45
CHAINAGE (M.)	X-4.0	X=0.0	X+4.0

LONGITUDINAL ELEVATION (*X = PROPOSED DESIGN CHAINAGE.)

NOTES :

GENERAL

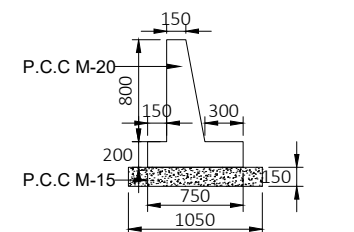
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DRAWING SHALL BE SCALED.
- THE DESIGN IS ACCORDING TO THE FOLLOWING CODES.
IRC:5-2015 IRC:6-2017
IRC:78-2014 IRC:112-2020
- FOLLOWING LOADS HAVE BEEN CONSIDERED IN DESIGN.
a. LIVE LOADS
ONE LANE OF CLASS 70 R + ONE LANE OF CLASS A OR THREE LANE OF CLASS A TRANS WHICHEVER PRODUCE WORST EFFECT.
b. DENSITY OF BITUMEN COAT HAS BEEN ASSUMED AS 2.2 T/M
- 20 THK. COMPRESSIBLE FIBRE BOARD SHALL BE USED FOR EXPANSION JOINT AND SHALL CONFIRM TO IRC SP:69:2011.
- DRAINAGE SPOUT USED SHALL BE AS PER M.O.S.T STANDARD DRAWING NO. SD/205 & IRC 5:2015.
- CRASH BARRIER OF THE SUPER STRUCTURE SHALL BE ADOPTED FROM IRC:5:2015.
- 65 MM WEARING COAT (BITUMEN CONCRETE 40 mm THICK OVERLAID WITH 25 mm THICK MASTIC ASPHALT) AS PER MORT&H STANDARD 5th REVISION CLAUSE 2702.1 AND HAVING UNI DIRECTIONAL CAMBER FOR EACH TWO LANE AS PER CLAUSE 7.14. IRC:SP:84-2009.
- APPROACH SLAB SHALL BE AS PER IRC:5 AND SECTION 2704 OF MORT&H SPECIFICATIONS (FIFTH REVISION).
- 600 MM THICK FILTER MEDIA SHALL BE PROVIDED AS PER APPENDIX - 6 OF IRC SP:78-2014.

MATERIALS:

- GRADE OF CONCRETE SHALL CONFIRM TO CLAUSE 6.4 OF IRC 112-2020 AND ARE AS FOLLOWS:

PCC LEVELING COURSE	M15	PCC TOE WALL	M20
RCC ABUTMENT	M35	RCC SOLID SLAB	M35
RCC ABUTMENT CAP	M35	RCC CRASH BARRIER	M40

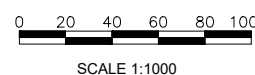
- REINFORCING STEEL SHALL BE OF HYSD (TMT) BARS OF FE-500D, CONFIRMING TO CLAUSE 6.2 OF IRC 112-2020 & IS-1786:2008.
- WATER TO BE USED IN CONCRETING AND CURING SHALL CONFIRM TO CLAUSE 18.4.5 OF IRC 112-2011.
- THE GRANULAR FILL BEHIND ABUTMENT SHALL BE AS PER CLAUSE 305.2 OF MORT&H SPECIFICATIONS (FIFTH REVISION)
($\phi=30^\circ$, $\delta=20$, $\gamma=1.8$) AND APPENDIX 6, IRC 78-2014.
- SIDE SLOPE OF ROAD EMBANKMENT NEAR ABUTMENTS SHALL BE IN SLOPE 1V:1.5H & SHALL BE PROVIDED WITH 300 THICK STONE REVETMENT AND 150 THICK FILTER MEDIA CONFORMING TO CLAUSE 2500 & 2504 OF MORT&H SPECIFICATIONS (FIFTH REVISION).
- 100 MM DIA A.C. PIPE WEEP HOLES SHALL BE PROVIDED @ 1.0 M C/C HORIZONTALLY & VERTICALLY STAGGERED 150 MM ABOVE LOWEST WATER LEVEL OR LOWEST BED LEVEL WHICH IS HIGHER AT SLOPE 1:20 AS PER IRC 78-2014 & CLAUSE 2706 OF MORT&H SPECIFICATIONS (FIFTH REVISION).



DETAILS OF PCC TOE WALL

REV	DATE	DESCRIPTION OF REVISION

SCALE :-



CLIENT:-



MINISTRY OF ROAD TRANSPORT
& HIGHWAYS
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-



M/s Marc Technocrats Pvt. Ltd in JV
with Asian Geotech research service

PROJECT:-

Consultancy Services for Preparation of Detailed Project
Report for Development of NH-133 from km 92.380 to km
129.409 in Dumka and Deoghar District in
the state of Jharkhand

TITLE:-

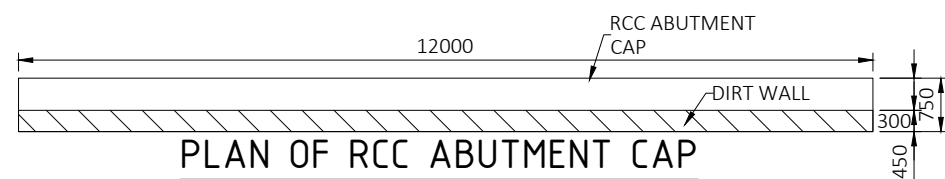
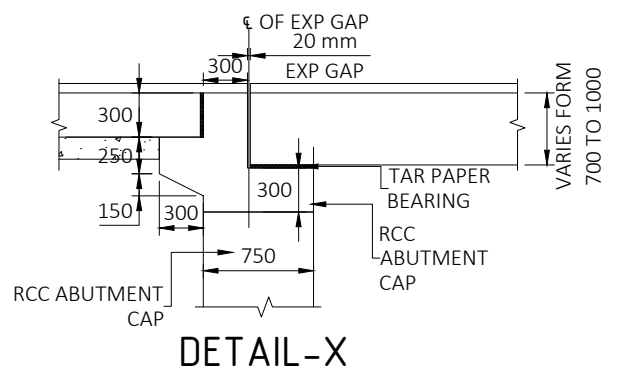
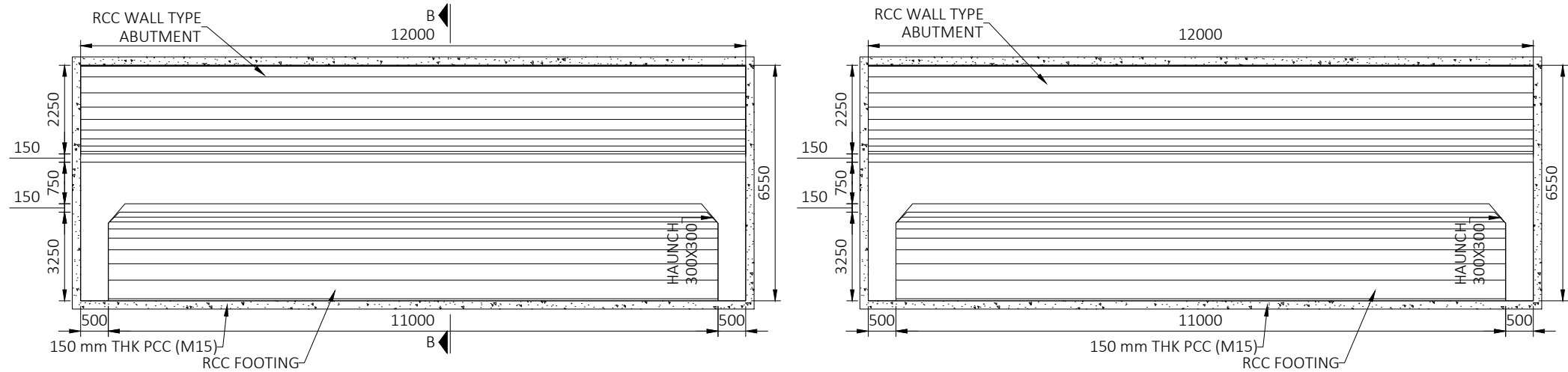
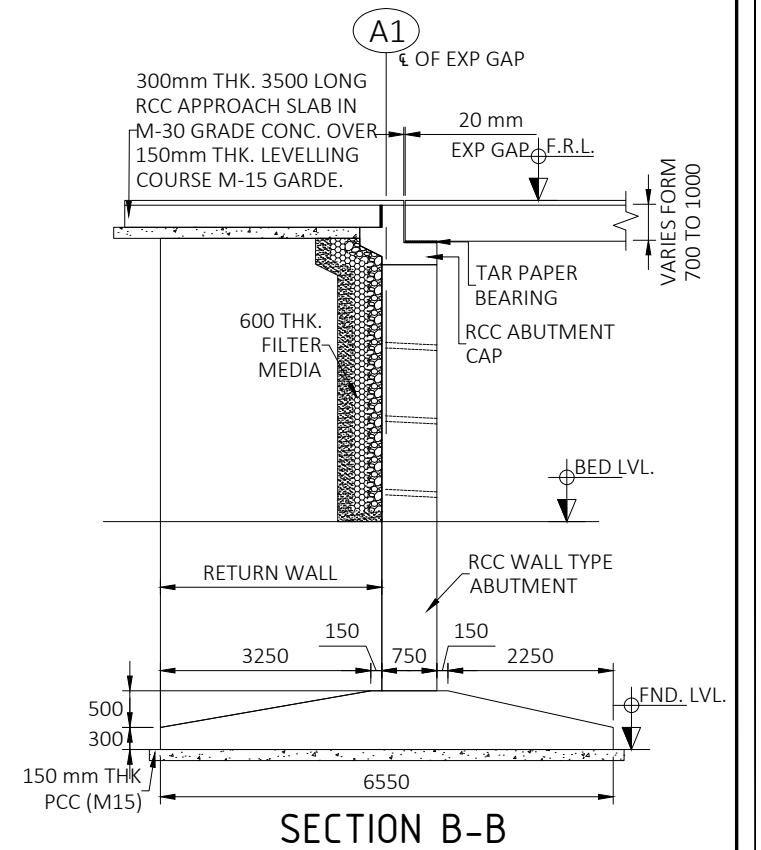
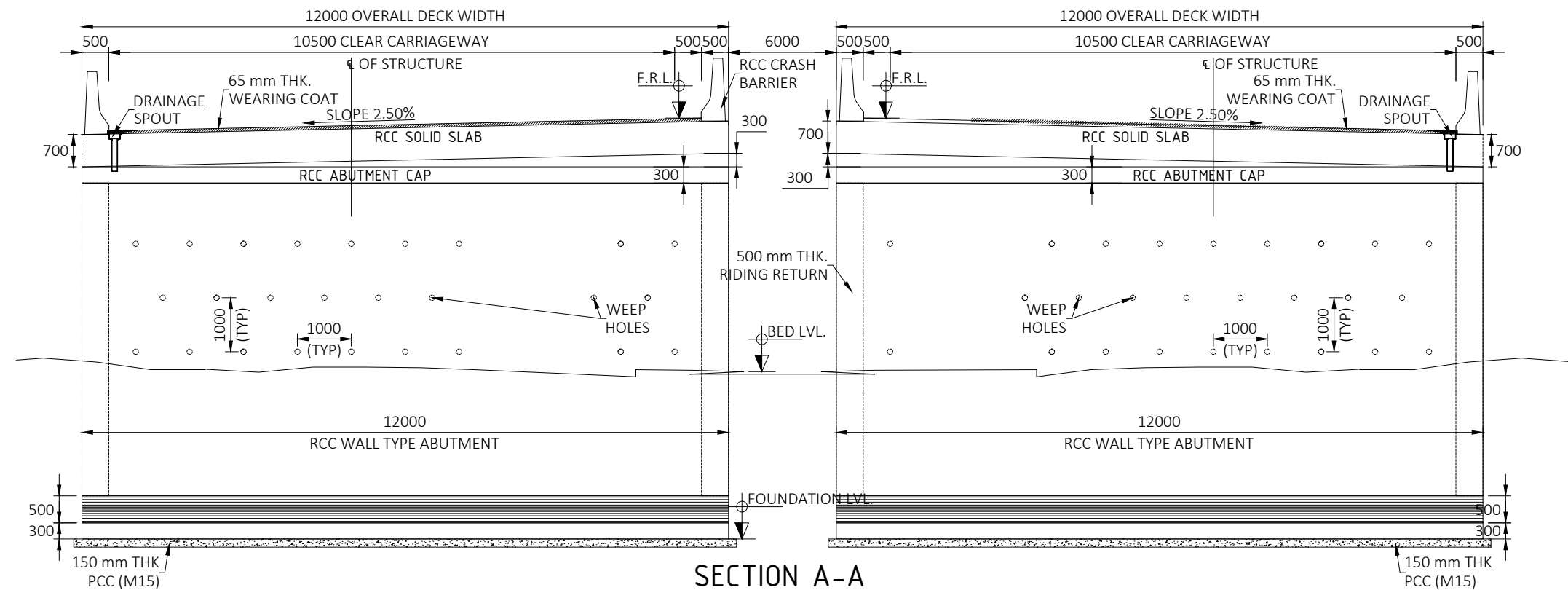
GENERAL ARRANGEMENT
DRAWING OF RCC SLAB
BRIDGE (1 X 8.0m)

CHAINAGE:- 127+000

Drawing No. : MORTH/ MNB/ SLAB/ GAD/ 01

Date : FEB 2025 Sheet No : 01 OF 02

DRAWN(A) DESIGN (B) CHECK (C) APPROVED (D)



REV	DATE	DESCRIPTION OF REVISION

SCALE :-

0 20 40 60 80 100

SCALE 1:1000

CLIENT:-

 **MINISTRY OF ROAD TRANSPORT & HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-

 **M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service**

PROJECT:-

Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.409 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-

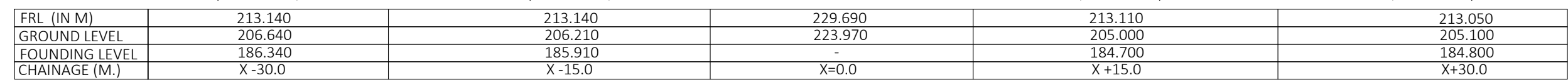
GENERAL ARRANGEMENT
DRAWING OF RCC SLAB
BRIDGE (1 X 8.0m)

CHAINAGE:- 127+000

Drawing No. : MORTH/ MNB/ SLAB/ GAD/ 02	Date : FEB 2025	Sheet No : 02 OF 02
DRAWN(A)	DESIGN (B)	CHECK (C)

□□□O□□R


Marc Technocrats Pvt. Ltd.
in Association with
Asian Geotech Research Services



(*X = PROPOSED DESIGN CHAINAGE.)



