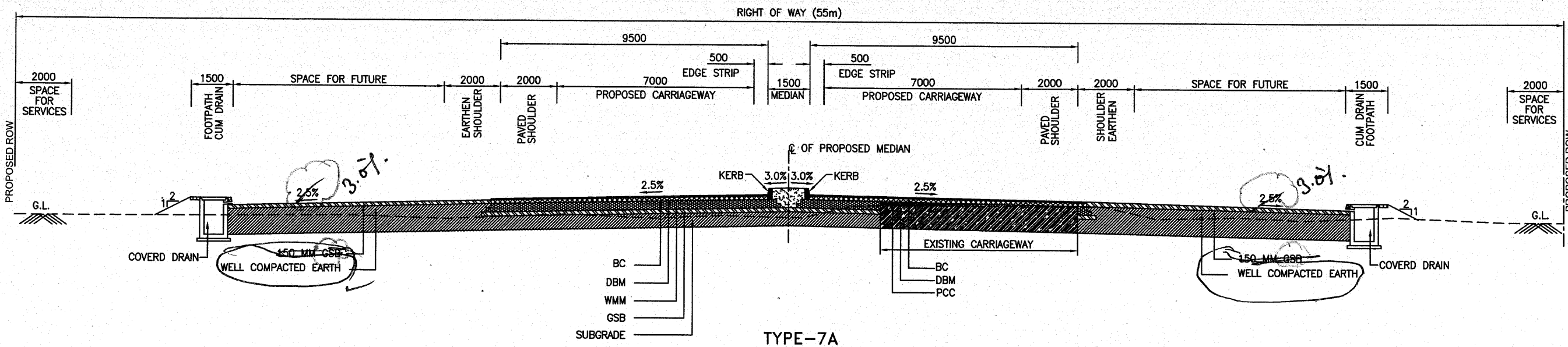
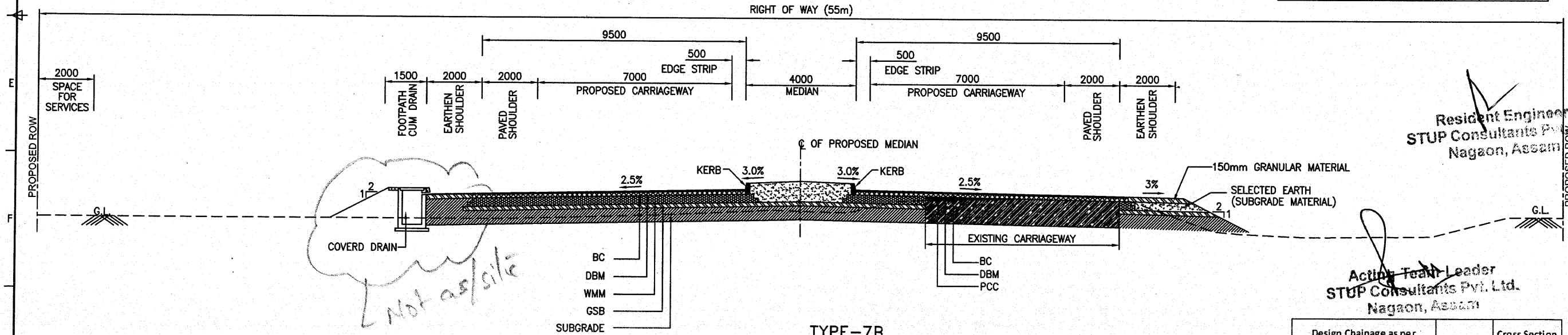


TYPE–7A

TYPICAL CROSS SECTION FOR 4–LANE WITH PEOVISION OF SERVICE ROAD LHS/RHS

Design Chainage as per Alighnment		Length(km)	Cross Section Type
from	To		
302+000	302+990	900	7A
306+480	306+665	185	7A



Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

Actg. Team Leader
STUP Consultants Pvt. Ltd.
Nagaon, Assam

TYPE–7B

TYPICAL CROSS SECTION FOR 4–LANE WITH PROVISION OF LHS

Design Chainage as per Alighnment		Length(km)	Cross Section Type
from	To		
300+770	301+250	480	7B

Note:
1. Right of Way (ROW) as shown in TCS is meant to indicate proposed cross section of highway shall be accommodated within ROW.
2. Actual Right of Way (ROW) has marked in Alignment Plan based on data provided by AE vide letter ref: STUP / NH 37 / SIL / 2017 /01 dated 9 Feb 2017 and site meeting on 15 Feb 2017.

Rev.	Date	Description on Revision
R2	Sep 2021	Revised as per AE comment dated 05 Aug. 2021
R1	Nov 2017	Revised as per AE comment dated 09 Oct. 2017
R0	Aug 2017	First Submission

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd.

PROOF CHECKED CONSULTANT:- CETEST Company Ltd

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

CONSULTANTS:- AECOM, 9th Floor, Infinity Tower C DLF Cyber City DLF Phase II, Gurgaon-122002, Haryana, India

SCALE:- 1 : 1000

TITLE:- TYPICAL CROSS SECTION

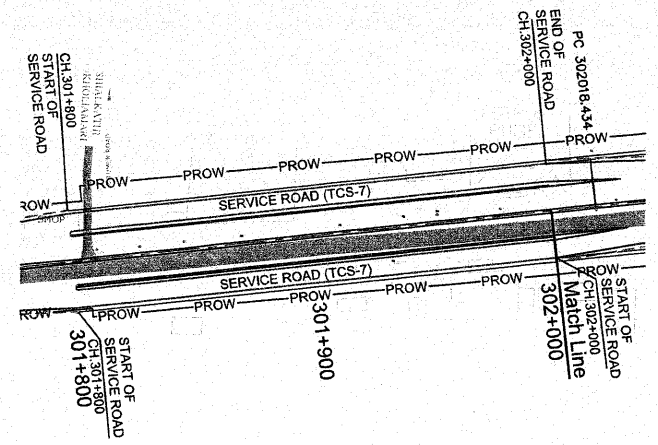
DRAWING NO.:- AECOM-DELD15159-DD-DWG-TCS- 004A

AUTHORISED SIGNATORY | DATE | DRAWN | DESIGN | CHECKED BY (SL, Team Leader) | APPROVED BY (MSR, Design Director)

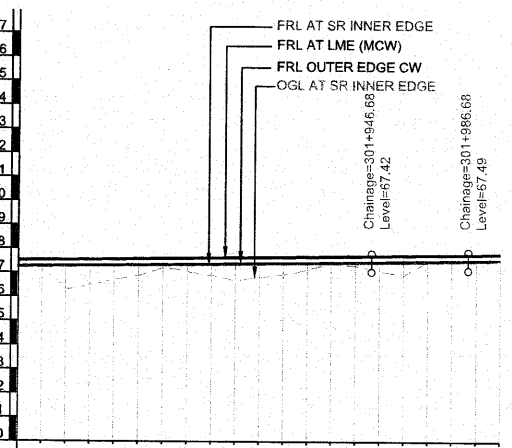
AECOM India Private Limited Gurgaon

<<< TO RANGAGARA

TO KALIABOR >>>



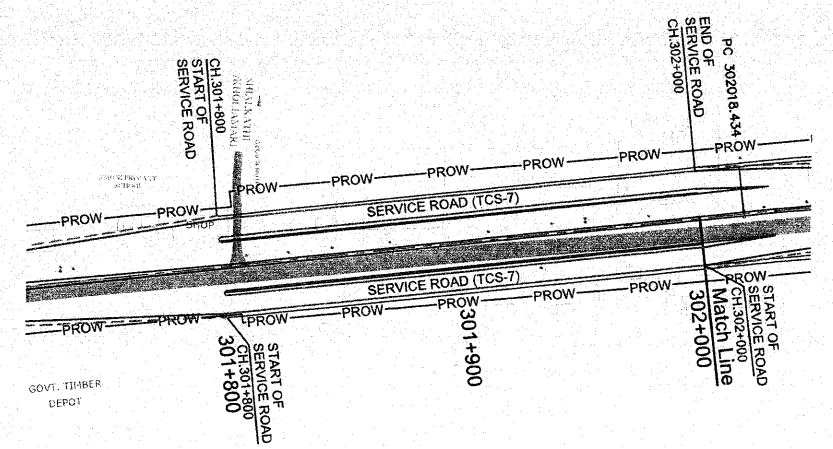
1. DETAILS OF DRAINS WILL BE PROVIDED ALONG WITH DRAINAGE PLAN & PROFILE.
2. PAVEMENT CRUST DETAILS TO BE ADOPTED AS PER PAVEMENT DESIGN REPORT.
3. LME = LEFT MEDIAN EDGE
   RME = RIGHT MEDIAN EDGE
4. MEDIAN OPENING LOCATION IS TENTATIVE WHICH IS TO BE FINALISED AT SITE DURING EXECUTION.
5. SEPARATE DRAWING FOR DETAILING OF MINIOR & MAJOR JUNCTION,BUS BAYS, MEDIAN OPENING SHALL BE PROVIDED SEPARATELY.
6. DRAWING FOR CULVERTS, MINOR BRIDGE & FO SHALL BE PROVIDED SEPARATELY.
7. SEPARATE DRAWING SHALL BE PROVIDED FOR MEDIAN OPENING COMING INTO JUNCTIONS.
8. THE TAPERED PORTION OF THE SERVICE ROAD SHALL FOLLOW THE LONGITUDINAL GRADIENT AND CROSS FALL OF THE MAIN CW TILL THE FULL WIDTH OF THE SERVICE ROAD.



| | | |

<<< TO RANGAGARA

TO KALIABOR >>>



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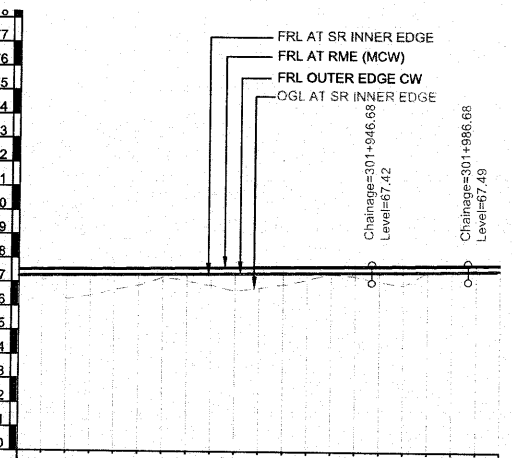
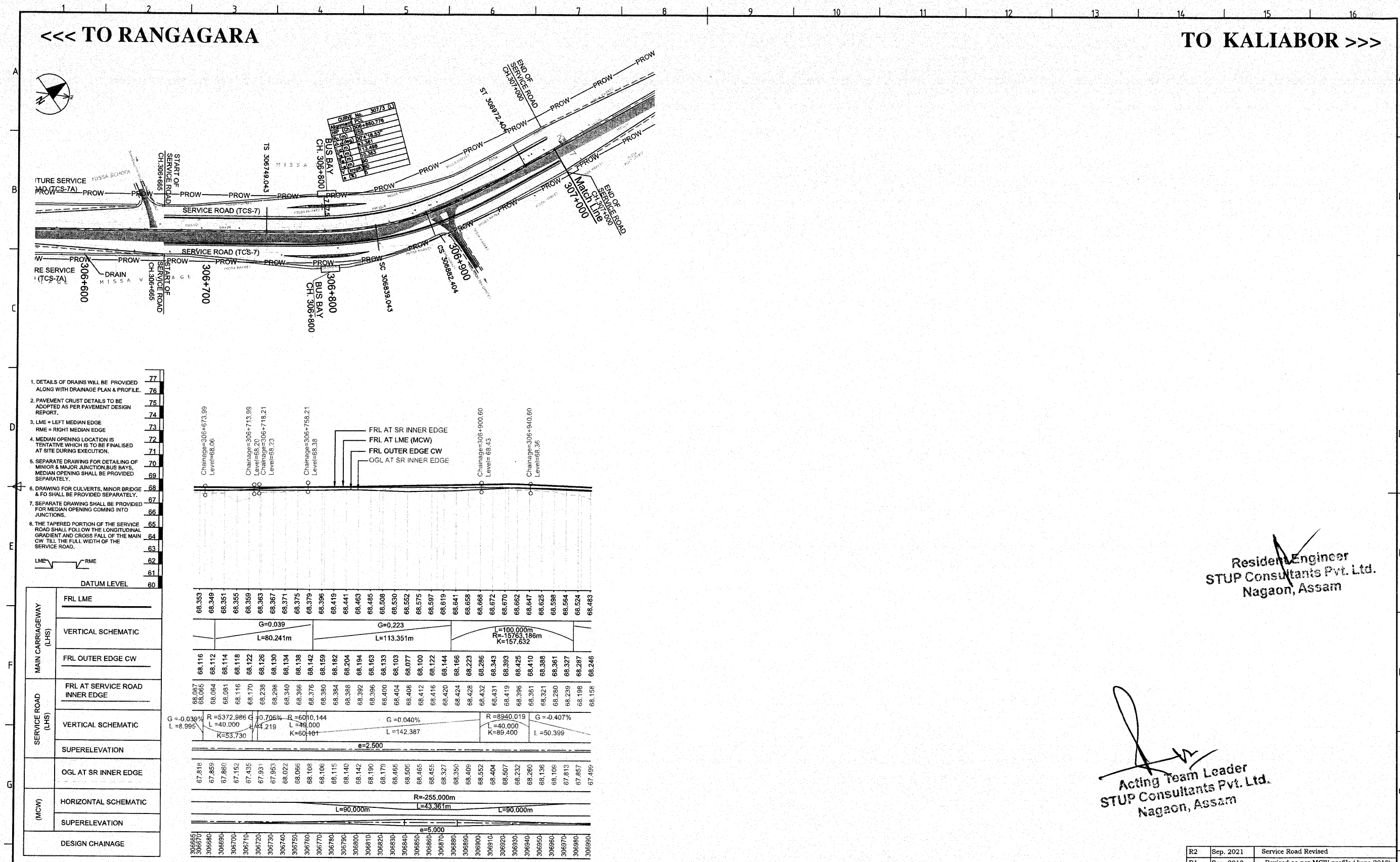
LME RME



| | | |



Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

Acting Team Leader
STUP Consultants Pvt. Ltd.
Nagaon, Assam

SERVICE ROAD PLAN AND PROFILE FROM Km. 306+665 To Km. 306+990 (LHS)

Rev.	Date	Description on Revision
R2	Sep. 2021	Service Road Revised
R1	Sep. 2018	Revised as per MCW profile (June 2018)
R0	Dec. 2017	First Submission

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd.

AUTHORISED SIGNATORY | DATE

PROOF CHECKED: CETEST Consultants Pvt. Ltd.

AUTHORISED SIGNATORY | DATE

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd

AUTHORISED SIGNATORY | DATE

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

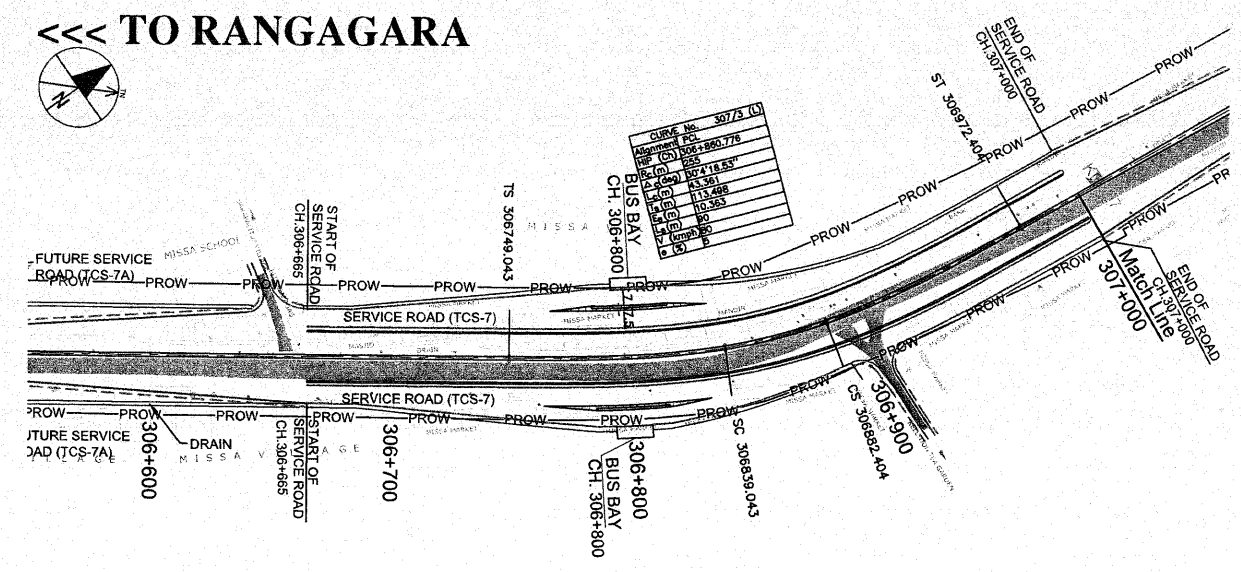
CONSULTANTS:- AECOM, 9th Floor, Infinity Tower C DLF Cyber City, DLF Phase II, Gurgaon-122002, Haryana, India

DRAWN	DESIGN	CHECKED BY	APPROVED BY
		SL (Team Leader)	MSR (Design Director)

SCALE:- HOR- 1 : 2000, VER- 1 : 200

TITLE:- FROM Km. 306+665 To Km. 306+990 (LHS)

DRAWING NO.:- AECOM-DELD15159-DD-DWG-PP- 0205 | R2



Curve No.	307/3 (L)
Alignment PC	306+860.776
IP	306+
Δ (D)	25°
Δ (deg)	25°41'18.53"
R (m)	23.361
L (m)	113.465
T (m)	10.365
E (m)	1.23
e (%)	5.00
Grade	2.5
	P

1. DETAILS OF DRAINS WILL BE PROVIDED ALONG WITH DRAINAGE PLAN & PROFILE.
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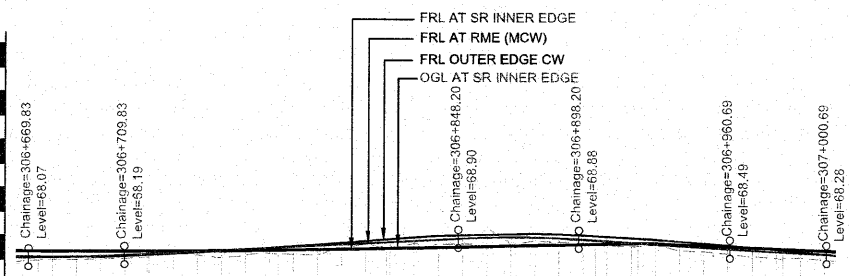

77 76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 60

LME RME

DATUM LEVEL

MAIN CARRIAGEWAY (RHS)

FRL RME: 68.353 68.349 68.351 68.355 68.359 68.363 68.367 68.371 68.375 68.379 68.396 68.419 68.441 68.463 68.485 68.508 68.530 68.552 68.575 68.597 68.619 68.641 68.658 68.668 68.672 68.670 68.662 68.647 68.625 68.598 68.564 68.524 68.483 68.442

VERTICAL SCHEMATIC: G=0.039 L=80.241m; G=0.223 L=113.351m; L=100.000m R=-15763.186m K=157.632

FRL OUTER EDGE CW: 68.116 68.112 68.114 68.118 68.153 68.210 68.267 68.323 68.380 68.437 68.507 68.583 68.657 68.732 68.807 68.883 68.957 69.027 69.050 69.050 69.072 69.094 69.116 69.093 69.050 69.001 68.947 68.886 68.818 68.743 68.663 68.577 68.484 68.390 68.295

SERVICE ROAD (RHS)

FRL AT SERVICE ROAD INNER EDGE: 68.070 68.083 68.107 68.142 68.188 68.240 68.291 68.343 68.395 68.446 68.498 68.550 68.601 68.653 68.704 68.756 68.808 68.859 68.910 68.947 68.960 68.951 68.920 68.866 68.804 68.743 68.682 68.620 68.559 68.497 68.438 68.383 68.332 68.285 68.265

VERTICAL SCHEMATIC: G=0.071% L=4.834; R =8991.393 L =40.000 K=89.914; G =0.516% L =138.368; R =4422.777 L =50.000 K=44.228; G =-0.614% L =62.489; R =22907.036 L =40.000 K=229.070; G =-0.440% L=3.905

SUPERELEVATION: e=2.500

OGL AT SR INNER EDGE: 67.946 67.980 67.980 68.042 68.043 68.120 68.230 68.193 68.092 68.206 68.273 68.225 68.227 68.529 68.681 68.603 68.718 68.680 68.688 69.343 68.689 68.820 68.777 68.742 68.607 68.599 68.665 68.425 68.394 68.305 68.190 68.117 68.143 68.057

(MCW)

HORIZONTAL SCHEMATIC: R=-255.000m L=90.000m L=43.361m L=90.000m

SUPERELEVATION: e=5.000

DESIGN CHAINAGE: 306665 306670 306680 306690 306700 306710 306720 306730 306740 306750 306760 306770 306780 306790 306800 306810 306820 306830 306840 306850 306860 306870 306880 306890 306900 306910 306920 306930 306940 306950 306960 306970 306980 306990 307000

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

Acting Team Leader
STUP Consultants Pvt. Ltd.
Nagaon, Assam

SERVICE ROAD PLAN AND PROFILE FROM Km. 306+665To Km. 307+000 (RHS)

Rev.	Date	Description on Revision
R2	Sep. 2021	Service Road Revised
R1	Sep. 2018	Revised as per MCW profile (June 2018)
R0	Dec. 2017	First Submission

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd.

PROOF CHECK CONSULTANT:- CE TESTING Company Pvt. Ltd

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd

AUTHORISED SIGNATORY | DATE | AUTHORISED SIGNATORY | DATE | AUTHORISED SIGNATORY | DATE

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

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DRAWN | DESIGN | CHECKED BY (SL, Team Leader) | APPROVED BY (MSR, Design Director)

SCALE:- HOR- 1 : 2000 VER- 1 : 200

TITLE:- FROM Km. 306+665 To Km. 307+000 (RHS)

DRAWING NO.:- AECOM-DELD15159-DD-DWG-PP- 0207 REV. R1

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

Four Laning of NH – 37 from Rangagara to Kaliabor Tiniali (Ch: 297.000 Km to Ch:315.315 Km of NH-37) in Nagaon District in the State of Assam under SARDP – NE, Phase A, on EPC Basis

PIPE CULVERT DRAWINGS

(AT DESIGN CH.298+400, 298+880, 300+770, 303+618, 308+761, 310+655, 312+022, 313+117, 314+160, 315+241)

CONTRACTOR:-

SIMPLEX INFRASTRUCTURES LIMITED

AUTHORITY'S ENGINEER:-

STUP Consultants P.Ltd

&

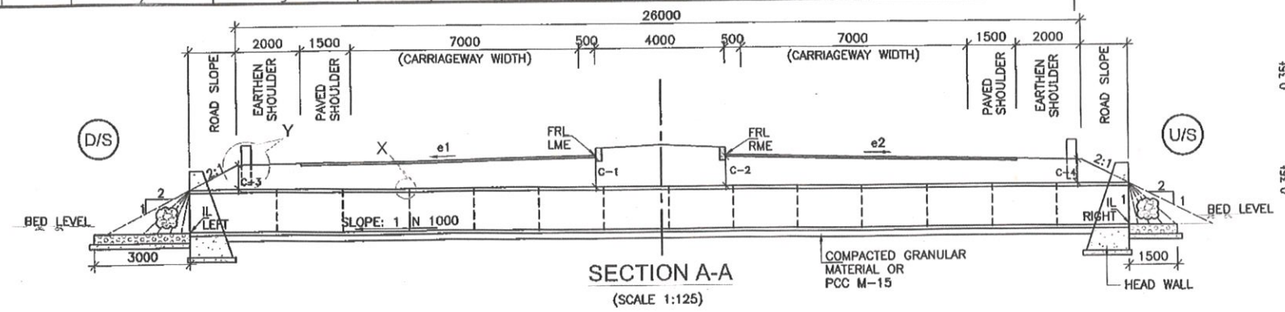
Ayoleeza Consultants P.Ltd

CONSULTANTS:-

AECOM

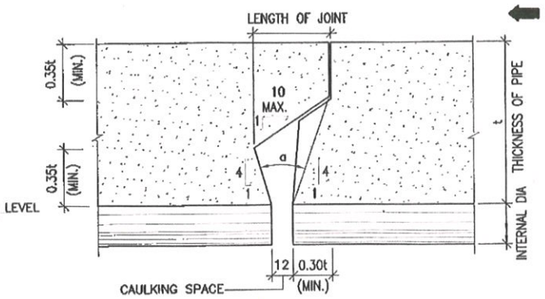
AECOM India Private Limited

DECEMBER 2017



SECTION A-A

(SCALE 1:125)

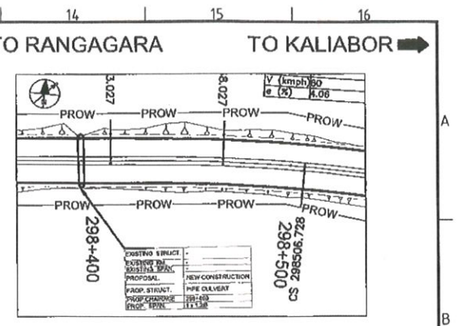


DETAIL X

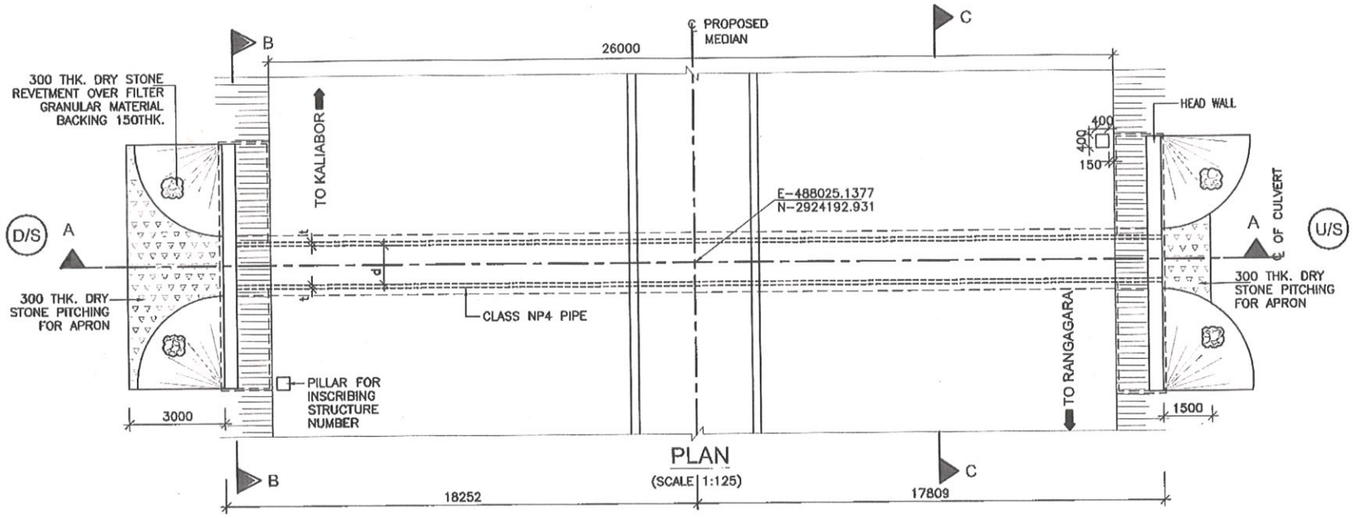
INTERNAL FLUSH JOINT

α – INCLUDED ANGLE NOT MORE THAN 25°

(ONLY FOR DESIGN PURPOSE NOT TO BE MEASURED)

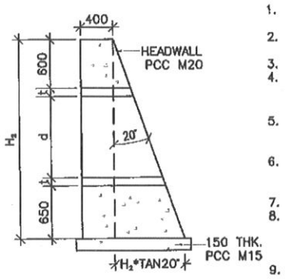


KEY PLAN



PLAN

(SCALE 1:125)

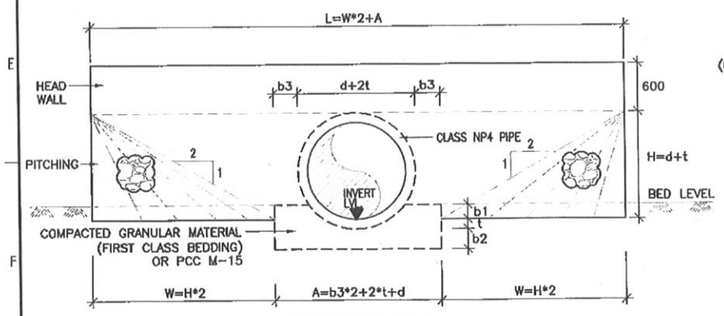


DETAIL OF HEAD WALL

SCALE 1:50

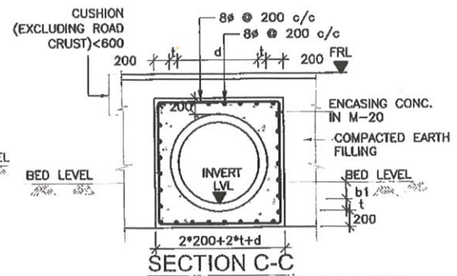
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN SHALL BE FOLLOWED.
3. ALL PIPES SHALL BE OF NP4 CLASS AS PER IS:458–2003 AND ITS AMENDMENTS.
4. CHAINAGE AND LEVELS SHALL BE VERIFIED WITH THE RELEVANT PLAN & PROFILE DRAWINGS & SITE. VARIATIONS (IF ANY) SHALL BE REPORTED TO ENGINEER FOR MODIFICATION.
5. ANY LOOSE/UNSUITABLE SOIL FOUND BELOW THE PIPE/HEAD WALL, SHALL BE REPLACED WITH SAND OR COMPACTED GRANULAR MATERIAL AS DIRECTED BY ENGINEER–IN–CHARGE.
6. FIRST CLASS BEDDING MAY BE USED FOR MAXIMUM HEIGHT OF FILL UPTO 4M. BEYOND 4M HEIGHT OF FILL PCC BEDDING SHALL BE USED AND THE PIPE SHALL BE LAID ON THE CONCRETE BEDDING BEFORE THE CONCRETE HAS SET.
7. LONGITUDINAL SLOPE OF PROPOSED PIPE SHALL NOT BE LESS THAN 1V:1000H.
8. PIPES SHALL BE JOINTED BY INTERNAL FLUSH JOINT AS PER IS 458 & AS PER THE DETAILS GIVEN IN SECTION 2906 OF MORTH SPECIFICATIONS OF ROAD AND BRIDGE WORKS. JOINTING SPACE SHALL BE FILLED WITH CEMENT MORTAR OF PROPORTION 1:2 OF CEMENT & SAND.
9. MAXIMUM LENGTH OF EACH PIPE SEGMENT HAS BEEN CONSIDERED AS 2.5M AND MINIMUM LENGTH HAS BEEN CONSIDERED AS 1.25M.
10. MINIMUM DEPTH OF EARTH CUSHION (EXCLUDING ROAD CRUST) OVER PIPE SHALL NOT BE LESS THEN 600MM FOR NEW/RECONSTRUCTION CULVERTS. IN CASE THE CUSHION IS INSUFFICIENT, ENCASING OF PIPE IN CONCRETE SHALL BE ENSURED AS PER DETAILS SHOWN IN DRAWING.
11. ROAD CRUST THICKNESS HAS BEEN CONSIDERED AS 50(BC)+90(DBM)+250(WMM)+200(GSB)=590MM.
12. SURFACE REINFORCEMENT 8ø @ 200c/c IN BOTH DIRECTION SHALL BE PROVIDED IN PCC STRUCTURE – HEAD WALL & CONCRETE ENCASING (IF APPLICABLE).
13. PROTECTION WORK ON EMBANKMENT SIDE SHALL BE AS PER HIGHWAY DRAWINGS.
14. ROAD FURNITURE SHALL BE PROVIDED AS PER HIGHWAY DRAWING.
15. THE HEAD WALL SHALL BE CONSTRUCTED WITHOUT ANY VERTICAL CONSTRUCTION JOINT ALONG ITS LENGTH.
16. FOR SHOULDER CROSS–FALL, REFER HIGHWAY DRAWING.
17. THE FLOOR PROTECTION, PITCHING AND OTHER CULVERT DETAILS ARE AS PER IRC SP 13–2004.



SECTION B-B

(SCALE 1:50)

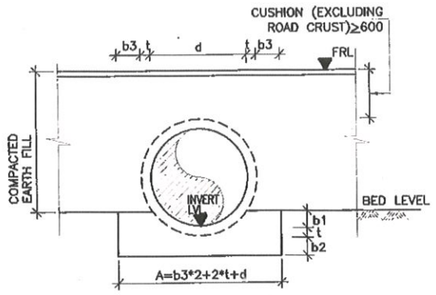


SECTION C-C

WITH ENCASING DETAIL OF PIPE

(SCALE 1:50)

[APPLICABLE IF CUSHION (EXCLUDING ROAD CRUST) <600mm]



SECTION C-C

(SCALE 1:50)

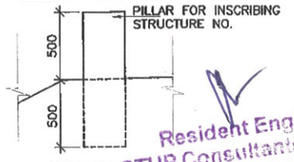
BEDDING DIMENSIONS

TYPE	PIPE FOUNDATION TYPE	PIPE INNER DIA (d)	b1	b2	b3
a	COMPACTED GRANULAR MATERIAL FOR FILL HEIGHT (CUSHION) 0.6m – 4.0m	1200	260	160	200
b	PCC M15 CONCRETE CRADLE FOR FILL HEIGHT (CUSHION) 4.0m – 8.0m		200	250	150

LEGENDS

FRL	–	FINISHED ROAD LEVEL.
IL	–	INVERT LEVEL.
GL	–	GROUND LEVEL
U/S	–	UP STREAM
D/S	–	DOWN STREAM
THK.	–	THICKNESS
d	–	INNER DIAMETER OF PIPE
t	–	THICKNESS OF PIPE (d/10)
LME	–	LEFT MEDIAN EDGE
RME	–	RIGHT MEDIAN EDGE
LOE	–	LEFT OUTER EDGE
ROE	–	RIGHT OUTER EDGE

AP Saha
Design Director
(AECOM)



DETAIL 'Y'

(SCALE 1:30)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

DIMENSION DETAILS OF PIPE CULVERT

S.No.	EXISTING KM.	DESIGN CH.	EXISTING STRUCTURE	EXISTING SPAN (NOS. x DIA)	EXISTING WIDTH (m)	PROPOSAL	PROPOSED STRUCTURE	PROPOSED SPAN (NOS. x d)	SKEW	FRL		CAMBER/ SUPERELEVATION		FLOW DIRECTION	BED LEVEL		INVERT LEVEL (IL)		CUSHION (m)				TCS	WIDTH OF BEDDING	LENGTH OF HEAD WALL (L) (m)	LENGTH OF PIPE (m)	NO. OF PIPE SEGMENTS (REF. NOTE 9) (m)	TYPE OF BEDDING	ENCASING
										LME	RME	LEFT (e1%)	RIGHT (e2%)		LEFT	RIGHT	LEFT	RIGHT	LOE (C-3)	LME (C-1)	RME (C-2)	ROE (C-4)		A (m)					
1	-	298+400	-	-	-	NEW CONSTRUCTION	PIPE CULVERT	1 x 1.2	0	66.173	66.173	-0.982	-2.500	R-L	62.405	64.210	62.121	62.157	2.626	2.716	2.696	2.405	TYPE-1	1.84	7.12	36.250	14.50	COMPACTED GRANULAR MATERIAL	NOT APPLICABLE

Rev.	Date	Description on Revisions
R1	NOV. 2017	REVISED AS PER REVISED PLAN & PROFILE
R0	SEPT. 2017	

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Corporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd. — AUTHORISED SIGNATORY — DATE

PROOF CHECKED CONSULTANT: CE TESTING Company Pvt. Ltd — AUTHORISED SIGNATORY — DATE

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd — AUTHORISED SIGNATORY — DATE

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

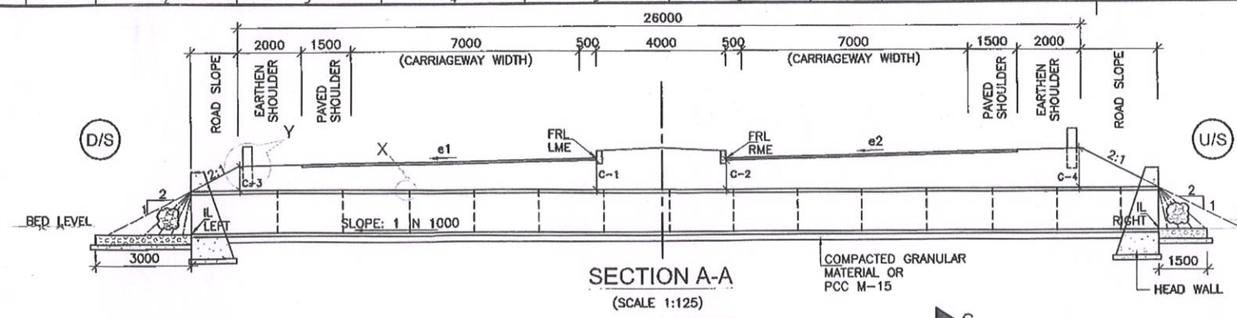
CONSULTANT: AECOM, 9th Floor, Infinity Tower C, DLF Cyber City, DLF Phase II, Gurugram-122002, Haryana, India

