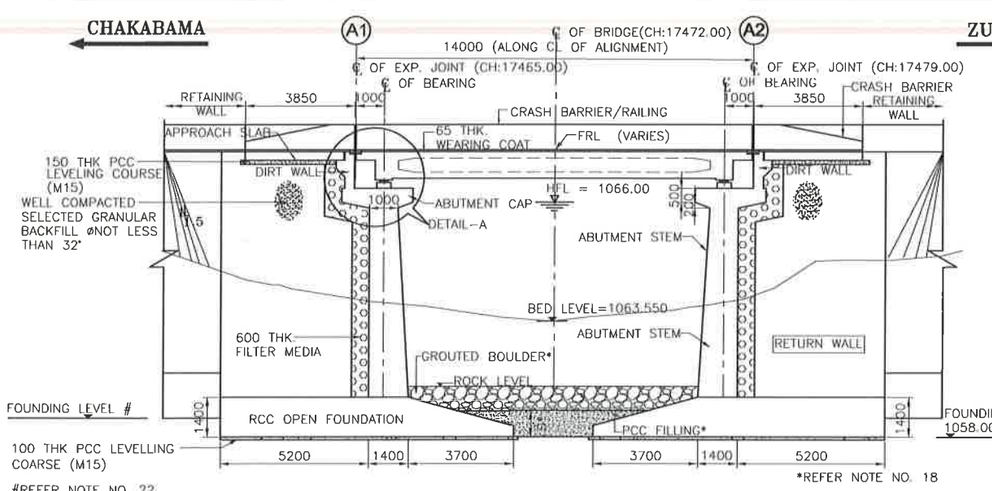
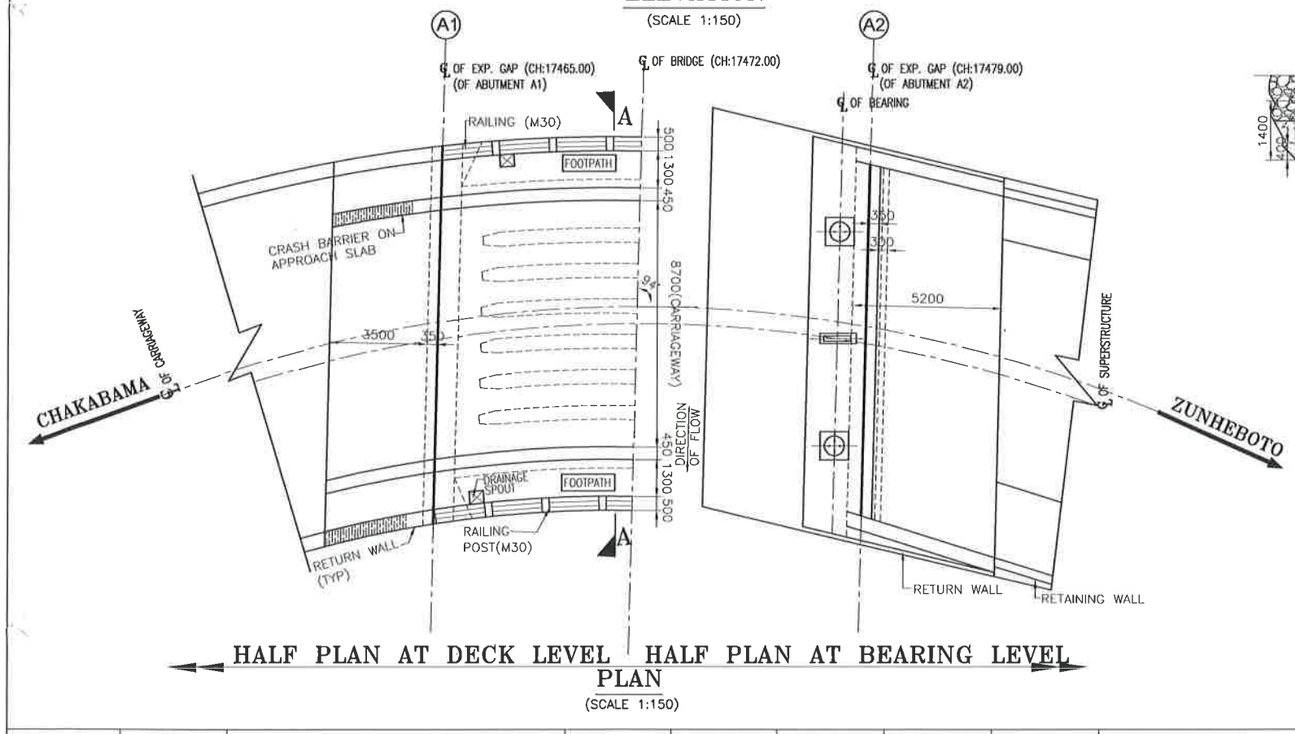
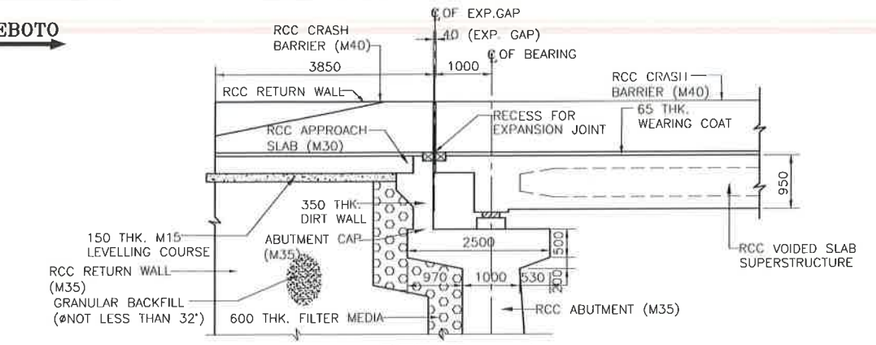


FINISHED ROAD LEVEL(M)	1068.428	1068.545	1068.647
HORIZONTAL	R=50.0m		
	L=163.9m		
SUPER ELEVATION	5.00%		
	-5.00%		
CHAINAGE (M)	17465.00	17472.00	17479.00

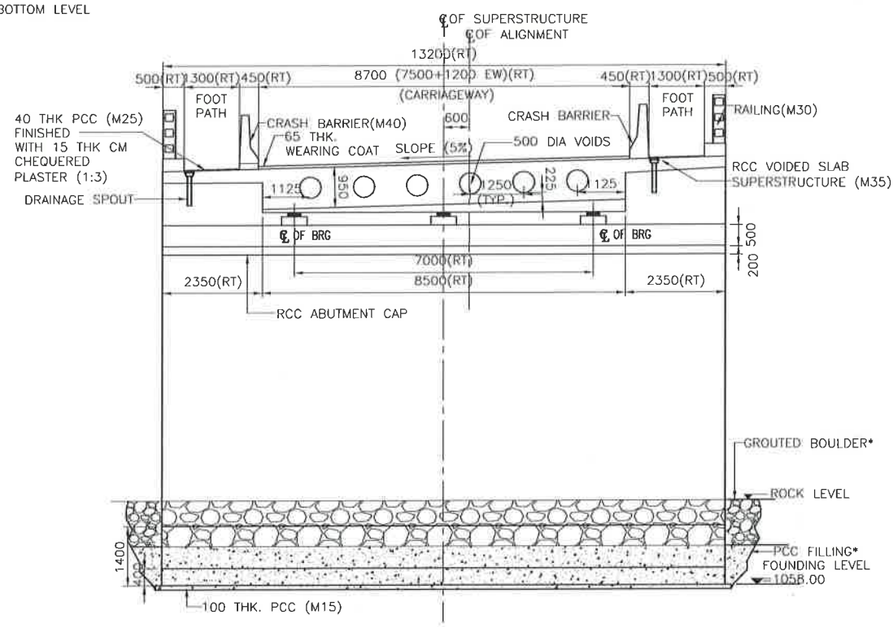
ELEVATION
(SCALE 1:150)



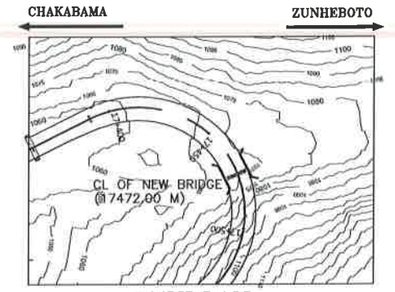
HALF PLAN AT DECK LEVEL HALF PLAN AT BEARING LEVEL
PLAN
(SCALE 1:150)



DETAIL – A
(SCALE 1:75)



SECTION A–A
(SCALE 1:100)



KEYPLAN
(SCALE 1:2000)

LEGEND:

FRL	FINISHED ROAD LEVEL
HFL	HIGHEST FLOOD LEVEL
EXP.	EXPANSION
RCC	REINFORCED CEMENT CONCRETE
GL	GROUND LEVEL
PCC	PLAIN CEMENT CONCRETE
CM	CEMENT MORTAR
EW	EXTRA WIDENING
RT	RIGHT

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055-30/DPR/BR/GN/01	GENERAL NOTES
RITES/HW/MORT&H/4055-30/DPR/BR/CZ/17472/02	DIMENSIONS DETAILS OF ABUTMENT
RITES/HW/MORT&H/4055-30/DPR/BR/CZ/17472/04	DIMENSIONS DETAILS OF SUPERSTRUCTURE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND THE LEVELS AND CHAINAGES ARE IN METRES UNLESS OTHERWISE INDICATED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONCRETE FOR VARIOUS STRUCTURES SHALL BE AS FOLLOWS:
   - i) APPROACH SLAB----------M30
   - ii) R.C.C VOIDED SLAB SUPERSTRUCTURE---------M35
   - iii) RCC CRASH BARRIER ----------M40
   - iv) RCC SUBSTRUCTURE AND OPEN FOUNDATION----M35
   - v) RCC HANDRAIL----------M30
4. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD & BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATION AND AS DIRECTED/APPROVED BY THE ENGINEER.
5. THE BRIDGE HAS BEEN DESIGNED FOR 2 LANES OF CLASS A OR 1-LANE OF CLASS 70R, WHICHEVER PRODUCES THE WORST EFFECT.
6. THE REINFORCEMENT SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS: 1786 – 1985.
7. 65 THK. WEARING COAT COMPRISING OF 50MM THK. ASPHALTIC CONCRETE LAID IN TWO LAYERS OF 25MM EACH, OVER 15 MM THK. MASTIC ASPHALT SHALL BE USED AS PER SPECIFICATION.
8. SAFE BEARING CAPACITY (SBC) OF SOIL/ROCK BELOW FOUNDATION HAS BEEN CONSIDERED AS 30T/SqM, WHICH SHALL BE CONFIRMED BEFORE CONSTRUCTION. IF SBC IS FOUND LESS, THE MATTER SHALL BE REPORTED TO THE ENGINEER.
9. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
10. THE SELECTED BACKFILL MATERIALS BEHIND ABUTMENT/RETURN WALL/RETAINING WALL SHALL CONFORM TO APPENDIX-6 OF IRC:78-2014. ANGLE OF REPOSE OF BACKFILL MATERIALS SHALL NOT BE LESS THAN 32°.
11. THE BACKFILL MATERIALS MAY BE FILLED FOR PORTION AS INDICATED IN APPENDIX-6 OF IRC:78-2014. THE WORKS SHALL CONFORM TO SECTION 305.2 OF MORT&H SPECIFICATION.
12. FOR DETAILS OF VERTICAL AND HORIZONTAL PROFILE REFER ROAD DRAWING (PLAN & PROFILE) OF RESPECTIVE CHAINAGE.
13. DURING CONSTRUCTION OF THE BRIDGE EXISTING ROAD TRAFFIC SHALL BE DIVERTED SUITABLY IN CONSULTATION WITH THE ROAD AUTHORITY.
14. LOCATION, FRL, CAMBER, BED LEVELS, FOUNDATION LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION, IF ANY VARIATION IS FOUND, IT SHALL BE REPORTED TO THE ENGINEER.
15. FOR FOUNDATION RESTING ON ROCK, ALL SEAMS & CRACKS ON ROCK SURFACE SHALL BE GROUTED WITH CEMENT/MORTAR AS PER MORT&H SPECIFICATION.
16. WEEP HOLES IN SLOPE 1:20, 100 DIA. PVC PIPE AT SPACING 1000 MM C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER ABOVE GROUND LEVEL OR LWL, WHICHEVER IS HIGHER.
17. THE TOP OF ABUTMENT/PIER CAP HAS BEEN CALCULATED ASSUMING THE THICKNESS OF THE PEDESTAL AND BEARING AS 800mm. THE SAME MUST BE VERIFIED BEFORE CASTING OF ABUTMENT/PIER CAP.
18. THE ANNULAR SPACE AROUND FOUNDATION SHALL BE FILLED WITH PCC (M15)/ BOULDER GROUTED WITH CEMENT MORTAR (1:3) AS PER SECTION 304.3.4 OF MORT&H SPECIFICATION.
19. THE BEARING SHALL BE POT CUM PTFE TYPE CONFORMING TO IRC:83 (PART III) – 2002.
20. THE EXPANSION JOINT SHALL BE STRIP SEAL TYPE CONFORMING TO IRC:SP:69-2011.
21. SEISMIC RESTRAINERS WITH SUITABLY DESIGNED REACTION BLOCKS SHALL BE PROVIDED ON ABUTMENT/PIER CAP.
22. SUITABLE LONG RETAINING WALL SHALL BE PROVIDED AT APPROACHES OF BRIDGES TO RETAIN/PROTECT THE EMBANKMENT. THE FOUNDATION OF RETAINING WALL; BELOW NATURAL GROUND, SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS. GABBION WALL TYPE RETAINING WALL MAY ONLY BE USED IN PORTION AWAY FROM WATER COURSE.

	SEPT 2016	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	R. Gaulam	R. Gaulam	S.K.B	Tapas Mukherjee
	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

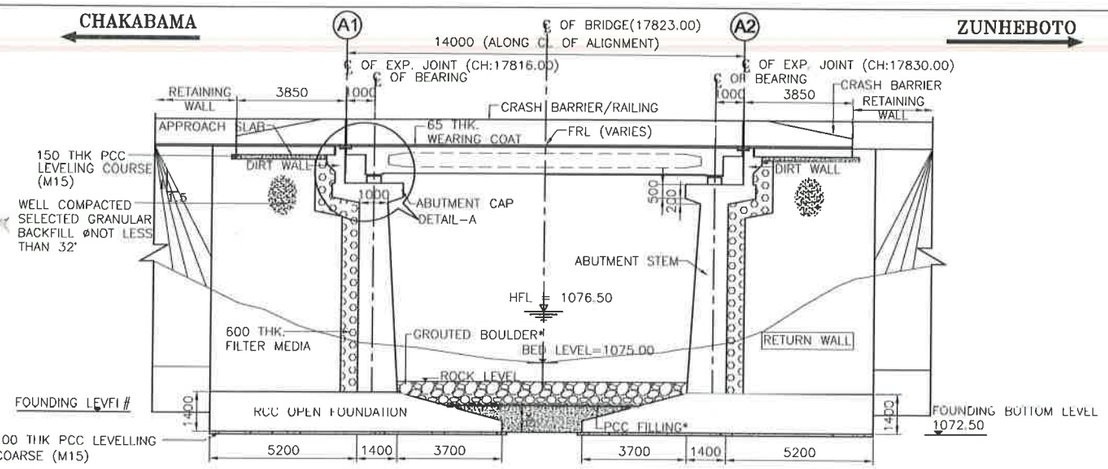
GENERAL ARRANGEMENT DRAWING FOR BRIDGE AT KM.17.472

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfulsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/BR/CZ/17472/01 | SCALE : AS SHOWN | SHEET : | Page No.



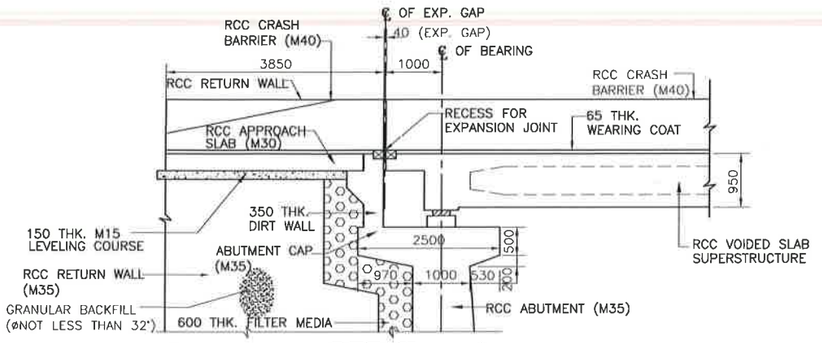
#REFER NOTE NO. 22

*REFER NOTE NO. 18

FINISHED ROAD LEVEL(M)	1082.235	1082.655	1083.075
HORIZONTAL	R=-40.0m		
	L=136.9m		
SUPER ELEVATION	5.00%		
	-5.00%		
CHAINAGE (M)	17816.00	17823.00	17830.00

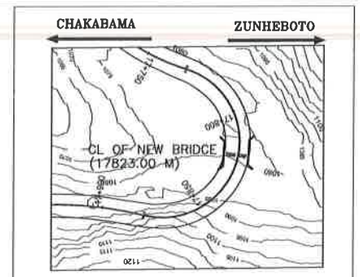
SECTIONAL ELEVATION

(SCALE 1:150)



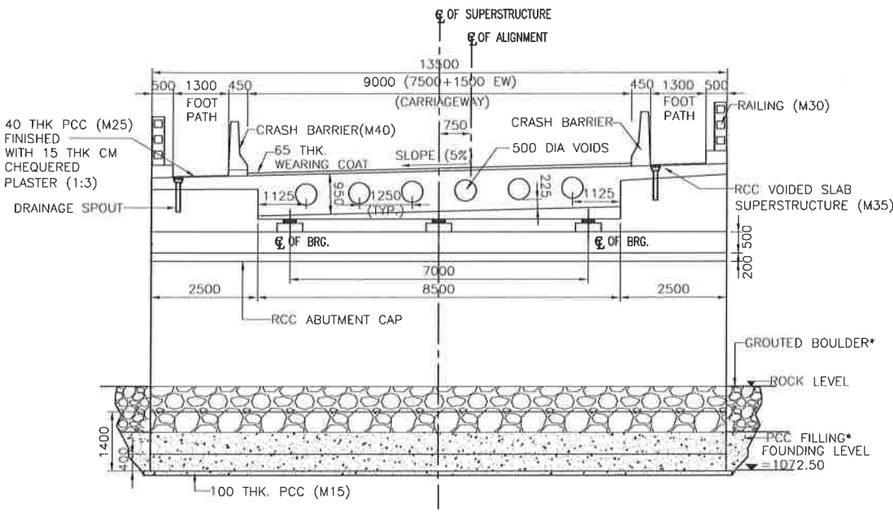
DETAIL - A

(SCALE 1:75)



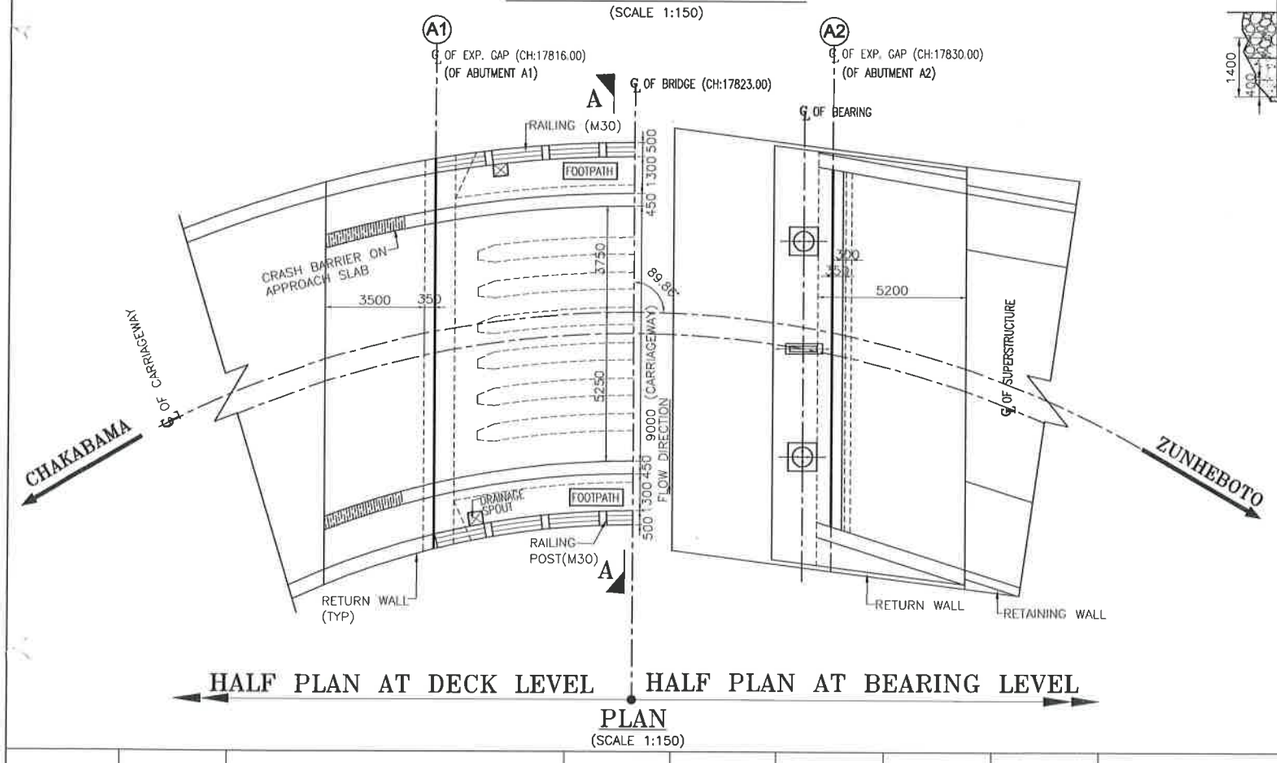
KEYPLAN

(SCALE 1:2000)



SECTION A-A

(SCALE 1:100)



PLAN

(SCALE 1:150)

LEGEND:

FRL	FINISHED ROAD LEVEL
HFL	HIGHEST FLOOD LEVEL
EXP.	EXPANSION
RCC	REINFORCED CEMENT CONCRETE
GL	GROUND LEVEL
PCC	PLAIN CEMENT CONCRETE
CM	CEMENT MORTAR
EW	EXTRA WIDENING
RT	RIGHT

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055-30/DPR/BR/GN/01	GENERAL NOTES
RITES/HW/MORT&H/4055-30/DPR/BR/CZ/17823/02	DIMENSIONS DETAILS OF ABUTMENT
RITES/HW/MORT&H/4055-30/DPR/BR/CZ/17823/04	DIMENSIONS DETAILS OF SUPERSTRUCTURE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND THE LEVELS AND CHAINAGES ARE IN METRES UNLESS OTHERWISE INDICATED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONCRETE FOR VARIOUS STRUCTURES SHALL BE AS FOLLOWS:
   - i) APPROACH SLAB----------M30
   - ii) R.C.C VOIDED SLAB SUPERSTRUCTURE---------M35
   - iii) RCC CRASH BARRIER ----------M40
   - iv) RCC SUBSTRUCTURE AND OPEN FOUNDATION----M35
   - v) RCC HANDRAIL----------M30
4. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD & BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATION AND AS DIRECTED/APPROVED BY THE ENGINEER.
5. THE BRIDGE HAS BEEN DESIGNED FOR 2 LANES OF CLASS A OR 1-LANE OF CLASS 70R, WHICHEVER PRODUCES THE WORST EFFECT.
6. THE REINFORCEMENT SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS: 1786 - 1985.
7. 65 THK. WEARING COAT COMPRISING OF 50MM THK. ASPHALTIC CONCRETE LAID IN TWO LAYERS OF 25MM EACH, OVER 15 MM THK. MASTIC ASPHALT SHALL BE USED AS PER SPECIFICATION.
8. SAFE BEARING CAPACITY (SBC) OF SOIL/ROCK BELOW FOUNDATION HAS BEEN CONSIDERED AS 30T/SqM, WHICH SHALL BE CONFIRMED BEFORE CONSTRUCTION. IF SBC IS FOUND LESS, THE MATTER SHALL BE REPORTED TO THE ENGINEER.
9. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
10. THE SELECTED BACKFILL MATERIALS BEHIND ABUTMENT/RETURN WALL/RETAINING WALL SHALL CONFORM TO APPENDIX-6 OF IRC:78-2014. ANGLE OF REPOSE OF BACKFILL MATERIALS SHALL NOT BE LESS THAN 32°.
11. THE BACKFILL MATERIALS MAY BE FILLED FOR PORTION AS INDICATED IN APPENDIX-6 OF IRC:78-2014. THE WORKS SHALL CONFORM TO SECTION 305.2 OF MORT&H SPECIFICATION.
12. FOR DETAILS OF VERTICAL AND HORIZONTAL PROFILE REFER ROAD DRAWING (PLAN & PROFILE) OF RESPECTIVE CHAINAGE.
13. DURING CONSTRUCTION OF THE BRIDGE EXISTING ROAD TRAFFIC SHALL BE DIVERTED SUITABLY IN CONSULTATION WITH THE ROAD AUTHORITY.
14. LOCATION, FRL, CAMBER, BED LEVELS, FOUNDATION LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION, IF ANY VARIATION IS FOUND, IT SHALL BE REPORTED TO THE ENGINEER.
15. FOR FOUNDATION RESTING ON ROCK, ALL SEAMS & CRACKS ON ROCK SURFACE SHALL BE GROUTED WITH CEMENT/MORTAR AS PER MORT&H SPECIFICATION.
16. WEEP HOLES IN SLOPE 1:20, 100 DIA. PVC PIPE AT SPACING 1000 MM C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER ABOVE GROUND LEVEL OR LWL, WHICHEVER IS HIGHER.
17. THE TOP OF ABUTMENT/PIER CAP HAS BEEN CALCULATED ASSUMING THE THICKNESS OF THE PEDESTAL AND BEARING AS 800mm. THE SAME MUST BE VERIFIED BEFORE CASTING OF ABUTMENT/PIER CAP.
18. THE ANNULAR SPACE AROUND FOUNDATION SHALL BE FILLED WITH PCC (M15)/ BOULDER GROUTED WITH CEMENT MORTAR (1:3) AS PER SECTION 304.3.4 OF MORT&H SPECIFICATION.
19. THE BEARING SHALL BE POT CUM PTFE TYPE CONFORMING TO IRC:83 (PART III) - 2002.
20. THE EXPANSION JOINT SHALL BE STRIP SEAL TYPE CONFORMING TO IRC:SP:69-2011.
21. SEISMIC RESTRAINERS WITH SUITABLY DESIGNED REACTION BLOCKS SHALL BE PROVIDED ON ABUTMENT/PIER CAP.
22. SUITABLE LONG RETAINING WALL SHALL BE PROVIDED AT APPROACHES OF BRIDGES TO RETAIN/PROTECT THE EMBANKMENT. THE FOUNDATION OF RETAINING WALL; BELOW NATURAL GROUND, SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS. GABBION WALL TYPE RETAINING WALL MAY ONLY BE USED IN PORTION AWAY FROM WATER COURSE.

R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	R. Gautam	R. Gautam	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

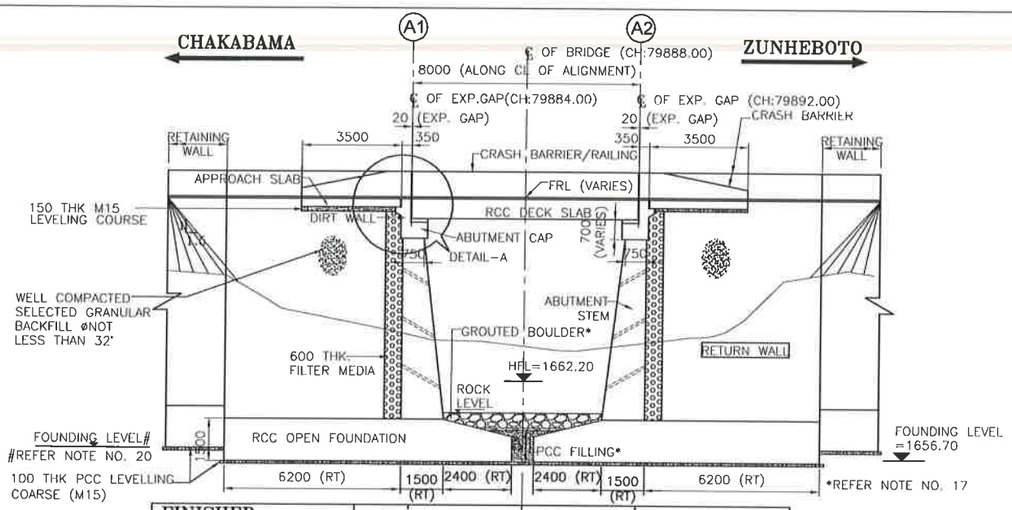
GENERAL ARRANGEMENT DRAWING FOR BRIDGE AT KM.17.823

Client: Ministry of Road Transport & Highways (Government of India)

Consultant: RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project: Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

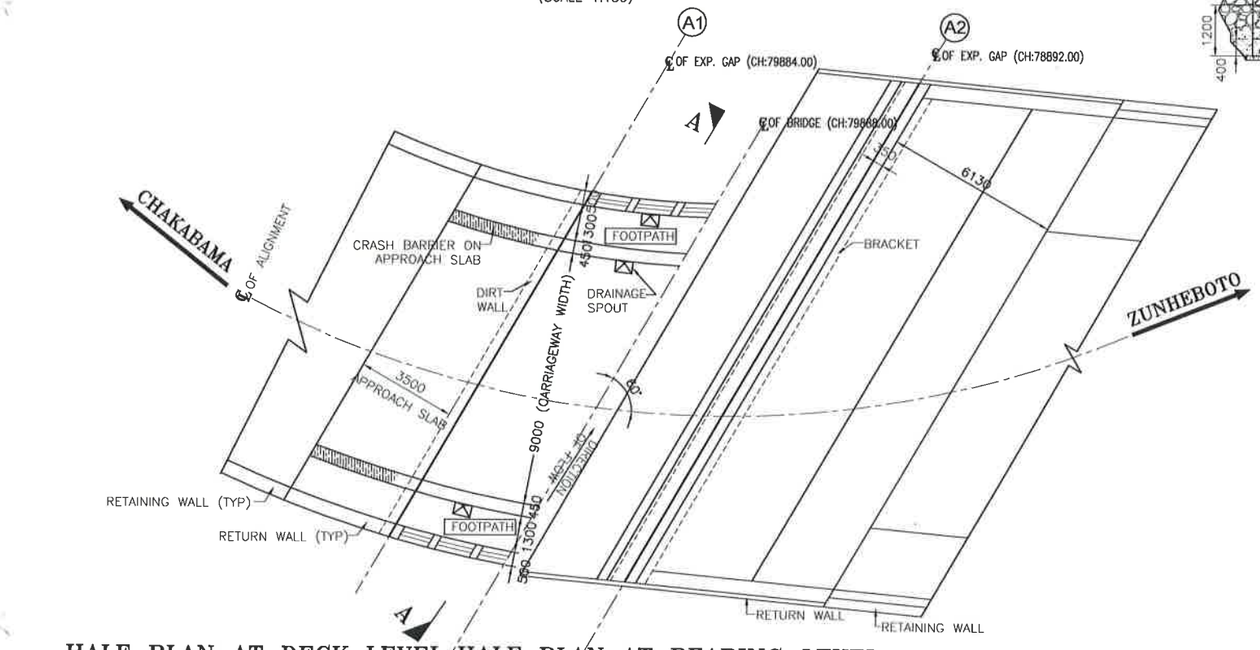
Drg. No: RITES/HW/MORT&H/4055-30/DPR/BR/CZ/17823/01 | SCALE: AS SHOWN | SHEET: | Page No.



FINISHED ROAD LEVEL(M)	1669.261	1669.141	1669.021
HORIZONTAL ALIGNMENT	R=-36.0m (LEFT HAND CURVE)		
	L=95.8m		
VERTICAL ALIGNMENT (+)(-)	G=-3.0		
	L=515.0m		
SUPER ELEVATION (%) (+)(-)	RIGHT EDGE OF CARRIAGEWAY 5.00%		
	CL OF ALIGNMENT		
	LEFT EDGE OF CARRIAGEWAY -5.00%		
CHAINAGE (M)	79884.00	79888.00	79892.00

SECTIONAL ELEVATION

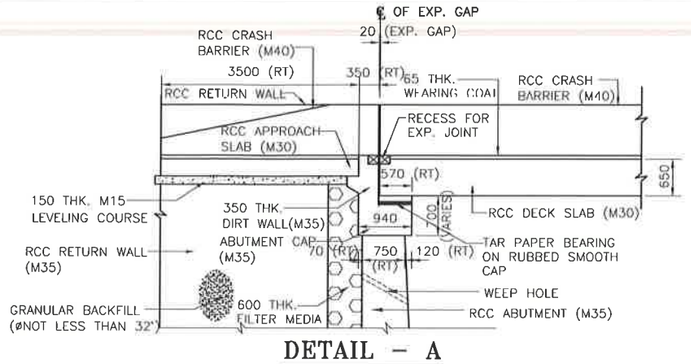
(SCALE 1:150)



HALF PLAN AT DECK LEVEL HALF PLAN AT BEARING LEVEL

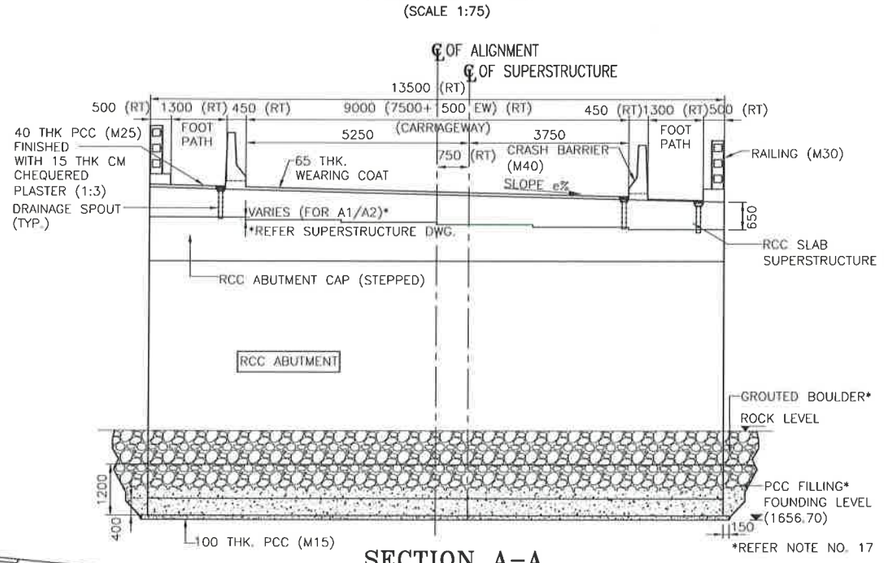
PLAN

(SCALE 1:150)



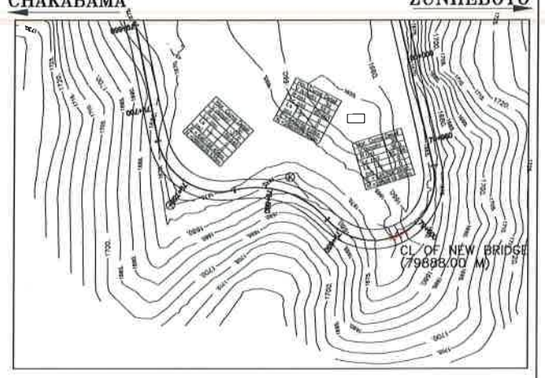
DETAIL - A

(SCALE 1:75)



SECTION A-A

(SCALE 1:100)



KEYPLAN

(SCALE 1:2500)

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055-30/DPR/BR/GN/01	GENERAL NOTES
RITES/HW/MORT&H/4055-30/DPR/BR/CZ/79888/02	DIMENSIONS DETAILS OF ABUTMENT
RITES/HW/MORT&H/4055-30/DPR/BR/CZ/79888/04	DIMENSIONS DETAILS OF SUPERSTRUCTURE
RITES/HW/MORT&H/4055-30/DPR/STD/02	DETAILS OF DRAINAGE SPOUT
RITES/HW/MORT&H/4055-30/DPR/STD/03	DETAILS OF EXPANSION JOINT
RITES/HW/MORT&H/4055-30/DPR/STD/04	DETAILS OF RCC HAND RAIL
RITES/HW/MORT&H/4055-30/DPR/STD/05	DETAILS OF CRASH BARRIER

LEGEND:

FRL ---------- FINISHED ROAD LEVEL
HFL ---------- HIGHEST FLOOD LEVEL
EXP. ---------- EXPANSION
RCC ---------- REINFORCED CEMENT CONCRETE
GL ---------- GROUND LEVEL
PCC ---------- PLAIN CEMENT CONCRETE
CM ---------- CEMENT MORTAR
EW ---------- EXTRA WIDENING
RT ---------- RIGHT
CL ---------- CENTER LINE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND THE LEVELS AND CHAINAGES ARE IN METRES UNLESS OTHERWISE INDICATED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONCRETE FOR VARIOUS STRUCTURES SHALL BE AS FOLLOWS:
   i) APPROACH SLAB----------M30
   ii) R.C.C SLAB SUPERSTRUCTURE----------M30
   iii) RCC CRASH BARRIER ----------M40
   iv) RCC SUBSTRUCTURE AND OPEN FOUNDATION----M35
   v) RCC HANDRAIL----------M30
4. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD & BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATION AND AS DIRECTED/APPROVED BY THE ENGINEER.
5. THE BRIDGE HAS BEEN DESIGNED FOR 2 LANES OF CLASS A OR 1-LANE OF CLASS 70R, WHICHEVER PRODUCES THE WORST EFFECT.
6. THE REINFORCEMENT SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS: 1786 - 2008.
7. 65 THK. WEARING COAT COMPRISING OF 50MM THK. ASPHALTIC CONCRETE LAID IN TWO LAYERS OF 25MM EACH, OVER 15 MM THK. MASTIC ASPHALT SHALL BE USED AS PER SPECIFICATION.
8. SAFE BEARING CAPACITY (SBC) OF SOIL/ROCK BELOW FOUNDATION HAS BEEN CONSIDERED AS 30T/SqM, WHICH SHALL BE CONFIRMED BEFORE CONSTRUCTION. IF SBC IS FOUND LESS, THE MATTER SHALL BE REPORTED TO THE ENGINEER.
9. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
10. THE SELECTED BACKFILL MATERIALS BEHIND ABUTMENT/RETURN WALL/RETAINING WALL SHALL CONFORM TO APPENDIX-6 OF IRC:78-2014. ANGLE OF REPOSE OF BACKFILL MATERIALS SHALL NOT BE LESS THAN 32°.
11. THE BACKFILL MATERIALS MAY BE FILLED FOR PORTION AS INDICATED IN APPENDIX-6 OF IRC:78-2014. THE WORKS SHALL CONFORM TO SECTION 305.2 OF MORT&H SPECIFICATION.
12. FOR DETAILS OF VERTICAL AND HORIZONTAL ALIGNMENT, CAMBER/SUPERELEVATION AND EXTRA WIDENING REFER ROAD DRAWING (PLAN & PROFILE) OF RESPECTIVE CHAINAGE.
13. DURING CONSTRUCTION OF THE BRIDGE EXISTING ROAD TRAFFIC SHALL BE DIVERTED SUITABLY IN CONSULTATION WITH THE ROAD AUTHORITY.
14. LOCATION, FRL, CAMBER, BED LEVELS, FOUNDATION LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION, IF ANY VARIATION IS FOUND, IT SHALL BE REPORTED TO THE ENGINEER.
15. FOR FOUNDATION RESTING ON ROCK, ALL SEAMS & CRACKS ON ROCK SURFACE SHALL BE GROUTED WITH CEMENT/MORTAR AS PER MORT&H SPECIFICATION.
16. WEEP HOLES IN SLOPE 1:20, 100 DIA. PVC PIPE AT SPACING 1000 MM C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER ABOVE GROUND LEVEL OR LWL, WHICHEVER IS HIGHER.
17. THE ANNULAR SPACE AROUND FOUNDATION SHALL BE FILLED WITH PCC (M15)/ BOULDER GROUTED WITH CEMENT MORTAR (1:3) AS PER SECTION 304.3.4 OF MORT&H SPECIFICATION.
18. BEARING FOR SUPERSTRUCTURE SHALL BE TAR PAPER TYPE COMPRISING REINFORCED BITUMEN LAMINATED KRAFT PAPER, CONFORMING TO IS:1398-1982.
19. THE EXPANSION JOINT SHALL BE FILLER TYPE CONFORMING TO IRC:SP:69-2011.
20. SUITABLE LONG RETAINING WALL SHALL BE PROVIDED AT APPROACHES OF BRIDGES TO RETAIN/PROTECT THE EMBANKMENT. THE FOUNDATION OF RETAINING WALL; BELOW NATURAL GROUND, SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS. GABBION WALL TYPE RETAINING WALL MAY ONLY BE USED IN PORTION AWAY FROM WATER COURSE.

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	R. Gautam	R. Gautam	S.K.B	Tapas Mukherjee

GENERAL ARRANGEMENT DRAWING
(FOR BRIDGE AT KM.79.888 ON CZ ROAD)

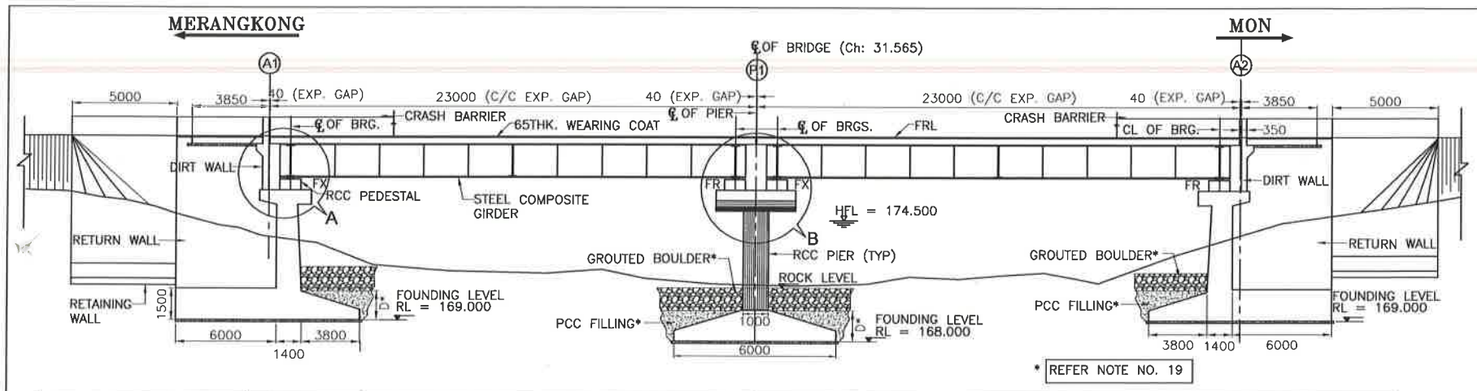
Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

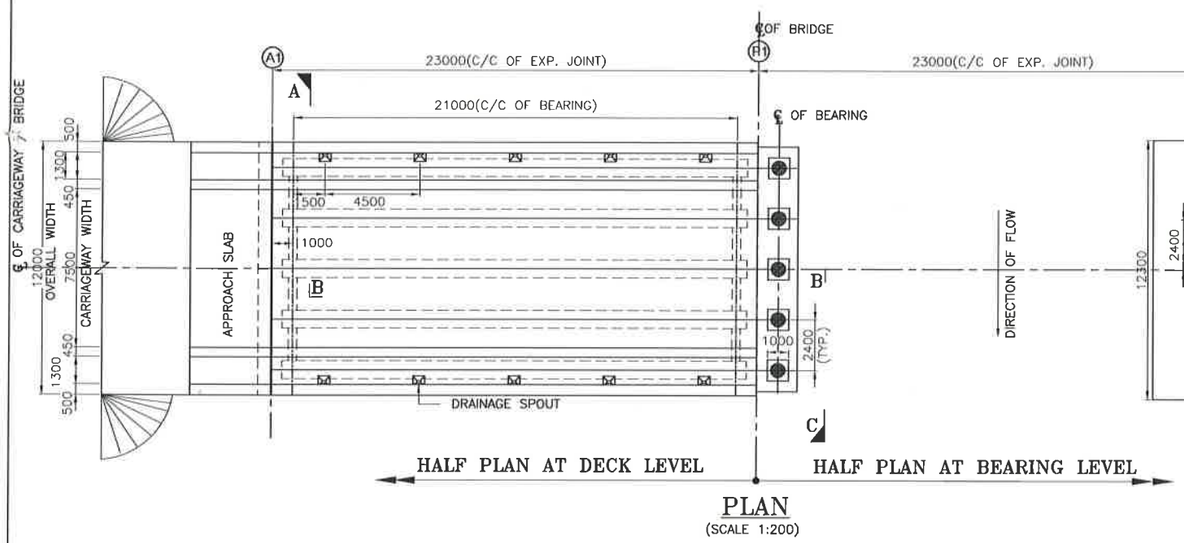
Drg. No : RITES/HW/MORT&H/4055-30/DPR/BR/CZ/79888/01 | SCALE : AS SHOWN | SHEET : | Page No.

MON-MERANGKONG ROAD

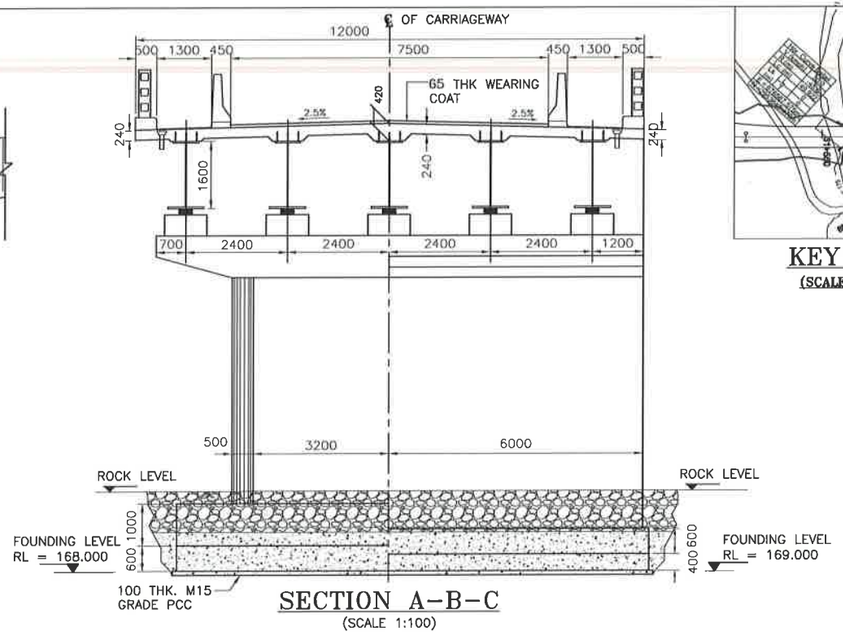


FINISHED ROAD LEVEL(M)	177.878 — 177.747 — 177.632
HORIZONTAL ALIGNMENT	
SUPERELEVATION	−2.5%
CHAINAGE (M)	31542.000 — 31565.000 — 31588.000

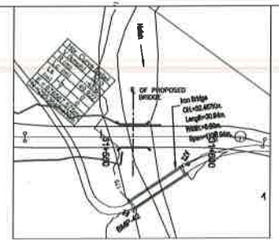
SECTIONAL ELEVATION
(SCALE 1:200)



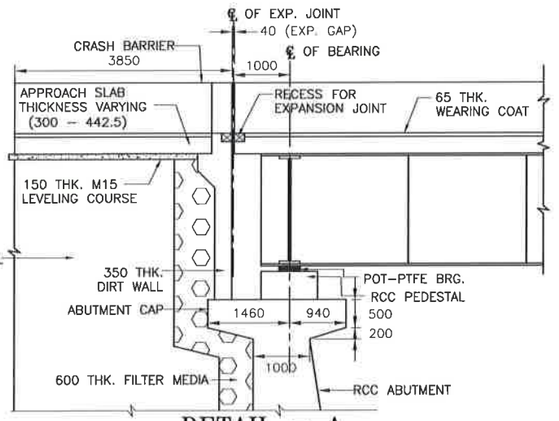
PLAN
(SCALE 1:200)



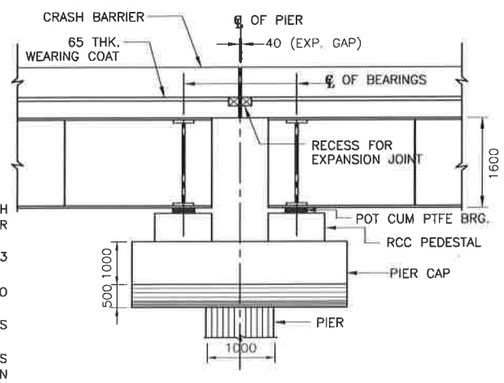
SECTION A–B–C
(SCALE 1:100)



KEY PLAN
(SCALE 1: 2000)



DETAIL – A
(SCALE 1:75)



DETAIL–B
(SCALE 1:75)

LEGEND:

FRL ----	FINISHED ROAD LEVEL
HFL ----	HIGHEST FLOOD LEVEL
EXP. ----	EXPANSION
RCC ----	REINFORCED CEMENT CONCRETE
PCC ----	PLAIN CEMENT CONCRETE

REFERENCE:

1) RITES/HW/MORT&H/4055–30/DPR/BR/GN/01
2) RITES/HW/MORT&H/4055–30/DPR/BR/MTM/31565/02
3) RITES/HW/MORT&H/4055–30/DPR/BR/MTM/31565/03
4) RITES/HW/MORT&H/4055–30/DPR/BR/MTM/31565/04
5) RITES/HW/MORT&H/4055–30/DPR/BR/MTM/31565/__
6) RITES/HW/MORT&H/4055–30/DPR/BR/MTM/31565/07

GENERAL NOTES
DIMENSION DETAILS OF ABUTMENT AND ABUTMENT FOUNDATION
REINFORCEMENT DETAILS OF ABUTMENT AND ABUTMENT FOUNDATION
DIMENSION DETAILS OF PIER
REINFORCEMENT DETAILS OF PIER
DETAILS OF PEDESTAL & SEISMIC RESTRAINER

NOTES:

19. THE ANNULAR SPACE AROUND FOUNDATION SHALL BE FILLED WITH PCC (M15)/ BOULDER GROUTED WITH CEMENT MORTAR (1:3) AS PER SECTION 304.3.4 OF MORT&H SPECIFICATION.
20. THE BEARING SHALL BE POT CUM PTFE TYPE CONFORMING TO IRC:83 (PART III) – 2002.
21. THE EXPANSION JOINT SHALL BE STRIP SEAL TYPE CONFORMING TO IRC:SP:69–2011.
22. SEISMIC RESTRAINERS WITH SUITABLY DESIGNED REACTION BLOCKS SHALL BE PROVIDED ON ABUTMENT/PIER CAP.
23. SUITABLE LONG RETAINING WALL SHALL BE PROVIDED AT APPROACHES OF BRIDGES TO RETAIN/PROTECT THE EMBANKMENT. THE FOUNDATION OF RETAINING WALL; BELOW NATURAL GROUND, SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS. GABION WALL TYPE RETAINING WALL MAY ONLY BE USED IN PORTION AWAY FROM WATER COURSE.