1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE

REV	DATE	DESCRIPTION OF REVISION

SCALE 1:1000



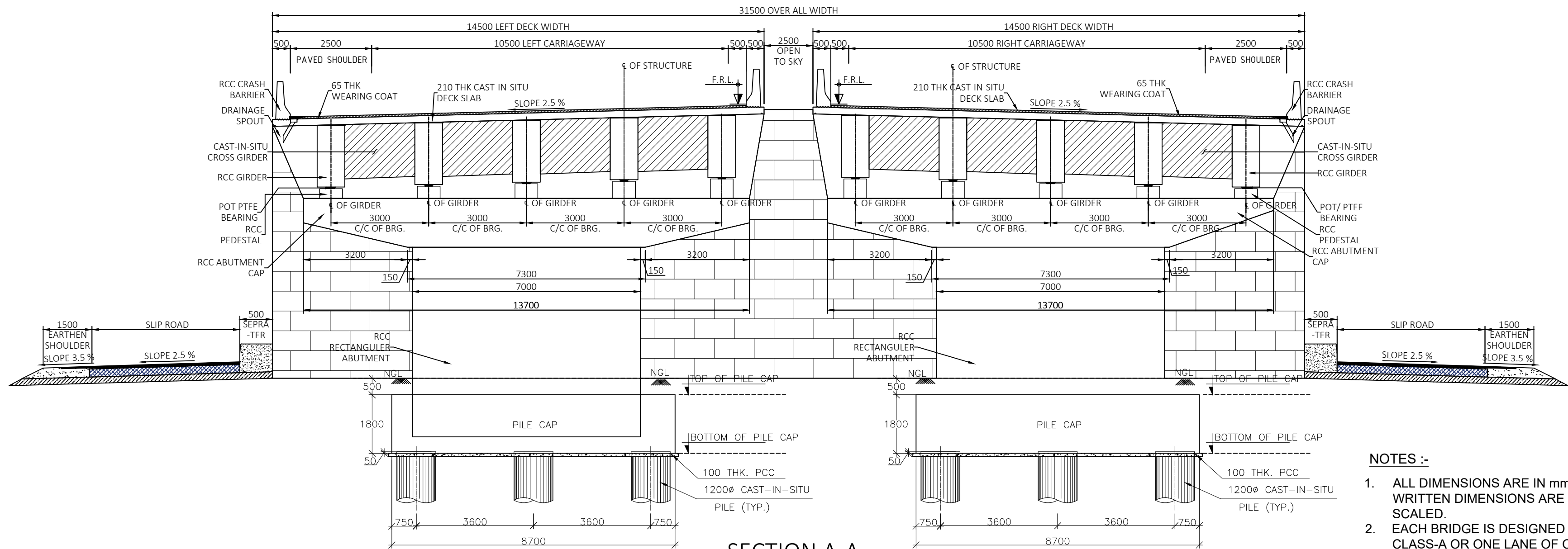
MORTH
Government of India



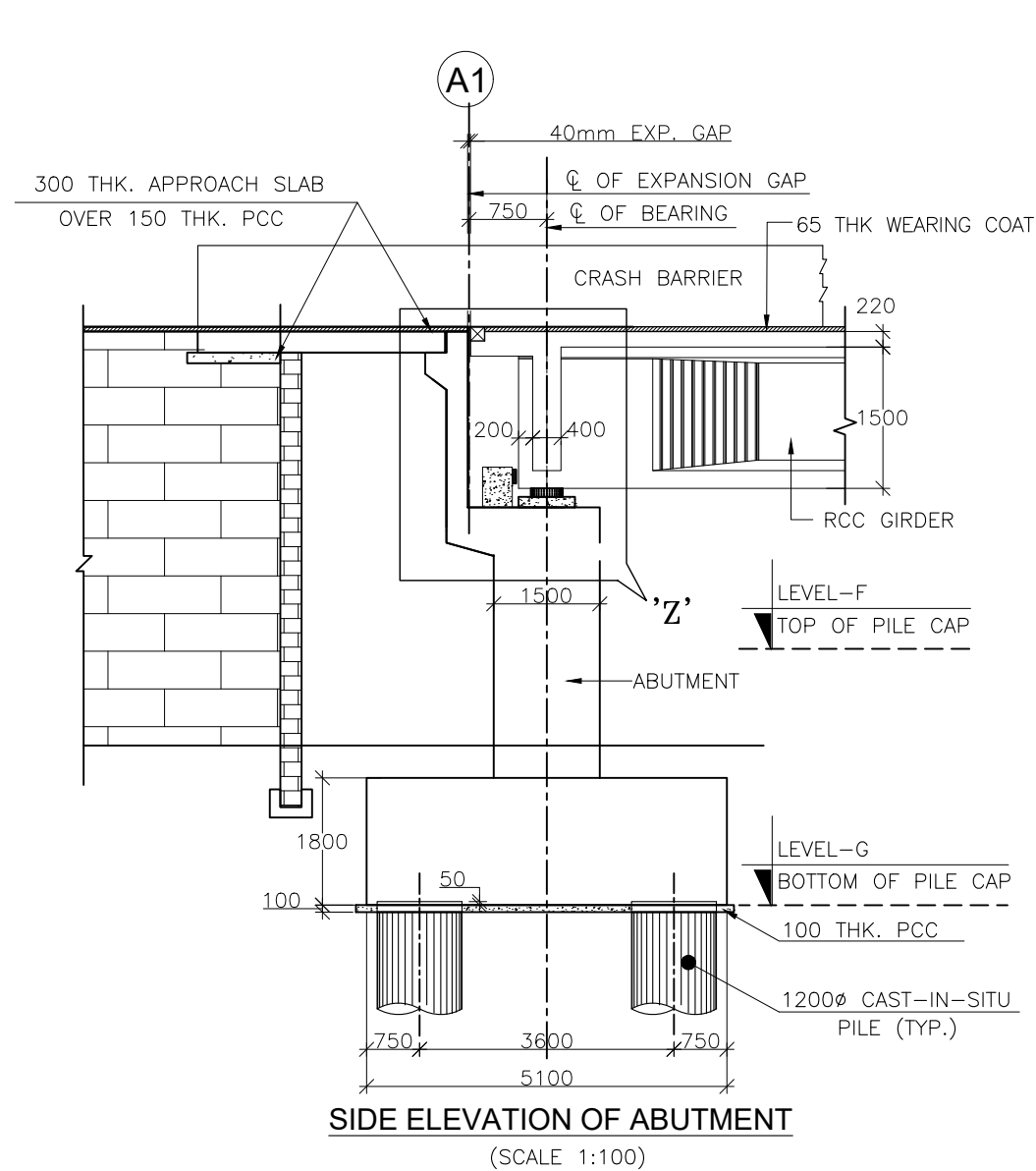
Consultancy Services for Preperation of Detailed Project
Report for Development of NH-133 from km 92.380 to km
129.370 in Dumka and Deoghar District inthe state of
Jharkhand

CHAINAGE:- 102+025

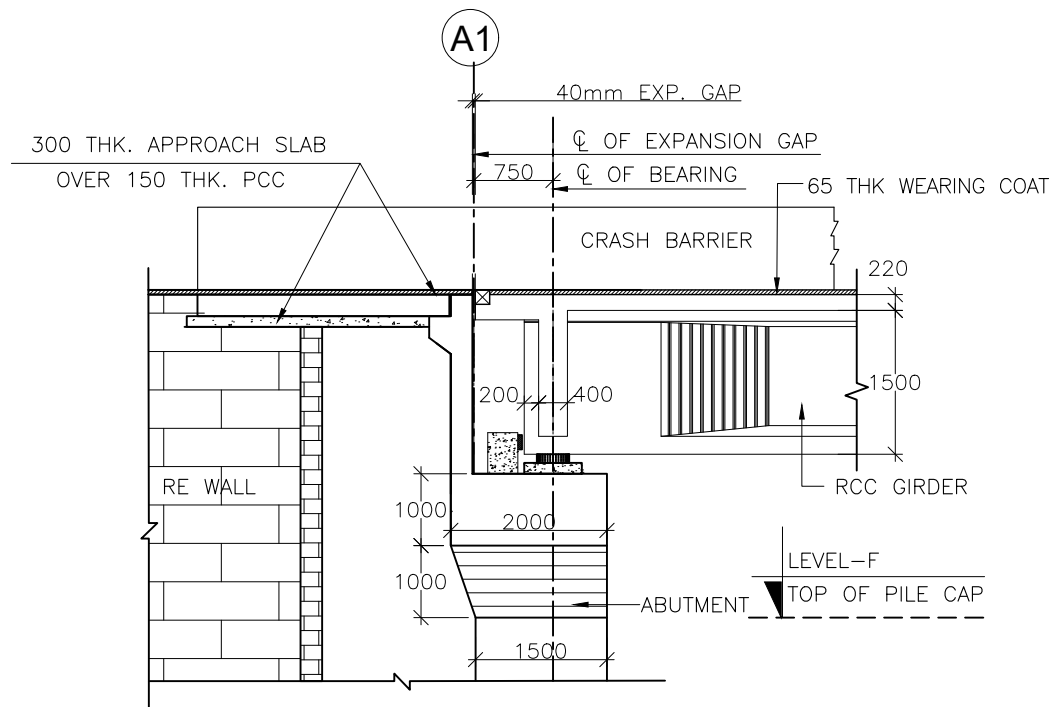
DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)
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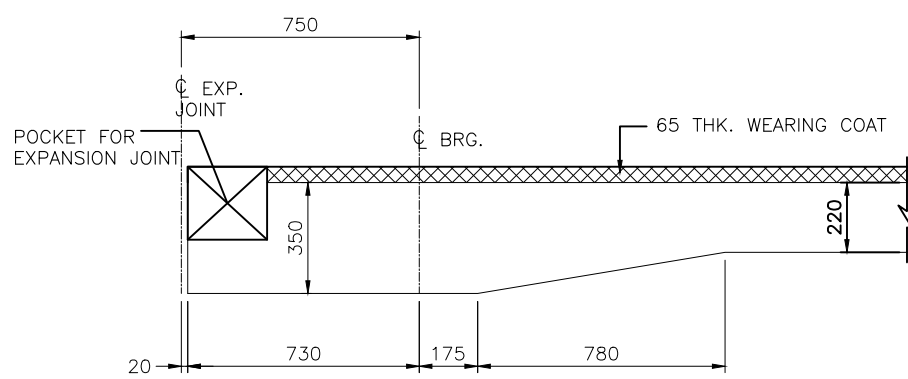
SECTION A-A
(SCALE 1:100)



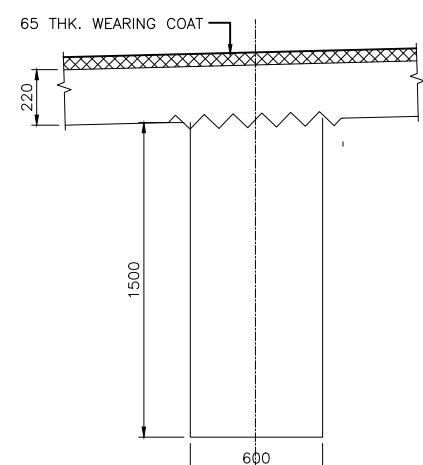
SIDE ELEVATION OF ABUTMENT
(SCALE 1:100)



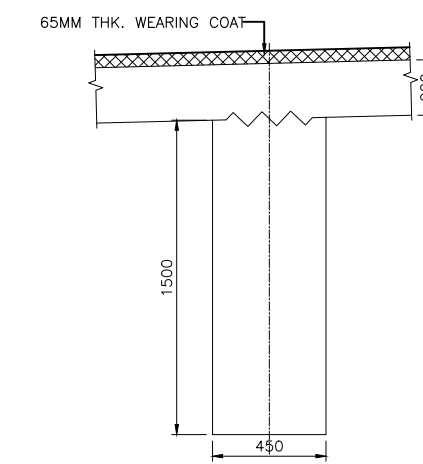
DETAILS OF 'Z'
(SCALE 1:85)



DETAILS OF RCC GIRDER
(SCALE 1:20)
(FOR 15.0M SPAN)



DETAILS OF RCC GIRDER
(SCALE 1:20)
(FOR 15.0M SPAN)



DETAILS OF RCC GIRDER
(SCALE 1:20)
(FOR 15.0M SPAN)

LEGEND:	
F.R.L.	: FINISHED ROAD LEVEL
H.F.L.	: HIGH FLOOD LEVEL
M.S.L.	: MEAN SCOUR LEVEL
L	: CENTER LINE
C/C	: CENTER TO CENTER
LVL.	: LEVEL
TYP.	: TYPICAL
THK.	: THICK
BRG.	: BEARING
EG.L.	: GROUND LEVEL
FDN.	: FOUNDING LEVEL
JACKING POINT	: JACKING POINT
LME	: LEFT MEDIAN EDGE
RME	: RIGHT MEDIAN EDGE
LHS	: LEFT HAND SIDE
RHS	: RIGHT HAND SIDE

NOTES :-

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
- EACH BRIDGE IS DESIGNED FOR ONE LANE OF 70R OR ONE LANES OF CLASS-A OR ONE LANE OF CLASS-70R + ONE LANES OF CLASS A OR SV LOADING, WHICH ONE IS HIGHER GOVERNS IS CONSIDERED AS LIVE LOAD.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-

ABUTMENT SHAFT	M-35
ABUTMENT CAP	M-35
DIRT WALL	M-30
BRACKET	M-30
PILE & PILE CAP	M-35
PEDESTAL	M-40
RCC CRASH BARRIER	M-40
RCC APPROACH SLAB	M-30
SEISMIC RESTRANIER	M-40
LEVELING COURSE	M-15
- THE REINFORCING BARS SHALL BE HYSD-TMT (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786-2008 STANDARDS.
- POLYMER COVER BLOCK SHALL BE USED AND CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-

FOR SUPERSTRUCTURE	-40mm
FOR PILE & PILE CAP	-75mm
FOR SUB STRUCTURE	
• EARTH FACE	-75mm
• NON EARTH FACE	-50mm
- WEARING COAT SHALL BE TYPE-2 (40MM THK. BITUMINOUS CONC. OVERLAID BY 25MM THK MASTIK ASPHALT).
- STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF IRC:SP-69.
- BACK FILLING BEHIND ABUTMENT AND RETAINING WALL SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX OF IRC:78-2014 HAVING PROPERTIES $C=0$, $\phi \geq 30^\circ$ & $\gamma_d = 20 \text{ KN/m}^3$.
- 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT SHAFT AND RETURN WALL FROM 150mm ABOVE G.L IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.
- WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC : 112:2020.
- THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-III.
- SEVERE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.