DRAWN	DESIGN	CHECKED BY	APPROVED BY
R. BENIWAL	V. YADAV	S.P. SINGH / S. RASTOGI	

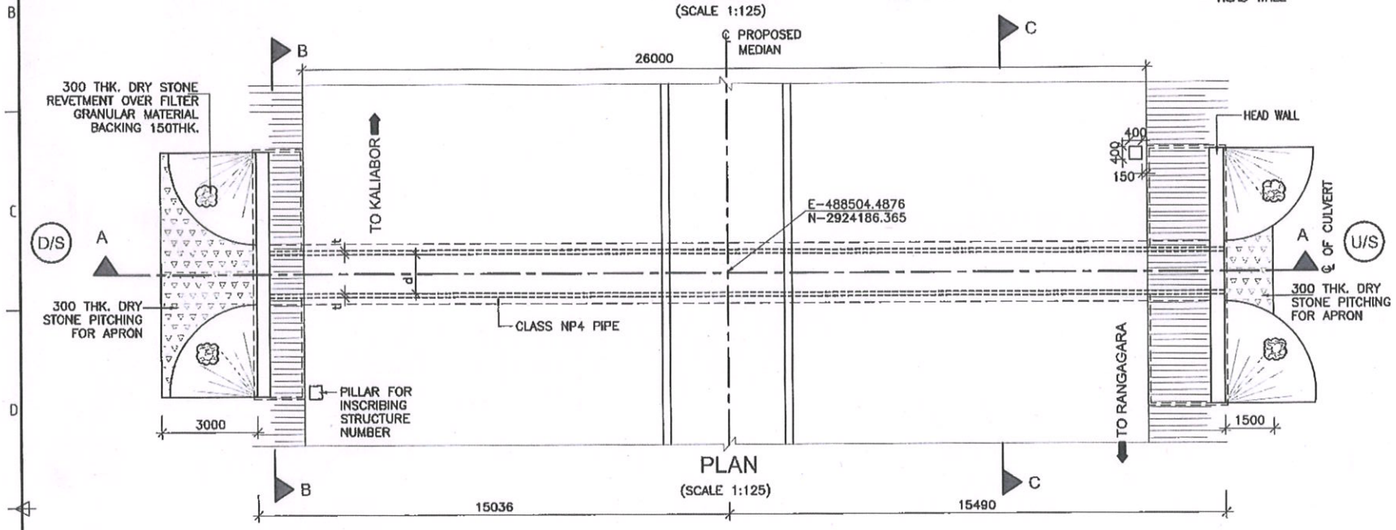
SCALE:- 1 : 1000

TITLE:- GENERAL ARRANGEMENT DRAWING FOR PIPE CULVERT AT CH. 298+400 (SCH. B. CH. (298+400))

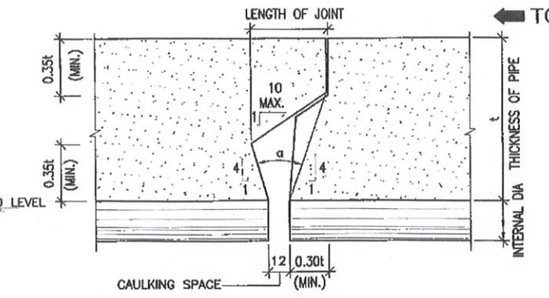
DRAWING NO.:- AECOM-DELD15159-DD-DWG-PC-298+400-GAD-01 — REV. R1



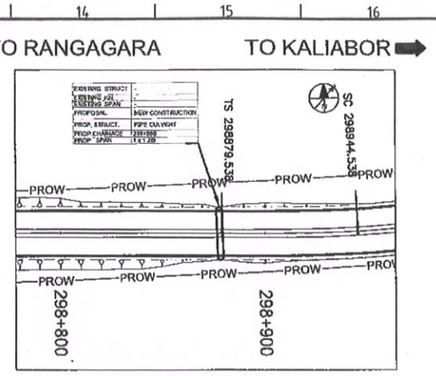
SECTION A-A
(SCALE 1:125)



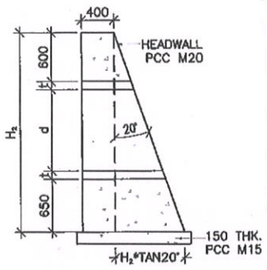
PLAN
(SCALE 1:125)



DETAIL X
INTERNAL FLUSH JOINT
α - INCLUDED ANGLE NOT MORE THAN 25°
(ONLY FOR DESIGN PURPOSE NOT TO BE MEASURED)



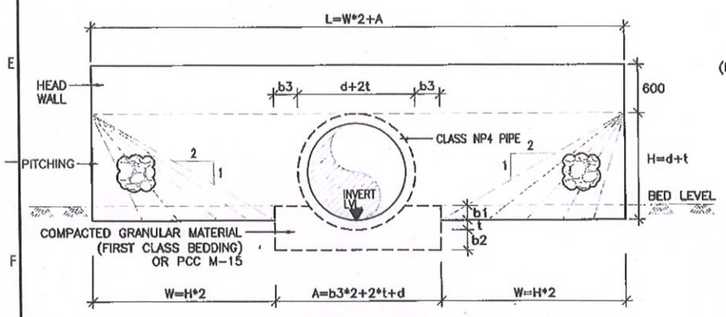
KEY PLAN



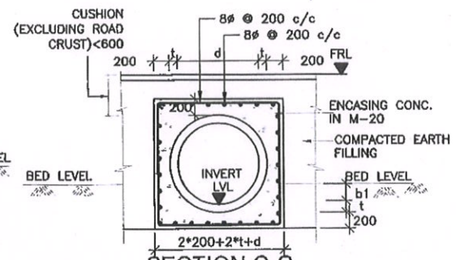
DETAIL OF HEAD WALL
SCALE 1:50

NOTES:

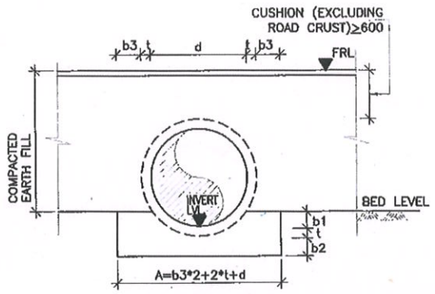
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN SHALL BE FOLLOWED.
3. ALL PIPES SHALL BE OF NP4 CLASS AS PER IS:458-2003 AND ITS AMENDMENTS.
4. CHAINAGE AND LEVELS SHALL BE VERIFIED WITH THE RELEVANT PLAN & PROFILE DRAWINGS & SITE. VARIATIONS (IF ANY) SHALL BE REPORTED TO ENGINEER FOR MODIFICATION.
5. ANY LOOSE/UNSUITABLE SOIL FOUND BELOW THE PIPE/HEAD WALL, SHALL BE REPLACED WITH SAND OR COMPACTED GRANULAR MATERIAL AS DIRECTED BY ENGINEER-IN-CHARGE.
6. FIRST CLASS BEDDING MAY BE USED FOR MAXIMUM HEIGHT OF FILL UPTO 4M. BEYOND 4M HEIGHT OF FILL PCC BEDDING SHALL BE USED AND THE PIPE SHALL BE LAID ON THE CONCRETE BEDDING BEFORE THE CONCRETE HAS SET.
7. LONGITUDINAL SLOPE OF PROPOSED PIPE SHALL NOT BE LESS THAN 1V:1000H.
8. PIPES SHALL BE JOINTED BY INTERNAL FLUSH JOINT AS PER IS 458 & AS PER THE DETAILS GIVEN IN SECTION 2906 OF MORTH SPECIFICATIONS OF ROAD AND BRIDGE WORKS. JOINTING SPACE SHALL BE FILLED WITH CEMENT MORTAR OF PROPORTION 1:2 OF CEMENT & SAND.
9. MAXIMUM LENGTH OF EACH PIPE SEGMENT HAS BEEN CONSIDERED AS 2.5M AND MINIMUM LENGTH HAS BEEN CONSIDERED AS 1.25M.
10. MINIMUM DEPTH OF EARTH CUSHION (EXCLUDING ROAD CRUST) OVER PIPE SHALL NOT BE LESS THEN 600MM FOR NEW/RECONSTRUCTION CULVERTS. IN CASE THE CUSHION IS INSUFFICIENT, ENCASING OF PIPE IN CONCRETE SHALL BE ENSURED AS PER DETAILS SHOWN IN DRAWING.
11. ROAD CRUST THICKNESS HAS BEEN CONSIDERED AS 50(BC)+90(DBM)+250(WMM)+200(GSB)=590MM.
12. SURFACE REINFORCEMENT 8ø @ 200c/c IN BOTH DIRECTION SHALL BE PROVIDED IN PCC STRUCTURE - HEAD WALL & CONCRETE ENCASING (IF APPLICABLE).
13. PROTECTION WORK ON EMBANKMENT SIDE SHALL BE AS PER HIGHWAY DRAWINGS.
14. ROAD FURNITURE SHALL BE PROVIDED AS PER HIGHWAY DRAWING.
15. THE HEAD WALL SHALL BE CONSTRUCTED WITHOUT ANY VERTICAL CONSTRUCTION JOINT ALONG ITS LENGTH.
16. FOR SHOULDER CROSS-FALL, REFER HIGHWAY DRAWING.
17. THE FLOOR PROTECTION, PITCHING AND OTHER CULVERT DETAILS ARE AS PER IRC SP 13-2004.



SECTION B-B
(SCALE 1:50)



SECTION C-C
WITH ENCASING DETAIL OF PIPE
(SCALE 1:50)
[APPLICABLE IF CUSHION (EXCLUDING ROAD CRUST) <600mm]



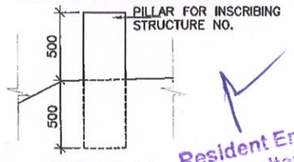
SECTION C-C
(SCALE 1:50)

BEDDING DIMENSIONS

TYPE	PIPE FOUNDATION TYPE	PIPE INNER DIA (d)	b1	b2	b3
a	COMPACTED GRANULAR MATERIAL FOR FILL HEIGHT (CUSHION) 0.6m - 4.0m	1200	260	160	200
b	PCC M15 CONCRETE CRADLE FOR FILL HEIGHT (CUSHION) 4.0m - 8.0m		200	250	150

LEGENDS

FRL	-	FINISHED ROAD LEVEL.
IL	-	INVERT LEVEL.
GL	-	GROUND LEVEL
U/S	-	UP STREAM
D/S	-	DOWN STREAM
THK.	-	THICKNESS
d	-	INNER DIAMETER OF PIPE
t	-	THICKNESS OF PIPE (d/10)
LME	-	LEFT MEDIAN EDGE
RME	-	RIGHT MEDIAN EDGE
LOE	-	LEFT OUTER EDGE
ROE	-	RIGHT OUTER EDGE



DETAIL Y
(SCALE 1:30)

AP Saha
Design Director
(AECOM)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

DIMENSION DETAILS OF PIPE CULVERT

S.No.	EXISTING KM.	DESIGN CH.	EXISTING STRUCTURE	EXISTING SPAN (NOS. x DIA)	EXISTING WIDTH (m)	PROPOSAL	PROPOSED STRUCTURE	PROPOSED SPAN (NOS. x d)	SKEW	FRL		CAMBER/ SUPERELEVATION		FLOW DIRECTION	BED LEVEL		INVERT LEVEL (IL)		EARTH CUSHION (m)				TCS	WIDTH OF BEDDING	LENGTH OF HEAD WALL (L) (m)	LENGTH OF PIPE (m)	NO. OF PIPE SEGMENTS (REF. NOTE 9) (m)	TYPE OF BEDDING	ENCASING
										LME	RME	LEFT (e1%)	RIGHT (e2%)		LEFT	RIGHT	LEFT	RIGHT	LOE (C-3)	LME (C-1)	RME (C-2)	ROE (C-4)		A (m)					
1	-	298+880	-	-	-	NEW CONSTRUCTION	PIPE CULVERT	1 x 1.2	0	65.369	65.369	-2.500	0.034	R-L	63.056	63.390	62.756	62.800	1.018	1.280	1.263	1.246	TYPE-5	1.84	7.12	30.75	12.50	ENCASING CONCRETE	REQUIRED

Rev.	Date	Description on Revisions
R1	Nov. 2017	REVISED AS PER REVISED PLAN & PROFILE
R0	Sept. 2017	

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Coporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd.
AUTHORISED SIGNATORY | DATE

PROOF CHECKER: CE TESTING Company Pvt. Ltd
AUTHORISED SIGNATORY | DATE

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd
AUTHORISED SIGNATORY | DATE

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

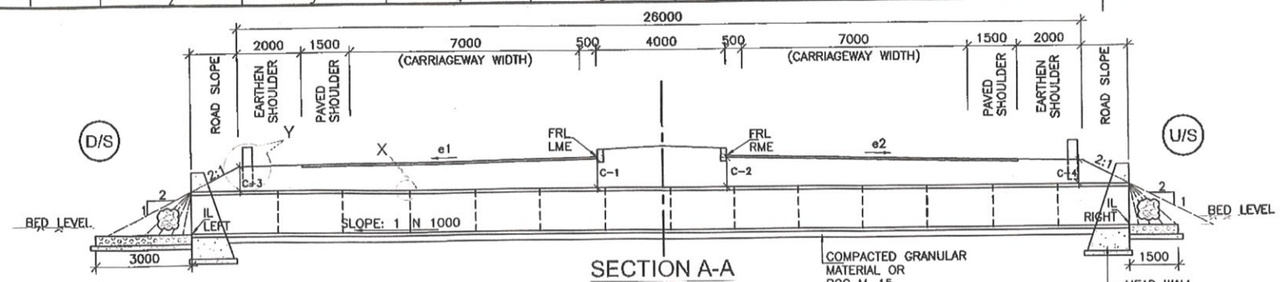
EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

CONSULTANT:- AECOM, 9th Floor, Infinity Tower C DLF Cyber City, DLF Phase II, Gurgaon 122002, Haryana, India
R. BENIWAL | S. YADAV | S.P. SINGH | S. RASTOGI
DRAWN | DESIGN | CHECKED BY | APPROVED BY

SCALE:- 1 : 1000

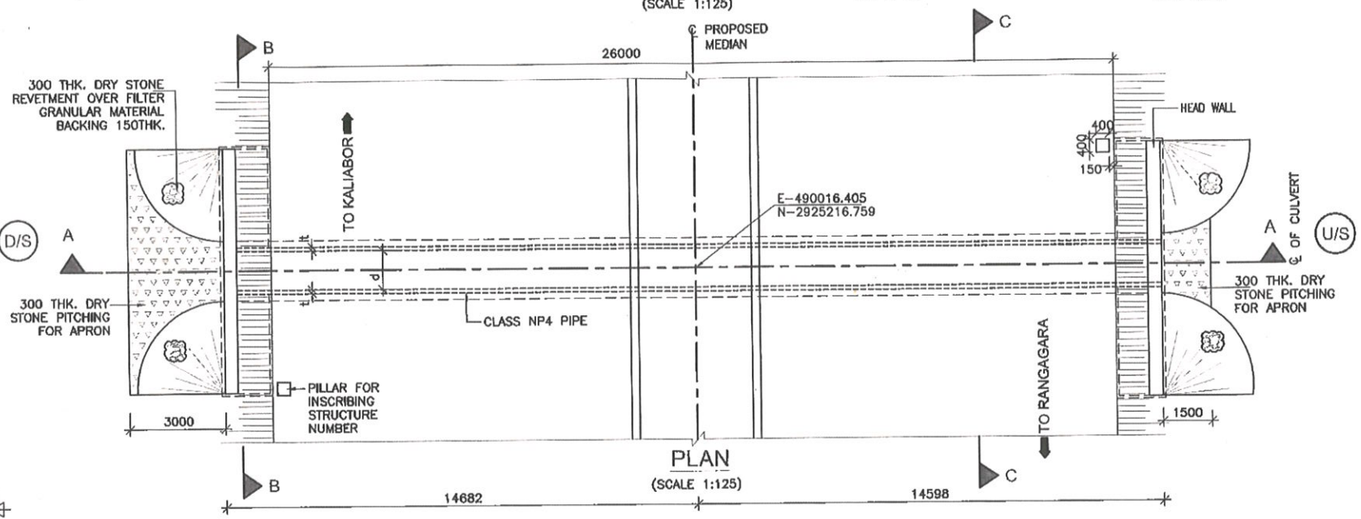
TITLE:- GENERAL ARRANGEMENT DRAWING FOR PIPE CULVERT AT CH. 298+880 (SCH. B. CH. 298+880)

DRAWING NO.:- AECOM-DELD15159-DD-DWG-PC-298+880-GAD-01 | REV. R1



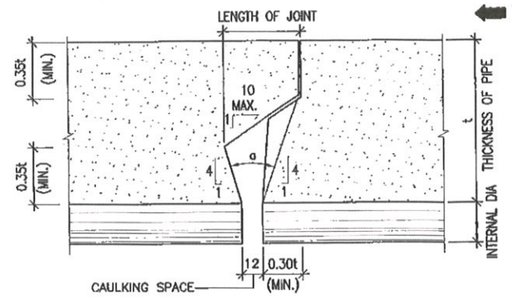
SECTION A-A

(SCALE 1:125)



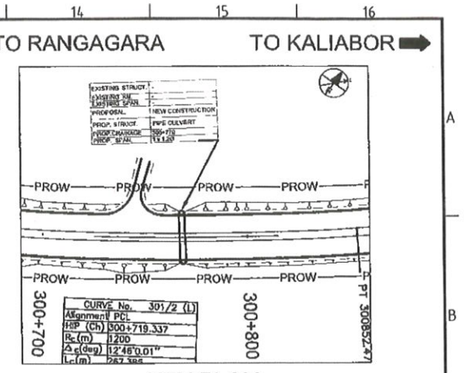
PLAN

(SCALE 1:125)

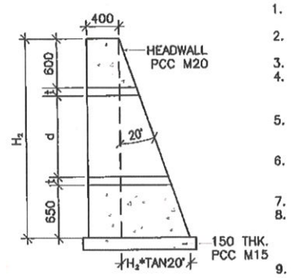


DETAIL X
INTERNAL FLUSH JOINT

a – INCLUDED ANGLE NOT MORE THAN 25°
(ONLY FOR DESIGN PURPOSE NOT TO BE MEASURED)



KEY PLAN



DETAIL OF HEAD WALL

SCALE 1:50

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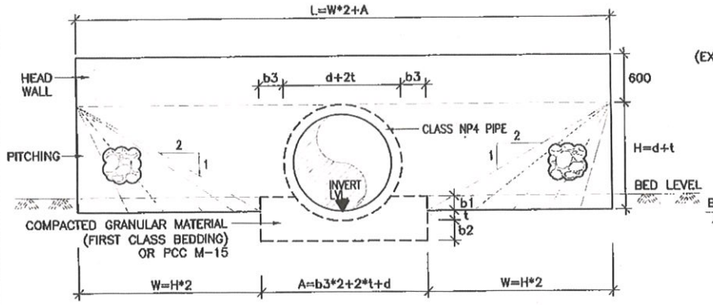
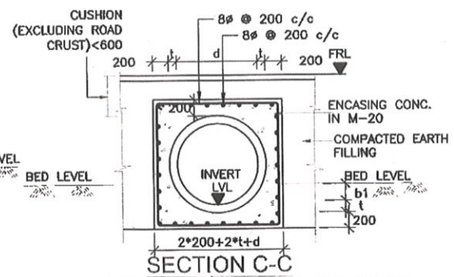


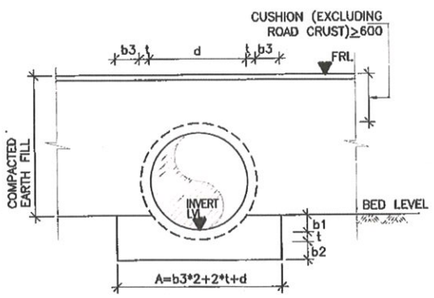
SECTION B-B

(SCALE 1:50)



SECTION C-C
WITH ENCASING DETAIL OF PIPE

(SCALE 1:50)
[APPLICABLE IF CUSHION (EXCLUDING ROAD CRUST) <600mm]



SECTION C-C

(SCALE 1:50)

BEDDING DIMENSIONS

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FRL	–	FINISHED ROAD LEVEL.
IL	–	INVERT LEVEL.
GL	–	GROUND LEVEL
U/S	–	UP STREAM
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THK.	–	THICKNESS
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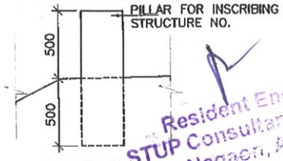
AP Saha
Design Director
(AECOM)



DETAIL Y

(SCALE 1:30)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

DIMENSION DETAILS OF PIPE CULVERT

S.No.	EXISTING KM.	DESIGN CH.	EXISTING STRUCTURE	EXISTING SPAN (NOS. x DIA)	EXISTING WIDTH (m)	PROPOSAL	PROPOSED STRUCTURE	PROPOSED SPAN (NOS. x d)	SKEW	FRL		CAMBER/ SUPERELEVATION		FLOW DIRECTION	BED LEVEL		INVERT LEVEL (IL)		EARTH CUSHION (m)				TCS	WIDTH OF BEDDING	LENGTH OF HEAD WALL (L) (m).	LENGTH OF PIPE (m)	NO. OF PIPE SEGMENTS (REF. NOTE 9) (m)	TYPE OF BEDDING	ENCASING
										LME	RME	LEFT (e1%)	RIGHT (e2%)		LEFT	RIGHT	LEFT	RIGHT	LOE (C-3)	LME (C-1)	RME (C-2)	ROE (C-4)		A (m)					
1	-	300+770	-	-	-	NEW CONSTRUCTION	PIPE CULVERT	1 x 1.2	0	66.816	66.816	-2.500	-2.500	R-L	64.680	64.770	64.380	64.422	0.841	1.099	1.079	0.787	TYPE-5	1.84	7.12	29.5	12.00	EXISTING CONCRETE	REQUIRED

Rev.	Date	Description on Revisions
R1	Nov. 2017	REVISED AS PER REVISED PLAN & PROFILE
R0	Sept. 2017	

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Corporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd — AUTHORISED SIGNATORY — DATE

PROOF CHECKED CONSULTANT: CE TESTING Company Pvt. Ltd — AUTHORISED SIGNATORY — DATE

SAFETY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd — AUTHORISED SIGNATORY — DATE

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

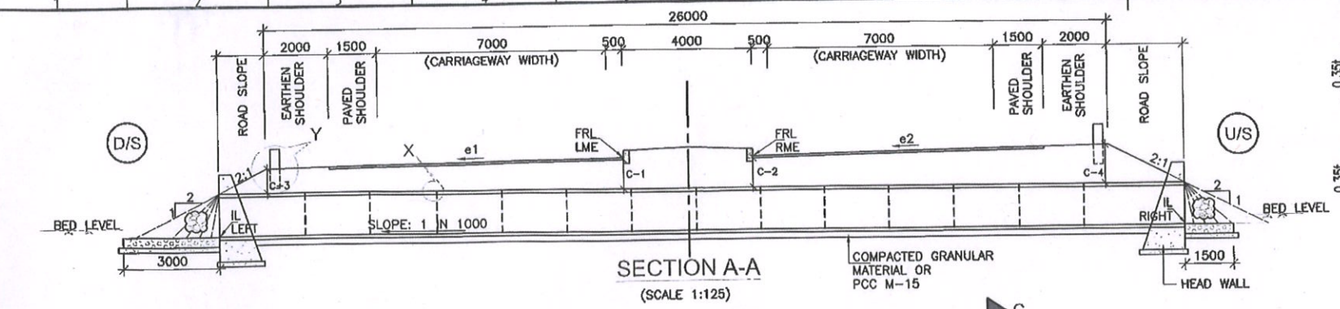
EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

CONSULTANT: AECOM, 9th Floor, Infinity Tower, Global Gateway City, DLF Phase II, Gurgaon-122002, Haryana, India — DRAWN: R. BENIWAL, S.K. PANDAY — DESIGN — CHECKED BY: S.P. SINGH, S.K. RASTOGI — APPROVED BY

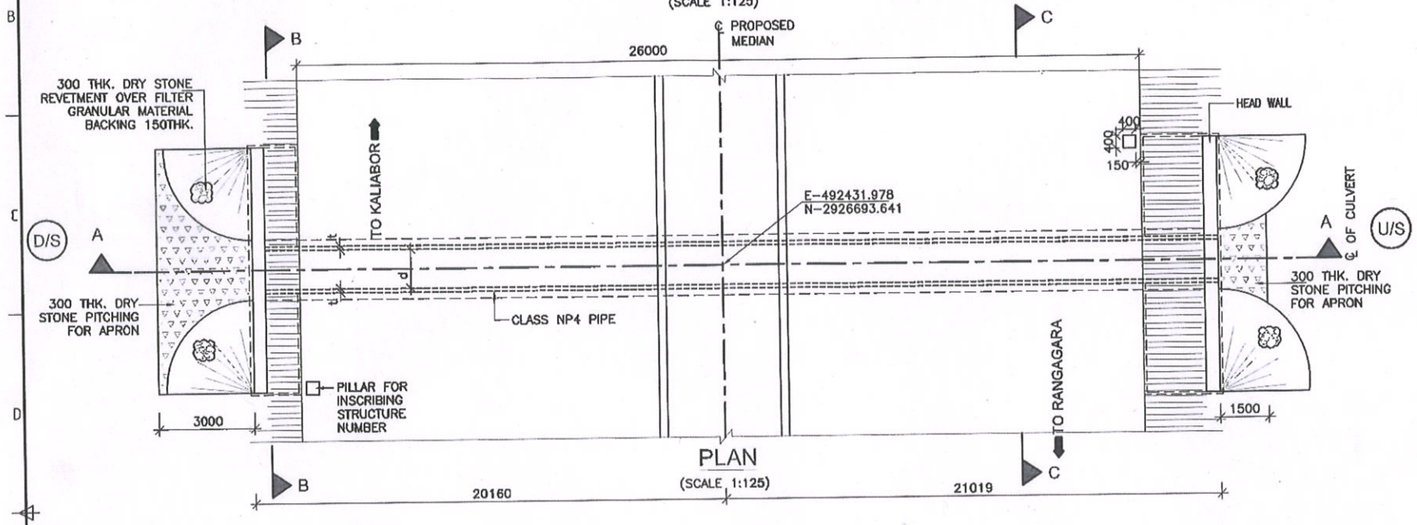
SCALE:- 1 : 1000

TITLE:- GENERAL ARRANGEMENT DRAWING FOR PIPE CULVERT AT CH. 300+770 (SCH. B. CH. 300+770)

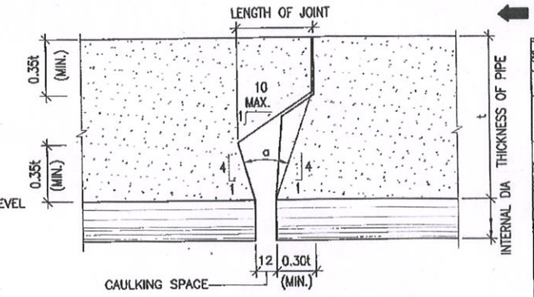
DRAWING NO.:- AECOM-DELD15159-DD-DWG-PC-300+770-GAD-01 — REV. R1



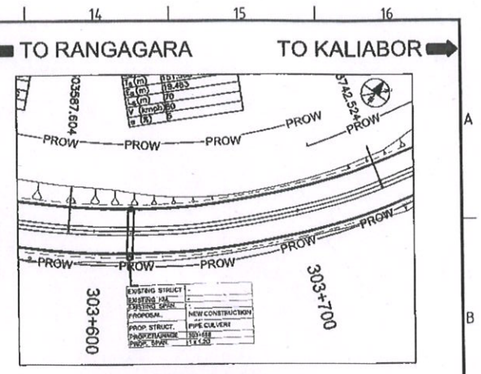
SECTION A-A
(SCALE 1:125)



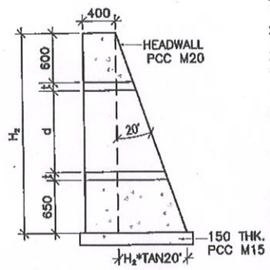
PLAN
(SCALE 1:125)



DETAIL X
INTERNAL FLUSH JOINT
α – INCLUDED ANGLE NOT MORE THAN 25°
(ONLY FOR DESIGN PURPOSE NOT TO BE MEASURED)



KEY PLAN



DETAIL OF HEAD WALL
SCALE 1:50

NOTES:

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7. LONGITUDINAL SLOPE OF PROPOSED PIPE SHALL NOT BE LESS THAN 1V:1000H.
8. PIPES SHALL BE JOINTED BY INTERNAL FLUSH JOINT AS PER IS 458 & AS PER THE DETAILS GIVEN IN SECTION 2906 OF MORTH SPECIFICATIONS OF ROAD AND BRIDGE WORKS. JOINTING SPACE SHALL BE FILLED WITH CEMENT MORTAR OF PROPORTION 1:2 OF CEMENT & SAND.
9. MAXIMUM LENGTH OF EACH PIPE SEGMENT HAS BEEN CONSIDERED AS 2.5M AND MINIMUM LENGTH HAS BEEN CONSIDERED AS 1.25M.
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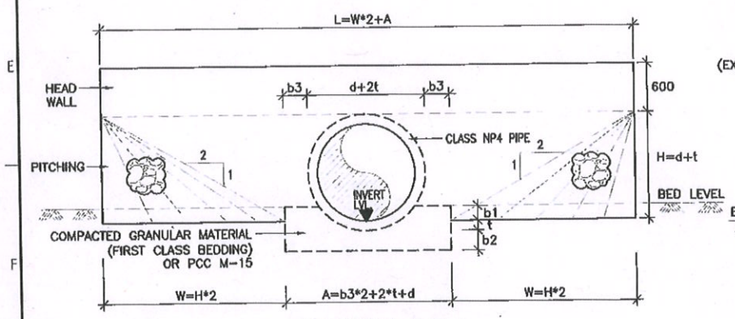
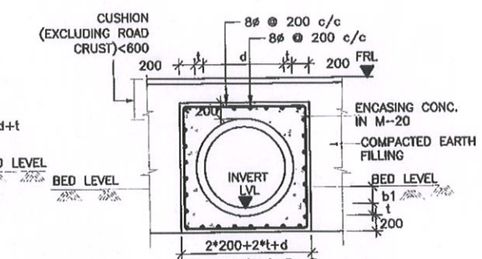
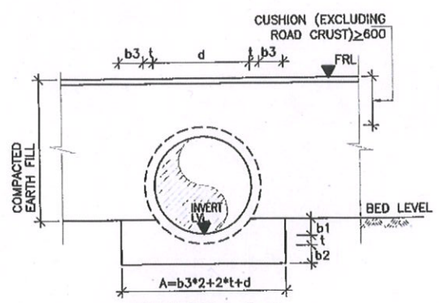
11. ROAD CRUST THICKNESS HAS BEEN CONSIDERED AS 50(BC)+90(DBM)+250(WMM)+200(GSB)=590MM.
12. SURFACE REINFORCEMENT 8ø @ 200c/c IN BOTH DIRECTION SHALL BE PROVIDED IN PCC STRUCTURE – HEAD WALL & CONCRETE ENCASING (IF APPLICABLE).
13. PROTECTION WORK ON EMBANKMENT SIDE SHALL BE AS PER HIGHWAY DRAWINGS.
14. ROAD FURNITURE SHALL BE PROVIDED AS PER HIGHWAY DRAWING.
15. THE HEAD WALL SHALL BE CONSTRUCTED WITHOUT ANY VERTICAL CONSTRUCTION JOINT ALONG ITS LENGTH.
16. FOR SHOULDER CROSS–FALL, REFER HIGHWAY DRAWING.
17. THE FLOOR PROTECTION, PITCHING AND OTHER CULVERT DETAILS ARE AS PER IRC SP 13–2004.



SECTION B-B
(SCALE 1:50)



SECTION C-C
WITH ENCASING DETAIL OF PIPE
(SCALE 1:50)
[APPLICABLE IF CUSHION (EXCLUDING ROAD CRUST) <600mm]



SECTION C-C
(SCALE 1:50)

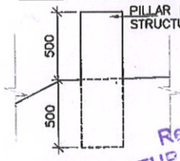
BEDDING DIMENSIONS

TYPE	PIPE FOUNDATION TYPE	PIPE INNER DIA (d)	b1	b2	b3
a	COMPACTED GRANULAR MATERIAL FOR FILL HEIGHT (CUSHION) 0.6m – 4.0m	1200	260	160	200
b	PCC M15 CONCRETE CRADLE FOR FILL HEIGHT (CUSHION) 4.0m – 8.0m		200	250	150

LEGENDS

FRL	– FINISHED ROAD LEVEL.
IL	– INVERT LEVEL.
GL	– GROUND LEVEL
U/S	– UP STREAM
D/S	– DOWN STREAM
THK.	– THICKNESS
d	– INNER DIAMETER OF PIPE
t	– THICKNESS OF PIPE (d/10)
LME	– LEFT MEDIAN EDGE
RME	– RIGHT MEDIAN EDGE
LOE	– LEFT OUTER EDGE
ROE	– RIGHT OUTER EDGE

AP Saha
Design Director
(AECOM)



DETAILS
(SCALE 1:30)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

DIMENSION DETAILS OF PIPE CULVERT

S.No.	EXISTING KM.	DESIGN CH.	EXISTING STRUCTURE	EXISTING SPAN (NOS. x DIA)	EXISTING WIDTH (m)	PROPOSAL	PROPOSED STRUCTURE	PROPOSED SPAN (NOS. x d)	SKEW	FRL		CAMBER/ SUPERELEVATION		FLOW DIRECTION	BED LEVEL		INVERT LEVEL (IL)		EARTH CUSHION (m)				TCS	WIDTH OF BEDDING	LENGTH OF HEAD WALL (L) (m)	LENGTH OF PIPE (m)	NO. OF PIPE SEGMENTS (REF. NOTE 9) (m)	TYPE OF BEDDING	ENCASING
										LME	RME	LEFT (e1%)	RIGHT (e2%)		LEFT	RIGHT	LEFT	RIGHT	LOE (C-3)	LME (C-1)	RME (C-2)	ROE (C-4)		A (m)					
1	-	303+618	-	-	-	NEW CONSTRUCTION	PIPE CULVERT	1 x 1.2	0	68.605	67.993	-5.000	5.000	R-L	63.455	64.240	63.155	63.215	3.580	4.112	3.477	4.009	TYPE-4	1.84	7.12	41.250	16.50	COMPACTED GRANULAR MATERIAL	NOT APPLICABLE

Rev.	Date	Description on Revisions
R1	Nov. 2017	REVISED AS PER REVISED PLAN & PROFILE
R0	Sept. 2017	

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Corporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd.

PROOF CHECKED CONSULTANT:- CE TESTING COMPANY PVT. LTD.