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRE AND THE LEVELS ARE IN METRE UNLESS OTHERWISE INDICATED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONCRETE FOR VARIOUS STRUCTURES SHALL BE AS FOLLOWS:
   - i) APPROACH SLAB----------M30
   - ii) R.C.C DECK SLAB ----------M35
   - iii) RCC CRASH BARIER ----------M40
   - iv) RCC SUBSTRUCTURE AND OPEN FOUNDATION---M35
   - iv) RCC HANDRAIL ----------M30
4. STRUCTURAL STEEL SHALL CONFORM TO GRADE E250 OF B0 QUALITY CONFORMING TO IS:2062–2011 UNLESS OTHERWISE SPECIFIED.
5. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD & BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATION AND AS DIRECTED/APPROVED BY THE ENGINEER.
6. THE BRIDGE HAS BEEN DESIGNED FOR 2 LANES OF CLASS A OR 1–LANE OF CLASS 70R WHICHEVER PRODUCES THE WORST EFFECT.
7. THE REINFORCEMENT SHALL BE OF HIGH STRENGTH DEFORMED BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS 1786 : 2008.
8. 65 THK. WEARING COAT COMPRISING OF 50MM THK. ASPHALTIC CONCRETE LAID IN TWO LAYERS OF 25MM EACH, OVER 15 MM THK. MASTIC ASPHALT SHALL BE USED AS PER SPECIFICATION.
9. SAFE BEARING CAPACITY (SBC) OF SOIL/ROCK BELOW FOUNDATION HAS BEEN CONSIDERED AS 30T/SqM, WHICH SHALL BE CONFIRMED BEFORE CONSTRUCTION. IF SBC IS FOUND LESS, THE MATTER SHALL BE REPORTED TO THE ENGINEER.
10. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
11. THE SELECTED BACKFILL MATERIALS BEHIND ABUTMENT/RETURN WALL/RETAINING WALL SHALL CONFORM TO APPENDIX–6 OF IRC:78–2014. ANGLE OF REPOSE OF BACKFILL MATERIALS SHALL NOT BE LESS THAN 32°.
12. THE BACKFILL MATERIALS MAY BE FILLED FOR PORTION AS INDICATED IN APPENDIX–6 OF IRC:78–2014. THE WORKS SHALL CONFORM TO SECTION 305.2 OF MORT&H SPECIFICATION.
13. FOR DETAILS OF VERTICAL AND HORIZONTAL PROFILE REFER ROAD DRAWING (PLAN & PROFILE) OF RESPECTIVE CHAINAGE.
14. DURING CONSTRUCTION OF THE BRIDGE EXISTING ROAD TRAFFIC SHALL BE DIVERTED SUITABLY IN CONSULTATION WITH THE ROAD AUTHORITY.
15. LOCATION, FRL, CAMBER, BED LEVELS, FOUNDATION LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION, IF ANY VARIATION IS FOUND, IT SHALL BE REPORTED TO THE ENGINEER.
16. FOR FOUNDATION RESTING ON ROCK, ALL SEAMS AND CRACKS ON ROCK SURFACE SHALL BE GROUTED WITH CEMENT/MORTER AS PER MORT&H SPECIFICATION.
17. WEEP HOLES IN SLOPE 1:20, 100 DIA. PVC PIPE AT SPACING 1000 MM C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER ABOVE GROUND LEVEL OR LWL, WHICHEVER IS HIGHER.
18. THE TOP OF ABUTMENT/PIER CAP HAS BEEN CALCULATED ASSUMING THE THICKNESS OF THE PEDESTAL AND BEARING AS 800mm. THE SAME MUST BE VERIFIED BEFORE CASTING OF ABUTMENT/PIER CAP.

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEP 2016	Stage 4 (Final Detail Project Report)- Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	B.C.R.	B.C.R.	S.K.B.	T.M.

MINOR BRIDGE AT KM. 31.565

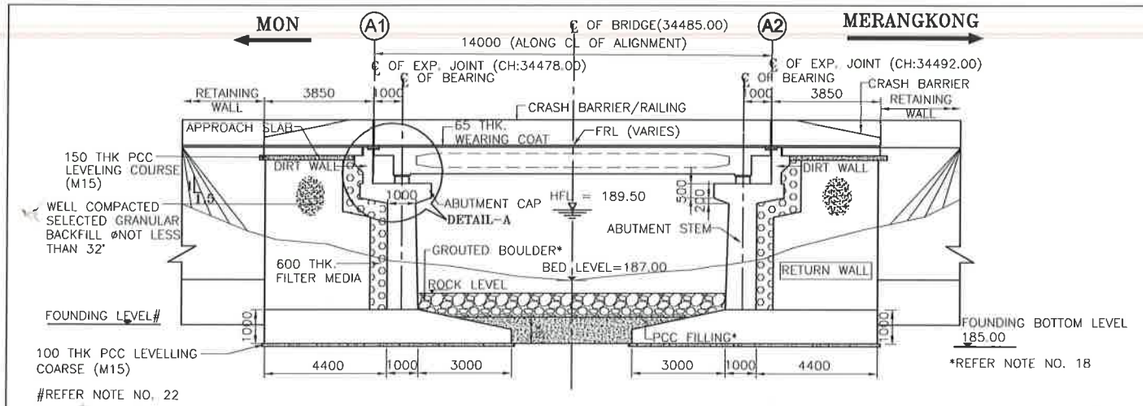
GENERAL ARRANGEMENT DRAWING

Client: Ministry of Road Transport & Highways (Government of India)

Consultant: RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project: Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

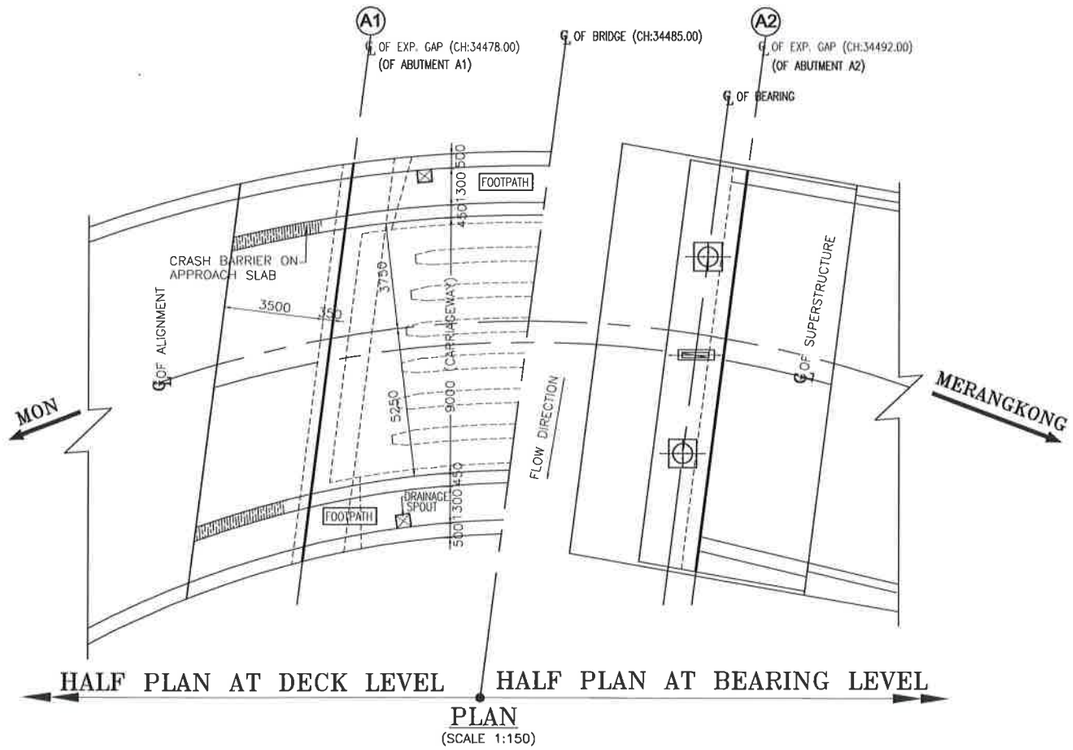
Drg. No: RITES/HW/MORT&H/4055-30/DPR/BR/MTM/31565/01 | SCALE : AS SHOWN | SHEET: | Page No.



FINISHED ROAD LEVEL(M)	191.743	194.813	194.883
HORIZONTAL	R=40.0m		
	L=71.8m		
SUPER ELEVATION	5.00%		
	-5.00%		
CHAINAGE (M)	34478.00	34485.00	34492.00

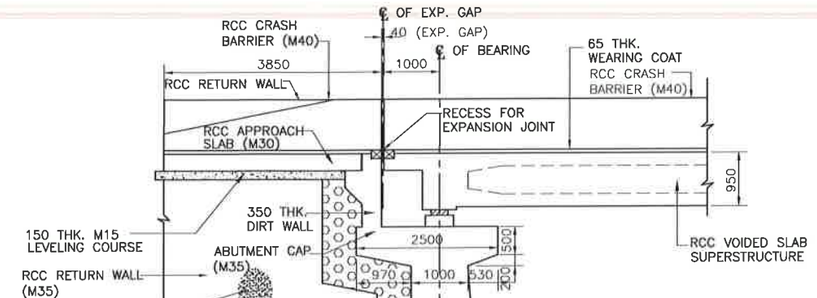
SECTIONAL ELEVATION

(SCALE 1:150)



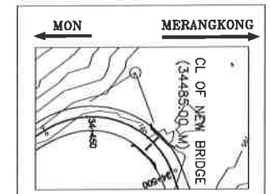
PLAN

(SCALE 1:150)



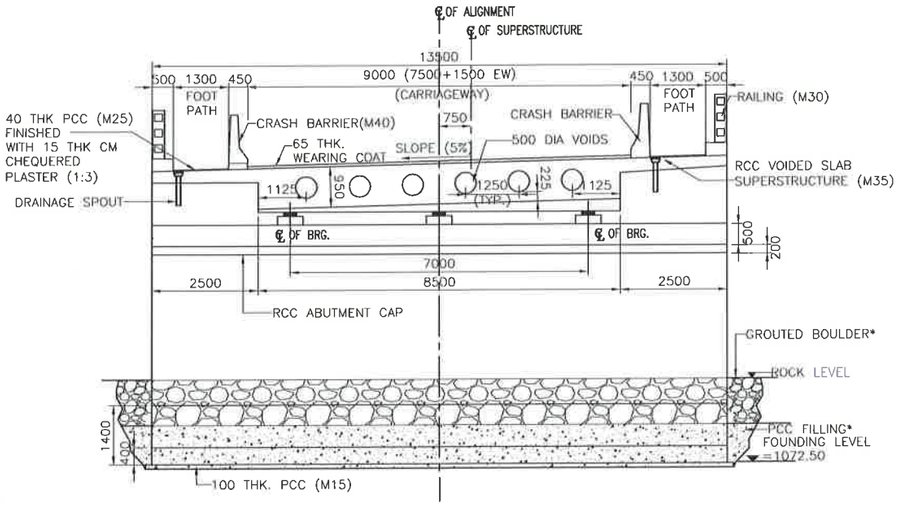
DETAIL – A

(SCALE 1:75)



KEYPLAN

(SCALE 1:2000)



SECTION A–A

(SCALE 1:100)

LEGEND:

FRL	FINISHED ROAD LEVEL
HFL	HIGHEST FLOOD LEVEL
EXP.	EXPANSION
RCC	REINFORCED CEMENT CONCRETE
GL	GROUND LEVEL
PCC	PLAIN CEMENT CONCRETE
CM	CEMENT MORTAR
EW	EXTRA WIDENING
RT	RIGHT

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055-30/DPR/BR/GN/01	GENERAL NOTES
RITES/HW/MORT&H/4055-30/DPR/BR/MTM/34485/02	DIMENSIONS DETAILS OF ABUTMENT
RITES/HW/MORT&H/4055-30/DPR/BR/MTM/34485/04	DIMENSIONS DETAILS OF SUPERSTRUCTURE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND THE LEVELS AND CHAINAGES ARE IN METRES UNLESS OTHERWISE INDICATED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONCRETE FOR VARIOUS STRUCTURES SHALL BE AS FOLLOWS:
   i) APPROACH SLAB----------M30
   ii) R.C.C VOIDED SLAB SUPERSTRUCTURE---------M35
   iii) RCC CRASH BARRIER ----------M40
   iv) RCC SUBSTRUCTURE AND OPEN FOUNDATION----M35
   v) RCC HANDRAIL----------M30
4. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD & BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATION AND AS DIRECTED/APPROVED BY THE ENGINEER.
5. THE BRIDGE HAS BEEN DESIGNED FOR 2 LANES OF CLASS A OR 1-LANE OF CLASS 70R, WHICHEVER PRODUCES THE WORST EFFECT.
6. THE REINFORCEMENT SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS: 1786 – 1985.
7. 65 THK. WEARING COAT COMPRISING OF 50MM THK. ASPHALTIC CONCRETE LAID IN TWO LAYERS OF 25MM EACH, OVER 15 MM THK. MASTIC ASPHALT SHALL BE USED AS PER SPECIFICATION.
8. SAFE BEARING CAPACITY (SBC) OF SOIL/ROCK BELOW FOUNDATION HAS BEEN CONSIDERED AS 30T/SqM, WHICH SHALL BE CONFIRMED BEFORE CONSTRUCTION. IF SBC IS FOUND LESS, THE MATTER SHALL BE REPORTED TO THE ENGINEER.
9. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
10. THE SELECTED BACKFILL MATERIALS BEHIND ABUTMENT/RETURN WALL/RETAINING WALL SHALL CONFORM TO APPENDIX-6 OF IRC:78-2014. ANGLE OF REPOSE OF BACKFILL MATERIALS SHALL NOT BE LESS THAN 32°.
11. THE BACKFILL MATERIALS MAY BE FILLED FOR PORTION AS INDICATED IN APPENDIX-6 OF IRC:78-2014. THE WORKS SHALL CONFORM TO SECTION 305.2 OF MORT&H SPECIFICATION.
12. FOR DETAILS OF VERTICAL AND HORIZONTAL PROFILE REFER ROAD DRAWING (PLAN & PROFILE) OF RESPECTIVE CHAINAGE.
13. DURING CONSTRUCTION OF THE BRIDGE EXISTING ROAD TRAFFIC SHALL BE DIVERTED SUITABLY IN CONSULTATION WITH THE ROAD AUTHORITY.
14. LOCATION, FRL, CAMBER, BED LEVELS, FOUNDATION LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION, IF ANY VARIATION IS FOUND, IT SHALL BE REPORTED TO THE ENGINEER.
15. FOR FOUNDATION RESTING ON ROCK, ALL SEAMS & CRACKS ON ROCK SURFACE SHALL BE GROUTED WITH CEMENT/MORTAR AS PER MORT&H SPECIFICATION.
16. WEEP HOLES IN SLOPE 1:20, 100 DIA. PVC PIPE AT SPACING 1000 MM C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER ABOVE GROUND LEVEL OR LWL, WHICHEVER IS HIGHER.
17. THE TOP OF ABUTMENT/PIER CAP HAS BEEN CALCULATED ASSUMING THE THICKNESS OF THE PEDESTAL AND BEARING AS 800mm. THE SAME MUST BE VERIFIED BEFORE CASTING OF ABUTMENT/PIER CAP.
18. THE ANNULAR SPACE AROUND FOUNDATION SHALL BE FILLED WITH PCC (M15)/ BOULDER GROUTED WITH CEMENT MORTAR (1:3) AS PER SECTION 304.3.4 OF MORT&H SPECIFICATION.
19. THE BEARING SHALL BE POT CUM PTFE TYPE CONFORMING TO IRC:83 (PART III) – 2002.
20. THE EXPANSION JOINT SHALL BE STRIP SEAL TYPE CONFORMING TO IRC:SP:69-2011.
21. SEISMIC RESTRAINERS WITH SUITABLY DESIGNED REACTION BLOCKS SHALL BE PROVIDED ON ABUTMENT/PIER CAP.
22. SUITABLE LONG RETAINING WALL SHALL BE PROVIDED AT APPROACHES OF BRIDGES TO RETAIN/PROTECT THE EMBANKMENT. THE FOUNDATION OF RETAINING WALL; BELOW NATURAL GROUND, SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS. GABBION WALL TYPE RETAINING WALL MAY ONLY BE USED IN PORTION AWAY FROM WATER COURSE.

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	R. Gautam	R. Gautam	S.K.B	Tapas Mukherjee

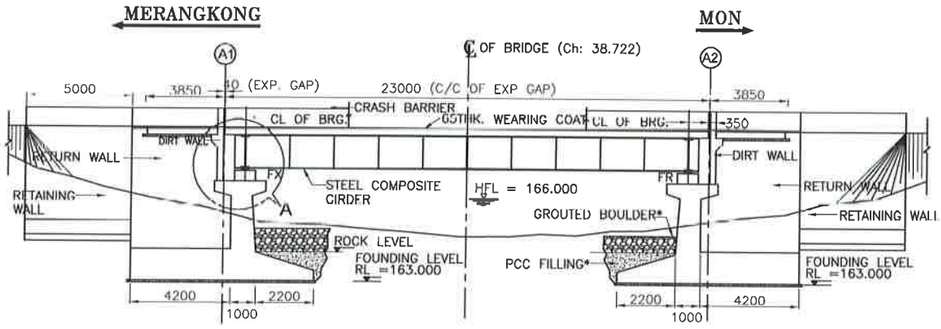
GENERAL ARRANGEMENT DRAWING FOR BRIDGE AT KM.34.485

Client: Ministry of Road Transport & Highways (Government of India)

Consultant: RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project: Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

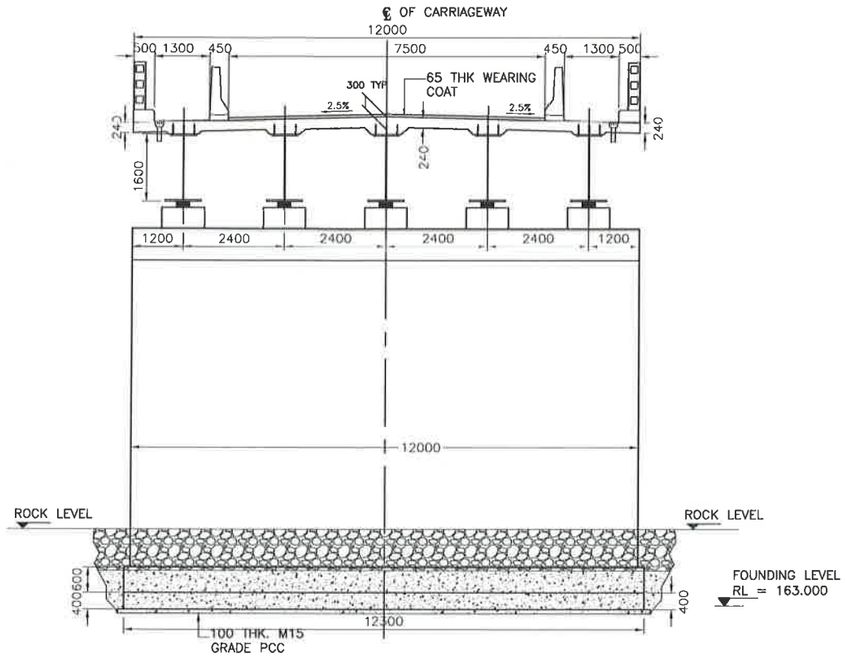
Drg. No : RITES/HW/MORT&H/4055-30/DPR/BR/MTM/34485/01 | SCALE : AS SHOWN | SHEET: | Page No.



SECTIONAL ELEVATION ALONG CENTER LINE OF BRIDGE

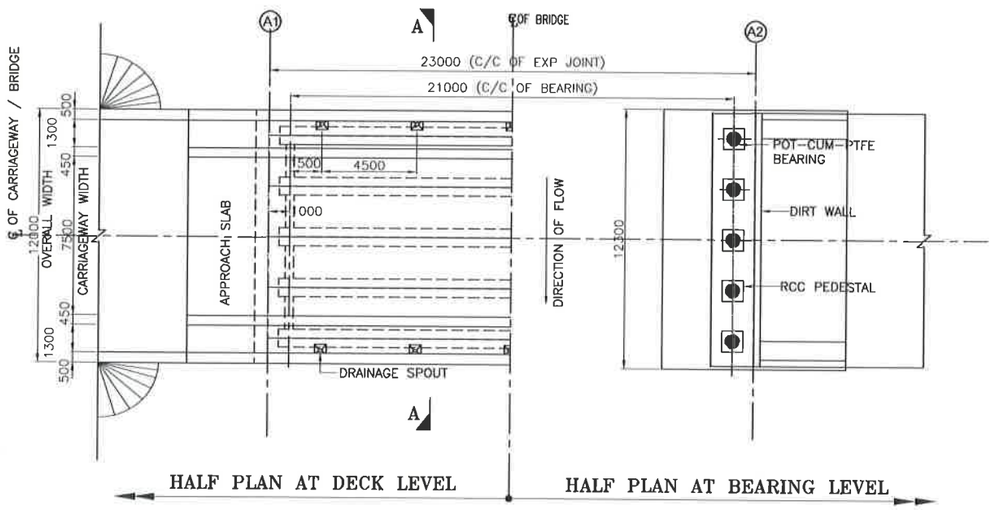
(SCALE 1:200)

FINISHED ROAD LEVEL(M)	168.618	168.532	168.573
HORIZONTAL ALIGNMENT(M)			
SUPERELEVATION		-2.5%	
CHAINAGE (M)	38710.50	38722.00	38733.50



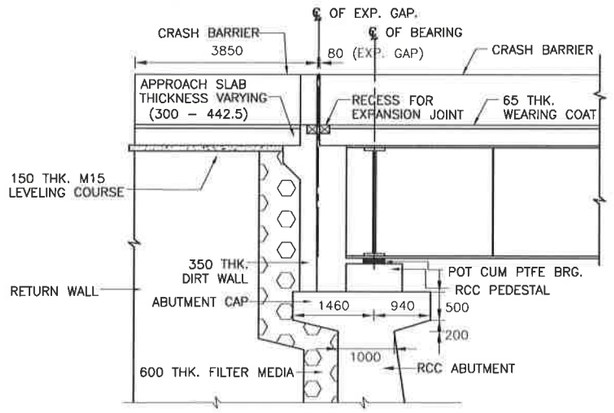
SECTION A–A

(SCALE 1:100)



PLAN

(SCALE 1:200)

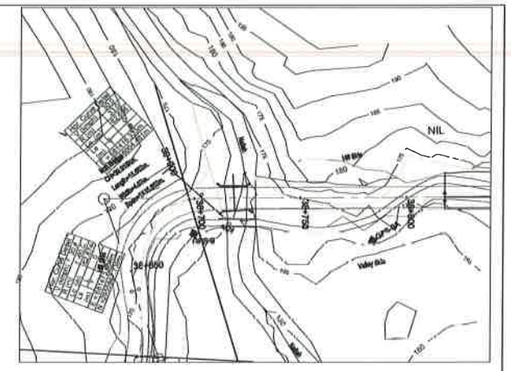


DETAIL–A

(SCALE 1:75)

REFERENCE:

1) RITES/HW/MORT&H/4055–30/DPR/BR/GN/01 — GENERAL NOTES
2) RITES/HW/MORT&H/4055–30/DPR/BR/MTM/38722/02 — DIMENSION DETAILS OF ABUTMENT AND ABUTMENT FOUNDATION
3) RITES/HW/MORT&H/4055–30/DPR/BR/MTM/38722/03 — REINFORCEMENT DETAILS OF ABUTMENT AND ABUTMENT FOUNDATION
4) RITES/HW/MORT&H/4055–30/DPR/BR/MTM/38722/07 — DETAILS OF PEDESTAL & SEISMIC RESTRAINER



KEY PLAN

(SCALE 1: 2000)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRE AND THE LEVELS ARE IN METRE UNLESS OTHERWISE INDICATED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONCRETE FOR VARIOUS STRUCTURES SHALL BE AS FOLLOWS:
   - i) APPROACH SLAB----------M30
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   - iii) RCC CRASH BARIER ----------M40
   - iv) RCC SUBSTRUCTURE AND OPEN FOUNDATION---M35
   - iv) RCC HANDRAIL ----------M30
4. STRUCTURAL STEEL SHALL CONFORM TO GRADE E250 OF BO QUALITY CONFORMING TO IS:2062–2011 UNLESS OTHERWISE SPECIFIED.
5. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD & BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATION AND AS DIRECTED/APPROVED BY THE ENGINEER.
6. THE BRIDGE HAS BEEN DESIGNED FOR 2 LANES OF CLASS A OR 1–LANE OF CLASS 70R WHICHEVER PRODUCES THE WORST EFFECT.
7. THE REINFORCEMENT SHALL BE OF HIGH STRENGTH DEFORMED BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS 1786 : 2008.
8. 65 THK. WEARING COAT COMPRISING OF 50MM THK. ASPHALTIC CONCRETE LAID IN TWO LAYERS OF 25MM EACH, OVER 15 MM THK. MASTIC ASPHALT SHALL BE USED AS PER SPECIFICATION.
9. SAFE BEARING CAPACITY (SBC) OF SOIL/ROCK BELOW FOUNDATION HAS BEEN CONSIDERED AS 30T/SqM, WHICH SHALL BE CONFIRMED BEFORE CONSTRUCTION. IF SBC IS FOUND LESS, THE MATTER SHALL BE REPORTED TO THE ENGINEER.
10. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
11. THE SELECTED BACKFILL MATERIALS BEHIND ABUTMENT/RETURN WALL/RETAINING WALL SHALL CONFORM TO APPENDIX–6 OF IRC:78–2014. ANGLE OF REPOSE OF BACKFILL MATERIALS SHALL NOT BE LESS THAN 32°.
12. THE BACKFILL MATERIALS MAY BE FILLED FOR PORTION AS INDICATED IN APPENDIX–6 OF IRC:78–2014. THE WORKS SHALL CONFORM TO SECTION 305.2 OF MORT&H SPECIFICATION.
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14. DURING CONSTRUCTION OF THE BRIDGE EXISTING ROAD TRAFFIC SHALL BE DIVERTED SUITABLY IN CONSULTATION WITH THE ROAD AUTHORITY.
15. LOCATION, FRL, CAMBER, BED LEVELS, FOUNDATION LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION, IF ANY VARIATION IS FOUND, IT SHALL BE REPORTED TO THE ENGINEER.
16. FOR FOUNDATION RESTING ON ROCK, ALL SEAMS AND CRACKS ON ROCK SURFACE SHALL BE GROUTED WITH CEMENT/MORTER AS PER MORT&H SPECIFICATION.
17. WEEP HOLES IN SLOPE 1:20, 100 DIA. PVC PIPE AT SPACING 1000 MM C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER ABOVE GROUND LEVEL OR LWL, WHICHEVER IS HIGHER.
18. THE TOP OF ABUTMENT/PIER CAP HAS BEEN CALCULATED ASSUMING THE THICKNESS OF THE PEDESTAL AND BEARING AS 800mm. THE SAME MUST BE VERIFIED BEFORE CASTING OF ABUTMENT/PIER CAP.
19. THE ANNULAR SPACE AROUND FOUNDATION SHALL BE FILLED WITH PCC (M15)/ BOULDER GROUTED WITH CEMENT MORTAR (1:3) AS PER SECTION 304.3.4 OF MORT&H SPECIFICATION.
20. THE BEARING SHALL BE POT CUM PTFE TYPE CONFORMING TO IRC:83 (PART III) – 2002.
21. THE EXPANSION JOINT SHALL BE STRIP SEAL TYPE CONFORMING TO IRC:SP:69–2011.
22. SEISMIC RESTRAINERS WITH SUITABLY DESIGNED REACTION BLOCKS SHALL BE PROVIDED ON ABUTMENT/PIER CAP.
23. SUITABLE LONG RETAINING WALL SHALL BE PROVIDED AT APPROACHES OF BRIDGES TO RETAIN/PROTECT THE EMBANKMENT. THE FOUNDATION OF RETAINING WALL; BELOW NATURAL GROUND, SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS. GABION WALL TYPE RETAINING WALL MAY ONLY BE USED IN PORTION AWAY FROM WATER COURSE.

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	JULY 2016	Stage 4 (Final Detail Project Report)- Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	B.C.R.	B.C.R.	S.K.B.	T.M.

MINOR BRIDGE AT KM : 38.722

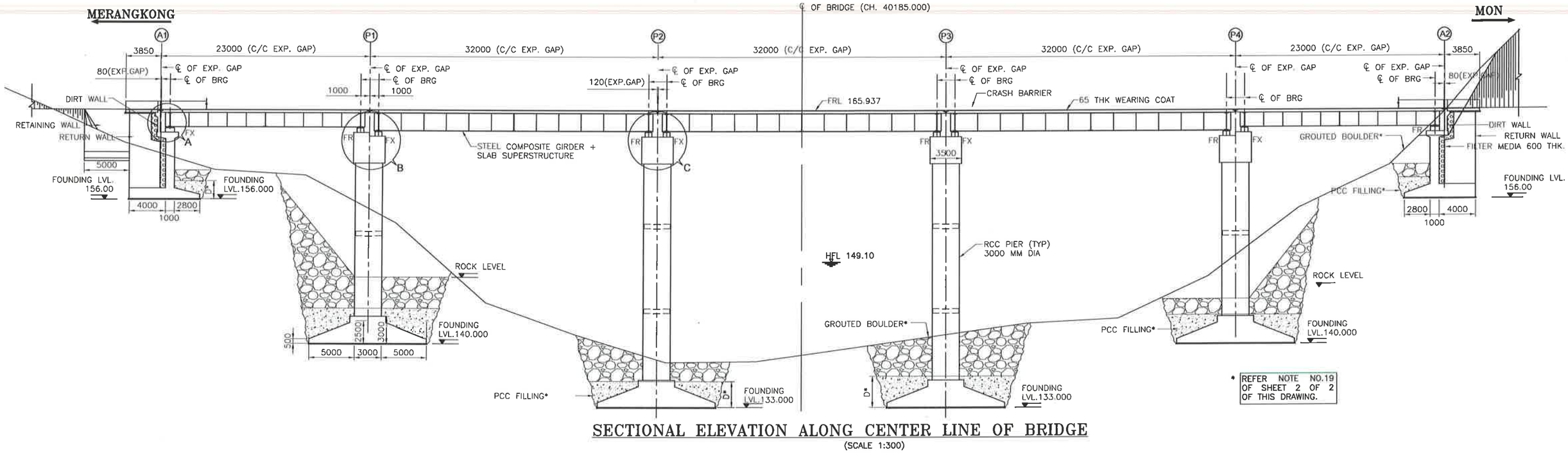
GENERAL ARRANGEMENT DRAWING

Client: Ministry of Road Transport & Highways (Government of India)

Consultant: RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project: Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

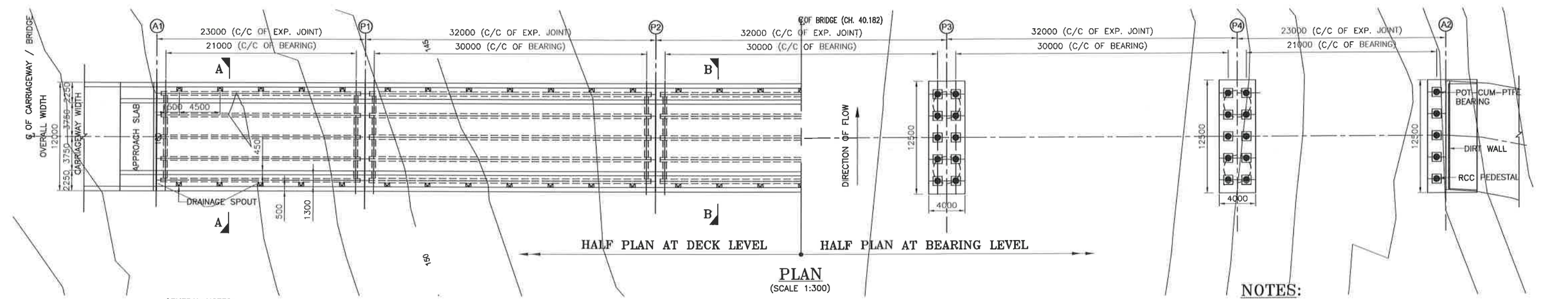
Drg. No : RITES/HW/MORT&H/4055-30/DPR/BR/MTM/38722/01 | SCALE : AS SHOWN | SHEET: | Page No.



SECTIONAL ELEVATION ALONG CENTER LINE OF BRIDGE

(SCALE 1:300)

FINISHED ROAD LEVEL(M)	165.937	165.937	165.937	165.937	165.937	165.937	165.937
GROUND LEVEL (M)	159.259	153.366	140.999	138.071	140.889	142.803	155.042	170.367
HORIZONTAL ALIGNMENT								R=33.0
SUPERELEVATION					−2.5%			
CHAINAGE (M)	40120.000	40140.000	40160.000	40180.000	40200.000	40220.000	40240.000	40260.000



PLAN

(SCALE 1:300)

REFERENCE DRAWINGS:

GENERAL NOTES

RITES/HW/MORT&H/4055-30/DPR/BR/GN/01

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRE AND THE LEVELS ARE IN METRE UNLESS OTHERWISE INDICATED.
2. FOR OTHER NOTES REFER SHEET 2 OF 2 OF THIS DRAWING.
3. FOR DETAIL A,B,C AND SECTION A–A, B–B REFER SHEET 2 OF 2 OF THIS DRAWING.

R0	JULY 2016	Stage 4 (Final Detail Project Report)- Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	B.C.R.	B.C.R.	S.K.B.	T.M.
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

MAJOR BRIDGE AT KM : 40.182

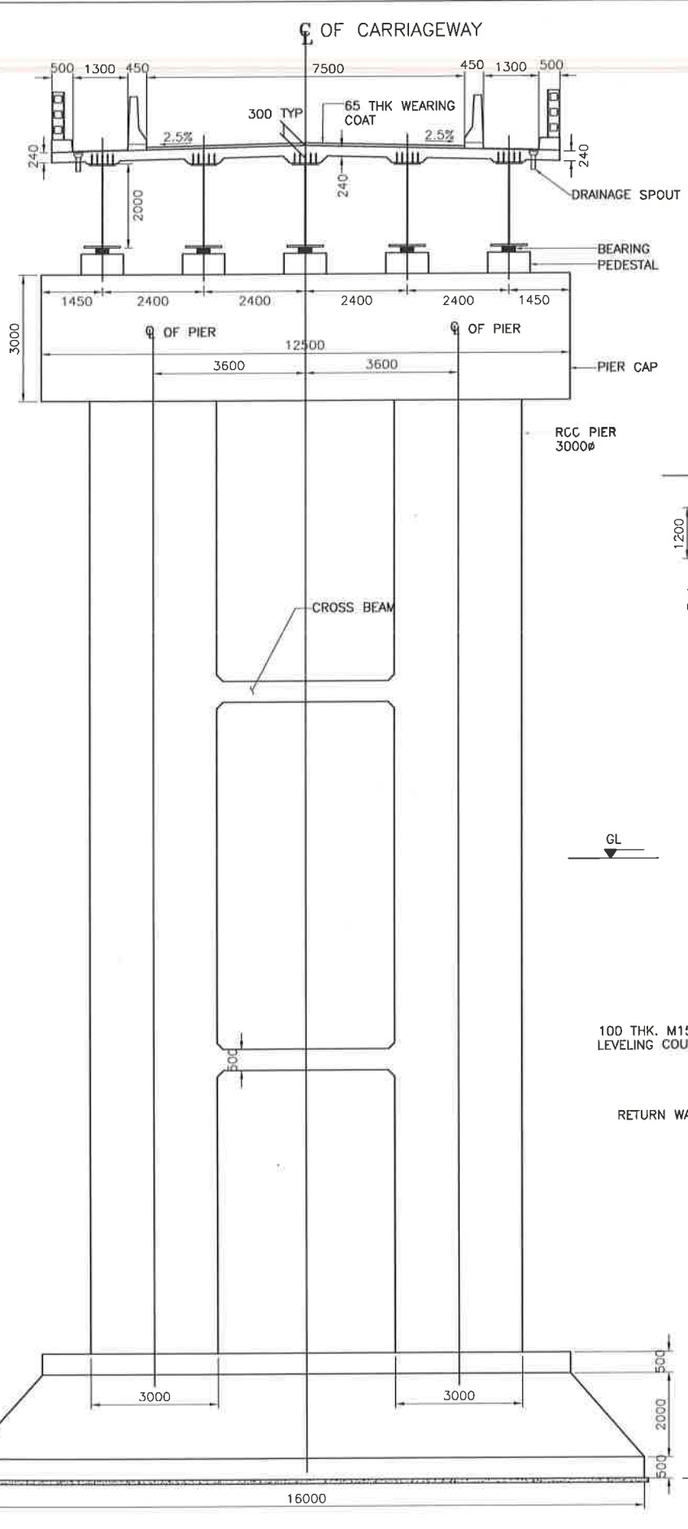
GENERAL ARRANGEMENT DRAWING

Client : Ministry of Road Transport & Highways (Government of India)

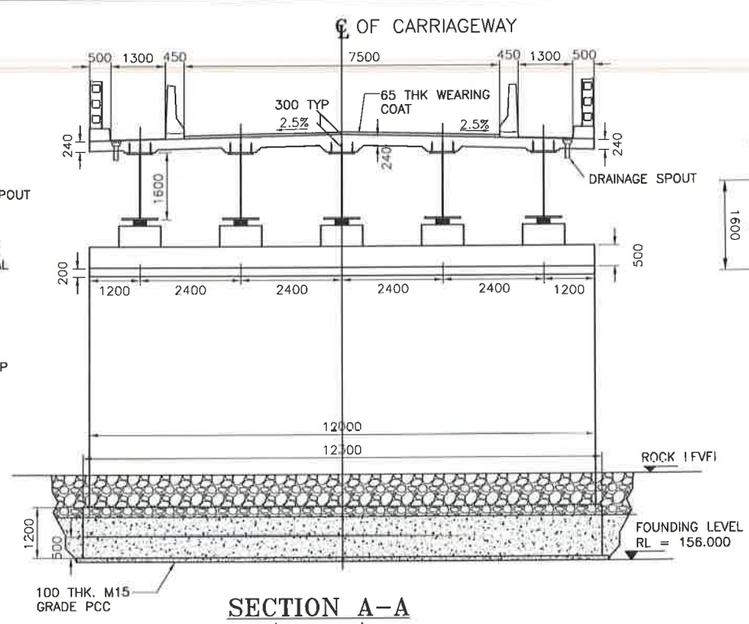
Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

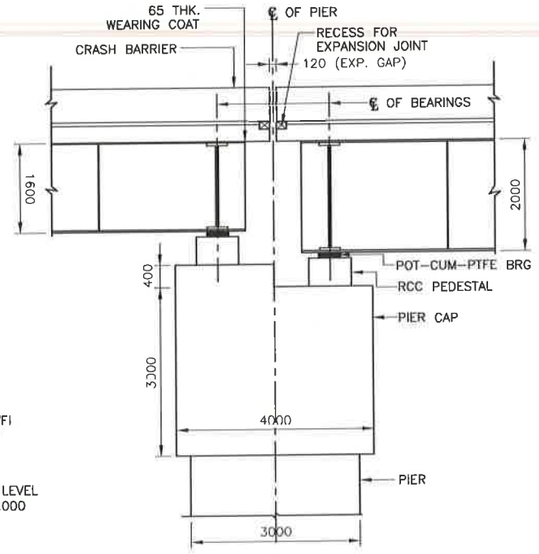
Drg. No : RITES/HW/MORT&H/4055-30/DPR/BR/MTM/40182/01 | SCALE : AS SHOWN | SHEET : 1 OF 2 | Page No.



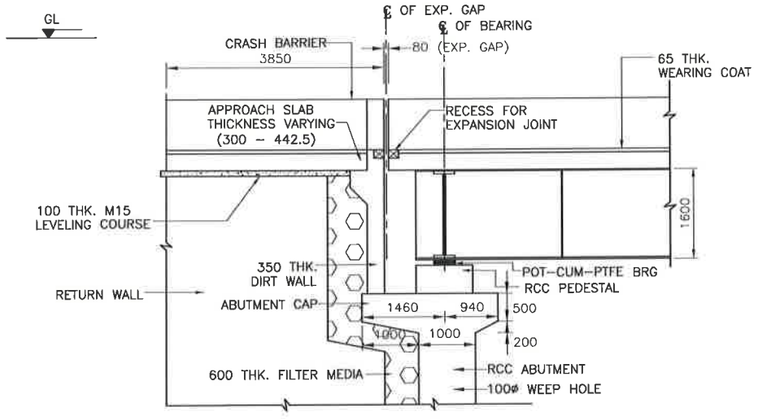
SECTION B–B
(SCALE 1:100)



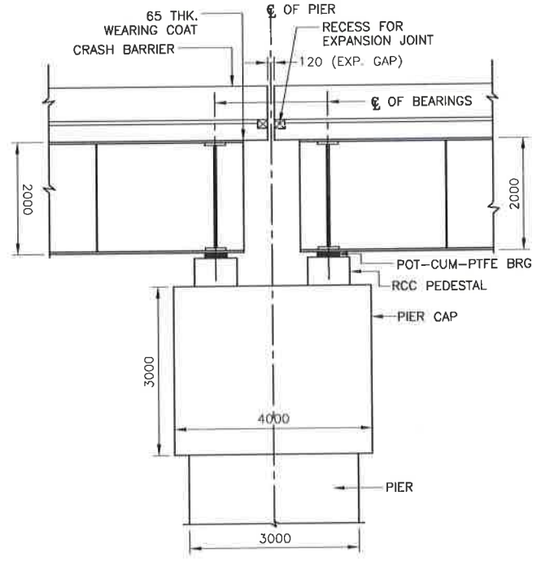
SECTION A–A
(SCALE 1:100)



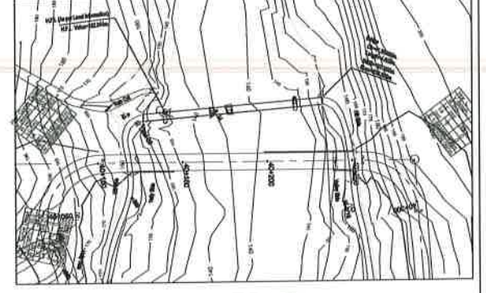
DETAIL B
(SCALE 1:75)



DETAIL – A
(SCALE 1:75)



DETAIL C
(SCALE 1:75)



KEY PLAN
(SCALE 1: 2500)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRE AND THE LEVELS ARE IN METRE UNLESS OTHERWISE INDICATED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONCRETE FOR VARIOUS STRUCTURES SHALL BE AS FOLLOWS:
   - i) APPROACH SLAB----------M30
   - ii) R.C.C DECK SLAB ----------M35
   - iii) RCC CRASH BARIER ----------M40
   - iv) RCC SUBSTRUCTURE AND OPEN FOUNDATION---M35
   - iv) RCC HANDRAIL ----------M30
4. STRUCTURAL STEEL SHALL CONFORM TO GRADE E250 OF BO QUALITY CONFORMING TO IS:2062–2011 UNLESS OTHERWISE SPECIFIED.
5. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD & BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATION AND AS DIRECTED/APPROVED BY THE ENGINEER.
6. THE BRIDGE HAS BEEN DESIGNED FOR 2 LANES OF CLASS A OR 1–LANE OF CLASS 70R WHICHEVER PRODUCES THE WORST EFFECT.
7. THE REINFORCEMENT SHALL BE OF HIGH STRENGTH DEFORMED BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS 1786 : 2008.
8. 65 THK. WEARING COAT COMPRISING OF 50MM THK. ASPHALTIC CONCRETE LAID IN TWO LAYERS OF 25MM EACH, OVER 15 MM THK. MASTIC ASPHALT SHALL BE USED AS PER SPECIFICATION.
9. SAFE BEARING CAPACITY (SBC) OF SOIL/ROCK BELOW FOUNDATION HAS BEEN CONSIDERED AS 30T/SqM, WHICH SHALL BE CONFIRMED BEFORE CONSTRUCTION. IF SBC IS FOUND LESS, THE MATTER SHALL BE REPORTED TO THE ENGINEER.
10. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
11. THE SELECTED BACKFILL MATERIALS BEHIND ABUTMENT/RETURN WALL/RETAINING WALL SHALL CONFORM TO APPENDIX–6 OF IRC:78–2014. ANGLE OF REPOSE OF BACKFILL MATERIALS SHALL NOT BE LESS THAN 32°.
12. THE BACKFILL MATERIALS MAY BE FILLED FOR PORTION AS INDICATED IN APPENDIX–6 OF IRC:78–2014. THE WORKS SHALL CONFORM TO SECTION 305.2 OF MORT&H SPECIFICATION.
13. FOR DETAILS OF VERTICAL AND HORIZONTAL PROFILE REFER ROAD DRAWING (PLAN & PROFILE) OF RESPECTIVE CHAINAGE.
14. DURING CONSTRUCTION OF THE BRIDGE EXISTING ROAD TRAFFIC SHALL BE DIVERTED SUITABLY IN CONSULTATION WITH THE ROAD AUTHORITY.
15. LOCATION, FRL, CAMBER, BED LEVELS, FOUNDATION LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION, IF ANY VARIATION IS FOUND, IT SHALL BE REPORTED TO THE ENGINEER.
16. FOR FOUNDATION RESTING ON ROCK, ALL SEAMS AND CRACKS ON ROCK SURFACE SHALL BE GROUTED WITH CEMENT/MORTER AS PER MORT&H SPECIFICATION.
17. WEEP HOLES IN SLOPE 1:20, 100 DIA. PVC PIPE AT SPACING 1000 MM C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER ABOVE GROUND LEVEL OR LWL, WHICHEVER IS HIGHER.
18. THE TOP OF ABUTMENT/PIER CAP HAS BEEN CALCULATED ASSUMING THE THICKNESS OF THE PEDESTAL AND BEARING AS 800mm. THE SAME MUST BE VERIFIED BEFORE CASTING OF ABUTMENT/PIER CAP.
19. THE ANNULAR SPACE AROUND FOUNDATION SHALL BE FILLED WITH PCC (M15)/ BOULDER GROUTED WITH CEMENT MORTAR (1:3) AS PER SECTION 304.3.4 OF MORT&H SPECIFICATION.
20. THE BEARING SHALL BE POT CUM PTFE TYPE CONFORMING TO IRC:83 (PART III) – 2002.
21. THE EXPANSION JOINT SHALL BE STRIP SEAL TYPE CONFORMING TO IRC:SP:69–2011.
22. SEISMIC RESTRAINERS WITH SUITABLY DESIGNED REACTION BLOCKS SHALL BE PROVIDED ON ABUTMENT/PIER CAP.
23. SUITABLE LONG RETAINING WALL SHALL BE PROVIDED AT APPROACHES OF BRIDGES TO RETAIN/PROTECT THE EMBANKMENT. THE FOUNDATION OF RETAINING WALL; BELOW NATURAL GROUND, SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS. GABION WALL TYPE RETAINING WALL MAY ONLY BE USED IN PORTION AWAY FROM WATER COURSE.
24. LONGITUDINAL DRAIN AND CATCH WATER PIT SHALL BE PROVIDED AT APPROACH OF THE BRIDGE FOR PROPER DRAINAGE OF RUNOFF WATER FROM APPROACH ROAD.