REV	DATE	DESCRIPTION OF REVISION

SCALE :-



SCALE 1:1000

CLIENT:-



MINISTRY OF ROAD TRANSPORT
& HIGHWAYS
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-



M/s Marc Technocrats Pvt. Ltd in JV
with Asian Geotech research service

PROJECT:-

Consultancy Services for Prepration of Detailed Project
Report for Development of NH-133 from km 92.380 to km
129.370 in Dumka and Deoghar District in the state of
Jharkhand

TITLE:-

DETAILS OF
ABUTMENT A1&A2

CHAINAGE:- 102+025

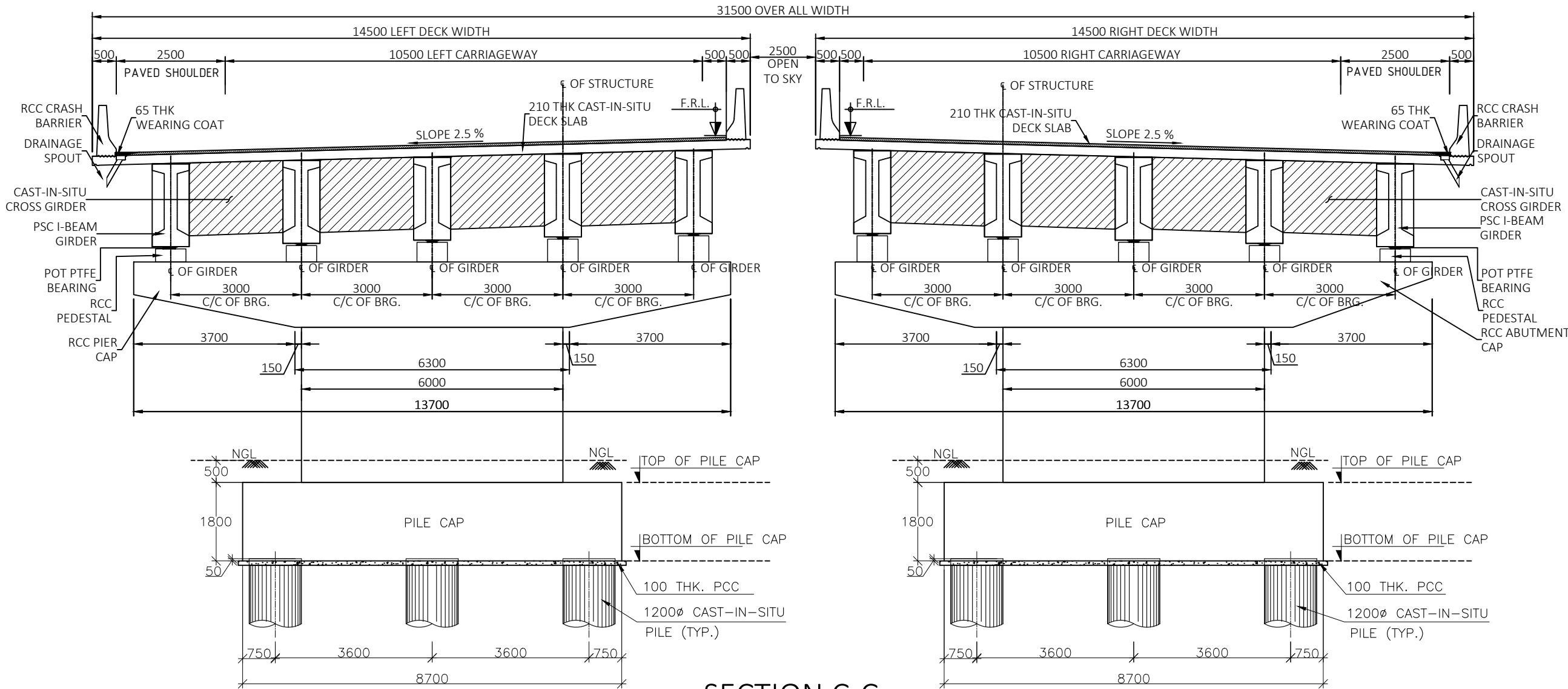
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Date :	FEB 2025	Sheet No :	02 OF 03	
DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)	

NOTES :

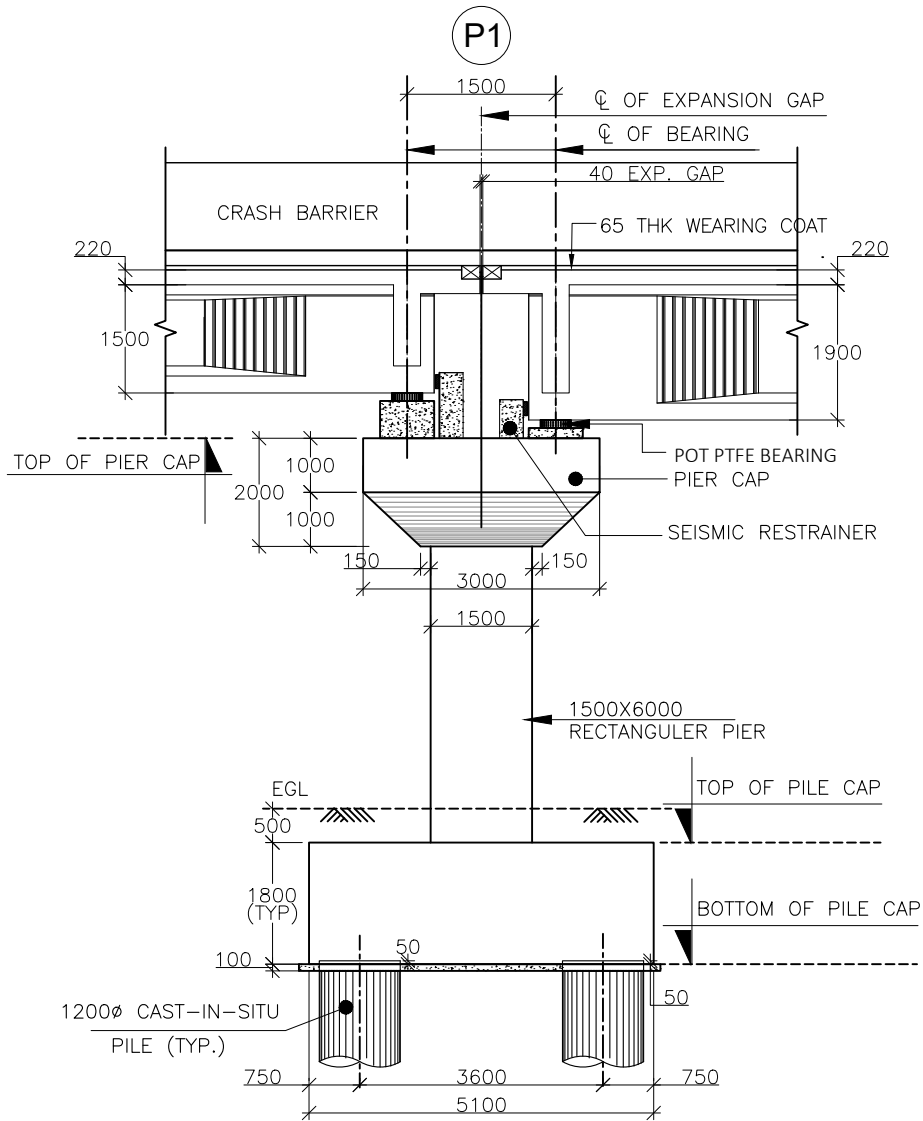
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
2. EACH BRIDGE IS DESIGNED FOR ONE LANE OF 70R OR ONE LANES OF CLASS-A OR ONE LANE OF CLASS-70R + ONE LANES OF CLASS A OR SV LOADING, WHICH ONE IS HIGHER GOVERNS IS CONSIDERED AS LIVE LOAD.
3. CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS :-

PIER SHAFT	M-35
PIER CAP	M-35
FOUNDATION	M-35
PEDESTAL	M-40
LEVELING COURSE	M-15
4. THE REINFORCING BARS SHALL BE HYSD-TMT (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786-2008STANDARDS.
5. POLYMER COVER BLOCK SHALL BE USED AND CLEAR COVER TO OUTER MOST STEEL SHALL BE AS UNDER:-

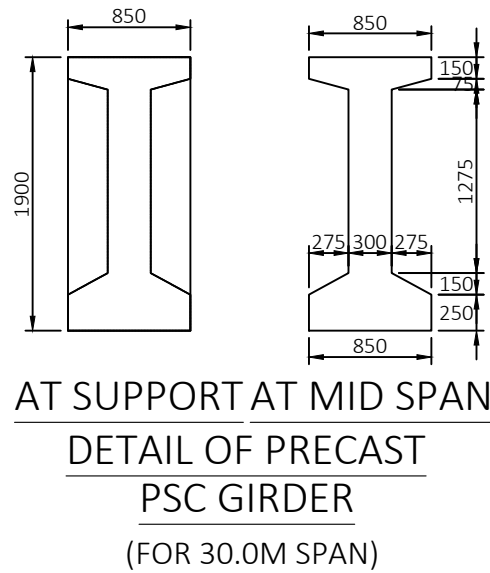
FOR SUPERSTRUCTURE	-40mm
FOR SUB STRUCTURE & FOUNDATION :	
• EARTH FACE	-75mm
• NON EARTH FACE	-50mm
6. 65MM WEARING COAT SHALL BE TYPE-2 (40MM THK. BITUMINOUS CONC. OVERLAID BY 25MM THK MASTIK ASPHALT).
7. STRIP SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER PROVISION OF IRC:SP-69. HAVING PROPERTIES C=0, Ø≥ 30° & yd = 20 KN/m³.
8. WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 18.8.4(4) IRC : 112:2020.
9. THE BRIDGE IS DESIGNED FOR SEISMIC ZONE-III.
10. SEVERE CONDITION OF EXPOSURE SHALL BE CONSIDERED IN DESIGN.
11. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWINGS.



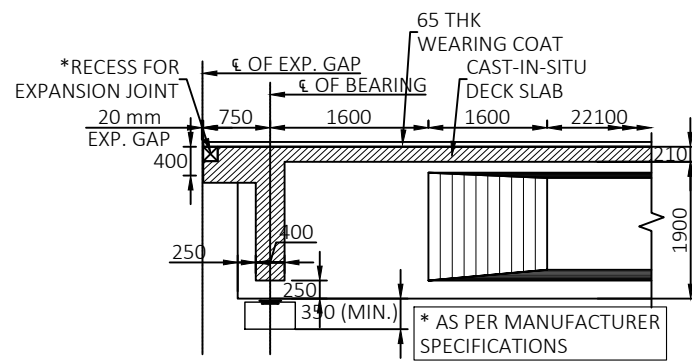
SECTION C-C
(SCALE 1:100)



SECTION D-D
(SCALE 1:150)



AT SUPPORT AT MID SPAN
DETAIL OF PRECAST
PSC GIRDER
(FOR 30.0M SPAN)



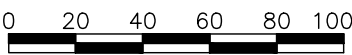
DETAIL OF PRECAST
PSC GIRDER
(FOR 30.0M SPAN)

LEGEND:

F.R.L	: FINISHED ROAD LEVEL
H.F.L	: HIGH FLOOD LEVEL
M.S.L	: MEAN SCOUR LEVEL
L	: CENTER LINE
C/C	: CENTER TO CENTER
LVL.	: LEVEL
TYP.	: TYPICAL
THK.	: THICK
BRG.	: BEARING
EG.L	: GROUND LEVEL
FDN.	: FOUNDING LEVEL
● ↓	: JACKING POINT
LME	: LEFT MEDIAN EDGE
RME	: RIGHT MEDIAN EDGE
LHS	: LEFT HAND SIDE
RHS	: RIGHT HAND SIDE

REV	DATE	DESCRIPTION OF REVISION

SCALE :-



SCALE 1:1000

CLIENT:-



MINISTRY OF ROAD TRANSPORT
& HIGHWAYS
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-



M/s Marc Technocrats Pvt. Ltd in JV
with Asian Geotech research service

PROJECT:-

Consultancy Services for Prepration of Detailed Project
Report for Development of NH-133 from km 92.380 to km
129.370 in Dumka and Deoghar District inthe state of
Jharkhand