SAFETY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

CONSULTANTS:- AECOM, 9th Floor, Infinity Tower C, DLF Cyber City, DLF Phase II, Gurgaon-122002, Haryana, India

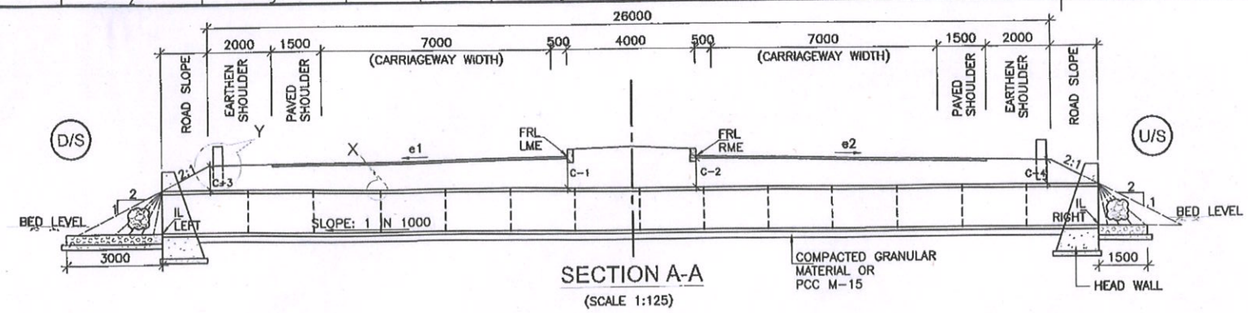
DRAWN	DESIGN	CHECKED BY	APPROVED BY
R. BENARJEE	S. YADAV	S. GOYAL	S. RASTOGI

SCALE:- 1 : 1000

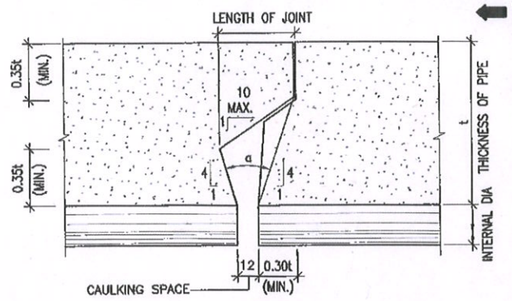
TITLE:- GENERAL ARRANGEMENT DRAWING FOR PIPE CULVERT AT CH. 303+618 (SCH. B. CH. 303+620)

DRAWING NO.:- AECOM-DELD15159-DD-DWG-PC-303+620-GAD-01

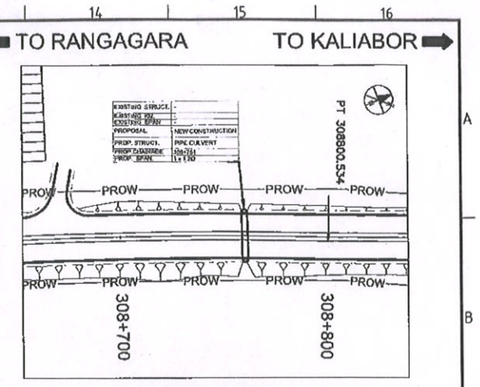
REV. R1



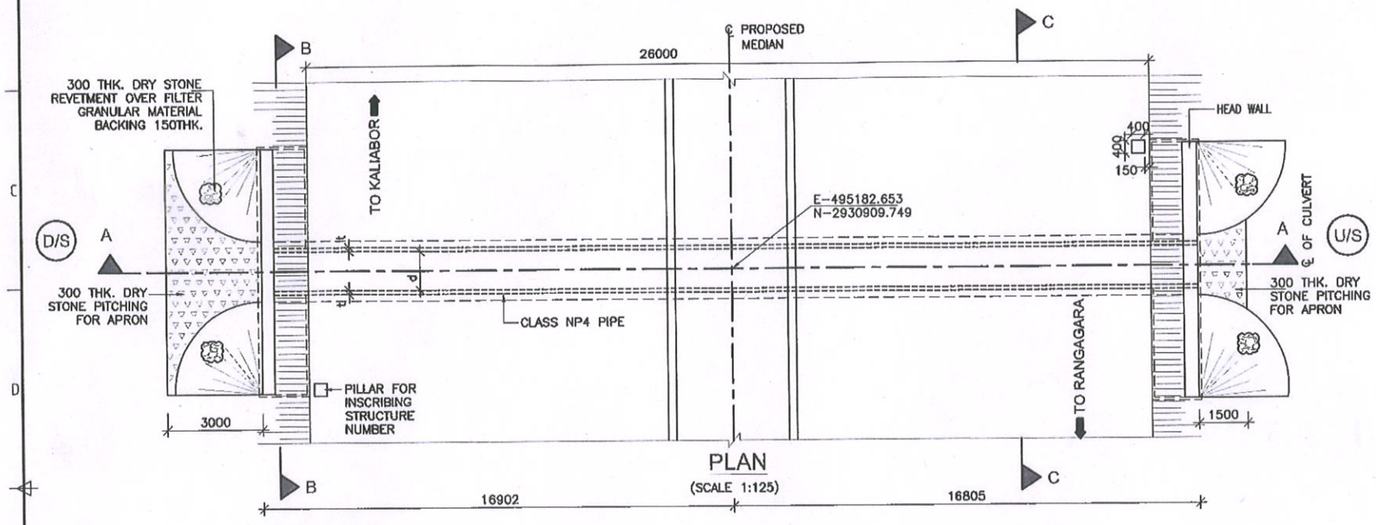
SECTION A-A
(SCALE 1:125)



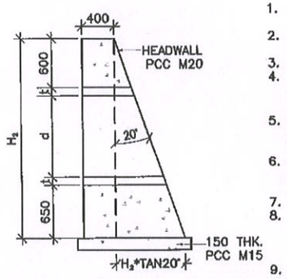
DETAIL X
INTERNAL FLUSH JOINT
a – INCLUDED ANGLE NOT MORE THAN 25°
(ONLY FOR DESIGN PURPOSE NOT TO BE MEASURED)



KEY PLAN



PLAN
(SCALE 1:125)



DETAIL OF HEAD WALL
SCALE 1:50

NOTES:

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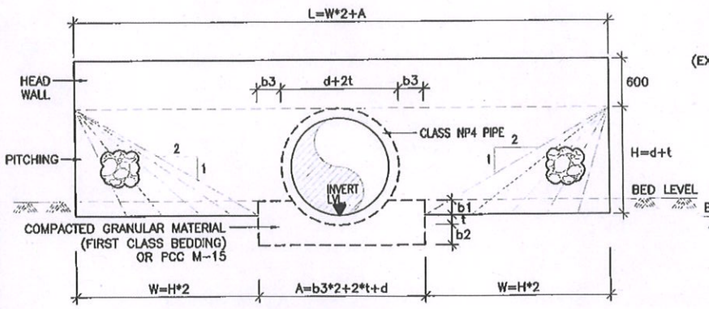
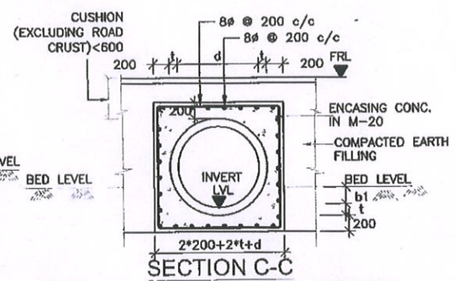
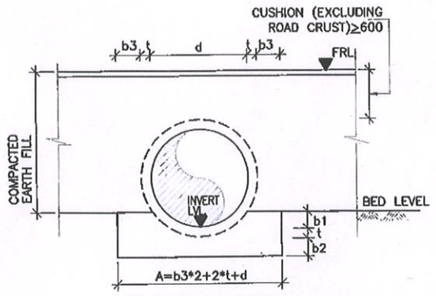


SECTION B-B
(SCALE 1:50)



SECTION C-C
WITH ENCASING DETAIL OF PIPE
(SCALE 1:50)
[APPLICABLE IF CUSHION (EXCLUDING ROAD CRUST) <600mm]



SECTION C-C
(SCALE 1:50)

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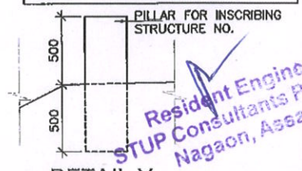


DETAIL Y
(SCALE 1:30)

AP Saha
Design Director
(AECOM)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

DIMENSION DETAILS OF PIPE CULVERT

S.No.	EXISTING KM.	DESIGN CH.	EXISTING STRUCTURE	EXISTING SPAN (NOS. x DIA)	EXISTING WIDTH (m)	PROPOSAL	PROPOSED STRUCTURE	PROPOSED SPAN (NOS. x d)	SKEW	FRL		CAMBER/ SUPERELEVATION		FLOW DIRECTION	BED LEVEL		INVERT LEVEL (IL)		EARTH CUSHION (m)				TCS	WIDTH OF BEDDING	LENGTH OF HEAD WALL (L) (m)	LENGTH OF PIPE (m)	NO. OF PIPE SEGMENTS (REF. NOTE 9) (m)	TYPE OF BEDDING	ENCASING
										LME	RME	LEFT (e1%)	RIGHT (e2%)		LEFT	RIGHT	LEFT	RIGHT	LOE (C-3)	LME (C-1)	RME (C-2)	ROE (C-4)		A (m)					
1	-	308+761	-	-	-	NEW CONSTRUCTION	PIPE CULVERT	1 x 1.2	0	67.446	67.446	-2.500	-2.500	R-L	64.200	64.350	63.900	63.949	1.951	2.211	2.192	1.902	TYPE-1	1.84	7.12	33.750	13.5	COMPACTED GRANULAR MATERIAL	NOT APPLICABLE

Rev.	Date	Description on Revisions
R1	Nov. 2017	REVISED AS PER REVISED PLAN & PROFILE
R0	Sept. 2017	

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Corporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd.
AUTHORISED SIGNATORY | DATE

PROOF CHECKED CONSULTANT: CE TESTING Company Pvt. Ltd
AUTHORISED SIGNATORY | DATE

SAFETY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd
AUTHORISED SIGNATORY | DATE

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

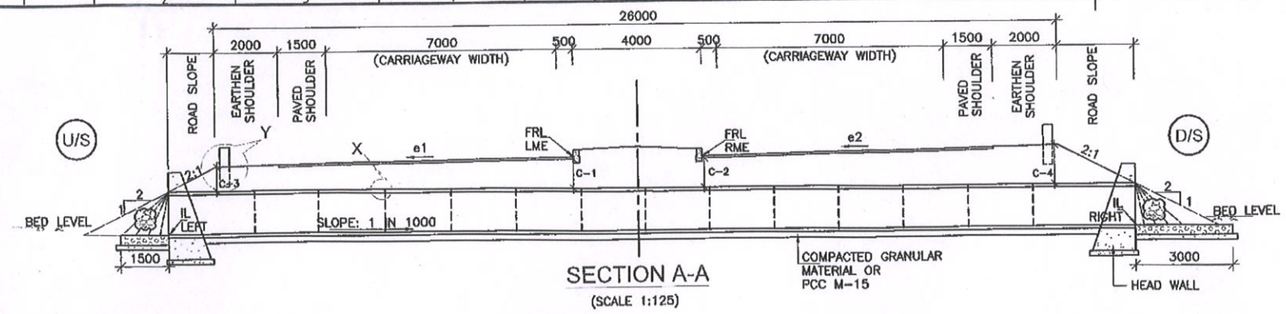
EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

CONSULTANTS:- AECOM India Private Limited, 9th Floor, Infinity Tower C DLF Cyber City, DLF Phase II, Gurugram-122002, Haryana, India
R. BENIWAL (DRAWN) | S. YADAV (DESIGN) | S.P. SINGH (CHECKED BY) | S. RASTOGI (APPROVED BY)

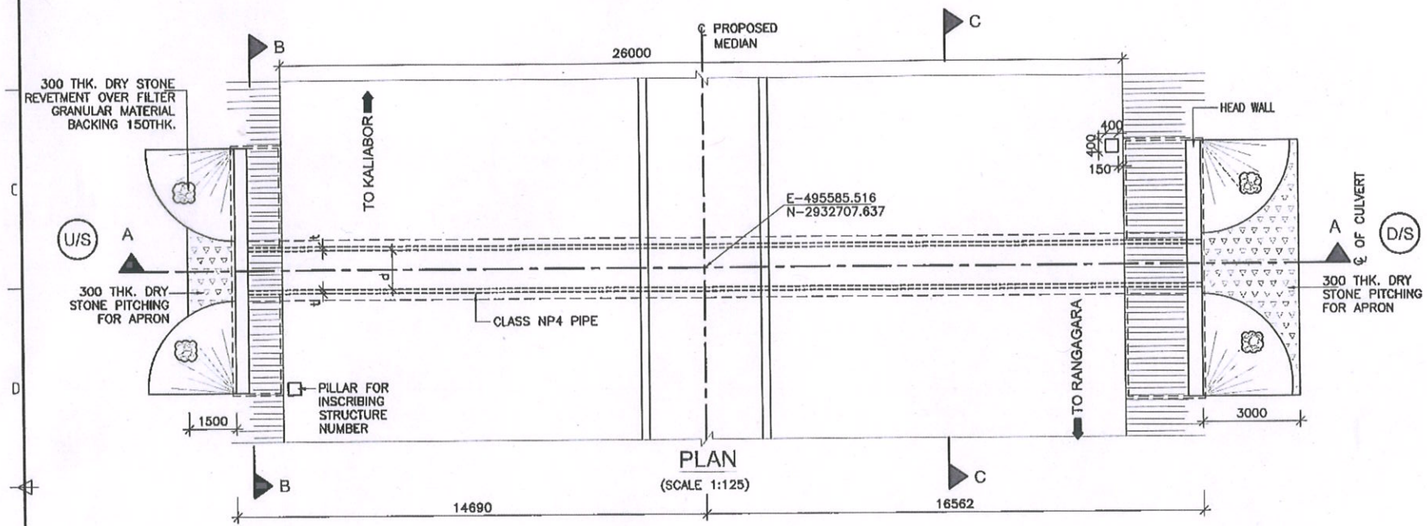
SCALE:- 1 : 1000

TITLE:- GENERAL ARRANGEMENT DRAWING FOR PIPE CULVERT AT CH. 308+761 (SCH. CH. 308+765)

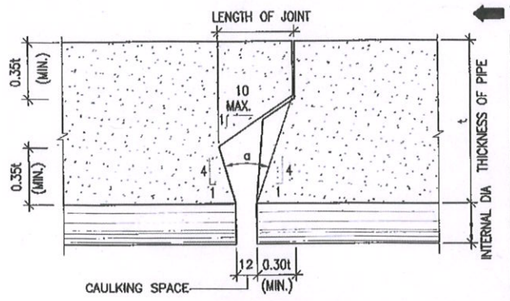
DRAWING NO.:- AECOM-DELD15159-DD-DWG-PC-308+765-GAD-01 | REV. R1



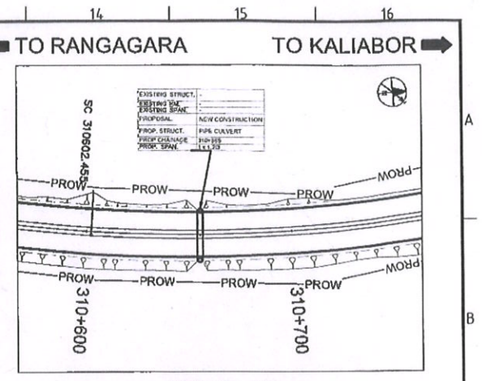
SECTION A-A
(SCALE 1:125)



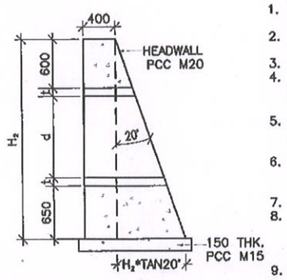
PLAN
(SCALE 1:125)



DETAIL X
INTERNAL FLUSH JOINT
a – INCLUDED ANGLE NOT MORE THAN 25°
(ONLY FOR DESIGN PURPOSE NOT TO BE MEASURED)



KEY PLAN



DETAIL OF HEAD WALL
SCALE 1:50

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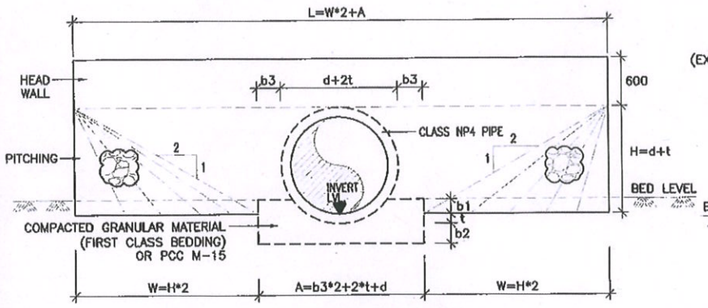
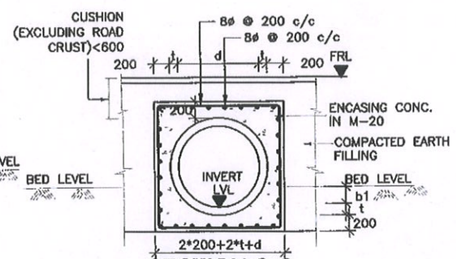
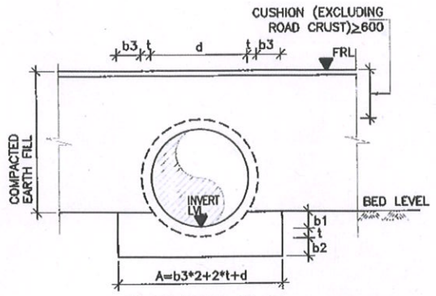


SECTION B-B
(SCALE 1:50)



SECTION C-C
WITH ENCASING DETAIL OF PIPE
(SCALE 1:50)
[APPLICABLE IF CUSHION (EXCLUDING ROAD CRUST) <600mm]



SECTION C-C
(SCALE 1:50)

BEDDING DIMENSIONS

TYPE	PIPE FOUNDATION TYPE	PIPE INNER DIA (d)	b1	b2	b3
a	COMPACTED GRANULAR MATERIAL FOR FILL HEIGHT (CUSHION) 0.6m – 4.0m	1200	260	160	200
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FRL	–	FINISHED ROAD LEVEL.
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GL	–	GROUND LEVEL
U/S	–	UP STREAM
D/S	–	DOWN STREAM
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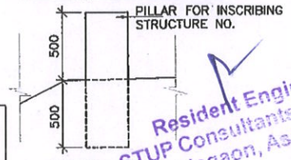
ROE	–	RIGHT OUTER EDGE

AP Saha
Design Director
(AECOM)



DETAIL Y
(SCALE 1:30)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

DIMENSION DETAILS OF PIPE CULVERT

S.No.	EXISTING KM.	DESIGN CH.	EXISTING STRUCTURE	EXISTING SPAN (NOS. x DIA)	EXISTING WIDTH (m)	PROPOSAL	PROPOSED STRUCTURE	PROPOSED SPAN (NOS. x d)	SKEW	FRL		CAMBER/ SUPERELEVATION		FLOW DIRECTION	BED LEVEL		INVERT LEVEL (IL)		EARTH CUSHION (m)				TCS	WIDTH OF BEDDING	LENGTH OF HEAD WALL	LENGTH OF PIPE (m)	NO. OF PIPE SEGMENTS (REF. NOTE 9) (m)	TYPE OF BEDDING	ENCASING
										LME	RME	LEFT (e1%)	RIGHT (e2%)		LEFT	RIGHT	LEFT	RIGHT	LOE (C-3)	LME (C-1)	RME (C-2)	ROE (C-4)		A (m)	(L) (m)				
1	-	310+655	-	-	-	NEW CONSTRUCTION	PIPE CULVERT	1 x 1.2	0	67.274	67.274	-4.063	4.063	L-R	64.969	64.920	64.665	64.620	0.845	1.304	1.321	1.781	TYPE-1	1.84	7.12	31.500	13.00	ENCASING CONCRETE	REQUIRED

Rev.	Date	Description on Revisions
R1	Nov. 2017	REVISED AS PER REVISED PLAN & PROFILE
R0	Sept. 2017	

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Coporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd. — AUTHORISED SIGNATORY — DATE

PROOF CHECKED CONSULTANT: CE TESTING Company Pvt. Ltd — AUTHORISED SIGNATORY — DATE

SAFETY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd — AUTHORISED SIGNATORY — DATE

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

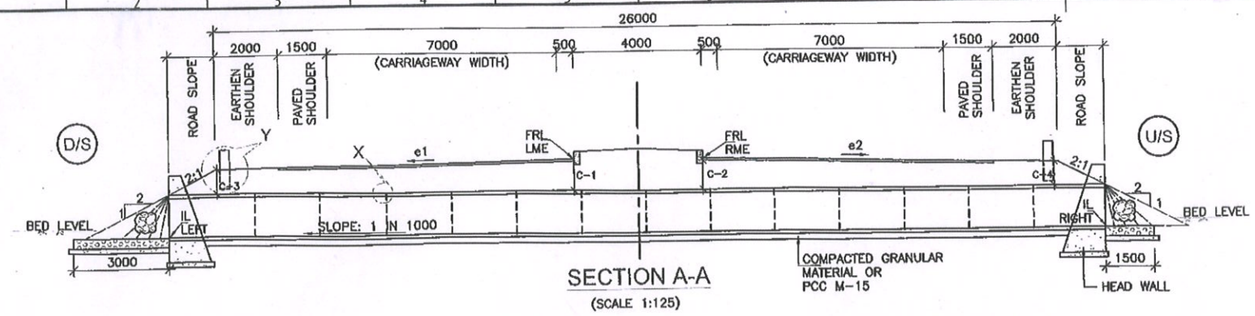
EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

CONSULTANTS:- AECOM India Private Limited, 9th Floor, Infinity Tower C, DLF Cyber City, DLF Phase II, Gurgaon-122002, Haryana, India
DRAWN: R. BENIWAL | DESIGN: S. YADAV | CHECKED BY: S.P. SINGH | APPROVED BY: S. RASTOGI

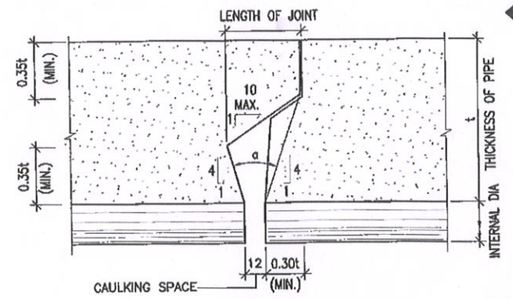
SCALE:- 1 : 1000

TITLE:- GENERAL ARRANGEMENT DRAWING FOR PIPE CULVERT AT CH. 310+655 (SCH. B. CH. 310+880)

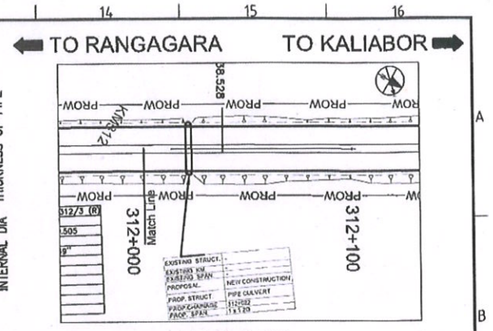
DRAWING NO.:- AECOM-DELD15159-DD-DWG-PC-310+880-GAD-01 — REV. R1



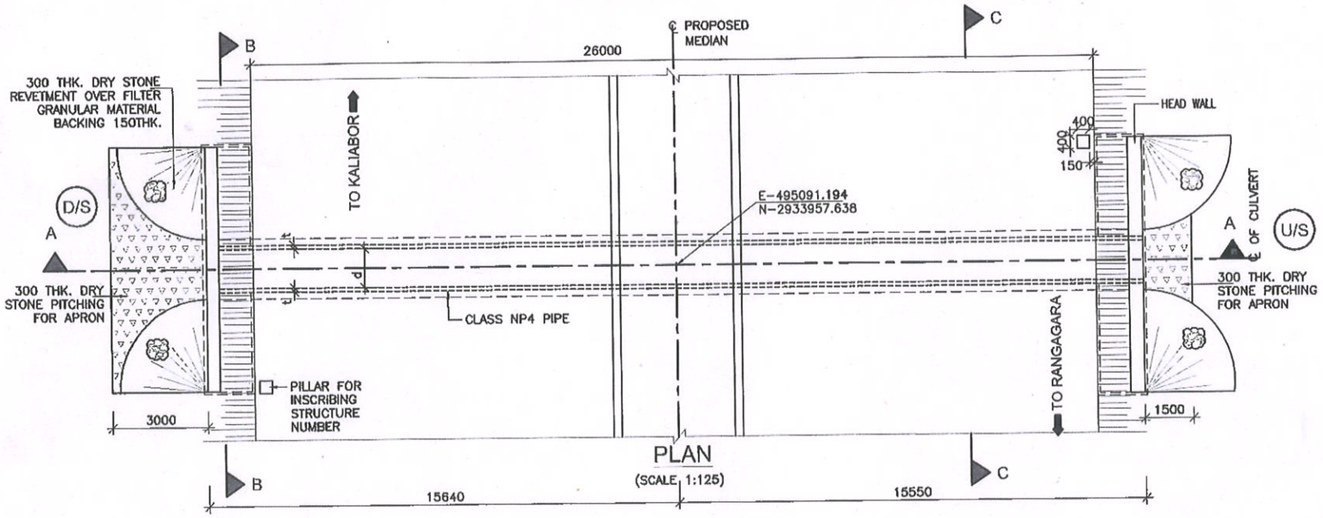
SECTION A-A
(SCALE 1:125)



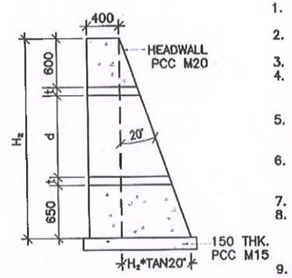
DETAIL X
INTERNAL FLUSH JOINT
a – INCLUDED ANGLE NOT MORE THAN 25°
(ONLY FOR DESIGN PURPOSE NOT TO BE MEASURED)



KEY PLAN



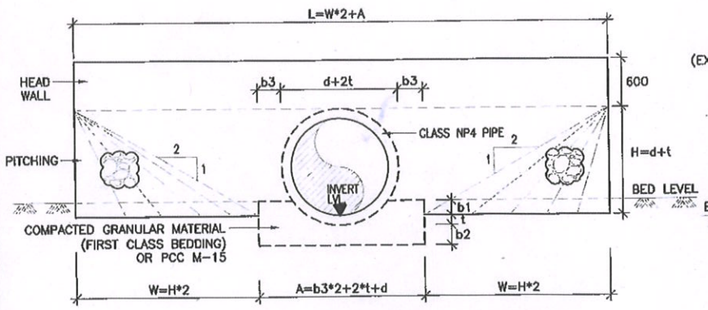
PLAN
(SCALE 1:125)



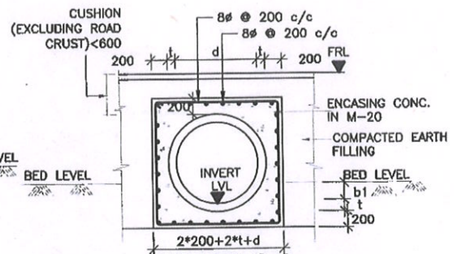
DETAIL OF HEAD WALL
SCALE 1:50

NOTES:

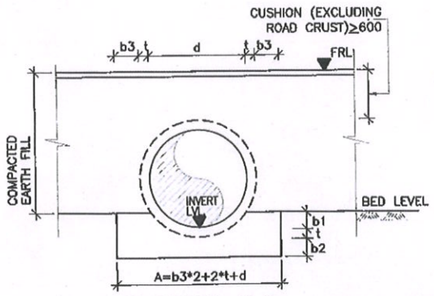
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN SHALL BE FOLLOWED.
3. ALL PIPES SHALL BE OF NP4 CLASS AS PER IS:458–2003 AND ITS AMENDMENTS.
4. CHAINAGE AND LEVELS SHALL BE VERIFIED WITH THE RELEVANT PLAN & PROFILE DRAWINGS & SITE. VARIATIONS (IF ANY) SHALL BE REPORTED TO ENGINEER FOR MODIFICATION.
5. ANY LOOSE/UNSUITABLE SOIL FOUND BELOW THE PIPE/HEAD WALL, SHALL BE REPLACED WITH SAND OR COMPACTED GRANULAR MATERIAL AS DIRECTED BY ENGINEER–IN–CHARGE.
6. FIRST CLASS BEDDING MAY BE USED FOR MAXIMUM HEIGHT OF FILL UPTO 4M. BEYOND 4M HEIGHT OF FILL PCC BEDDING SHALL BE USED AND THE PIPE SHALL BE LAID ON THE CONCRETE BEDDING BEFORE THE CONCRETE HAS SET.
7. LONGITUDINAL SLOPE OF PROPOSED PIPE SHALL NOT BE LESS THAN 1V:1000H.
8. PIPES SHALL BE JOINTED BY INTERNAL FLUSH JOINT AS PER IS 458 & AS PER THE DETAILS GIVEN IN SECTION 2906 OF MORTH SPECIFICATIONS OF ROAD AND BRIDGE WORKS. JOINTING SPACE SHALL BE FILLED WITH CEMENT MORTAR OF PROPORTION 1:2 OF CEMENT & SAND.
9. MAXIMUM LENGTH OF EACH PIPE SEGMENT HAS BEEN CONSIDERED AS 2.5M AND MINIMUM LENGTH HAS BEEN CONSIDERED AS 1.25M.
10. MINIMUM DEPTH OF EARTH CUSHION (EXCLUDING ROAD CRUST) OVER PIPE SHALL NOT BE LESS THEN 600MM FOR NEW/RECONSTRUCTION CULVERTS. IN CASE THE CUSHION IS INSUFFICIENT, ENCASING OF PIPE IN CONCRETE SHALL BE ENSURED AS PER DETAILS SHOWN IN DRAWING.
11. ROAD CRUST THICKNESS HAS BEEN CONSIDERED AS 50(BC)+90(DBM)+250(WMM)+200(GSB)=590MM.
12. SURFACE REINFORCEMENT 8ø @ 200c/c IN BOTH DIRECTION SHALL BE PROVIDED IN PCC STRUCTURE – HEAD WALL & CONCRETE ENCASING (IF APPLICABLE).
13. PROTECTION WORK ON EMBANKMENT SIDE SHALL BE AS PER HIGHWAY DRAWINGS.
14. ROAD FURNITURE SHALL BE PROVIDED AS PER HIGHWAY DRAWING.
15. THE HEAD WALL SHALL BE CONSTRUCTED WITHOUT ANY VERTICAL CONSTRUCTION JOINT ALONG ITS LENGTH.
16. FOR SHOULDER CROSS–FALL, REFER HIGHWAY DRAWING.
17. THE FLOOR PROTECTION, PITCHING AND OTHER CULVERT DETAILS ARE AS PER IRC SP 13–2004.



SECTION B-B
(SCALE 1:50)



SECTION C-C
WITH ENCASING DETAIL OF PIPE
(SCALE 1:50)
[APPLICABLE IF CUSHION (EXCLUDING ROAD CRUST) <600mm]



SECTION C-C
(SCALE 1:50)

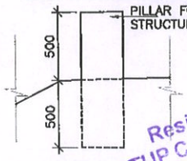
BEDDING DIMENSIONS

TYPE	PIPE FOUNDATION TYPE	PIPE INNER DIA (d)	b1	b2	b3
a	COMPACTED GRANULAR MATERIAL FOR FILL HEIGHT (CUSHION) 0.6m – 4.0m	1200	260	160	200
b	PCC M15 CONCRETE CRADLE FOR FILL HEIGHT (CUSHION) 4.0m – 8.0m		200	250	150

LEGENDS

FRL	–	FINISHED ROAD LEVEL.
IL	–	INVERT LEVEL.
GL	–	GROUND LEVEL
U/S	–	UP STREAM
D/S	–	DOWN STREAM
THK.	–	THICKNESS
d	–	INNER DIAMETER OF PIPE
t	–	THICKNESS OF PIPE (d/10)
LME	–	LEFT MEDIAN EDGE
RME	–	RIGHT MEDIAN EDGE
LOE	–	LEFT OUTER EDGE
ROE	–	RIGHT OUTER EDGE

AP Saha
Design Director
(AECOM)



DETAIL Y
(SCALE 1:30)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

DIMENSION DETAILS OF PIPE CULVERT

S.No.	EXISTING KM.	DESIGN CH.	EXISTING STRUCTURE	EXISTING SPAN (NOS. x DIA)	EXISTING WIDTH (m)	PROPOSAL	PROPOSED STRUCTURE	PROPOSED SPAN (NOS. x d)	SKEW	FRL		CAMBER/ SUPERELEVATION		FLOW DIRECTION	BED LEVEL		INVERT LEVEL (IL)		EARTH CUSHION (m)				TCS	WIDTH OF BEDDING	LENGTH OF HEAD WALL (L) (m)	LENGTH OF PIPE (m)	NO. OF PIPE SEGMENTS (REF. NOTE 9) (m)	TYPE OF BEDDING	ENCASING
										LME	RME	LEFT (e1%)	RIGHT (e2%)		LEFT	RIGHT	LEFT	RIGHT	LOE (C-3)	LME (C-1)	RME (C-2)	ROE (C-4)		A (m)					
1	-	312+022	-	-	-	NEW CONSTRUCTION	PIPE CULVERT	1 x 1.2	0	67.645	67.645	-2.500	-2.500	R-L	65.030	65.100	64.730	64.775	1.320	1.581	1.564	1.275	TYPE-1	1.84	7.12	31.250	12.50	COMPACTED GRANULAR MATERIAL	NOT APPLICABLE

Rev.	Date	Description on Revisions
R1	Nov. 2017	REVISED AS PER REVISED PLAN & PROFILE
R0	Sept. 2017	

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Corporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd — AUTHORISED SIGNATORY — DATE

PROOF CHECKED BY CONSULTANT: CE TESTING Company Pvt. Ltd — AUTHORISED SIGNATORY — DATE

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd — AUTHORISED SIGNATORY — DATE

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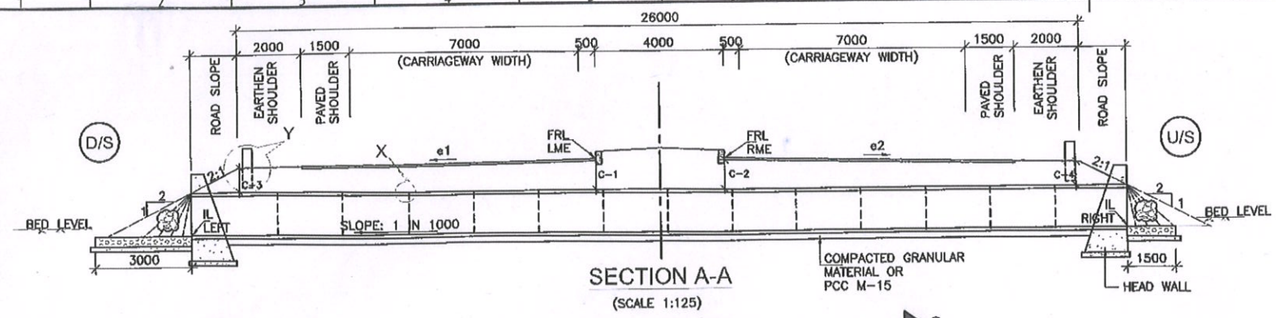
EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

CONSULTANTS:- AECOM India Private Limited — DRAWN: R. BENIWAL — DESIGN: A. YADAV — CHECKED BY: S. SINGH — APPROVED BY: R. KASTOGI

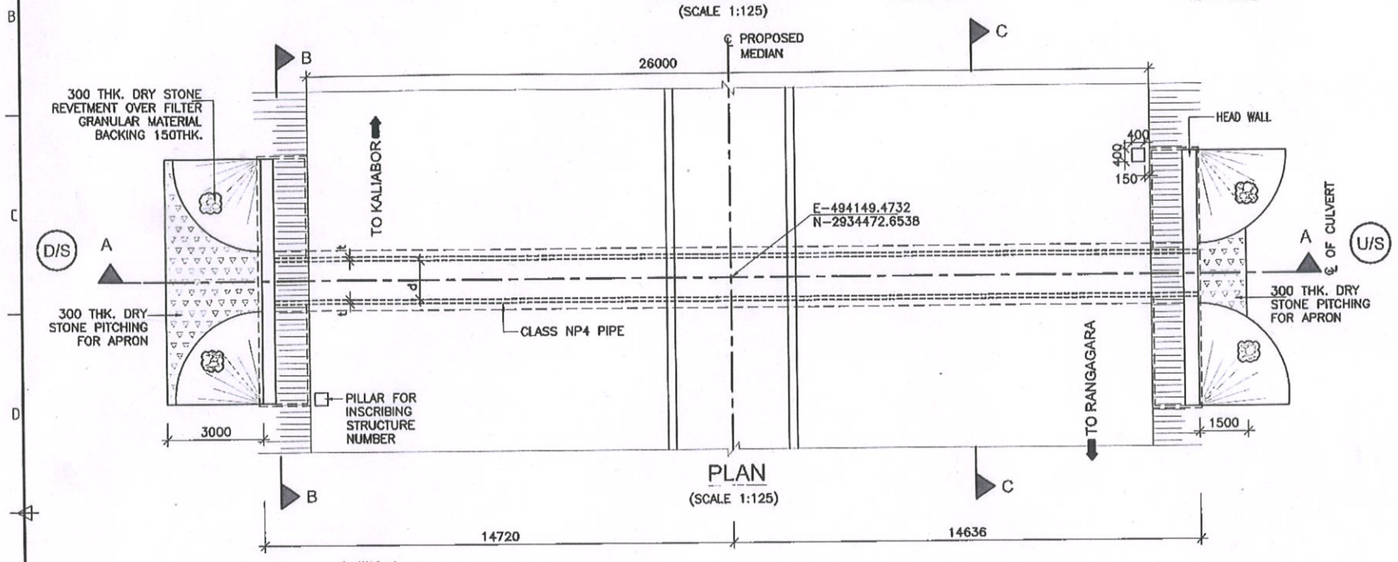
SCALE:- 1 : 1000

TITLE:- GENERAL ARRANGEMENT DRAWING FOR PIPE CULVERT AT CH. 312+022 (SCH. B. CH. 312+030)

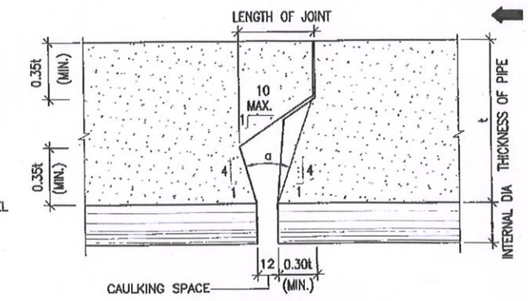
DRAWING NO.:- AECOM-DELD15159-DD-DWG-PC-312+030-GAD-01 — REV. R1



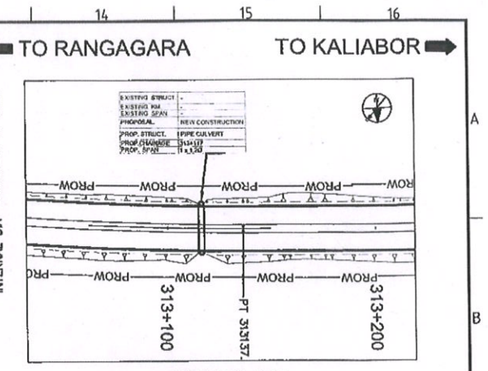
SECTION A-A
(SCALE 1:125)



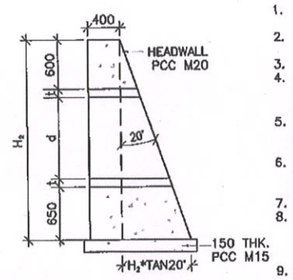
PLAN
(SCALE 1:125)



DETAIL X
INTERNAL FLUSH JOINT
a – INCLUDED ANGLE NOT MORE THAN 25°
(ONLY FOR DESIGN PURPOSE NOT TO BE MEASURED)



KEY PLAN



DETAIL OF HEAD WALL
SCALE 1:50

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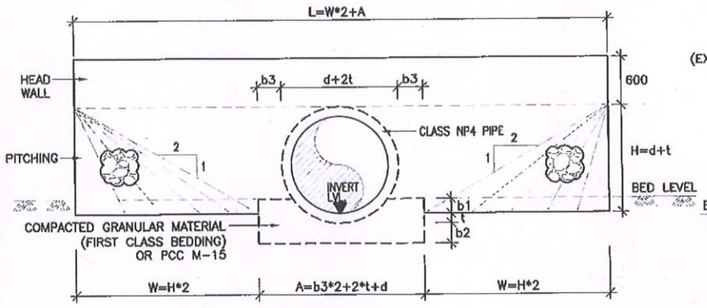
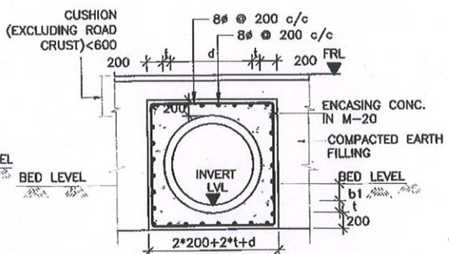
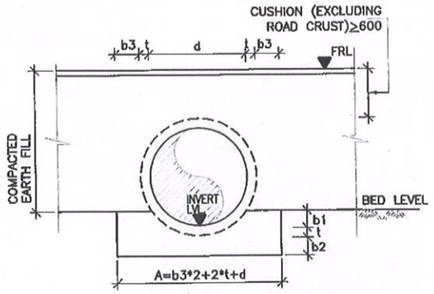


SECTION B-B
(SCALE 1:50)



SECTION C-C
WITH ENCASING DETAIL OF PIPE
(SCALE 1:50)
[APPLICABLE IF CUSHION (EXCLUDING ROAD CRUST) <600mm]



SECTION C-C
(SCALE 1:50)

BEDDING DIMENSIONS

TYPE	PIPE FOUNDATION TYPE	PIPE INNER DIA (d)	b1	b2	b3
a	COMPACTED GRANULAR MATERIAL FOR FILL HEIGHT (CUSHION) 0.6m – 4.0m	1200	260	160	200
b	PCC M15 CONCRETE CRADLE FOR FILL HEIGHT (CUSHION) 4.0m – 8.0m		200	250	150

LEGENDS

FRL	–	FINISHED ROAD LEVEL.
IL	–	INVERT LEVEL.
GL	–	GROUND LEVEL
U/S	–	UP STREAM
D/S	–	DOWN STREAM
THK.	–	THICKNESS
d	–	INNER DIAMETER OF PIPE
t	–	THICKNESS OF PIPE (d/10)
LME	–	LEFT MEDIAN EDGE
RME	–	RIGHT MEDIAN EDGE
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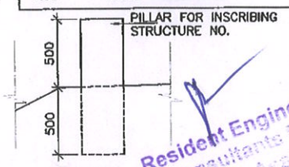
ROE	–	RIGHT OUTER EDGE

AP Saha
Design Director
(AECOM)



DETAIL Y
(SCALE 1:30)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

DIMENSION DETAILS OF PIPE CULVERT

S.No.	EXISTING KM.	DESIGN CH.	EXISTING STRUCTURE	EXISTING SPAN (NOS. x DIA)	EXISTING WIDTH (m)	PROPOSAL	PROPOSED STRUCTURE	PROPOSED SPAN (NOS. x d)	SKEW	FRL		CAMBER/ SUPERELEVATION		FLOW DIRECTION	BED LEVEL		INVERT LEVEL (IL)		EARTH CUSHION (m)				TCS	WIDTH OF BEDDING	LENGTH OF HEAD WALL (L) (m)	LENGTH OF PIPE (m)	NO. OF PIPE SEGMENTS (REF. NOTE 9) (m)	TYPE OF BEDDING	ENCASING
										LME	RME	LEFT (e1%)	RIGHT (e2%)		LEFT	RIGHT	LEFT	RIGHT	LOE (C-3)	LME (C-1)	RME (C-2)	ROE (C-4)		A (m)					
1	-	313+117	-	-	-	NEW CONSTRUCTION	PIPE CULVERT	1 x 1.2	0	68.117	68.117	-2.500	-2.500	R-L	66.212	66.600	65.662	65.704	0.860	1.122	1.105	0.818	TYPE-8	1.84	7.12	29.5	12.00	ENCASING CONCRETE	REQUIRED

Rev.	Date	Description on Revisions
R1	Nov. 2017	REVISED AS PER REVISED PLAN & PROFILE
R0	Sept. 2017	

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Coporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd.