REFERENCE:

1) RITES/HW/MORT&H/4055–30/DPR/BR/GN/01 GENERAL NOTES
2) RITES/HW/MORT&H/4055–30/DPR/BR/MTM/40182/02 DIMENSION DETAILS OF ABUTMENT AND ABUTMENT FOUNDATION
3) RITES/HW/MORT&H/4055–30/DPR/BR/MTM/40182/03 REINFORCEMENT DETAILS OF ABUTMENT AND ABUTMENT FOUNDATION

R0	JULY 2016	Stage 4 (Final Detail Project Report)- Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	B.C.R.	B.C.R.	S.K.B.	T.M.
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

MAJOR BRIDGE AT KM : 40.182

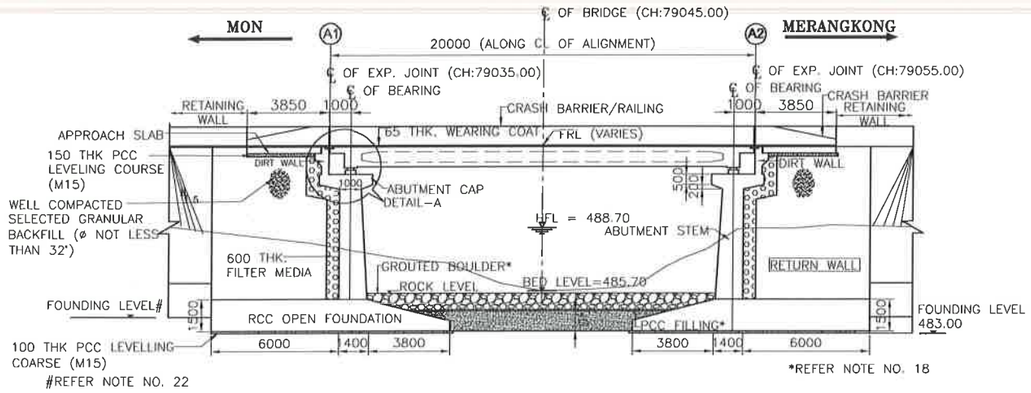
GENERAL ARRANGEMENT DRAWING

Client: Ministry of Road Transport & Highways (Government of India)

Consultant: RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project: Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

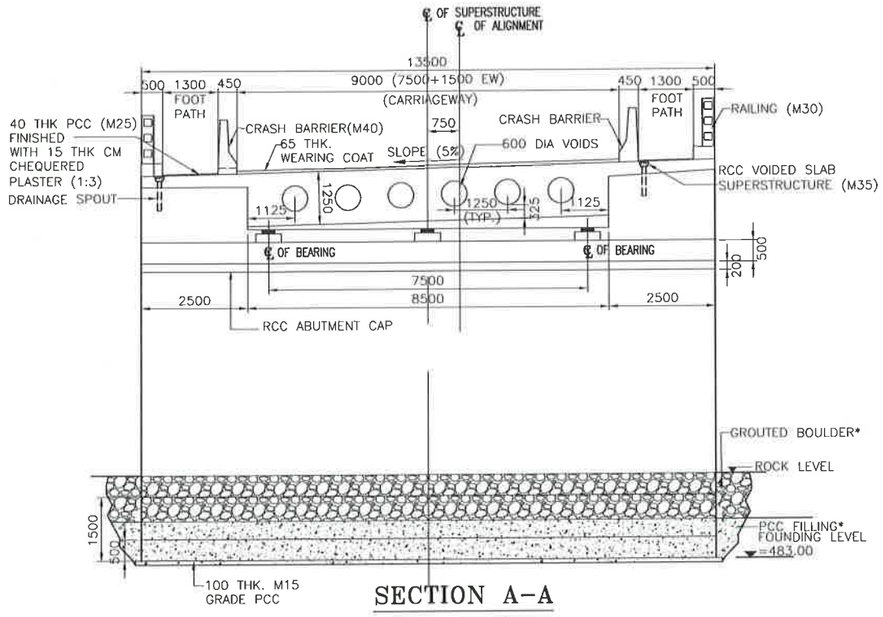
Drg. No : RITES/HW/MORT&H/4055-30/DPR/BR/MTM/40182/01 | SCALE : AS SHOWN | SHEET : 2 OF 2 | Page No.



FINISHED ROAD LEVEL(M)	492.598	492.563	492.528
HORIZONTAL	R=-40.0m		
	L=136.9m		
SUPER ELEVATION		5.00%	
		-5.00%	
CHAINAGE (M)	79035.00	79045.00	79055.00

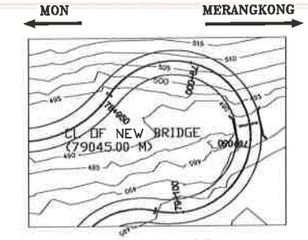
SECTIONAL ELEVATION

(SCALE 1:200)



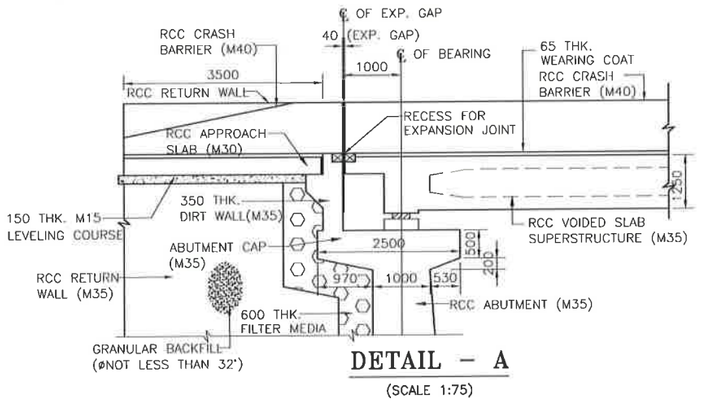
SECTION A-A

(SCALE 1:100)



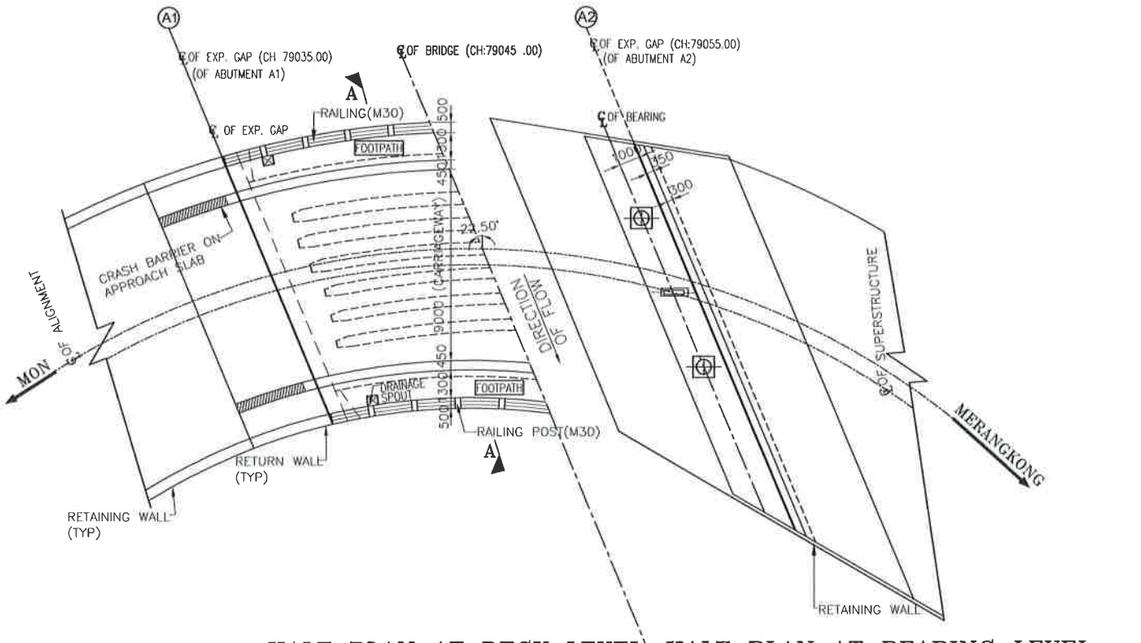
KEYPLAN

(SCALE 1:2000)



DETAIL - A

(SCALE 1:75)



HALF PLAN AT DECK LEVEL HALF PLAN AT BEARING LEVEL PLAN

(SCALE 1:200)

LEGEND:

FRL	FINISHED ROAD LEVEL
HFL	HIGHEST FLOOD LEVEL
EXP.	EXPANSION
RCC	REINFORCED CEMENT CONCRETE
GL	GROUND LEVEL
PCC	PLAIN CEMENT CONCRETE
CM	CEMENT MORTAR
EW	EXTRA WIDENING

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055-30/DPR/BR/GN/01	GENERAL NOTES
RITES/HW/MORT&H/4055-30/DPR/BR/MTM/79045/02	DIMENSIONS DETAILS OF ABUTMENT
RITES/HW/MORT&H/4055-30/DPR/BR/MTM/79045/04	DIMENSIONS DETAILS OF SUPERSTRUCTURE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND THE LEVELS AND CHAINAGES ARE IN METRES UNLESS OTHERWISE INDICATED.
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3. GRADE OF CONCRETE FOR VARIOUS STRUCTURES SHALL BE AS FOLLOWS:
   - i) APPROACH SLAB----------M30
   - ii) R.C.C VOIDED SLAB SUPERSTRUCTURE----------M35
   - iii) RCC CRASH BARRIER ----------M40
   - iv) RCC SUBSTRUCTURE AND OPEN FOUNDATION----M35
   - v) RCC HANDRAIL----------M30
4. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD & BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATION AND AS DIRECTED/APPROVED BY THE ENGINEER.
5. THE BRIDGE HAS BEEN DESIGNED FOR 2 LANES OF CLASS A OR 1-LANE OF CLASS 70R, WHICHEVER PRODUCES THE WORST EFFECT.
6. THE REINFORCEMENT SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS: 1786 - 1985.
7. 65 THK. WEARING COAT COMPRISING OF 50MM THK. ASPHALTIC CONCRETE LAID IN TWO LAYERS OF 25MM EACH, OVER 15 MM THK. MASTIC ASPHALT SHALL BE USED AS PER SPECIFICATION.
8. SAFE BEARING CAPACITY (SBC) OF SOIL/ROCK BELOW FOUNDATION HAS BEEN CONSIDERED AS 30T/SqM, WHICH SHALL BE CONFIRMED BEFORE CONSTRUCTION. IF SBC IS FOUND LESS, THE MATTER SHALL BE REPORTED TO THE ENGINEER.
9. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
10. THE SELECTED BACKFILL MATERIALS BEHIND ABUTMENT/RETURN WALL/RETAINING WALL SHALL CONFORM TO APPENDIX-6 OF IRC:78-2014. ANGLE OF REPOSE OF BACKFILL MATERIALS SHALL NOT BE LESS THAN 32'.
11. THE BACKFILL MATERIALS MAY BE FILLED FOR PORTION AS INDICATED IN APPENDIX-6 OF IRC:78-2014. THE WORKS SHALL CONFORM TO SECTION 305.2 OF MORT&H SPECIFICATION.
12. FOR DETAILS OF VERTICAL AND HORIZONTAL PROFILE REFER ROAD DRAWING (PLAN & PROFILE) OF RESPECTIVE CHAINAGE.
13. DURING CONSTRUCTION OF THE BRIDGE EXISTING ROAD TRAFFIC SHALL BE DIVERTED SUITABLY IN CONSULTATION WITH THE ROAD AUTHORITY.
14. LOCATION, FRL, CAMBER, BED LEVELS, FOUNDATION LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION, IF ANY VARIATION IS FOUND, IT SHALL BE REPORTED TO THE ENGINEER.
15. FOR FOUNDATION RESTING ON ROCK, ALL SEAMS & CRACKS ON ROCK SURFACE SHALL BE GROUTED WITH CEMENT/MORTAR AS PER MORT&H SPECIFICATION.
16. WEEP HOLES IN SLOPE 1:20, 100 DIA. PVC PIPE AT SPACING 1000 MM C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER ABOVE GROUND LEVEL OR LWL, WHICHEVER IS HIGHER.
17. THE TOP OF ABUTMENT/PIER CAP HAS BEEN CALCULATED ASSUMING THE THICKNESS OF THE PEDESTAL AND BEARING AS 800mm. THE SAME MUST BE VERIFIED BEFORE CASTING OF ABUTMENT/PIER CAP.
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19. THE BEARING SHALL BE POT CUM PTFE TYPE CONFORMING TO IRC:83 (PART III) - 2002.
20. THE EXPANSION JOINT SHALL BE STRIP SEAL TYPE CONFORMING TO IRC:SP:69-2011.
21. SEISMIC RESTRAINERS WITH SUITABLY DESIGNED REACTION BLOCKS SHALL BE PROVIDED ON ABUTMENT/PIER CAP.
22. SUITABLE LONG RETAINING WALL SHALL BE PROVIDED AT APPROACHES OF BRIDGES TO RETAIN/PROTECT THE EMBANKMENT. THE FOUNDATION OF RETAINING WALL; BELOW NATURAL GROUND, SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS. GABBION WALL TYPE RETAINING WALL MAY ONLY BE USED IN PORTION AWAY FROM WATER COURSE.

R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	R. Gautam	R. Gautam	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

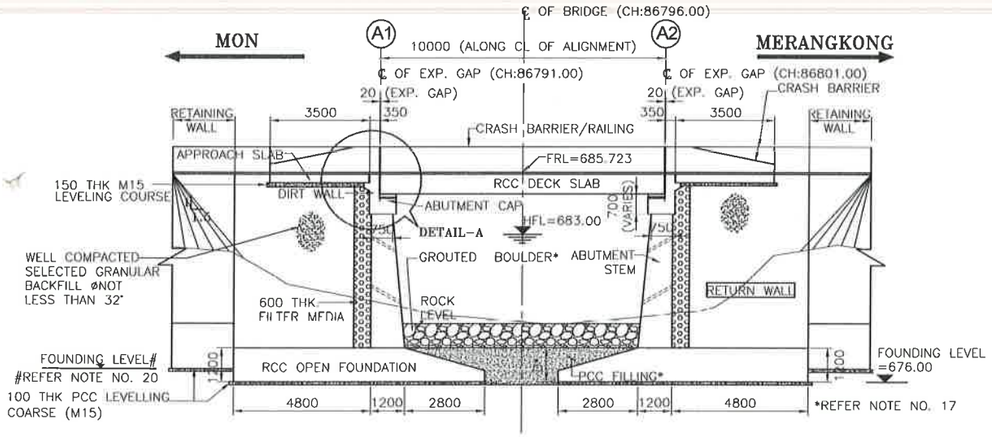
GENERAL ARRANGEMENT DRAWING FOR BRIDGE AT KM.79.045

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

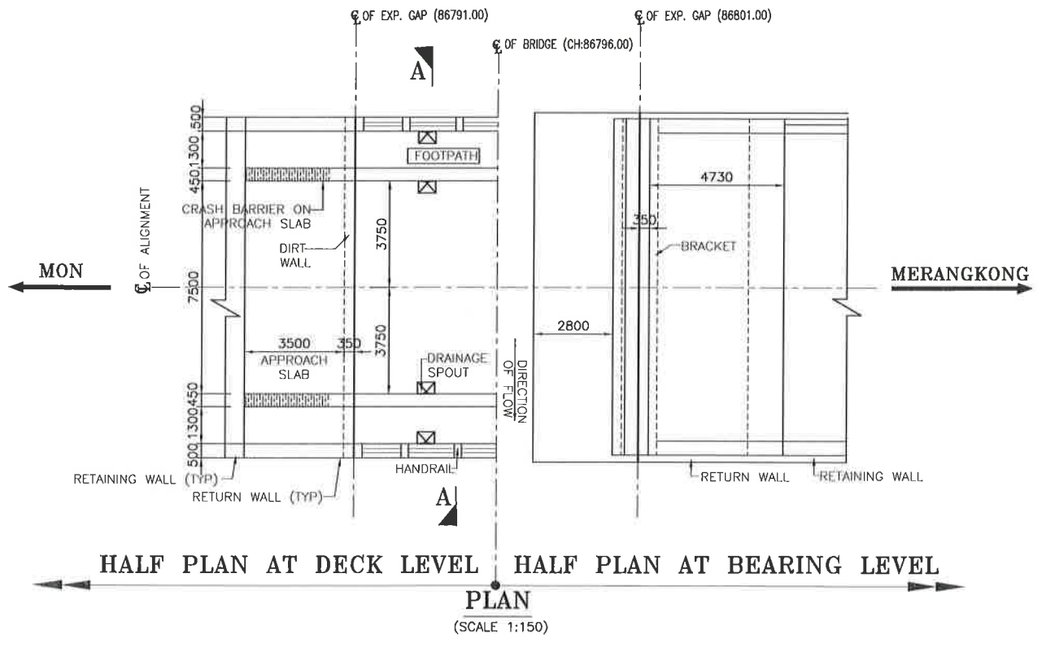
Drg. No : RITES/HW/MORT&H/4055-30/DPR/BR/MTM/79045/01 | SCALE : AS SHOWN | SHEET : | Page No.



FINISHED ROAD LEVEL(M)	685.333	685.333	685.333
HORIZONTAL ALIGNMENT			
VERTICAL ALIGNMENT (+) (-)			
SUPER ELEVATION (%) (+) (-)	CL OF ALIGNMENT		
CHAINAGE (M)	86791.00	86796.00	86801.00

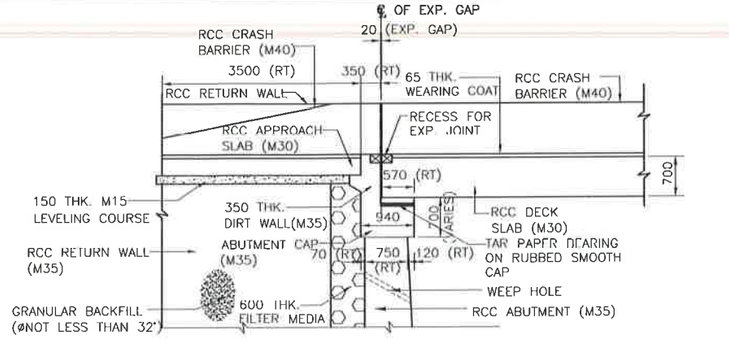
SECTIONAL ELEVATION

(SCALE 1:150)



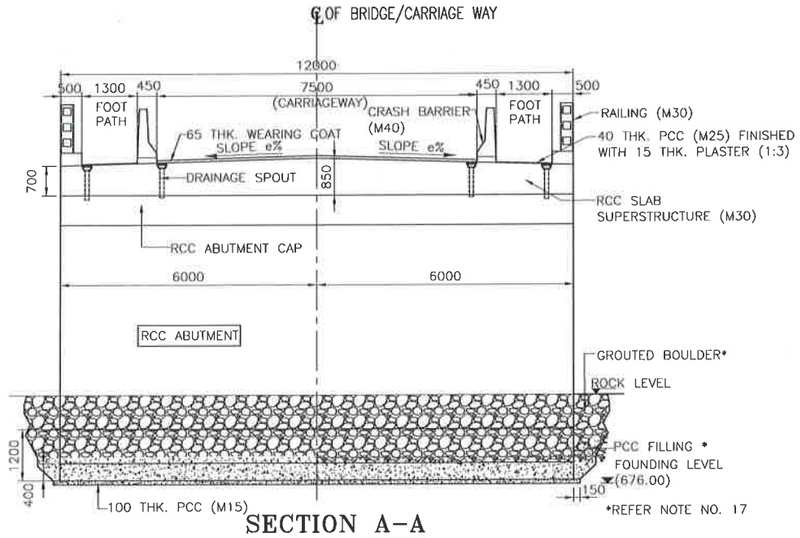
PLAN

(SCALE 1:150)



DETAIL – A

(SCALE 1:75)



SECTION A–A

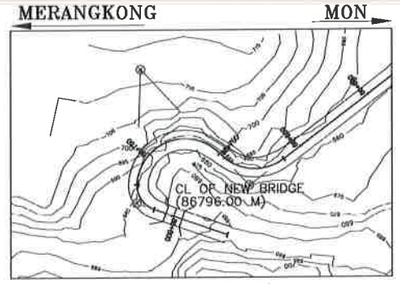
(SCALE 1:100)

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055–30/DPR/BR/GN/01	GENERAL NOTES
RITES/HW/MORT&H/4055–30/DPR/BR/MTM/86796/02	DIMENSIONS DETAILS OF ABUTMENT
RITES/HW/MORT&H/4055–30/DPR/BR/MTM/86796/04	DIMENSIONS DETAILS OF SUPERSTRUCTURE
RITES/HW/MORT&H/4055–30/DPR/STD/02	DETAILS OF DRAINAGE SPOUT
RITES/HW/MORT&H/4055–30/DPR/STD/03	DETAILS OF EXPANSION JOINT
RITES/HW/MORT&H/4055–30/DPR/STD/04	DETAILS OF RCC HAND RAIL
RITES/HW/MORT&H/4055–30/DPR/STD/05	DETAILS OF CRASH BARRIER

LEGEND:

FRL ---------- FINISHED ROAD LEVEL
HFL ---------- HIGHEST FLOOD LEVEL
EXP. ---------- EXPANSION
RCC ---------- REINFORCED CEMENT CONCRETE
GL ---------- GROUND LEVEL
PCC ---------- PLAIN CEMENT CONCRETE
CM ---------- CEMENT MORTAR
EW ---------- EXTRA WIDENING
RT ---------- RIGHT
CL ---------- CENTER LINE



KEYPLAN

(SCALE 1:2500)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND THE LEVELS AND CHAINAGES ARE IN METRES UNLESS OTHERWISE INDICATED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONCRETE FOR VARIOUS STRUCTURES SHALL BE AS FOLLOWS:
   i) APPROACH SLAB----------M30
   ii) R.C.C SLAB SUPERSTRUCTURE----------M30
   iii) RCC CRASH BARRIER ----------M40
   iv) RCC SUBSTRUCTURE AND OPEN FOUNDATION----M35
   v) RCC HANDRAIL----------M30
4. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD & BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATION AND AS DIRECTED/APPROVED BY THE ENGINEER.
5. THE BRIDGE HAS BEEN DESIGNED FOR 2 LANES OF CLASS A OR 1–LANE OF CLASS 70R, WHICHEVER PRODUCES THE WORST EFFECT.
6. THE REINFORCEMENT SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS: 1786 – 2008.
7. 65 THK. WEARING COAT COMPRISING OF 50MM THK. ASPHALTIC CONCRETE LAID IN TWO LAYERS OF 25MM EACH, OVER 15 MM THK. MASTIC ASPHALT SHALL BE USED AS PER SPECIFICATION.
8. SAFE BEARING CAPACITY (SBC) OF SOIL/ROCK BELOW FOUNDATION HAS BEEN CONSIDERED AS 30T/SqM, WHICH SHALL BE CONFIRMED BEFORE CONSTRUCTION. IF SBC IS FOUND LESS, THE MATTER SHALL BE REPORTED TO THE ENGINEER.
9. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
10. THE SELECTED BACKFILL MATERIALS BEHIND ABUTMENT/RETURN WALL/RETAINING WALL SHALL CONFORM TO APPENDIX–6 OF IRC:78–2014. ANGLE OF REPOSE OF BACKFILL MATERIALS SHALL NOT BE LESS THAN 32°.
11. THE BACKFILL MATERIALS MAY BE FILLED FOR PORTION AS INDICATED IN APPENDIX–6 OF IRC:78–2014. THE WORKS SHALL CONFORM TO SECTION 305.2 OF MORT&H SPECIFICATION.
12. FOR DETAILS OF VERTICAL AND HORIZONTAL ALIGNMENT, CAMBER/SUPERELEVATION AND EXTRA WIDENING REFER ROAD DRAWING (PLAN & PROFILE) OF RESPECTIVE CHAINAGE.
13. DURING CONSTRUCTION OF THE BRIDGE EXISTING ROAD TRAFFIC SHALL BE DIVERTED SUITABLY IN CONSULTATION WITH THE ROAD AUTHORITY.
14. LOCATION, FRL, CAMBER, BED LEVELS, FOUNDATION LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION, IF ANY VARIATION IS FOUND, IT SHALL BE REPORTED TO THE ENGINEER.
15. FOR FOUNDATION RESTING ON ROCK, ALL SEAMS & CRACKS ON ROCK SURFACE SHALL BE GROUTED WITH CEMENT/MORTAR AS PER MORT&H SPECIFICATION.
16. WEEP HOLES IN SLOPE 1:20, 100 DIA. PVC PIPE AT SPACING 1000 MM C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER ABOVE GROUND LEVEL OR LWL, WHICHEVER IS HIGHER.
17. THE ANNULAR SPACE AROUND FOUNDATION SHALL BE FILLED WITH PCC (M15)/ BOULDER GROUTED WITH CEMENT MORTAR (1:3) AS PER SECTION 304.3.4 OF MORT&H SPECIFICATION.
18. BEARING FOR SUPERSTRUCTURE SHALL BE TAR PAPER TYPE COMPRISING REINFORCED BITUMEN LAMINATED KRAFT PAPER, CONFORMING TO IS:1398–1982.
19. THE EXPANSION JOINT SHALL BE FILLER TYPE CONFORMING TO IRC:SP:69–2011.
20. SUITABLE LONG RETAINING WALL SHALL BE PROVIDED AT APPROACHES OF BRIDGES TO RETAIN/PROTECT THE EMBANKMENT. THE FOUNDATION OF RETAINING WALL; BELOW NATURAL GROUND, SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS. GABBION WALL TYPE RETAINING WALL MAY ONLY BE USED IN PORTION AWAY FROM WATER COURSE.

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	R. Gautam	R. Gautam	S.K.B	Tapas Mukherjee

GENERAL ARRANGEMENT DRAWING
(FOR BRIDGE AT KM.86795 ON MTM ROAD)

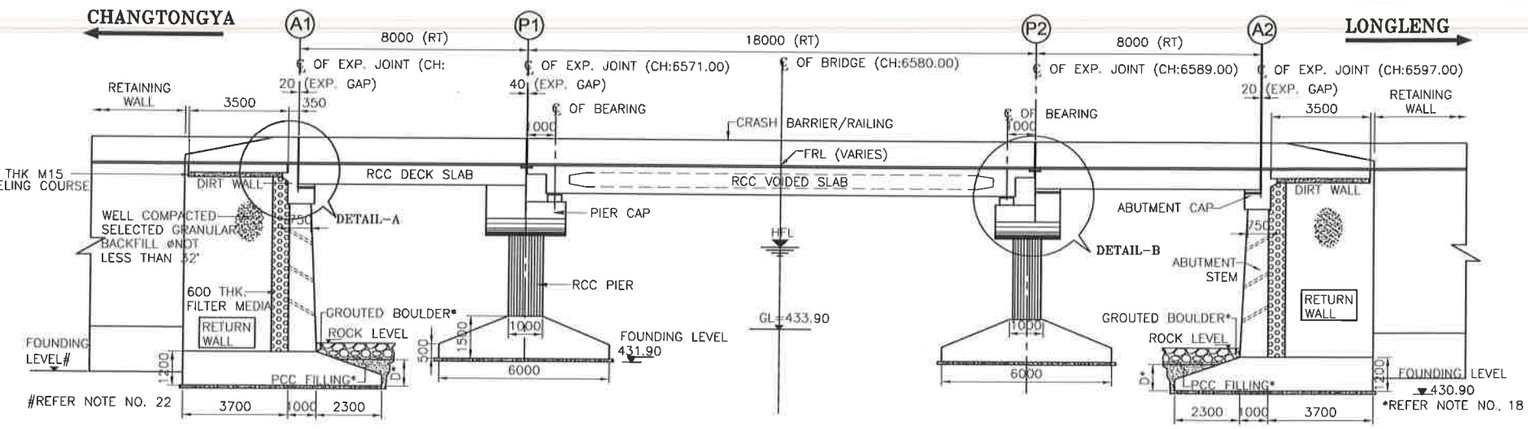
Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/BR/MTM/86796/01 | SCALE : AS SHOWN | SHEET : | Page No.

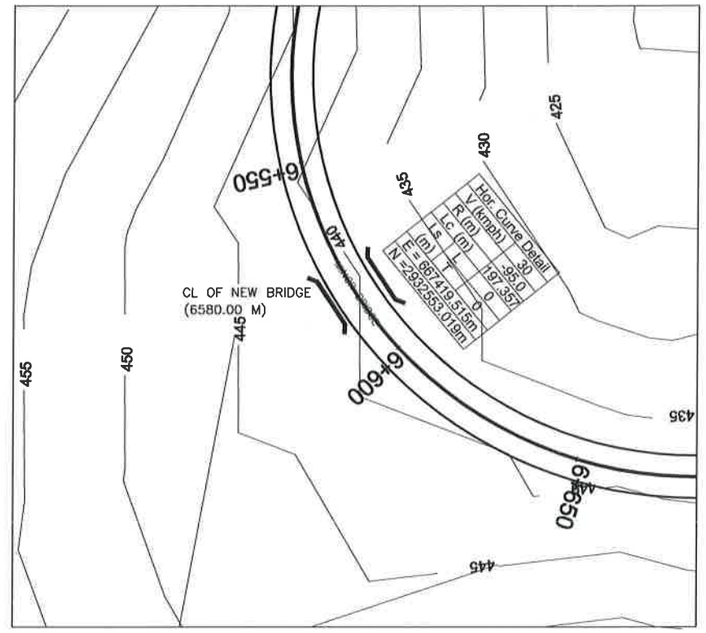
CHANGTONGYA-LONGLENG ROAD



FINISHED ROAD LEVEL(M)	439.909	439.430	438.890	438.390	438.054	
HORIZONTAL	R=-95.0m					
	L=197.4m					
SUPER ELEVATION	4.21%					
	-4.21%					
CHAINAGE (M)	6563.00	6571.00	6580.00	6589.00	6597.00	

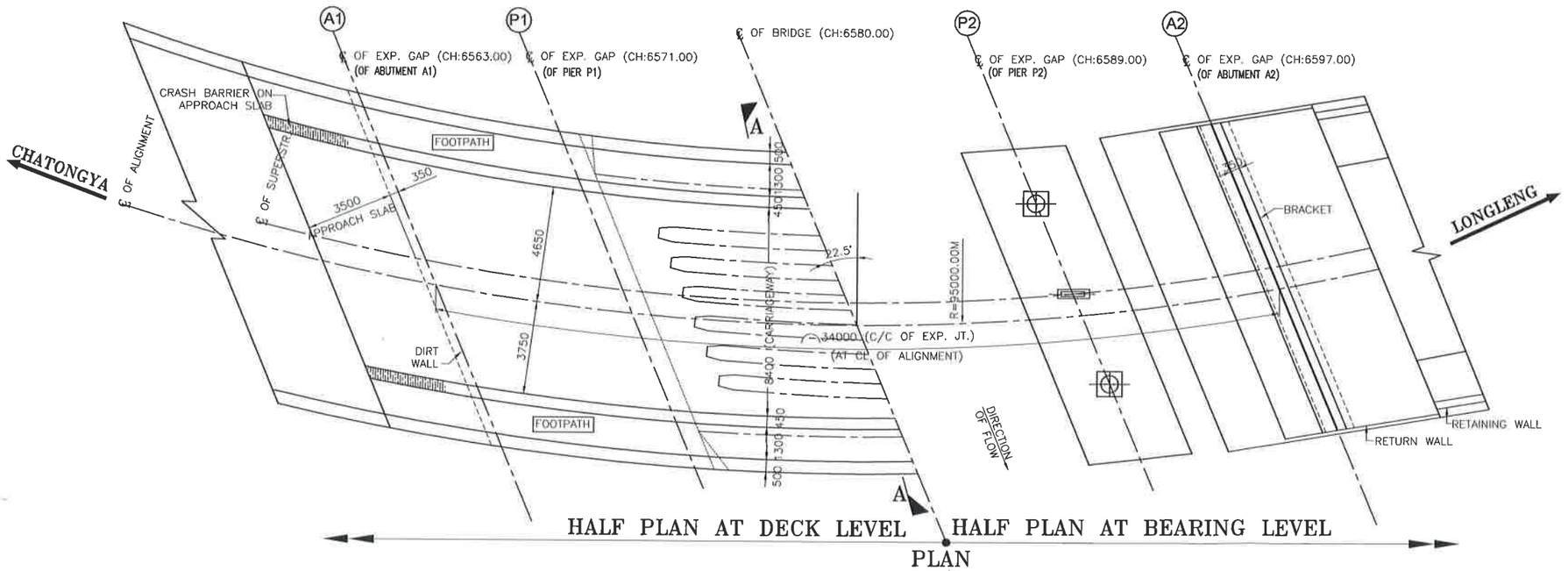
SECTIONAL ELEVATION

(SCALE 1:150)



KEYPLAN

(SCALE 1:1000)



LEGEND:

FRL ---------- FINISHED ROAD LEVEL
HFL ---------- HIGHEST FLOOD LEVEL
EXP. ---------- EXPANSION
RCC ---------- REINFORCED CEMENT CONCRETE
GL ---------- GROUND LEVEL
PCC ---------- PLAIN CEMENT CONCRETE
CM ---------- CEMENT MORTAR
EW ---------- EXTRA WIDENING

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055-30/DPR/BR/GN/01	GENERAL NOTES
RITES/HW/MORT&H/4055-30/DPR/BR/CL/6580/01 (SHEET 2 OF 2)	GENERAL ARRANGEMENT DRAWING
RITES/HW/MORT&H/4055-30/DPR/BR/CL/6580/02	DIMENSIONS DETAILS OF ABUTMENT
RITES/HW/MORT&H/4055-30/DPR/BR/CL/6580/04	DIMENSIONS DETAILS OF SUPERSTRUCTURE

R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	R. Gautam	R. Gautam	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

GENERAL ARRANGEMENT DRAWING FOR BRIDGE AT KM. 6.580

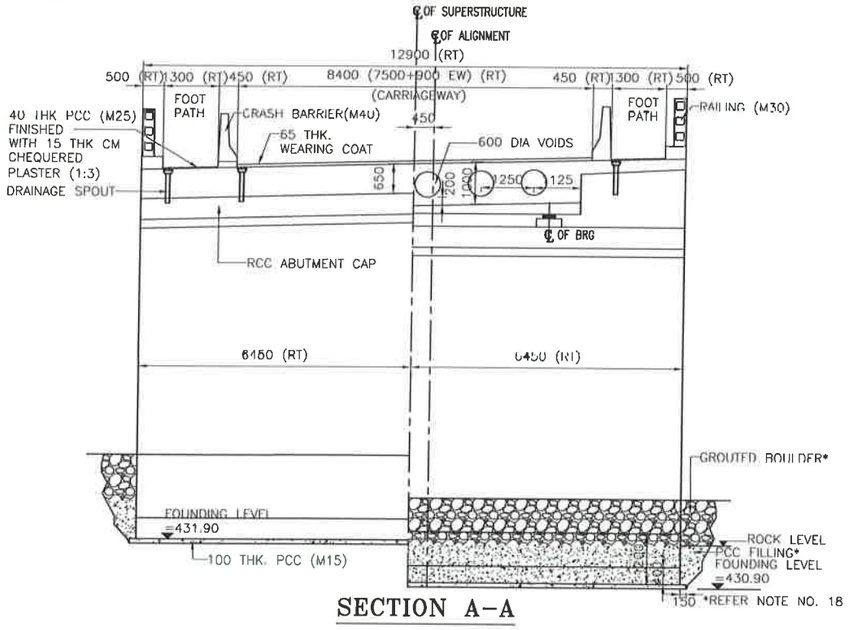
(FOR BRIDGE AT KM.6.580 ON CL ROAD)

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

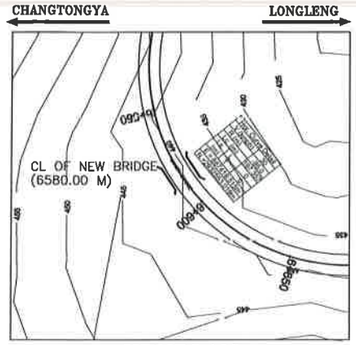
Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/BR/CL/6580/01 | SCALE : AS SHOWN | SHEET : 1 OF 2 | Page No.



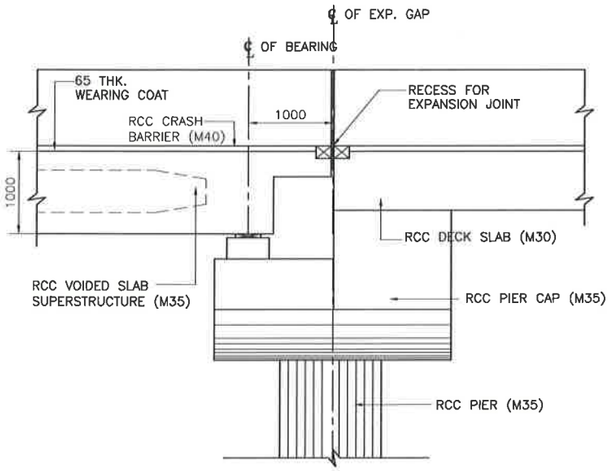
SECTION A–A

(SCALE 1:100)



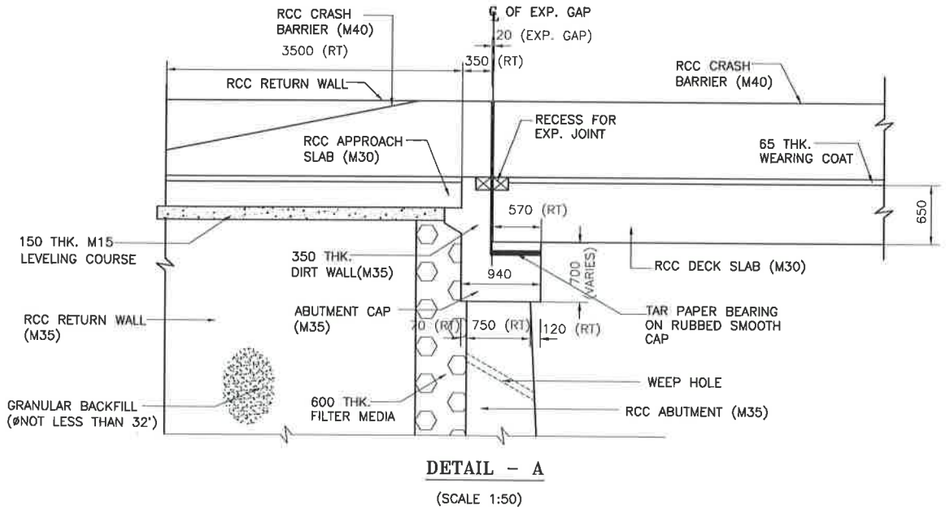
KEYPLAN

(SCALE 1:2000)



DETAIL – B

(SCALE 1:50)



DETAIL – A

(SCALE 1:50)

LEGEND:

FRL ---------- FINISHED ROAD LEVEL
HFL ---------- HIGHEST FLOOD LEVEL
EXP. ---------- EXPANSION
RCC ---------- REINFORCED CEMENT CONCRETE
GL ---------- GROUND LEVEL
PCC ---------- PLAIN CEMENT CONCRETE
CM ---------- CEMENT MORTAR
EW ---------- EXTRA WIDENING

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND THE LEVELS AND CHAINAGES ARE IN METRES UNLESS OTHERWISE INDICATED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONCRETE FOR VARIOUS STRUCTURES SHALL BE AS FOLLOWS:
   - i) APPROACH SLAB----------M30
   - ii) R.C.C VOIDED SLAB SUPERSTRUCTURE----------M35
   - iii) RCC SLAB SUPERSTRUCTURE----------M30
   - iv) RCC CRASH BARRIER ----------M40
   - v) RCC SUBSTRUCTURE AND OPEN FOUNDATION----M35
   - vi) RCC HANDRAIL----------M30
4. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD & BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATION AND AS DIRECTED/APPROVED BY THE ENGINEER.
5. THE BRIDGE HAS BEEN DESIGNED FOR 2 LANES OF CLASS A OR 1–LANE OF CLASS 70R, WHICHEVER PRODUCES THE WORST EFFECT.
6. THE REINFORCEMENT SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS: 1786 – 1985.
7. 65 THK. WEARING COAT COMPRISING OF 50MM THK. ASPHALTIC CONCRETE LAID IN TWO LAYERS OF 25MM EACH, OVER 15 MM THK. MASTIC ASPHALT SHALL BE USED AS PER SPECIFICATION.
8. SAFE BEARING CAPACITY (SBC) OF SOIL/ROCK BELOW FOUNDATION HAS BEEN CONSIDERED AS 30T/SqM, WHICH SHALL BE CONFIRMED BEFORE CONSTRUCTION. IF SBC IS FOUND LESS, THE MATTER SHALL BE REPORTED TO THE ENGINEER.
9. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
10. THE SELECTED BACKFILL MATERIALS BEHIND ABUTMENT/RETURN WALL/RETAINING WALL SHALL CONFORM TO APPENDIX–6 OF IRC:78–2014. ANGLE OF REPOSE OF BACKFILL MATERIALS SHALL NOT BE LESS THAN 32°.
11. THE BACKFILL MATERIALS MAY BE FILLED FOR PORTION AS INDICATED IN APPENDIX–6 OF IRC:78–2014. THE WORKS SHALL CONFORM TO SECTION 305.2 OF MORT&H SPECIFICATION.
12. FOR DETAILS OF VERTICAL AND HORIZONTAL PROFILE REFER ROAD DRAWING (PLAN & PROFILE) OF RESPECTIVE CHAINAGE.
13. DURING CONSTRUCTION OF THE BRIDGE EXISTING ROAD TRAFFIC SHALL BE DIVERTED SUITABLY IN CONSULTATION WITH THE ROAD AUTHORITY.
14. LOCATION, FRL, CAMBER, BED LEVELS, FOUNDATION LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION, IF ANY VARIATION IS FOUND, IT SHALL BE REPORTED TO THE ENGINEER.
15. FOR FOUNDATION RESTING ON ROCK, ALL SEAMS & CRACKS ON ROCK SURFACE SHALL BE GROUTED WITH CEMENT/MORTAR AS PER MORT&H SPECIFICATION.
16. WEEP HOLES IN SLOPE 1:20, 100 DIA. PVC PIPE AT SPACING 1000 MM C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER ABOVE GROUND LEVEL OR LWL, WHICHEVER IS HIGHER.
17. THE TOP OF ABUTMENT/PIER CAP HAS BEEN CALCULATED ASSUMING THE THICKNESS OF THE PEDESTAL AND BEARING AS 800mm. THE SAME MUST BE VERIFIED BEFORE CASTING OF ABUTMENT/PIER CAP.
18. THE ANNULAR SPACE AROUND FOUNDATION SHALL BE FILLED WITH PCC (M15)/ BOULDER GROUTED WITH CEMENT MORTAR (1:3) AS PER SECTION 304.3.4 OF MORT&H SPECIFICATION.
19. THE BEARING FOR VOIDED SHAB SHALL BE POT CUM PTFE TYPE CONFORMING TO IRC:83 (PART III) – 2002 AND FOR THE SLAB SUPERSTRUCTURE SHALL BE TAR PAPER TYPE COMPRISING OF REINFORCED BITUMEN LAMINATED KRAFT PAPER, CONFORMING TO IS:1398–1982.
20. THE EXPANSION JOINT SHALL BE STRIP SEAL TYPE CONFORMING TO IRC:SP:69–2011.
21. SEISMIC RESTRAINERS WITH SUITABLY DESIGNED REACTION BLOCKS SHALL BE PROVIDED ON ABUTMENT/PIER CAP.
22. SUITABLE LONG RETAINING WALL SHALL BE PROVIDED AT APPROACHES OF BRIDGES TO RETAIN/PROTECT THE EMBANKMENT. THE FOUNDATION OF RETAINING WALL; BELOW NATURAL GROUND, SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS. GABBION WALL TYPE RETAINING WALL MAY ONLY BE USED IN PORTION AWAY FROM WATER COURSE.
23. FOR LOCATIONS OF SECTION A–A, DETAIL– A & DETAIL – B, REFER DRAWING NO. RITES/HW/MORT&H/4055–30/DPR/BR/CL/6580/01 (SHEET 1 OF 2).

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055–30/DPR/BR/GN/01	GENERAL NOTES
RITES/HW/MORT&H/4055–30/DPR/BR/CL/6580/01 (SHEET 1 OF 2)	GENERAL ARRANGEMENT DRAWING
RITES/HW/MORT&H/4055–30/DPR/BR/CL/6580/02	DIMENSIONS DETAILS OF ABUTMENT
RITES/HW/MORT&H/4055–30/DPR/BR/CL/6580/04	DIMENSIONS DETAILS OF SUPERSTRUCTURE

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	R. Gautam	R. Gautam	S.K.B	Tapas Mukherjee

GENERAL ARRANGEMENT DRAWING FOR BRIDGE AT KM. 6.580

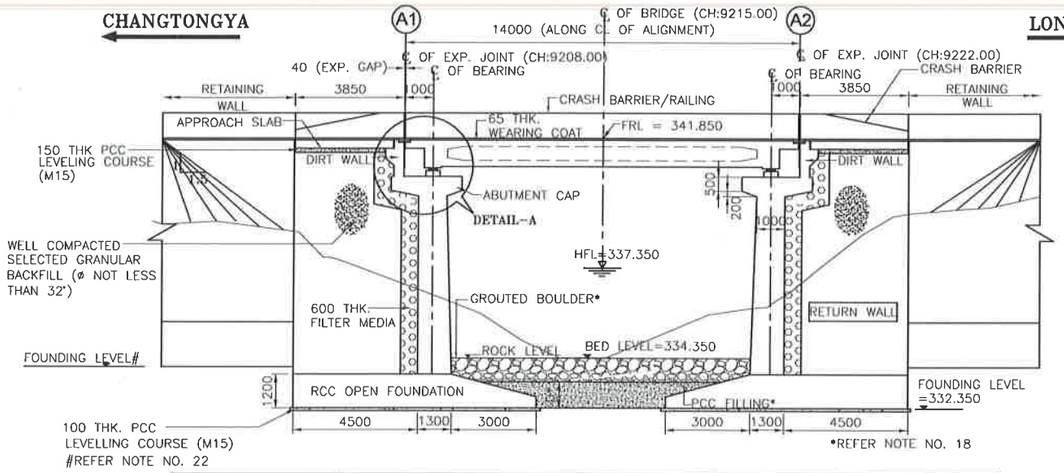
(FOR BRIDGE AT KM.6.580 ON CL ROAD)

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

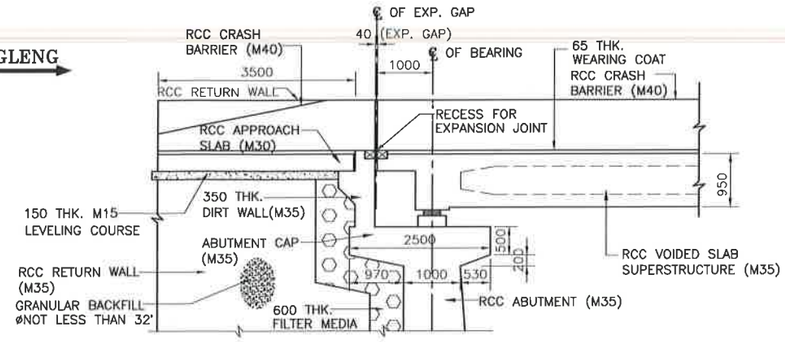
Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/BR/CL/6580/01 | SCALE : AS SHOWN | SHEET : 2 OF 2 | Page No.