TITLE:-

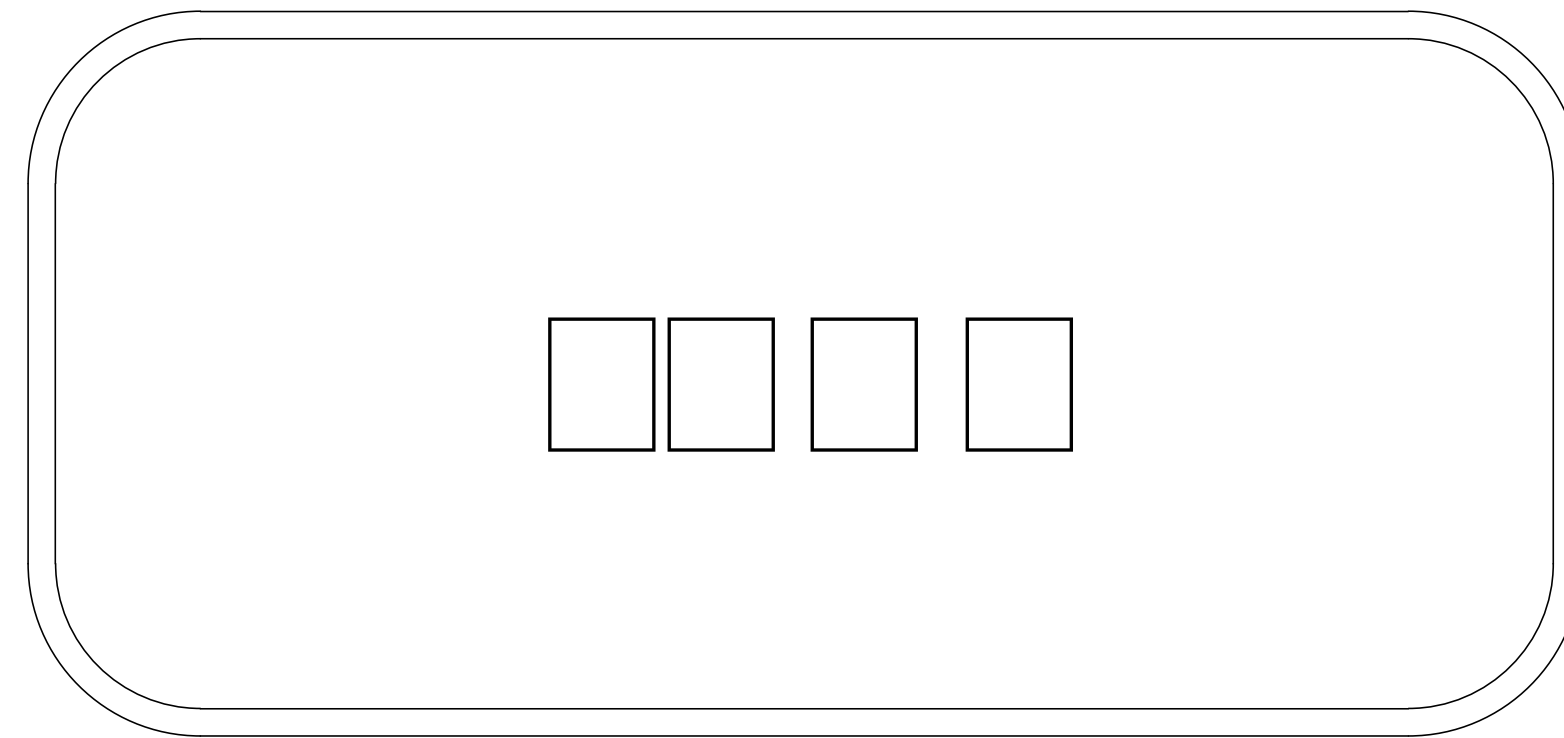
DETAILS OF PIER P1&P2

CHAINAGE:- 102+025

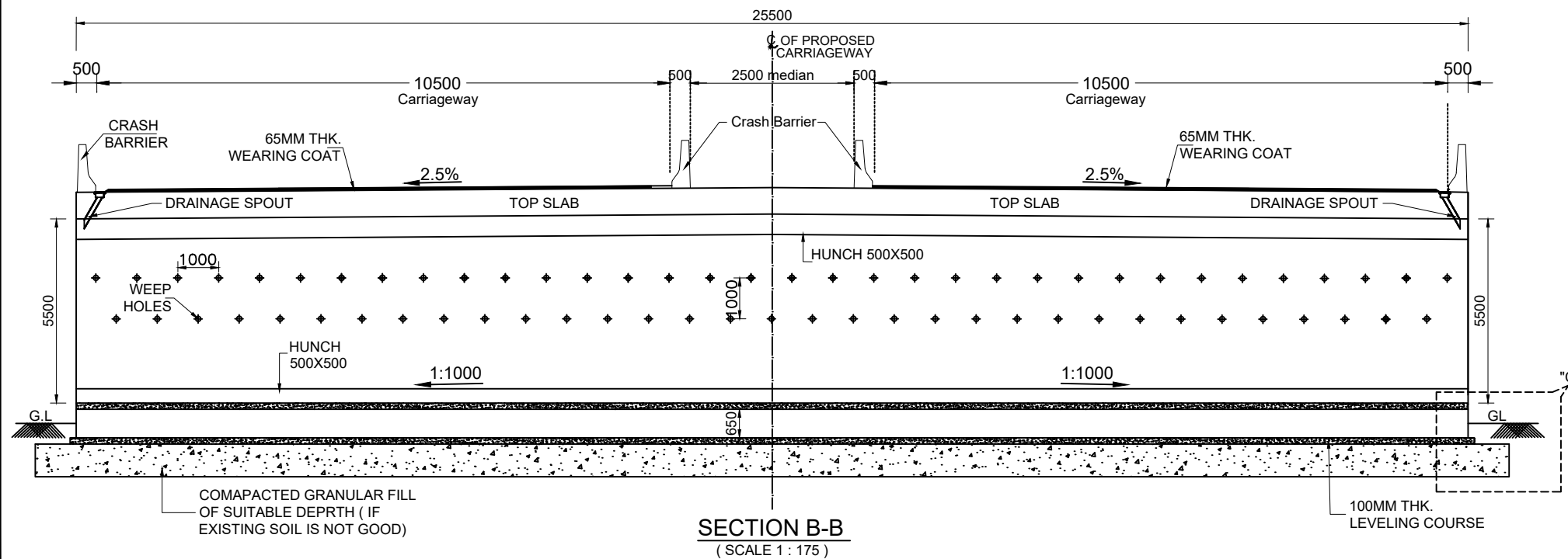
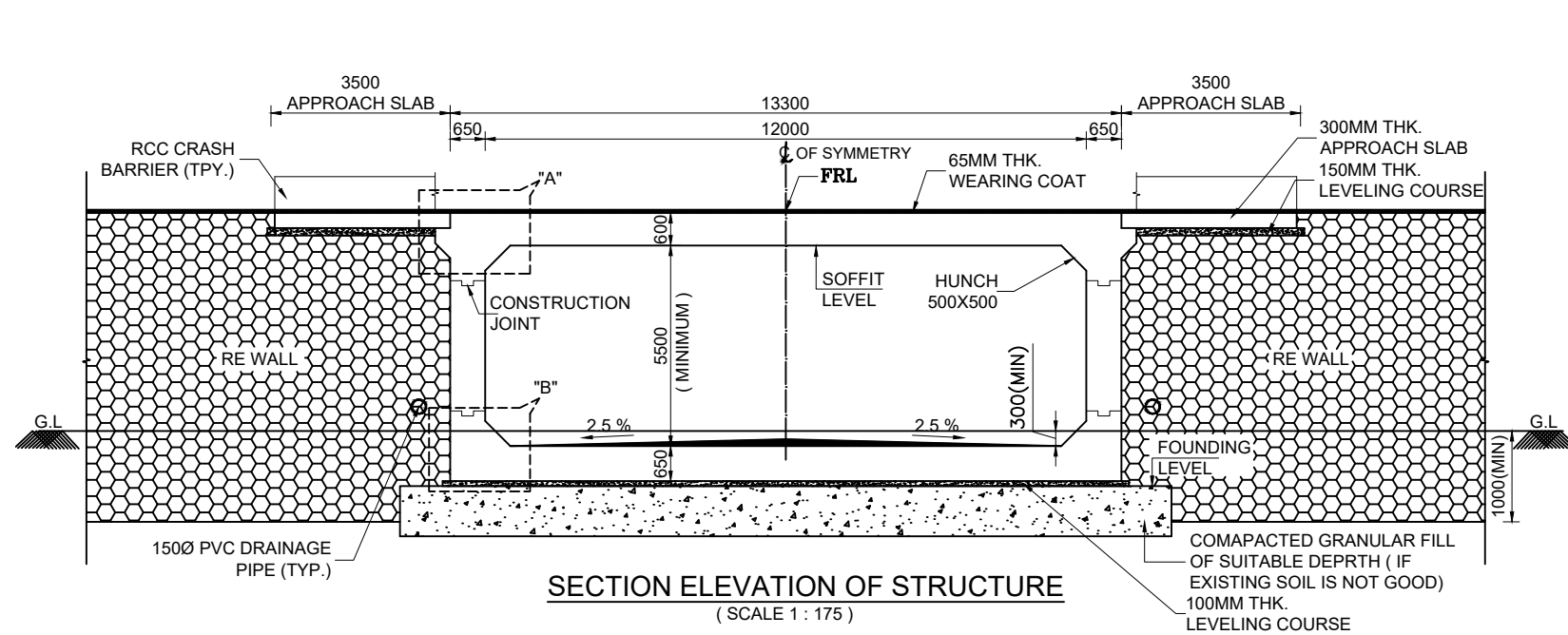
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Date : FEB 2025 Sheet No : 03 OF 03

DRAWN(A) DESIGN (B) CHECK (C) APPROVED (D)

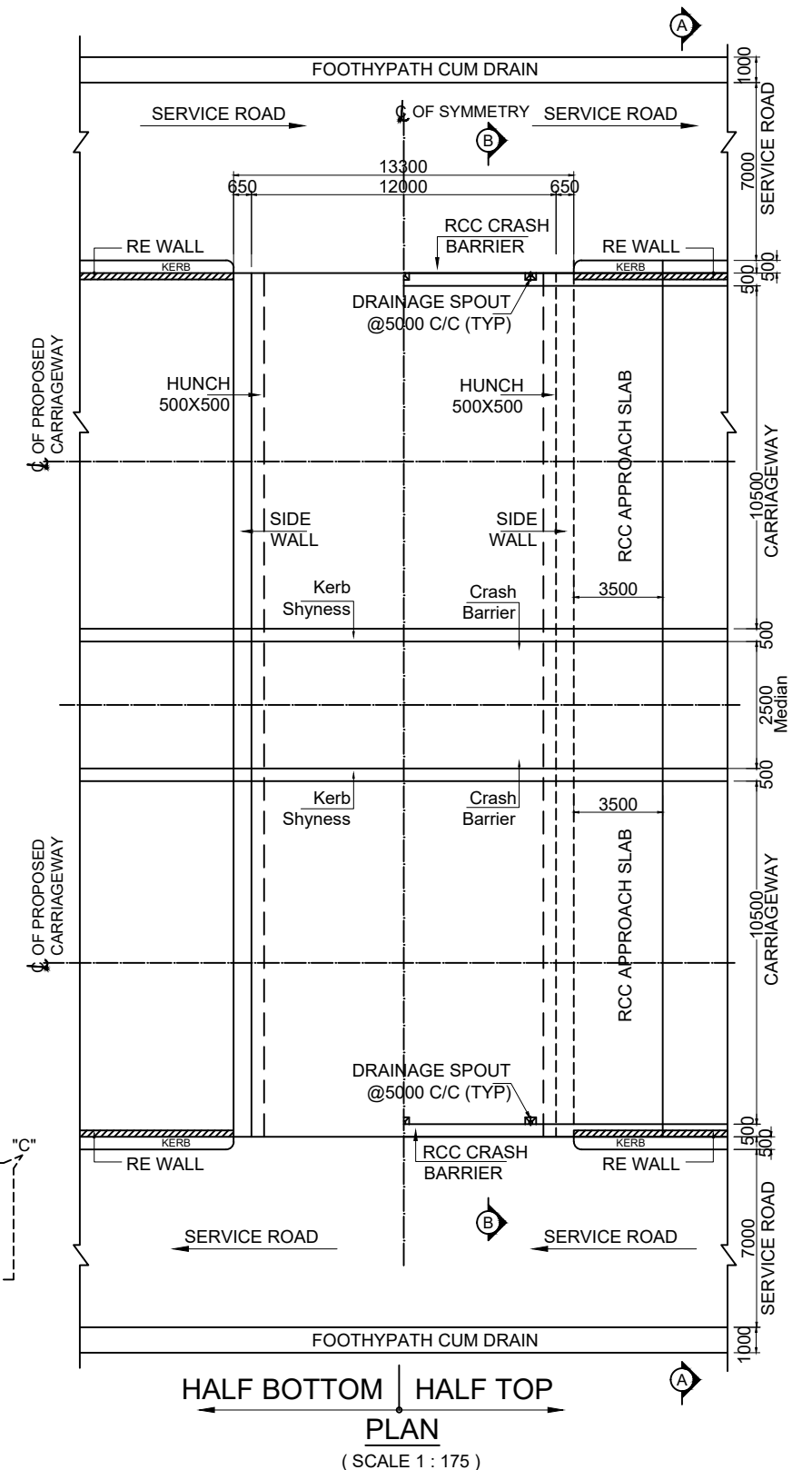



Marc Technocrats Pvt. Ltd.
in Association with 
Asian Geotech Research Services



Details of Proposed Structure

Design Chainage	Tcs	Recommended Proposal for Structure	Type of Structure	Span Arrangement (m)	Total Width of Structure (m)	FRL	SOFFIT LEVEL	CROSS ROAD TOP LVL.	FOND. LEVEL
95+710	5	New Construction	VUP	12X5.5	42.5	199.730	197.345	191.845	191.195



REV	DATE	DESCRIPTION OF REVISION

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SCALE 1:1000

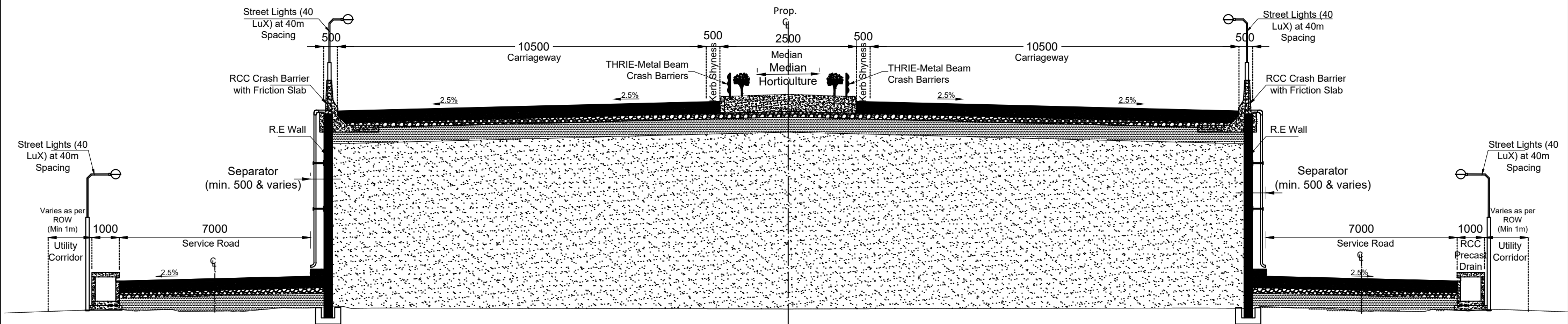
CLIENT:-
 **MINISTRY OF ROAD TRANSPORT & HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-
 **M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service**

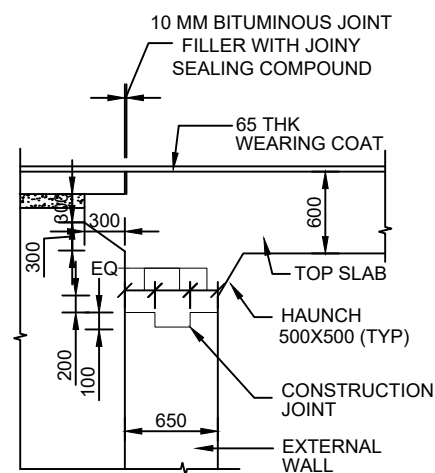
PROJECT:-
Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-
GENERAL ARRANGEMENT
DRAWING OF LVUP
SPAN - 1 x 12 x 5.5
CHAINAGE:-

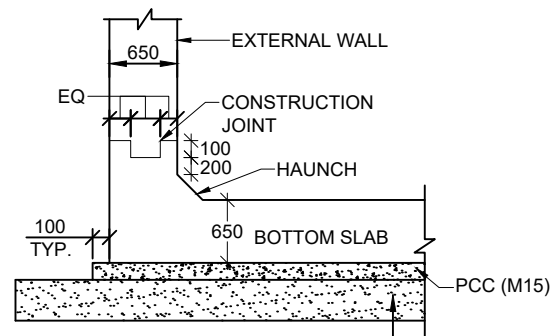
Drawing No. :		MORTH/LVUP/GAD/01	
Date : FEB 2025		Sheet No : 01 OF 02	
DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)



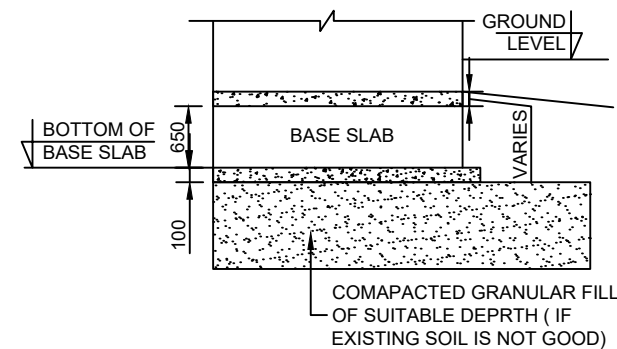
SECTION A-A
(SCALE 1 : 175)



DETAILS - "A"
(SCALE 1:50)



DETAILS - "B"
(SCALE 1:50)



DETAILS - "C"
(SCALE 1:75)

NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
- ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DRAWING SHALL BE SCALED.
- EACH OF THE PROPOSED CARRIAGEWAY IS TO BE DESIGN FOR ONE LANE OF IRC CLASS 70R + TWO LANES OF IRC CLASS A OR 4 LANES OF IRC CLASS A LOADING WITHOUT FOOTPATH WHICHEVER GOVERNS.
- IRC CLASS SV LOADING SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH AXEL TRAILER - GVW= 385 TONNES)
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150MM CUBES AS FOLLOWS :-
 - RCC BOX STRUCTURE - M35
 - RCC CRASH BARRIER - M40
 - RCC APPROACH SLAB - M30
 - LEVELING COURSE (UNDER FOUNDATION) - M15
 - LEVELING COURSE (UNDER APPROACH SLAB) - M15
- THE RAINFORCING BARS SHALL BE OF THERMO MECHANICALLY TRETED (GRADE DESIGNATION FE - 500) CONFORMING TO IS : 786 STANDARDS.
- CLEAR COVER TO OUTER MOST STEEL AT EARTH FACE SHALL BE 50MM. AND 75MM FOR NON EARTH FACE.
- 65M THK. WEARING COAT COMPRESING OF 40MM THK. BITUMINOUS CONCRETE OVER LAID WITH 25MM THK. BITUMEN MASTIC LAYER CAN BE ADOPTED IN CONFORMITY WITH SECTION 500 OF MORTH SPECIFICATIONS.
- MINIMUM CONCRETE COVER , GRADE OF CONCRETE , MINIMUM CEMENT CONTENT AND MINIMUM W/C RATIO SHALL BE AS PER MODERATE CONDITION OF EXPOSURE AS PER PROVISION OF IRC : 112 - 2020.
- WATER TO BE USED IN CONCRETING, GROUTING & CURING SHALL CONFORM TO 18.4.5 IRC : 112-2020.
- DESIGN BASE PRESURE AT FOUNDING LEVEL IS 15T/M . THIS SHALL BE GOT VERIFIED AT SITE BEFORE EXECUTION OF WORK . IF SBC IS NOT ARCHIVED , NECESSARY GROUND IMPROVEMENT MAY BE CARRIED OUT TO ENSURE THAT SBC IS NOT LESS THAN 15T/M .
- SATURATED EARTH PRESSURE CONSIDERED IN DESIGN AS NO WEEP HOLES ARE PROVIDED.