PROOF CHECKED CONSULTANT:- CE TESTING Company Pvt. Ltd

SAFETY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

CONSULTANTS:- AECOM India Private Limited, 9th Floor, Infinity Tower C, DLF Phase II, Gurugram-122002, Haryana, India

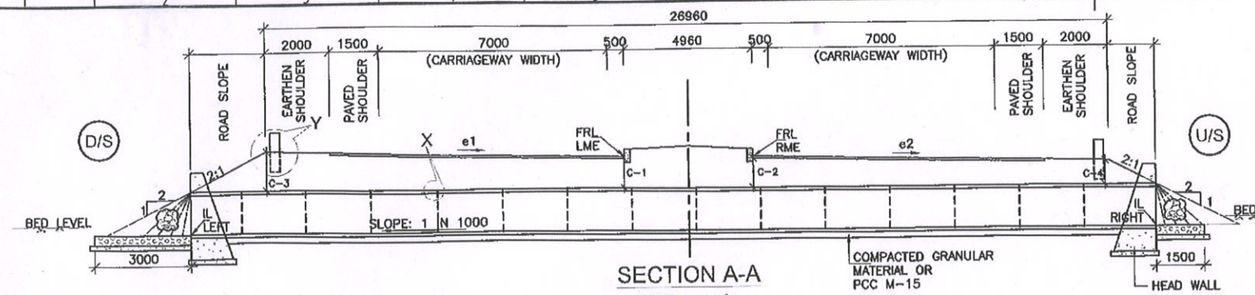
DRAWN	DESIGN	CHECKED BY	APPROVED BY
R. BENIWAL	S. YADAV	S.P. SINGH	S. RASTOGI

SCALE:- 1 : 1000

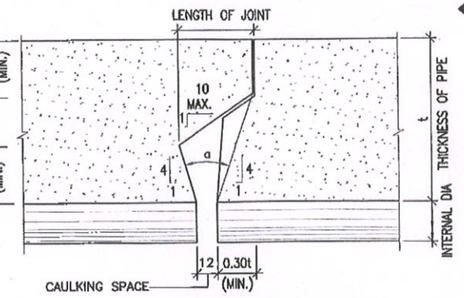
TITLE:- GENERAL ARRANGEMENT DRAWING FOR PIPE CULVERT AT CH. 313+117 (SCH. B. CH. 313+165)

DRAWING NO.:- AECOM-DELD15159-DD-DWG-PC-313+165-GAD-01

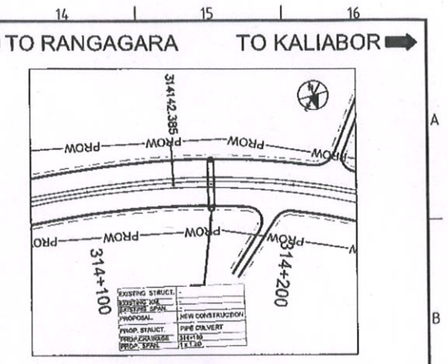
REV. R1



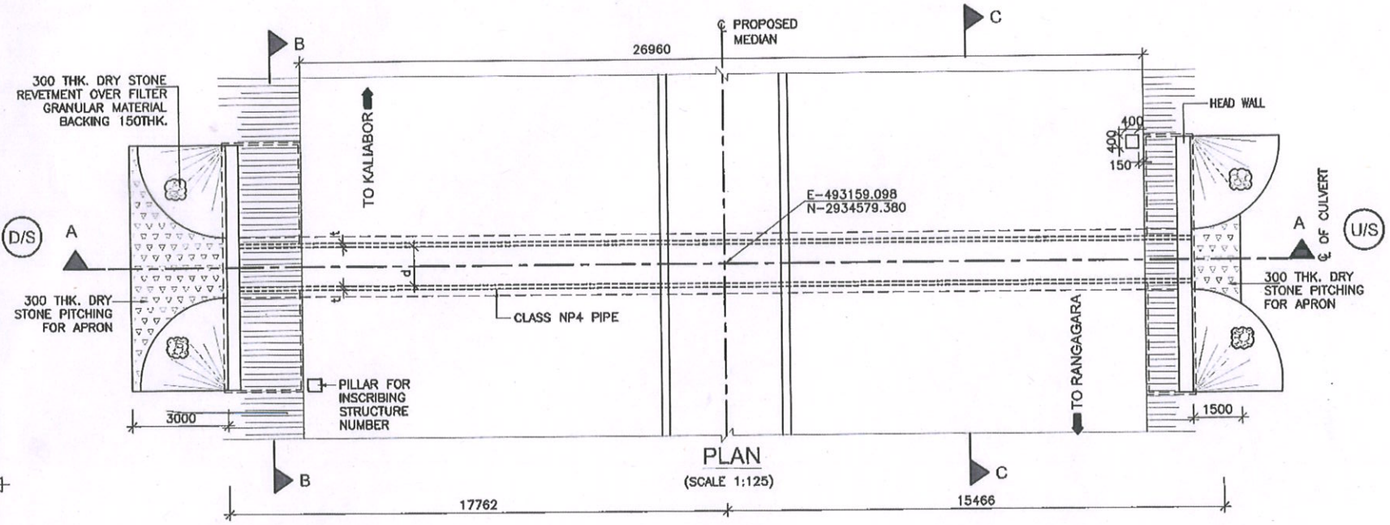
SECTION A-A
(SCALE 1:125)



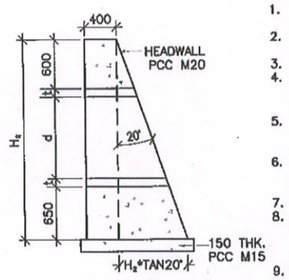
DETAIL X
INTERNAL FLUSH JOINT
α – INCLUDED ANGLE NOT MORE THAN 25°
(ONLY FOR DESIGN PURPOSE NOT TO BE MEASURED)



KEY PLAN



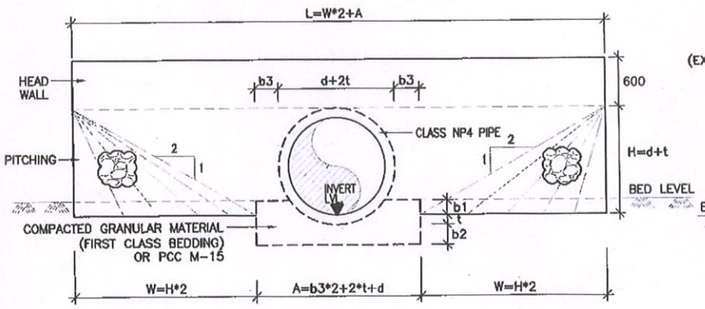
PLAN
(SCALE 1:125)



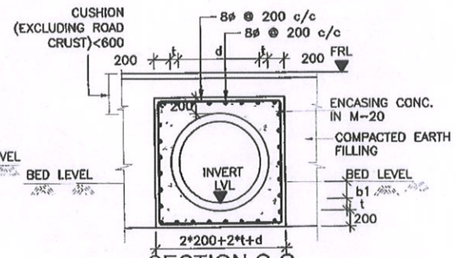
DETAIL OF HEAD WALL
SCALE 1:50

NOTES:

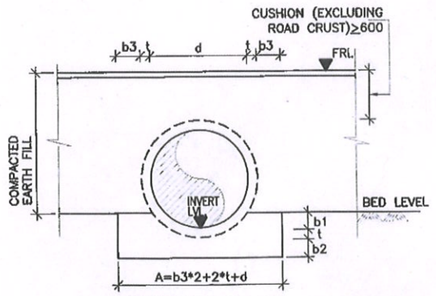
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN SHALL BE FOLLOWED.
3. ALL PIPES SHALL BE OF NP4 CLASS AS PER IS:458–2003 AND ITS AMENDMENTS.
4. CHAINAGE AND LEVELS SHALL BE VERIFIED WITH THE RELEVANT PLAN & PROFILE DRAWINGS & SITE. VARIATIONS (IF ANY) SHALL BE REPORTED TO ENGINEER FOR MODIFICATION.
5. ANY LOOSE/UNSUITABLE SOIL FOUND BELOW THE PIPE/HEAD WALL, SHALL BE REPLACED WITH SAND OR COMPACTED GRANULAR MATERIAL AS DIRECTED BY ENGINEER–IN–CHARGE.
6. FIRST CLASS BEDDING MAY BE USED FOR MAXIMUM HEIGHT OF FILL UPTO 4M. BEYOND 4M HEIGHT OF FILL PCC BEDDING SHALL BE USED AND THE PIPE SHALL BE LAID ON THE CONCRETE BEDDING BEFORE THE CONCRETE HAS SET.
7. LONGITUDINAL SLOPE OF PROPOSED PIPE SHALL NOT BE LESS THAN 1V:1000H.
8. PIPES SHALL BE JOINTED BY INTERNAL FLUSH JOINT AS PER IS 458 & AS PER THE DETAILS GIVEN IN SECTION 2906 OF MORTH SPECIFICATIONS OF ROAD AND BRIDGE WORKS. JOINTING SPACE SHALL BE FILLED WITH CEMENT MORTAR OF PROPORTION 1:2 OF CEMENT & SAND.
9. MAXIMUM LENGTH OF EACH PIPE SEGMENT HAS BEEN CONSIDERED AS 2.5M AND MINIMUM LENGTH HAS BEEN CONSIDERED AS 1.25M.
10. MINIMUM DEPTH OF EARTH CUSHION (EXCLUDING ROAD CRUST) OVER PIPE SHALL NOT BE LESS THEN 600MM FOR NEW/RECONSTRUCTION CULVERTS. IN CASE THE CUSHION IS INSUFFICIENT, ENCASING OF PIPE IN CONCRETE SHALL BE ENSURED AS PER DETAILS SHOWN IN DRAWING.
11. ROAD CRUST THICKNESS HAS BEEN CONSIDERED AS 50(BC)+90(DBM)+250(WMM)+200(GSB)=590MM.
12. SURFACE REINFORCEMENT 8ø @ 200c/c IN BOTH DIRECTION SHALL BE PROVIDED IN PCC STRUCTURE – HEAD WALL & CONCRETE ENCASING (IF APPLICABLE).
13. PROTECTION WORK ON EMBANKMENT SIDE SHALL BE AS PER HIGHWAY DRAWINGS.
14. ROAD FURNITURE SHALL BE PROVIDED AS PER HIGHWAY DRAWING.
15. THE HEAD WALL SHALL BE CONSTRUCTED WITHOUT ANY VERTICAL CONSTRUCTION JOINT ALONG ITS LENGTH.
16. FOR SHOULDER CROSS–FALL, REFER HIGHWAY DRAWING.
17. THE FLOOR PROTECTION, PITCHING AND OTHER CULVERT DETAILS ARE AS PER IRC SP 13–2004.



SECTION B-B
(SCALE 1:50)



SECTION C-C
WITH ENCASING DETAIL OF PIPE
(SCALE 1:50)
[APPLICABLE IF CUSHION (EXCLUDING ROAD CRUST) <600mm]



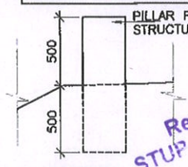
SECTION C-C
(SCALE 1:50)

BEDDING DIMENSIONS

TYPE	PIPE FOUNDATION TYPE	PIPE INNER DIA (d)	b1	b2	b3
a	COMPACTED GRANULAR MATERIAL FOR FILL HEIGHT (CUSHION) 0.6m – 4.0m	1200	260	160	200
b	PCC M15 CONCRETE CRADLE FOR FILL HEIGHT (CUSHION) 4.0m – 8.0m		200	250	150

LEGENDS

FRL	–	FINISHED ROAD LEVEL.
IL	–	INVERT LEVEL.
GL	–	GROUND LEVEL
U/S	–	UP STREAM
D/S	–	DOWN STREAM
THK.	–	THICKNESS
d	–	INNER DIAMETER OF PIPE
t	–	THICKNESS OF PIPE (d/10)
LME	–	LEFT MEDIAN EDGE
RME	–	RIGHT MEDIAN EDGE
LOE	–	LEFT OUTER EDGE
ROE	–	RIGHT OUTER EDGE



DETAIL Y
(SCALE 1:30)

AP Saha
Design Director
(AECOM)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

DIMENSION DETAILS OF PIPE CULVERT

S.No.	EXISTING KM.	DESIGN CH.	EXISTING STRUCTURE	EXISTING SPAN (NOS. x DIA)	EXISTING WIDTH (m)	PROPOSAL	PROPOSED STRUCTURE	PROPOSED SPAN (NOS. x d)	SKEW	FRL		CAMBER/ SUPERELEVATION		FLOW DIRECTION	BED LEVEL		INVERT LEVEL (IL)		EARTH CUSHION (m)				TCS	WIDTH OF BEDDING	LENGTH OF HEAD WALL (L) (m)	LENGTH OF PIPE (m)	NO. OF PIPE SEGMENTS (REF. NOTE 9) (m)	TYPE OF BEDDING	ENCASING
										LME	RME	LEFT (e1%)	RIGHT (e2%)		LEFT	RIGHT	LEFT	RIGHT	LOE (C-3)	LME (C-1)	RME (C-2)	ROE (C-4)		A (m)					
1	-	314+160	-	-	-	NEW CONSTRUCTION	PIPE CULVERT	1 x 1.2	0	67.771	67.771	5.000	-5.000	R-L	65.160	66.270	64.860	64.907	2.141	1.576	1.558	0.993	TYPE-1	1.84	7.12	33.250	13.50	ENCASING CONCRETE	REQUIRED

Rev.	Date	Description on Revisions
R1	Nov. 2017	REVISED AS PER REVISED PLAN & PROFILE
R0	Sept. 2017	

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Coporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd.
AUTHORISED SIGNATORY | DATE

PROOF CHECKER CONSULTANT: CE TESTING Company Pvt. Ltd.
AUTHORISED SIGNATORY | DATE

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt Ltd
AUTHORISED SIGNATORY | DATE

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

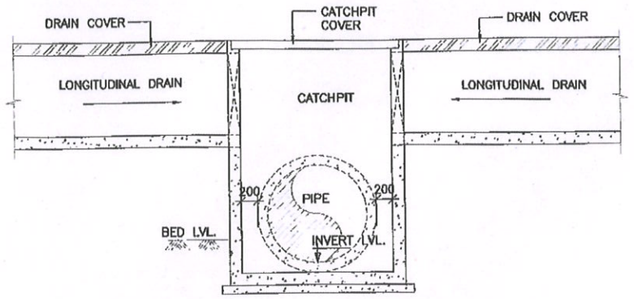
EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

CONSULTANTS:- AECOM, 9th Floor, Infinity Tower C, DLF Cyber City, DLF Phase II, Gurgaon-122002, Haryana, India
DRAWN: R. BENTWAL | DESIGN: S. YADAV | CHECKED BY: S.K. SAGAR | APPROVED BY: S. RASTOGI

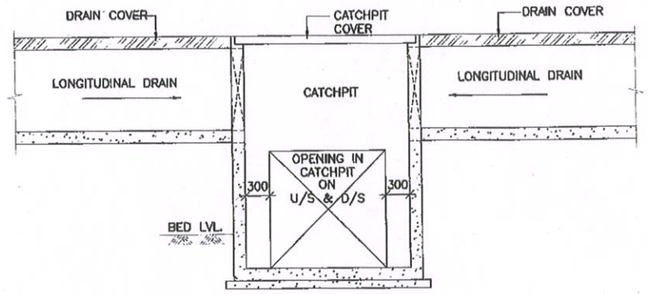
SCALE:- 1 : 1000

TITLE:- GENERAL ARRANGEMENT DRAWING FOR PIPE CULVERT AT CH. 314+160 (SCH. B. CH. 314+170)

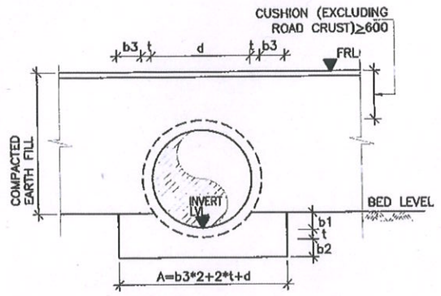
DRAWING NO.:- AECOM-DELD15159-DD-DWG-PC-314+170-GAD-01 | REV. R1



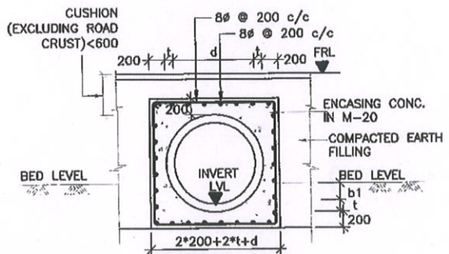
SECTION D-D
(SCALE 1:50)



SECTION E-E
(SCALE 1:50)



SECTION C-C
(SCALE 1:50)



SECTION C-C
WITH ENCASING DETAIL OF PIPE
(SCALE 1:50)
[APPLICABLE IF CUSHION (EXCLUDING ROAD CRUST) <600mm]

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BEDDING DIMENSIONS

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IL	–	INVERT LEVEL.
GL	–	GROUND LEVEL
U/S	–	UP STREAM
D/S	–	DOWN STREAM
THK.	–	THICKNESS
d	–	INNER DIAMETER OF PIPE
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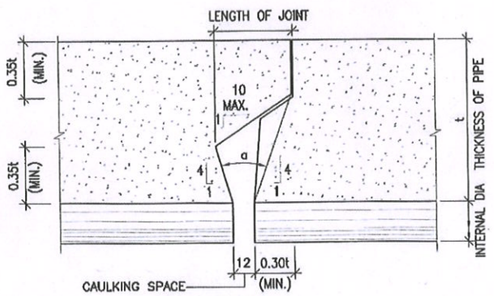
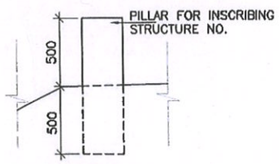
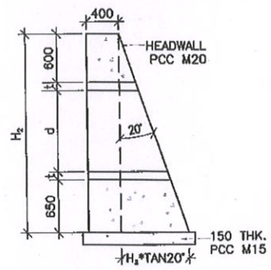


DETAIL X
INTERNAL FLUSH JOINT
a – INCLUDED ANGLE NOT MORE THAN 25°
(ONLY FOR DESIGN PURPOSE NOT TO BE MEASURED)



DETAIL Y
(SCALE 1:30)



DETAIL OF HEAD WALL
SCALE 1:50

AP Saha
Design Director
(AECOM)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

Rev.	Date	Description on Revisions
R1	Nov. 2017	REVISED AS PER REVISED PLAN & PROFILE
R0	Sept. 2017	

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Coporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd. — AUTHORISED SIGNATORY — DATE

PROOF CHECKED CONSULTANT: CE TESTING Company Pvt. Ltd — AUTHORISED SIGNATORY — DATE

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd — AUTHORISED SIGNATORY — DATE

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

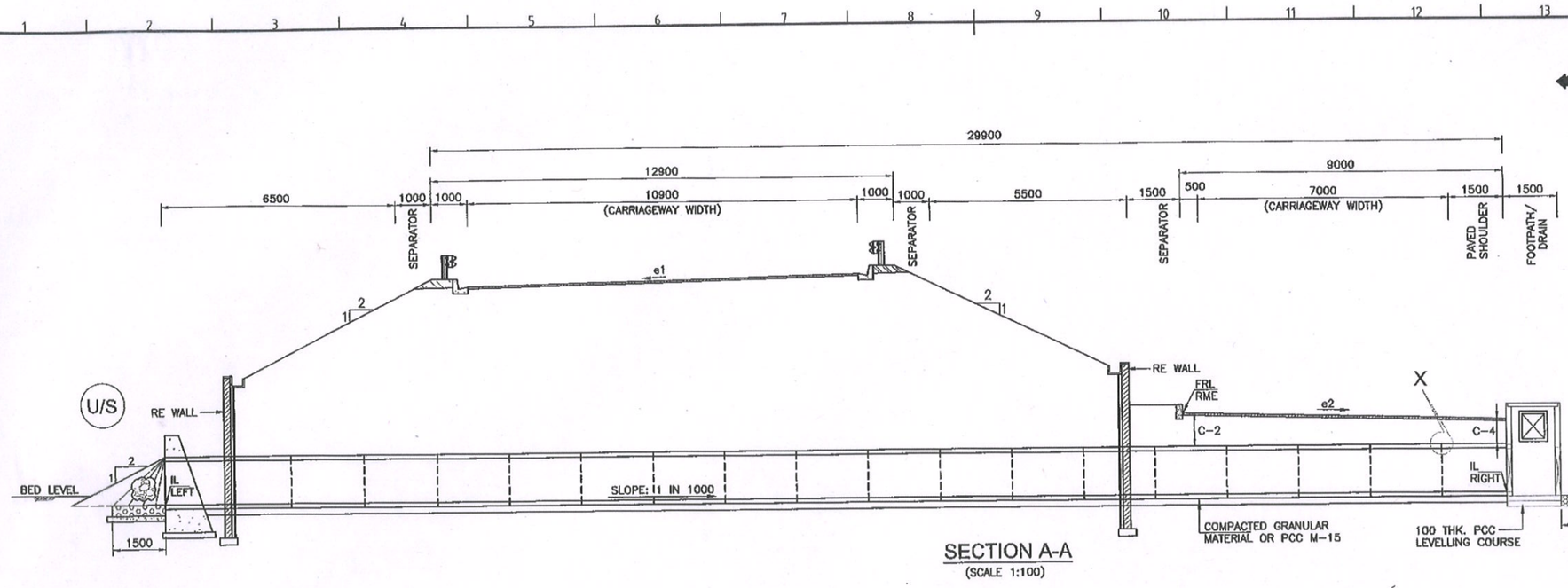
CONSULTANTS:- AECOM India Private Limited, 9th Floor, Infinity Tower C DLF Cyber City, DLF Phase II, Gurgaon-122002 Haryana, India

DRAWN	DESIGN	CHECKED BY	APPROVED BY
R. BENIWAL	S. YADAV	D.S.R. SINGH	S. BASTOGI

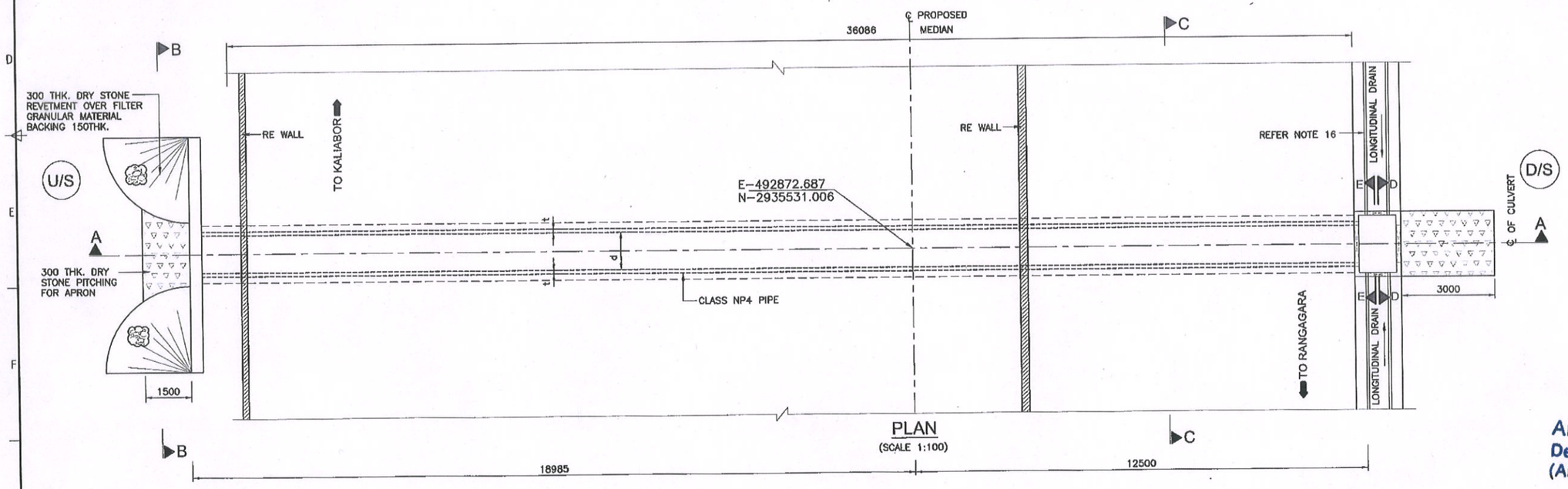
SCALE:- 1 : 1000

TITLE:- GENERAL ARRANGEMENT DRAWING FOR PIPE CULVERT AT CH. 315+241 (SCH. B. CH. 315+240)

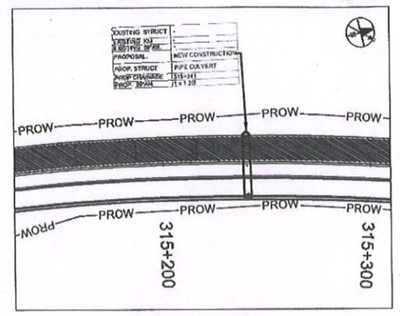
DRAWING NO.:- AECOM-DELD15159-DD-DWG-PC-315+241-GAD-01 — SHEET 2 OF 2 — REV. R1



SECTION A-A
(SCALE 1:100)



PLAN
(SCALE 1:100)



KEY PLAN

AP Saha
Design Director
(AECOM)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

DIMENSION DETAILS OF PIPE CULVERT

S.No.	EXISTING KM.	DESIGN CH.	EXISTING STRUCTURE	EXISTING SPAN (NOS. x DIA)	EXISTING WIDTH (m)	PROPOSAL	PROPOSED STRUCTURE	PROPOSED SPAN (NOS. x d)	SKEW	FRL		CAMBER/ SUPERELEVATION		FLOW DIRECTION	BED LEVEL		INVERT LEVEL (IL)		EARTH CUSHION (m)		TCS	WIDTH OF BEDDING	LENGTH OF HEAD WALL (L) (m)	LENGTH OF PIPE (m)	NO. OF PIPE SEGMENTS (REF. NOTE 9) (m)	TYPE OF BEDDING	ENCASING
										LME	RME	LEFT (e1%)	RIGHT (e2%)		LEFT	RIGHT	LEFT	RIGHT	RME (C-2)	ROE (C-4)		A (m)					
1	-	315+241	-	-	-	NEW CONSTRUCTION	PIPE CULVERT	1 x 1.2	0	-	68.405	-	-2.500	L-R	66.325	66.200	65.945	65.900	1.171	0.960	TYPE-8	1.84	7.12	37.400	15.0	ENCASING CONCRETE	REQUIRED

Rev.	Date	Description on Revisions
R1	Nov. 2017	REVISED AS PER REVISED PLAN & PROFILE
R0	Sept. 2017	

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Corporation Ltd) — NHIDCL

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd. — AYOLEEZA Consultant Pvt. Ltd

AUTHORISED SIGNATORY | DATE

PROOF CHECKED CONSULTANTS: CE TESTING Company Pvt. Ltd

AUTHORISED SIGNATORY | DATE

SAFETY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd

AUTHORISED SIGNATORY | DATE

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CONSULTANTS:- AECOM India Private Limited, 9th Floor, Infinity Tower C DLF Cyber City, DLF Phase II, Gurugram-122002 (Haryana) India

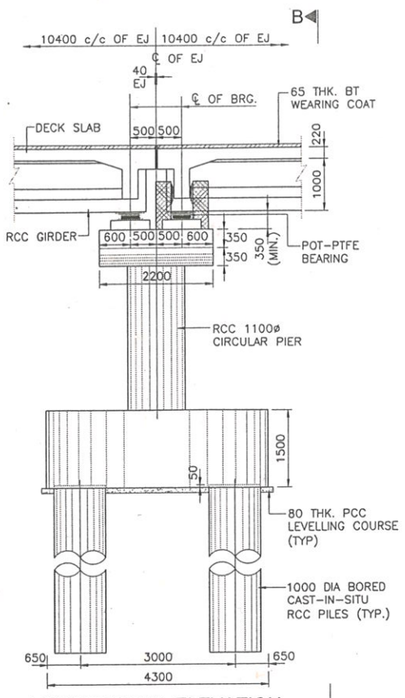
DRAWN	DESIGN	CHECKED BY	APPROVED BY
R. BENIWAL	S.K. YADAV	S.P. SINGH	S. BASTOGI

SCALE:- 1 : 1000

TITLE:- GENERAL ARRANGEMENT DRAWING FOR PIPE CULVERT AT CH. 315+241 (SCH. B, CH. 315+240)

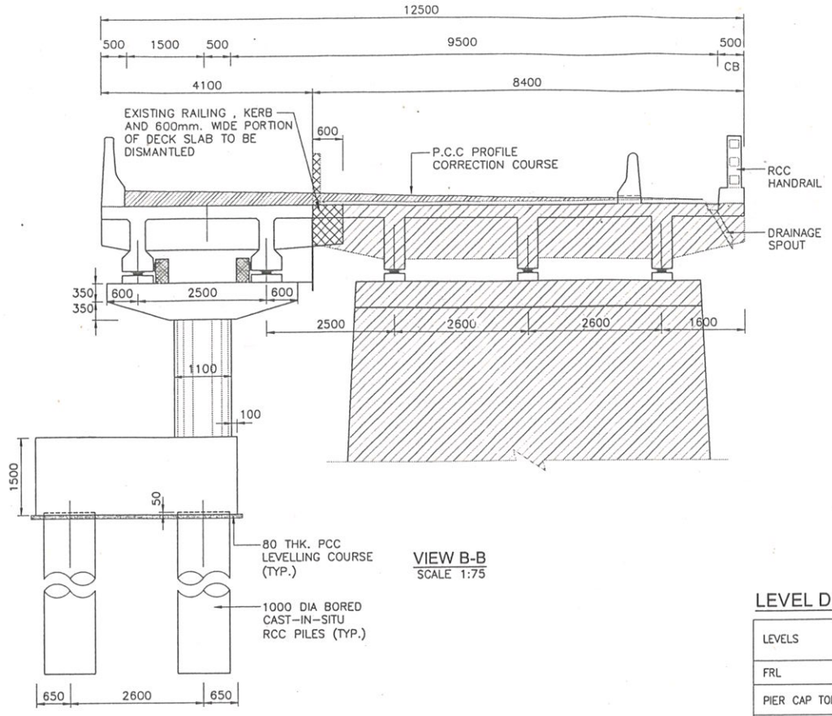
DRAWING NO.:- AECOM-DELD15159-DD-DWG-PC-315+241-GAD-01 | SHEET 1 OF 2 | REV. R1

Amoni Bridge (Existing)



LONGITUDINAL ELEVATION B

(SCALE 1:75)



VIEW B-B

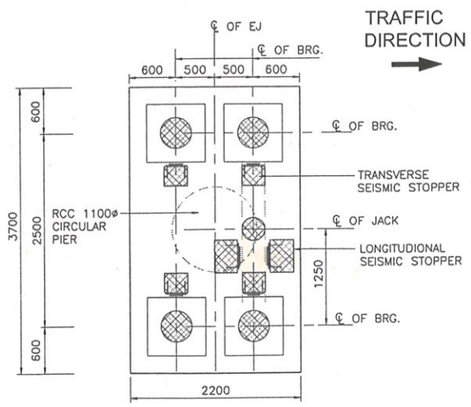
SCALE 1:75

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THE REINFORCEMENT SHALL BE HYSD BARS OF GRADE DESIGNATION Fe 500D CONFORMING TO IS 1786-2008.
4. CONCRETE ~~SHALL BE~~ DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH FOR DIFFERENT ELEMENTS AS FOLLOWS:
   - a.RCC PIER & PIER CAP — M35
   - b.RCC PILE & PILE CAP — M35
   - c.RCC CRASH BARRIER — M40
   - d.PCC LEVELING COURSE — M15
   - e.RCC PEDESTALS — M50
   - f.RCC SEISMIC STOPPER — M50
5. CLEAR COVER TO OUTER STEEL SHALL BE AS FOLLOWS:-
   - a.RCC PIER — 40MM
   - b.RCC PIER CAP — 40MM
   - c.RCC SEISMIC STOPPERS — 40MM
   - d.RCC PILE & PILE CAP — 75MM
   - e.RCC CRASH BARRIER — 40MM
6. ALL SOLID WALLS RETAINING THE EARTH SHALL BE PROVIDED WITH WEEP HOLES (100MM DIA AND SLOPE 1V:20H) STARTING 150MM ABOVE THE GROUND LEVEL AND SPACED 1000MM C/C BOTH HORIZONTALLY AND VERTICALLY IN STAGGERED MANNER.
7. PERMANENT STEEL LINER 6MM THK. SHALL BE PROVIDED UPTO MAX. SCOUR LEVEL IN PILES.
8. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE. IN CASE LAPPING OF BARS BECOME UNAVOIDABLE, NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION. LAP LENGTH SHALL BE PROVIDED AS PER CLAUSE 15.2.5 IRC:112-2011:
   - * 1.5x36ø (GRADE M35) FAVOURABLE CONDITION
   - * 1.5x1.43x36ø (GRADE M35) UNFAVOURABLE CONDITION
9. ANCHORAGE LENGTH SHALL BE AS PER CLAUSE 15.2.3 & 15.2.4, IRC:112-2011:
   - * 36ø (GRADE M35) FAVORABLE CONDITION
   - * 1.43x36ø (GRADE M35) UNFAVORABLE CONDITION

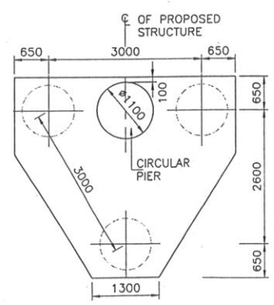
LEVEL DETAILS

LEVELS	FOR RHS C/W			
	P1	P2	P3	P4
FRL	68.834	68.833	68.830	68.814
PIER CAP TOP LVL.	67.143	67.142	67.139	67.123
GL	63.570	60.087	60.080	64.574
PILE CAP TOP LVL.	58.976	58.976	58.976	58.976
FDN. LEVEL	37.476	37.476	37.476	37.476
ALL LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION OF WORK.				