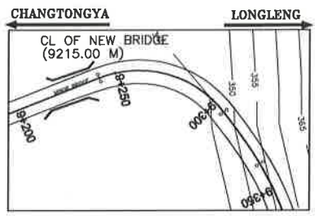


FINISHED ROAD LEVEL(M)	341.850	341.850	341.850
HORIZONTAL	L=54.8m		
SUPER ELEVATION	2.5%		-2.5%
CHAINAGE (M)	9208.00	9215.00	9222.00

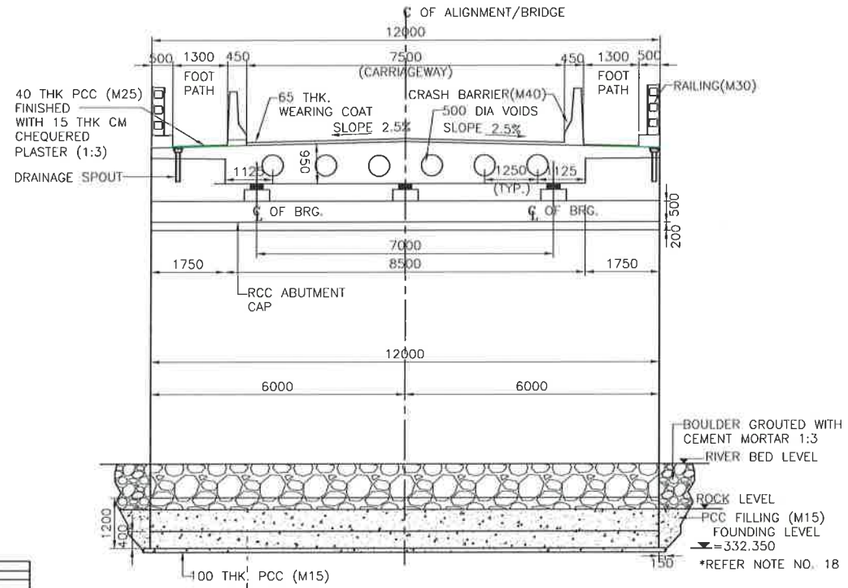
SECTIONAL ELEVATION
(SCALE 1:150)



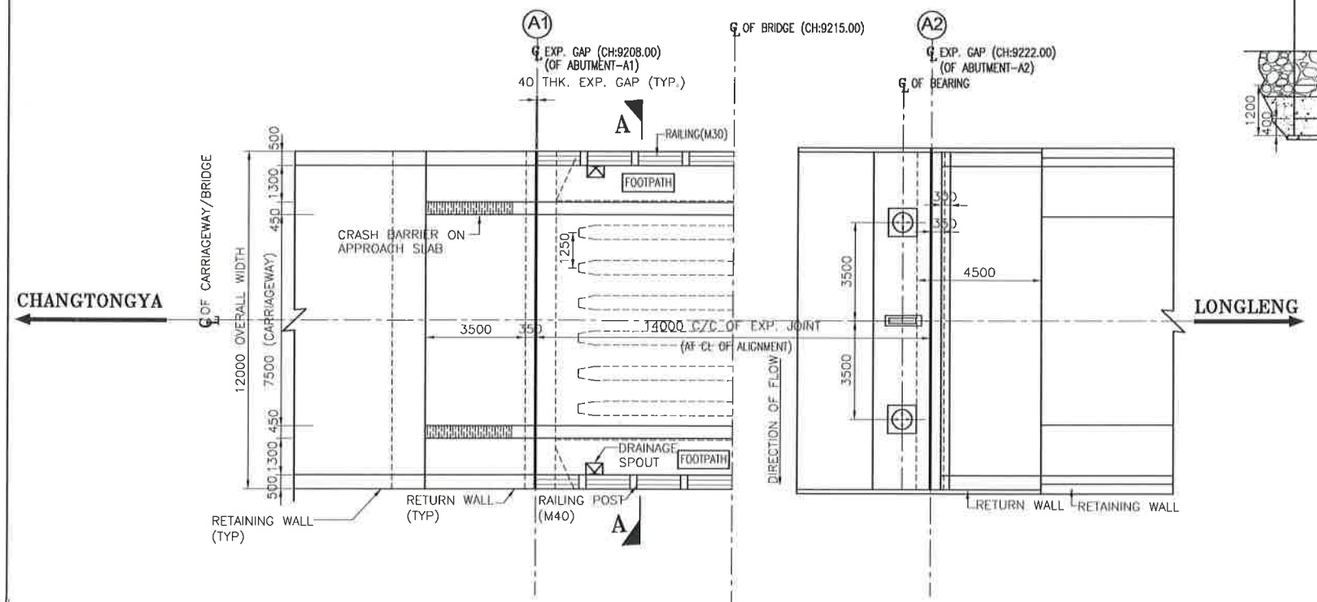
DETAIL – A
(SCALE 1:75)



KEYPLAN
(SCALE 1:2000)



SECTION A–A
(SCALE 1:100)



PLAN
(SCALE 1:150)

LEGEND:

FRL	FINISHED ROAD LEVEL
HFL	HIGHEST FLOOD LEVEL
EXP.	EXPANSION
RCC	REINFORCED CEMENT CONCRETE
GL	GROUND LEVEL
PCC	PLAIN CEMENT CONCRETE
CM	CEMENT MORTAR
EW	EXTRA WIDENING

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055-30/DPR/BR/GN/01	GENERAL NOTES
RITES/HW/MORT&H/4055-30/DPR/BR/CL/9215/02	DIMENSIONS DETAILS OF ABUTMENT
RITES/HW/MORT&H/4055-30/DPR/BR/CL/9215/04	DIMENSIONS DETAILS OF SUPERSTRUCTURE

NOTES:

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3. GRADE OF CONCRETE FOR VARIOUS STRUCTURES SHALL BE AS FOLLOWS:
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   - ii) R.C.C VOIDED SLAB SUPERSTRUCTURE---------M35
   - iii) RCC CRASH BARRIER ----------M40
   - iv) RCC SUBSTRUCTURE AND OPEN FOUNDATION-----M35
   - v) RCC HANDRAIL----------M30
4. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD & BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATION AND AS DIRECTED/APPROVED BY THE ENGINEER.
5. THE BRIDGE HAS BEEN DESIGNED FOR 2 LANES OF CLASS A OR 1–LANE OF CLASS 70R, WHICHEVER PRODUCES THE WORST EFFECT.
6. THE REINFORCEMENT SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS: 1786 – 1985.
7. 65 THK. WEARING COAT COMPRISING OF 50MM THK. ASPHALTIC CONCRETE LAID IN TWO LAYERS OF 25MM EACH, OVER 15 MM THK. MASTIC ASPHALT SHALL BE USED AS PER SPECIFICATION.
8. SAFE BEARING CAPACITY (SBC) OF SOIL/ROCK BELOW FOUNDATION HAS BEEN CONSIDERED AS 30T/SqM, WHICH SHALL BE CONFIRMED BEFORE CONSTRUCTION. IF SBC IS FOUND LESS, THE MATTER SHALL BE REPORTED TO THE ENGINEER.
9. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
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13. DURING CONSTRUCTION OF THE BRIDGE EXISTING ROAD TRAFFIC SHALL BE DIVERTED SUITABLY IN CONSULTATION WITH THE ROAD AUTHORITY.
14. LOCATION, FRL, CAMBER, BED LEVELS, FOUNDATION LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION, IF ANY VARIATION IS FOUND, IT SHALL BE REPORTED TO THE ENGINEER.
15. FOR FOUNDATION RESTING ON ROCK, ALL SEAMS & CRACKS ON ROCK SURFACE SHALL BE GROUTED WITH CEMENT/MORTAR AS PER MORT&H SPECIFICATION.
16. WEEP HOLES IN SLOPE 1:20, 100 DIA. PVC PIPE AT SPACING 1000 MM C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER ABOVE GROUND LEVEL OR LWL, WHICHEVER IS HIGHER.
17. THE TOP OF ABUTMENT/PIER CAP HAS BEEN CALCULATED ASSUMING THE THICKNESS OF THE PEDESTAL AND BEARING AS 800mm. THE SAME MUST BE VERIFIED BEFORE CASTING OF ABUTMENT/PIER CAP.
18. THE ANNULAR SPACE AROUND FOUNDATION SHALL BE FILLED WITH PCC (M15)/ BOULDER GROUTED WITH CEMENT MORTAR (1:3) AS PER SECTION 304.3.4 OF MORT&H SPECIFICATION.
19. THE BEARING SHALL BE POT CUM PTFE TYPE CONFORMING TO IRC:83 (PART III) – 2002.
20. THE EXPANSION JOINT SHALL BE STRIP SEAL TYPE CONFORMING TO IRC:SP:69–2011.
21. SEISMIC RESTRAINERS WITH SUITABLY DESIGNED REACTION BLOCKS SHALL BE PROVIDED ON ABUTMENT/PIER CAP.
22. SUITABLE LONG RETAINING WALL SHALL BE PROVIDED AT APPROACHES OF BRIDGES TO RETAIN/PROTECT THE EMBANKMENT. THE FOUNDATION OF RETAINING WALL; BELOW NATURAL GROUND, SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS. GABBION WALL TYPE RETAINING WALL MAY ONLY BE USED IN PORTION AWAY FROM WATER COURSE.

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	R. Gautam	R. Gautam	S.K.B	Tapas Mukherjee

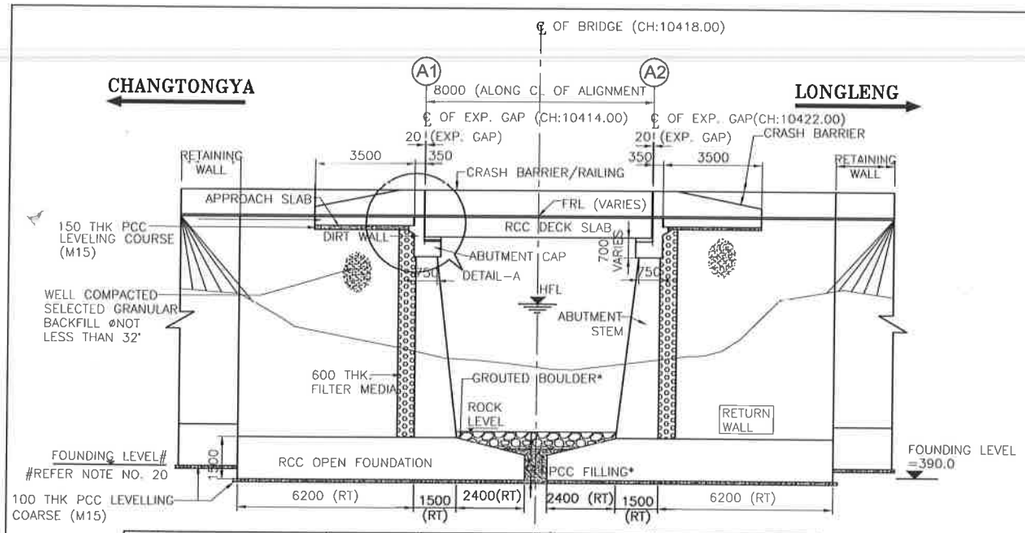
GENERAL ARRANGEMENT DRAWING FOR BRIDGE AT KM. 9.215

Client : Ministry of Road Transport & Highways (Government of India)

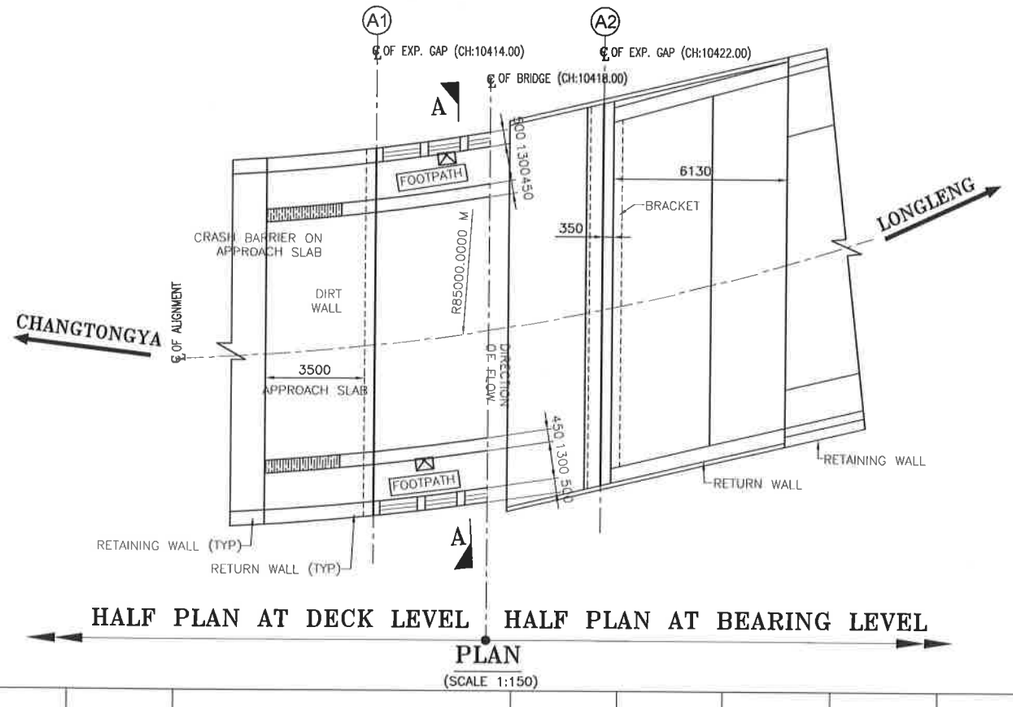
Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changlongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

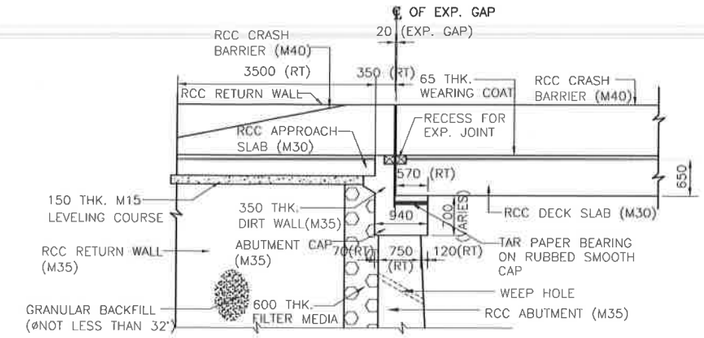
Drg. No : RITES/HW/MORT&H/4055-30/DPR/BR/CL/9215/01 | SCALE : AS SHOWN | SHEET : | Page No.



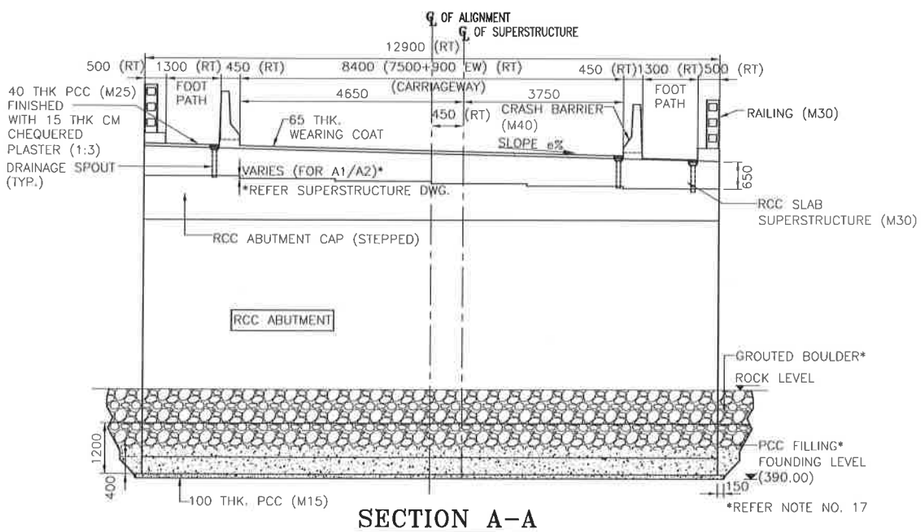
SECTIONAL ELEVATION
(SCALE 1:150)



PLAN
(SCALE 1:150)



DETAIL - A
(SCALE 1:75)



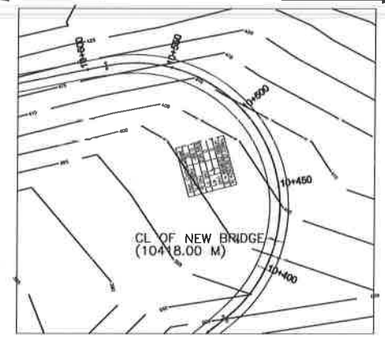
SECTION A-A
(SCALE 1:100)

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055-30/DPR/BR/GN/01	GENERAL NOTES
RITES/HW/MORT&H/4055-30/DPR/BR/CL/10418/02	DIMENSIONS DETAILS OF ABUTMENT
RITES/HW/MORT&H/4055-30/DPR/BR/CL/10418/04	DIMENSIONS DETAILS OF SUPERSTRUCTURE
RITES/HW/MORT&H/4055-30/DPR/STD/02	DETAILS OF DRAINAGE SPOUT
RITES/HW/MORT&H/4055-30/DPR/STD/03	DETAILS OF EXPANSION JOINT
RITES/HW/MORT&H/4055-30/DPR/STD/04	DETAILS OF RCC HAND RAIL
RITES/HW/MORT&H/4055-30/DPR/STD/05	DETAILS OF CRASH BARRIER

LEGEND:

FRL ---------- FINISHED ROAD LEVEL
HFL ---------- HIGHEST FLOOD LEVEL
EXP. ---------- EXPANSION
RCC ---------- REINFORCED CEMENT CONCRETE
GL ---------- GROUND LEVEL
PCC ---------- PLAIN CEMENT CONCRETE
CM ---------- CEMENT MORTAR
EW ---------- EXTRA WIDENING
RT ---------- RIGHT
CL ---------- CENTER LINE



KEYPLAN
(SCALE 1:2500)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND THE LEVELS AND CHAINAGES ARE IN METRES UNLESS OTHERWISE INDICATED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONCRETE FOR VARIOUS STRUCTURES SHALL BE AS FOLLOWS:
   i) APPROACH SLAB----------M30
   ii) R.C.C SLAB SUPERSTRUCTURE----------M30
   iii) RCC CRASH BARRIER ----------M40
   iv) RCC SUBSTRUCTURE AND OPEN FOUNDATION----M35
   v) RCC HANDRAIL----------M30
4. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD & BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATION AND AS DIRECTED/APPROVED BY THE ENGINEER.
5. THE BRIDGE HAS BEEN DESIGNED FOR 2 LANES OF CLASS A OR 1-LANE OF CLASS 70R, WHICHEVER PRODUCES THE WORST EFFECT.
6. THE REINFORCEMENT SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS: 1786 - 2008.
7. 65 THK. WEARING COAT COMPRISING OF 50MM THK. ASPHALTIC CONCRETE LAID IN TWO LAYERS OF 25MM EACH, OVER 15 MM THK. MASTIC ASPHALT SHALL BE USED AS PER SPECIFICATION.
8. SAFE BEARING CAPACITY (SBC) OF SOIL/ROCK BELOW FOUNDATION HAS BEEN CONSIDERED AS 30T/SqM, WHICH SHALL BE CONFIRMED BEFORE CONSTRUCTION. IF SBC IS FOUND LESS, THE MATTER SHALL BE REPORTED TO THE ENGINEER.
9. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
10. THE SELECTED BACKFILL MATERIALS BEHIND ABUTMENT/RETURN WALL/RETAINING WALL SHALL CONFORM TO APPENDIX-6 OF IRC:78-2014. ANGLE OF REPOSE OF BACKFILL MATERIALS SHALL NOT BE LESS THAN 32°.
11. THE BACKFILL MATERIALS MAY BE FILLED FOR PORTION AS INDICATED IN APPENDIX-6 OF IRC:78-2014. THE WORKS SHALL CONFORM TO SECTION 305.2 OF MORT&H SPECIFICATION.
12. FOR DETAILS OF VERTICAL AND HORIZONTAL ALIGNMENT, CAMBER/SUPERELEVATION AND EXTRA WIDENING REFER ROAD DRAWING (PLAN & PROFILE) OF RESPECTIVE CHAINAGE.
13. DURING CONSTRUCTION OF THE BRIDGE EXISTING ROAD TRAFFIC SHALL BE DIVERTED SUITABLY IN CONSULTATION WITH THE ROAD AUTHORITY.
14. LOCATION, FRL, CAMBER, BED LEVELS, FOUNDATION LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION, IF ANY VARIATION IS FOUND, IT SHALL BE REPORTED TO THE ENGINEER.
15. FOR FOUNDATION RESTING ON ROCK, ALL SEAMS & CRACKS ON ROCK SURFACE SHALL BE GROUTED WITH CEMENT/MORTAR AS PER MORT&H SPECIFICATION.
16. WEEP HOLES IN SLOPE 1:20, 100 DIA. PVC PIPE AT SPACING 1000 MM C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER ABOVE GROUND LEVEL OR LWL, WHICHEVER IS HIGHER.
17. THE ANNULAR SPACE AROUND FOUNDATION SHALL BE FILLED WITH PCC (M15)/ BOULDER GROUTED WITH CEMENT MORTAR (1:3) AS PER SECTION 304.3.4 OF MORT&H SPECIFICATION.
18. BEARING FOR SUPERSTRUCTURE SHALL BE TAR PAPER TYPE COMPRISING REINFORCED BITUMEN LAMINATED KRAFT PAPER, CONFORMING TO IS:1398-1982.
19. THE EXPANSION JOINT SHALL BE FILLER TYPE CONFORMING TO IRC:SP:69-2011.
20. SUITABLE LONG RETAINING WALL SHALL BE PROVIDED AT APPROACHES OF BRIDGES TO RETAIN/PROTECT THE EMBANKMENT. THE FOUNDATION OF RETAINING WALL; BELOW NATURAL GROUND, SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS. GABBION WALL TYPE RETAINING WALL MAY ONLY BE USED IN PORTION AWAY FROM WATER COURSE.

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	R. Gautam	R. Gautam	S.K.B	Tapas Mukherjee

GENERAL ARRANGEMENT DRAWING
(FOR BRIDGE AT KM.10.418 ON CL ROAD)

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/BR/CL/10418/01 | SCALE : AS SHOWN | SHEET : | Page No.

STANDARD DRAWINGS

A. GENERAL

1. ALL DIMENSIONS ARE IN MM AND LEVELS & CHAINAGES ARE IN METRE UNLESS OTHERWISE STATED (UOS).
2. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THESE NOTES SHOULD BE FOLLOWED IN CONJUNCTION WITH ALL OTHER DRAWINGS AND TECHNICAL SPECIFICATIONS FOR CIVIL AND STRUCTURAL WORKS.
4. REFERENCE MADE TO ANY DRAWING SHALL REFER TO THE LATEST APPROVED REVISION OF THE SAID DRAWING.
5. IN CASE OF ANY DISCREPANCY BETWEEN THE SPECIFICATIONS AND DETAILS SHOWN IN THE DRAWING, THE SAME SHALL BE BROUGHT TO THE NOTICE OF ENGINEER–IN–CHARGE.
6. THE CONTRACTOR SHALL VERIFY ALL CHAINAGES, CO–ORDINATES, SETTING OUT DETAILS, REDUCED LEVELS AND DIMENSIONS BEFORE THE CONSTRUCTION COMMENCES. ANY DISCREPANCY SHALL BE BROUGHT TO THE NOTICE OF THE ENGINEER–IN–CHARGE IMMEDIATELY.
7. DESIGN CRITERIA:

I. THE DESIGN IS BASED ON THE FOLLOWING CODES & STANDARDS:
   a.) IRC:5–1998
   b.) IRC:6–2010
   c.) IRC:112–2011
   d.) IRC:78–2014
   e.) IRC:83–1987 (PART–II)
   f.) IRC:83–2002 (PART–III)
   g.) IRC:22–2008
   h.) IRC:24–2010

II. THE FOLLOWING LOADS HAVE BEEN CONSIDERED IN THE DESIGN:

a.) LIVE LOAD FOR CARRIAGEWAY SHALL BE ONE/TWO LANES OF CLASS A, OR ONE LANE OF CLASS 70R, WHICHEVER IS SEVERE.

b.) LIVE LOAD ON FOOTPATH SHALL BE 400Kg/Sqm. REDUCED AS PER IRC:6 (FOR GLOBAL DESIGN)

c.) WEARING COAT LOAD OF 2.0 KN/Sqm.

III. SEISMIC ZONE : V

8. EXPOSURE CONDITION : SEVERE FOR STEEL STRUCTURES AND MODERATE FOR OTHER STRUCTURES.
9. THE WEARING COAT SHALL CONSIST OF 40mm THICK BITUMINOUS CONCRETE OVERLAID WITH 25mm THICK MASTIC ASPHALT AS PER SECTION 500 OF MORT&H SPECIFICATIONS FOR ROAD BRIDGES.

B. EARTHWORK

1. ALL WORKS BELOW GROUND LEVEL SHALL BE EXECUTED IN DRY CONDITIONS ONLY.
2. BACKFILLING SHALL BE DONE IN LAYERS NOT EXCEEDING 200mm THICKNESS. EACH LAYER SHALL BE COMPACTED TO THE OPTIMUM DENSITY.

C. MATERIAL SPECIFICATIONS

C1. CONCRETE

1. ORDINARY PORTLAND CEMENT (43 GRADE OR 53 GRADE) CONFORMING TO IS:8112 AND IS:12269 RESPECTIVELY SHALL BE USED UNLESS STATED OTHERWISE.
2. CONCRETE SHALL BE DESIGN MIX OF GRADE AS SPECIFIED IN RESPECTIVE DRAWING.
3. TO IMPROVE WORKABILITY OF CONCRETE, ADMIXTURES CONFORMING TO IS:9103 AND IS:6925 CAN BE USED SUBJECT TO SATISFACTORY PROVEN USE. ADMIXTURES GENERATING HYDROGEN, NITROGEN, CHLORIDES ETC. SHOULD NOT BE USED. THE WORKABILITY OF CONCRETE SHOULD BE AS PER IRC PROVISIONS/MORT&H SPECIFICATIONS FOR ROADS & BRIDGES (FIFTH REVISION).
4. MAXIMUM & MINIMUM CEMENT CONTENT IN CONCRETE SHALL CONFORM TO RELEVANT CLAUSE OF IRC/MORT&H SPECIFICATION UNLESS OTHERWISE MENTIONED IN DRAWINGS.
5. MAXIMUM WATER CEMENT RATIO STRUCTURAL CONCRETE WORKS SHALL CONFORM TO CL 1703.2 OF MORT&H SPECIFICATION.
6. THE NOMINAL MAXIMUM SIZE OF AGGREGATE TO BE USED IN RCC WORK SHALL BE 20MM.

C2. REINFORCEMENT

1. REINFORCING STEEL SHALL BE TMT BARS (GRADE DESIGNATION FE 500D) CONFORMING TO IS:1786.
2. SPACING OF BARS INDICATED ON THE DRAWING SHALL BE PERPENDICULAR TO BARS UOS IN THE DRAWING.
3. SPACER BARS SHALL BE PROVIDED BETWEEN ADJACENT LAYERS OF PARALLEL REINFORCEMENT SPACED AT NOT MORE THAN 60xSMALLER BAR DIA. THE DIAMETER OF THE SPACER BAR SHALL BE AT LEAST 25 MM BUT NOT LESS THAN THE DIA. OF THE PARALLEL BAR.
4. MINIMUM LAP LENGTH FOR REINFORCEMENT FOR DIFFERENT GRADE OF CONCRETING SHALL BE AS UNDER:
   56 TIMES DIA OF BAR FOR M30 GRADE CONCRETE AND
   50.4 TIMES DIA OF BAR FOR M35 AS PER EQN. 15.3 OF IRC 112:2011.
   THE LAP LENGTH GIVEN ABOVE ARE BASED ON ASSUMPTION THAT NOT MORE THAN 50% BAR SHALL BE LAPPED AT ONE SECTION. IN CASE, MORE THAN 50% BARS ARE LAPPED AT A SECTION, THE LAP LENGTH SHALL BE MODIFIED AS PER CLAUSE 15.2.5 OF IRC:112–2011.
5. WELDING OF REINFORCEMENT BARS SHALL NOT BE PERMITTED, NORMALLY.
6. BENDING OF REINFORCEMENT BARS SHALL BE DONE AS PER IS:2502.
7. SUPPORTING CHAIRS OF 12mm DIAMETER SHALL BE PROVIDED AT SUITABLE INTERVALS AS PER IS:2502.
8. SPECIALLY MADE POLYMER COVER BLOCKS OF SAME STRENGTH AS THAT OF CONCRETE SHALL ONLY BE USED.

C3. WATER

1. WATER TO BE USED IN CONCRETING, CURING ETC. SHALL CONFORM TO CLAUSE 18.4.5 OF IRC:112–2011.

C4. EXPANSION JOINTS

1. SINGLE/MODULAR STRIP SEAL TYPE EXPANSION JOINTS SHALL BE AS PER MORT&H SPECIFICATIONS. THE EXPANSION JOINT SHALL BE PROVIDED OVER FULL WIDTH OF THE DECK. SITE FABRICATION OF EXPANSION JOINT IS PROHIBITED.
2. EXPANSION JOINTS SHALL BE INSTALLED AFTER LAYING THE WEARING COURSE. THE VOID LEFT FOR THIS PURPOSE TO BE TEMPORARILY BLOCKED WHILE LAYING THE WEARING COURSE.
3. FABRICATED STEEL PARTS SHALL BE POSITIONED ACCURATELY BEFORE CONCRETING THE VOID LEFT FOR THE PURPOSE.
4. PRESENCE OF MANUFACTURER'S REPRESENTATIVE AT THE TIME OF POSITIONING OF EMBEDDED PARTS AND INSTALLATION OF EXPANSION JOINTS IS MANDATORY.

D. TREATMENT OF CONSTRUCTION JOINT

1. ABOUT 8 TO 12 HOURS AFTER CONCRETING, CONTACT SURFACES SHALL BE HACKED WITH A MECHANICAL CHIESEL OR BY SAND–BLASTING, TO EXPOSE THE AGGREGATE SURFACE AND REMOVE LAITANCE.
2. THE SURFACE SHALL THEN BE COMPRESSOR–CLEANED TO REMOVE ALL DIRT. BEFORE APPLYING FRESH CONCRETE, THE CONTACT SURFACE SHALL BE WETTED FOR AT LEAST 6 HOURS.
3. AFTER THE SURFACE HAS DRIED, A BOND COAT OF LIQUID EPOXY SUCH AS FOSROC'S NITOBOND EP OR APPROVED EQUIVALENT SHALL BE APPLIED UNIFORMLY (USING A BRUSH) OVER THE OLD CONCRETE JUST BEFORE PLACING THE FRESH CONCRETE. THE FRESH CONCRETE SHALL BE PLACED IMMEDIATELY AFTER APPLYING THE EPOXY COAT.
4. I)THE FRESH CONCRETE SHALL BE THOROUGHLY VIBRATED NEAR THE CONSTRUCTION JOINTS SO THAT MORTAR FROM THE NEW CONCRETE FLOWS BETWEEN LARGE AGGREGATES AND DEVELOP PROPER BOND WITH OLD CONCRETE.

   II)IT SHALL ALSO BE ENSURED THAT SPRAYED CURING MEMBRANE AND RELEASE AGENTS (IF ANY) HAVE BEEN THOROUGHLY REMOVED FROM THE JOINT SURFACES.

E. WORKMANSHIP/DETAILING

1. MINIMUM COVER TO ANY REINFORCEMENT SHALL BE AS FOLLOWS:
   a.) FOUNDATION _____ 75mm
   b.) PIER & APPROACH SLAB _____ 50mm
   c.) ALL OTHER ELEMENTS _____ 40mm
2. TO ENSURE PROPER COVER OF CONCRETE TO REINFORCEMENT BARS, COVER BLOCKS OF APPROPRIATE SIZE & SHAPE SHALL BE USED.
3. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNDER NORMAL CIRCUMSTANCES. IN CASE IT IS ABSOLUTELY UNAVOIDABLE, THE SAME SHALL BE PERMITTED WITH THE APPROVAL OF ENGINEER, ONLY AFTER SATISFYING CLAUSE 15.2.5.2 OF IRC:112–2011.
4. ALL SHARP EDGES OF CONCRETE SHALL BE CHAMFERED (15mmX15mm).
5. PROPER COMPACTION OF CONCRETE SHALL BE ENSURED BY USE OF FORM AND/OR NEEDLE VIBRATORS. SHUTTERING PLATES SHALL SUITABLY BE STIFFENED TO ENABLE THE COMPACTION BY FORM VIBRATORS.

F. WELL SINKING

1. CONCRETING OF STEINING SHALL BE DONE IN SUBSEQUENT LIFTS OF 2 TO 2.5 M WITHOUT ANY CONSTRUCTION OR COLD JOINT. CONCRETING OF BOTTOM PLUG SHALL BE DONE IN ONE CONTINIOUS OPERATION TILL DREDGE HOLE IS FILLED UPTO THE REQUIRED HEIGHT AND THEREAFTER SOUNDING SHALL BE TAKEN UP TO ENSURE THAT CONCRETE HAS BEEN LAID TO REQUIRED HEIGHT. CONCRETING IN THE WELL CURB SHALL ALSO BE DONE IN ONE CONTINIOUS OPERATION.
2. THE WELL SINKING, STABILISATION, TILTS & SHIFTS CORRECTION ETC. SHALL BE CARRIED OUT STRICTLY IN ACCORDANCE WITH CLAUSE 1208 OF THE MORT&H SPECIFICATIONS.
3. AFTER REACHING THE FOUNDING LEVEL THE WELL STEINING SHALL BE INSPECTED TO CHECK FOR ANY DAMAGE OR CRACKS. THE ENGINEER WILL DIRECT AND THE CONTRACTOR SHALL EXECUTE THE REMEDIAL MEASURES BEFORE ACCEPTANCE.
4. THE PERMISSIBLE TOLERANCES IN WELL INSTALLATION SHALL CONFORM TO CLAUSE 1213 OF MORT&H SPECIFICATION.
5. SINKING OR LOADING OF THE WELL WITH KENTLEDGE SHALL BE COMMENCED ONLY AFTER THE STEINING HAS BEEN CURED FOR ATLEAST 48 HOURS.
6. ATLEAST ONE BORE HOLE MUST BE CARRIED OUT IN ACCORANCE TO THE SPECIFICATIONS AT EACH WELL FOUNDATION LOCATION, AND BEARING CAPACITY SHALL BE CHECKED PRIOR TO COMMENCEMENT OF WORK. THE DEPTH OF BORE HOLES SHOULD EXTEND TO A DEPTH EQUAL TO ONE AND HALF TIMES THE OUTER DIAMETER / LEAST DIMENSION OF THE WELL BELOW THE ANTICIPATED FOUNDING LEVEL. THE RESULTS OF SOIL EXPLORATION SHOULD BE PRESENTED IN ACCORDANCE WITH CLAUSE 9 OF IRC 78 : 2014. IN CASE THE WELL FOUNDATION IS TO REST ON A ROCKY STRATA, IT MAY BE NECESSARY TO UNDERTAKE ADDITIONAL BORINGS / PROBINGS PRIOR TO COMMENCEMENT OF WORK TO ASCERTAIN THE ACTUAL PROFILE AND QUALITY OF ROCK STRATA AT THE LEVEL AT WHICH THE WELL HAS TO BE SEATED ETC.
7. SAFE BEARING CAPACITY AS INDICATED ON RELEVANT GENERAL ARRANGEMENT DRAWING HAS BEEN CONSIDERED WHILE DESIGNING FOUNDATIONS FOR ABUTMENT/PIER RESTING ON SOIL/ROCK. THE CONTRACTOR SHALL VERIFY THE SAME BEFORE EXECUTION OF WORK.
8. IN CASE LOCALIZED SOFT SOIL DEPOSIT IS NOTED AT THE FOUNDING LEVEL FOR FOUNDATIONS RESTING ON ROCK, THE SAME SHALL BE EXCAVATED AND REPLACED BY M15 GRADE CONCRETE.
9. IN CASE OF FOUNDATION RESTING ON ROCK, THE ANNULAR SPACE AROUND THE FOOTING SHALL BE FILLED BACK WITH CONCRETE OF M15 GRADE UPTO THE TOP OF ROCK.

G. SPECIFICATIONS

THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH MORT&H SPECIFICATIONS FOR ROAD & BRIDGE WORKS (5TH REVISION, 2013) EXCEPT WHEREVER OTHERWISE MENTIONED.

I. STRUCTURAL STEEL

I1. MATERIALS

I1.1 STEEL MEMBERS SHALL BE FREE FROM IMPERFECTION (MILL SCALES, SLAG INTRUSIONS, LAMINATION, PITTINGS, RUSTS ETC.) THAT MAY IMPAIR STRENGTH, DURABILITY AND APPEARANCE. ALL MATERIALS SHALL BE OF TESTED QUALITY.

I1.2 STRUCTURAL STEEL SHALL CONFORM TO GRADE E350 OF BO QUALITY CONFORMING TO IS:2062–2011 UNLESS OTHERWISE SPECIFIED.

I1.3 HIGH STRENGTH BOLTS SHALL BE GRADE 8.8 CONFORMING TO IS:4000 & IS:3757, NUTS TO CONFORM IS:6623 & WASHERS TO CONFORM IS:6649. UNLESS STATED OTHERWISE.

I1.4 THE ELECTRODES USED FOR WELDING SHALL CONFORM TO IS:814.

I1.5 ALL STRUCTURAL STEEL FABRICATION WORK SHALL BE CARRIED OUT AS PER RELEVANT INDIAN STANDARDS AND MORT&H SPECIFICATIONS.

I1.6 SHEAR STUDS SHALL CONFORM TO IRC: 22–2008.

I2. FABRICATION

I2.1 EDGE PREPARATION

I2.1.1 EDGE PREPARATION FOR WELDING SHALL BE DONE BY MACHINE CONTROLLED FLAME CUTTING WITH EDGES FREE FROM BURRS, CLEAN AND STRAIGHT IN ACCORDANCE WITH IS:9595.

I2.1.2 MATERIAL SHALL BE CUT TO SIZE BY MACHINE CUTTING OR SAWING. ALL FLAME CUT EDGES SHALL BE GROUND/MACHINED TO CLEAN, SQUARE & TRUE EDGES, DRAG LINES OBTAINED SHALL BE REMOVED.

I2.2 BOLTING

I2.2.1 HOLES FOR BOLTS SHALL BE DRILLED TO CONFORM TO CLAUSE 10 OF IS:7215. PUNCHING OF HOLES SHALL NOT BE PERMITTED. ALL HOLES EXCEPT AS STATED HEREUNDER SHALL BE DRILLED TO 3mm LESS THAN REQUIRED SIZE AND REAMED THEREAFTER TO THE REQUIRED SIZE. ALL MATCHING HOLES FOR BOLTS SHALL BE REGISTERED WITH EACH OTHER SO THAT A GUAGE OF 0.8mm LESS THAN HOLE DIA CAN PASS FREELY THROUGH THE MEMBERS ASSEMBLED FOR BOLTING IN THE DIRECTION AT RIGHT ANGLE TO SUCH MEMBERS.

I2.2.2 ALL BOLTS SHALL BE HIGH STRENGTH (8.8 GRADE CONFORMING TO IS:3757, IS:1363 & IS:1364 UNLESS OTHERWISE STATED).

I2.2.3 ALL BOLTS SHALL BE HSFG. SURFACE PREPARATION FOR CONNECTIONS USING HSFG BOLT MUST CONFORM TO IS: 4000–1992 TO ATTAIN A SLIP FACTOR NOT LESS THAN 0.35.

I2.3 WELDING

I2.3.1 SAMPLES OF WELDED COMPONENTS AND TESTS ON THEM SHALL BE GOT APPROVED BY THE INSPECTING AGENCY OR ITS NOMINATED AGENCY PRIOR TO COMMENCING FULL SCALE FABRICATION OF THE RELATED COMPONENTS.

I2.3.2 WELDING OF STRUCTURES SHALL BE DONE BY MEANS OF SUBMERGED ARC WELDING.

I2.3.3 MINIMUM THICKNESS OF FILLET WELD FOR FABRICATION OF BUILT UP SECTIONS, UNLESS STATED OTHERWISE, IN THE DRAWING SHALL BE AS FOLLOWS:

THICKNESS OF THICKER ELEMENT	UP TO 6mm	6–12	12–18	18–36	36–56
MINIMUM THICKNESS OF WELD (mm)	3	4	6	8	10

I2.3.6 ALL ACCESSIBLE EDGES IN CONTACT AT A JOINT ARE TO BE WELDED UNLESS OTHERWISE SPECIFIED.

I2.3.7 WELDING PROCEDURE SHALL CONFORM TO IS: 814, IS:816 AND IS:9595.

I2.3.8 CRITERIA FOR WELD TEST AND ACCEPTANCE SHALL BE STRICTLY AS PER THE MORT&H SPECIFICATIONS.

I2.3.9 THE CONTINUOUS WELDING FOR FABRICATING I–SECTIONS SHALL BE SUBMERGED ARC WELDING OR GAS METAL ARC WELDING (MIG) AND NECESSARY TESTS SHALL BE DONE AND REPORTS PREPARED & SCRUTINIZED BY COMPETENT AUTHORITY.

I2.4 FABRICATION AND ERECTION

I2.4.1 FABRICATION, ERECTION, INSPECTION OF STEEL STRUCTURE SHALL BE DONE AS PER RELEVANT IS CODE, UNLESS OTHERWISE SPECIFIED IN THE SPECIFICATION WHICH SHALL OVERRIDE CORRESPONDING PROVISIONS IN THE CODE.

I2.4.2 ALL THE STRUCTURES SHALL BE FABRICATED AS PER CAMBER STATED IN DETAILED DRAWINGS.

I2.5 ASSEMBLY AT WORKSHOP

I2.5.1 THE STEEL WORK SHALL BE TEMPORARILY SHOP ASSEMBLED AS INSTRUCTED BY THE ENGINEER–IN–CHARGE SO THAT THE ACCURACY OF THE FITTINGS ARE CHECKED BEFORE DESPATCH FROM FABRICATION SHOP. SHOP ASSEMBLY SHALL BE EFFECTED WITH SUFFICIENT NUMBER OF PARALLEL DRIFTS TO BRING AND KEEP THE PARTS IN PLACE.

I2.5.2 MATCH DRILLING SHALL BE DONE, WHEREVER POSSIBLE. ALL MEMBERS, GUSSET PLATES ETC. SHALL BE CUT AFTER FULL SCALE SHOP LAYOUT.

I3. TOLERANCE

I3.1 FABRICATION OF STEEL WORKS SHALL BE DONE WITHIN THE SPECIFIED TOLERANCE LIMIT OF IS:7215 AND AS PER CLAUSE 1904.11 OF MORT&H SPECIFICATIONS.

I4. INSPECTION & TESTING

I4.1 FOR DETAILED INSPECTION AND TESTING OF STEEL WORKS, REFER IRC 24 AND MORT&H SPECIFICATIONS FOR ROAD & BRIDGES. ALL STEEL STRUCTURE SHALL BE INSPECTED IN THE FABRICATION SHOP PRIOR TO DISPATCH FROM FABRICATION SHOP. NECESSARY TEST CERTIFICATES SHALL BE SUPPLIED DURING INSPECTION OR AS DIRECTED BY ENGINEER–IN–CHARGE.

I5. PAINTING AND GALVANIZING

I5.1 ALL STEEL STRUCTURAL WORK SHALL BE CLEANED AND PAINTED AS PER THE PAINTING SPECIFICATIONS GIVEN BELOW AND SHALL ALSO CONFIRM TO IRC:24 APPENDIX 'C' AND CLAUSE 1906 OF MORT&H SPECIFICATIONS.

FABRICATION SHOP

SURFACE TREATMENT	REMOVE OIL/GREASE BY USE OF PETROLEUM HYDROCARBON SOLUTION	
	SIS SA 2.5 NEAR–WHITE BLAST CLEANING	
1st UNDER COAT	EPOXY ZINC PHOSPHATE PRIMER POLYAMIDE CURED DFT:30µm	EPOXY ZINC PHOSPHATE PRIMER POLYAMIDE CURED DFT:30µm
2nd UNDER COAT	EPOXY ZINC PHOSPHATE PRIMER POLYAMIDE CURED DFT:30µm	EPOXY ZINC PHOSPHATE PRIMER POLYAMIDE CURED DFT:30µm
INTERMEDIATE COAT	EPOXY HIGH BUILD MICACEOUS IRON OXIDE COATING POLYAMIDE CURED DFT:105µm	(N.A.)
1ST FINISHING COAT	ACRYLIC POLY URETHANE FINISH ALIPHATIC ISOCYATE CURED DFT:30µm	POLYAMIDE CURED COAL TAR EPOXY COATING DFT:100µm
2ND FINISHING COAT	(N.A.)	POLYAMIDE CURED COAL TAR EPOXY COATING DFT:100µm

CONSTRUCTION SITE

	TOUCHING UP THE PRIMER & THE COVER COAT, IF DAMAGE IN TRANSIT	
FINISHING COAT	ACRYLIC POLY URETHANE FINISH ALIPHATIC ISOCYATE CURED DFT:30µm	(N.A.)

I5.2 ALL PAINT DELIVERED TO THE FABRICATION SHOP/SITE SHALL BE READY MIXED IN ORIGINAL SEALED CONTAINER AS PACKED BY THE APPROVED PAINT MANUFACTURES. NO THINNER SHALL BE ADDED. PAINT SHALL BE STIRRED FREQUENTLY TO KEEP THE PIGMENT IN SUSPENSION.

I5.3 SURFACES EMBEDDED IN CONCRETE SHALL HAVE NO PAINT APPLIED.

I6. TRANSPORT TO SITE & STORAGE

I6.1 STORAGE AT SITE SHOULD BE ON A RAISED PLATFORM TO AVOID RUSTING/DAMAGE.

I6.2 TRANSPORTATION OF ALL FABRICATED STRUCTURAL STEEL MATERIALS FROM SITE STORAGE YARD, HANDLING ASSEMBLING, BOLTING WELDING AND SATISFACTORY INSTALLATION OF ALL FABRICATED STRUCTURAL STEEL MATERIALS IN PROPER LOCATION SHALL BE ACCORDING TO APPROVED ERECTION DRAWING.

I7. ERECTION

I7.1 EACH FABRICATED MEMBER, WHETHER ASSEMBLED PRIOR TO DISPATCH FROM FABRICATION SHOP OR NOT, SHALL BEAR AN ERECTION MARK, WHICH WILL HELP TO IDENTIFY THE MEMBER AND ITS POSITION IN RESPECT OF THE WHOLE STRUCTURE TO FACILITATE RE–ERECTION AT SITE.

I7.2 NO REAMING SHALL BE CARRIED OUT WITHOUT PRIOR PERMISSION OF THE ENGINEER–IN–CHARGE.

I7.3 THE CONTRACTOR SHALL SUBMIT THE QUALITY ASSURANCE PLAN, WELDING SEQUENCE AND WELDING PROCEDURE FOR FABRICATION AND ERECTION.

I8. TECHNICAL SPECIFICATIONS

I8.1 TECHNICAL SPECIFICATIONS SHALL CONFORM TO CLAUSES OF MORT&H SPECIFICATION FOR ROAD AND BRIDGE WORKS (FIFTH REVISION).