REV	DATE	DESCRIPTION OF REVISION

SCALE :-
0 20 40 60 80 100
SCALE 1:1000

CLIENT:-

MINISTRY OF ROAD TRANSPORT & HIGHWAYS
ROADS & BUILDINGS DEPARTMENT

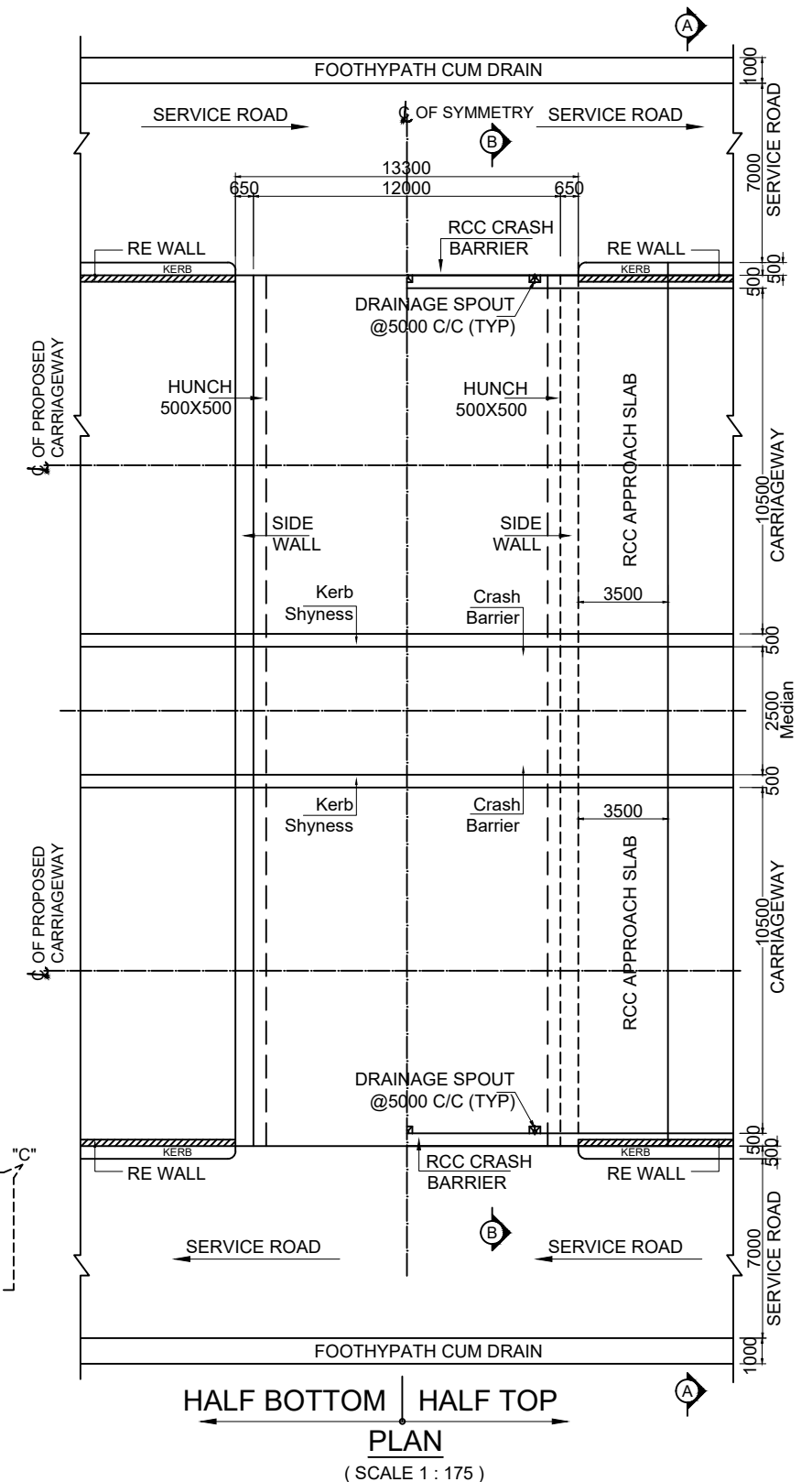
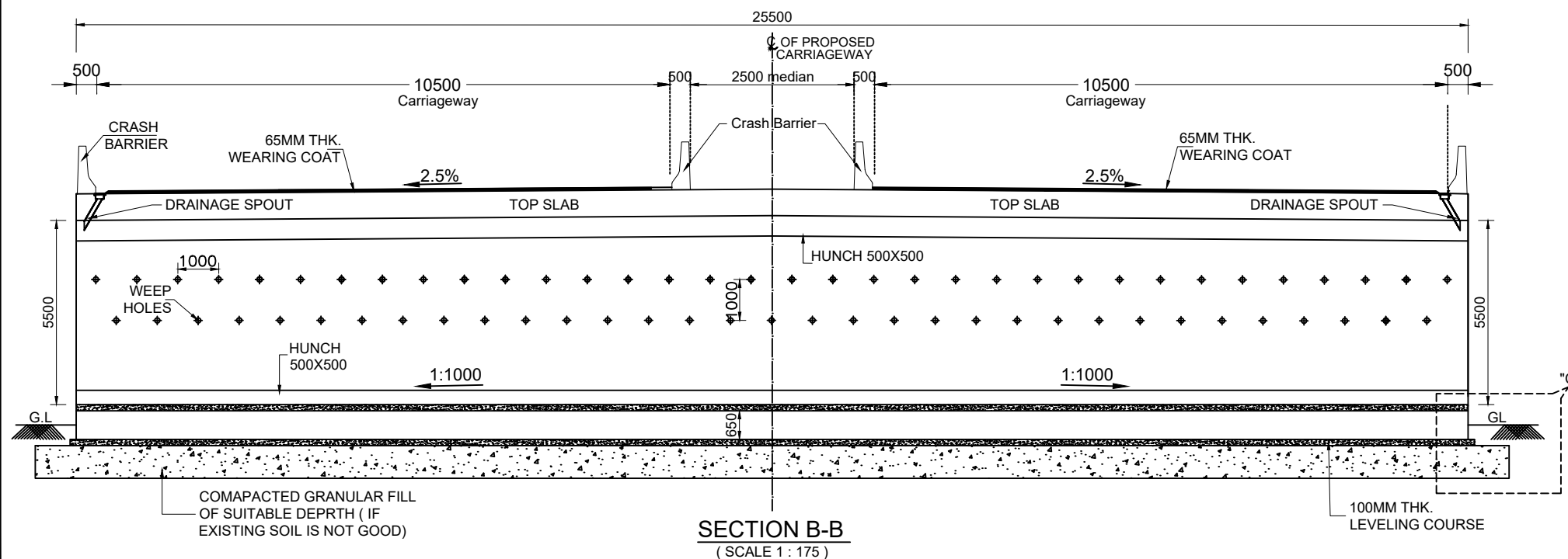
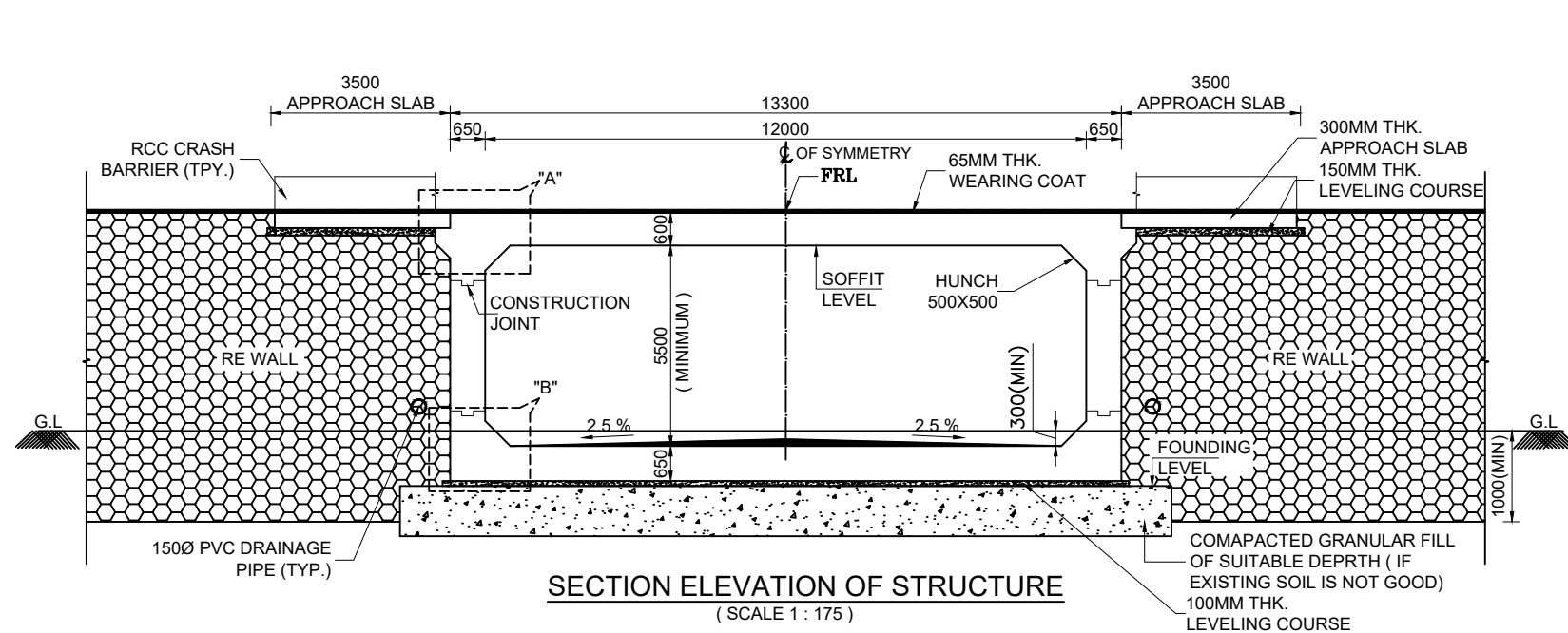
CONSULTANT:-

M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service

PROJECT:-
Consultancy Services for Prepration of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District inthe state of Jharkhand

TITLE:-
GENRAL ARRANGEMENT
DRAWING OF LVUP
SPAN - 1 x 12 x 5.5
CHAINAGE:-

Drawing No. :	MORTH/LVUP/GAD/02			
Date :	FEB 2025	Sheet No. :	02 OF 02	
DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)	



Details of Proposed Structure

Design Chainage	Tcs	Recommended Proposal for Structure	Type of Structure	Span Arrangement (m)	Total Width of Structure (m)	FRL	SOFFIT LEVEL	CROSS ROAD TOP LVL.	FOND. LEVEL
103+060	5	New Construction	LVUP	12X5.5	42.5	217.930	217.065	211.565	210.915

REV	DATE	DESCRIPTION OF REVISION

SCALE :-
0 20 40 60 80 100
SCALE 1:1000

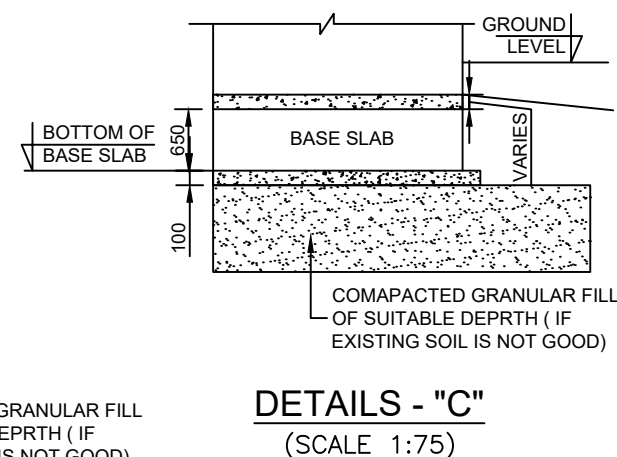
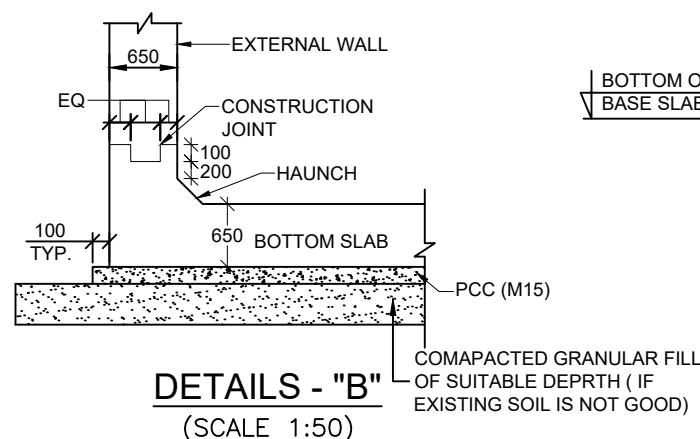
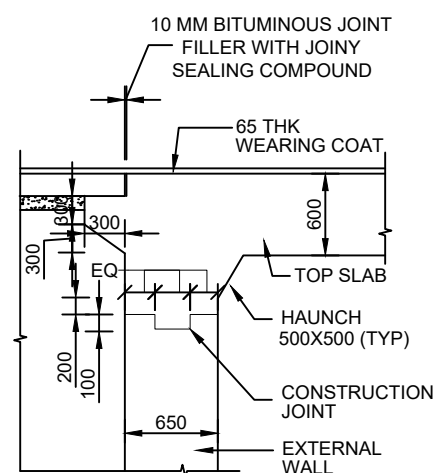
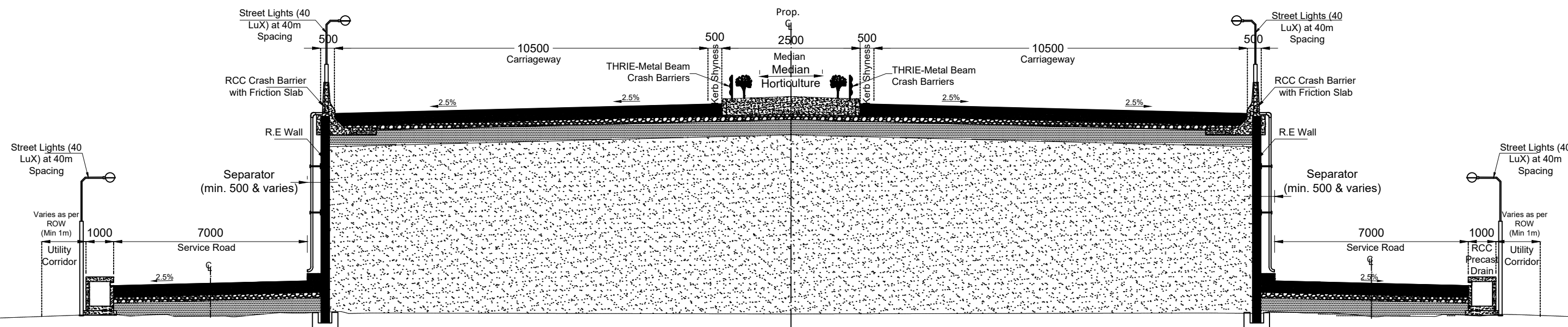
CLIENT:-
 **MINISTRY OF ROAD TRANSPORT & HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-
 **M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service**

PROJECT:-
Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-
GENERAL ARRANGEMENT DRAWING OF LVUP SPAN - 1 x 12 x 5.5
CHAINAGE:- 103+060

Drawing No. : MORTH/LVUP/GAD/01			
Date : FEB 2025	Sheet No : 01 OF 02		
DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)

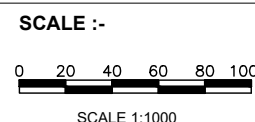


NOTES:—

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
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(j) IRC CLASS SV LOADING SPECIAL MULTI AXLE HYDRAULIC TRAILER VEHICLE (PRIME MOVER WITH AXEL TRAILER - GVW= 385 TONNES)
4. CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150MM CUBES AS FOLLOWS : -

RCC BOX STRUCTURE	-	M35
RCC CRASH BARRIER	-	M40
RCC APPROACH SLAB	-	M30
LEVELING COURSE (UNDER FOUNDATION)	-	M15
LEVELING COURSE (UNDER APPROACH SLAB)	-	M15
5. THE RAINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED (GRADE DESIGNATION FE - 500) CONFORMING TO IS : 786 STANDARDS.
6. CLEAR COVER TO OUTER MOST STEEL AT EARTH FACE SHALL BE 50MM. AND 75MM FOR NON EARTH FACE.
7. 65MM THK. WEARING COAT COMPRESING OF 40MM THK. BITUMINOUS CONCRETE OVER LAID WITH 25MM THK. BITUMEN MASTIC LAYER CAN BE ADOPTED IN CONFORMITY WITH SECTION 500 OF MORTH SPECIFICATIONS.
8. MINIMUM CONCRETE COVER , GRADE OF CONCRETE , MINIMUM CEMENT CONTENT AND MINIMUM W/C RATIO SHALL BE AS PER MODERATE CONDITION OF EXPOSURE AS PER PROVISION OF IRC : 112 - 2020.
9. WATER TO BE USED IN CONCRETING, GROUTING & CURING SHALL CONFORM TO 18.4.5 IRC : 112-2020.
10. DESIGN BASE PRESURE AT FOUNDING LEVEL IS 15T/M . THIS SHALL BE GOT VERIFIED AT SITE BEFORE EXECUTION OF WORK . IF SBC IS NOT ARCHIVED , NECESSARY GROUND IMPROVEMENT MAY BE CARRIED OUT TO ENSURE THAT SBC IS NOT LESS THAN 15T/M .
11. SATURATED EARTH PRESSURE CONSIDERED IN DESIGN AS NO WEEP HOLES ARE PROVIDED.