PLAN OF PIER CAP

(SCALE 1:50)



PLAN OF PIER, PILE CAP & PILES

(SCALE 1:75)

REFERENCE DRAWINGS:

1.) SUPERSTRUCTURE:-
AECOM-DELD15159-DD-DWG-MNB-303+200-SUP-01 (SH1 TO 8)

2.) SUBSTRUCTURE:-
AECOM-DELD15159-DD-DWG-MNB-303+200-SUB-01 (SH1 TO 4)

3.) MISCELLANEOUS DWGS.
AECOM-DELD15159-MISC-01

4.) GAD RHS WIDENING BRIDGE:-
AECOM-DELD15159-DD-DWG-MNB-303+200-GAD-02

5.) LAUNCHING APRON
AECOM-DELD15159-DD-DWG-MNB-303+200-APRON-01

LEGEND:-

- BEARING IN PLAN
- POT-CUM-PTFE BEARING IN ELEVATION
- JACK LOCATION IN PLAN
- JACK LOCATION IN ELEVATION
- BRG – BEARING
- EJ – EXPANSION JOINT
- LVL – LEVEL
- ABUT – ABUTMENT
- FRL – FINISHED ROAD LEVEL
- FDN – FOUNDATION
- LVL – LEVEL
- C/W – CARRIAGEWAY

Received at AECOM India Pvt. Ltd. STUP Consultants Nagaon, Assam

AECOM India Private Limited Gurgaon

Rev.	Date	Description on Revisions
R1	30-04-2021	AS PER PC COMMENTS
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Revisions

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AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd. — AUTHORISED SIGNATORY — DATE

PROJECT CHECKING CONSULTANT:- — AUTHORISED SIGNATORY — DATE

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd — AUTHORISED SIGNATORY — DATE

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

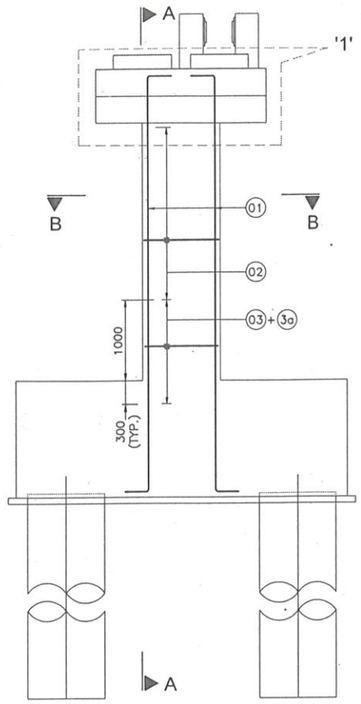
CONSULTANT:- AECOM, 9th Floor, Infinity Tower C DLF Cyber City, DLF Phase II, Gurgaon-122002, Haryana, India

DRAWN	DESIGN	CHECKED BY	APPROVED BY
R. BENIWAL	R. MADAAN	S.P. SINGH	S. RASTOGI

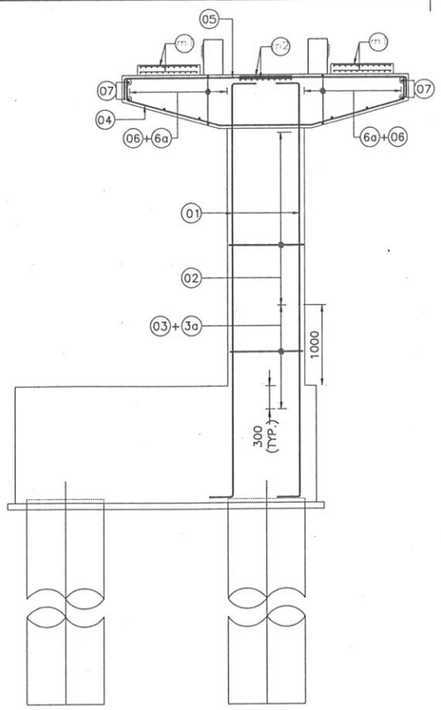
SCALE:- AS SHOWN

TITLE:- DIMENSION & REINFORCEMENT DETAILS OF ABUTMENT & FOUNDATION FOR P1 TO P4 FOR MINOR BRIDGE (WIDENING PORTION) AT CH. 303+490 (SCH-B CH. 303+200) (AMONI RIVER)

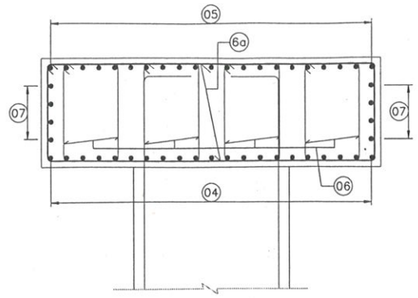
DRAWING NO.:- AECOM-DELD15159-STR-DWG-MNB-303+200-SUB-02 (SH1 OF 4) — REV. R1



REINFORCEMENT DETAILS OF PIER
(SCALE 1:50)



SECTION A-A
(CORBEL R/F OF ABUTMENT CAP NOT SHOWN FOR CLARITY)
(SCALE 1:50)



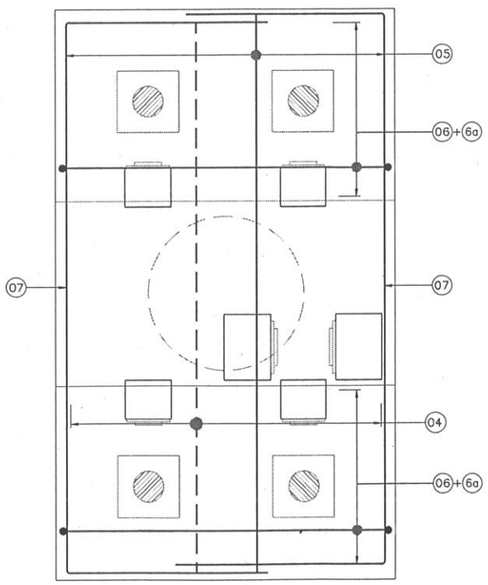
DETAIL - '1'
(NO. OF BARS TO BE REFERRED FROM TABLE)
(SCALE 1:25)

BAR SHAPE SCHEDULE

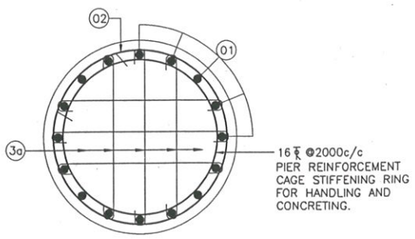
BAR MARK	DESCRIPTION	BAR SHAPE	REMARKS	
01	32ϕ–28 Nos	300 300		PIER SHAFT
02	10ϕ @125 c/c			PIER SHAFT
03	20ϕ @90 c/c			PIER SHAFT
3a	3L–8ϕ @90 c/c (Long. & Trans.)			PIER SHAFT
04	12ϕ–21 Nos.	200 200		PIER CAP
05	20ϕ–21 Nos.	200 200		PIER CAP
06	4 NOS.–2L–16 @100c/c			PIER CAP
6a	2L–16ϕ @100c/c			PIER CAP
07	12ϕ @150 c/c	300 300	EACH FACE	PIER CAP
08	16ϕ @125 c/c	150 150		PEDESTAL
09	12ϕ @150 c/c		(IN 3 LAYER)	PEDESTAL

IMPORTANT NOTE:
REINFORCEMENT DETAILS TO BE REFERRED ONLY FROM TABLE

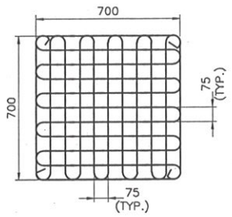
LEGEND:-
- - - - - - - BOTTOM FACE
——————— TOP FACE



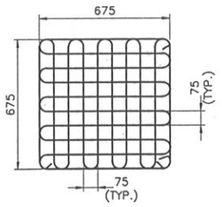
TOP PLAN OF PIER CAP
(SCALE 1:25)



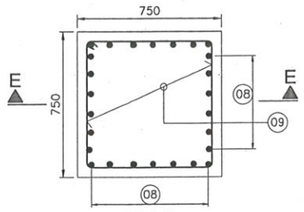
SECTION B-B
(SCALE 1:20)



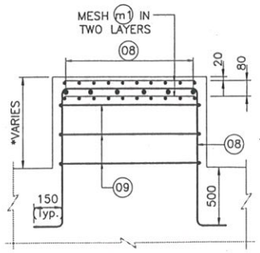
8 ϕ MESH (m1) FOR PEDESTAL
(UNDER BEARING LOCATION TWO LAYERS ONE AT 20MM & ANOTHER AT 80MM FROM TOP)
(SCALE: 1:20)



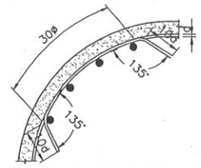
8 ϕ MESH (m2)
(UNDER JACK LOCATION TWO LAYERS ONE AT 20MM & ANOTHER AT 80MM FROM TOP)
(SCALE 1:20)



PLAN
(SHOWING REINF. IN BRG. PEDESTAL)
(SCALE 1:20)



SECTION E-E
(*MINIMUM=350–HT. OF BRG.)
(SCALE 1:20)



LAP DETAILS OF SPIRAL
(SCALE 1:15)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

Rev.	Date	Description on Revisions
R1	30-04-2021	AS PER PC COMMENTS
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CONSULTANT:- CETEST — AUTHORISED SIGNATORY | DATE

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd — AUTHORISED SIGNATORY | DATE

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CONSULTANT:- AECOM India Private Limited, Gurgaon — 9th Floor, Infinity Tower C DLF Cyber City DLF Phase II, Gurgaon-122002, Haryana, India

DRAWN	DESIGN	CHECKED BY	APPROVED BY
R. BEHRAL	R. MAGAAN	S. P. SINGH	S. RASTOGI

SCALE:- AS SHOWN

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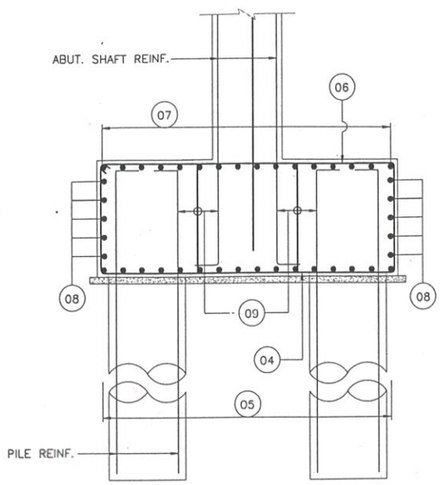
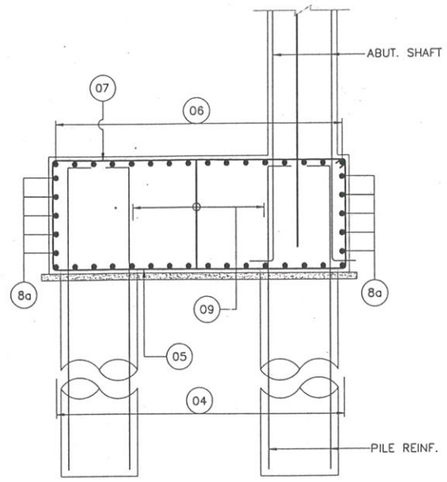
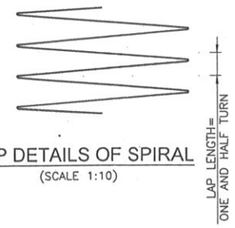
DRAWING NO.:- AECOM-DELD15159-STR-DWG-MNB-303+200-SUB-02 (SH2 OF 4) — REV. R1



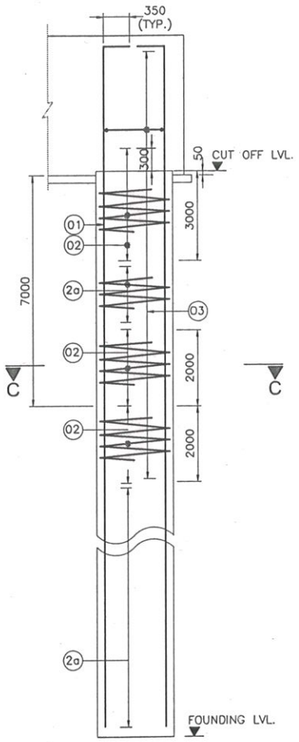
SECTION A-A
(SCALE 1:50)



SECTION B-B
(SCALE 1:50)



LAP DETAILS OF SPIRAL
(SCALE 1:10)



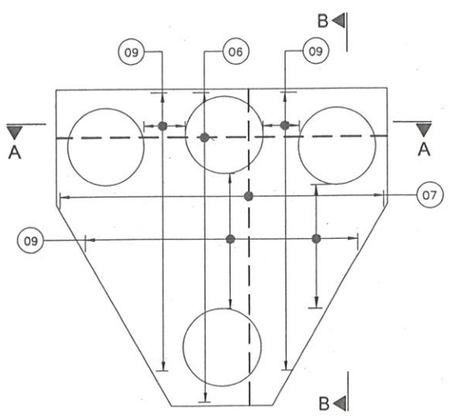
REINF. DETAILS OF PILE SHAFT
(SCALE 1:50)

BAR SHAPE SCHEDULE

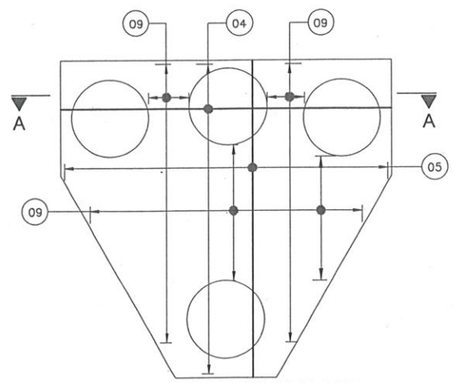
BAR MRKD.	DESCRIPTION	BAR SHAPE	
01	20ϕ–16 Nos.	350	PILE
1a	NOT IN USE		PILE
02	10ϕ+10ϕ@100c/c (BUNDLE)	100	PILE
2a	8ϕ@150c/c	150	PILE
03	NOT IN USE		PILE
04	10ϕ@150c/c	1000 1000	PILE CAP
05	20ϕ@150c/c	1000 1000	PILE CAP
06	10ϕ@150c/c	1200 1200	PILE CAP
07	20ϕ@150c/c	1200 1200	PILE CAP
08	12ϕ@150c/c	300 300	PILE CAP
8a	12ϕ@150c/c	300 300	PILE CAP
09	8@150 C/C IN LONG.DIREC. 8@150 C/C IN TRANSV DIREC.	50 50	PILE CAP

IMPORTANT NOTE:
REINFORCEMENT DETAILS TO BE REFERRED ONLY FROM TABLE

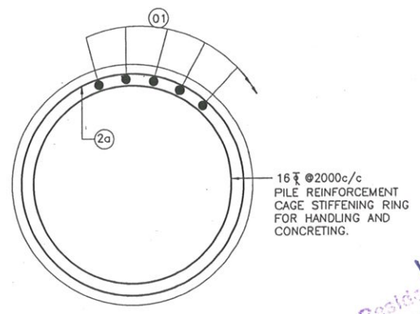
LEGEND:-
— — — — BAR ON TOP FACE
———— BAR ON BOTTOM FACE



TOP PLAN OF PILE CAP
(SCALE 1:50)



BOTTOM PLAN OF PILE CAP
(SCALE 1:50)



SECTION C-C
(SCALE 1:20)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

LOCATION	LENGTH OF PILE (m)	DESIGN VERTICAL LOAD (t)		VERTICAL LOAD CARRYING CAPACITY (t) (AS PER GEOTECH REPORT)		LATERAL DEFLECTION OF PILE AT SCOUR LEVEL (mm)	PERMISSIBLE LATERAL DEFLECTION OF PILE AT SCOUR LEVEL (mm)
		NORMAL	SEISMIC	NORMAL	SEISMIC		
P1 TO P4	20.00	224.0	166.0	360	450	9.91	10.0

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PROOF CHECK CONSULTANT:- ETEST — AUTHORISED SIGNATORY | DATE

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CONSULTANT: AECOM India Private Limited, Gurgaon — 9th Floor, Infinity Tower B, DLF Cyber City, DLF Phase II, Gurgaon-122002, Haryana, India
DRAWN: R. BENWAL | DESIGN: R. MADAAN | CHECKED BY: S. P. SINGH | APPROVED BY: S. PARTOGI

SCALE:- AS SHOWN

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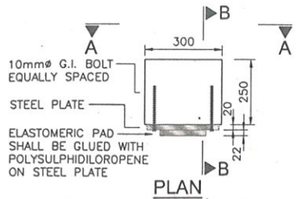
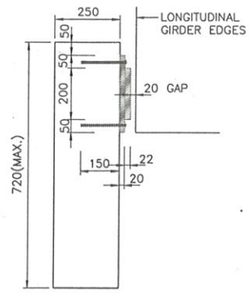
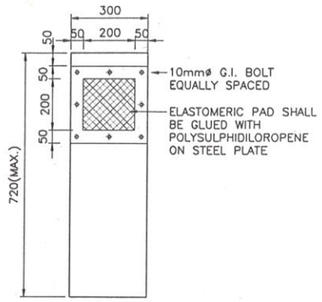
DRAWING NO.:- AECOM-DELD15159-STR-DWG-MNB-303+200-SUB-02 (SH3 OF 4) — REV. R1



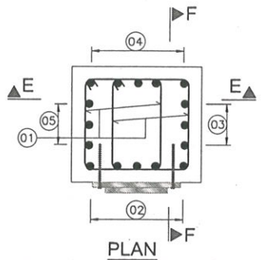
PLAN
(TRANSVERSE SEISMIC STOPPER)
(SCALE 1:15)



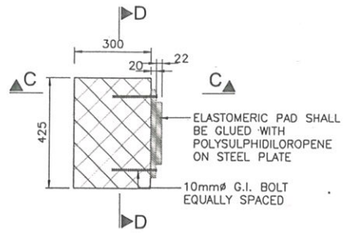
SECTION B-B
(TRANSVERSE SEISMIC STOPPER)
(SCALE 1:15)



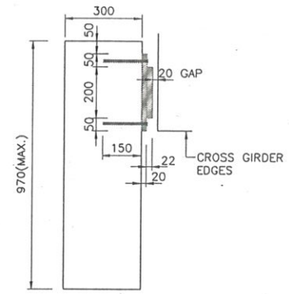
SECTION A-A
(TRANSVERSE SEISMIC STOPPER)
(SCALE 1:15)



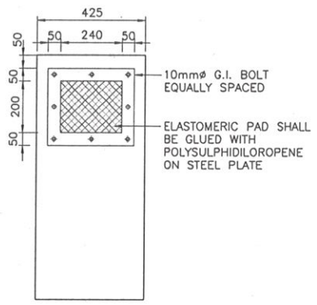
PLAN
(REINF. IN TRANSVERSE SEISMIC STOPPER)
(SCALE 1:15)



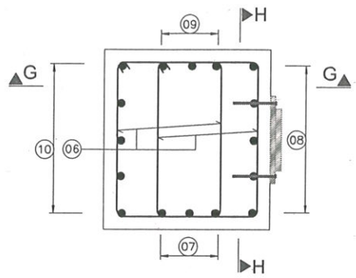
PLAN
(LONGITUDINAL SEISMIC STOPPER)
(SCALE 1:15)



SECTION C-C
(LONGITUDINAL SEISMIC STOPPER)
(SCALE 1:15)



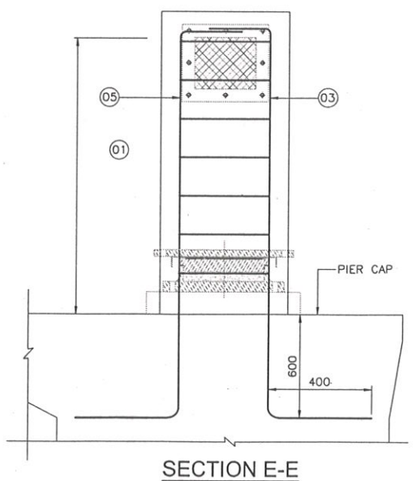
SECTION D-D
(LONGITUDINAL SEISMIC STOPPER)
(SCALE 1:15)



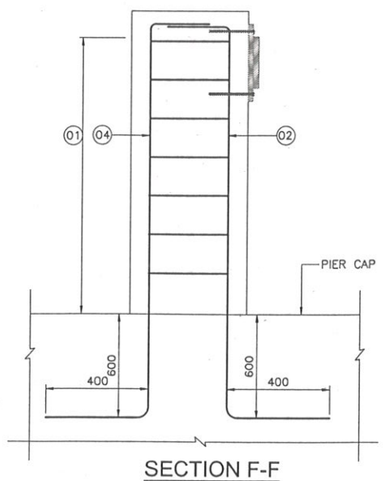
PLAN
(REINF. IN LONGITUDINAL SEISMIC STOPPER)
(SCALE 1:15)

BAR SHAPE SCHEDULE

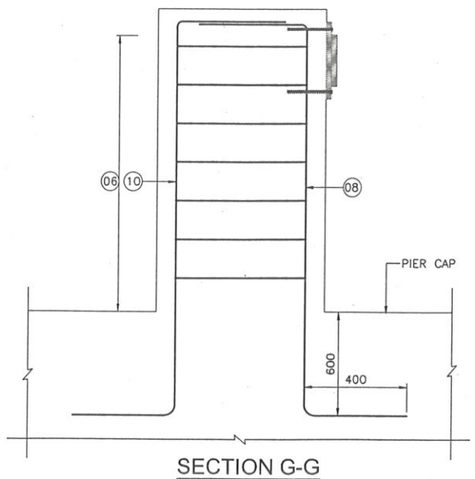
BAR MRKD.	DESCRIPTION	BAR SHAPE	REMARKS
01	2L-10ø@130 C/C		
02	20ø-5 NOS.	250 450	
03	12ø-4 NOS.	100 400	
04	12ø-5 NOS.	250 400	
05	12ø-4 NOS.	100 450	
06	2L-10ø@150 C/C		
07	12ø-4 NOS.	100 400	
08	25ø-6 NOS.	250 400	
09	12ø-4 NOS.	100 450	
10	25ø-6 NOS.	250 450	



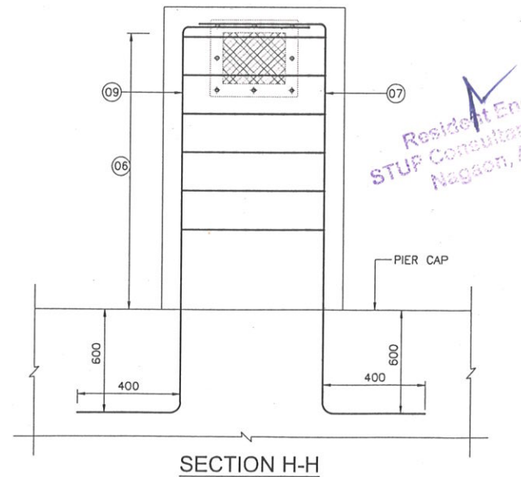
SECTION E-E
(SCALE 1:15)



SECTION F-F
(SCALE 1:15)



SECTION G-G
(SCALE 1:15)



SECTION H-H
(SCALE 1:15)

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

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R0	06-04-2021	INITIAL SUBMISSION

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Coporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd.

AUTHORISED SIGNATORY | DATE

CHECK CONSULTANT:- TETST TESTING COMPANY PVT. LTD

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SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd

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EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

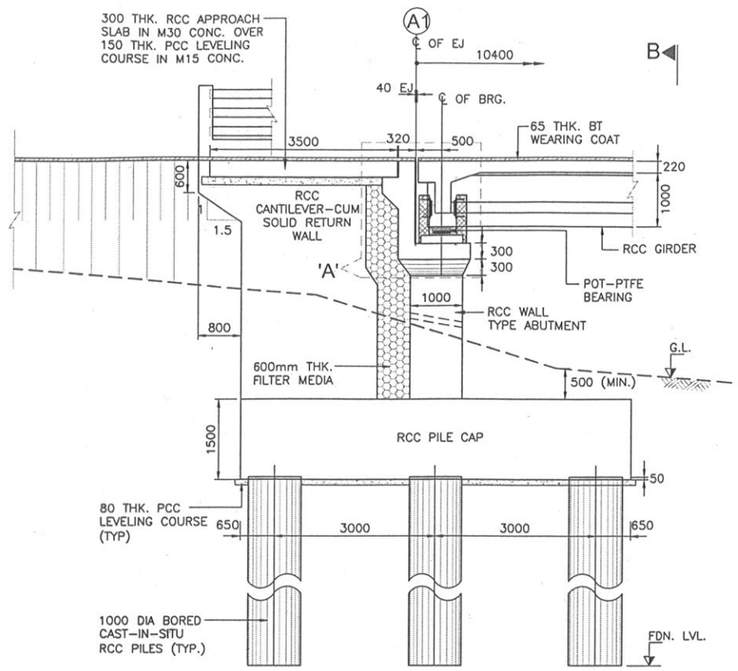
CONSULTANT:- AECOM India Private Limited, Gurgaon, 9th Floor, Infinity Tower D, DLF Cyber City, DLF Phase II, Gurgaon 122002, Haryana, India

R. BENIWAL	R. MADAAN	S. P. SINGH	P. RASTOGI
DRAWN	DESIGN	CHECKED BY	APPROVED BY

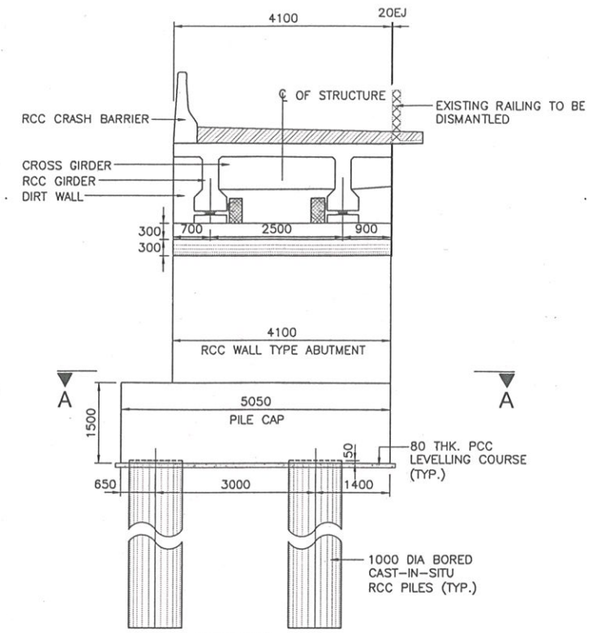
SCALE:- AS SHOWN

TITLE:- DIMENSION & REINFORCEMENT DETAILS OF ABUTMENT & FOUNDATION FOR P1 TO P4 FOR MINOR BRIDGE (WIDENING PORTION) AT CH. 303+490 (SCH-B CH. 303+200) (AMONI RIVER)

DRAWING NO.:- AECOM-DELD15159-STR-DWG-MNB-303+200-SUB-02 (SH4 OF 4) REV. R1



LONGITUDINAL ELEVATION
(SCALE 1:75)



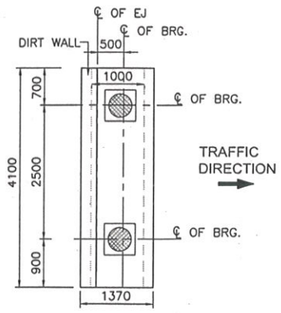
VIEW B-B
SCALE 1:75

NOTES:-

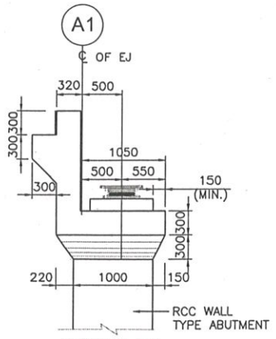
1. ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THE REINFORCEMENT SHALL BE HYSD BARS OF GRADE DESIGNATION Fe 500D CONFORMING TO IS 1786-2008.
4. CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH FOR DIFFERENT ELEMENTS AS FOLLOWS:
   - a.RCC ABUT. & ABUT. CAP — M35
   - b.RCC PILE & PILE CAP — M35
   - c.RCC CRASH BARRIER — M40
   - d.PCC LEVELING COURSE — M15
   - e.RCC PEDESTALS — M40
   - f. RCC SEISMIC STOPPER — M35
5. CLEAR COVER TO OUTER STEEL SHALL BE AS FOLLOWS:-
   - a.RCC ABUT. STEM EARTH SIDE — 75MM
   - b.RCC ABUT. OUTER SIDE — 75MM
   - c.RCC ABUT. CAP — 40MM
   - d.RCC SEISMIC STOPPERS — 40MM
   - e.RCC PILE & PILE CAP — 75MM
   - f. RCC CRASH BARRIER — 40MM
6. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SOLID ABUTMENT WALL & RETURN WALLS.
7. ALL SOLID WALLS RETAINING THE EARTH SHALL BE PROVIDED WITH WEEP HOLES (100MM DIA AND SLOPE 1V:20H) STARTING 150MM ABOVE THE GROUND LEVEL AND SPACED 1000MM C/C BOTH HORIZONTALLY AND VERTICALLY IN STAGGERED MANNER.
8. PERMANENT STEEL LINER 6MM THK. SHALL BE PROVIDED UPTO MAX. SCOUR LEVEL IN PILES.
9. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE. IN CASE LAPPING OF BARS BECOME UNAVOIDABLE, NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION. LAP LENGTH SHALL BE PROVIDED AS PER CLAUSE 15.2.5 IRC:112-2011:
   - * 1.5x36ø (GRADE M35) FAVOURABLE CONDITION
   - * 1.5x1.43x36ø (GRADE M35) UNFAVOURABLE CONDITION
10. ANCHORAGE LENGTH SHALL BE AS PER CLAUSE 15.2.3 & 15.2.4, IRC:112-2011:
   - * 36ø (GRADE M35) FAVORABLE CONDITION
   - * 1.43x36ø (GRADE M35) UNFAVORABLE CONDITION

LEVEL DETAILS

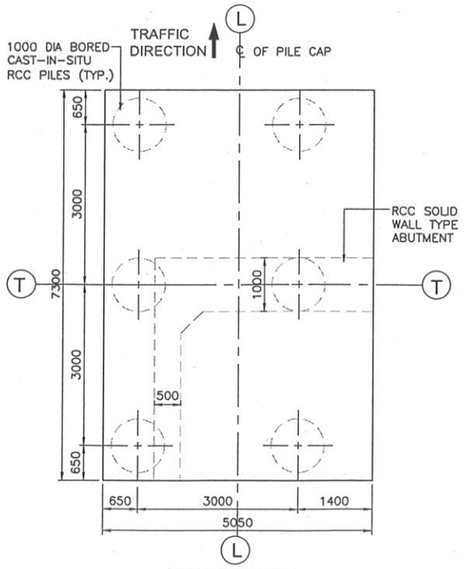
LEVELS	FOR RHS WIDENING C/W	
	A1	A2
FRL	68.812	68.778
ABUTMENT CAP TOP LVL.	67.170	67.137
GL	65.694	65.604
PILE CAP TOP LVL.	64.825	64.825
FDN. LEVEL	37.622	37.622
ALL LEVELS SHALL BE VERIFIED AT SITE BEFORE EXECUTION OF WORK.		



PLAN OF ABUTMENT CAP
(SCALE 1:75)



DETAIL-'A'
(SCALE : 1:50)



SECTION A-A
PLAN OF ABUTMENT, PILE CAP & PILES
(SCALE 1:75)

REFERENCE DRAWINGS

1.) GENERAL ARRANGEMENT DRAWING:-
AECOM/STR/MNB RHS/303+200/GAD/01 (SH1 & 2)
2.) SUPERSTRUCTURE:-
AECOM/STR/MNB RHS/303+200/SUP/01 (SH1 TO 7)
3.) SUBSTRUCTURE:-
AECOM/STR/MNB RHS/303+200/SUB/01 (SH 1 TO 4)

LEGEND:-

- BEARING IN PLAN
- POT-CUM-PTFE BEARING IN ELEVATION
- JACK LOCATION IN PLAN
- JACK LOCATION IN ELEVATION
- BRG - BEARING
- EJ - EXPANSION JOINT
- LVL - LEVEL
- ABUT - ABUTMENT
- FRL - FINISHED ROAD LEVEL
- FDN - FOUNDATION
- LVL - LEVEL
- C/W - CARRIAGEWAY
- BT - BITUMINOUS

STUP Resident Engineer STU Nagaon, Nagaon

AECOM India Private Limited Gurgaon

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PROOF CHECK CONSULTANT: C.L. TESTING CO. PVT. LTD. KOLKATA

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R. BENIWAL	S. P. SINGH	S. YADAV	S. RASTOGI

SCALE:- AS SHOWN

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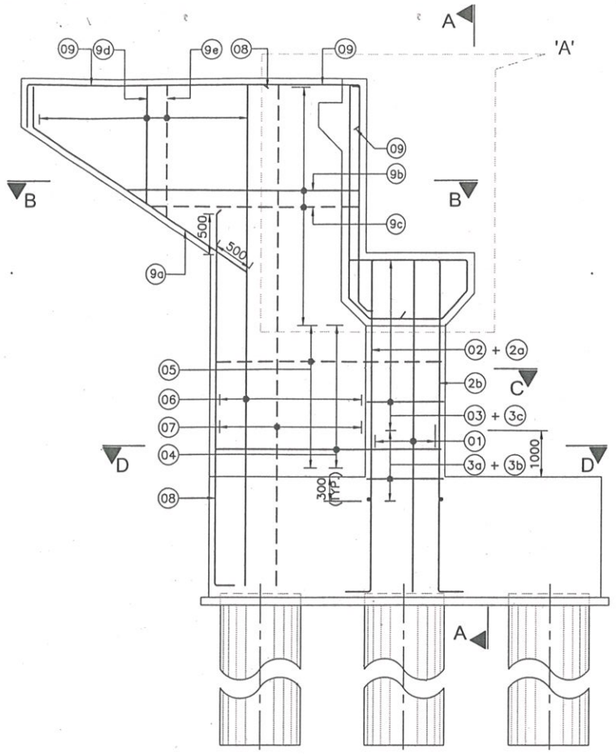
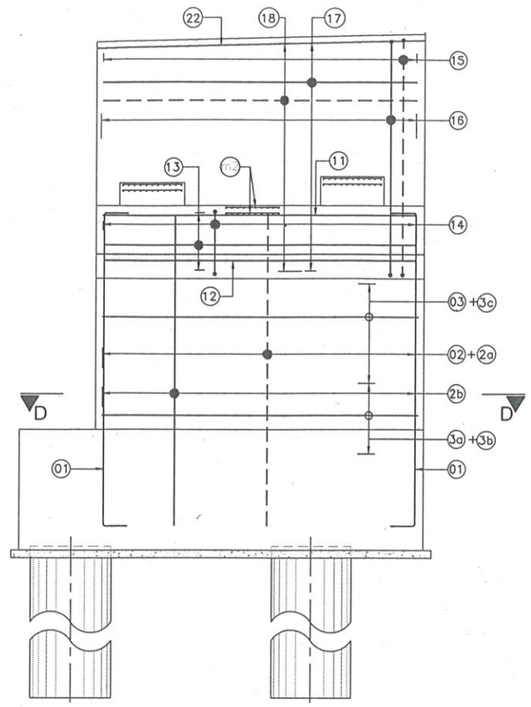
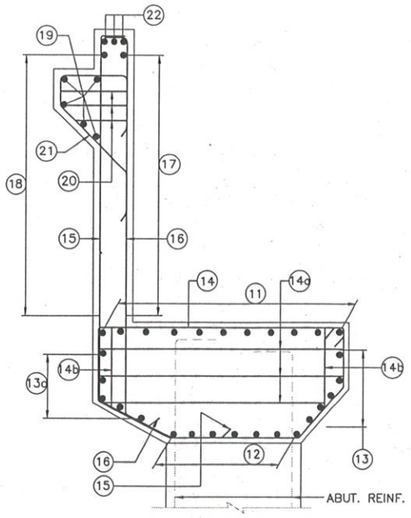
DRAWING NO.:- AECOM-DELD15159-STR-DWG-MNB RHS-303+490-SUB-01 (SH1 OF 4) REV. R0



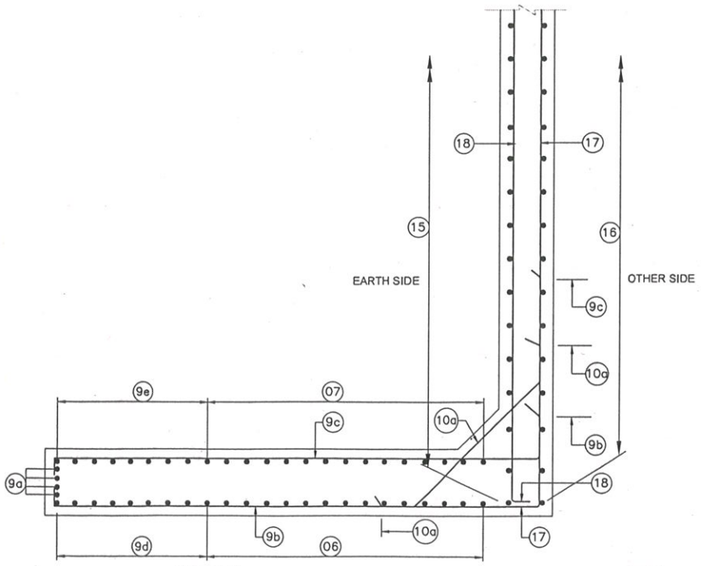
REINFORCEMENT DETAILS OF ABUTMENT
(SCALE 1:50)



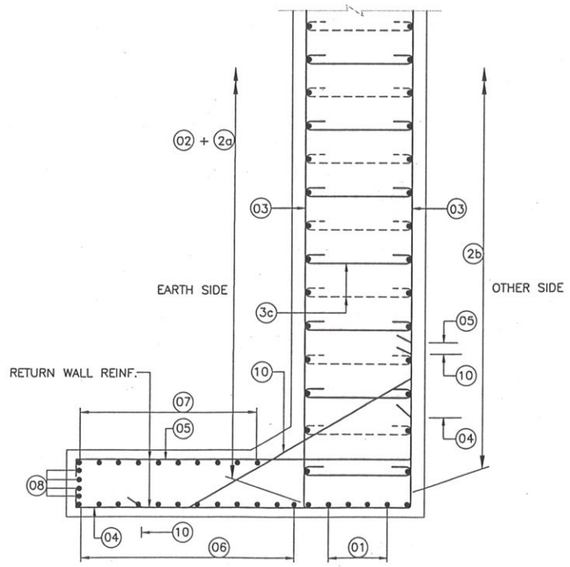
SECTION A-A
(CORBEL R/F OF ABUTMENT CAP NOT SHOWN FOR CLARITY)
(SCALE 1:50)



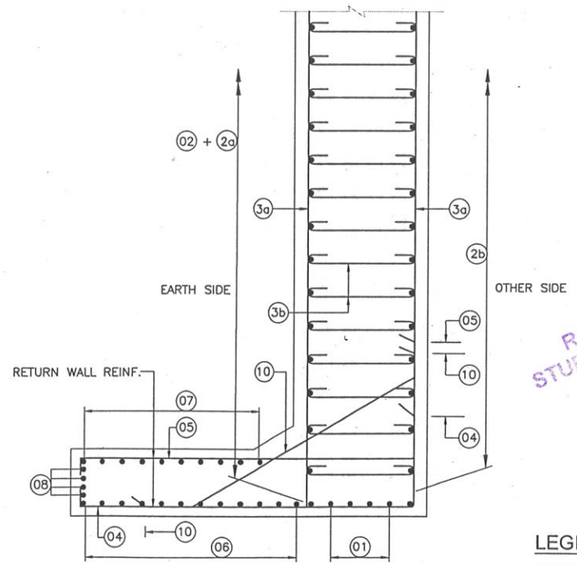
DETAIL - 'A'
(SCALE 1:30)



SECTION B-B
(SCALE 1:30)



SECTION C-C
(SCALE 1:30)



SECTION D-D
(SCALE 1:30)

LEGEND:-
- - - - - - - EARTH SIDE
——— OTHER SIDE

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

AECOM India Private Limited
Gurgaon

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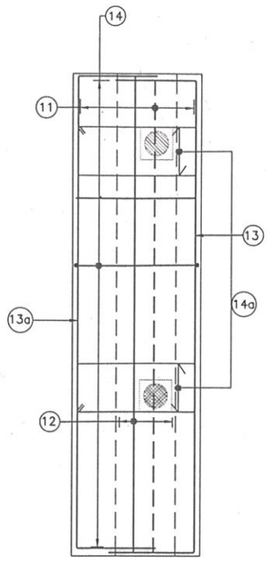
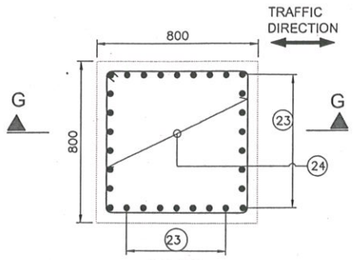
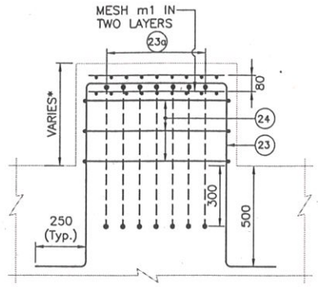


TOP PLAN OF ABUTMENT CAP

(SCALE 1:50)

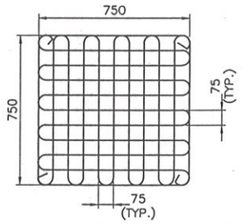


PLAN
(SHOWING REINF.IN PEDESTAL FOR FREE BEARING)
(SCALE 1:20)



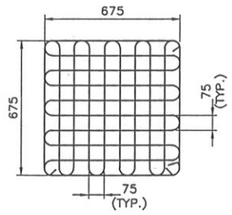
SECTION G-G

(*MINIMUM = 350 – HT. OF BRG.)
(SCALE: 1:20)



8 ϕ MESH (m1) FOR PEDESTAL

(UNDER BEARING LOCATION TWO LAYERS ONE AT 20MM & ANOTHER AT 80MM FROM TOP)
(SCALE: 1:20)



8 ϕ MESH (m2)