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEP 2016	Stage 4: Final Detail Project Report / Volume VIII : Drawings	NKM / RJ	S. B.	S. B.	S.K.B	Tapas Mukherjee

GENERAL NOTES

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

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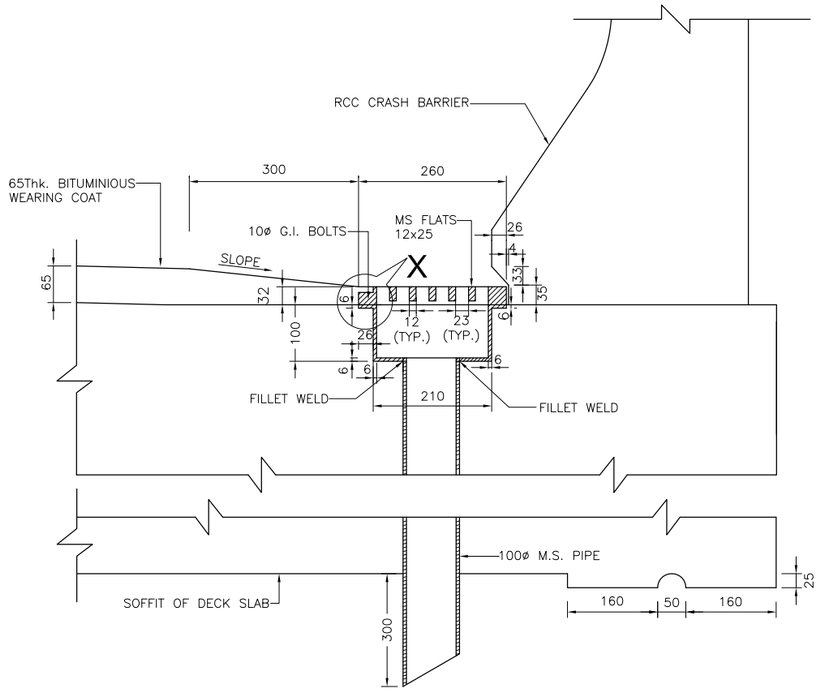
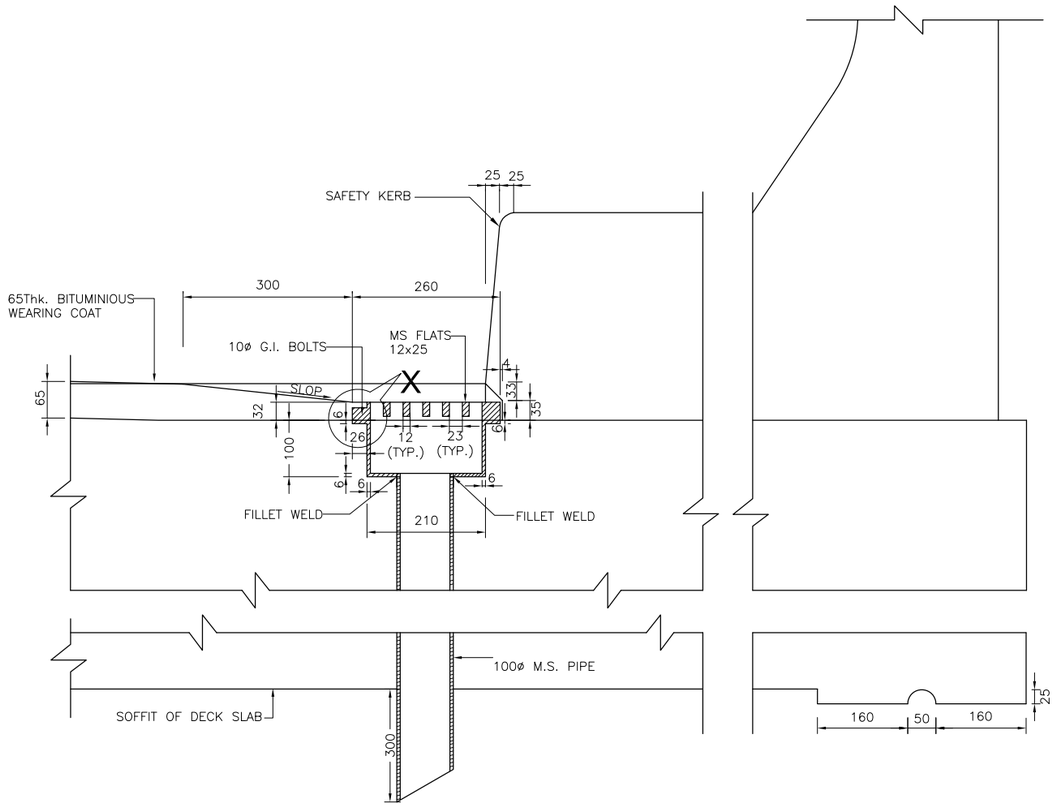
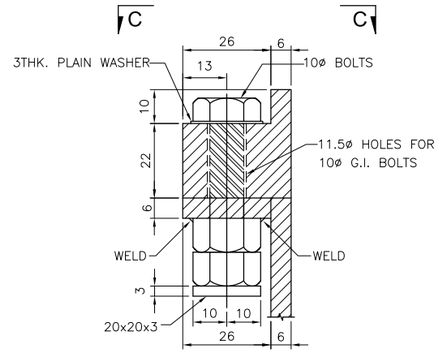


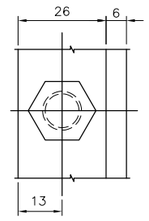
SECTION A–A
(SCALE 1:7.5)



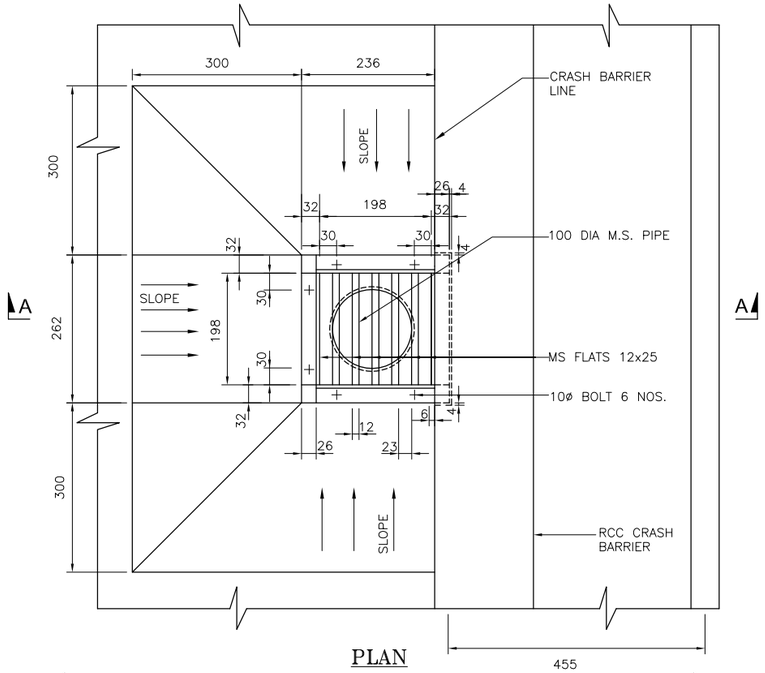
SECTION B–B
(SCALE 1:7.5)



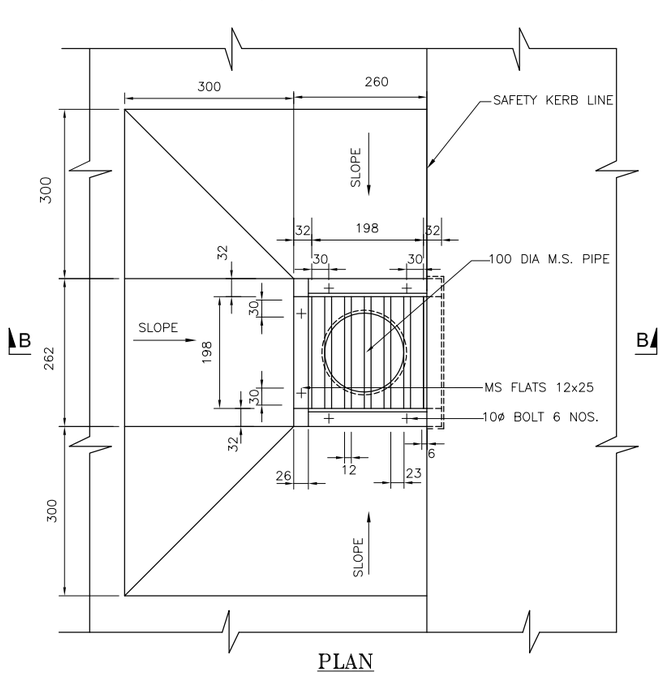
DETAIL–X
(SCALE 1:1)



VIEW C–C
(SCALE 1:1)



PLAN
(DETAILS OF DRAINAGE SPOUT WITHOUT SAFETY KERB)
(SCALE 1:7.5)



PLAN
(DETAILS OF DRAINAGE SPOUT WITH SAFETY KERB)
(SCALE 1:7.5)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. DRAINAGE SPOUTS AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
4. ALL FASTNERS OF THE CLAMPS TO CONCRETE SHALL BE 10MM DIA BOLT WITH DASH BOLT/HIL1/RAWL PLUG OF EXPANDING TYPE ARRANGEMENT.
5. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWING FOR THE RESPECTIVE BRIDGES AND ALL OTHER RELEVANT DRAWINGS.

REFERENCE DRAWINGS:

1. RITES/HW/MORT&H/4055–30/DPR/STD/01 GENERAL NOTES

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEP 2016	Stage 4: Final Detail Project Report / Volume VIII : Drawings	NKM / RJ	S. B.	S. B.	S.K.B	Tapas Mukherjee

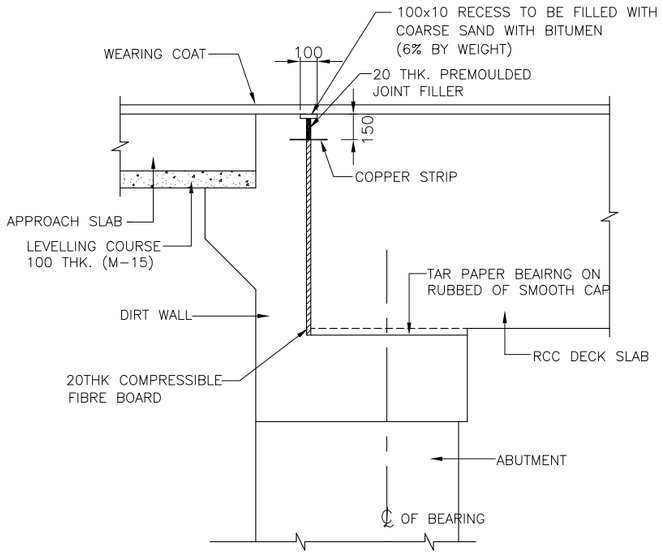
DETAILS OF DRAINAGE SPOUT
(FOR SLAB BRIDGES)

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

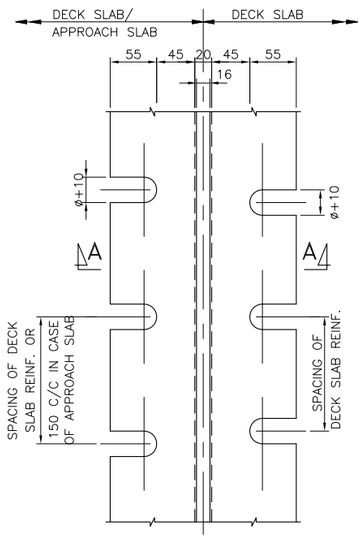
Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/02 | SCALE : AS SHOWN | SHEET : 1 OF 1 | Page No.



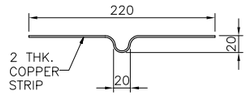
AT ABUTMENT

DETAILS OF FILLER TYPE EXPANSION JOINT

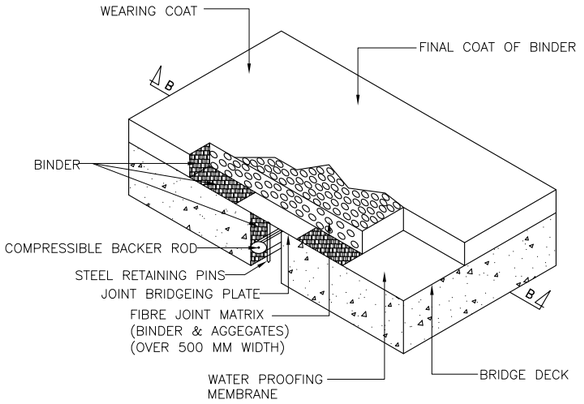
(FOR SOLID SLAB SUPERSTRUCTURE)



DETAILS OF COPPER STRIP

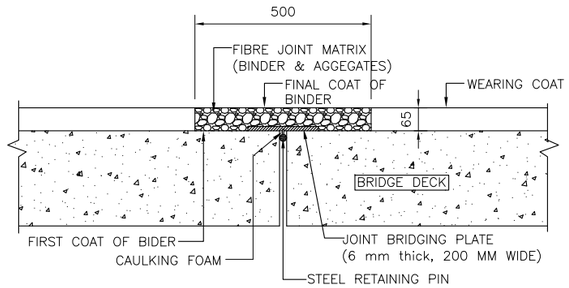


SECTION A-A

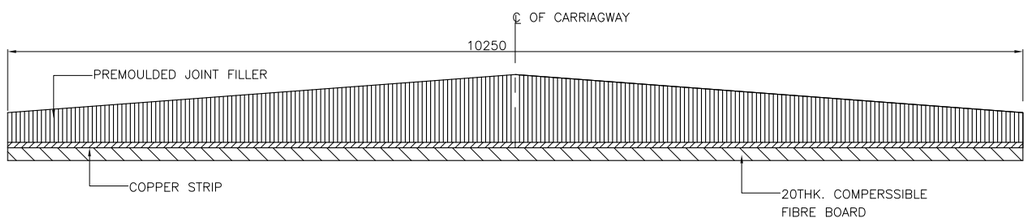


DETAILS OF ASHPALTIC PLUG JOINT

(FOR BOX CELL BRIDGES)



SECTION B-B



LAYOUT OF COPPER STRIP

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTERWISE MENTIONED.
2. DIMENSION ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUCTION WITH GENERAL ARRANGEMENT DRAWINGS FOR THE RESPECTIVE BRIDGE AND OTHER RELEVENT DRAWINGS.
4. JOIN FILLER SHALL CONFORM TO IS:1838.

REFERENCE DRAWINGS:

1. RITES/HW/MOR&H/4055-30/DPR/STD/01 GENERAL NOTES.

R0	SEP 2016	Stage 4: Final Detail Project Report / Volume VIII : Drawings	NKM / RJ	S. B.	S. B.	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

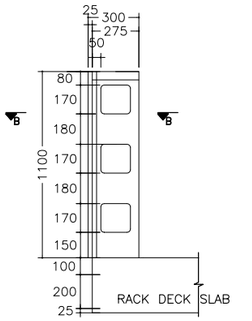
DETAILS OF EXPANSION JOINT
(FOR SLAB AND BOX CELL BRIDGES)

Client : Ministry of Road Transport & Highways (Government of India)

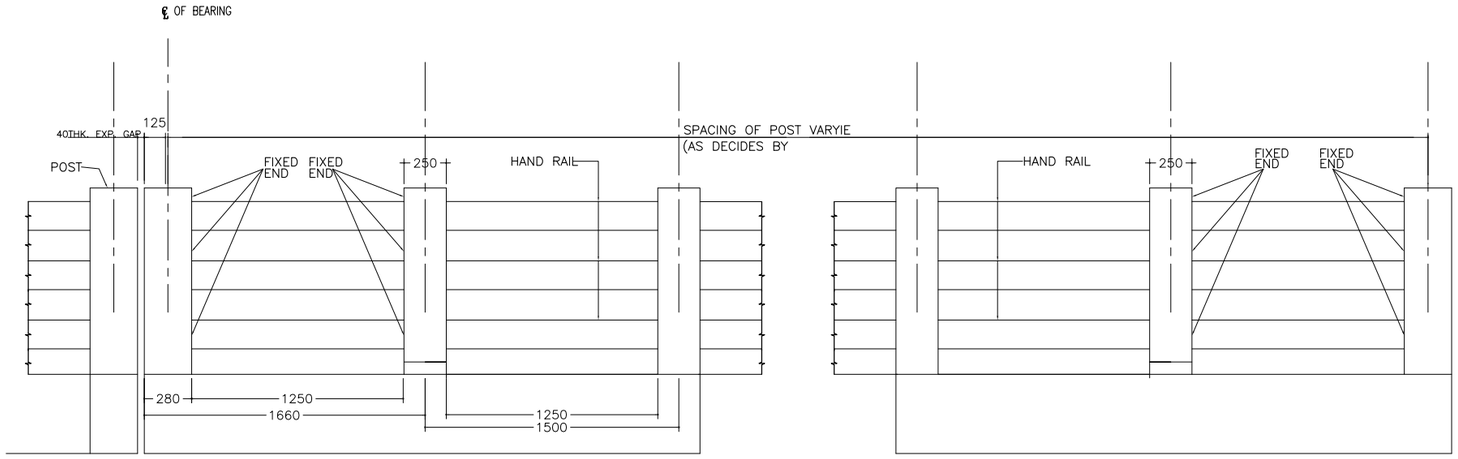
Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

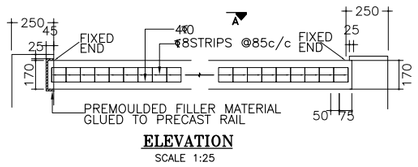
Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/03 | SCALE : AS SHOWN | SHEET : 1 OF 1 | Page No.



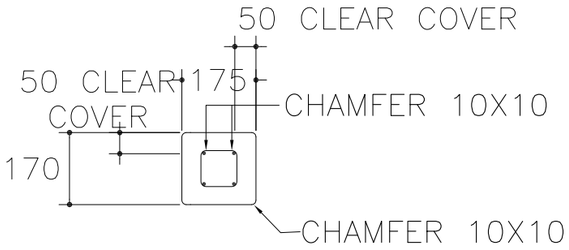
SECTION THROUGH POST
SCALE 1:25



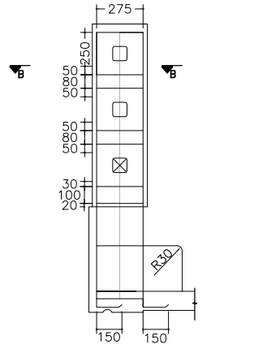
ELEVATION
SCALE 1:25



ELEVATION
SCALE 1:25



SECTION A–A
SCALE 1:10



SECTION THROUGH POST
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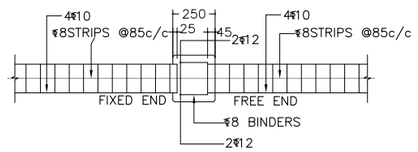
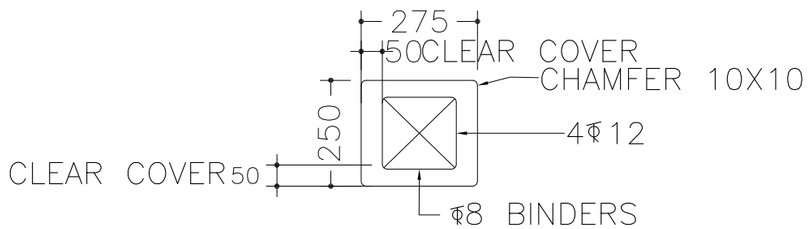


REINF. ARRANGEMENT OF HANDRAIL & POST
SCALE 1:25



SECTION B–B
SCALE 1:10

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWING FOR THE RESPECTIVE BRIDGES AND ALL OTHER RELEVANT DRAWINGS.
4. FOLLOWING GRADES OF CONCRETE SHALL BE USED:
   (i) RCC HAND RAIL ----- M30
5. REINFORCEMENT SHALL BE THRMO MECHANICALLY TREATED (TMT) BARS (GRADE Fe 500D) CONFORMING TO IS:1786–2008.
6. REINFORCEMENT SHALL BE PROVIDED AS WRITTEN AND NOT TO BE COUNTED.
7. REINFORCEMENT BARS SHALL HAVE MINIMUM CLEAR COVER 40mm.

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055–30/DPR/STD/01 GENERAL NOTES

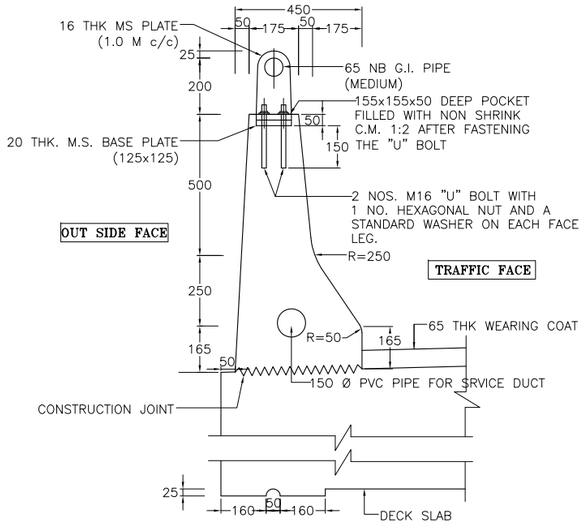
								DETAILS OF RCC HAND RAIL
R0	SEP 2016	Stage 4: Final Detail Project Report / Volume VIII : Drawings	NKM / RJ	S. B.	S. B.	S.K.B	Tapas Mukherjee	
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved	

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

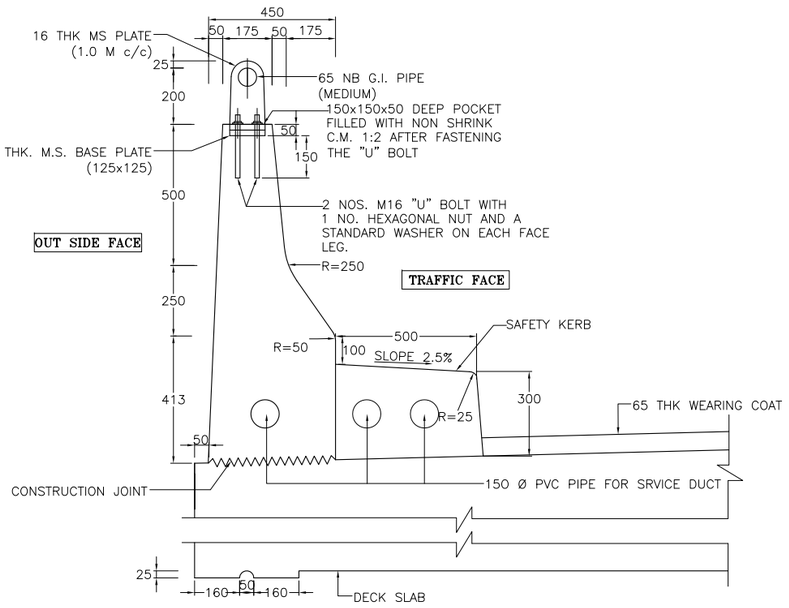
Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/04 | SCALE : AS SHOWN | SHEET : 1 OF 1 | Page No.



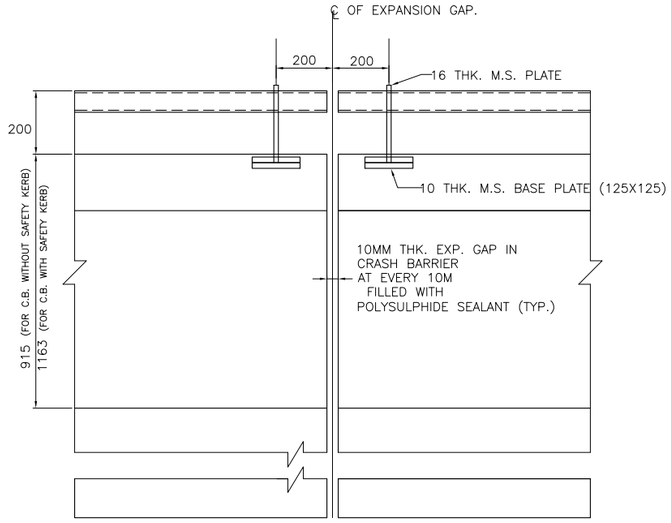
DETAILS OF CRASH BARRIER WITHOUT SAFETY KERB

(SCALE 1:15)



DETAILS OF CRASH BARRIER WITH SAFETY KERB

(SCALE 1:15)



ELEVATION OF CRASH BARRIER

(SCALE 1:15)

REINFORCEMENT DETAILS OF CRASH BARRIER WITHOUT SAFETY KERB

(SCALE 1:15)

REINFORCEMENT DETAILS OF CRASH BARRIER WITH SAFETY KERB

(SCALE 1:15)

SEALING DETAILS OF EXPANSION GAP

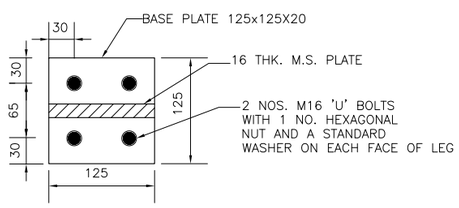
(SCALE 1:15)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWING FOR THE RESPECTIVE BRIDGES AND ALL OTHER RELEVANT DRAWINGS.
4. FOLLOWING GRADES OF CONCRETE SHALL BE USED:
   (i) CRASH BARRIER ----- M40
5. REINFORCEMENT SHALL BE THRMO MECHANICALLY TREATED (TMT) BARS (GRADE Fe 500D) CONFORMING TO IS:1786–2008.
6. REINFORCEMENT SHALL BE PROVIDED AS WRITTEN AND NOT TO BE COUNTED.
7. REINFORCEMENT BARS SHALL HAVE MINIMUM CLEAR COVER 40mm.
8. MINIMUM ANCHORAGE LENGTH OF THE REINFORCEMENT BAR SHALL BE 50 x DIA. OF BAR
9. CONSTRUCTION WORKS FOR CRASH BARRIER AND MS HAND RAIL SHALL BE CARRIED OUT ACCORDING TO SPECIFICATIONS,AS PER STANDARD PRACTICE AND ACCORDING TO THE RELEVANT DETAILS & DRAWINGS WITH NECESSARY ADJUSTMENTS WHENEVER IT IS REQUIRED AS DIRECTED AND APPROVED BY THE ENGINEER–IN–CHARGE.
10. DOWEL BARS OF THE CRASH BARRIER SHALL BE PROPERLY ANCHORED IN TO THE DECK SLAB.
11. CRASH BARRIER SHALL BE ERECTED ONLY AFTER THE STRUCTURAL CONCRETE OF SUPERSTRUCTURE HAS HARDENED, AND SHUTTERING IS RELEASED.
12. SUITABLE REFLECTIVE (LUMINUOUS) DEVICES SHALL BE PROVIDED ON THE TRAFFIC FACE OF THE CRASH BARRIER AT SUITABLE INTERVALS TO ENSURE ADEQUATE VISIBILITY DURING NIGHT AND FOGGY CONDITIONS.

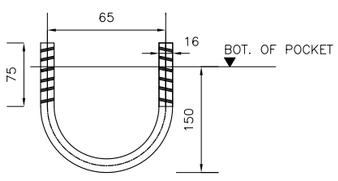
REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055–30/DPR/STD/01 GENERAL NOTES



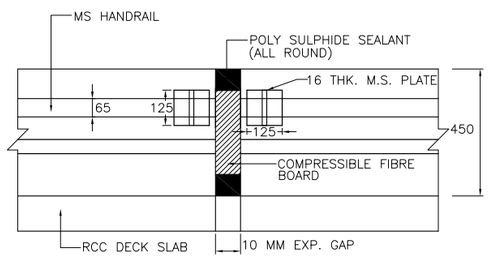
DETAILS OF BASE PLATE

(SCALE 1:5)



DETAILS OF BOLT

(SCALE 1:5)



VIEW A–A

(SCALE 1:15)

R0	SEP 2016	Stage 4: Final Detail Project Report / Volume VIII : Drawings	NKM / RJ	S. B.	S. B.	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

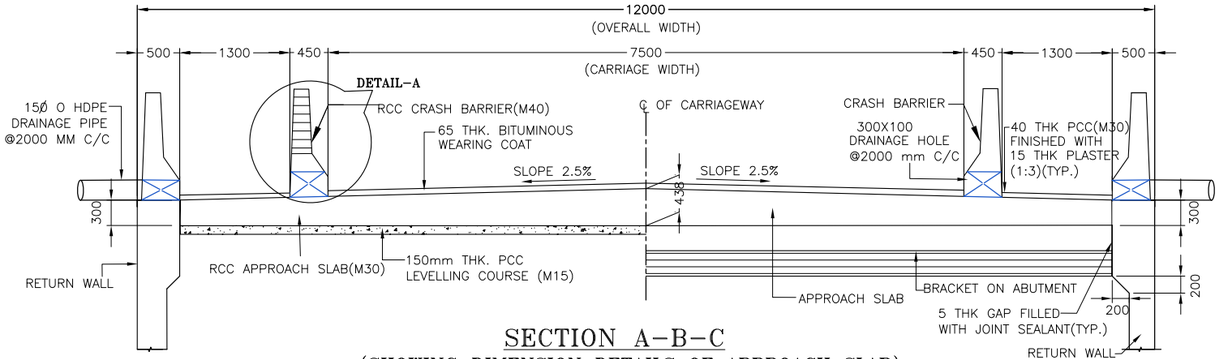
DETAILS OF CRASH BARRIER
(FOR SLAB AND BOX CELL BRIDGES)

Client : Ministry of Road Transport & Highways (Government of India)

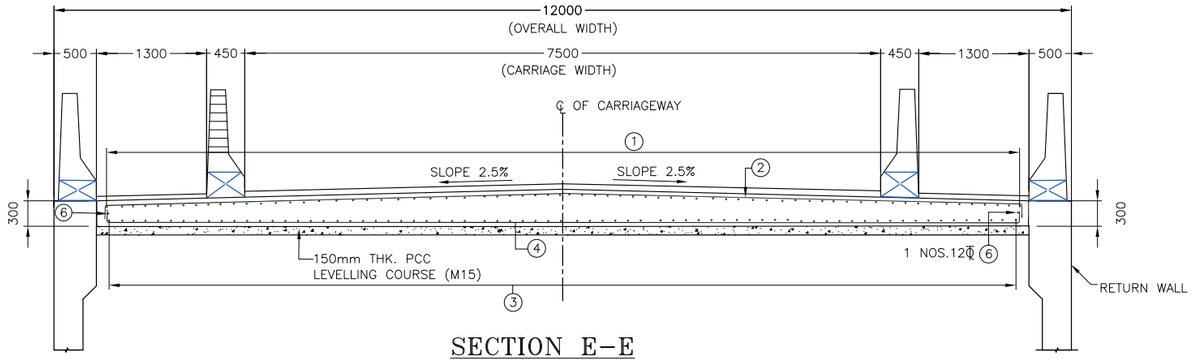
Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

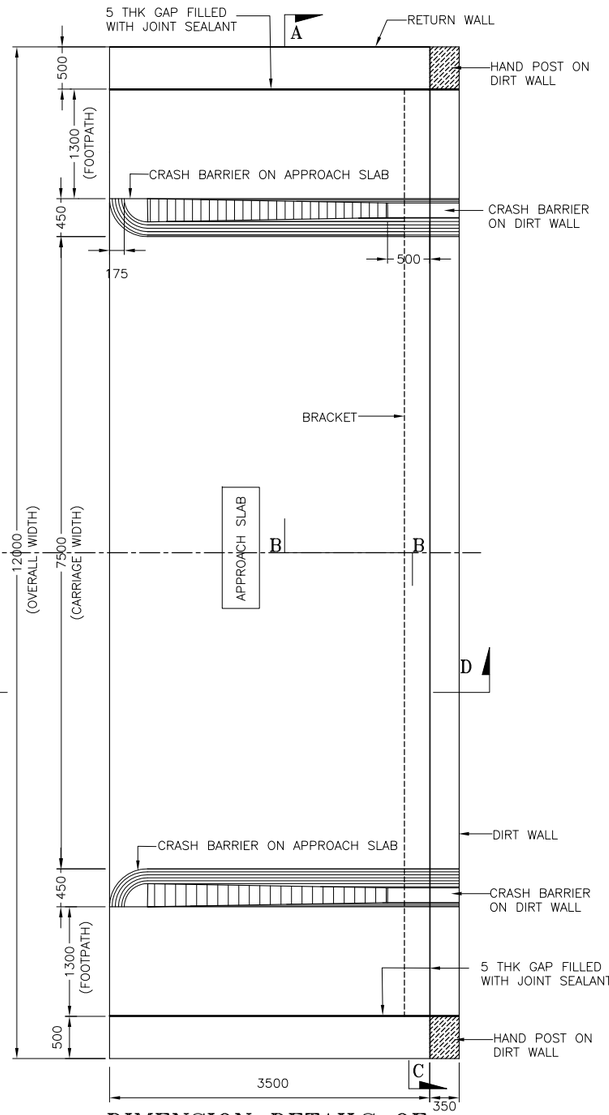
Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/05 | SCALE : AS SHOWN | SHEET : 1 OF 1 | Page No.



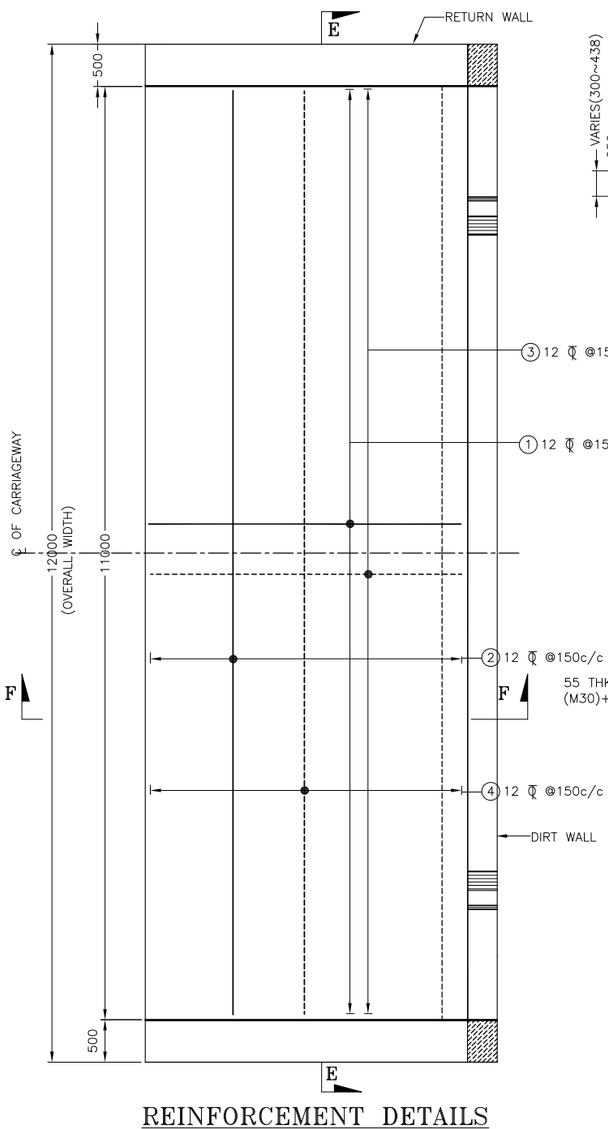
SECTION A–B–C
(SHOWING DIMENSION DETAILS OF APPROACH SLAB)
SCALE 1:50



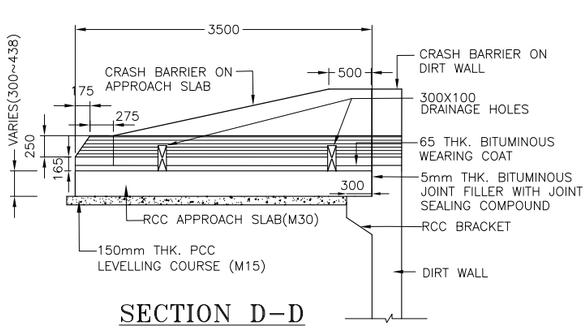
SECTION E–E
(SHOWING REINFORCEMENT DETAILS OF APPROACH SLAB)
SCALE 1:50



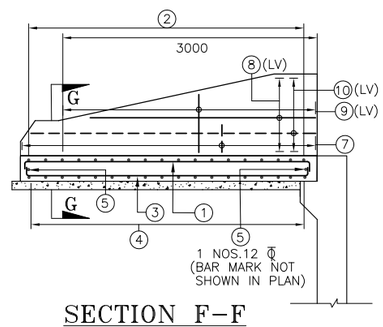
DIMENSION DETAILS OF APPROACH SLAB
SCALE 1:50



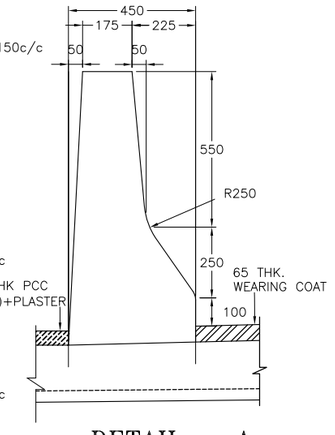
REINFORCEMENT DETAILS OF APPROACH SLAB
SCALE 1:50



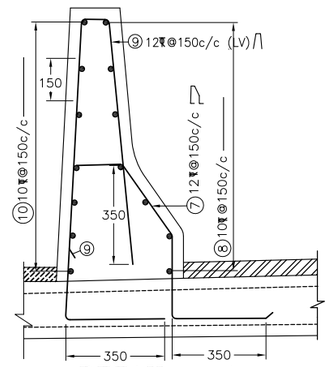
SECTION D–D
(SHOWING DIMENSION)
SCALE 1:50



SECTION F–F
(SHOWING REINFORCEMENT)
SCALE 1:50



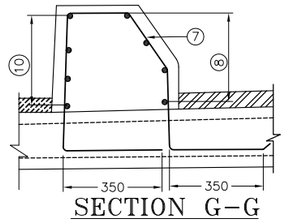
DETAIL – A
(SHOWING DIMENSION)
SCALE 1:15



DETAIL – A
(SHOWING REINFORCEMENT)
SCALE 1:15

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFICATION.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.
4. GRADE OF CONCRETE SHALL BE AS FOLLOWS :
   i) APPROACH SLAB – M30
   ii) CRASH BARRIER – M40
5. REINFORCEMENT SHALL BE OF THERMOMECHANICALLY TREATED HYSD BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS:1786–2008.
6. REINFORCEMENT SHALL BE PROVIDED AS WRITTEN AND NOT TO BE COUNTED.
7. CLEAR COVER TO OUTER MOST REINFORCEMENT SHALL BE 50mm.
8. DOWEL BARS OF THE CRASH BARRIER SHALL BE PROPERLY ANCHORED INTO THE APPROACH SLAB.
9. PROPER COMPACTION OF FILLING BEHIND ABUTMENT AND ABUTMENT BELOW APPROACH SLAB SHALL BE CARRIED OUT WITH SELECTED GRANULAR MATERIALS AS PER THE SPECIFICATION GIVEN IN APPENDIX OF IRC:78–2000.
10. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD AND BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS AS DIRECTED/APPROVED BY ENGINEER.



SECTION G–G
(SHOWING REINFORCEMENT)
SCALE 1:15

LEGEND:

FRONT/TOP REINFORCEMENT ——————

BACK/BOTTOM REINFORCEMENT – – – – – – – –

LENGTH VARIES LV

REFERENCE DRAWINGS:

1.RITES/HW/MORT&H/4055–30/DPR/STD/01 GENERAL NOTES

R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume VIII: Drawings)	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

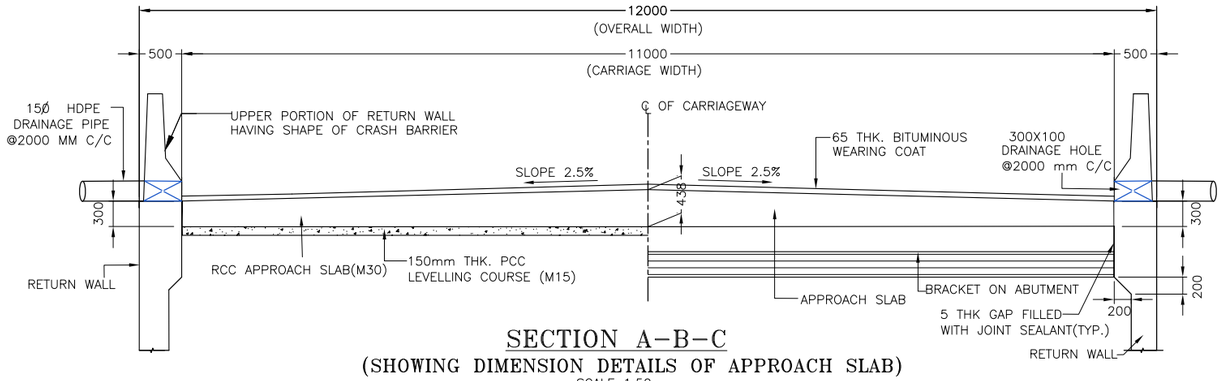
DETAILS OF APPROACH SLAB
(FOR 2 LANE BRIDGE
IN STRAIGHT ALIGNMENT)

Client : Ministry of Road Transport & Highways (Government of India)

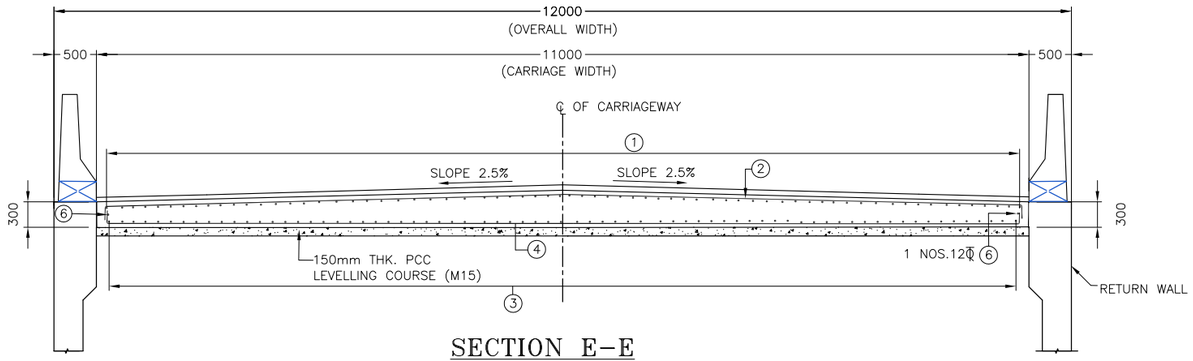
Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

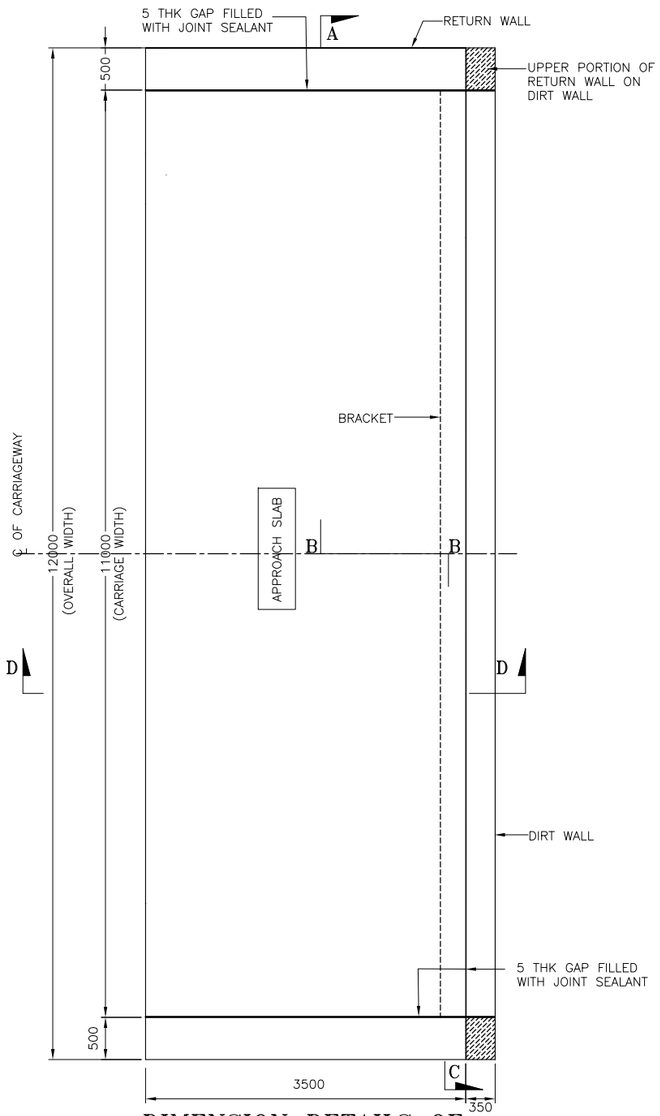
Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/06 | SCALE : AS SHOWN | SHEET : 1 OF 3 | Page No.



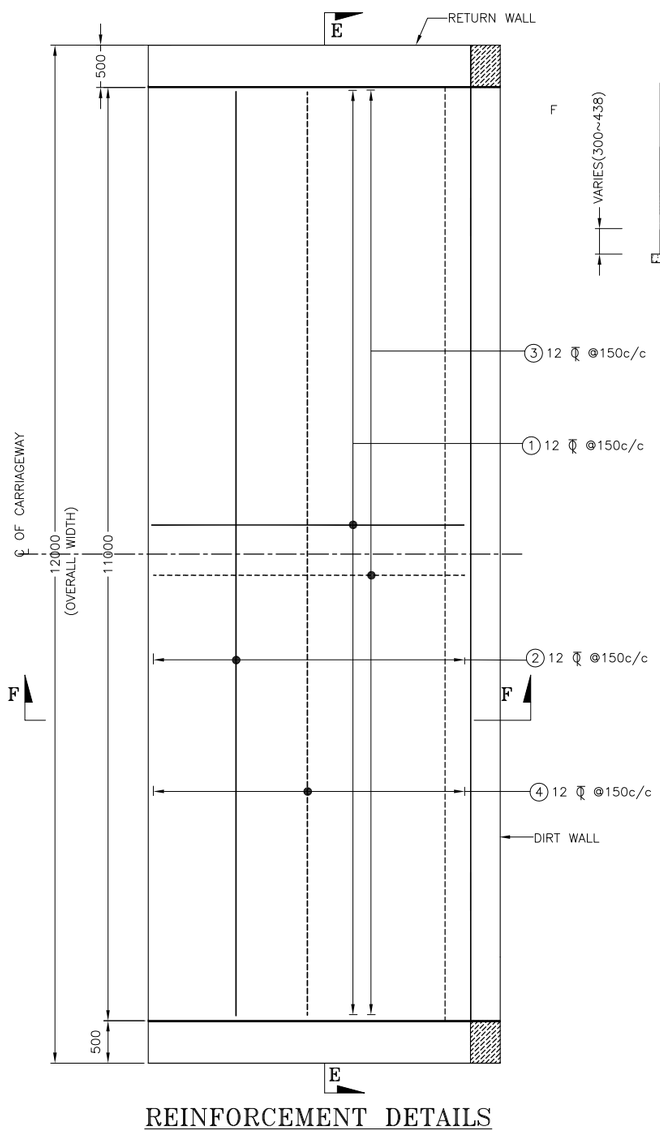
SECTION A–B–C
(SHOWING DIMENSION DETAILS OF APPROACH SLAB)
SCALE 1:50



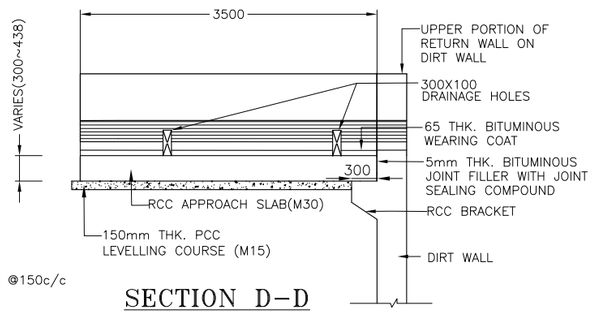
SECTION E–E
(SHOWING REINFORCEMENT DETAILS OF APPROACH SLAB)
SCALE 1:50



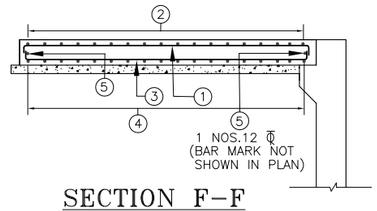
DIMENSION DETAILS OF APPROACH SLAB
SCALE 1:50



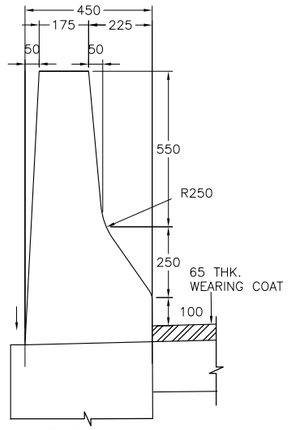
REINFORCEMENT DETAILS OF APPROACH SLAB
SCALE 1:50



SECTION D–D
(SHOWING DIMENSION)
SCALE 1:50



SECTION F–F
(SHOWING REINFORCEMENT)
SCALE 1:50



DETAIL – A
(SHOWING DIMENSION)
SCALE 1:15

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFICATION.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.
4. GRADE OF CONCRETE SHALL BE AS FOLLOWS :
   i) APPROACH SLAB – M30
   ii) CRASH BARRIER – M40
5. REINFORCEMENT SHALL BE OF THERMOMECHANICALLY TREATED HYSD BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS:1786–2008
6. REINFORCEMENT SHALL BE PROVIDED AS WRITTEN AND NOT TO BE COUNTED.
7. CLEAR COVER TO OUTER MOST REINFORCEMENT SHALL BE 50mm.
8. DOWEL BARS OF THE CRASH BARRIER SHALL BE PROPERLY ANCHORED INTO THE APPROACH SLAB.
9. PROPER COMPACTION OF FILLING BEHIND ABUTMENT AND ABUTMENT BELOW APPROACH SLAB SHALL BE CARRIED OUT WITH SELECTED GRANULAR MATERIALS AS PER THE SPECIFICATION GIVEN IN APPENDIX OF IRC:78–2000.
10. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD AND BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS AS DIRECTED/APPROVED BY ENGINEER.

LEGEND:

FRONT/TOP REINFORCEMENT ——————

BACK/BOTTOM REINFORCEMENT – – – – – – – – –

LENGTH VARIES LV

REFERENCE DRAWINGS:

1.RITES/HW/MORT&H/4055–30/DPR/STD/01 GENERAL NOTES

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume VIII: Drawings)	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee

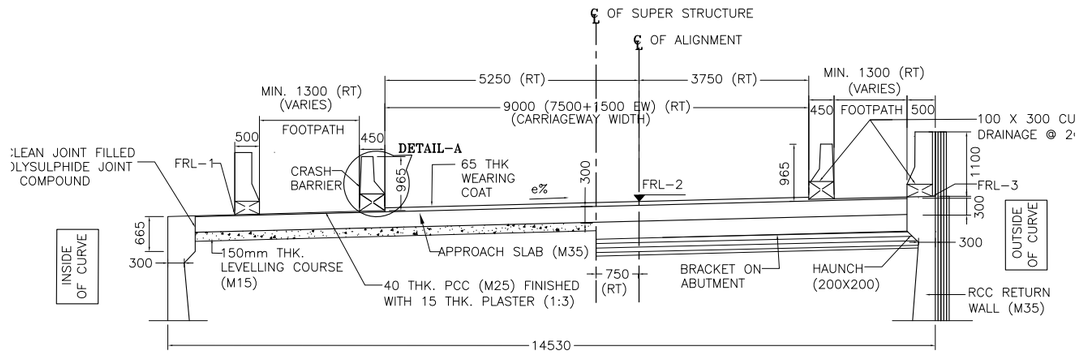
DETAILS OF APPROACH SLAB
(FOR CULVERT)

Client : Ministry of Road Transport & Highways (Government of India)

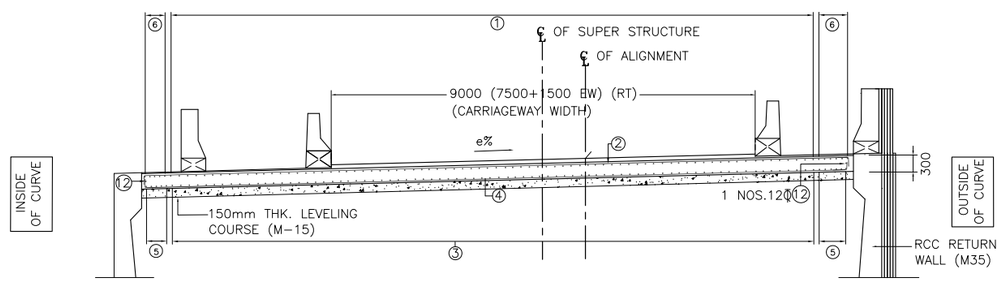
Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

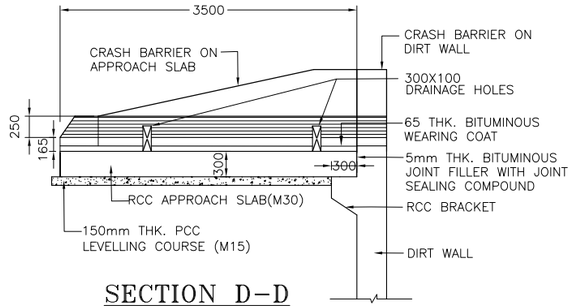
Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/06 | SCALE : AS SHOWN | SHEET : 2 OF 3 | Page No.