REV.	DATE	DESCRIPTION OF REVISION



CLIENT:-



**MINISTRY OF ROAD TRANSPORT
& HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-



PROJECT:-

Consultancy Services for Preperation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District inthe state of Jharkhand

TITLE:-

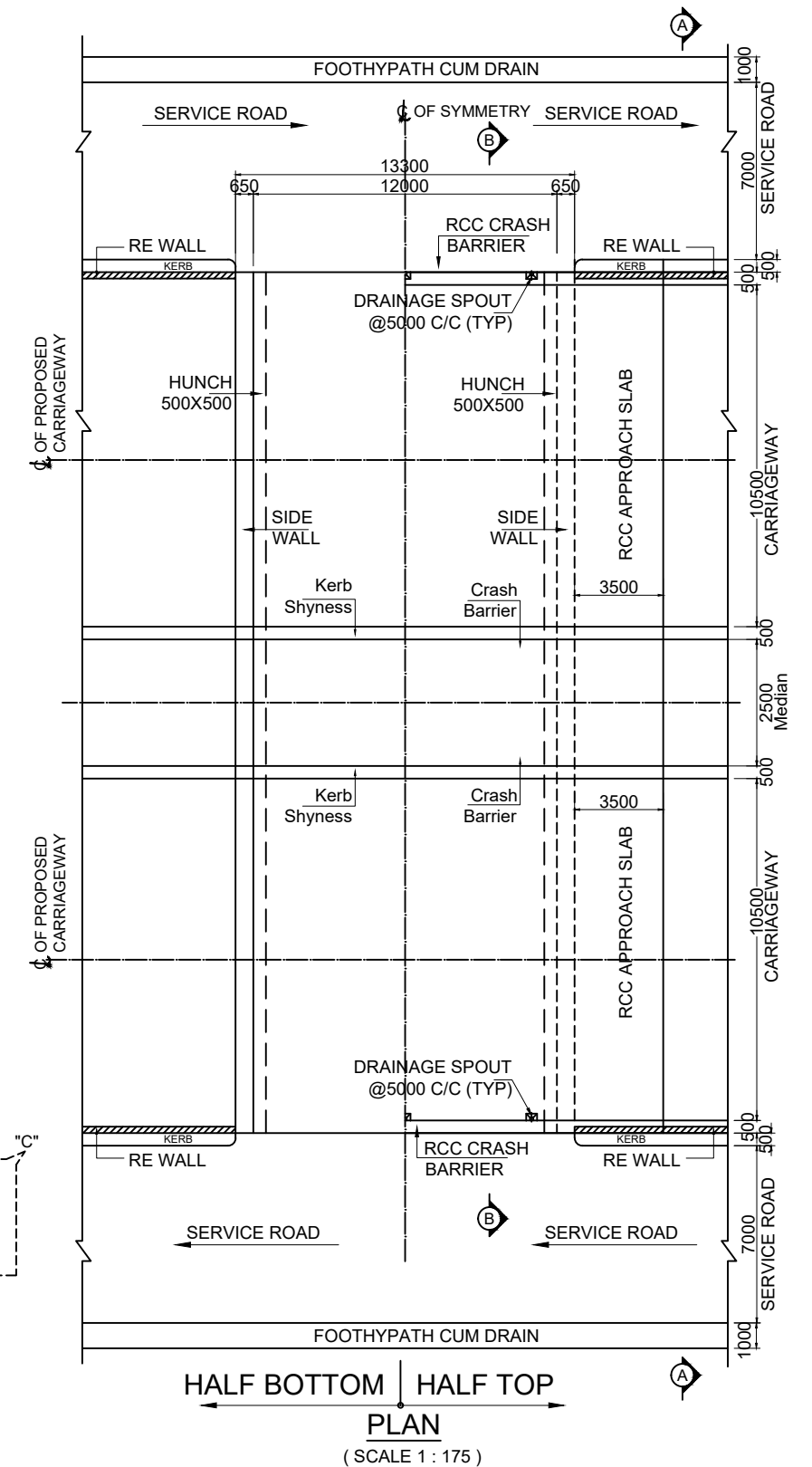
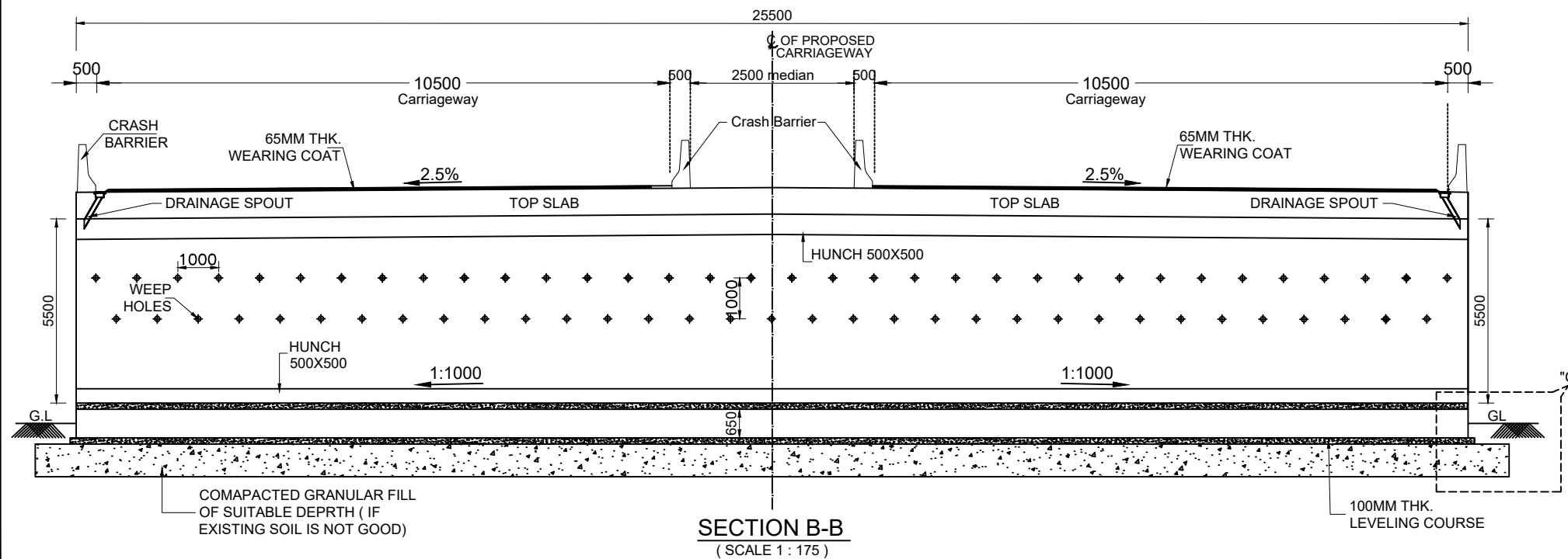
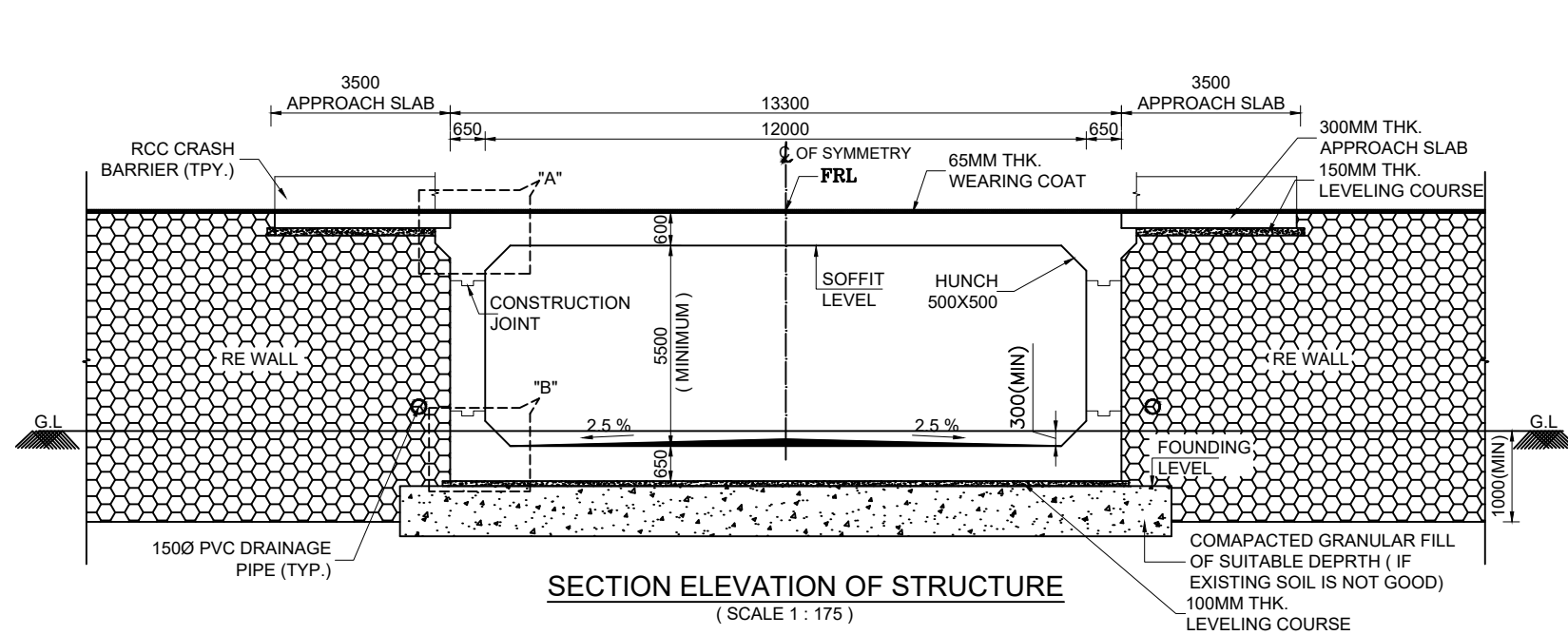
GENERAL ARRANGEMENT
DRAWING OF LVUP
SPAN - 1 x 12 x 5.5

CHAINAGE:- 26+670

Drawing No. :	MORTH/LVUP/GAD/02
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Date : FEB 2025	Sheet No : 02 OF 02
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DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)
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Details of Proposed Structure

Design Chainage	Tcs	Recommended Proposal for Structure	Type of Structure	Span Arrangement (m)	Total Width of Structure (m)	FRL	SOFFIT LEVEL	CROSS ROAD TOP LVL.	FOND. LEVEL
106+240	5	New Construction	LVUP	12X5.5	42.5	221.830	220.965	215.465	214.815

REV	DATE	DESCRIPTION OF REVISION

SCALE :-
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SCALE 1:1000

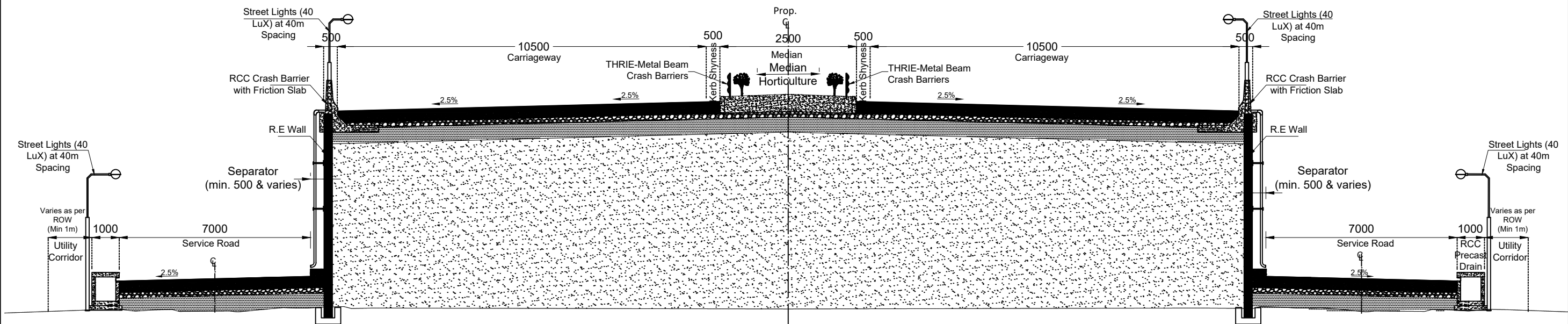
CLIENT:-
 **MINISTRY OF ROAD TRANSPORT & HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-
 **M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service**

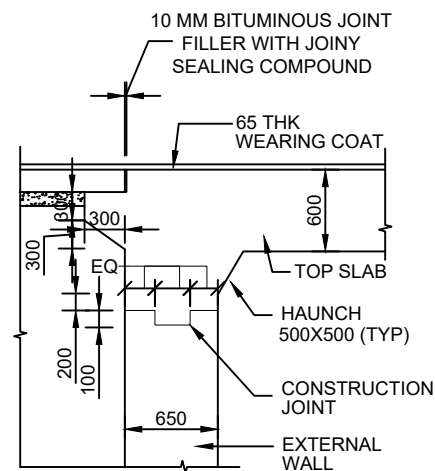
PROJECT:-
Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-
GENERAL ARRANGEMENT DRAWING OF LVUP SPAN - 1 x 12 x 5.5
CHAINAGE:- 106+240