(UNDER JACK LOCATION TWO LAYERS ONE AT 20MM & ANOTHER AT 80MM FROM TOP)
(SCALE 1:20)

BAR SHAPE SCHEDULE

BAR MARK	DESCRIPTION	BAR SHAPE	REMARKS	
01	16ϕ–6 Nos x 2	300 300		ABUTMENT SHAFT
02	25ϕ–17 Nos.	300 300		
2a	25ϕ–17 Nos.	300 300		
2b	16ϕ–34 Nos.	300 300		
03	12ϕ @80 c/c			
3a	12 ϕ @80 c/c			
3b	10 ϕ 32Nos. HORIZONTALLY @80 c/c VERTICALLY			
3c	10 ϕ 16Nos. HORIZONTALLY @80 c/c VERTICALLY		STAGGERED ALONG HEIGHT	
04	12ϕ @170 c/c	200 1000		RETURN WALL
05	12ϕ @170 c/c	200 500		
06	12ϕ @160 c/c	200 200		
07	12ϕ @160 c/c	200 200		
08	12ϕ–4 Nos.	200 200		
09	20ϕ–4 Nos.	400 500		
9a	12ϕ–4 Nos.	400		
9b	12ϕ @170 c/c	200 200		
9c	12ϕ @170 c/c	200 200		
9d	12ϕ @160 c/c	200 200		
9e	12ϕ @160 c/c	200 200		
10	10ϕ @170 c/c	300 300		
10a	10ϕ @170 c/c	300 300		
11	16ϕ–9 Nos.	500 500		ABUTMENT CAP
12	16ϕ–3 Nos.	300 300		
13	16ϕ–3 Nos.	A A	A=900 TO 500 VARIES	
13a	16ϕ–3 Nos.	A A	A=900 TO 500 VARIES	
14	16ϕ @110 c/c			
14a	12 Nos.–2L 10ϕ IN TRANS. DIR. @250 IN VERTICAL DIR.		IN TWO LAYERS	
14b	12 Nos.–2L 10ϕ IN TRANS. DIR. @250 IN TRAFFIC DIR.		IN ONE LAYERS	DIRT WALL & BRACKET
15	16ϕ @200 c/c	150 500		
16	12ϕ @200 c/c	150 200		
17	12ϕ @200 c/c	150 150		
18	12ϕ @200 c/c	150 150		
19	12ϕ–5 Nos.			
20	2L–10ϕ @400c/c	400 200		
21	12ϕ @200 c/c	400 300		
22	20ϕ–3 Nos.	300 300		
23	16ϕ@ 8Nos	250 250		PEDESTAL
23a	12ϕ@ 7Nos	150 150		
24	2L–10ϕ@150c/c VERTICALLY		IN 3 LAYER	

IMPORTANT NOTE:
REINFORCEMENT DETAILS TO BE REFERRED ONLY FROM TABLE

Resident Engineer
STUP Consultants Pvt. Ltd.
Nagaon, Assam

AECOM India Private Limited
Gurgaon

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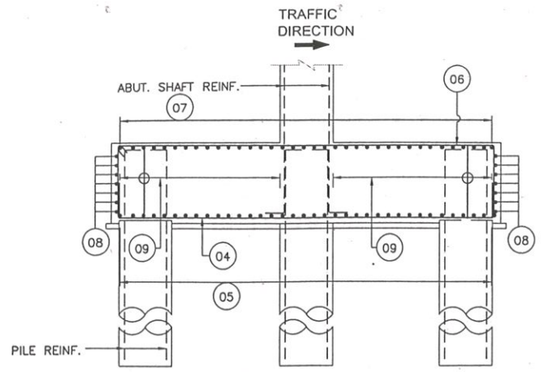
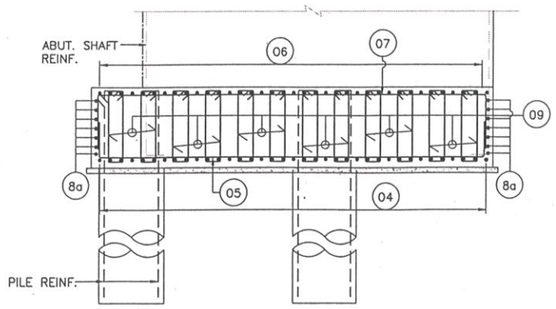
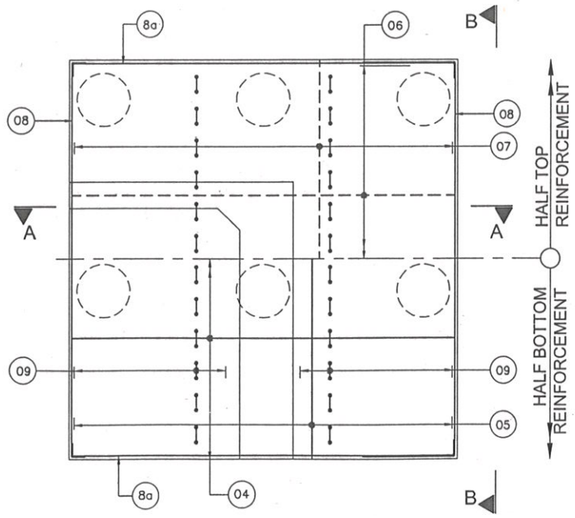


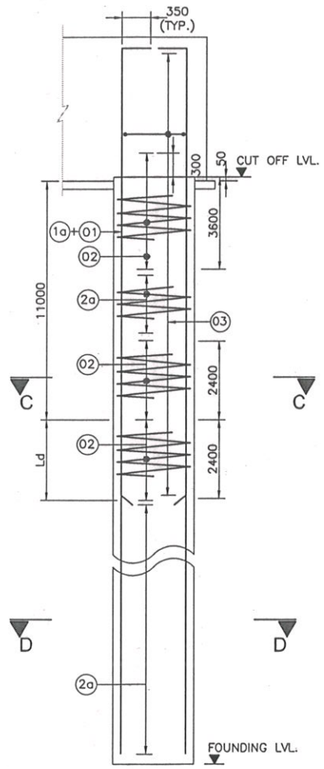
SECTION A-A
(SCALE 1:75)



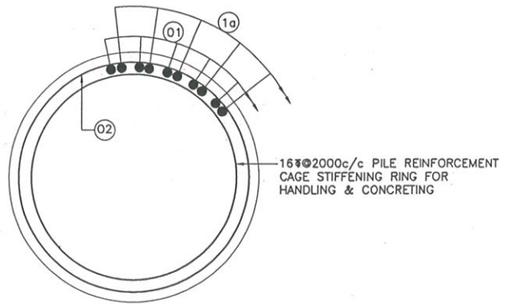
SECTION B-B
(SCALE 1:75)



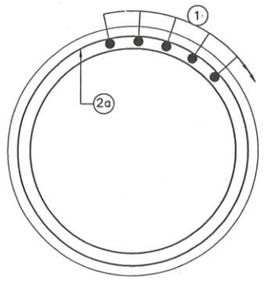
TOP PLAN OF PILE CAP
(SCALE 1:75)



REINF. DETAILS OF PILE SHAFT
(SCALE 1:50)



SECTION C-C
(SCALE 1:20)



SECTION D-D
(SCALE 1:20)

BAR SHAPE SCHEDULE

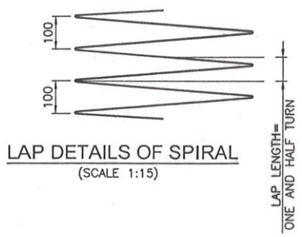
BAR MRKD.	DESCRIPTION	BAR SHAPE	
01	32⌀–11 Nos.	350	PILE
1a	32⌀–11 Nos.	350	PILE
02	12+12 @100c/c		PILE
2a	12⌀@100c/c		PILE
03	NOT IN USE		PILE
04	25⌀@180c/c	000	PILE CAP
05	16⌀@150c/c	000	PILE CAP
06	20⌀@180c/c	1600	PILE CAP
07	20⌀@150c/c	1600	PILE CAP
08	12⌀@150c/c	300 300	PILE CAP
8a	12⌀@180c/c	300 300	PILE CAP
09	2L–10⌀ 9Nos. IN TRANSV. DIRECTION @250c/c IN TRAFFIC DIRECTION		PILE CAP

IMPORTANT NOTE:
REINFORCEMENT DETAILS TO BE REFERRED ONLY FROM TABLE

LEGEND:-

– – – – – – BAR ON TOP FACE
———— BAR ON BOTTOM FACE

$Ld = 1.43 \times 40 \times 32 \times 2^{0.5} = 2589 \approx 3000MM$



LAP DETAILS OF SPIRAL
(SCALE 1:15)

LOCATION	LENGTH OF PILE (m)	DESIGN VERTICAL LOAD (t)		VERTICAL LOAD CARRYING CAPACITY (t) (AS PER GEOTECH REPORT)		LATERAL DEFLECTION OF PILE AT SCOUR LEVEL (mm)	PERMISSIBLE LATERAL DEFLECTION OF PILE AT SCOUR LEVEL (mm)
		NORMAL	SEISMIC	NORMAL	SEISMIC		
A1 & A2	25.7	83	86	540	675	5.37	10.0

AECOM India Private Limited Gurgaon

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STUP Consultants Pvt. Ltd.
Nagaon, Assam

Rev.	Date	Description on Revisions
R0	NOV. 2018	INITIAL SUBMISSION

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Coporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd.

AUTHORISED SIGNATORY | DATE

PROJECT CHECK CONSULTANT:- TESTING CO. KOLKATA-700 092

AUTHORISED SIGNATORY | DATE

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd

AUTHORISED SIGNATORY | DATE

PROJECT: FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH: 297.000 KM TO CH: 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LIMITED, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

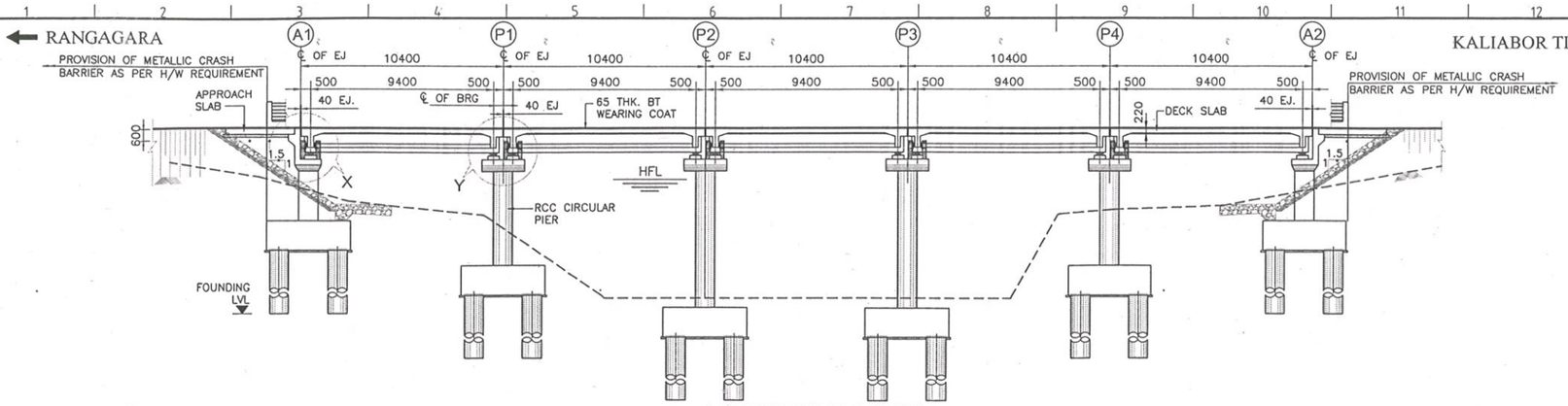
CONSULTANTS:- AECOM, 9th Floor, Infinity Tower C DLF Cyber City, DLF Phase II, Gurgaon-122002, Haryana, India

DRAWN	DESIGN	CHECKED BY	APPROVED BY
R. BENIWAL	S. P. SINGH	S. YADAV	S. RASTOGI

SCALE:- AS SHOWN

TITLE:- DIMENSION & REINFORCEMENT DETAILS OF RHS ABUTMENT & FOUNDATION FOR A1 & A2 FOR MINOR BRIDGE AT CH. 303+490 (SCH-B CH. 303+200)

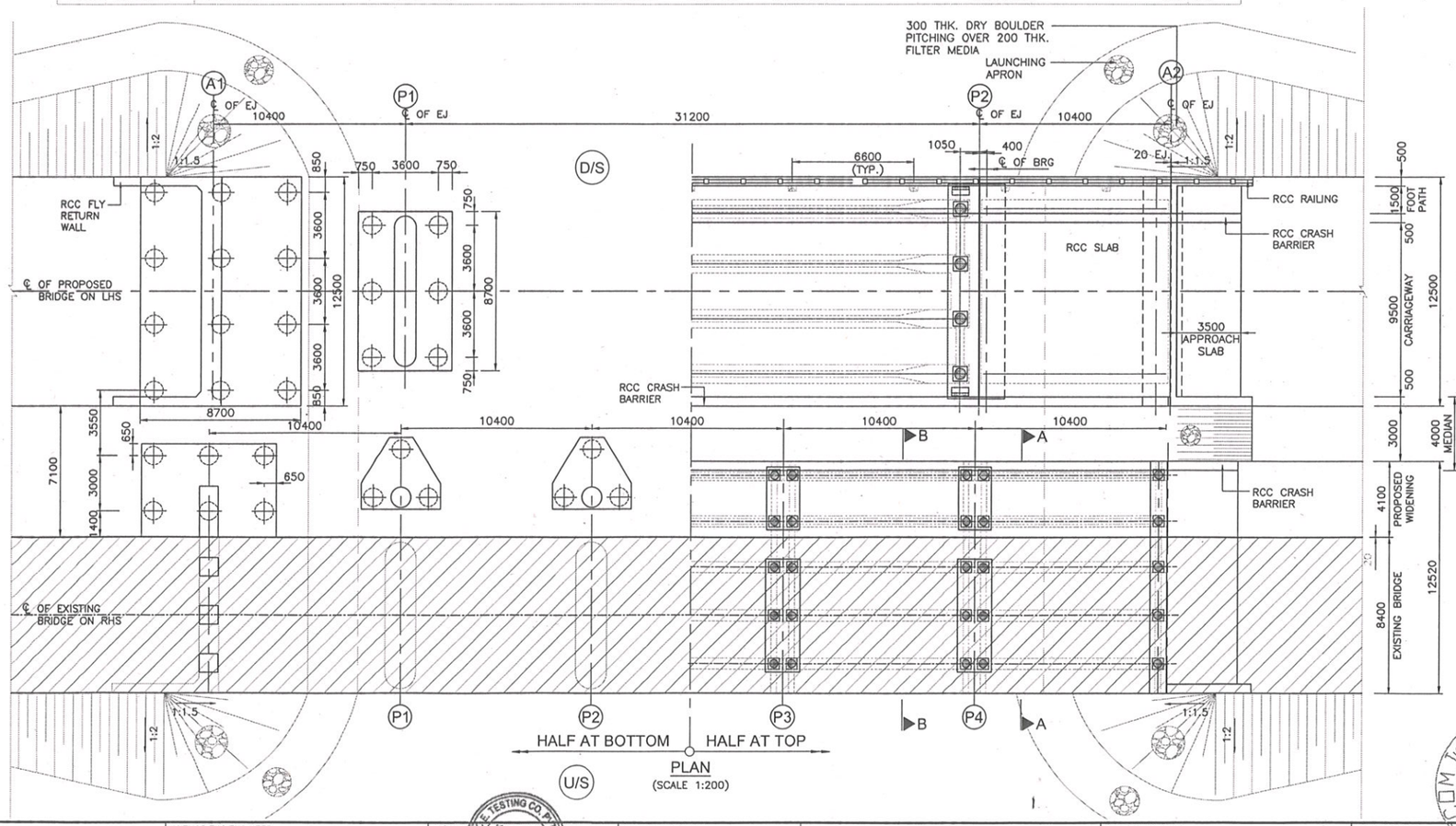
DRAWING NO.:- AECOM-DELD15159-STR-DWG-MNB RHS-303+490-SUB-01 (SH4 OF 4) | REV. R0



LONGITUDINAL ELEVATION

(SCALE 1:200)

FRL	RHS	68.812	68.834	68.833	68.830	68.814	68.778
GL/BL		65.694	63.570	60.087	58.976	60.080	64.574	65.604
PILE CAP TOP LVL.		64.825	58.976	58.976		58.976	58.976	64.825
FOUNDING LVL.		37.622	32.476	32.476		32.476	32.476	37.622
DESIGN CHAINAGE		303+464	303+474.4	303+484.8	303+490	303+495.2	303+505.6	303+516



PLAN

(SCALE 1:200)

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THE DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY PLAN AND PROFILE DRAWINGS. FRL, BED LEVEL, CAMBER/SUPERELEVATION AND LAYOUT SHALL ALSO BE VERIFIED AT SITE BEFORE EXECUTION. DISCEPANCIES SHALL BE BROUGHT TO THE NOTICE OF THE ENGINEER FOR REVISION IN DRAWINGS, IF ANY.
4. CHAINAGE OF THE STRUCTURE IS AT THE CENTER LINE OF THE PROPOSED STRUCTURE.
5. THE REINFORCEMENT SHALL BE HYSD BARS OF GRADE DESIGNATION Fe 500D CONFORMING TO IS 1786–2008.
6. CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH FOR DIFFERENT ELEMENTS AS FOLLOWS:
   - a. RCC GIRDER — M35
   - b. RCC DECK SLAB & CROSS GIRDER — M35
   - c. RCC SOLID SLAB — M35
   - d. RCC ABUT. & ABUT. CAP — M35
   - e. RCC PILE & PILE CAP — M35
   - f. RCC CRASH BARRIER — M40
   - g. RCC APPROACH SLAB — M30
   - h. PCC LEVELING COURSE — M15
   - i. RCC PEDESTALS — M40
   - j. RCC SEISMIC STOPPER — M35
7. CLEAR COVER TO OUTER STEEL SHALL BE AS FOLLOWS:–
   - a. SUPERSTRUCTURE — 40MM
   - b. RCC ABUT. STEM EARTH SIDE — 75MM
   - c. RCC ABUT. OUTER SIDE — 75MM
   - d. RCC ABUT. CAP — 40MM
   - e. SEISMIC STOPPERS — 40MM
   - f. PILE & PILE CAP — 75MM
   - g. CRASH BARRIER — 40MM
8. 65mm THK. BITUMINOUS WEARING COAT SHALL BE ADOPTED IN CONFORMITY WITH SECTION 2702 OF MORTH SPECIFICATIONS.
9. DRAINAGE SPOUT 100MM DIA SPACED 5000MM C/C SHALL BE PROVIDED IN SUPERSTRUCTURE.
10. CONDITION OF EXPOSURE IS MODERATE.
11. THIS STRUCTURE LIES IN SEISMIC ZONE V.
12. FORMATION LEVEL SHOWN IS AT MEDIAN EDGE.
13. THE STRUCTURE HAS BE DESIGNED FOR LIVE LOAD COMBINATIONS CONFORMING TO IRC: 6–2014.
14. SINGLE STRIP SEAL TYPE EXPANSION JOINT SHALL BE PROVIDED AS PER MODIFIED INTERIM SPECIFICATION FOR EXPANSION JOINTS ISSUED VIDE "MORTH" CIRCULAR NO. RW/NH–34059/1/98–S&R DATED 30–11–2000 & 25–01–2001.
15. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SOLID ABUTMENT WALL & RETURN WALLS.
16. ALL SOLID WALLS RETAINING THE EARTH SHALL BE PROVIDED WITH WEEP HOLES (100MM DIA AND SLOPE 1V:20H) STARTING 150MM ABOVE THE GROUND LEVEL AND SPACED 1000MM C/C BOTH HORIZONTALLY AND VERTICALLY IN STAGGERED MANNER.
17. TAR PAPER BEARING SHALL BE PROVIDED BETWEEN APPROACH SLAB & BRACKET.
18. THE MAXIMUM PILE LOAD (TONNES) AS PER DESIGN IS:

NORMAL		SEISMIC	
A1	A2	A1	A2
134		149	

WHICH IS LESS THAN PILE LOAD CAPACITY AT FOUNDING LEVEL AS PER GEOTECH REPORT.

19. PERMANENT STEEL LINER 6MM THK. SHALL BE PROVIDED UPTO MAX. SCOUR LEVEL.
20. FOR DETAILS OF FLOOR PROTECTION WORKS SUCH AS LAUNCHING APRON, REFER SEPARATE DRAWING.

REFERENCE DRAWINGS:

1.) SUPERSTRUCTURE:–
AECOM–DELD15159–STR–DWG–MNB–303+200–SUP–01 (SH1 TO 8)

2.) SUBSTRUCTURE:–
AECOM–DELD15159–STR–DWG–MNB–303+200–SUB–01 (SH1 TO 5)

3.) MISCELLANEOUS DWGS.
AECOM–DELD15159–MISC–01

4.) GAD LHS NEW 2 LANE BRIDGE:–
AECOM–DELD15159–STR–DWG–MNB–303+200–GAD–01

5.) LAUNCHING APRON
AECOM–DELD15159–STR–DWG–MNB–303+200–APRON–01

LEGEND:-

FRL	–	FINISHED ROAD LEVEL
GL.	–	GROUND LEVEL
LVL.	–	LEVEL
FDN	–	FOUNDATION.
EJ	–	EXPANSION JOINT
LBL	–	LOWEST BED LEVEL
HFL	–	HIGHEST FLOOD LEVEL
H/W	–	HIGHWAY
MSL	–	MAXIMUM SCOUR LEVEL
BT	–	BITUMINOUS

Resident Engineer
STUP Consultants P. Ltd
Nagaon, Assam

AECOM India Private Limited Gurgaon

Rev.	Date	Description on Revisions
R1	DEC. 2020	LONGITUDINAL EXPANSION JOINT ADDED
R0	MARCH 2018	FIRST SUBMISSION

Revisions

CLIENT:- NATIONAL HIGHWAYS & INFRASTRUCTURE (Development Coporation Ltd)

AUTHORITY'S ENGINEER: STUP Consultants P. Ltd & Ayoleeza Consultants P. Ltd.

AUTHORISED SIGNATORY | DATE

PROOF CHECK CONSULTANT: Geotechnical Testing Co. Pvt. Ltd. Kolkata

AUTHORISED SIGNATORY | DATE

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd

AUTHORISED SIGNATORY | DATE

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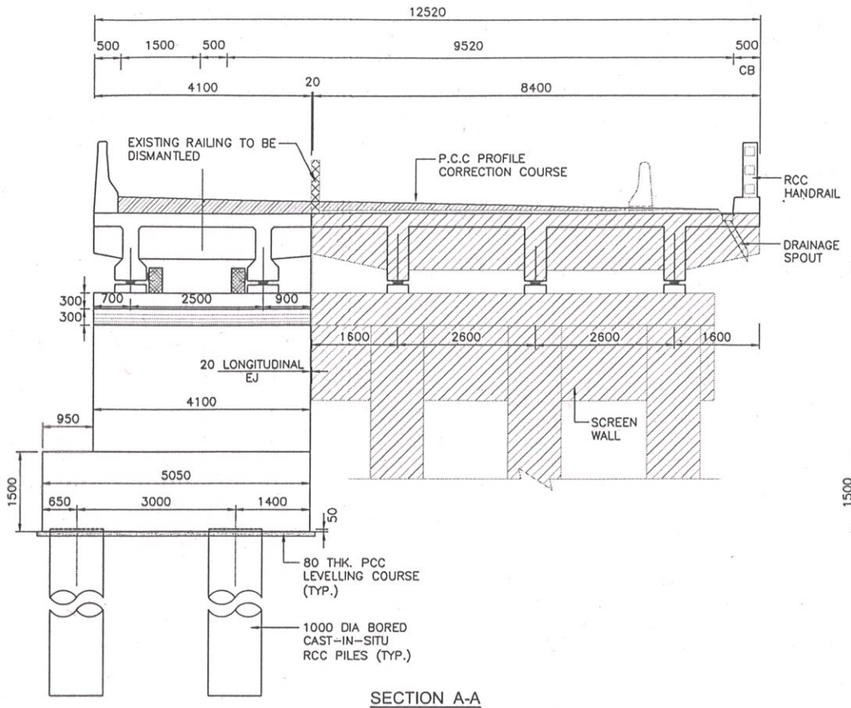
DRAWN	DESIGN	CHECKED BY	APPROVED BY
R. MINHAS	S. P. SINGH	S. YADAV	S. RAJYOGI

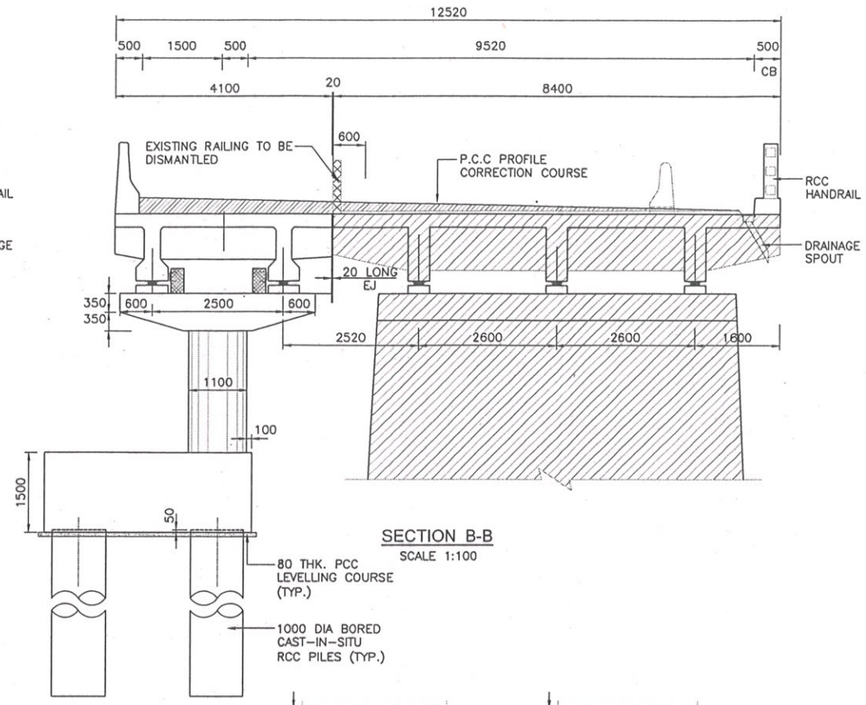
SCALE:- AS SHOWN

TITLE:- GENERAL ARRANGEMENT DRAWING FOR WIDENING OF EXISTING MINOR BRIDGE AT CH. 303+490 (SCH-B CH. 303+200) (AMONI RIVER)

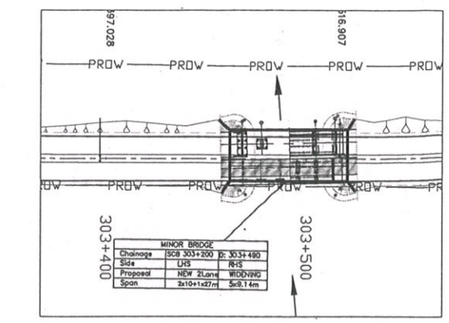
DRAWING NO.:- AECOM-DELD15159-STR-DWG-MNB-303+200-GAD-02 (SH 1 OF 2) | REV. R0



SECTION A-A
SCALE 1:100

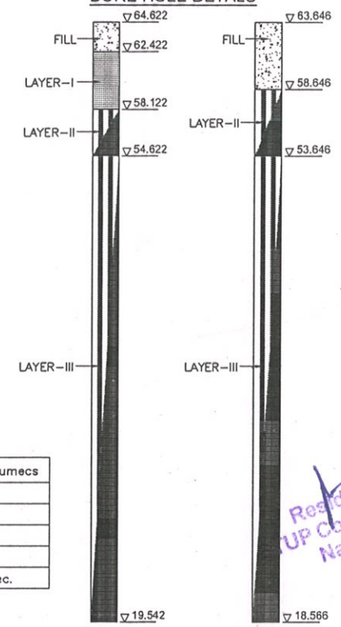


SECTION B-B
SCALE 1:100

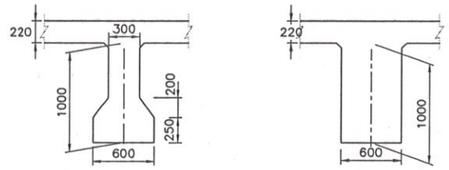


KEY PLAN

BORE HOLE DETAILS



BH-01 BH-02



MID SECTION SUPPORT SECTION

CROSS SECTION OF RCC T-GIRDER
(SCALE 1:30)

HYDROLOGY DATA

DISCHARGE (Q)	182.046 cumecs
HFL	66.104 m
LBL	58.976 m
MSL FOR ABUTMENTS	58.976 m
MSL FOR PIER	57.827 m
AVERAGE VELOCITY	1.44 m/sec.

WIDENING METHODOLOGY

1. EXISTING RCC T-GIRDER+DECK SLAB STRUCTURE SHALL BE WIDENED WITH RCC T-GIRDER+DECK SLAB TYPE OF STRUCTURE.
2. DISMANTLE THE PARAPET/RAILING ON TOP OF EXISTING STRUCTURE ON THE SIDE(S) OF PROPOSED WIDENING.
3. DISMANTLE THE EXISTING RETURN WALL ON WIDENING SIDE.
4. THOROUGHLY CLEAN THE SURFACE OF EXISTING STRUCTURE WITH MECHANICAL/HAND TOOLS TO REMOVE DEBRIS AND ACCUMULATED WASTE. CLEAN THE REINFORCEMENT PROTRUDING FROM OLD CONCRETE OF RUST, LOOSE MORTAR OR ANY OTHER CONTAMINATION. SOAK THE OLD SURFACE WITH WATER.
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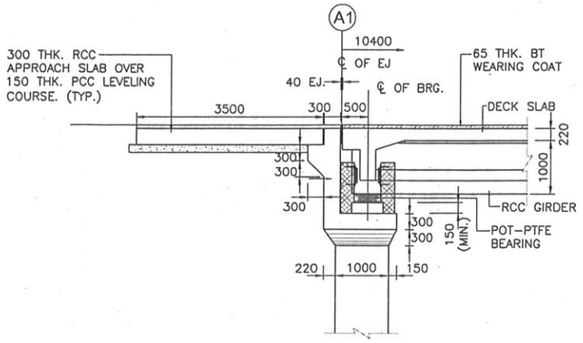
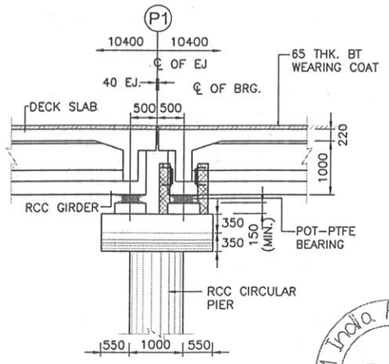


DETAIL - 'X'
(SCALE 1:75)



DETAIL - 'Y'
(SCALE 1:75)

LEGEND FOR BORE HOLE

SYMBOL	DESCRIPTION
	FILL - (greyish yellow clayey sandy silt/silty sand)
	LAYER-I - yellowish grey very soft silty clay mixed traces of sand
	LAYER-II - greyish yellow loose to medium dense silty sand
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R0	MARCH 2018	FIRST SUBMISSION

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PROJ. CHECKED CONSULTANT:- — AUTHORISED SIGNATORY | DATE

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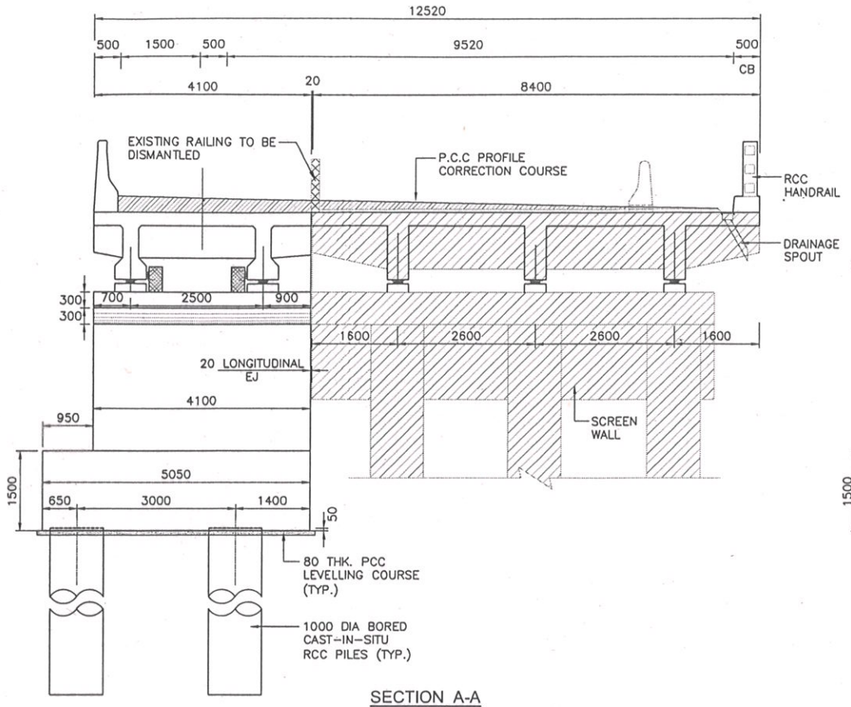
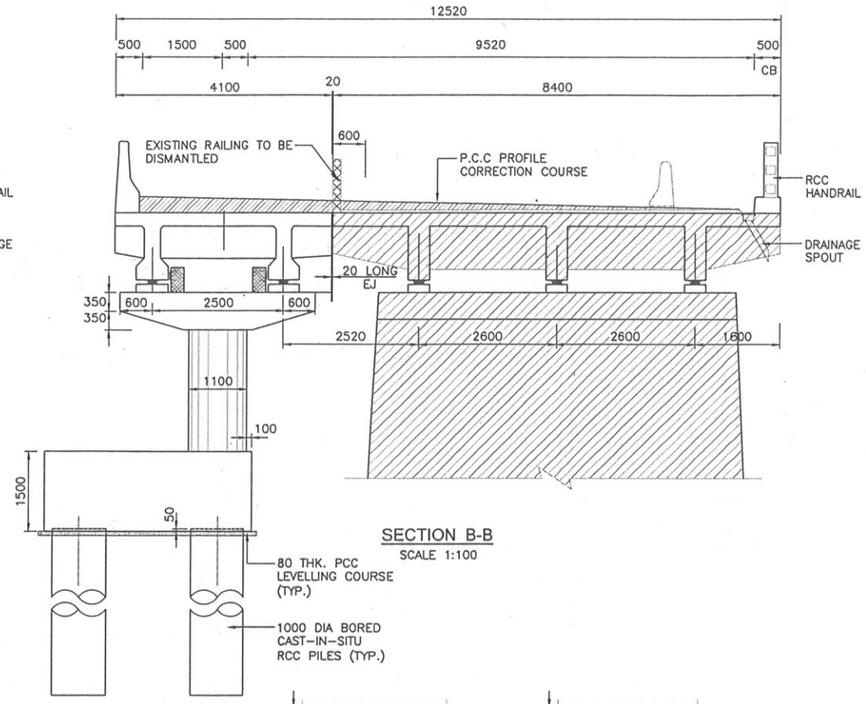
DRAWING NO.:- AECOM-DELD15159-STR-DWG-MNB-303+200-GAD-02 (SH 2 OF 2) REV. R0

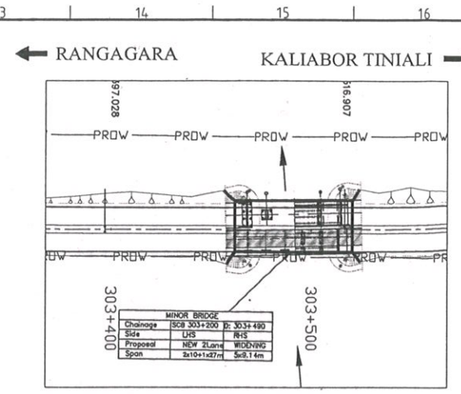
Resident Engineer STUP Consultants Nagaon



SECTION A-A
SCALE 1:100

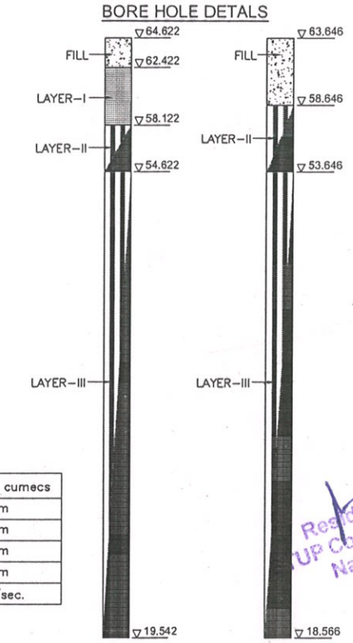


SECTION B-B
SCALE 1:100

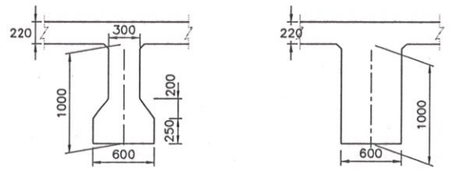


KEY PLAN

BORE HOLE DETALS



BH-01 BH-02



MID SECTION SUPPORT SECTION

CROSS SECTION OF RCC T-GIRDER
(SCALE 1:30)

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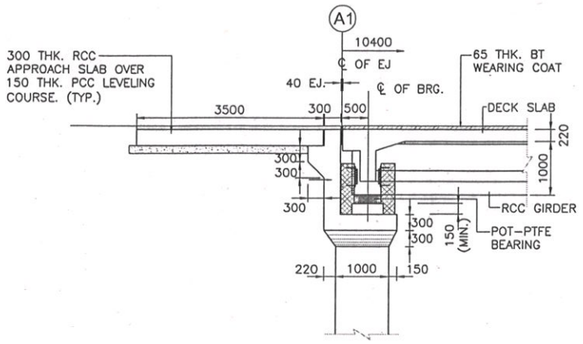
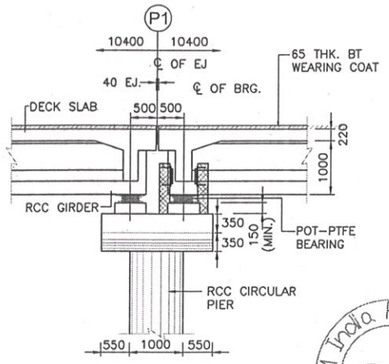


DETAIL - 'X'
(SCALE 1:75)



DETAIL - 'Y'
(SCALE 1:75)

LEGEND FOR BORE HOLE

SYMBOL	DESCRIPTION
	FILL - (greyish yellow clayey sandy silt/silty sand)
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CHECKED CONSULTANT:- CONCRETE TESTING CO. KOLKATA 700 092

SAEFTY CONSULTANT:- Chaitanya Projects Consultancy Pvt. Ltd

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AUTHORISED SIGNATORY | DATE | AUTHORISED SIGNATORY | DATE | AUTHORISED SIGNATORY | DATE

AECOM India Private Limited Gurgaon

Resident Engineer STUP Consultants Nagaon

NOMENCLATURE OF DRAWINGS

PROJECT:

FOUR LANING OF NH-37 FROM RANGAGARA TO KALIABOR TINIALI (CH. 297.000 KM TO CH 315.315 KM) IN NAGAON DISTRICT IN THE STATE OF ASSAM UNDER SARDP-NE, PHASE A ON EPC MODE.