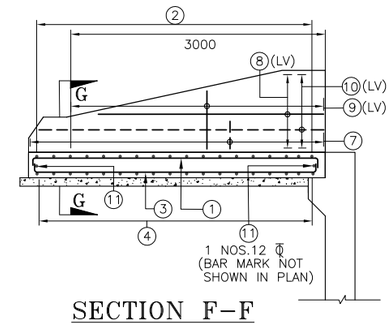
SECTION A–B–C
(SHOWING DIMENSION DETAILS OF APPROACH SLAB)
SCALE 1:75



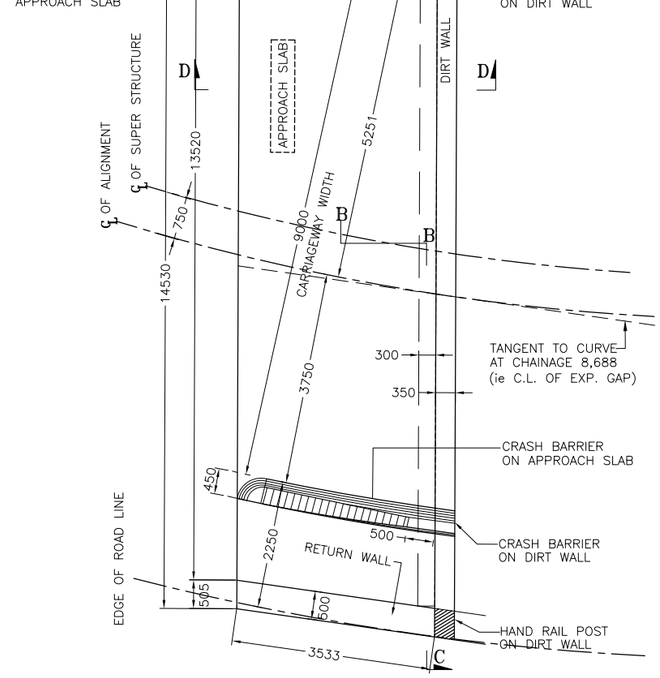
SECTION E–E
(SHOWING REINFORCEMENT DETAILS OF APPROACH SLAB)
SCALE 1:75



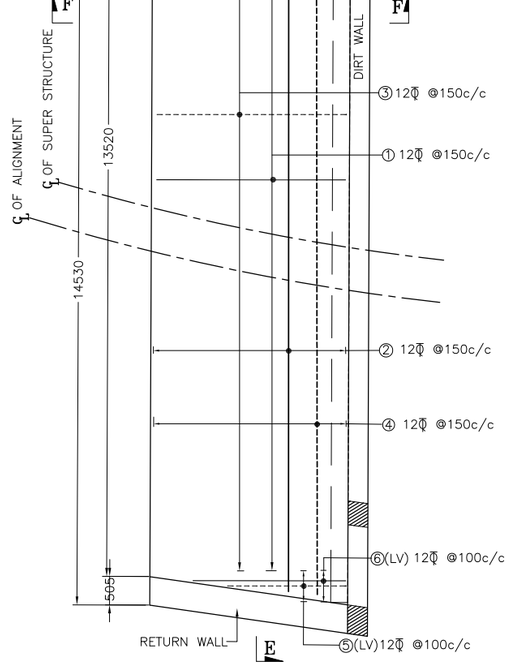
SECTION D–D
(SHOWING DIMENSION)
SCALE 1:50



SECTION F–F
(SHOWING REINFORCEMENT)
SCALE 1:50



DIMENSION DETAILS OF APPROACH SLAB
SCALE 1:75



REINFORCEMENT DETAILS OF APPROACH SLAB
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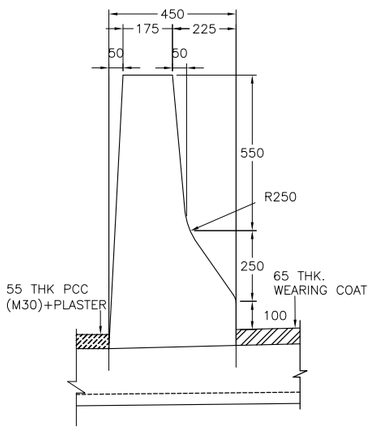
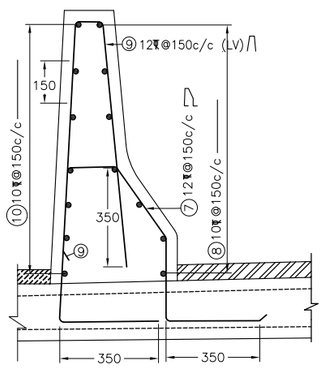


DETAIL – A
(SHOWING DIMENSION)
SCALE 1:15



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(SHOWING REINFORCEMENT)
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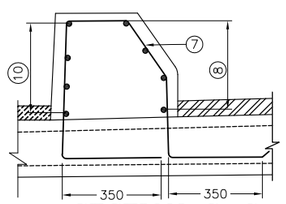


SECTION G–G
(SHOWING REINFORCEMENT)
SCALE 1:15

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFICATION.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.
4. GRADE OF CONCRETE SHALL BE AS FOLLOWS :
   i) APPROACH SLAB – M30
   ii) CRASH BARRIER – M40
5. REINFORCEMENT SHALL BE OF THERMOMECHANICALLY TREATED HYSD BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS:1786–2008.
6. REINFORCEMENT SHALL BE PROVIDED AS WRITTEN AND NOT TO BE COUNTED.
7. CLEAR COVER TO OUTER MOST REINFORCEMENT SHALL BE 50mm.
8. DOWEL BARS OF THE CRASH BARRIER SHALL BE PROPERLY ANCHORED INTO THE APPROACH SLAB.
9. PROPER COMPACTION OF FILLING BEHIND ABUTMENT AND ABUTMENT BELOW APPROACH SLAB SHALL BE CARRIED OUT WITH SELECTED GRANULAR MATERIALS AS PER THE SPECIFICATION GIVEN IN APPENDIX OF IRC:78–2000.
10. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD AND BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS AS DIRECTED/APPROVED BY ENGINEER.

LEGEND:

FRONT/TOP REINFORCEMENT ——————

BACK/BOTTOM REINFORCEMENT – – – – – – – – –

LENGTH VARIES LV

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055–30/DPR/STD/01 GENERAL NOTES

R0	SEP 2016	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

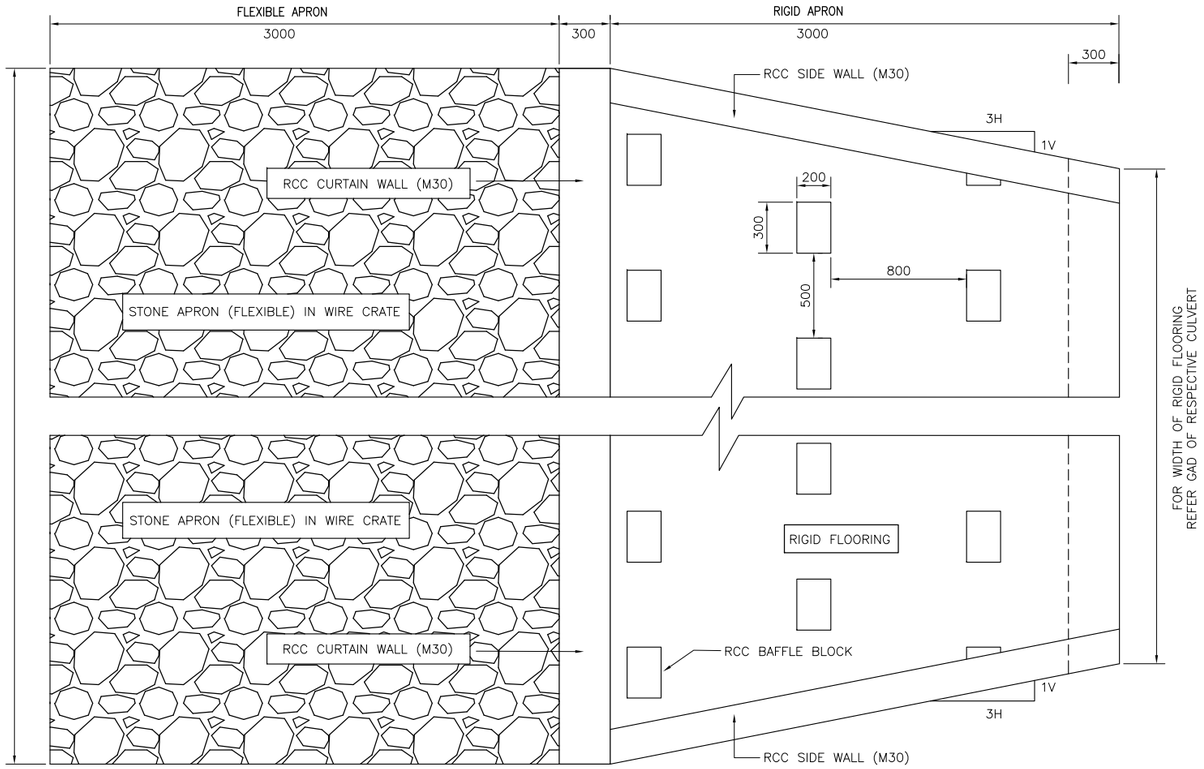
DETAILS OF APPROACH SLAB
(FOR 2 LANE BRIDGE IN CURVE)

Client : Ministry of Road Transport & Highways (Government of India)

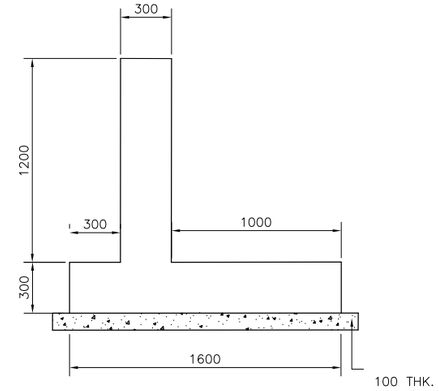
Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

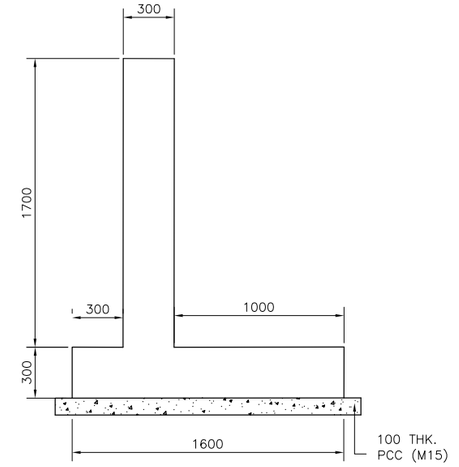
Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/06 | SCALE : AS SHOWN | SHEET : 3 OF 3 | Page No.



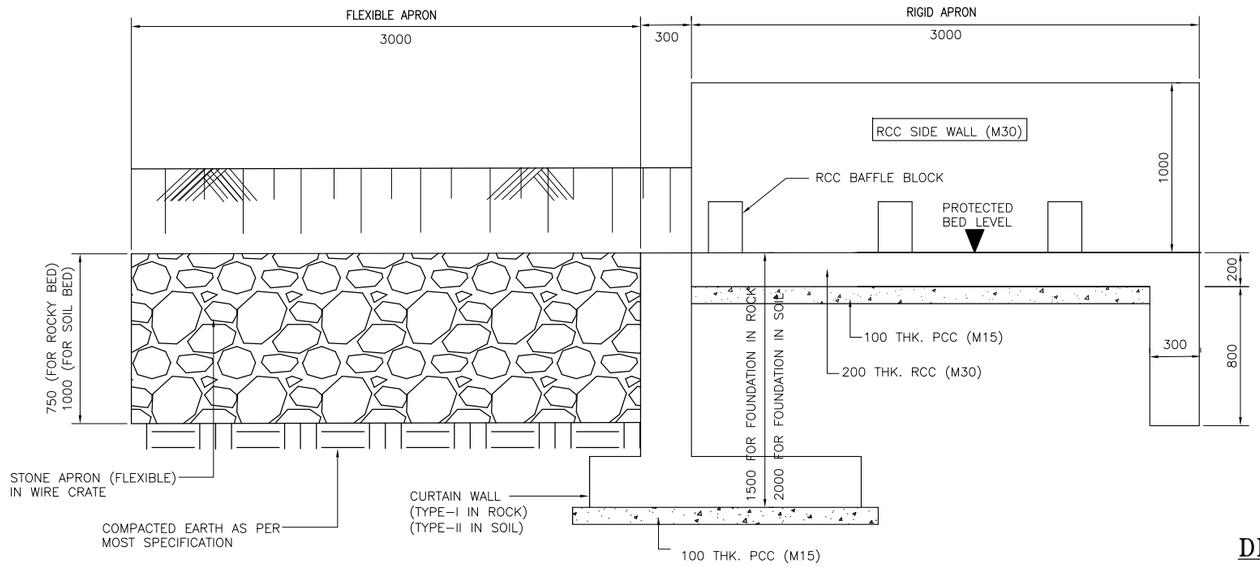
PLAN
SCALE 1:25



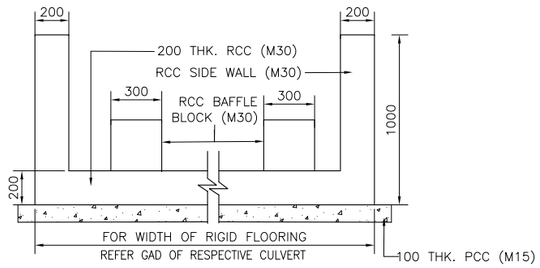
CURTAIN WALL TYPE–I (FOR U/S FOUNDATION IN ROCK)
SCALE 1:25



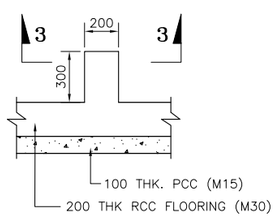
CURTAIN WALL TYPE–II (FOR U/S FOUNDATION IN SOIL)
SCALE 1:25



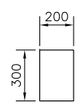
SECTION 1–1
SCALE 1:25



SECTION 2–2
SCALE 1:25



DETAILS OF BAFFLE BLOCK
SCALE 1:25



SECTION 3–3
SCALE 1:25

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWINGS FOR THE RESPECTIVE CULVERTS AND ALL OTHER RELEVANT DRAWINGS.
4. FLEXIBLE APRON TO BE LAID WITH BOULDERS OF MINIMUM SIZE OF 300mm DIA. AND WEIGHT OF 40kg. IN CASE MEAN DESIGN VELOCITY OF FLOW IS > 2.5 M/SEC. FLEXIBLE APRON SHALL BE LAID WITH STONE BOULDERS IN WIRE CRATES.
5. CLEAR COVERS
   RCC SLAB 50MM
   RCC CURTAIN WALLS 50MM
6. FOR DESIGN PURPOSE, SAFE BEARING CAPACITY (SBC) HAS BEEN CONSIDERED AS 25 T/SQM. THIS SHOULD BE CHECKED AT SITE.
7. IN CASE OF NON SCOURABLE ROCK IS AVAILABLE AT BED OF STREAM, FLEXIBLE APRON MAY BE DISPENSED WITH.
8. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILL WITH LAYER NOT EXCEEDING 300MM.
9. ALL CONSTRUCTION SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATIONS FOR ROAD AND SAFETY WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS AS DIRECTED/APPROVED BY ENGINEER.

REFERENCES:

RITES/HW/MORT&H/4055–30/DPR/STD/01 GENERAL NOTES.

R0	SEPT 2016	Stage 4 :Final Detail Project Report - Volume VII: Drawings	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

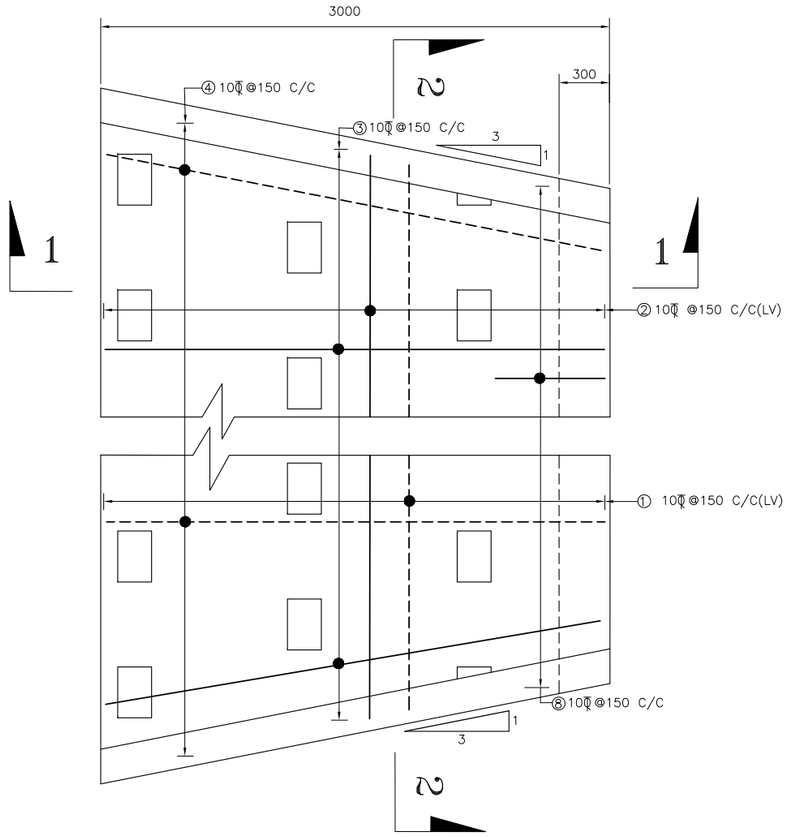
DIMENSION DETAILS OF RIGID FLOORING AND CURTAIN WALL AT UPSTREAM OF CULVERT

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

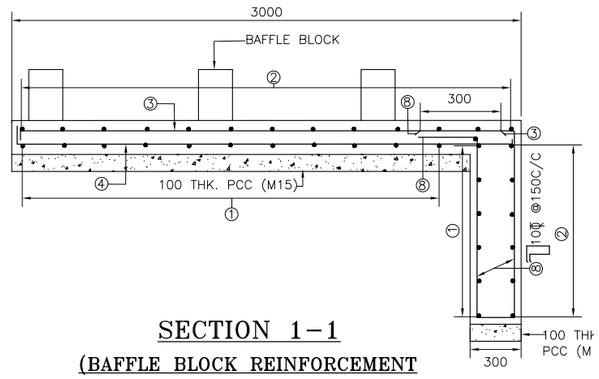
Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/07 | SCALE : AS SHOWN | SHEET : 1 OF 2 | Page No.



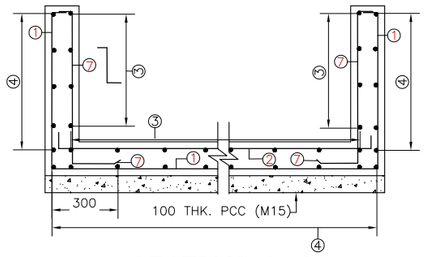
PLAN OF RIGID FLOORING AT U/S OF CULVERT
(REINFORCEMENT OF BAFFLE BLOCK AND CUT OFF WALL NOT SHOWN)

SCALE 1:25

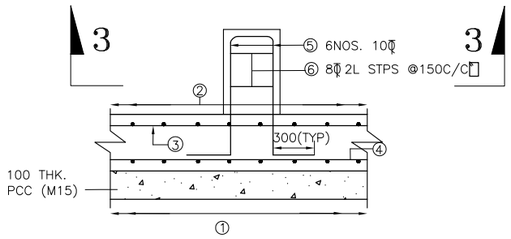


SECTION 1-1
(BAFFLE BLOCK REINFORCEMENT NOT SHOWN)

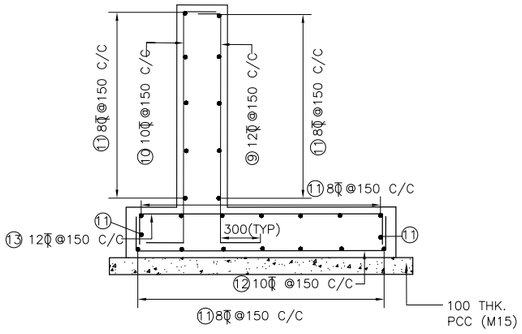
SCALE 1:25



SECTION 2-2
SCALE 1:25

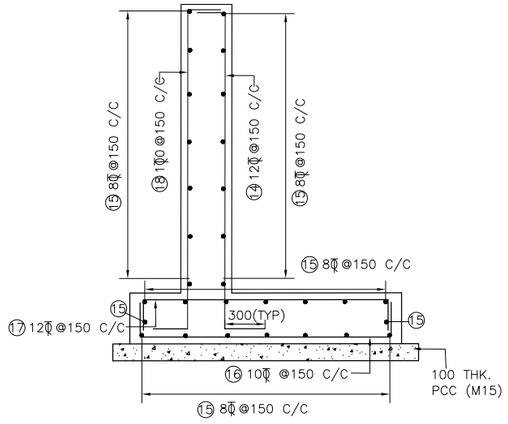


DETAILS OF BAFFLE PIER BLOCK
SCALE 1:15



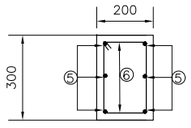
CURTAIN WALL TYPE-I
(FOR FOUNDATION IN ROCK)

SCALE 1:25



CURTAIN WALL TYPE-II
(FOR FOUNDATION IN SOIL)

SCALE 1:25



SECTION 3-3
SCALE 1:15

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWINGS FOR THE RESPECTIVE BRIDGES AND ALL OTHER RELEVANT DRAWINGS.
4. GRADE OF CONCRETE USED IN THE STRUCTURE SHALL BE M30.
5. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD AND BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS AS DIRECTED/APPROVED BY ENGINEER.
6. REINFORCEMENT SHALL BE THERMO MECHANICALLY TREATED HYSD BARS (GRADE HYSD Fe 500D) CONFORMING TO IS 1786-2008.
7. REINFORCEMENT SHALL BE PROVIDED AS WRITTEN AND NOT TO BE COUNTED.
8. LAPS SHALL BE STAGGERED AND MINIMUM LAP LENGTH SHALL BE 81XDIA OF SMALLER BAR (WITH SPLICING AT SECTION LIMITED TO 50%) UNLESS OTHERWISE SPECIFIED.
9. REINFORCEMENT BARS SHALL HAVE MINIMUM CLEAR COVER OF 75mm FOR FOOTING AND 50mm FOR ALL OTHER CASES.

LEGEND:

UP STREAM	U/S
TOP REINFORCEMENT	———————
BOTTOM REINFORCEMENT	– – – – – – – – – – –
LENGTH VARIES	LV
STIRRUPS	STPS

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055-30/DPR/STD/01 GENERAL NOTES.

R0	SEPT 2016	Stage 4: Final Detailed Project Report - Volume VIII: Drawings	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

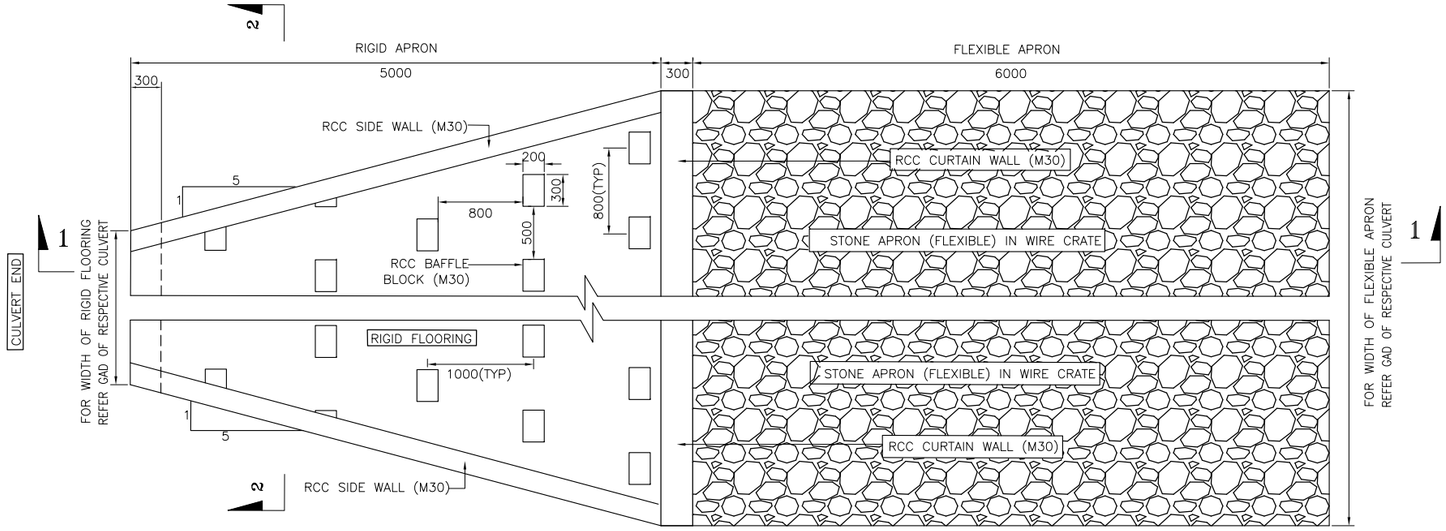
REINFORCEMENT DETAILS OF RIGID FLOORING AND CURTAIN WALL AT UPSTREAM OF CULVERT

Client : Ministry of Road Transport & Highways (Government of India)

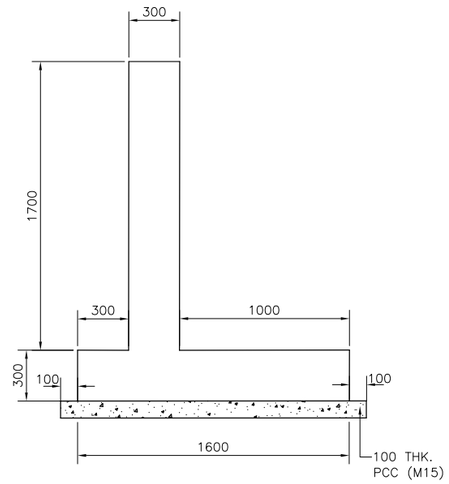
Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

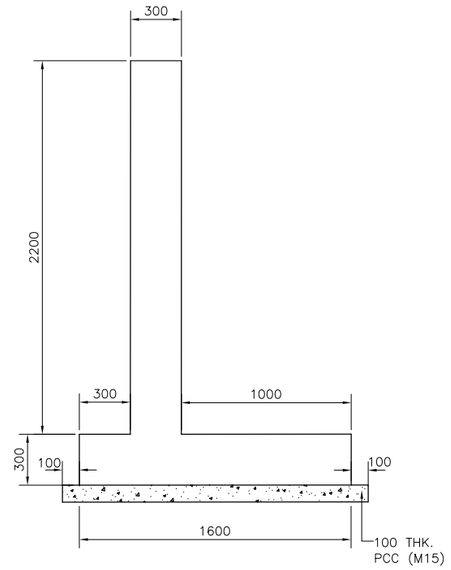
Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/07 | SCALE : AS SHOWN | SHEET : 2 OF 2 | Page No.



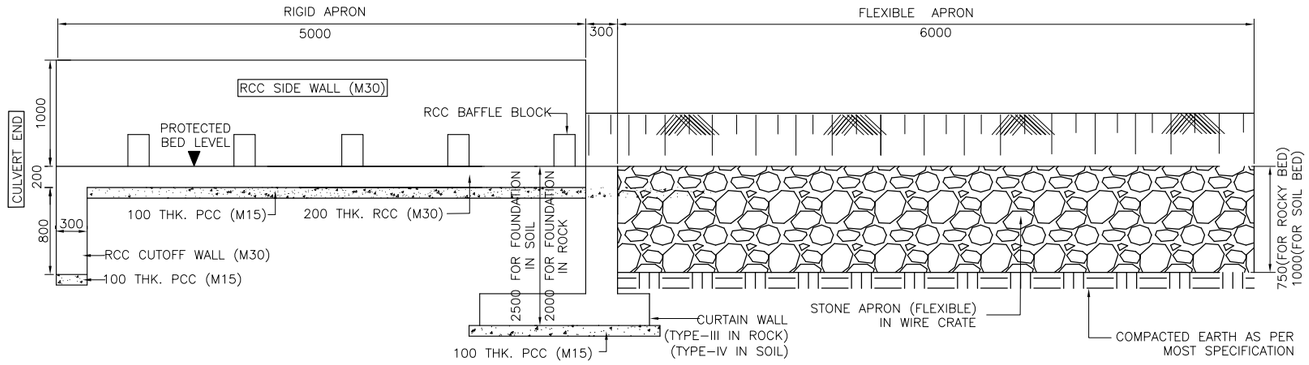
PLAN
SCALE 1:40



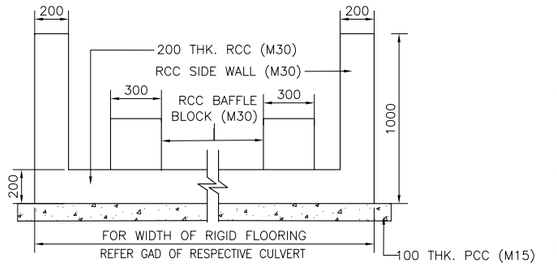
CURTAIN WALL TYPE–III
(FOR FOUNDATION IN ROCK)
SCALE 1:25



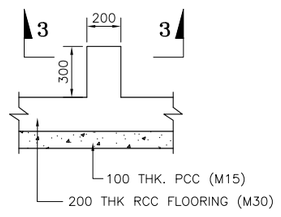
CURTAIN WALL TYPE–IV
(FOR FOUNDATION IN SOIL)
SCALE 1:25



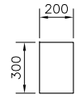
SECTION 1–1
SCALE 1:40



SECTION 2–2
SCALE 1:25



DETAILS OF BAFFLE BLOCK
SCALE 1:25



SECTION 3–3
SCALE 1:25

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWINGS FOR THE RESPECTIVE CULVERTS AND ALL OTHER RELEVANT DRAWINGS.
4. FLEXIBLE APRON TO BE LAID WITH BOULDERS OF MINIMUM SIZE OF 300mm DIA. AND WEIGHT OF 40kg. IN CASE MEAN DESIGN VELOCITY OF FLOW IS > 2.5 M/SEC. FLEXIBLE APRON SHALL BE LAID WITH STONE BOULDERS IN WIRE CRATES.
5. CLEAR COVERS
   RCC SLAB 50MM
   RCC CURTAIN WALLS 50MM
6. FOR DESIGN PURPOSE, SAFE BEARING CAPACITY (SBC) HAS BEEN CONSIDERED AS 25 T/SQM. THIS SHOULD BE CHECKED AT SITE.
7. IN CASE OF NON SCOURABLE ROCK IS AVAILABLE AT BED OF STREAM, FLEXIBLE APRON MAY BE DISPENSED WITH.
8. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILL WITH LAYER NOT EXCEEDING 300MM.
9. ALL CONSTRUCTION SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATIONS FOR ROAD AND SAFETY WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS AS DIRECTED/APPROVED BY ENGINEER.

REFERENCES:

RITES/HW/MORT&H/4055–30/DPR/STD/01 GENERAL NOTES.

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEPT 2016	Stage 4 : Final Detailed Project Report - Volume VIII: Drawings	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee

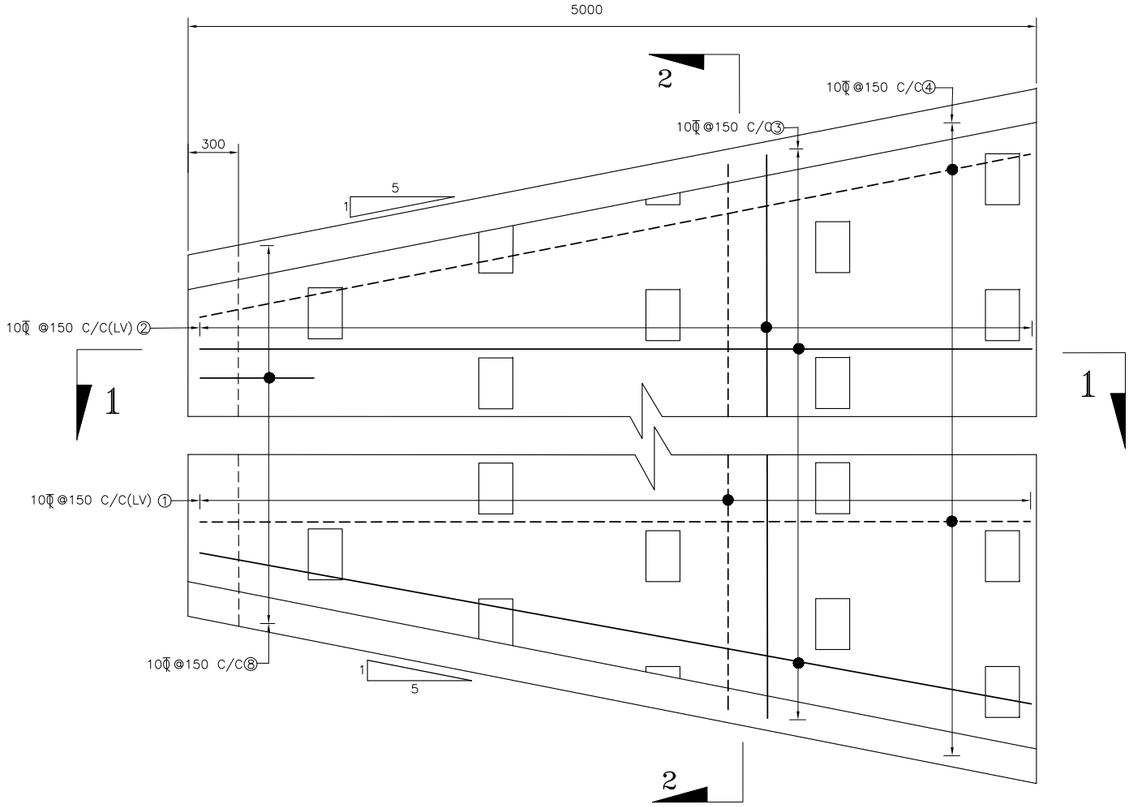
DIMENSION DETAILS OF RIGID FLOORING AND CURTAIN WALL AT DOWNSTREAM OF CULVERT

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

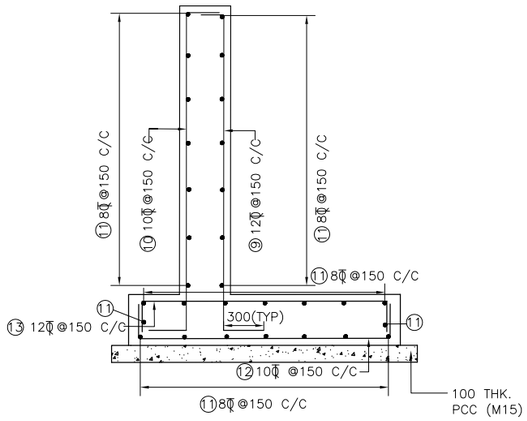
Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/08 | SCALE : AS SHOWN | SHEET : 1 OF 2 | Page No.



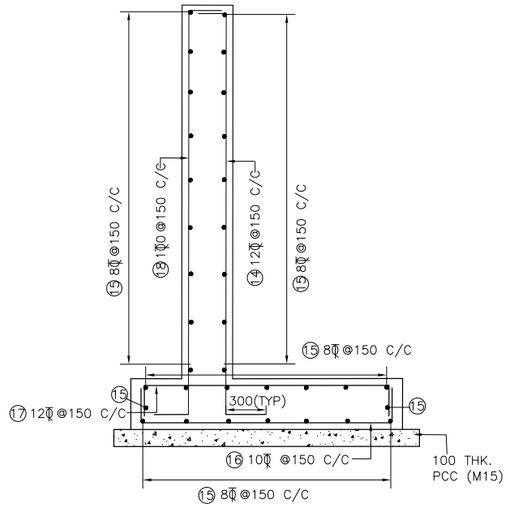
PLAN OF RIGID FLOORING AT D/S OF CULVERT
(REINFORCEMENT OF BAFFLE BLOCK AND CUT OFF WALL NOT SHOWN)

SCALE 1:25



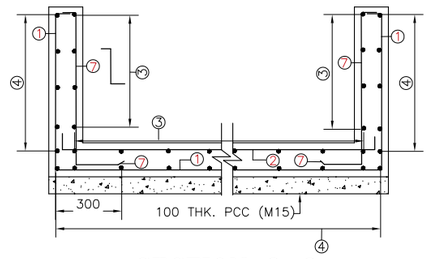
CURTAIN WALL TYPE–III
(FOR FOUNDATION IN ROCK)

SCALE 1:25



CURTAIN WALL TYPE–IV
(FOR FOUNDATION IN SOIL)

SCALE 1:25

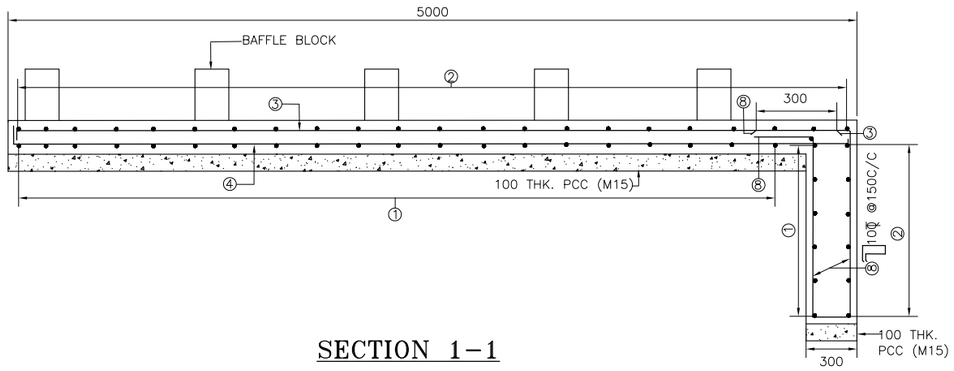


SECTION 2–2

SCALE 1:25

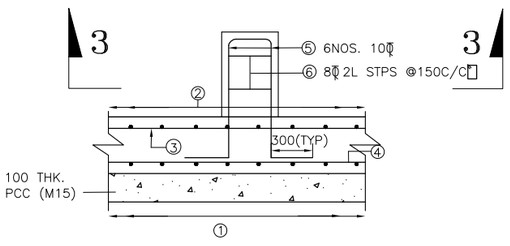
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWINGS FOR THE RESPECTIVE BRIDGES AND ALL OTHER RELEVANT DRAWINGS.
4. GRADE OF CONCRETE USED IN THE STRUCTURE SHALL BE M30.
5. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD AND BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS AS DIRECTED/APPROVED BY ENGINEER.
6. REINFORCEMENT SHALL BE THERMO MECHANICALLY TREATED HYSD BARS (GRADE HYSD Fe 500D) CONFORMING TO IS 1786–2008.
7. REINFORCEMENT SHALL BE PROVIDED AS WRITTEN AND NOT TO BE COUNTED.
8. LAPS SHALL BE STAGGERED AND MINIMUM LAP LENGTH SHALL BE 81XDIA OF SMALLER BAR (WITH SPLICING AT SECTION LIMITED TO 50%) UNLESS OTHERWISE SPECIFIED.
9. REINFORCEMENT BARS SHALL HAVE MINIMUM CLEAR COVER OF 75mm FOR FOOTING AND 50mm FOR ALL OTHER CASES.



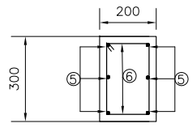
SECTION 1–1
(BAFFLE BLOCK REINFORCEMENT NOT SHOWN)

SCALE 1:25



DETAILS OF BAFFLE PIER BLOCK

SCALE 1:15



SECTION 3–3

SCALE 1:15

LEGEND:

DOWN STREAM	D/S
TOP REINFORCEMENT	————————
BOTTOM REINFORCEMENT	– – – – – – – – – – – –
LENGTH VARIES	LV
STIRRUPS	STPS

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055–30/DPR/STD/01 GENERAL NOTES.

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEPT 2016	Stage 4 : Final Detailed Project Report - Volume VIII: Drawings	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee

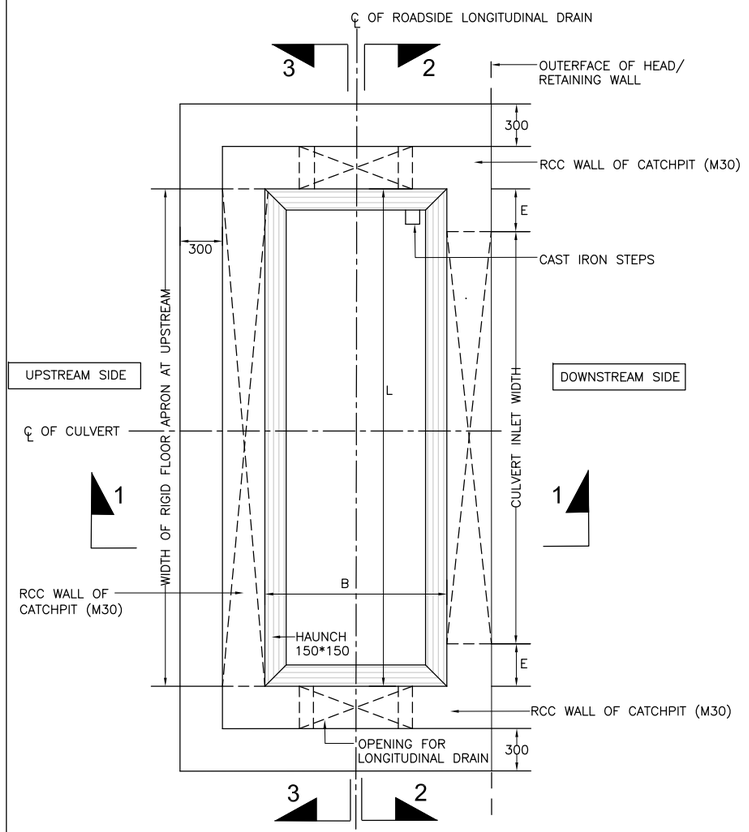
REINFORCEMENT DETAILS OF RIGID FLOORING AND CURTAIN WALL AT DOWNSTREAM OF CULVERT

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

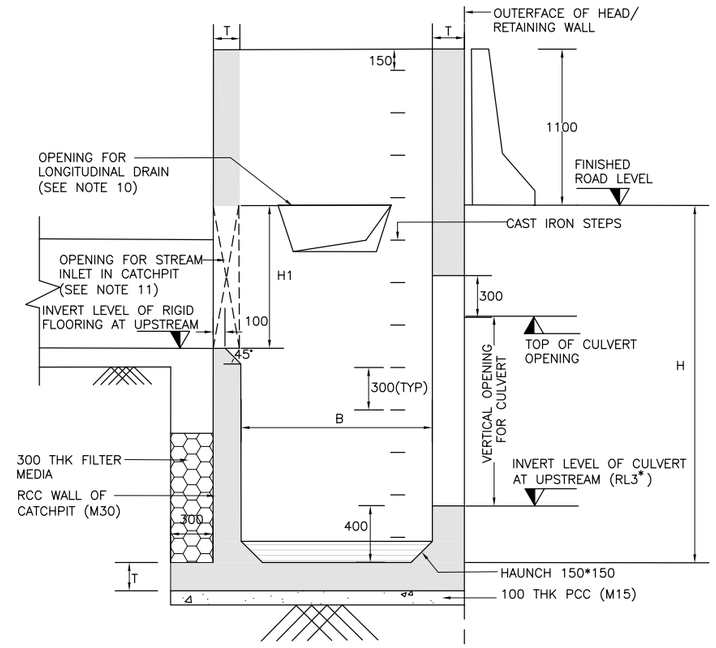
Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/08 | SCALE : AS SHOWN | SHEET : 2 OF 2 | Page No.



PLAN

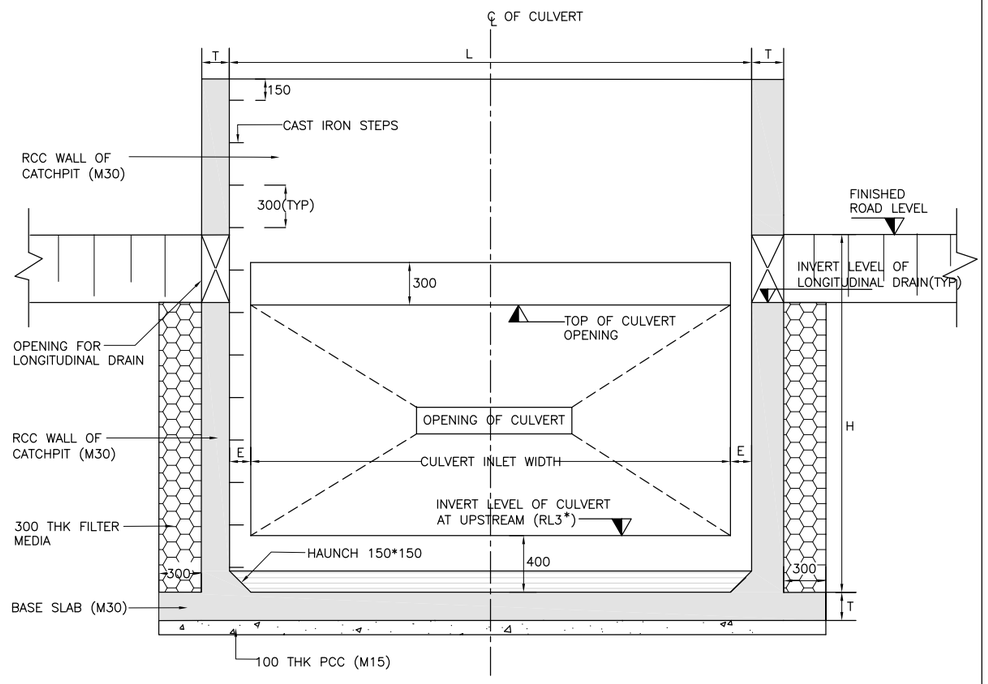
SCALE 1:30



SECTION 1–1

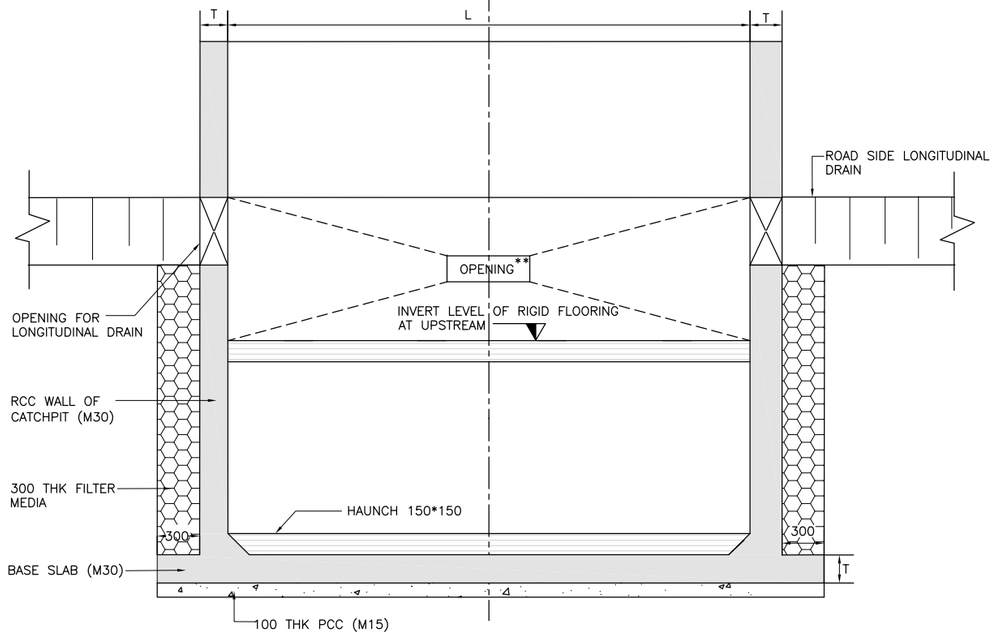
SCALE 1:30

*PLEASE SEE NOTE NO 8



SECTION 2–2

SCALE 1:30



SECTION 3–3

SCALE 1:30

** PLEASE SEE NOTE NO 11

TABLE–1: SALIENT DIMENSIONS

TYPE OF CULVERT (m x m)	L(mm)	B(mm)	T(mm) (FOR H UPTO 4m)	T(mm) (FOR H>4m)	E(mm)	H1(mm) (MIN)
1.5X1.5 BOX	2100	1500	200	300	300	2000
2.0X2.0 BOX	2600	1500	200	300	300	2000
3.0X3.0 BOX	3600	2000	200	300	300	3000
4.0X3.0 BOX	4600	2000	200	300	300	3000
5.0X3.0 BOX	5600	2000	200	300	300	3000

LEGENDS

B = WIDTH OF CATCHPIT
L = LENGTH OF CATCHPIT
T = THICKNESS OF RCC WALL/BASE SLAB
H = DEPTH OF CATCHPIT FROM FINISHED ROAD LEVEL

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWINGS FOR THE RESPECTIVE CULVERTS AND ALL OTHER RELEVANT DRAWINGS.
4. CLEAR COVERS
   AT BOTTOM OF FOOTING 75MM
   ALL OTHER CASES 50MM
5. FOR DESIGN PURPOSE, SAFE BEARING CAPACITY (SBC) HAS BEEN CONSIDERED AS 25 T/SQM. THIS SHOULD BE CHECKED AT SITE.
6. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILL WITH LAYER NOT EXCEEDING 300MM.
7. ALL CONSTRUCTION SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATIONS FOR ROAD AND SAFETY WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS AS DIRECTED/APPROVED BY ENGINEER.
8. FOR VALUE OF (RL3), WIDTH OF RIGID FLOOR APRON, FINISH ROAD LEVEL REFER GENERAL ARRANGEMENT DRAWING AND SET OUT DRAWING OF RESPECTIVE CULVERTS.
9. CAST IRON STEPS SHALL BE CONFORMING TO IS:5455.
10. OPENING FOR LONGITUDINAL DRAIN SHALL BE AS PER SHAPE & SIZE OF LONGITUDINAL DRAIN AT RESPECTIVE CHAINAGE OF CULVERT.
11. HEIGHT OF OPENING FOR STREAM INLET IN CATCHPIT SHALL NOT BE LESS THAN VERTICAL OPENING OF CULVERT.