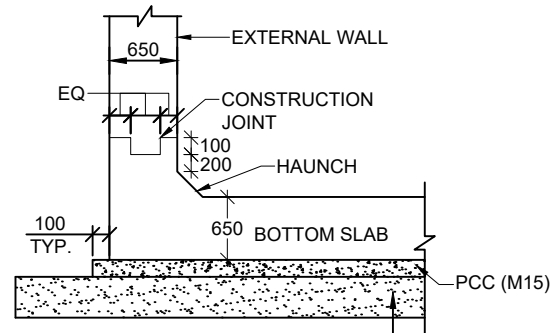
Drawing No. :		MORTH/LVUP/GAD/01	
Date : FEB 2025		Sheet No : 01 OF 02	
DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)



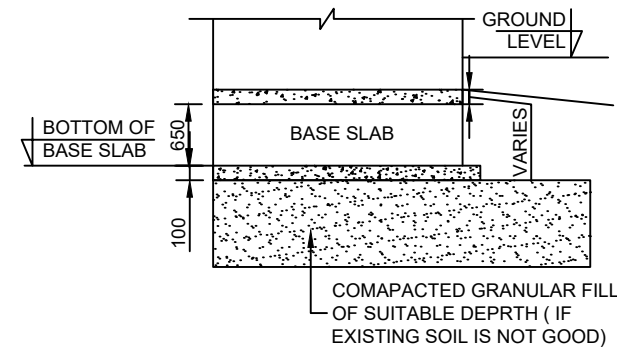
SECTION A-A
(SCALE 1 : 175)



DETAILS - "A"
(SCALE 1:50)



DETAILS - "B"
(SCALE 1:50)



DETAILS - "C"
(SCALE 1:75)

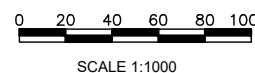
NOTES:-

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- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150MM CUBES AS FOLLOWS :-

RCC BOX STRUCTURE	-	M35
RCC CRASH BARRIER	-	M40
RCC APPROACH SLAB	-	M30
LEVELING COURSE (UNDER FOUNDATION)	-	M15
LEVELING COURSE (UNDER APPROACH SLAB)	-	M15
- THE RAINFORCING BARS SHALL BE OF THERMO MECHANICALLY TRETED (GRADE DESIGNATION FE - 500) CONFORMING TO IS : 786 STANDARDS.
- CLEAR COVER TO OUTER MOST STEEL AT EARTH FACE SHALL BE 50MM. AND 75MM FOR NON EARTH FACE.
- 65M THK. WEARING COAT COMPRESING OF 40MM THK. BITUMINOUS CONCRETE OVER LAID WITH 25MM THK. BITUMEN MASTIC LAYER CAN BE ADOPTED IN CONFORMITY WITH SECTION 500 OF MORTH SPECIFICATIONS.
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REV	DATE	DESCRIPTION OF REVISION

SCALE :-



CLIENT:-



CONSULTANT:-



M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service

PROJECT:-

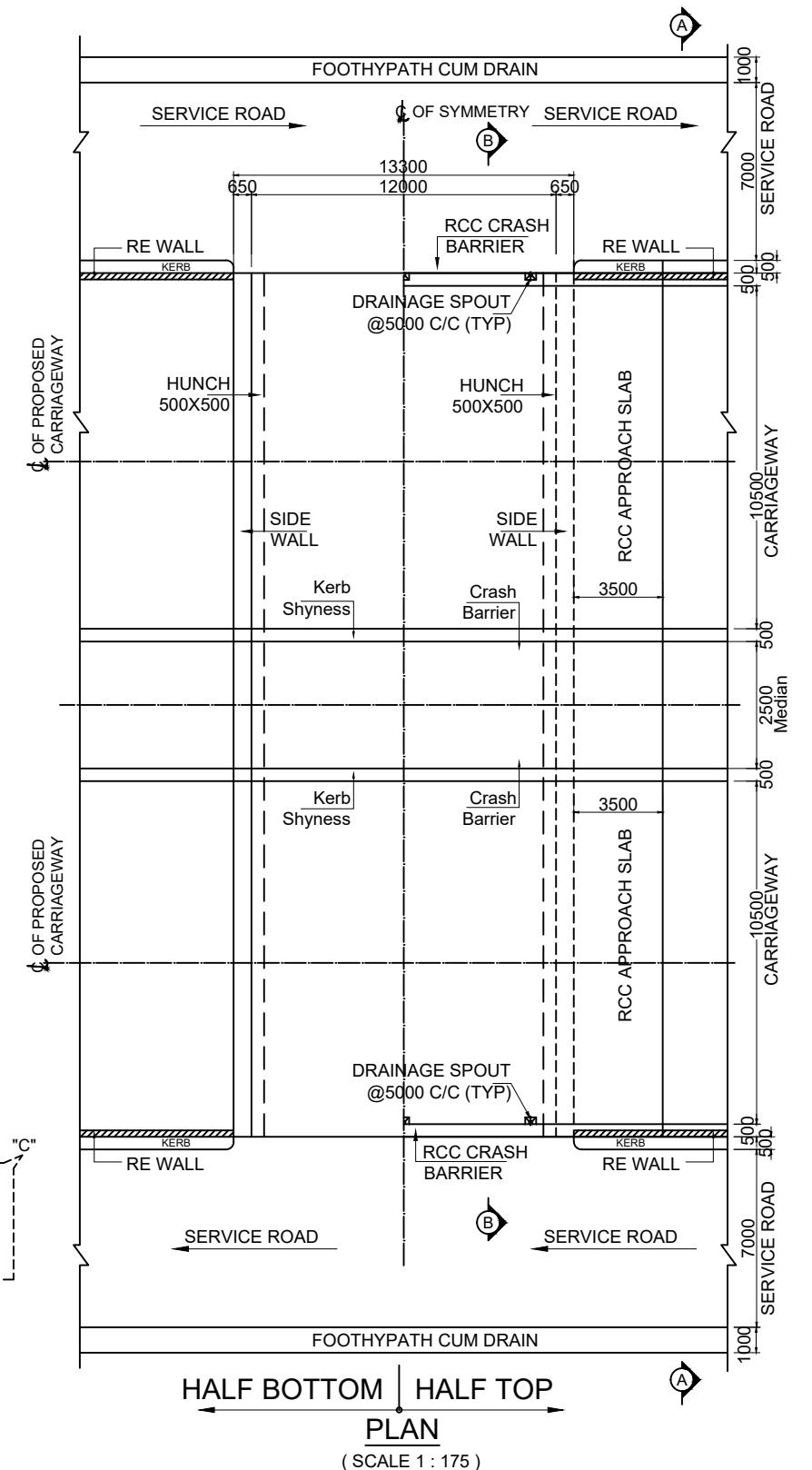
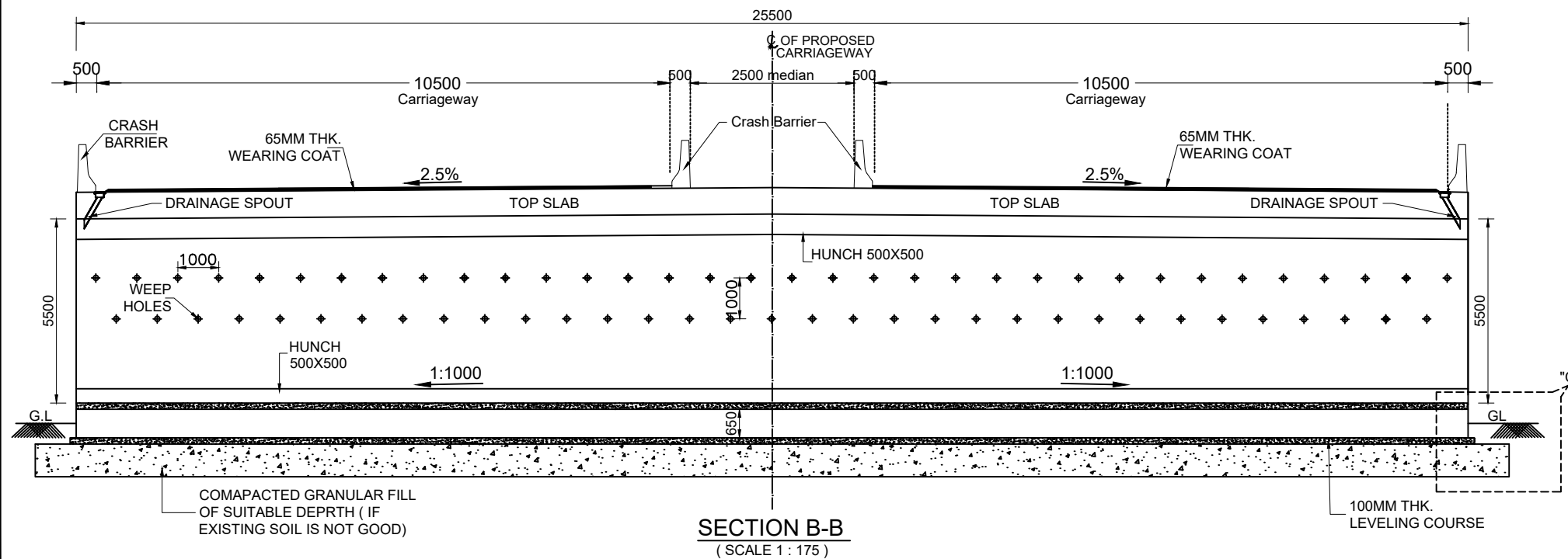
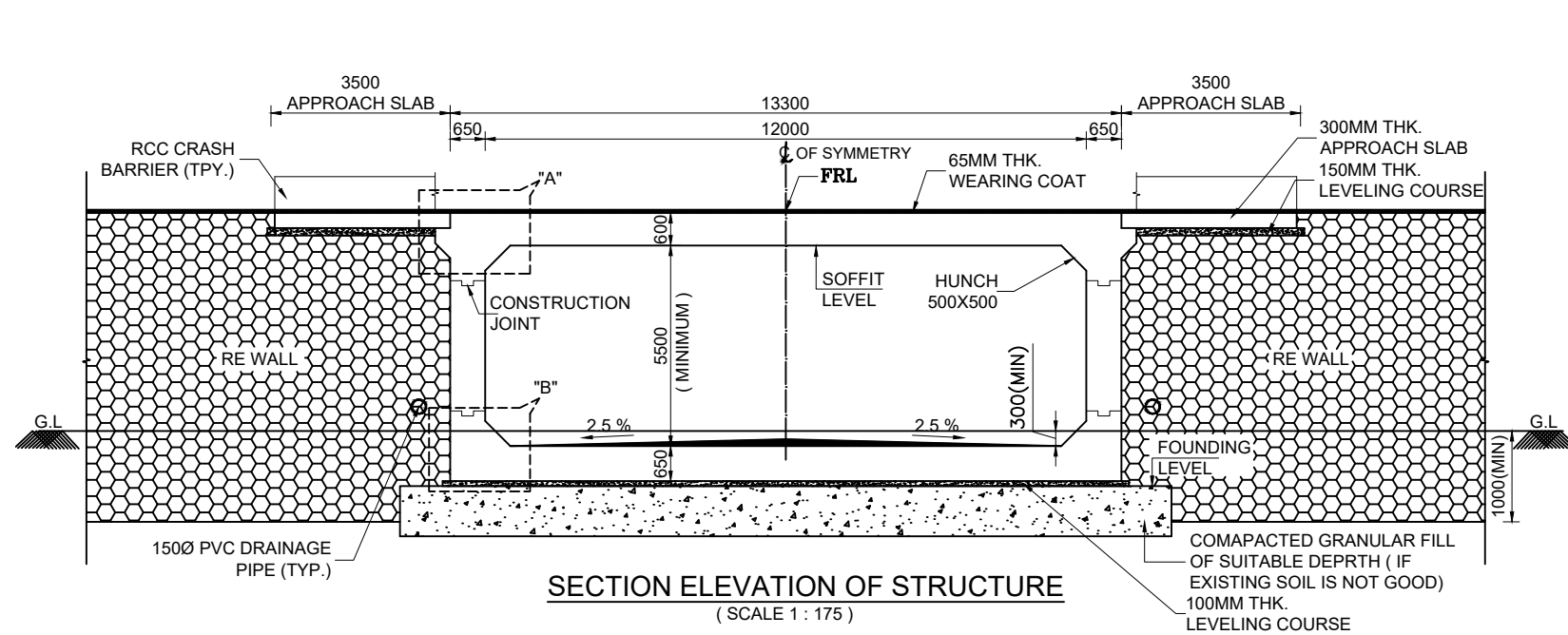
Consultancy Services for Prepration of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District inthe state of Jharkhand

TITLE:-

GENRAL ARRANGEMENT DRAWING OF LVUP SPAN - 1 x 12 x 5.5

CHAINAGE:- 106+240

Drawing No. :	MORTH/LVUP/GAD/02			
Date :	FEB 2025	Sheet No. :	02 OF 02	
DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)	



Details of Proposed Structure

Design Chainage	Tcs	Recommended Proposal for Structure	Type of Structure	Span Arrangement (m)	Total Width of Structure (m)	FRL	SOFFIT LEVEL	CROSS ROAD TOP LVL.	FOND. LEVEL
107+560	5	New Construction	LVUP	12X5.5	42.5	231.010	230.145	224.645	223.995

REV	DATE	DESCRIPTION OF REVISION

SCALE :-
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SCALE 1:1000

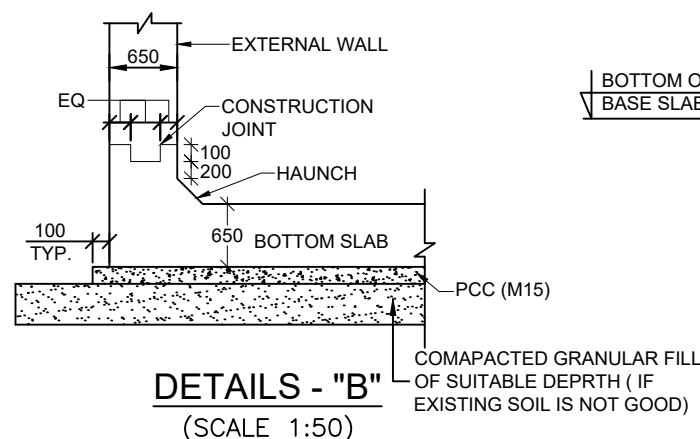
CLIENT:-
 **MINISTRY OF ROAD TRANSPORT & HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-
 **M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service**

PROJECT:-
Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-
GENERAL ARRANGEMENT DRAWING OF LVUP SPAN - 1 x 12 x 5.5
CHAINAGE:- 107+560

Drawing No. : MORTH/LVUP/GAD/01
Date : FEB 2025 Sheet No : 01 OF 02
DRAWN(A) DESIGN (B) CHECK (C) APPROVED (D)



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RCC APPROACH SLAB	-	M30
LEVELING COURSE (UNDER FOUNDATION)	-	M15
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11. SATURATED EARTH PRESSURE CONSIDERED IN DESIGN AS NO WEEP HOLES ARE PROVIDED.