STRUCTURE :-

FLYOVER AT CH. 314+992

DRAWING STATUS :-

ISSUED FOR APPROVAL

DESCRIPTION OF DRAWINGS:-

THE SET OF DRAWINGS FOR THE PROJECT COMPRISE OF FOLLOWING:

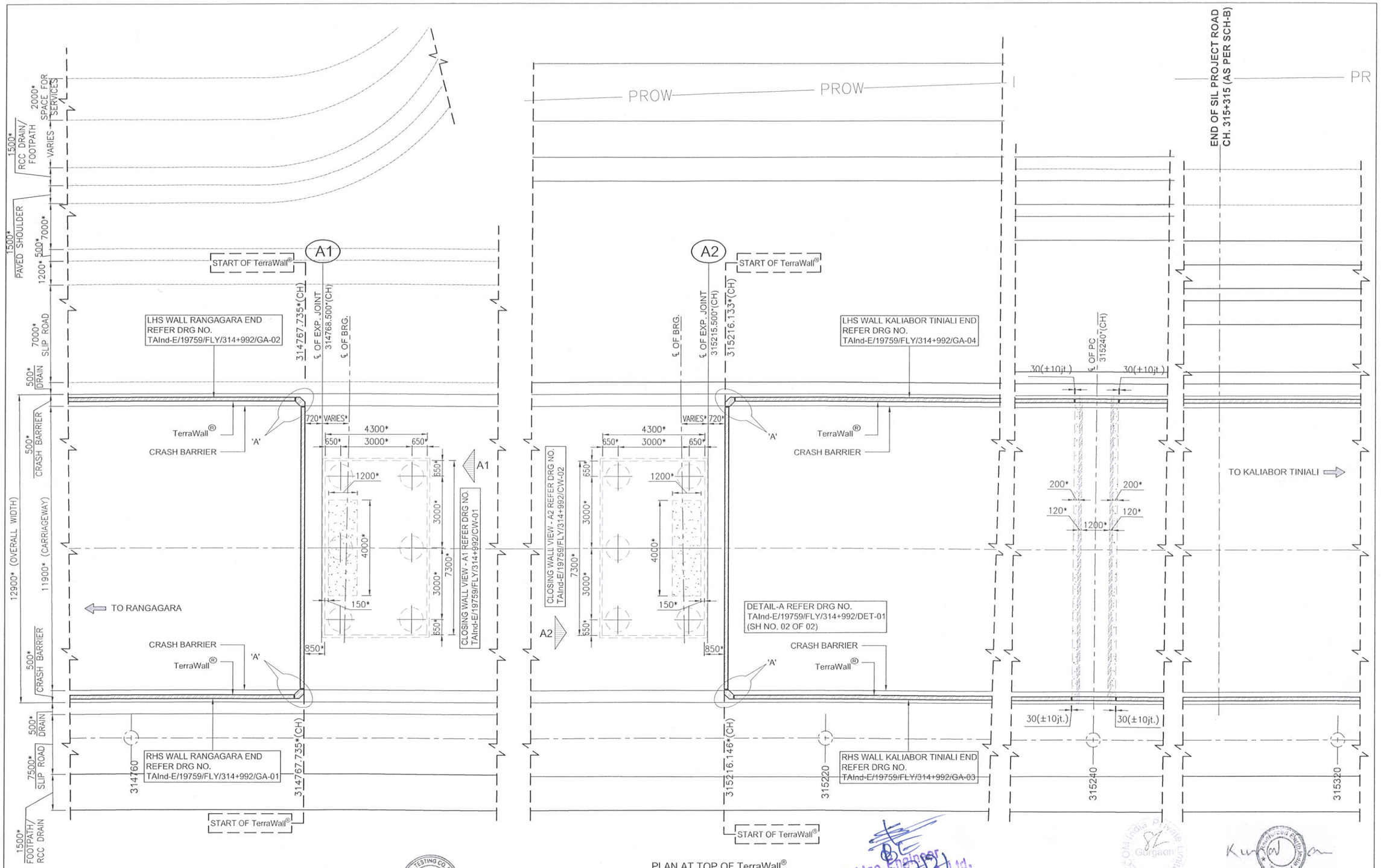
An . DETAILS OF PANEL FACIA DRAWINGS INDICATING THE DIFFERENT TYPE OF PANELS, REINFORCEMENT DETAILS, MATERIAL DETAILS, ETC.
Bn . GENERAL ARRANGEMENT DRAWINGS (GAD) INDICATING THE ELEVATION OF THE STRUCTURE AND RELEVANT DETAILS.
Cn . GENERAL DETAILS DRAWINGS SHOWING CROSS-SECTION, PLAN AND OTHER MISCELLANEOUS DETAILS OF THE STRUCTURE(S)
Dn . DESIGN SECTION DRAWING SHOWING POLYMERIC STRIP REINFORCEMENT DETAILS AT SELECTED SECTIONS.

S.NO.	IN THIS BUNCH MARK ✓	DRAWING TITLE	DRG NO.	SHEET NO.	DRG DATE	REVISION	REMARKS
C_1	✓	PLAN AT TOP OF TerraWall®	TAInd-E/19759/FLY/314+992/PLAN-01	01 OF 01	30.11.2020	00	
B_1	✓	GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - RANGAGARA END)	TAInd-E/19759/FLY/314+992/GA-01	01 TO 06	30.11.2020	00	
B_2	✓	GENERAL ARRANGEMENT OF APPROACH RAMP (LEFT HAND SIDE WALL - RANGAGARA END)	TAInd-E/19759/FLY/314+992/GA-02	01 TO 06	30.11.2020	00	
B_3	✓	GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - KALIABOR TINIALI END)	TAInd-E/19759/FLY/314+992/GA-03	01 TO 06	30.11.2020	00	
B_4	✓	GENERAL ARRANGEMENT OF APPROACH RAMP (LEFT HAND SIDE WALL - KALIABOR TINIALI END)	TAInd-E/19759/FLY/314+992/GA-04	01 TO 06	30.11.2020	00	
B_5	✓	GENERAL ARRANGEMENT OF CLOSING WALL (VIEW A1 - RANGAGARA END)	TAInd-E/19759/FLY/314+992/CW-01	01 OF 01	30.11.2020	00	
B_6	✓	GENERAL ARRANGEMENT OF CLOSING WALL (VIEW A2 - KALIABOR TINIALI END)	TAInd-E/19759/FLY/314+992/CW-02	01 OF 01	30.11.2020	00	
C_2	✓	CROSS SECTION, CRASH BARRIER, CORNER DETAIL, TYP. LEVELING PAD, GENERAL NOTES & MISC. DETAIL	TAInd-E/19759/FLY/314+992/DET-01	01 TO 03	30.11.2020	00	
C_3	✓	DESIGN SECTIONS	TAInd-E/19759/FLY/314+992/DS-01	01 TO 02	30.11.2020	00	

Letter No Simplex 888 Dated 24/4/2021 Received 28/5/2021 Bridge Engineer

RE WYA LL (Ist Copy)

BE
Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)
03/07/21



PLAN AT TOP OF TerraWall®

*THESE DIMENSIONS, CHAINAGES & LEVELS SHALL BE VERIFIED AT THE SITE WELL BEFORE COMMENCEMENT OF WORK AND ANY VARIATION (IF FOUND) SHALL BE BROUGHT TO THE NOTICE OF ENGINEER-IN-CHARGE & THIS OFFICE.

CE TESTING CO. PVT. LTD. KOLKATA 700 092 12A, K.S.C. BOSE ROAD

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)

AECOM India Private Limited Gurgaon

Kumar Engineering Pvt. Ltd.

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Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd — AUTHORISED SIGNATORY — DATE

PROOF CHECKED CONSULTANT:- CETEST Engineering Co. Pvt. Ltd. CE TESTING Company Pvt. Ltd — AUTHORISED SIGNATORY — DATE

DESIGN CONSULTANT:- AECOM — DESIGN DIRECTOR — DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- REINFORCED EARTH INDIA PVT. LTD. Terre Armee — E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044. Tel: +91 11 46457600-7601, F +91 11 46457630, www.terreamedeindia.com

DRAWN	INITIAL:- SG	CHECKED BY: SDG	FISCAL:- KS	APPROVED BY: AA

SCALE:- 1:150

DATE:- 30/11/2020

SHEET NO.:- 01/01

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:-PLAN AT TOP OF TerraWall®

DRG NO.:- TAInd-E/19759/FLY/314+992/PLAN-01 — REV. 00

DRAWING STATUS:- ISSUED FOR APPROVAL

NOTE :-

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRG. NO. TAInd-E/19759/FLY/314+992/DET-01
- FOR PANEL DETAIL REFER PANEL REINFORCEMENT DRAWINGS.
- ANY UNSUITABLE SOIL BENEATH THE RAMP PORTION SHALL BE REMOVED AND REPLACED WITH SELECTED BACK FILL.

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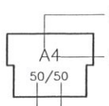
LET'S SAVE THE EARTH — ALL SMALL CUT PIECES OF SOIL REINFORCING ELEMENT WHICH CONTRIBUTES TO WASTAGE SHALL SUITABLY BE PLACED IN DIFFERENT LAYERS EITHER IN REINFORCED OR IN RETAINED ZONE. NONE OF THE PIECES SHALL BE DISPOSED OR LEFT IN A MANNER THAT MAY LEAD TO LAND CONTAMINATION AND SOLID WASTE GENERATION.

CAUTIONS :-

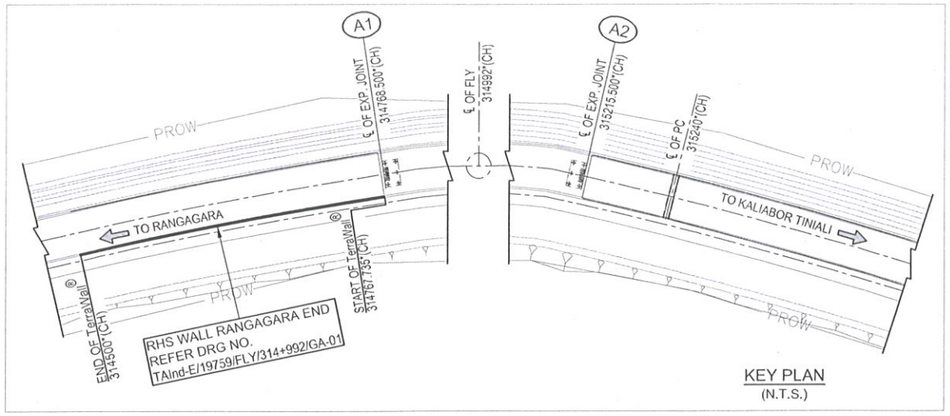
MOVEMENT OF HEAVY MACHINERIES OR COMPACTION PLANTS (MASS >1 MT) WITH IN 1.5 M DISTANCE FROM PANELS COULD LEAD TO MISALIGNMENT/STRUCTURAL DAMAGE OF THE WALL FACING AND OVERSTRESSING OF THE REINFORCEMENT LAYERS.

- SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

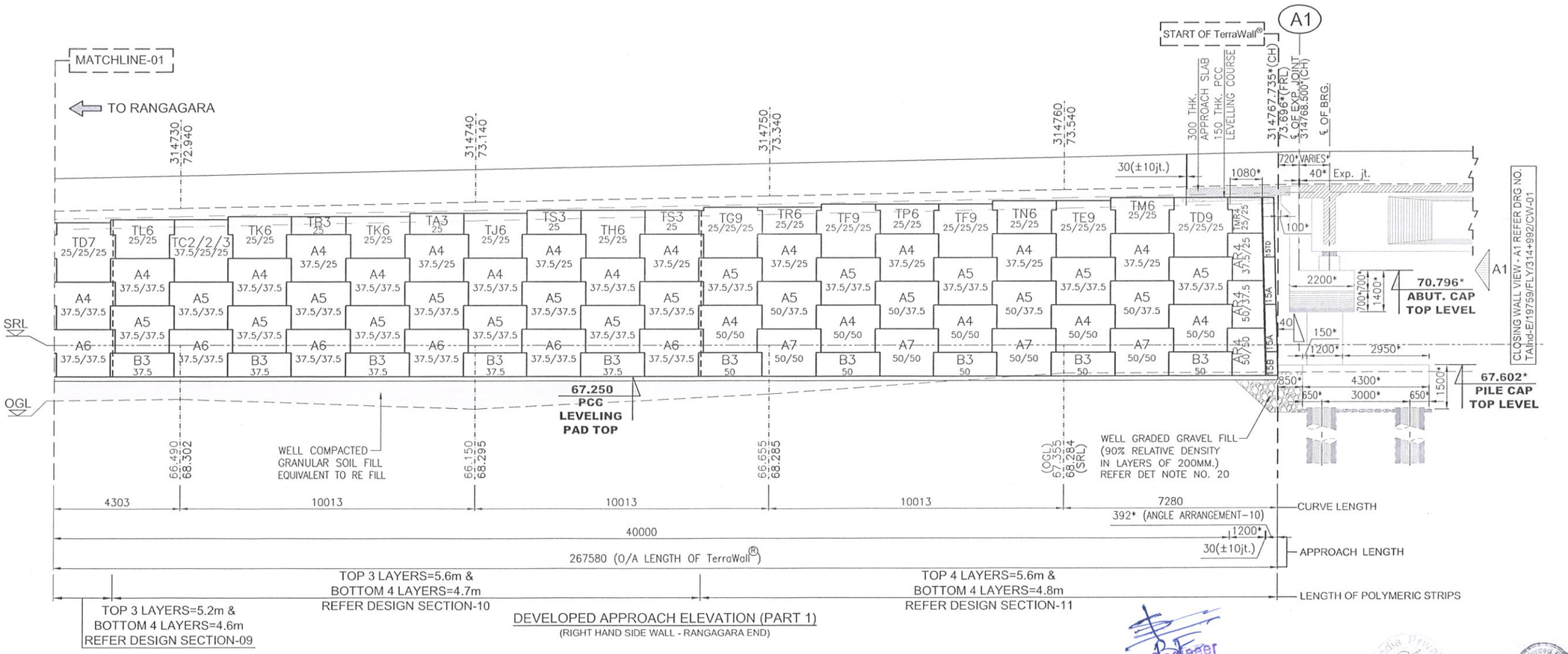
LEGEND:



- PANEL TYPE
- NUMBER OF CONNECTOR
- POLYMERIC STRIPS (TOP)
- POLYMERIC STRIPS (BOTTOM)



KEY PLAN
(N.T.S.)



DEVELOPED APPROACH ELEVATION (PART 1)
(RIGHT HAND SIDE WALL - RANGAGARA END)

Bridge Engineer
Stup Consultants Ltd.
Nagaon-782001 (Assam)
05/12/20

AECOM India Private Limited Gurgaon

Kundan

C.E. TESTING CO. PVT. LTD. KOLKATA 700 032

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Rev.	Date	Description on Revisions
		Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED	AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd	PROOF CHECKED CONSULTANT:- CETEST CE TESTING Company Pvt. Ltd	DESIGN CONSULTANT:- AECOM	PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.
	AUTHORISED SIGNATORY / DATE	AUTHORISED SIGNATORY / DATE	DESIGN DIRECTOR / DATE	

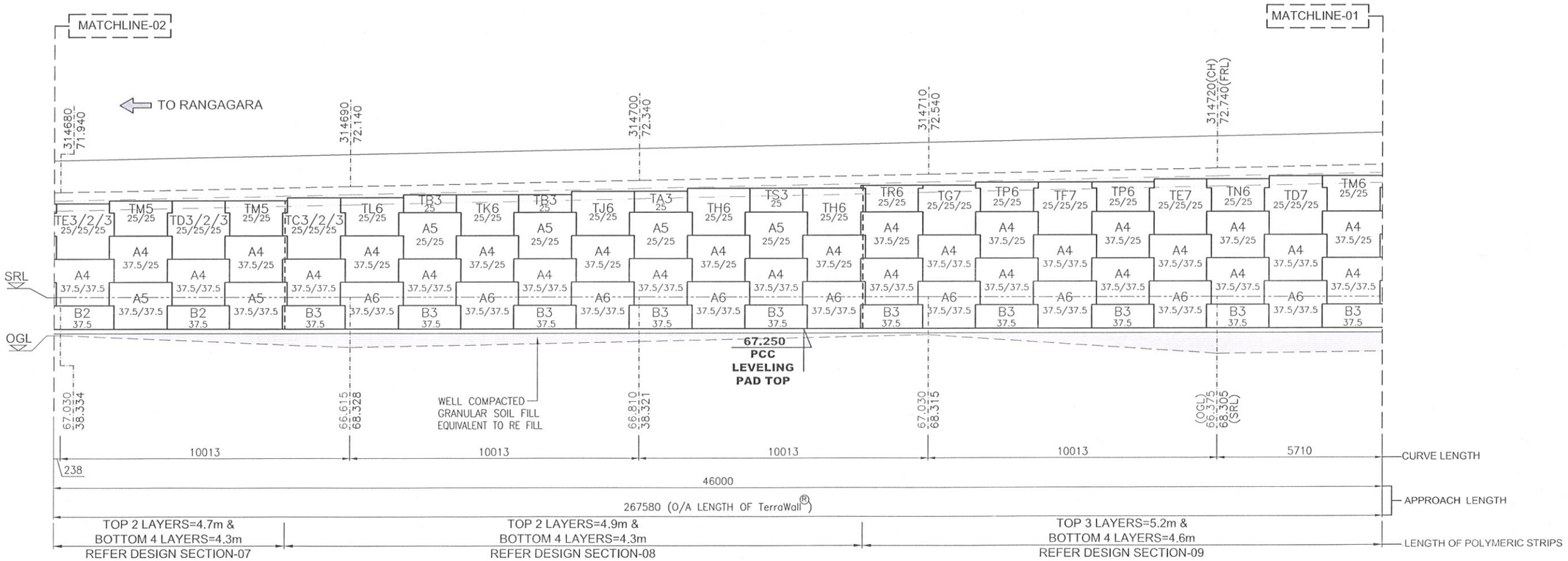
EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- REINFORCED EARTH INDIA PVT. LTD. E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 Tel: +91 11 46457600-7601, F +91 11 46457630 www.terrawallindia.com

DRAWN	INITIAL:- SDG	CHECKED BY	FINAL:- KS	APPROVED BY AA

SCALE:- 1:150
DATE:- 30/11/2020
SHEET NO.:- 01/06

STRUCTURE:- FLYOVER AT CH. 314+992
TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - RANGAGARA END)
DRG NO.:- TAInd-E/19759/FLY/314+992/GA-01 REV. 00
DRAWING STATUS:- ISSUED FOR APPROVAL



DEVELOPED APPROACH ELEVATION (PART 2)

(RIGHT HAND SIDE WALL - RANGAGARA END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

THIS DRAWING CONTAINS INFORMATION PROPRIETARY AND CONFIDENTIAL TO M/S REINFORCED EARTH INDIA PVT. LTD. POSSESSION OF THIS DRAWING NEITHER AUTHORIZE USE OF THE INFORMATION CONTAINED THEREIN NOR COPYING OF THE DRAWING IN WHOLE OR IN PART, NOR TRANSMISSION OF THE DRAWING OR OF THE INFORMATION CONTAINED THEREIN TO PERSONS NOT CONNECTED WITH THE PROJECT.

Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED	AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd	PROOF CHECKED CONSULTANT:- CETEST CE TESTING Company Pvt. Ltd	DESIGN CONSULTANT:- AECOM
	AUTHORISED SIGNATORY / DATE	AUTHORISED SIGNATORY / DATE	DESIGN DIRECTOR / DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

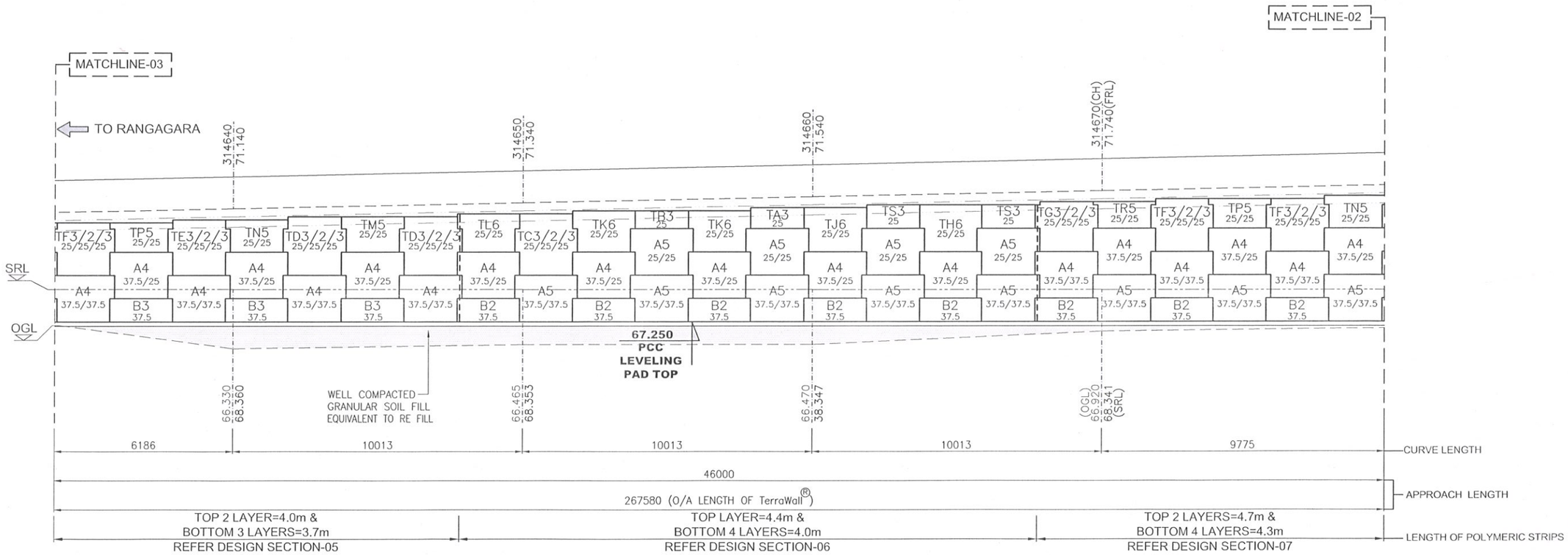
EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- REINFORCED EARTH INDIA PVT. LTD. E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 Tel +91 11 46457600-7601, F +91 11 46457630 www.terraarmeindia.com

DRAWN	CHECKED BY (INITIAL)	CHECKED BY (FINAL)	APPROVED BY
SG	SDG	KS	AA

SCALE:- 1:150
DATE:- 30/11/2020
SHEET NO.:- 02/06

STRUCTURE:- FLYOVER AT CH. 314+992
TITLE:- GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - RANGAGARA END)
DRG NO.:- TAInd-E/19759/FLY/314+992/GA-01 | REV. 00
DRAWING STATUS:- ISSUED FOR APPROVAL



DEVELOPED APPROACH ELEVATION (PART 3)

(RIGHT HAND SIDE WALL - RANGAGARA END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)
03/07/21

AECOM India Private Limited Gurgaon

Reinforced Earth India Pvt. Ltd.

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

THIS DRAWING CONTAINS INFORMATION PROPRIETARY AND CONFIDENTIAL TO M/S REINFORCED EARTH INDIA PVT. LTD. POSSESSION OF THIS DRAWING NEITHER AUTHORIZE USE OF THE INFORMATION CONTAINED THEREIN NOR COPYING OF THE DRAWING IN WHOLE OR IN PART, NOR TRANSMISSION OF THE DRAWING OR OF THE INFORMATION CONTAINED THEREIN TO PERSONS NOT CONNECTED WITH THE PROJECT.

Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd

AUTHORISED SIGNATORY | DATE

PROOF CHECKED CONSULTANT:- CETEST CE TESTING Company Pvt. Ltd

AUTHORISED SIGNATORY | DATE

DESIGN CONSULTANT:- AECOM

DESIGN DIRECTOR | DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- Reinforced Earth India Pvt. Ltd. E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 Tel. +91 11 46457600-7601, F +91 11 46457630 www.terraarmeindia.com

DRAWN	INITIAL:- CHECKED BY	FINAL:- APPROVED BY
SG	SDG	KS	AA

SCALE:- 1:150

DATE:- 30/11/2020

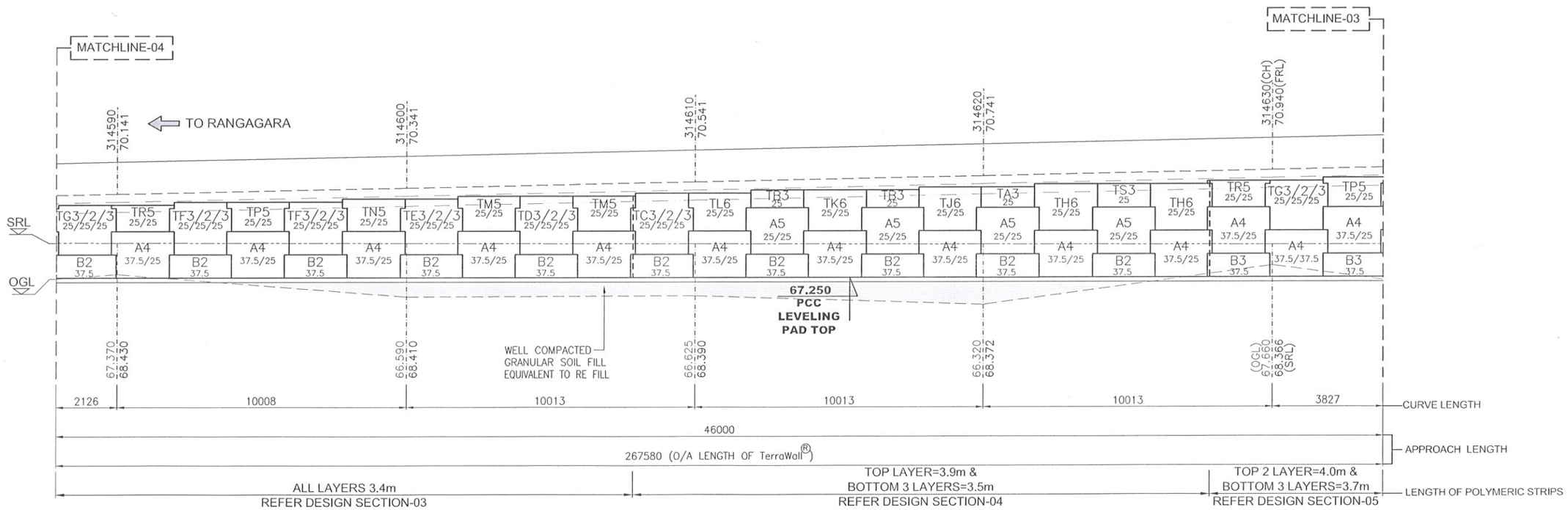
SHEET NO.:- 03/06

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - RANGAGARA END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-01 | REV.

DRAWING STATUS:- ISSUED FOR APPROVAL | 00



DEVELOPED APPROACH ELEVATION (PART 4)

(RIGHT HAND SIDE WALL - RANGAGARA END)

Bridge Engineer
Stup Consultants Pvt Ltd.
Nagaon-782001 (Assam)

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

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Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd — AUTHORISED SIGNATORY — DATE

PROOF CHECKED CONSULTANT:- CE TESTING Company Pvt. Ltd — AUTHORISED SIGNATORY — DATE

DESIGN CONSULTANT:- AECOM — DESIGN DIRECTOR — DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- REINFORCED EARTH INDIA PVT. LTD. E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044. Tel: +91 11 46457600-7601, F +91 11 46457630, www.terramesh-india.com

DRAWN	CHECKED BY	APPROVED BY
SG	SDG (INITIAL:-) KS (FINAL:-)	AA

SCALE:- 1:150

DATE:- 30/11/2020

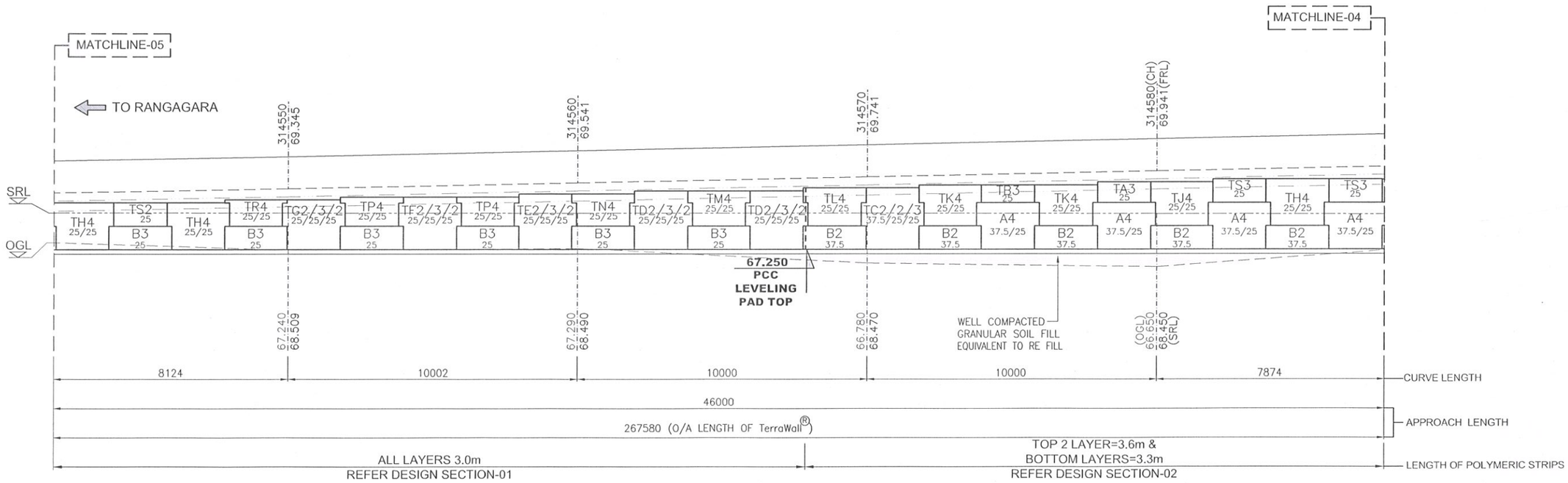
SHEET NO.:- 04/06

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - RANGAGARA END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-01 — REV.

DRAWING STATUS:- ISSUED FOR APPROVAL — 00



DEVELOPED APPROACH ELEVATION (PART 5)

(RIGHT HAND SIDE WALL - RANGAGARA END)

Bridge Engineer
Stup Consultants Ltd.
Nagaon-782002 (Assam)

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

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Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED	AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd	PROOF CHECKED CONSULTANT:- CETEST CE TESTING Company Pvt. Ltd	DESIGN CONSULTANT:- AECOM
	AUTHORISED SIGNATORY / DATE	AUTHORISED SIGNATORY / DATE	DESIGN DIRECTOR / DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- REINFORCED EARTH INDIA PVT. LTD. E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 Tel: +91 11 46457600-7601, F +91 11 46457630 www.terraarmeindia.com

DRAWN	INITIAL: SDG	FINAL: KS	CHECKED BY	AA APPROVED BY

SCALE:- 1:150

DATE:- 30/11/2020

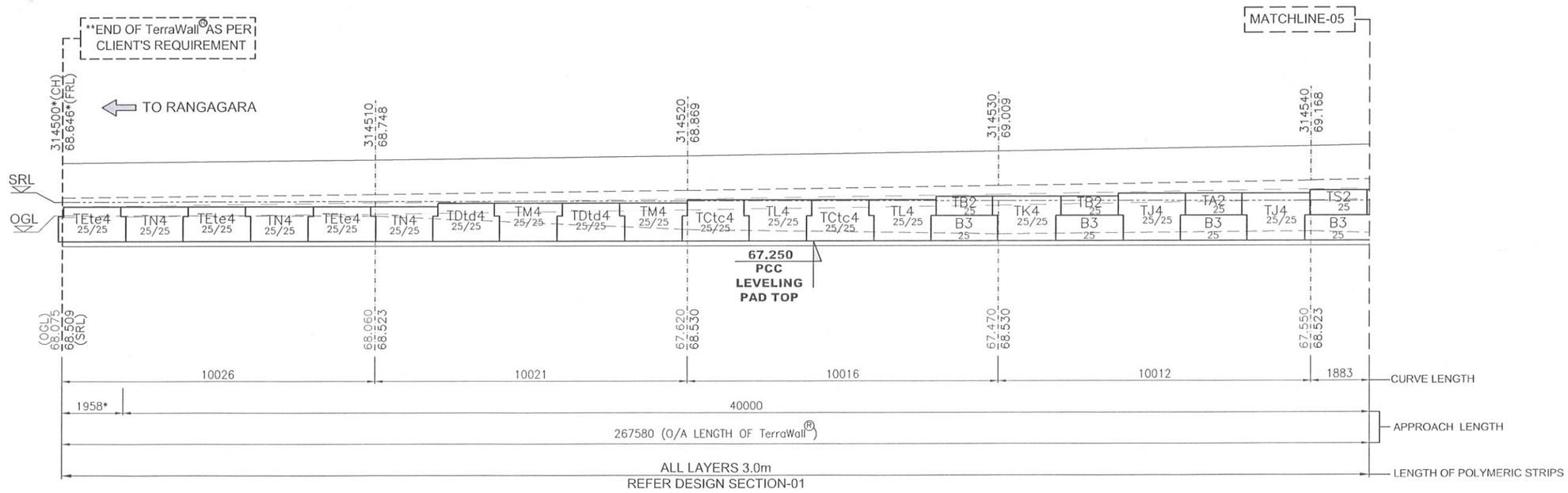
SHEET NO.:- 05/06

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - RANGAGARA END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-01 | REV. 00

DRAWING STATUS:- ISSUED FOR APPROVAL



DEVELOPED APPROACH ELEVATION (PART 6)

(RIGHT HAND SIDE WALL - RANGAGARA END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

**ADEQUATE PROTECTION SHALL BE TAKEN BY THE CONTRACTOR SUCH THAT THE LAST PANEL SHALL REMAIN IN POSITION AND RENDERS UNDAMAGED.

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Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED	AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd	PROOF CHECKED CONSULTANT:- CE TESTING Company Pvt. Ltd	DESIGN CONSULTANT:- AECOM	PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.	EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA
	AUTHORISED SIGNATORY / DATE	AUTHORISED SIGNATORY / DATE	DESIGN DIRECTOR / DATE		

PREPARED BY:- Reinforced Earth India Pvt. Ltd. E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 Tel: +91 11 46457600-7601, F +91 11 46457630 www.terramesh-india.com

SG	SDG	KS	AA
DRAWN	CHECKED BY (INITIAL:-)	(FINAL:-)	APPROVED BY

SCALE:- 1:150

DATE:- 30/11/2020

SHEET NO.:- 06/06

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - RANGAGARA END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-01 | REV. 00

DRAWING STATUS:- ISSUED FOR APPROVAL

NOTE :-

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRG. NO. TAInd-E/19759/FLY/314+992/DET-01
- FOR PANEL DETAIL REFER PANEL REINFORCEMENT DRAWINGS.
- ANY UNSUITABLE SOIL BENEATH THE RAMP PORTION SHALL BE REMOVED AND REPLACED WITH SELECTED BACK FILL.

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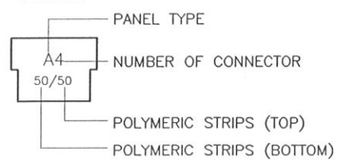
LET'S SAVE THE ALL SMALL CUT PIECES OF SOIL REINFORCING ELEMENT WHICH CONTRIBUTES TO WASTAGE SHALL SUITABLY BE PLACED IN DIFFERENT LAYERS EITHER IN REINFORCED OR IN RETAINED ZONE. NONE OF THE PIECES SHALL BE DISPOSED OR LEFT IN A MANNER THAT MAY LEAD TO LAND CONTAMINATION AND SOLID WASTE GENERATION.