REFERENCES:

RITES/HW/MORT&H/4055–30/DPR/STD/01	GENERAL NOTES.
RITES/HW/MORT&H/4055–30/DPR/CUL/DP/01 TO 02 RITES/HW/MORT&H/4055–30/DPR/CUL/BC/01 TO 06 RITES/HW/MORT&H/4055–30/DPR/CUL/SP/01 TO 02	GENERAL ARRANGEMENT OF CULVERT.
RITES/HW/MORT&H/4055–30/DPR/STD/10(2 OF 3)	REINFORCEMENT DETAILS OF CATCHPIT.

R0	JUNE 2017	Stage 4 : Final Detail Project Report - Volume VIII: Drawings	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

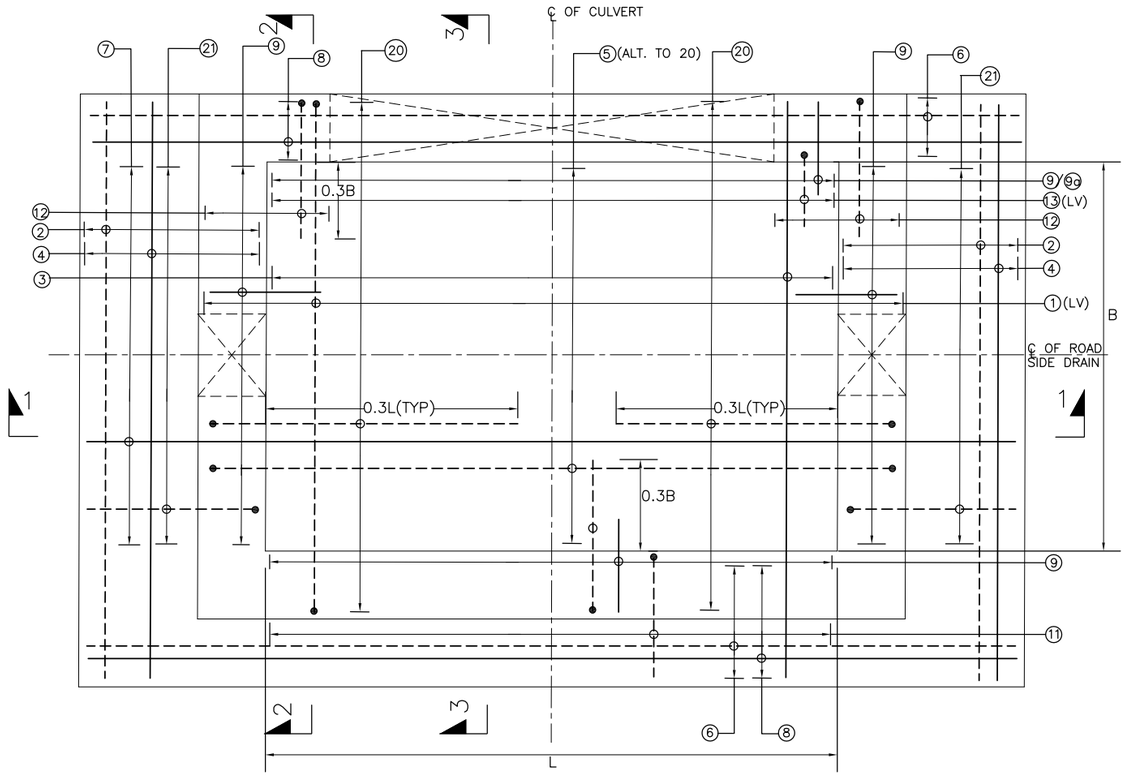
DIMENSION DETAILS OF CATCHPIT TYPE-I

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

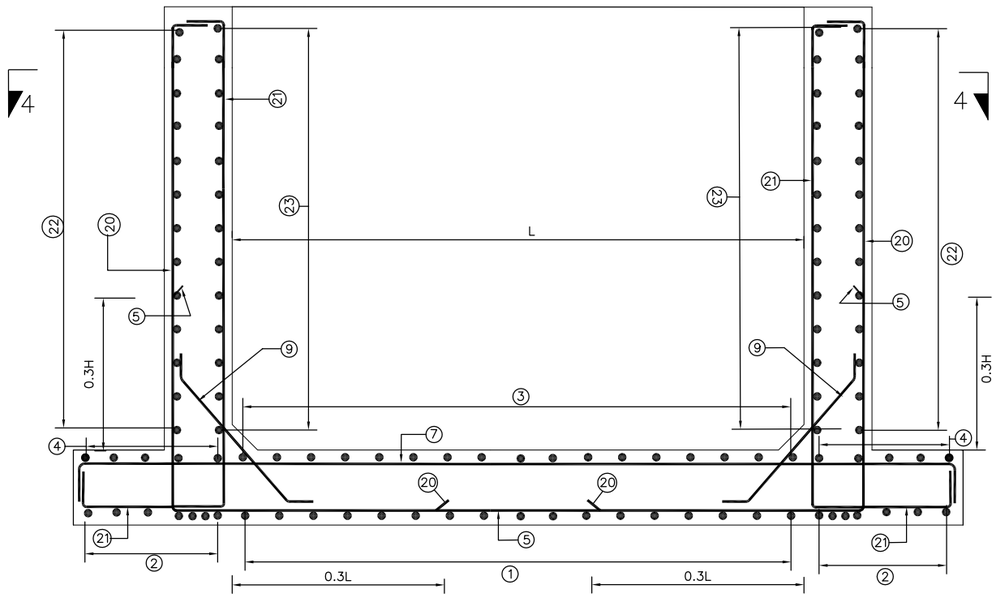
Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/10 | SCALE : AS SHOWN | SHEET : 1 OF 3 | Page No.



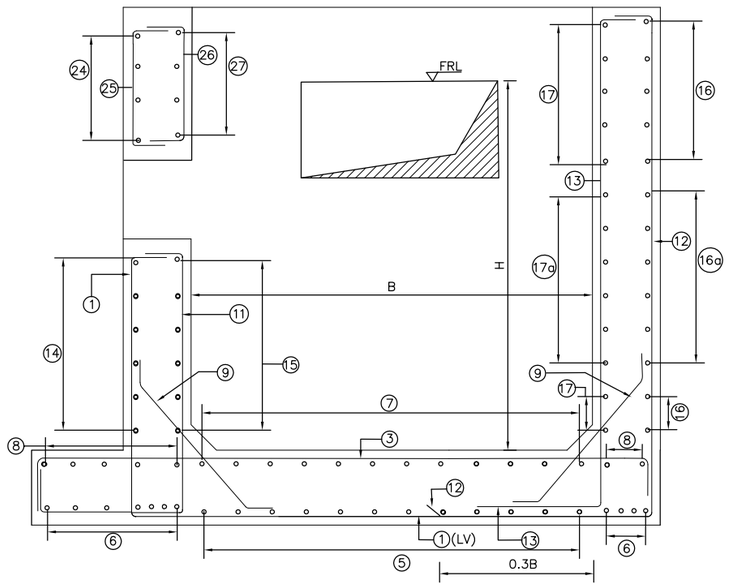
BASE SLAB REINFORCEMENT PLAN

SCALE 1:25



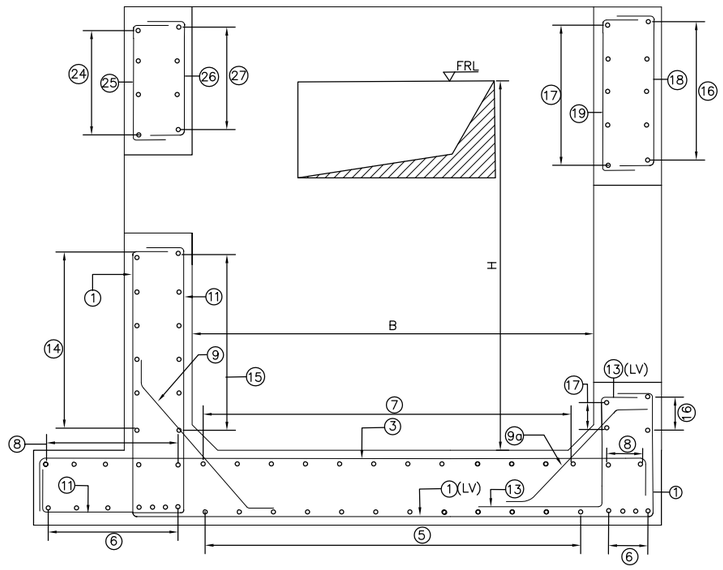
SECTION 1-1

SCALE 1:25



SECTION 2-2

SCALE 1:25



SECTION 3-3

SCALE 1:25

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWINGS FOR THE RESPECTIVE CULVERTS AND ALL OTHER RELEVANT DRAWINGS.
4. GRADE OF CONCRETE USED IN THE STRUCTURE SHALL BE M30.
5. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD AND BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS AS DIRECTED/APPROVED BY ENGINEER.
6. REINFORCEMENT SHALL BE THERMO MECHANICALLY TREATED HYSD BARS (GRADE HYSD Fe 500D) CONFORMING TO IS 1786-2008.
7. REINFORCEMENT SHALL BE PROVIDED AS WRITTEN AND NOT TO BE COUNTED.
8. LAPS SHALL BE STAGGERED AND MINIMUM LAP LENGTH SHALL BE 81XDIA OF SMALLER BAR (WITH SPLICING AT SECTION LIMITED TO 50%) UNLESS OTHERWISE SPECIFIED.
9. REINFORCEMENT BARS SHALL HAVE MINIMUM CLEAR COVER OF 75mm FOR BASE SLAB BOTTOM AND 50mm FOR ALL OTHER CASES.
10. FOR VALUE OF L AND B REFER DRAWING NO RITES/HW/MORT&H/4055-30/DPR/STD/10
11. FOR DETAILS OF SECTION 4-4 REFER SHEET NO 3 OF 3 OF THIS DRAWING.

LEGEND:

FRONT/TOP REINFORCEMENT ———————

BACK/BOTTOM REINFORCEMENT - - - - - - - - - - -

LENGTH VARIES LV

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055-30/DPR/STD/01	GENERAL NOTES.
RITES/HW/MORT&H/4055-30/DPR/STD/10(1 OF 3)	DIMENSION DETAILS OF CATCHPIT TYPE 1
RITES/HW/MORT&H/4055-30/DPR/STD/10(3 OF 3)	REINFORCEMENT DETAILS

R0	JUNE 2017	Stage 4: Final Detailed Project Report - Volume VIII: Drawings	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

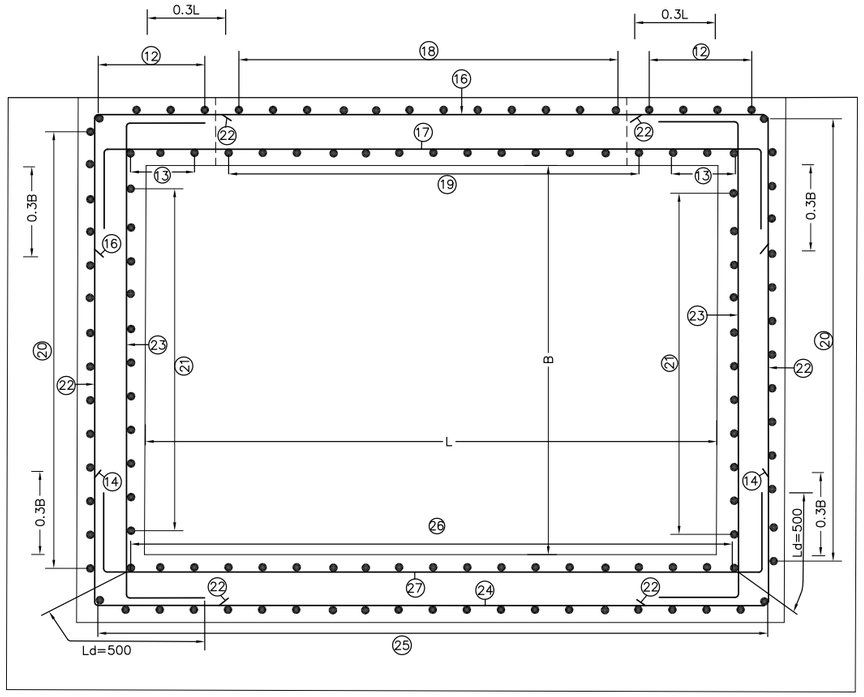
REINFORCEMENT DETAILS OF CATCHPIT TYPE 1

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/10 | SCALE : AS SHOWN | SHEET : 2 OF 3 | Page No.



SECTION 4–4
(REINFORCEMENT OF BASE SLAB NOT SHOWN)

SCALE 1:25

SCHEDULE OF REINFORCEMENT

FOR HEIGHT OF CATCHPIT UPTO 4M, LENGTH OF CATCHPIT (L) UPTO 3M

BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA in mm	SPACING in mm	NO. OF BARS
①		10	130	–
②		10	–	14
③		10	130	–
④		10	–	10
⑤		16	260	–
⑥		10	–	11
⑦		10	130	–
⑧		10	–	7
⑨		10	130	–
⑨a		10	130	–
⑩		–	–	–
⑪		10	130	–
⑫		10	260	–
⑬		10	130	–
⑭		10	150	–
⑮		12	150	–
⑯		10	150	–
⑯a		10	150	–
⑰		10	150	–
⑰a		10	150	–
⑱		10	150	–
⑲		10	150	–
⑳		10	260	–
㉑		12	130	–
㉒		10	150	–
㉓		10	150	–
㉔		10	200	–
㉕		10	200	–
㉖		10	200	–
㉗		10	200	–

FOR HEIGHT OF CATCHPIT UPTO 4M, LENGTH OF CATCHPIT (L) 3M TO 6M

BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA in mm	SPACING in mm	NO. OF BARS
①		10	125	–
②		10	–	14
③		10	125	–
④		10	–	10
⑤		16	250	–
⑥		10	–	11
⑦		10	125	–
⑧		10	–	7
⑨		10	125	–
⑨a		10	125	–
⑩		–	–	–
⑪		10	125	–
⑫		10	250	–
⑬		10	125	–
⑭		10	150	–
⑮		12	150	–
⑯		10	150	–
⑯a		10	150	–
⑰		10	150	–
⑰a		10	150	–
⑱		10	150	–
⑲		10	150	–
⑳		10	250	–
㉑		12	125	–
㉒		10	150	–
㉓		10	150	–
㉔		10	200	–
㉕		10	200	–
㉖		10	200	–
㉗		10	200	–

FOR HEIGHT OF CATCHPIT 4M TO 6M, LENGTH OF CATCHPIT (L) UPTO 3M

BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA in mm	SPACING in mm	NO. OF BARS
①		12	125	–
②		10	–	14
③		12	125	–
④		10	–	10
⑤		20	250	–
⑥		10	–	11
⑦		12	125	–
⑧		10	–	7
⑨		10	125	–
⑨a		10	125	–
⑩		–	–	–
⑪		10	125	–
⑫		12	250	–
⑬		12	125	–
⑭		10	200	–
⑮		12	200	–
⑯		10	150	–
⑯a		10	150	–
⑰		10	150	–
⑰a		10	150	–
⑱		10	150	–
⑲		10	150	–
⑳		12	250	–
㉑		10	125	–
㉒		10	200	–
㉓		10	200	–
㉔		10	200	–
㉕		10	200	–
㉖		10	200	–
㉗		10	200	–

FOR HEIGHT OF CATCHPIT 4M TO 6M, LENGTH OF CATCHPIT (L) 3M TO 6M

BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA in mm	SPACING in mm	NO. OF BARS
①		12	125	–
②		10	–	14
③		12	125	–
④		10	–	10
⑤		20	250	–
⑥		10	–	11
⑦		12	125	–
⑧		10	–	7
⑨		10	125	–
⑨a		10	125	–
⑩		–	–	–
⑪		10	125	–
⑫		12	250	–
⑬		12	125	–
⑭		10	150	–
⑮		12	150	–
⑯		10	150	–
⑯a		10	150	–
⑰		10	150	–
⑰a		10	150	–
⑱		10	150	–
⑲		10	150	–
⑳		12	250	–
㉑		10	125	–
㉒		10	150	–
㉓		10	150	–
㉔		10	200	–
㉕		10	200	–
㉖		10	200	–
㉗		10	200	–

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED.
2. FOR LOCATION OF SECTION 4–4 REFER SHEET NO 2 OF 3 OF THIS DRAWING.

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	JUNE 2017	Stage 4 :Final Detailed Project Report - Volume VIII: Drawings	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee

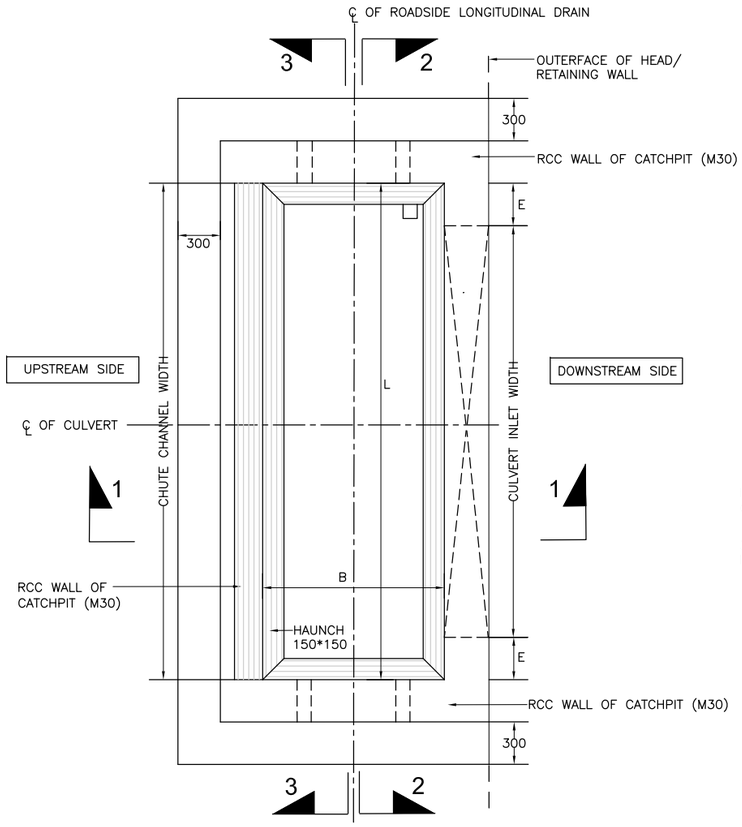
REINFORCEMENT DETAILS OF CATCHPIT TYPE 1

Client : Ministry of Road Transport & Highways (Government of India)

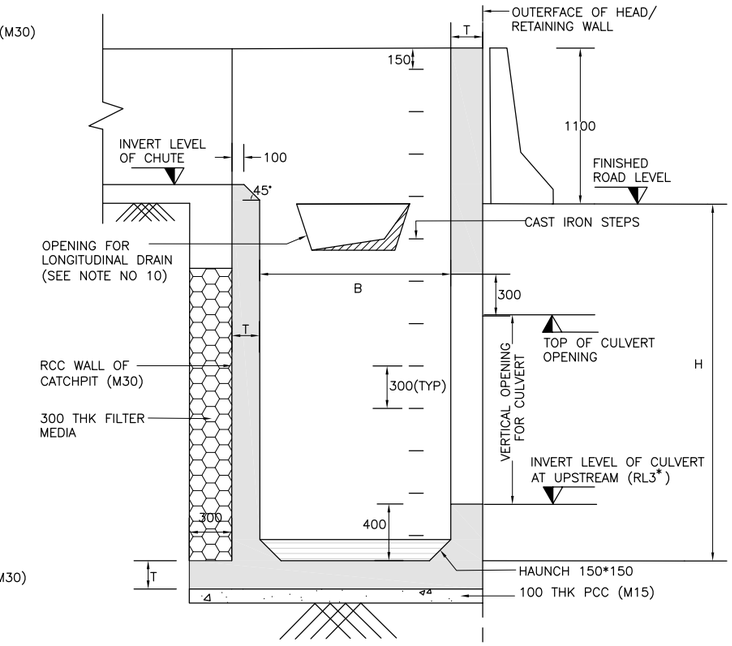
Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

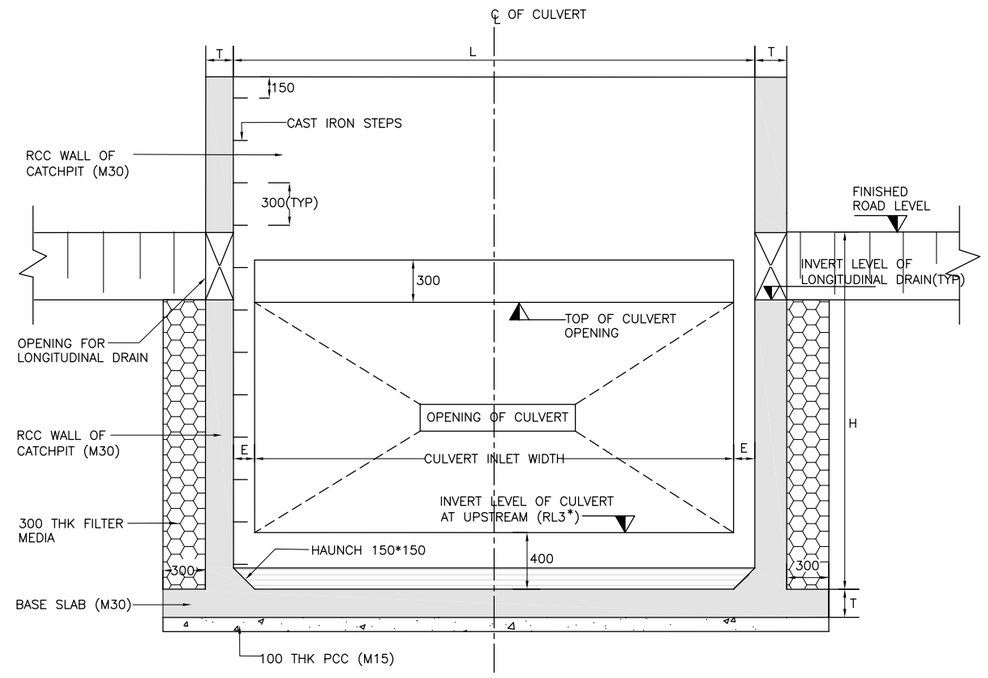
Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/10 | SCALE : AS SHOWN | SHEET : 3 OF 3 | Page No.



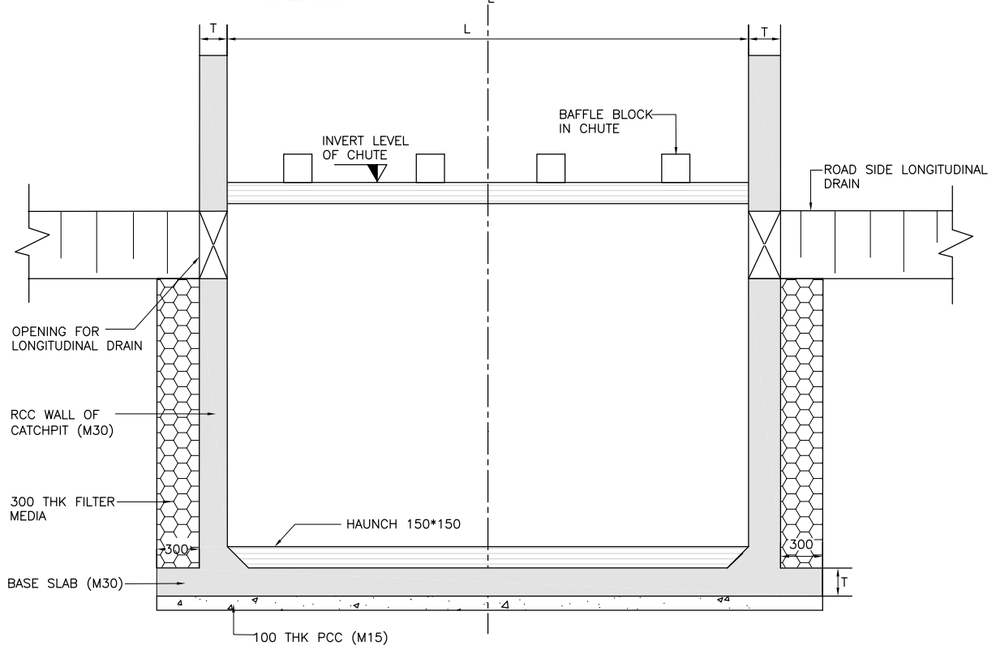
PLAN
SCALE 1:30



SECTION 1–1
SCALE 1:30
*PLEASE SEE NOTE NO 8



SECTION 2–2
SCALE 1:30



SECTION 3–3
SCALE 1:30

TABLE–1: SALIENT DIMENSIONS

TYPE OF CULVERT (m x m)	L(mm)	B(mm)	T(mm) (FOR H UPTO 4m)	T(mm) (FOR H>4m)	E(mm)
1.5X1.5 BOX	2100	1500	200	300	300
2.0X2.0 BOX	2600	1500	200	300	300
3.0X3.0 BOX	3600	2000	200	300	300
4.0X3.0 BOX	4600	2000	200	300	300
5.0X3.0 BOX	5600	2000	200	300	300

LEGENDS
B = WIDTH OF CATCHPIT
L = LENGTH OF CATCHPIT
T = THICKNESS OF RCC WALL/BASE SLAB
H = DEPTH OF CATCHPIT FROM FINISHED ROAD LEVEL

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWINGS FOR THE RESPECTIVE CULVERTS AND ALL OTHER RELEVANT DRAWINGS.
4. CLEAR COVERS
   AT BOTTOM OF FOOTING 75MM
   ALL OTHER CASES 50MM
5. FOR DESIGN PURPOSE, SAFE BEARING CAPACITY (SBC) HAS BEEN CONSIDERED AS 25 T/SQM. THIS SHOULD BE CHECKED AT SITE.
6. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILL WITH LAYER NOT EXCEEDING 300MM.
7. ALL CONSTRUCTION SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATIONS FOR ROAD AND SAFETY WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS AS DIRECTED/APPROVED BY ENGINEER.
8. FOR VALUE OF (RL3), WIDTH OF CHUTE, FINISH ROAD LEVEL REFER GENERAL ARRANGEMENT DRAWING AND SET OUT DRAWING OF RESPECTIVE CULVERTS.
9. CAST IRON STEPS SHALL BE CONFORMING TO IS:5455.
10. OPENING FOR LONGITUDINAL DRAIN SHALL BE AS PER SHAPE AND SIZE OF LONGITUDINAL DRAIN AT RESPECTIVE CHAINAGE OF CULVERT.

REFERENCES:

RITES/HW/MORT&H/4055–30/DPR/STD/01	GENERAL NOTES.
RITES/HW/MORT&H/4055–30/DPR/CUL/DP/01 TO 02 RITES/HW/MORT&H/4055–30/DPR/CUL/BC/01 TO 06 RITES/HW/MORT&H/4055–30/DPR/CUL/SP/01 TO 02	GENERAL ARRANGEMENT OF CULVERT.
RITES/HW/MORT&H/4055–30/DPR/CUL/SETOUT/.....	SETOUT DATA OF CULVERT.
RITES/HW/MORT&H/4055–30/DPR/STD/11(2 OF 3)	REINFORCEMENT DETAILS OF CATCHPIT

R0	JUNE 2017	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

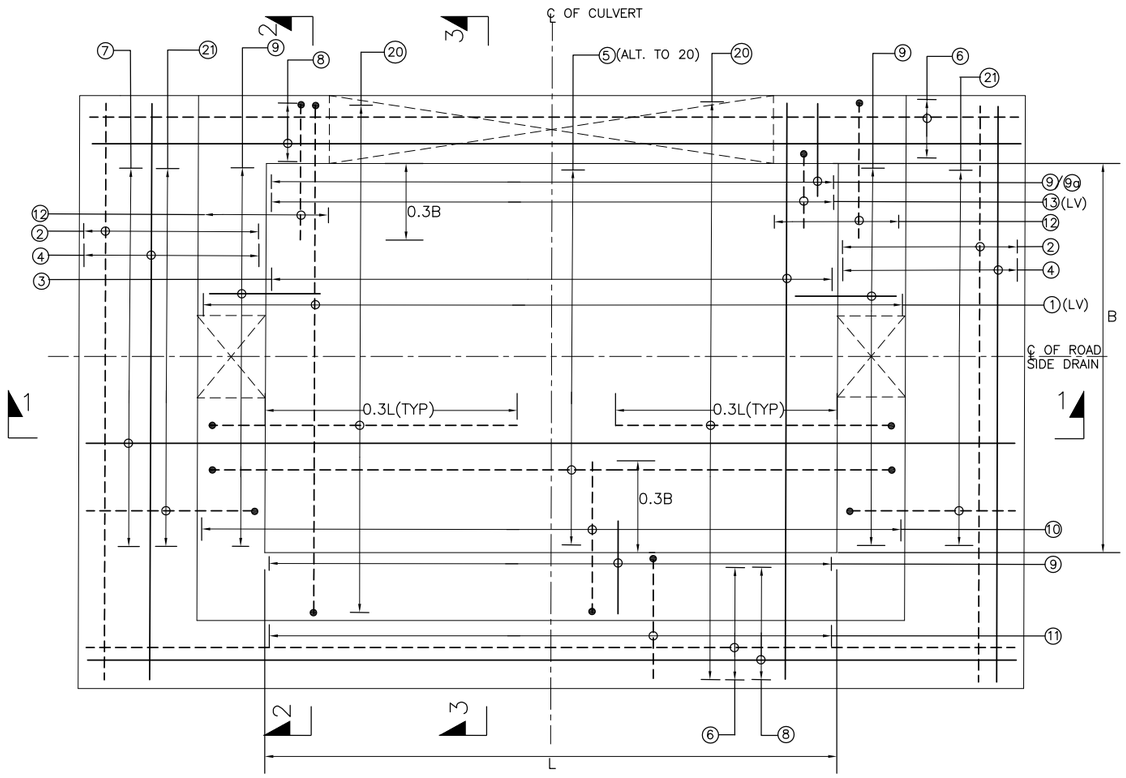
DIMENSION DETAILS OF CATCHPIT TYPE-II

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

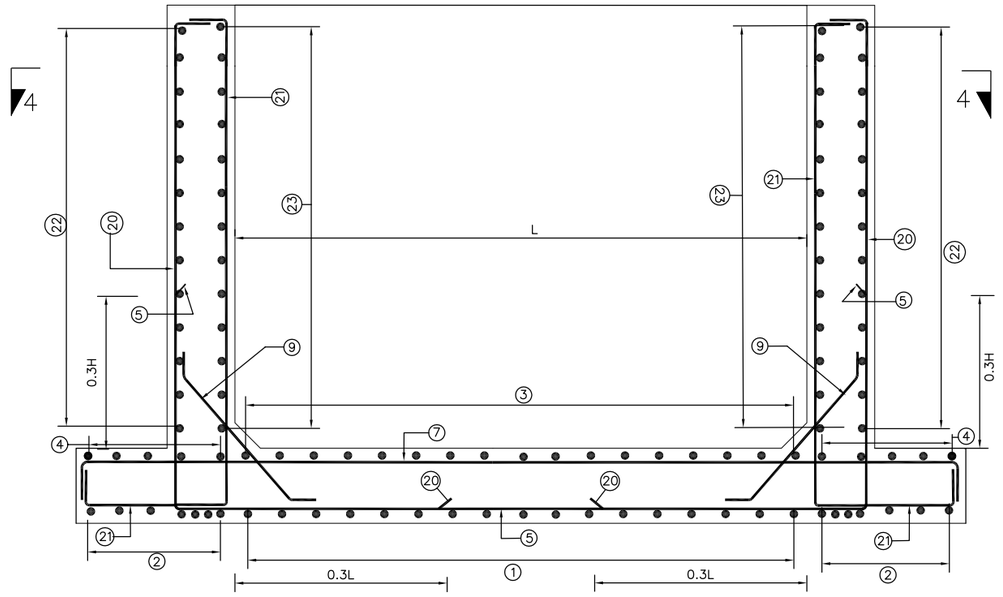
Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/11 | SCALE : AS SHOWN | SHEET : 1 OF 3 | Page No.



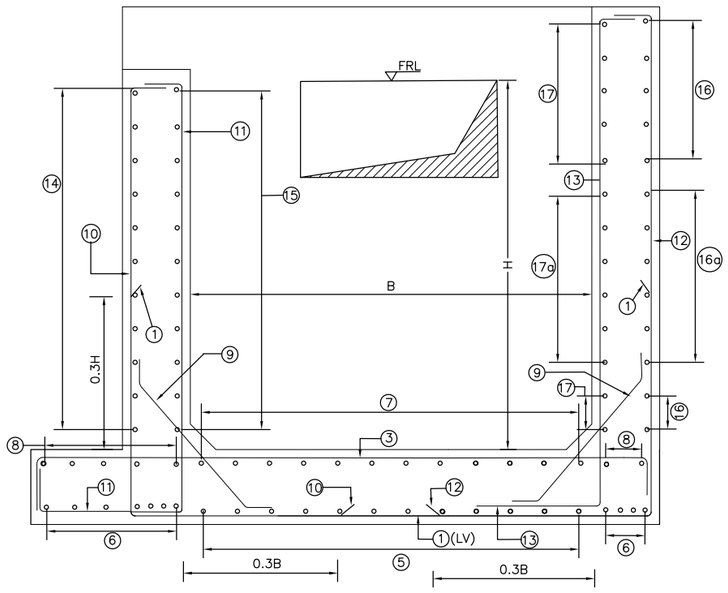
BASE SLAB REINFORCEMENT PLAN

SCALE 1:25



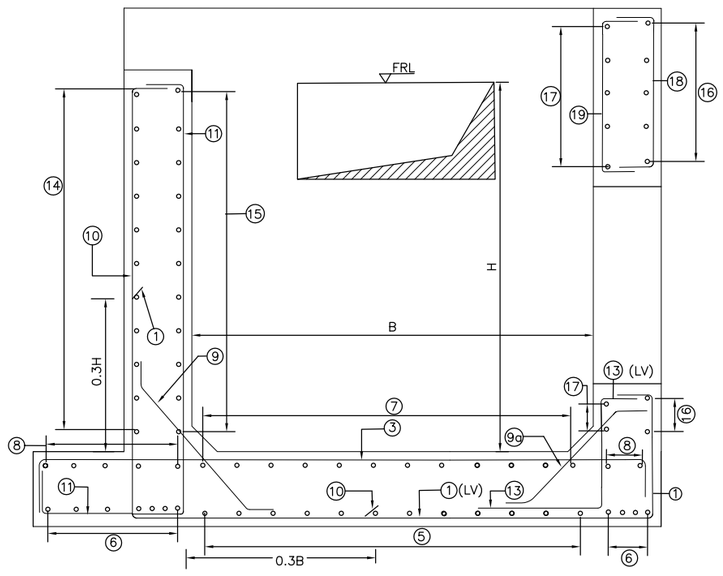
SECTION 1–1

SCALE 1:25



SECTION 2-2

SCALE 1:25



SECTION 3-3

SCALE 1:25

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWINGS FOR THE RESPECTIVE CULVERTS AND ALL OTHER RELEVANT DRAWINGS.
4. GRADE OF CONCRETE USED IN THE STRUCTURE SHALL BE M30.
5. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD AND BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS AS DIRECTED/APPROVED BY ENGINEER.
6. REINFORCEMENT SHALL BE THERMO MECHANICALLY TREATED HYSD BARS (GRADE HYSD Fe 500D) CONFORMING TO IS 1786–2008.
7. REINFORCEMENT SHALL BE PROVIDED AS WRITTEN AND NOT TO BE COUNTED.
8. LAPS SHALL BE STAGGERED AND MINIMUM LAP LENGTH SHALL BE 81XDIA OF SMALLER BAR (WITH SPLICING AT SECTION LIMITED TO 50%) UNLESS OTHERWISE SPECIFIED.
9. REINFORCEMENT BARS SHALL HAVE MINIMUM CLEAR COVER OF 75mm FOR BASE SLAB BOTTOM AND 50mm FOR ALL OTHER CASES.
10. FOR VALUE OF L AND B REFER DRAWING NO RITES/HW/MORT&H/4055–30/DPR/STD/11
11. FOR DETAILS OF SECTION 4–4 REFER SHEET NO 3 OF 3 OF THIS DRAWING.

LEGEND:

FRONT/TOP REINFORCEMENT ———————

BACK/BOTTOM REINFORCEMENT – – – – – – – – – – –

LENGTH VARIES LV

REFERENCE DRAWINGS:

RITES/HW/MORT&H/4055–30/DPR/STD/01	GENERAL NOTES.
RITES/HW/MORT&H/4055–30/DPR/STD/11(1 OF 3)	DIMENSION DETAILS OF CATCHPIT TYPE II
RITES/HW/MORT&H/4055–30/DPR/STD/11(3 OF 3)	REINFORCEMENT DETAILS

R0	JUNE 2017	Stage 4 : Final Detailed Project Report - Volume VIII: Drawings	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

REINFORCEMENT DETAILS OF CATCHPIT TYPE II

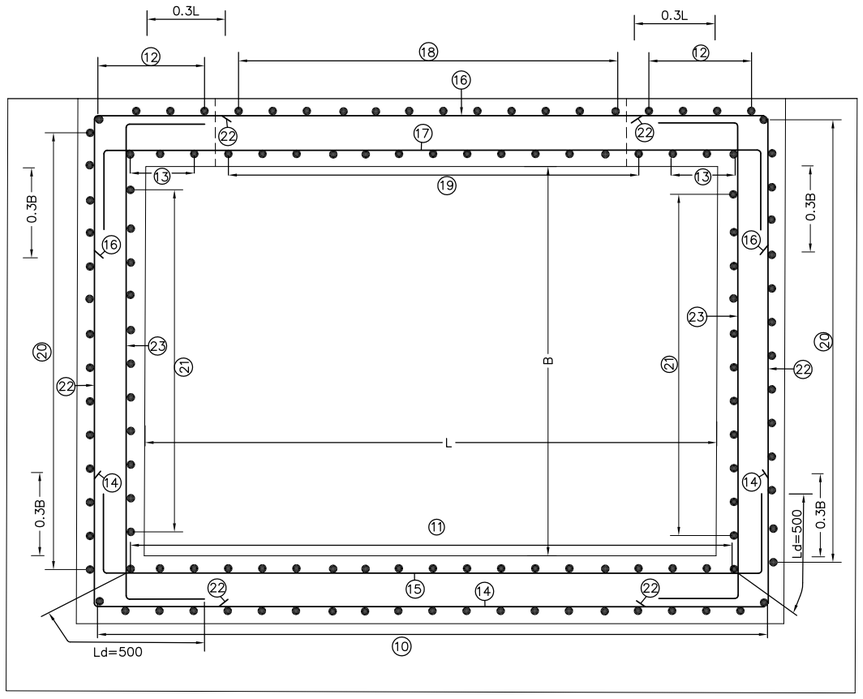
Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/11 | SCALE : AS SHOWN | SHEET : 2 OF 3 | Page No.

SCHEDULE OF REINFORCEMENT



SECTION 4–4
(REINFORCEMENT OF BASE SLAB NOT SHOWN)

SCALE 1:25

FOR HEIGHT OF CATCHPIT UPTO 4M, LENGTH OF CATCHPIT (L) UPTO 3M

BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA in mm	SPACING in mm	NO. OF BARS
①		16	260	–
②		10	–	14
③		10	130	–
④		10	–	10
⑤		16	260	–
⑥		10	–	11
⑦		10	130	–
⑧		10	–	7
⑨		10	130	–
⑨a		10	130	–
⑩		10	260	–
⑪		12	130	–
⑫		10	260	–
⑬		10	130	–
⑭		10	150	–
⑮		12	150	–
⑯		10	150	–
⑯a		10	150	–
⑰		10	150	–
⑰a		10	150	–
⑱		10	150	–
⑲		10	150	–
⑳		10	260	–
㉑		12	130	–
㉒		10	150	–
㉓		10	150	–

FOR HEIGHT OF CATCHPIT UPTO 4M, LENGTH OF CATCHPIT (L) 3M TO 6M

BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA in mm	SPACING in mm	NO. OF BARS
①		16	250	–
②		10	–	14
③		10	125	–
④		10	–	10
⑤		16	250	–
⑥		10	–	11
⑦		10	125	–
⑧		10	–	7
⑨		10	125	–
⑨a		10	125	–
⑩		10	250	–
⑪		12	125	–
⑫		10	250	–
⑬		10	125	–
⑭		10	150	–
⑮		16	150	–
⑯		10	150	–
⑯a		10	150	–
⑰		10	150	–
⑰a		10	150	–
⑱		10	150	–
⑲		10	150	–
⑳		10	250	–
㉑		12	125	–
㉒		10	150	–
㉓		10	150	–

FOR HEIGHT OF CATCHPIT 4M TO 6M, LENGTH OF CATCHPIT (L) UPTO 3M

BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA in mm	SPACING in mm	NO. OF BARS
①		20	250	–
②		10	–	14
③		12	125	–
④		10	–	10
⑤		20	250	–
⑥		10	–	11
⑦		12	125	–
⑧		10	–	7
⑨		10	125	–
⑨a		10	125	–
⑩		12	250	–
⑪		10	125	–
⑫		12	250	–
⑬		12	125	–
⑭		10	200	–
⑮		12	200	–
⑯		10	150	–
⑯a		10	150	–
⑰		10	150	–
⑰a		10	150	–
⑱		10	150	–
⑲		10	150	–
⑳		12	250	–
㉑		10	125	–
㉒		10	200	–
㉓		10	200	–

FOR HEIGHT OF CATCHPIT 4M TO 6M, LENGTH OF CATCHPIT (L) 3M TO 6M

BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA in mm	SPACING in mm	NO. OF BARS
①		20	250	–
②		10	–	14
③		12	125	–
④		10	–	10
⑤		20	250	–
⑥		10	–	11
⑦		12	125	–
⑧		10	–	7
⑨		10	125	–
⑨a		10	125	–
⑩		12	250	–
⑪		10	125	–
⑫		12	250	–
⑬		12	125	–
⑭		10	150	–
⑮		16	150	–
⑯		10	150	–
⑯a		10	150	–
⑰		10	150	–
⑰a		10	150	–
⑱		10	150	–
⑲		10	150	–
⑳		12	250	–
㉑		10	125	–
㉒		10	150	–
㉓		10	150	–

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED.
2. FOR LOCATION OF SECTION 4–4 REFER SHEET NO 2 OF 3 OF THIS DRAWING.

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	JUNE 2017	Stage 4 :Final Detailed Project Report - Volume VIII: Drawings	NKM / RJ	R. Garg	R. Garg	S.K.B	Tapas Mukherjee

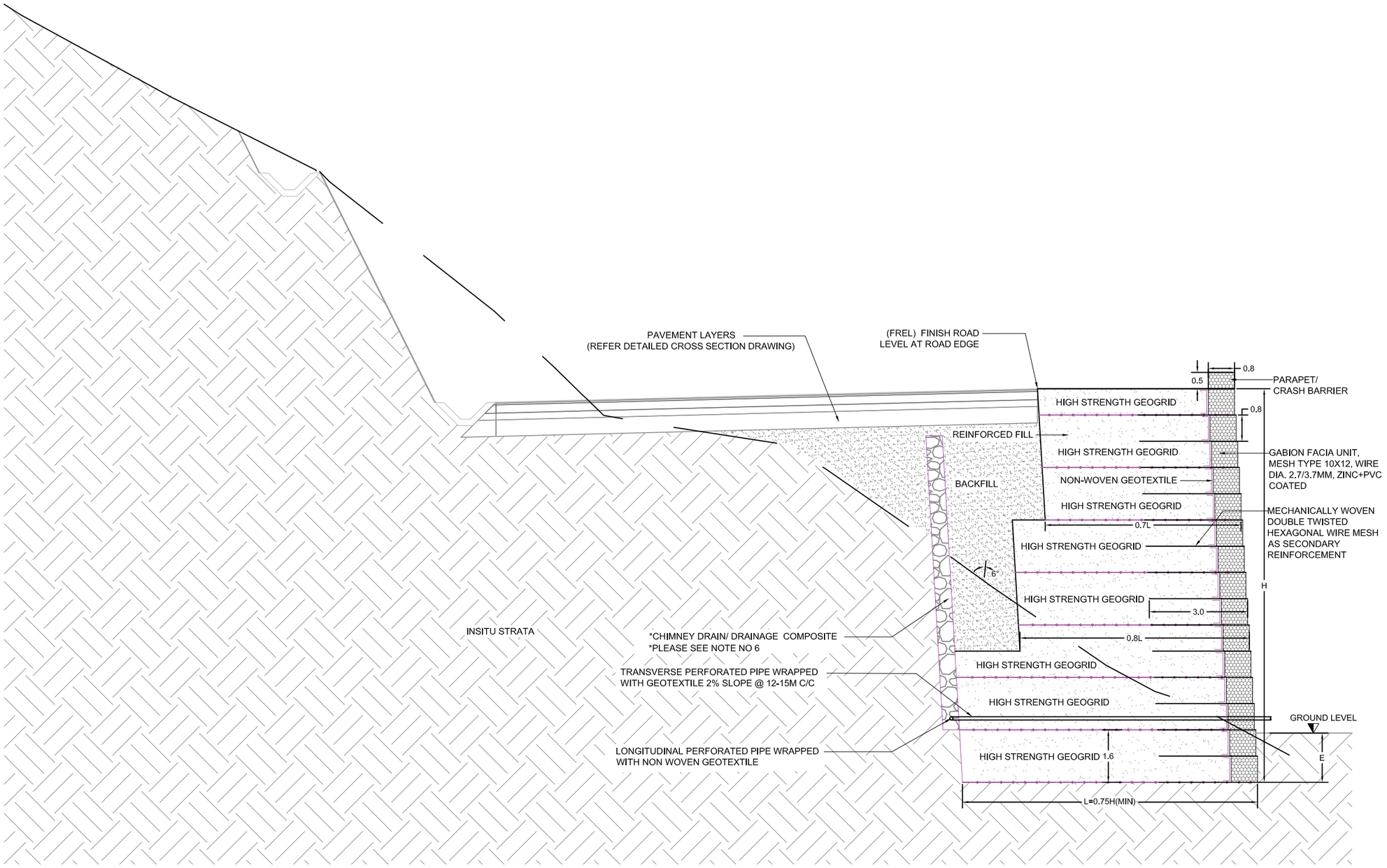
REINFORCEMENT DETAILS OF CATCHPIT TYPE II

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/11 | SCALE : AS SHOWN | SHEET : 3 OF 3 | Page No.