REV.	DATE	DESCRIPTION OF REVISION



MORTH
Government of India

**MINISTRY OF ROAD TRANSPORT
& HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT



**M/s Marc Technocrats Pvt. Ltd in JV
with Asian Geotech research service**

Consultancy Services for Preperation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District inthe state of Jharkhand

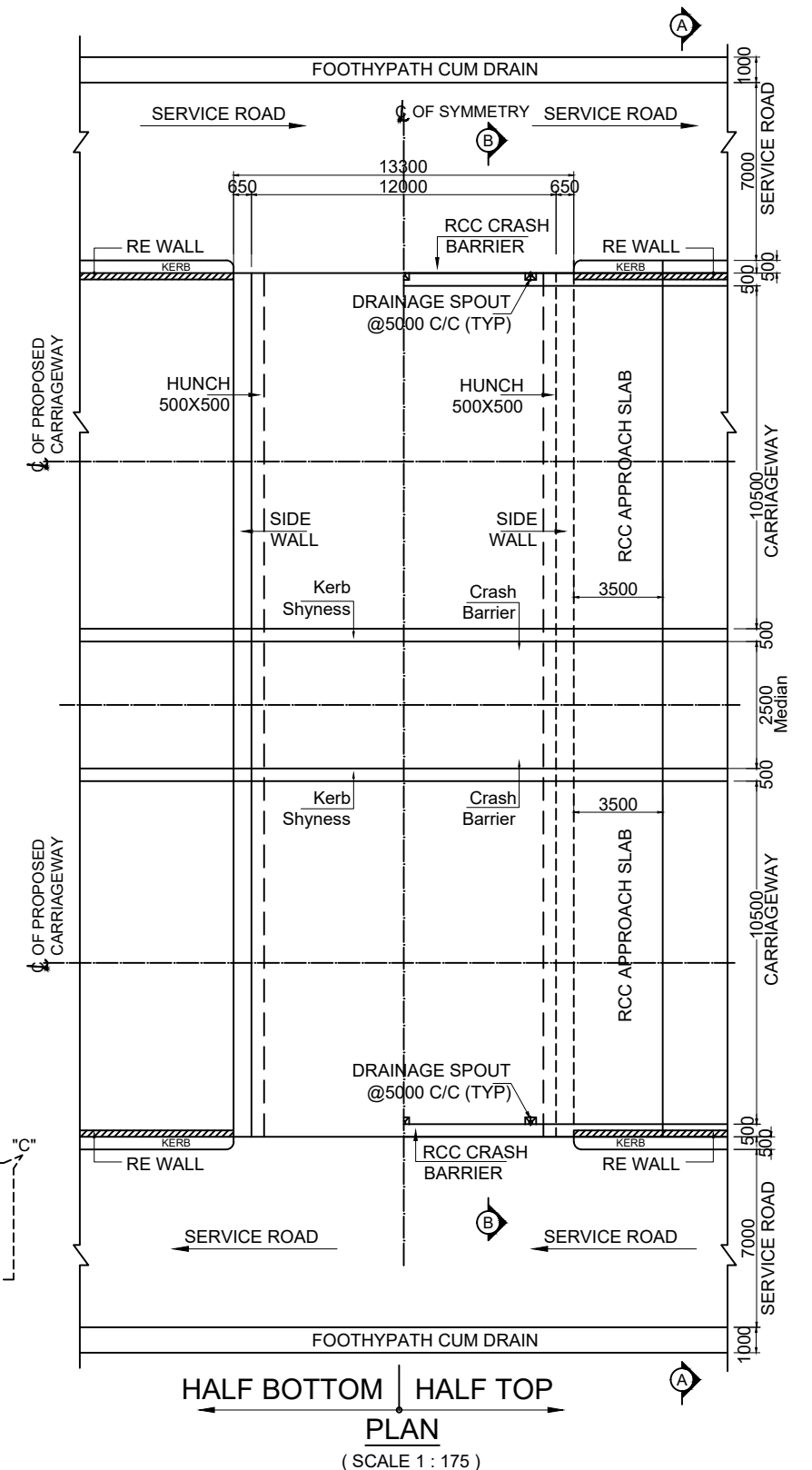
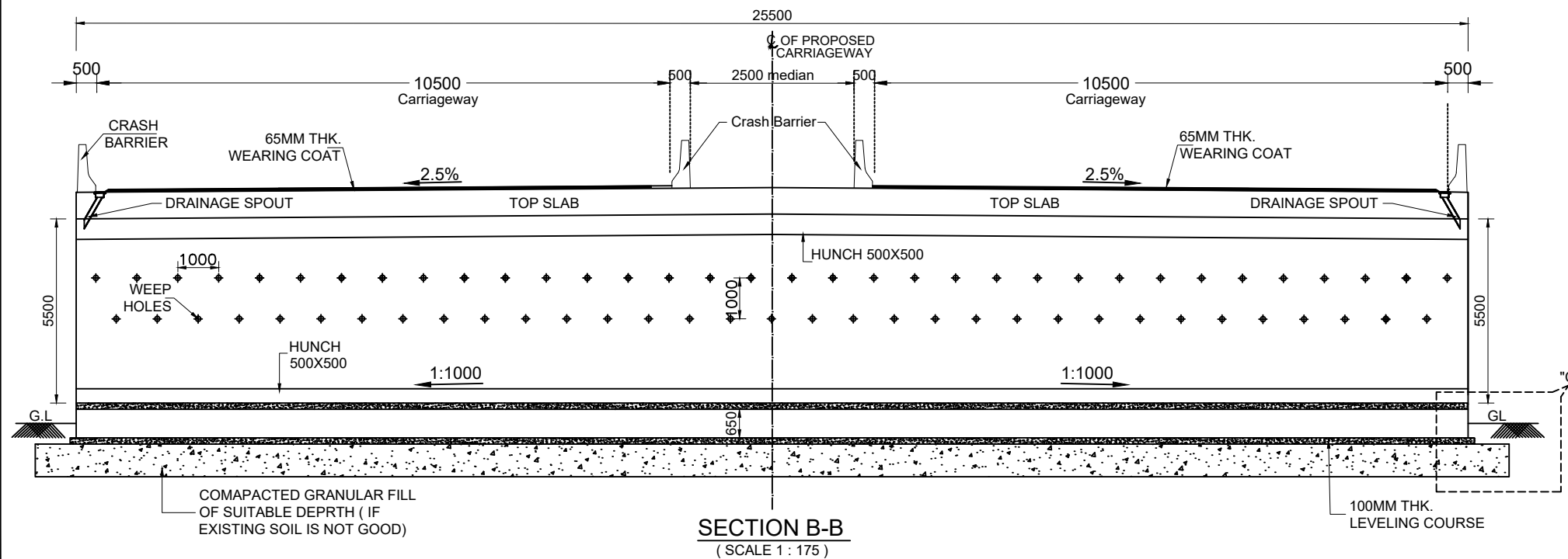
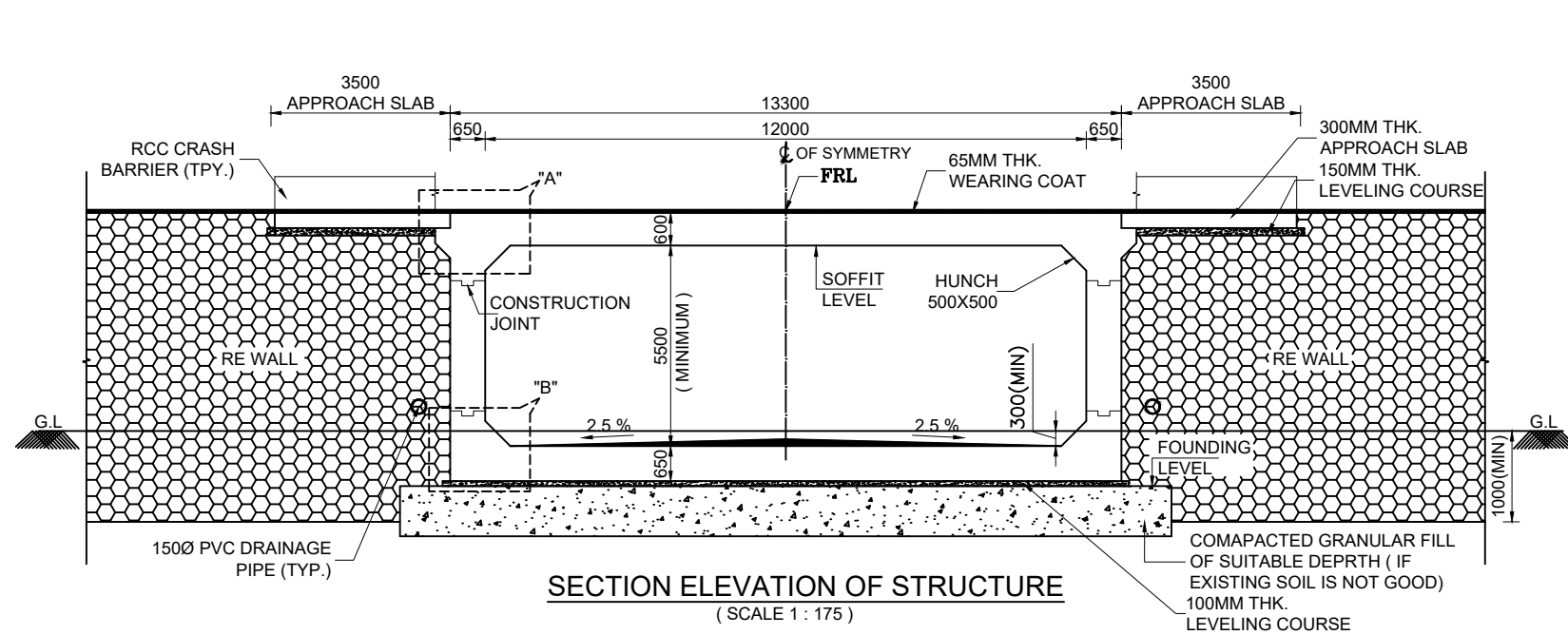
GENERAL ARRANGEMENT
DRAWING OF LVUP
SPAN - 1 x 12 x 5.5

CHAINAGE:- 107+560

Date : FEB 2025 Sheet No : 02 OF 02

DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)
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[illegible]



Details of Proposed Structure

Design Chainage	Tcs	Recommended Proposal for Structure	Type of Structure	Span Arrangement (m)	Total Width of Structure (m)	FRL	SOFFIT LEVEL	CROSS ROAD TOP LVL.	FOND. LEVEL
116+080	5	New Construction	LVUP	12X5.5	42.5	239.990	239.125	233.625	232.975

REV	DATE	DESCRIPTION OF REVISION

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SCALE 1:1000

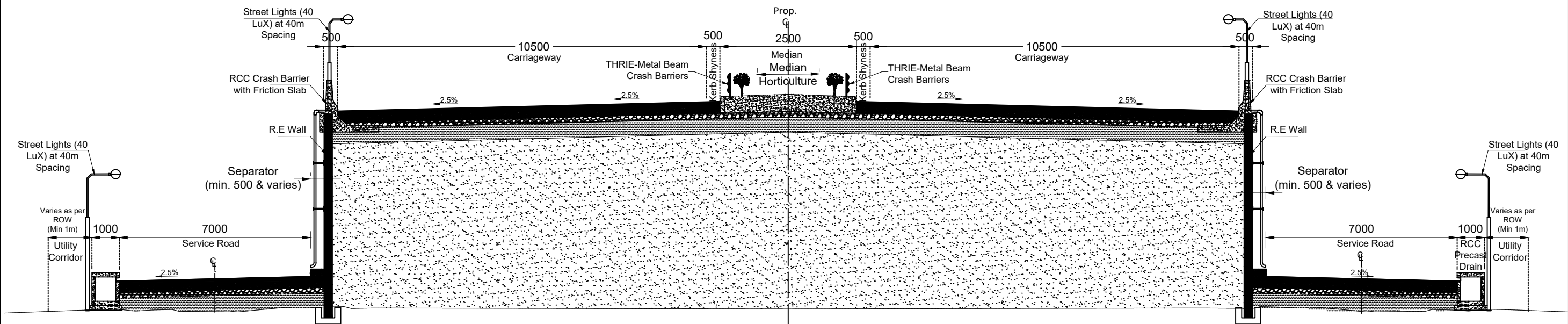
CLIENT:-
 **MINISTRY OF ROAD TRANSPORT & HIGHWAYS**
ROADS & BUILDINGS DEPARTMENT

CONSULTANT:-
 **M/s Marc Technocrats Pvt. Ltd in JV with Asian Geotech research service**

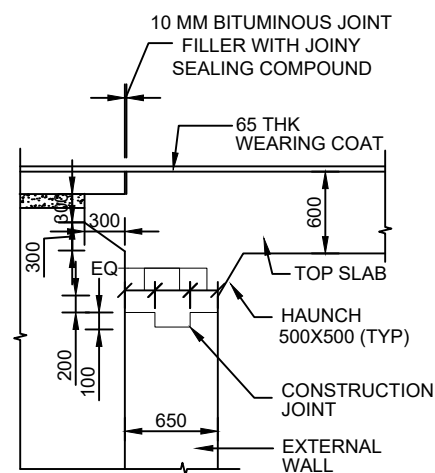
PROJECT:-
Consultancy Services for Preparation of Detailed Project Report for Development of NH-133 from km 92.380 to km 129.370 in Dumka and Deoghar District in the state of Jharkhand

TITLE:-
GENERAL ARRANGEMENT DRAWING OF LVUP SPAN - 1 x 12 x 5.5
CHAINAGE:- 116+080

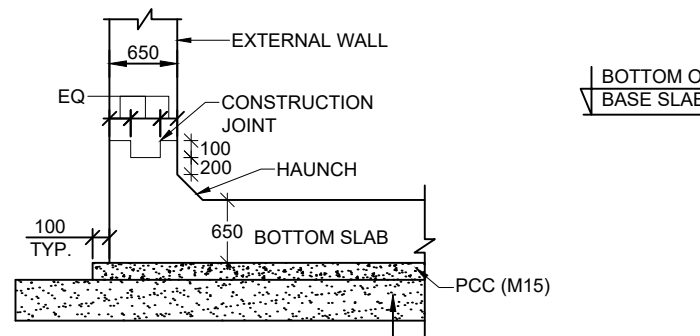
Drawing No. : MORTH/LVUP/GAD/01
Date : FEB 2025 Sheet No : 01 OF 02
DRAWN(A) DESIGN (B) CHECK (C) APPROVED (D)



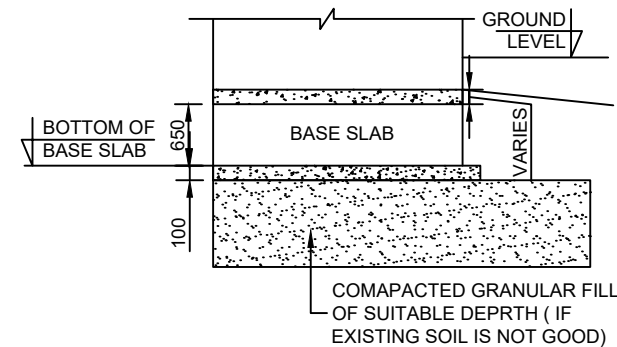
SECTION A-A
(SCALE 1 : 175)



DETAILS - "A"
(SCALE 1:50)



DETAILS - "B"
(SCALE 1:50)



DETAILS - "C"
(SCALE 1:75)

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 - RCC CRASH BARRIER - M40
 - RCC APPROACH SLAB - M30
 - LEVELING COURSE (UNDER FOUNDATION) - M15
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REV	DATE	DESCRIPTION OF REVISION

SCALE :-
0 20 40 60 80 100
SCALE 1:1000

CLIENT:-
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TITLE:-
GENRAL ARRANGEMENT
DRAWING OF LVUP
SPAN - 1 x 12 x 5.5
CHAINAGE:- 116+080

Drawing No. :	MORTH/LVUP/GAD/02			
Date :	FEB 2025	Sheet No. :	02 OF 02	
DRAWN(A)	DESIGN (B)	CHECK (C)	APPROVED (D)	