NOTES:

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. THE BASE WIDTH (L) OF REINFORCED EARTH WALL AND LENGTH OF REINFORCEMENT SHALL BE DESIGNED BASED ON THE STRATA PROPERTIES, TOPOGRAPHY, HEIGHT OF REINFORCED EARTH WALL (H) AND LOADING ABOVE/ON THE WALL. THE SOIL PROPERTY HAS TO BE VERIFIED AT EVERY LOCATION.
3. EMBEDMENT DEPTH (INDICATED AS E) SHALL BE DECIDED AS PER RELEVANT STANDARDS.
4. GABION FACIA UNITS WITH AN INTEGRATED TAIL DURING MANUFACTURING ARE MADE WITH DOUBLE TWISTED HEXAGONAL SHAPED STEEL WOVEN WIRE MESH & MECHANICALLY SELVEDGED. MESH TYPE 10X12 WIRE DIA 2.7/3.7MM WITH ZINC+PV COATING AS PER IS:16014 & MORTH SECTION 2500 AND 3100).
5. BOULDERS USED IN GABION FACIA UNITS SHALL BE HARD, ANGULAR TO ROUND, DURABLE WHICH SHALL NOT DISINTEGRATE ON EXPOSURE TO WATER OR WEATHERING DURING THE LIFE OF THE STRUCTURE. THE GABION FACIA UNIT/GABION FILL STONE SIZE SHALL BE 150MM TO 250MM AND SHALL HAVE A MINIMUM CRUSHING STRENGTH OF 300KG/CM^2, LOS ANGELES ABRASION VALUE <45 AND WATER ABSORPTION <40%.
6. NON-WOVEN GEOTEXTILE SHALL BE NEEDLE PUNCHED MADE OF POLYSTER STAPLE FIBRE WHICH ARE UV STABILIZED. THE MATERIAL SPECIFICATIONS SHALL BE AS PER MORTH-SECTION 700.
7. HIGH STRENGTH GEOGRID WILL ACT AS PRIMARY REINFORCEMENT AND MESH WILL ACT AS SECONDAERY REINFORCEMENT. HIGH STRENGTH FLEXIBLE GEOGRID SHALL CONFIRM TO MORTH-SECTION 700 AND 3100.
8. GEOCOMPOSITE IS FOR PLANAR DRAINAGE REALIZED BY THERMOBONDING A DRAINAGE CORE IN EXTRUDED MONOFILAMENTS WITH TWO FILTERING NON-WOVEN GEOTEXTILE, WHICH SHALL CONFIRM TO IRC 34;2011 AND MORTH-SECTION 700.
9. STRUCTURAL FILL SHALL COMPLY WITH PROPERTIES APPROVED BY ENGINEER-IN-CHARGE. THE FINE PASSING THROUGH 75 MICRON SHALL BE LESS THAN OR EQUAL TO 15%. THE SOIL SHALL NOT HAVE PI>6. IF IN CASE STRUCTURAL FILL WITH PI<6 IS NOT AVAILABLE, THE FILL WITH PHI ≥ 30° IS ACCEPTABLE PROVIDED PI<12 AND FINE PASSING 75 MICRON SEIVE WILL BE LESS THAN OR EQUAL TO 15% AND PARTICLE SIZE IN GENERAL 6MM TO 20MM AND IN NO CASE GREATER THAN 40MM. (PI-PLASTICITY INDEX)
10. THE LENGTH OF REINFORCEMENT HAS TO BE KEPT AS PER DESIGN. LOAD COMBINATIONS CONSIDERED FOR THE DESIGN ARE-
    A) STATIC + LIVE LOAD
    B) SEISMIC + LIVE LOAD
    SEISMIC ACCELERATION COEFFICIENTS
    (αh=0.18, αv=0.12)

TYPICAL CROSS SECTION OF REINFORCED EARTH WALL

R0	SEPT 2016	Stage 4 :Final Detailed Project Report - Volume VIII: Drawings	NKM / RJ			S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved

DETAILS OF REINFORCED EARTH WALL

(APPLICABLE WHEN PLACEMENT OF FULL LENGTH SOIL REINFORCEMENT IS POSSIBLE)

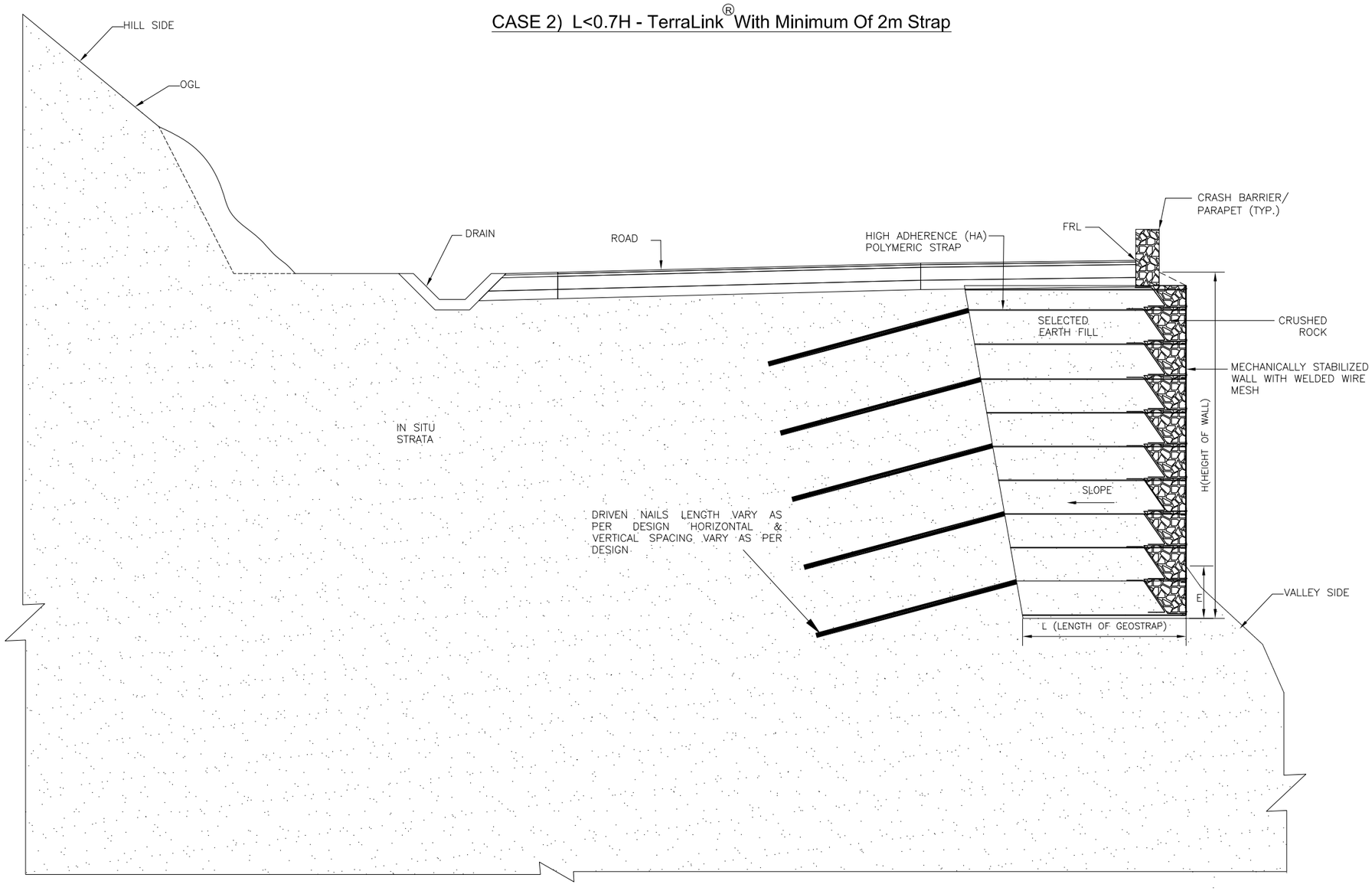
Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/12 | SCALE : AS SHOWN | SHEET : 1 OF 2 | Page No.

CASE 2) L<0.7H - TerraLink® With Minimum Of 2m Strap



TYPICAL CROSS SECTION OF REINFORCED EARTH WALL

GENERAL NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRE UNLESS OTHERWISE STATED.
2. THE BASE WIDTH (L) OF REINFORCED EARTH WALL AND LENGTH OF REINFORCEMENT SHALL BE DESIGNED BASED ON THE STRATA PROPERTIES, TOPOGRAPHY, HEIGHT OF REINFORCED EARTH WALL (H) AND LOADING ABOVE/ON THE WALL.
3. EMBEDMENT DEPTH (INDICATED AS E) SHALL BE DECIDED AS PER RELEVANT STANDARDS.
4. THE MECHANICALLY STABILIZED REINFORCED EARTH WALL DESIGN ANALYSIS SHALL BE DONE AS PER AFNOR NF.P94-270 JULY 2009 AS CITED IN ANNEXURE A1-1.1 IN **SECTION 3100 OF MORTH-5th REVISION OR FHWA**.THE OVERALL STABILITY ANALYSIS SHALL BE DONE FOR WORKING STRESS ANALYSIS CONSIDERING A FACTOR OF SAFETY OF 1.3 FOR STATIC & 1.1 FOR SEISMIC.
5. THE PULL OUT BOND STRENGTH SHALL BE RE VERIFIED AS SITE BY CONDUCTING IN SITU PULLOUT TEST.
6. ALL DRAINAGE GALLERY SHALL BE AS PER CLASS-**II** GRADATION OF **MORTH 5TH REV. SPECIFICATION (TABLE NO.-300.3, PAGE-87)** .
7. THE FACING FOR THE MECHANICALLY STABILIZED REINFORCED EARTH WALL (ON BOTH SIDES-EXPOSED FACE & SLOPED SURFACE) SHALL BE USING HOT DIP GALVANIZED WELDED WIRE MESH OF MINIMUM 8mm DIA BAR@100mm c/c EXCEPT THE HORIZONTAL BARS WHERE THE PRIMARY REINFORCEMENT IS CONNECTED SHALL BE OF MINIMUM 12mm. DIA BAR.
8. THE SOIL REINFORCEMENT (HIGH ADHERENCE POLYMERIC STRAP) USED FOR MECHANICALLY STABILIZED REINFORCED EARTH WALL SHALL BE CONNECTED MECHANICALLY WITH THE FACING DIRECTLY IN CONSIDERATION USING POSITIVE CONNECTION. NO OVERLAP CONNECTION SHALL BE USED DUE TO SEISMIC ZONE AS STIPULATED IN **ANNEXURE-F BS-8006:2010.**
9. ALL THE STEEL COMPONENTS SHALL BE HOT DIP GALVANIZED WITH A MINIMUM GALVANIZATION OF 70µ(500gm/Sqm).
10. FULLY THREADED GALVANIZED HIGH TENSILE IN-SITU SOIL REINFORCEMENT SHOULD HAVE A MINIMUM YIELD STRENGTH OF 670 MPA AND ULTIMATE TENSILE STRENGTH OF 800 MPA.

R0	NOV 2016	Stage 4 : Final Detailed Project Report - Volume VIII: Drawings	NKM / RJ			S.K.B	Tapas Mukherjee
Revision	Date	Stage / Report	Topography	Desigined	Drawn	Checked	Approved

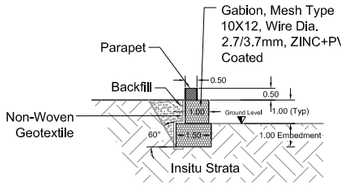
DETAILS OF REINFORCED EARTH WALL
(APPLICABLE WHEN PLACEMENT OF FULL LENGTH SOIL REINFORCEMENT IS NOT POSSIBLE)

Client : Ministry of Road Transport & Highways (Government of India)

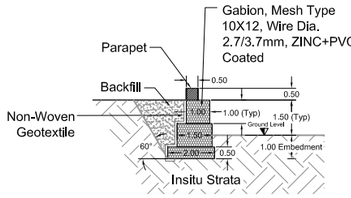
Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/12 | SCALE : AS SHOWN | SHEET : 2 OF 2 | Page No.



CROSS SECTION OF 1m HIGH GABION RETAINING WALL (ABOVE GL)



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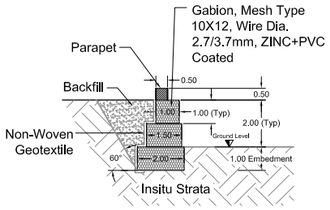

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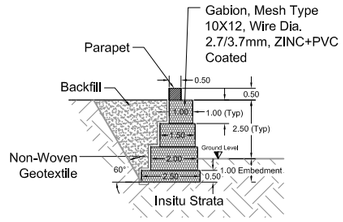

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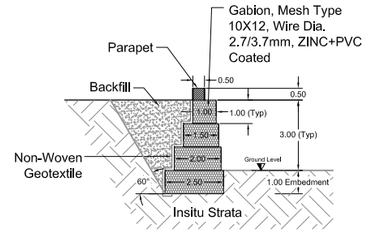

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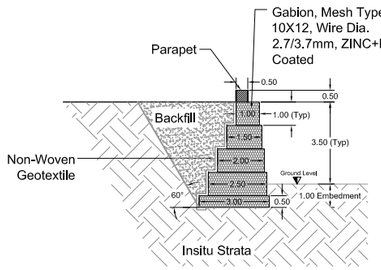
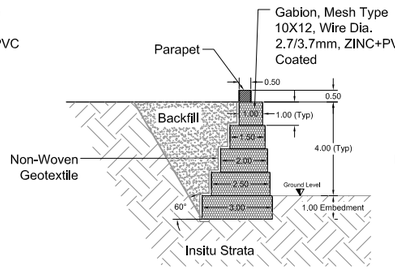
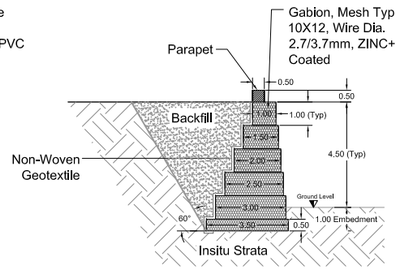


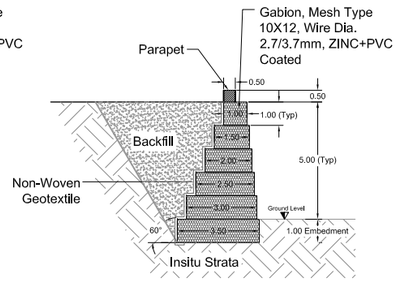
CROSS SECTION OF 3.5m HIGH GABION RETAINING WALL (ABOVE GL)



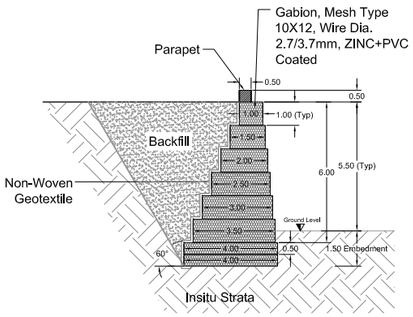
CROSS SECTION OF 4m HIGH GABION RETAINING WALL (ABOVE GL)



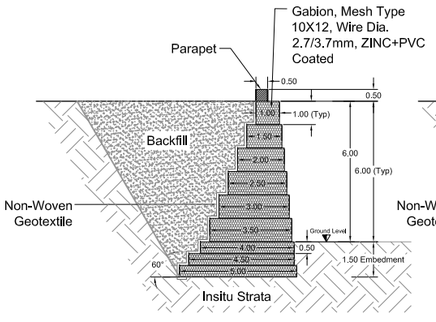
CROSS SECTION OF 4.5m HIGH GABION RETAINING WALL (ABOVE GL)



CROSS SECTION OF 5m HIGH GABION RETAINING WALL (ABOVE GL)



CROSS SECTION OF 5.5m HIGH GABION RETAINING WALL (ABOVE GL)



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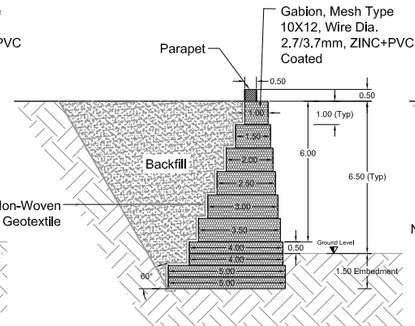

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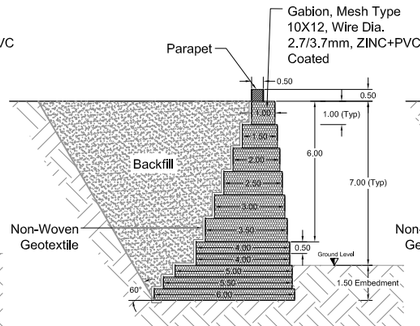
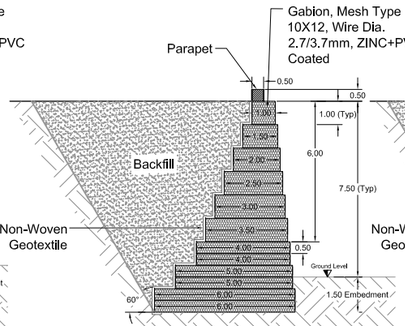
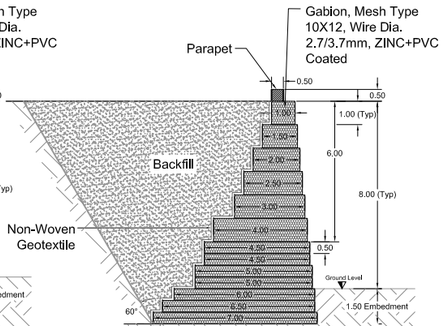


CROSS SECTION OF 7m HIGH GABION RETAINING WALL (ABOVE GL)



CROSS SECTION OF 7.5m HIGH GABION RETAINING WALL (ABOVE GL)



CROSS SECTION OF 8m HIGH GABION RETAINING WALL (ABOVE GL)

NOTES:

GENERAL

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.

MATERIAL SPECIFICATIONS

1. GABION SPECIFICATIONS
GABION (1M HIGH/0.5M HIGH) SHALL BE MADE WITH MECHANICALLY WOVEN DOUBLE TWISTED HEXAGONAL SHAPED WIRE MESH GABION BOXES OF REQUIRED SIZES, MESH TYPE 10 X 12 WITH D=100MM HAVING TOLERANCE OF +/−2%), MESH WIRE DIA. 2.7/3.7MM (ID/OD) (WITH A TENSILE STRENGTH OF 350 −550N/MM2), ZN + PVC COATED WITH MINIMUM ZINC COATING REQUIREMENT AS 260 GM/M2, MECHANICALLY EDGED / SELVEDGED (SELVEDGE STRENGTH SHALL BE MINIMUM 25 KN/M), WITH PARTITIONS AT EVERY 1M INTERVAL AS PER IS 16014:2012 AND MORTH (FIFTH REVISION) 2013, CLAUSE 2500.
2. NON WOVEN GEOTEXTILE (TYPE III AS PER MORTH SECTION 700) IS TO BE PROVIDED AS A SEPARATOR AT THE REAR END & BASE OF GABLION WALL.

CONSTRUCTION

1. THE BACKFILL SOIL SHALL BE WELL COMPACTED TO DENSITY GREATER THAN OR EQUAL TO 95% MODIFIED PROCTOR VALUE.
2. BATTER OF 6° WITH VERTICAL IS TO BE PROVIDED FOR GABION WALL.
3. G.I. OR M.S. PIPE FORMWORK SHALL BE PROVIDED FOR GOOD AESTHETIC APPEARANCE OF THE GABION WALL. BRACING WIRE SHALL BE PROVIDED TO CONTROL BULGING AT 0.3M C/C ALONG HEIGHT AND LENGTH.
4. GABION FILLING SHALL BE DONE IN 3 LAYERS, THE SIZE OF ROCK SHALL BE 150MM TO 250MM. LACING SHOULD BE DONE IN SINGLE & DOUBLE LOOPING FASHION AT 100MM SPACING.
5. ROCK SHALL BE HARD, ANGULAR TO ROUND, DURABLE SHALL NOT LOSE THE INTEGRITY ON EXPOSURE TO WATER AND WEATHERING DURING LIFE.
6. THE MINIMUM REQUIRED CRUSHING STRENGTH OF THE ROCK FOR GABION FILLING IN THE GABION UNIT SHALL BE 300KG/CM^2.
7. GABIONS SHALL BE PLACED AT THE LEVELS/LOCATIONS AS INDICATED IN THE DRAWING.
8. OVER LAPPING OF GEOTEXTILE SHALL BE 200MM.
9. THE FRONT FACE SHALL BE NEATLY PACKED WITH GOOD FACIA ROCKS FOR THE FACING OF GABION WALL.
10. FOUNDATION STRATA TO BE INSPECTED AND VERIFIED BY THE ENGINEER IN CHARGE AND FURTHER WORK TO START ONLY AFTER THEIR APPROVAL.
11. WORK SHALL BE CARRIED OUT STRICTLY AS PER MANUFACTURER'S INSTALLATION GUIDELINES.
12. SAFE BEARING CAPACITY SHALL BE VERIFIED AT SITE BEFORE THE COMMENCEMENT OF WORK ALONG THE GABIONS WALL.
13. SUITABLE DRAINAGE MEASURES SHALL BE ADOPTED AS PER IRC: SP−48(HILL ROAD MANUAL) AND IRC: SP−42 (GUIDELINES ON ROAD DRAINAGE) BASED ON SITE FEASIBILITY.
14. VALLEY SIDE SLOPE STABILIZATION MEASURES SHALL BE ADOPTED TO SUIT THE SITE CONDITIONS.

DESIGN CONSIDERATIONS**

1. STRATA PROPERTIES

STRATA	C(KN/M^2) COHESION (MINIMUM)	ø (DEGREE) FRICTION ANGLE (MINIMUM)	ɤ(KN/M^3) UNIT WEIGHT
BACKFILL	0	32	18
INSITU STRATA	0	28	18

2. PROPERTIES OF ROCKFILL−
ROCKFILL UNIT WEIGHT = 26 KN/M^3
POROSITY OF FILLED GABIONS = 35%
3. LOAD COMBINATIONS CONSIDERED FOR THE DESIGN ARE−
A) SEISMIC
B) STATIC*
* SATURATED UNIT WEIGHT HAS BEEN CONSIDERED FOR BACKFILL SOIL IN STATIC CASE.
4. 22KPa LOAD HAS BEEN CONSIDERED IN DESIGN AS A TRAFFIC LOAD.
** ALL THE DESIGN ASSUMPTIONS HAVE TO BE STRICTLY VERIFIED AT THE SITE. THE DESIGNS ARE VALID FOR SOIL PROPERTIES AS MENTIONED ABOVE OR HIGHER PROPERTIES. THE DESIGNS ARE VALID FOR LOADING CONDITIONS AS MENTIONED ABOVE OR LOWER LOADING CONDITIONS.

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEP 2016	Stage 4 (Final Detail Project Report - Volume 3: Drawings) - GENERAL ARRANGEMENT DRAWING FOR BRIDGES	NKM / RJ	NKM	MS	S.K.B	Tapas Mukherjee

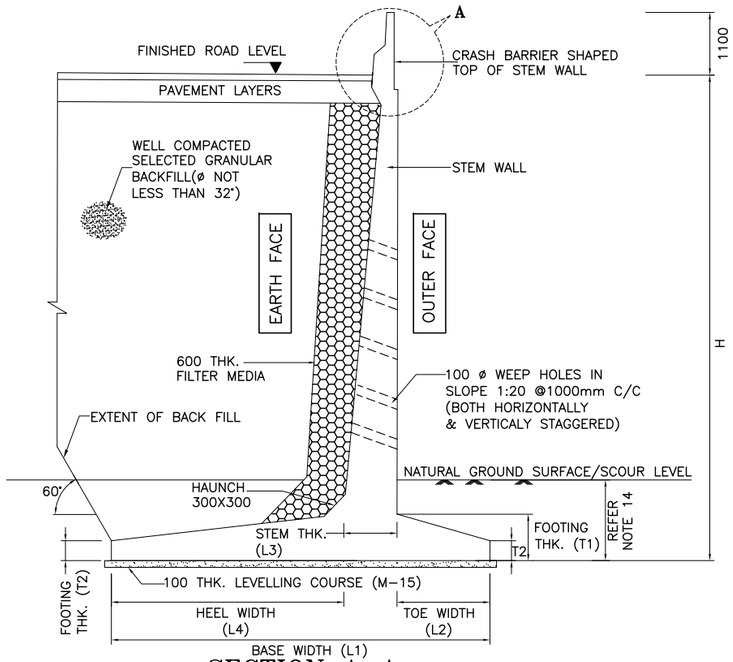
CROSS SECTIONAL DETAIL OF GABION WALL

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

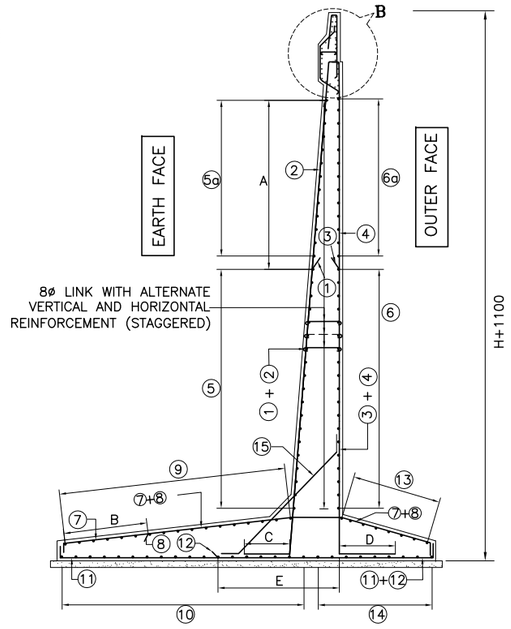
Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/13 | SCALE : AS SHOWN | SHEET : 1 OF 1 | Page No.



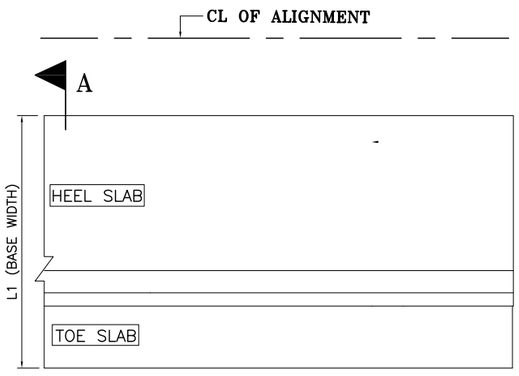
SECTION A–A

(SCALE 1:75)



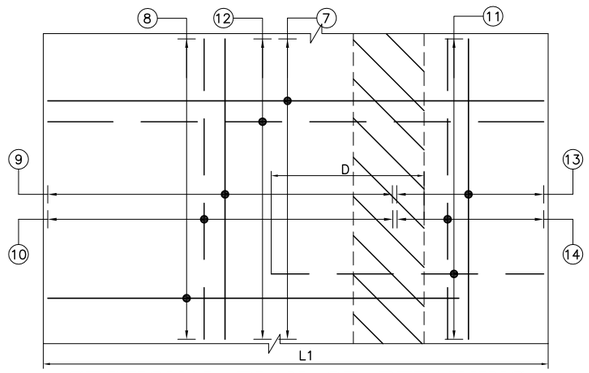
SECTION A–A SHOWING REINFORCEMENT

(SCALE 1:75)



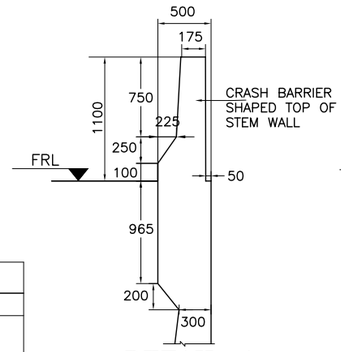
PLAN OF RETAINING WALL FOUNDATION

(SCALE 1:100)



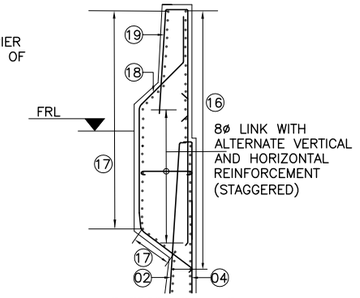
SECTIONAL PLAN OF RETAINING WALL FOUNDATION

(SCALE 1:50)



DETAIL–A (SHOWING DIMENSION)

(SCALE 1:75)



DETAIL–B (SHOWING REINFORCEMENT)

(SCALE 1:75)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND THE LEVELS IN METRES.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD AND BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS WHENEVER REQUIRED AND AS DIRECTED/APPROVED BY ENGINEER.
4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT ROAD DRAWINGS. FINISHED ROAD LEVEL AND CAMBER / SUPERELEVATION AT PARTICULAR CHAINAGE SHALL BE AS PER ROAD DRAWINGS.
5. GRADE OF CONCRETE IN RETAINING WALL SHALL BE M35.
6. REINFORCEMENT SHALL BE THERMO MECHANICALLY TREATED HYSD BARS (GRADE HYSD Fe 500D) CONFORMING TO IS 1786–2008.
7. REINFORCEMENT SHALL BE PROVIDED AS WRITTEN AND NOT TO BE COUNTED.
8. LAPS SHALL BE STAGGE RED AND MINIMUM LAP LENGTH SHALL BE 73XDIA OF SMALLER BAR (WITH SPLICING AT SECTION LIMITED TO 50%) UNLESS OTHERWISEN SPECIFIED.
9. REINFORCEMENT BARS SHALL HAVE MINIMUM CLEAR COVER OF 50MM FOR STEM WALL AND 75MM FOR FOOTING.
10. BACK FILLING AND FILTER MEDIA BEHIND RETAINING WALL SHALL CONFORM TO APPENDIX–6 OF IRC:78–2014. THE ANGLE OF REPOSE OF BACKFILLING MATERIAL SHALL NOT BE LESS THAN 32°.
11. 100 DIA WEEP HOLES SHALL BE PROVIDED @ 1.0m C/C BOTH HORIZONTALLY AND VERTICALLY (STAGGERED) IN THE RETAINING WALL. THE WEEP HOLES SHALL BE ABOVE THE EXISTING GROUND LEVEL IN FRONT OR LWL WHICHEVER IS HIGHER.
12. CLEAN JOINT FILLED WITH JOINT FILLER SHALL BE PROVIDED IN THE RETAINING WALLS AFTER EVERY 20.0 m.
13. FOR DESIGN PURPOSE SAFE BEARING CAPACITY (S.B.C) HAS BEEN CONSIDERED AS 25.0T/M. THIS SHOULD BE CHECKED AT SITE. IF THE SBC IS FOUND LESS, THE MATTER SHOULD BE REPORTED TO ENGINEER.
14. THE MINIMUM DEPTH OF FOUNDATION BELOW SCOUR LEVEL / PROTECTED BED LEVEL SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS.
15. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYER NOT EXCEEDING 300MM.
16. FOR DESIGN OF RETAINING WALL, SEISMIC FORCES HAVE NOT BEEN CONSIDERED AS PER STIPULATION IN CLAUSE 219 OF IRC:6–2014.

SCHEDULE DIMENSIONS FOR RETAINING WALL (mm)

HEIGHT (H)	BASE WIDTH (L1) (mm)	TOE WIDTH (L2) (mm)	STEM THK. (L3) (mm)	HEEL WIDTH (L4) (mm)	FOOTING THK. (T1) (mm)	FOOTING THK. (T2) (mm)
9500	8250	750	1000	6500	1100	300
8500	6500	750	900	4850	900	300
7500	5800	600	750	4450	800	300
6500	5000	600	600	3800	700	300
5500	4300	450	500	3350	550	300
4500	3500	450	400	2650	500	300
3500	2800	300	350	2200	450	300
2500	2050	300	300	1450	300	300

REINFORCEMENT CURTAILMENT LENGTH

HEIGHT (H)	REINFORCEMENT CURTAILMENT LENGTH IN (mm)				
	A	B	C	D	E
9500	3200	1100	300	300	450
8500	3100	800	300	300	350
7500	2800	800	300	300	300
6500	2500	800	300	300	350
5500	2000	700	300	300	350
4500	1500	500	300	300	350
3500	1000	400	300	250	350
2500	500	400	300	250	300

LEGEND

TOP REINFORCEMENT ———————

BOTTOM REINFORCEMENT —— —— ——

REFERENCE DRAWING:

RITES/HW/MORT&H/4055–30/DPR/BR/GN/01 GENERAL NOTES

SCHEDULE OF REINFORCEMENT FOR RETAINING WALL

HEIGHT 'H'	BAR MKD.																		
	1	2(ALT. WITH 1)	3	4(ALT. WITH 3)	5	5a	6	6a	7	8(ALT. WITH 7)	9	10	11	12(ALT.WITH11)	13	14	15	16	17	18	19
9500	32ø@250C/C	25ø@250C/C	12ø@250C/C	8ø@250C/C	12ø@150C/C	12ø@150C/C	12ø@150C/C	12ø@150C/C	32ø@250C/C	32ø@250C/C	16ø@150C/C	16ø@150C/C	16ø@250C/C	16ø@250C/C	12ø@150C/C	12ø@150C/C	12ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C
8500	32ø@250C/C	25ø@250C/C	12ø@250C/C	8ø@250C/C	12ø@150C/C	12ø@150C/C	12ø@150C/C	12ø@150C/C	25ø@250C/C	32ø@250C/C	12ø@150C/C	12ø@150C/C	16ø@250C/C	12ø@250C/C	12ø@150C/C	12ø@150C/C	12ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C
7500	25ø@250C/C	25ø@250C/C	10ø@250C/C	10ø@250C/C	10ø@125C/C	10ø@125C/C	10ø@125C/C	10ø@125C/C	25ø@250C/C	32ø@250C/C	10ø@125C/C	10ø@125C/C	16ø@250C/C	10ø@250C/C	10ø@150C/C	10ø@150C/C	10ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C
6500	25ø@250C/C	20ø@250C/C	10ø@250C/C	8ø@250C/C	10ø@150C/C	10ø@150C/C	10ø@150C/C	10ø@150C/C	25ø@250C/C	25ø@250C/C	10ø@150C/C	10ø@150C/C	12ø@250C/C	12ø@250C/C	10ø@150C/C	10ø@150C/C	10ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C
5500	20ø@250C/C	20ø@250C/C	8ø@250C/C	8ø@250C/C	8ø@125C/C	8ø@125C/C	8ø@125C/C	8ø@125C/C	20ø@250C/C	25ø@250C/C	10ø@150C/C	10ø@150C/C	10ø@250C/C	12ø@250C/C	10ø@150C/C	10ø@150C/C	8ø@125C/C	8ø@125C/C	8ø@125C/C	12ø@150C/C	12ø@150C/C
4500	20ø@250C/C	16ø@250C/C	8ø@300C/C	8ø@300C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	16ø@300C/C	20ø@300C/C	8ø@150C/C	8ø@150C/C	10ø@300C/C	12ø@300C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C
3500	16ø@250C/C	12ø@250C/C	8ø@300C/C	8ø@300C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@300C/C	16ø@300C/C	8ø@150C/C	8ø@150C/C	10ø@300C/C	12ø@300C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C
2500	12ø@300C/C	10ø@300C/C	8ø@300C/C	8ø@300C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@300C/C	12ø@300C/C	8ø@150C/C	8ø@150C/C	10ø@300C/C	10ø@300C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume VIII: Drawings)	NKM / RJ	R. Gautam	A. Gupta	S.K.B	Tapas Mukherjee

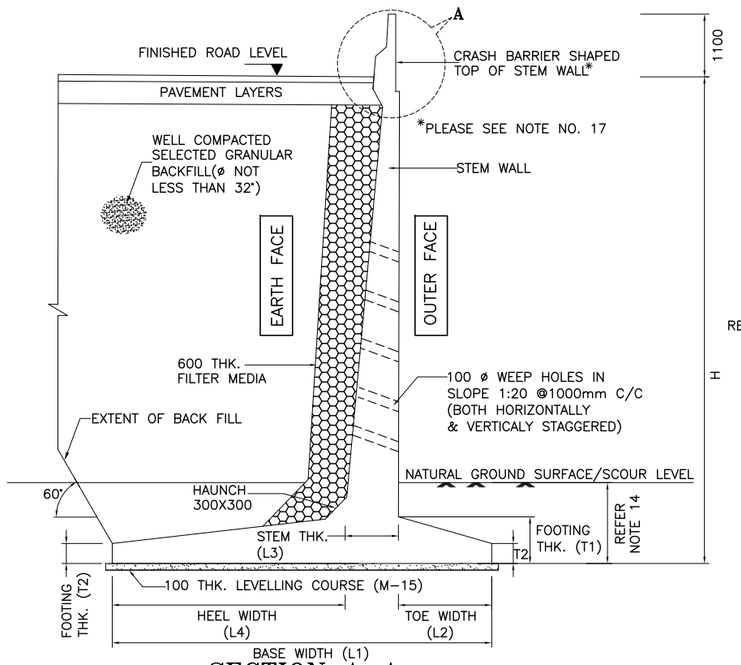
DETAILS OF RETAINING WALL FOR BRIDGES

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001 (A Government of India Enterprise)

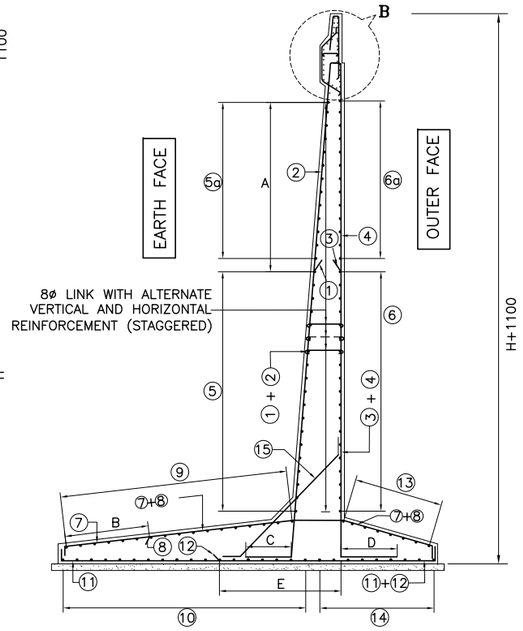
Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/14 | SCALE : AS SHOWN | SHEET : 1 OF 2 | Page No.



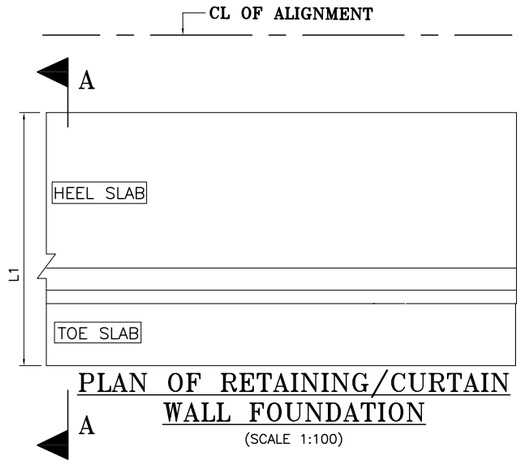
SECTION A–A

(SCALE 1:75)



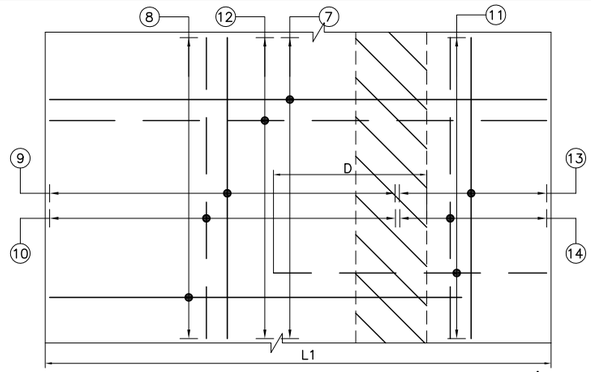
SECTION A–A SHOWING REINFORCEMENT

(SCALE 1:75)



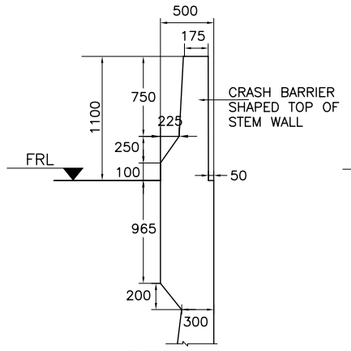
PLAN OF RETAINING/CURTAIN WALL FOUNDATION

(SCALE 1:100)



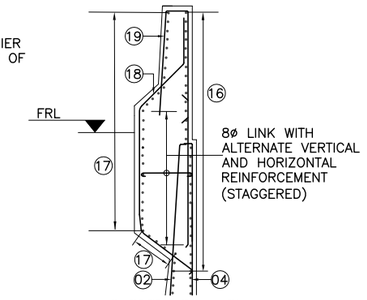
SECTIONAL PLAN OF RETAINING/ CURTAIN WALL FOUNDATION

(SCALE 1:50)



DETAIL–A (SHOWING DIMENSION)

(SCALE 1:75)



DETAIL–B (SHOWING REINFORCEMENT)

(SCALE 1:75)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND THE LEVELS IN METRES.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. ALL CONSTRUCTIONS SHALL BE CARRIED OUT ACCORDING TO MORT&H SPECIFICATION FOR ROAD AND BRIDGE WORKS, AS PER STANDARD PRACTICE AND RELEVANT STANDARD DETAILS WITH NECESSARY MODIFICATIONS WHENEVER REQUIRED AND AS DIRECTED/APPROVED BY ENGINEER.
4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT ROAD DRAWINGS. FINISHED ROAD LEVEL AND CAMBER / SUPERELEVATION AT PARTICULAR CHAINAGE SHALL BE AS PER ROAD DRAWINGS.
5. GRADE OF CONCRETE IN RETAINING WALL SHALL BE M30.
6. REINFORCEMENT SHALL BE THERMO MECHANICALLY TREATED HYSD BARS (GRADE HYSD Fe 500D) CONFORMING TO IS 1786–2008.
7. REINFORCEMENT SHALL BE PROVIDED AS WRITTEN AND NOT TO BE COUNTED.
8. LAPS SHALL BE STAGGE RED AND MINIMUM LAP LENGTH SHALL BE 81XDIA OF SMALLER BAR (WITH SPLICING AT SECTION LIMITED TO 50%) UNLESS OTHERWISEN SPECIFIED.
9. REINFORCEMENT BARS SHALL HAVE MINIMUM CLEAR COVER OF 50MM FOR STEM WALL AND 75MM FOR FOOTING.
10. BACK FILLING AND FILTER MEDIA BEHIND RETAINING WALL SHALL CONFORM TO APPENDIX–6 OF IRC:78–2014. THE ANGLE OF REPOSE OF BACKFILLING MATERIAL SHALL NOT BE LESS THAN 32°.
11. 100 DIA WEEP HOLES SHALL BE PROVIDED @ 1.0m C/C BOTH HORIZONTALLY AND VERTICALLY (STAGGERED) IN THE RETAINING WALL. THE WEEP HOLES SHALL BE ABOVE THE EXISTING GROUND LEVEL IN FRONT OR LWL WHICHEVER IS HIGHER.
12. CLEAN JOINT FILLED WITH JOINT FILLER SHALL BE PROVIDED IN THE RETAINING WALLS AFTER EVERY 20.0 m.
13. FOR DESIGN PURPOSE SAFE BEARING CAPACITY (S.B.C) HAS BEEN CONSIDERED AS 25.0T/M. THIS SHOULD BE CHECKED AT SITE. IF THE SBC IS FOUND LESS, THE MATTER SHOULD BE REPORTED TO ENGINEER.
14. THE MINIMUM DEPTH OF FOUNDATION BELOW SCOUR LEVEL / PROTECTED BED LEVEL SHALL BE 2.0m IN SOIL AND 1.5m IN ROCKS.
15. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYER NOT EXCEEDING 300MM.
16. FOR DESIGN OF RETAINING WALL, SEISMIC FORCE HAS NOT BEEN CONSIDERED AS PER STIPULATION IN CLAUSE 219 OF IRC:6–2014.
17. THIS DRAWING MAY ALSO BE USED AS DETAILS DRAWING OF CURTAIN WALL. HOWEVER, IN THAT CASE THERE WILL BE NO CRASH BARRIER SHAPE AT TOP OF STEM WALL.

LEGEND

TOP REINFORCEMENT ———————

BOTTOM REINFORCEMENT —— ——— ——

REFERENCE DRAWING:

RITES/HW/MORT&H/4055–30/DPR/BR/GN/01 GENERAL NOTES

SCHEDULE DIMENSIONS FOR RETAINING WALL (mm)

HEIGHT (H)	BASE WIDTH (L1) (mm)	TOE WIDTH (L2) (mm)	STEM THK. (L3) (mm)	HEEL WIDTH (L4) (mm)	FOOTING THK. (T1) (mm)	FOOTING THK. (T2) (mm)
9500	7100	750	1000	5350	1000	300
8500	5650	750	900	4000	850	300
7500	4550	600	750	3200	700	300
6500	3750	600	600	2550	600	300
5500	3250	450	500	2300	500	300
4500	2600	450	400	1750	500	300
3500	2150	300	350	1500	450	300
2500	1600	300	300	1000	300	300

REINFORCEMENT CURTAILMENT LENGTH

HEIGHT (H)	REINFORCEMENT CURTAILMENT LENGTH IN (mm)				
	A	B	C	D	E
9500	3400	700	300	300	500
8500	3100	500	300	300	300
7500	2800	500	300	300	300
6500	2500	400	300	300	300
5500	2000	400	300	300	300
4500	1500	250	300	300	350
3500	1000	150	300	250	350
2500	500	200	300	250	300

SCHEDULE OF REINFORCEMENT FOR RETAINING WALL

HEIGHT 'H'	BAR MKD.																		
	1	2(ALT. WITH 1)	3	4(ALT. WITH 3)	5	5a	6	6a	7	8(ALT. WITH 7)	9	10	11	12(ALT.WITH11)	13	14	15	16	17	18	19
9500	25ø@200C/C	25ø@200C/C	10ø@200C/C	8ø@200C/C	12ø@150C/C	12ø@150C/C	12ø@150C/C	12ø@150C/C	25ø@200C/C	25ø@200C/C	16ø@150C/C	16ø@150C/C	10ø@200C/C	16ø@200C/C	12ø@150C/C	12ø@150C/C	12ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C
8500	25ø@250C/C	25ø@250C/C	10ø@250C/C	8ø@250C/C	12ø@150C/C	12ø@150C/C	12ø@150C/C	12ø@150C/C	25ø@250C/C	25ø@250C/C	12ø@150C/C	12ø@150C/C	16ø@250C/C	10ø@250C/C	12ø@150C/C	12ø@150C/C	12ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C
7500	25ø@300C/C	25ø@300C/C	10ø@300C/C	10ø@300C/C	10ø@150C/C	10ø@150C/C	10ø@150C/C	10ø@150C/C	25ø@300C/C	32ø@300C/C	10ø@150C/C	10ø@150C/C	16ø@300C/C	10ø@300C/C	10ø@150C/C	10ø@150C/C	10ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C
6500	25ø@250C/C	20ø@250C/C	10ø@250C/C	8ø@250C/C	10ø@150C/C	10ø@150C/C	10ø@150C/C	10ø@150C/C	16ø@250C/C	25ø@250C/C	10ø@150C/C	10ø@150C/C	12ø@250C/C	10ø@250C/C	10ø@150C/C	10ø@150C/C	10ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C
5500	20ø@250C/C	20ø@250C/C	8ø@250C/C	8ø@250C/C	8ø@125C/C	8ø@125C/C	8ø@125C/C	8ø@125C/C	20ø@250C/C	20ø@250C/C	10ø@150C/C	10ø@150C/C	10ø@250C/C	10ø@250C/C	10ø@150C/C	10ø@150C/C	8ø@125C/C	8ø@125C/C	8ø@125C/C	12ø@150C/C	12ø@150C/C
4500	20ø@300C/C	16ø@300C/C	8ø@300C/C	8ø@300C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	16ø@300C/C	20ø@300C/C	8ø@150C/C	8ø@150C/C	10ø@300C/C	12ø@300C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C
3500	16ø@300C/C	12ø@300C/C	8ø@300C/C	8ø@300C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	10ø@300C/C	16ø@300C/C	8ø@150C/C	8ø@150C/C	10ø@300C/C	12ø@300C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C
2500	12ø@300C/C	10ø@300C/C	8ø@300C/C	8ø@300C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	10ø@300C/C	12ø@300C/C	8ø@150C/C	8ø@150C/C	10ø@300C/C	8ø@300C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	8ø@150C/C	12ø@150C/C	12ø@150C/C

Revision	Date	Stage / Report	Topography	Designed	Drawn	Checked	Approved
R0	SEPT 2016	Stage 4 (Final Detail Project Report - Volume VIII: Drawings)	NKM / RJ	R. Gautam	A. Gupta	S.K.B	Tapas Mukherjee

DETAILS OF RETAINING / CURTAIN WALL FOR CULVERTS

Client : Ministry of Road Transport & Highways (Government of India)

Consultant : RITES LIMITED, RITES BHAWAN, Plot No. 1,Sector- 29,Gurgaon-122001

Project : Preparation of Revised Detailed Project Report and Verification of Executed Quantities/Items for Widening to 2 Lane of Merangkong-Tamlu-MonRoad,Changtongya-LonglengRoad,Chakabama-Zunheboto Road & Pfutsero-Phek Road under Phase 'A' of SARDP-NE in the State of Nagaland

Drg. No : RITES/HW/MORT&H/4055-30/DPR/STD/14 | SCALE : AS SHOWN | SHEET : 2 OF 2 | Page No.