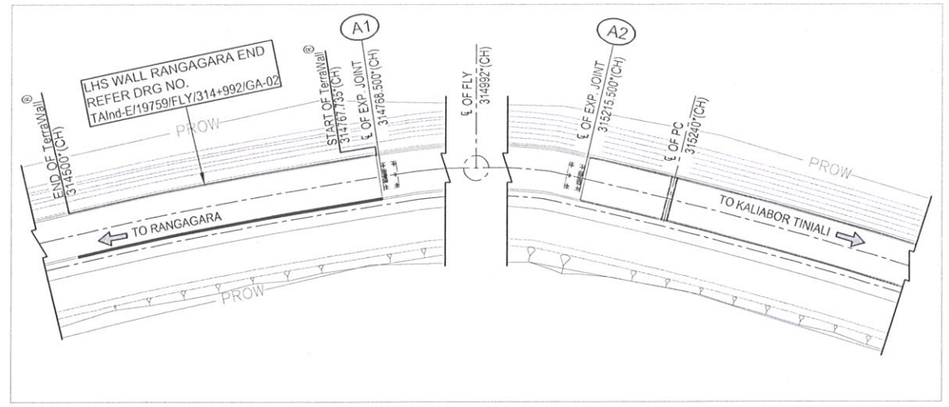
CAUTIONS :-

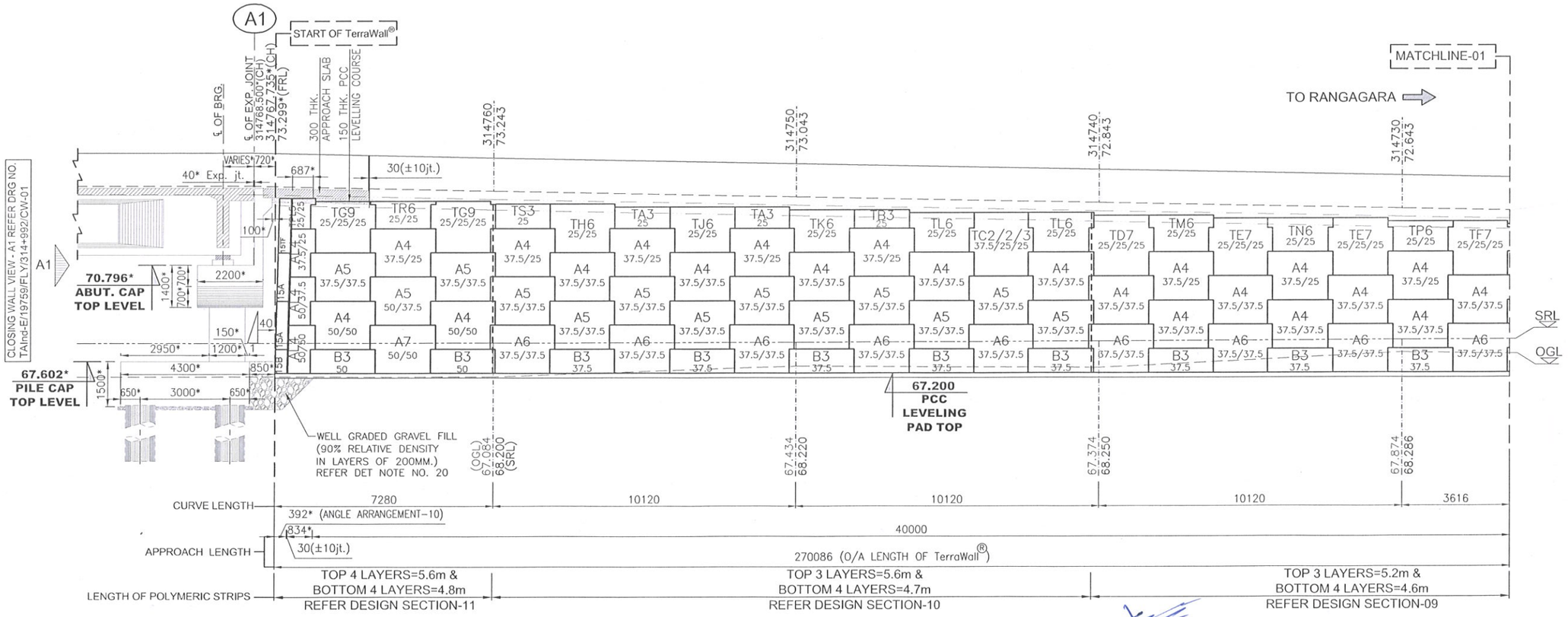
MOVEMENT OF HEAVY MACHINERIES OR COMPACTION PLANTS (MASS >1 MT) WITH IN 1.5 M DISTANCE FROM PANELS COULD LEAD TO MISALIGNMENT/STRUCTURAL DAMAGE OF THE WALL FACING AND OVERSTRESSING OF THE REINFORCEMENT LAYERS.

- SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

LEGEND:







DEVELOPED APPROACH ELEVATION (PART 1)

(LEFT HAND SIDE WALL - RANGAGARA END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)

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Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED	AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd	PROOF CHECKED CONSULTANT:- CETEST CE TESTING Company Pvt. Ltd	DESIGN CONSULTANT:- AECOM
	AUTHORISED SIGNATORY / DATE	AUTHORISED SIGNATORY / DATE	DESIGN DIRECTOR / DATE

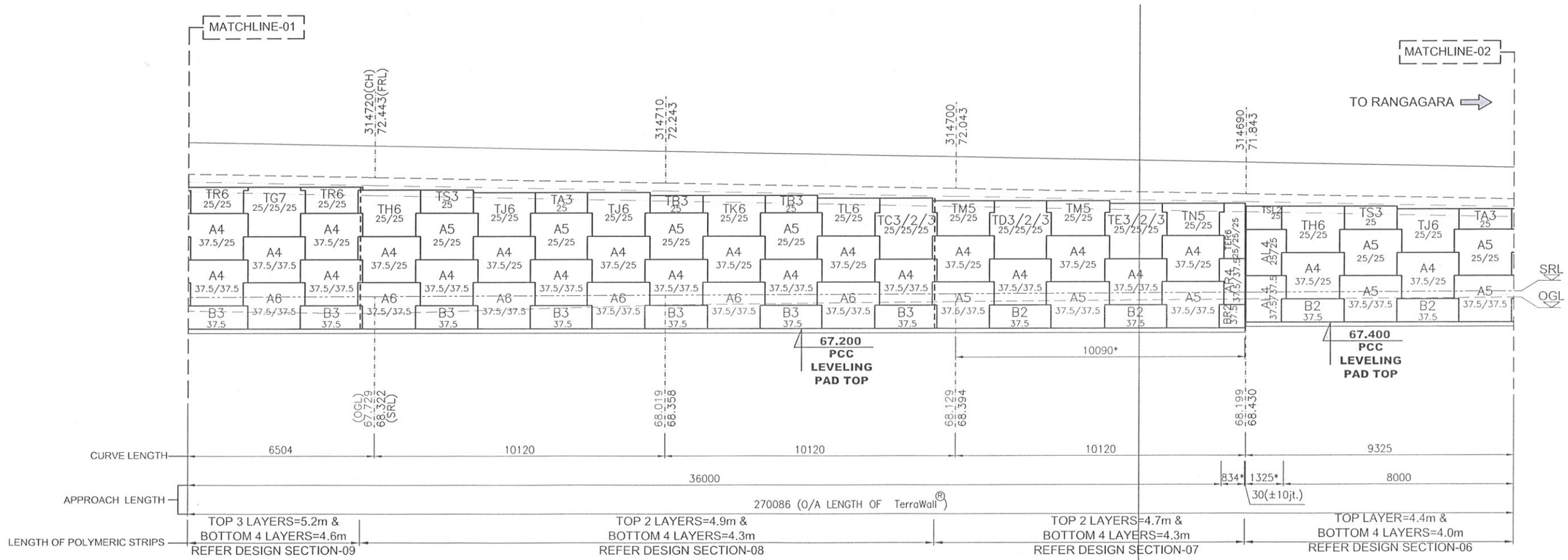
PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- REINFORCED EARTH INDIA PVT. LTD. E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044. Tel: +91 11 46457600-7601, F: +91 11 46457630, www.terraformeindia.com

DRAWN	INITIAL:- CHECKED BY	FINAL:- APPROVED BY
SG	SDG	KS / AA

SCALE:-	1:150
DATE:-	30/11/2020
SHEET NO.:-	01/06
STRUCTURE:-	FLYOVER AT CH. 314+992
TITLE:-	GENERAL ARRANGEMENT OF APPROACH RAMP (LEFT HAND SIDE WALL - RANGAGARA END)
DRG NO.:-	TAInd-E/19759/FLY/314+992/GA-02
REV.	00
DRAWING STATUS:-	ISSUED FOR APPROVAL



DEVELOPED APPROACH ELEVATION (PART 2)

(LEFT HAND SIDE WALL - RANGAGARA END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782002 (Assam)

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

THIS DRAWING CONTAINS INFORMATION PROPRIETARY AND CONFIDENTIAL TO M/S REINFORCED EARTH INDIA PVT. LTD. POSSESSION OF THIS DRAWING NEITHER AUTHORIZE USE OF THE INFORMATION CONTAINED THEREIN NOR COPYING OF THE DRAWING IN WHOLE OR IN PART, NOR TRANSMISSION OF THE DRAWING OR OF THE INFORMATION CONTAINED THEREIN TO PERSONS NOT CONNECTED WITH THE PROJECT.

Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED	AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd	PROOF CHECKED CONSULTANT:- CE TESTING Company Pvt. Ltd	DESIGN CONSULTANT:- AECOM
	AUTHORISED SIGNATORY / DATE	AUTHORISED SIGNATORY / DATE	DESIGN DIRECTOR / DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- REINFORCED EARTH INDIA PVT. LTD. E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 Tel: +91 11 46457600-7601, F: +91 11 46457630 www.terraarmeindia.com

DRAWN	INITIALS: CHECKED BY	FINAL: APPROVED BY
SG	SDG	KS / AA

SCALE:- 1:150

DATE:- 30/11/2020

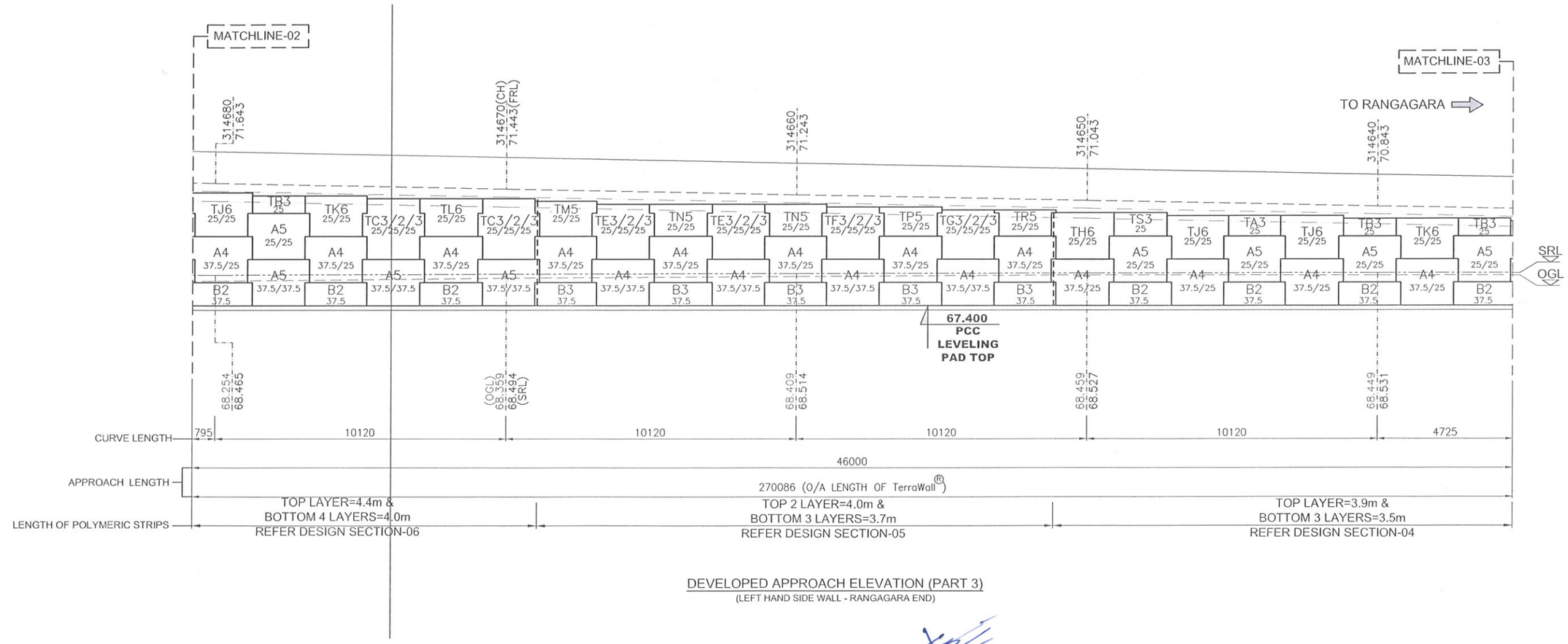
SHEET NO.:- 02/06

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:- GENERAL ARRANGEMENT OF APPROACH RAMP (LEFT HAND SIDE WALL - RANGAGARA END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-02 | REV.

DRAWING STATUS:- ISSUED FOR APPROVAL | 00



DEVELOPED APPROACH ELEVATION (PART 3)

(LEFT HAND SIDE WALL - RANGAGARA END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)

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Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd

AUTHORISED SIGNATORY | DATE

PROOF CHECKED CONSULTANT:- CETEST CE TESTING Company Pvt. Ltd

AUTHORISED SIGNATORY | DATE

DESIGN CONSULTANT:- AECOM

DESIGN DIRECTOR | DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- REINFORCED EARTH INDIA PVT. LTD. E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 Tel +91 11 46457600-7601, F +91 11 46457630 www.terraemeeindia.com

DRAWN	INITIAL:- SDG	FINAL:- KS	APPROVED BY
SG	CHECKED BY		AA

SCALE:- 1:150

DATE:- 30/11/2020

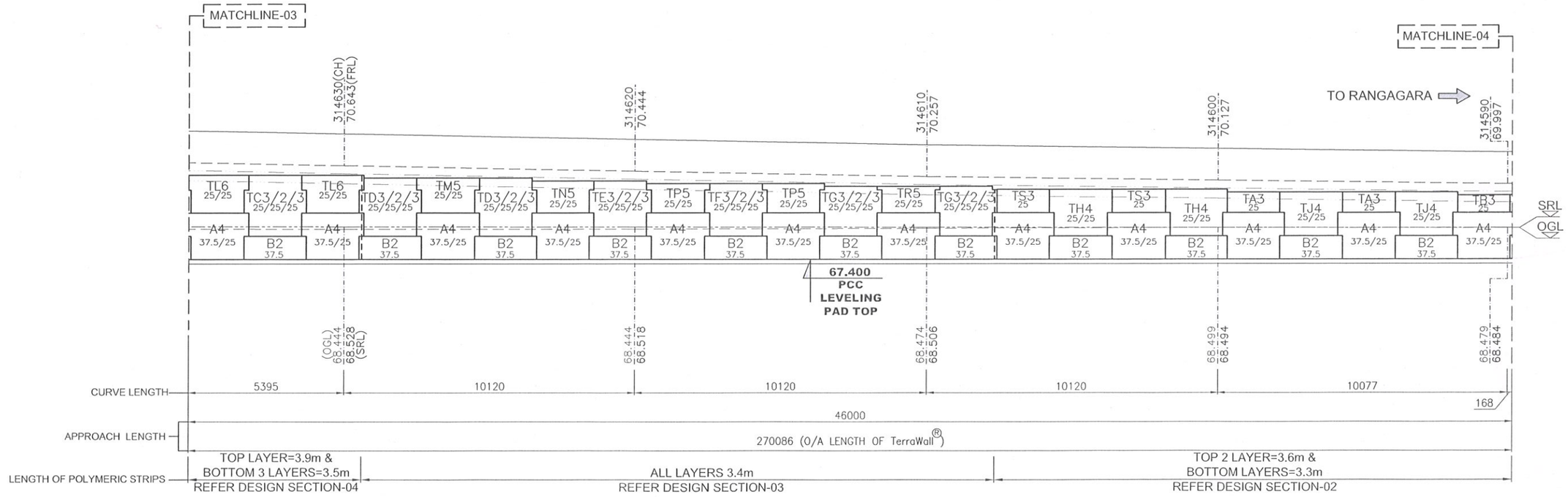
SHEET NO.:- 03/06

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (LEFT HAND SIDE WALL - RANGAGARA END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-02 | REV.

DRAWING STATUS:- ISSUED FOR APPROVAL | 00



DEVELOPED APPROACH ELEVATION (PART 4)

(LEFT HAND SIDE WALL - RANGAGARA END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon 782001 (Assam)

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

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Rev.	Date	Description on Revisions
		Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd — AUTHORISED SIGNATORY | DATE

PROOF CHECKED CONSULTANT:- CE TESTING Company Pvt. Ltd — AUTHORISED SIGNATORY | DATE

DESIGN CONSULTANT:- AECOM — DESIGN DIRECTOR | DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

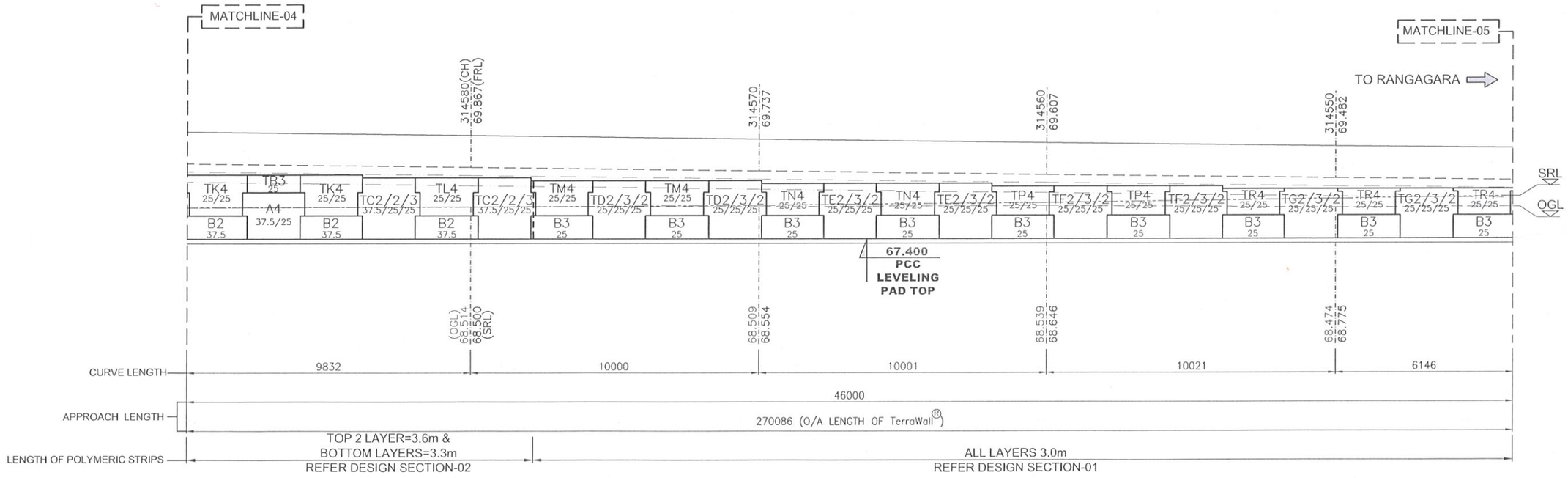
EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- REINFORCED EARTH INDIA PVT. LTD. — E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044, Tel: +91 11 46457600-7601, F +91 11 46457630, www.terraarmeindia.com

DRAWN	INITIAL: SDG	FINAL: KS	APPROVED BY
SG	CHECKED BY		AA

SCALE:- 1:150
DATE:- 30/11/2020
SHEET NO.:- 04/06

STRUCTURE:- FLYOVER AT CH. 314+992
TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (LEFT HAND SIDE WALL - RANGAGARA END)
DRG NO.:- TAInd-E/19759/FLY/314+992/GA-02 | REV. 00
DRAWING STATUS:- ISSUED FOR APPROVAL



DEVELOPED APPROACH ELEVATION (PART 5)

(LEFT HAND SIDE WALL - RANGAGARA END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)

AECOM India Private Limited Gurgaon

Reinforced Earth India Pvt. Ltd.

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

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Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd

AUTHORISED SIGNATORY | DATE

PROOF CHECKED CONSULTANT:- CE TESTING Company Pvt. Ltd

AUTHORISED SIGNATORY | DATE

DESIGN CONSULTANT:- AECOM

DESIGN DIRECTOR | DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- Reinforced Earth India Pvt. Ltd. (Terre Armee), E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044, Tel +91 11 46457600-7601, F +91 11 46457630, www.terrearmeeindia.com

DRAWN	INITIAL:- SDG	FINAL:- KS	APPROVED BY AA
	CHECKED BY		

SCALE:- 1:150

DATE:- 30/11/2020

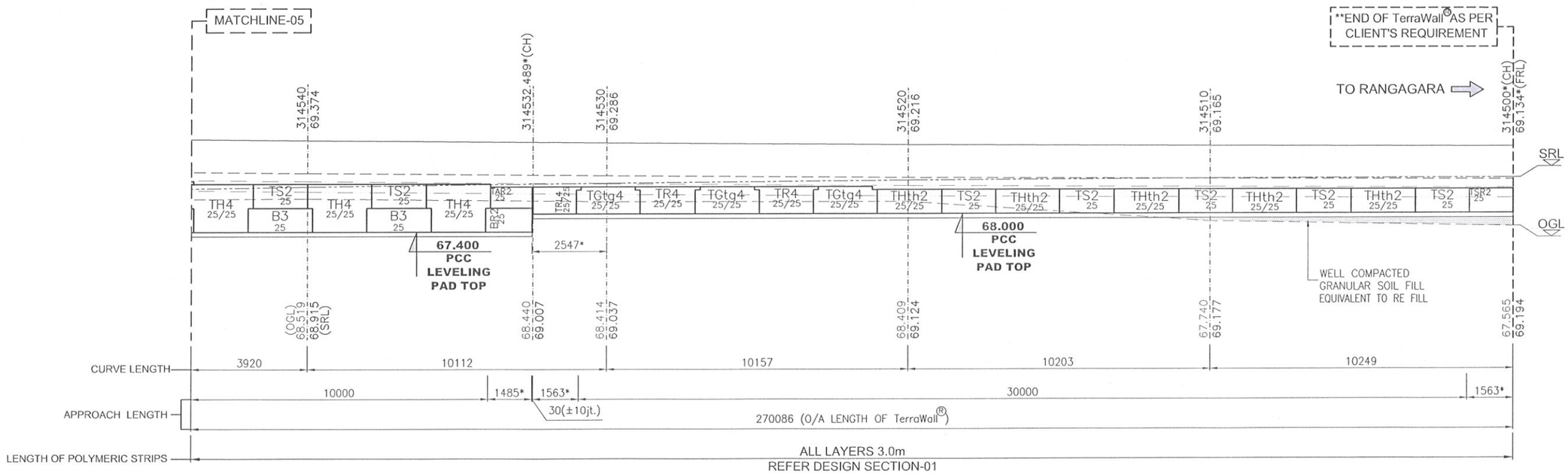
SHEET NO.:- 05/06

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (LEFT HAND SIDE WALL - RANGAGARA END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-02 | REV. 00

DRAWING STATUS:- ISSUED FOR APPROVAL



DEVELOPED APPROACH ELEVATION (PART 6)

(LEFT HAND SIDE WALL - RANGAGARA END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)

AECOM India Private Limited Gurugaon

Kurian

**ADEQUATE PROTECTION SHALL BE TAKEN BY THE CONTRACTOR SUCH THAT THE LAST PANEL SHALL REMAIN IN POSITION AND RENDERS UNDAMAGED.

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

THIS DRAWING CONTAINS INFORMATION PROPRIETARY AND CONFIDENTIAL TO M/S REINFORCED EARTH INDIA PVT. LTD. POSSESSION OF THIS DRAWING NEITHER AUTHORIZE USE OF THE INFORMATION CONTAINED THEREIN NOR COPYING OF THE DRAWING IN WHOLE OR IN PART, NOR TRANSMISSION OF THE DRAWING OR OF THE INFORMATION CONTAINED THEREIN TO PERSONS NOT CONNECTED WITH THE PROJECT.

Rev.	Date	Description on Revisions
		Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED	AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd	PROOF CHECKED CONSULTANT:- CETEST CE TESTING Company Pvt. Ltd	DESIGN CONSULTANT:- AECOM	PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.
	AUTHORISED SIGNATORY / DATE	AUTHORISED SIGNATORY / DATE	DESIGN DIRECTOR / DATE	

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- Reinforced Earth India Pvt. Ltd. (Terre Armee), E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044, Tel: +91 11 46457600-7601, F: +91 11 46457630, www.terrearmeeindia.com

SG	SDG	KS	AA
DRAWN	CHECKED BY (INITIAL:-)	CHECKED BY (FINAL:-)	APPROVED BY

SCALE:- 1:150

DATE:- 30/11/2020

SHEET NO.:- 06/06

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (LEFT HAND SIDE WALL - RANGAGARA END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-02 | REV. 00

DRAWING STATUS:- ISSUED FOR APPROVAL

NOTE :-

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRG. NO. TAInd-E/19759/FLY/314+992/DET-01
- FOR PANEL DETAIL REFER PANEL REINFORCEMENT DRAWINGS.
- ANY UNSUITABLE SOIL BENEATH THE RAMP PORTION SHALL BE REMOVED AND REPLACED WITH SELECTED BACK FILL.

*THESE DIMENSIONS, CHAINAGES & LEVELS SHALL BE VERIFIED AT THE SITE WELL BEFORE COMMENCEMENT OF WORK AND ANY VARIATION (IF FOUND) SHALL BE BROUGHT TO THE NOTICE OF ENGINEER-IN-CHARGE & THIS OFFICE.

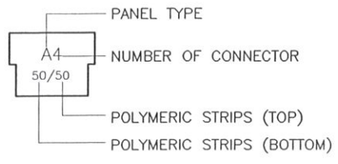
LET'S SAVE THE ALL SMALL CUT PIECES OF SOIL REINFORCING ELEMENT WHICH CONTRIBUTES TO WASTAGE SHALL SUITABLY BE PLACED IN DIFFERENT LAYERS EITHER IN REINFORCED OR IN RETAINED ZONE. NONE OF THE PIECES SHALL BE DISPOSED OR LEFT IN A MANNER THAT MAY LEAD TO LAND CONTAMINATION AND SOLID WASTE GENERATION.

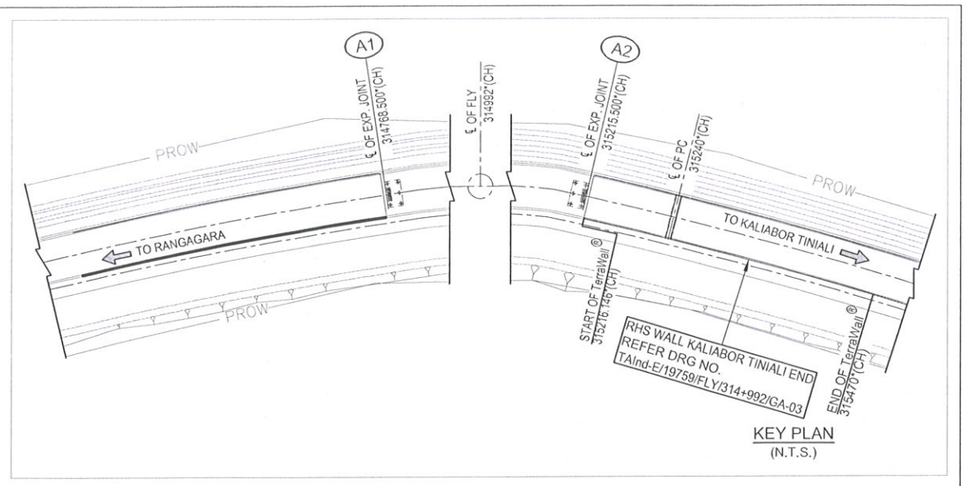
CAUTIONS :-

MOVEMENT OF HEAVY MACHINERIES OR COMPACTION PLANTS (MASS >1 MT) WITH IN 1.5 M DISTANCE FROM PANELS COULD LEAD TO MISALIGNMENT/STRUCTURAL DAMAGE OF THE WALL FACING AND OVERSTRESSING OF THE REINFORCEMENT LAYERS.

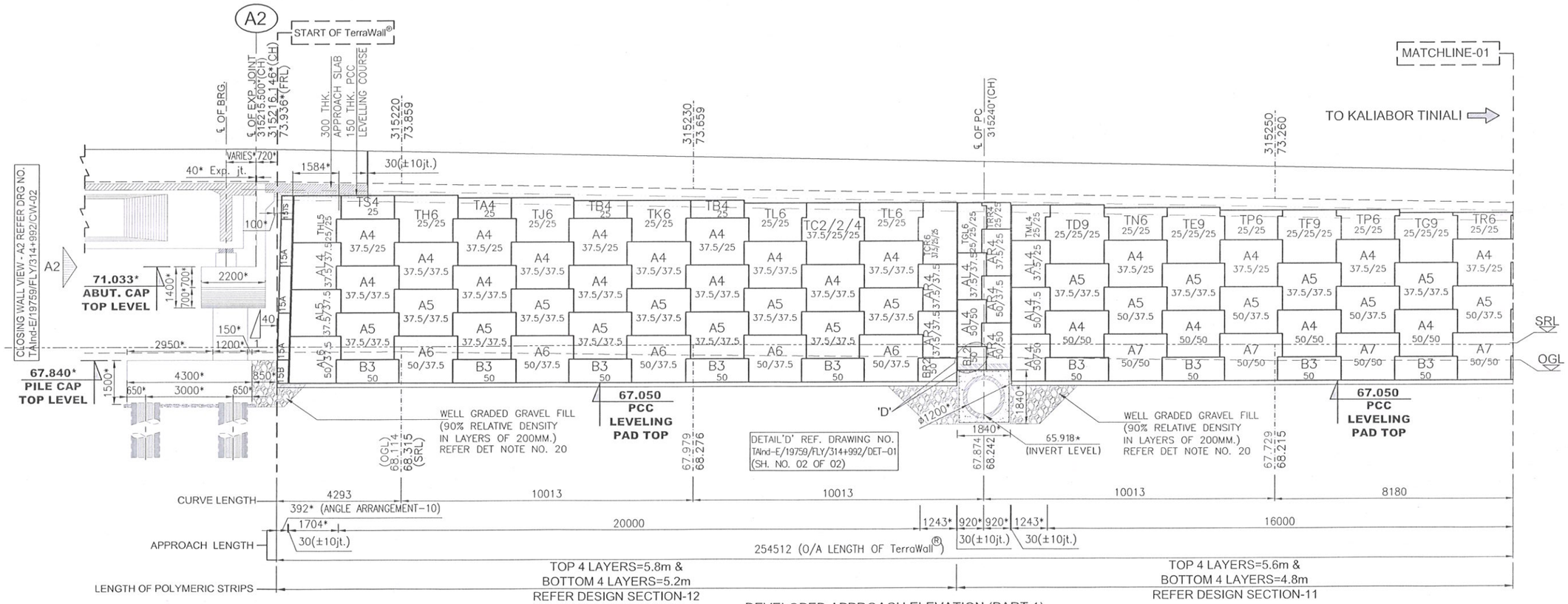
- SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

LEGEND:





KEY PLAN
(N.T.S.)



DEVELOPED APPROACH ELEVATION (PART 1)
(RIGHT HAND SIDE WALL - KALIABOR TINIALI END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon
03/07/21

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED	AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd	PROOF CHECKED CONSULTANT:- CETEST CE TESTING Company Pvt. Ltd	DESIGN CONSULTANT:- AECOM	PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.	EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA	PREPARED BY:- Reinforced Earth India Pvt. Ltd. E-11, BLOCK-B1 EXTENSION (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 Tel: +91 11 46457600-7601, F: +91 11 46457630 www.terrawallindia.com	SCALE:- 1:150
	AUTHORISED SIGNATORY / DATE	AUTHORISED SIGNATORY / DATE	DESIGN DIRECTOR / DATE			DRAWN: SG / CHECKED BY: SDG (INITIAL) KS (FIRM) / APPROVED BY: AA	DATE:- 30/11/2020
							SHEET NO.:- 01/06

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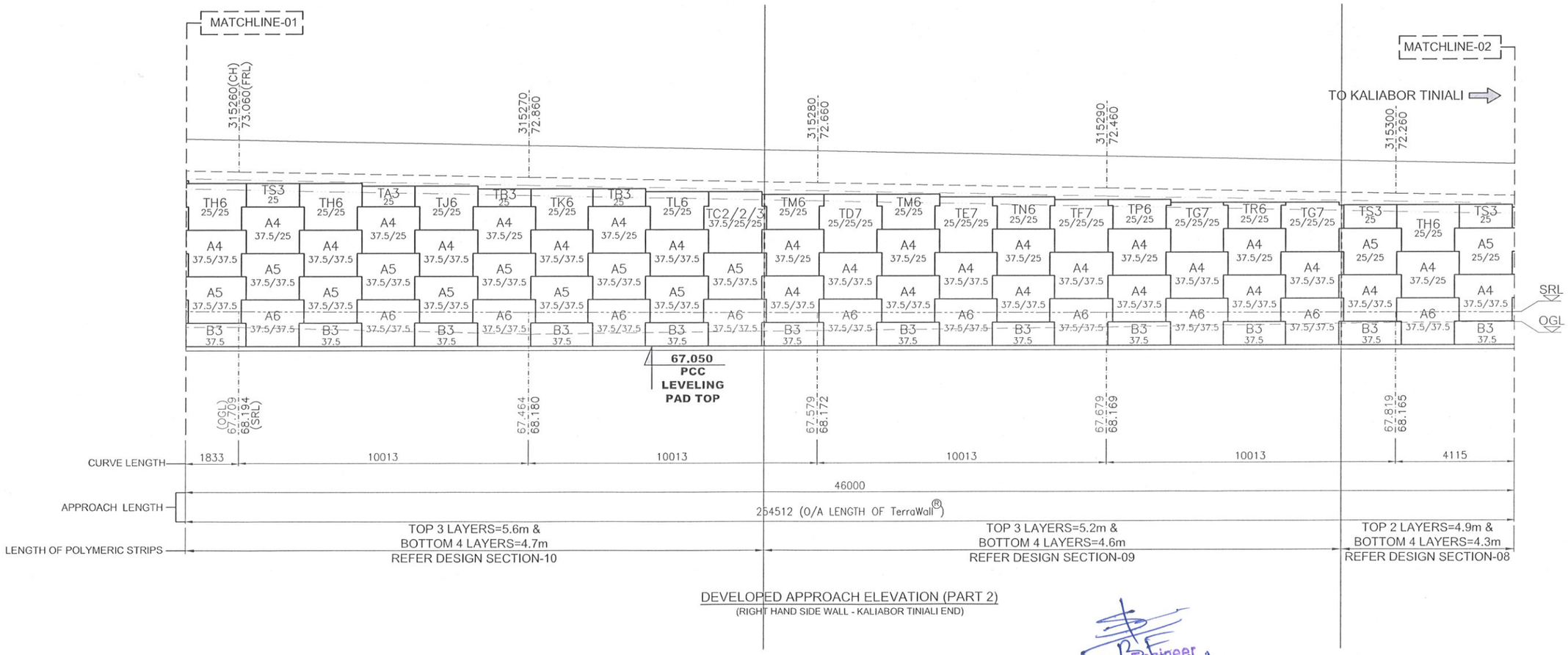
Rev.	Date	Description on Revisions
		Revisions

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - KALIABOR TINIALI END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-03 | REV. 00

DRAWING STATUS:- ISSUED FOR APPROVAL



DEVELOPED APPROACH ELEVATION (PART 2)
(RIGHT HAND SIDE WALL - KALIABOR TINIALI END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

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Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd

AUTHORISED SIGNATORY | DATE

PROOF CHECKED CONSULTANT:- CE TESTING Company Pvt. Ltd

AUTHORISED SIGNATORY | DATE

DESIGN CONSULTANT:- AECOM

DESIGN DIRECTOR | DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

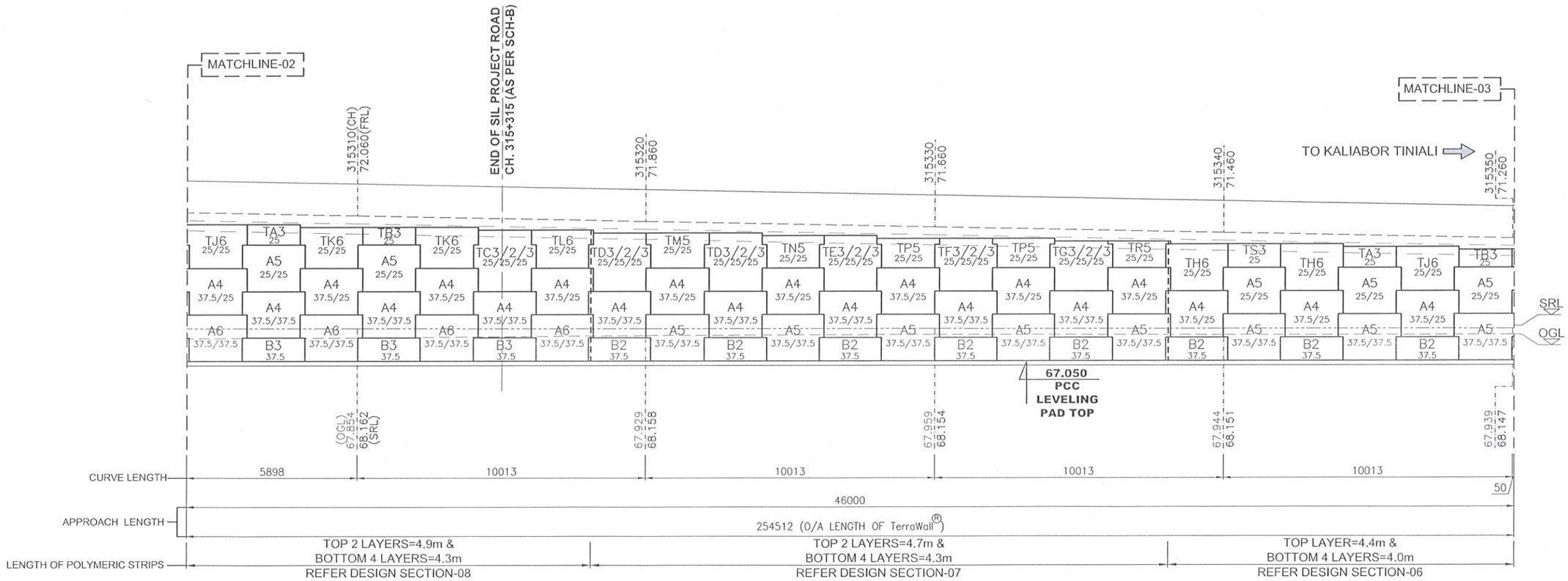
EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- REINFORCED EARTH INDIA PVT. LTD.
E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044
Tel: +91 11 46457600-7601, F: +91 11 46457630
www.terraarmeindia.com

DRAWN	INITIAL: SG	CHECKED BY	FINAL: SDG	KS	APPROVED BY	AA

SCALE:- 1:150
DATE:- 30/11/2020
SHEET NO.:- 02/06

STRUCTURE:- FLYOVER AT CH. 314+992
TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - KALIABOR TINIALI END)
DRG NO.:- TAInd-E/19759/FLY/314+992/GA-03 | REV.
DRAWING STATUS:- ISSUED FOR APPROVAL | 00



DEVELOPED APPROACH ELEVATION (PART 3)

(RIGHT HAND SIDE WALL - KALIABOR TINIALI END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)

AECOM India Private Limited Gurgaon

Reinforced Earth India Pvt. Ltd.

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Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED	AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd	PROOF CHECKED CONSULTANT:- CETEST CE TESTING Company Pvt. Ltd	DESIGN CONSULTANT:- AECOM	PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.	EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA
	AUTHORISED SIGNATORY / DATE	AUTHORISED SIGNATORY / DATE	DESIGN DIRECTOR / DATE		

PREPARED BY:- Reinforced Earth India Pvt. Ltd. — E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044, Tel +91 11 46457600-7601, F +91 11 46457630, www.terraemeaindia.com

DRAWN	INITIAL:- CHECKED BY	FINAL:-	APPROVED BY
SG	SDG	KS	AA

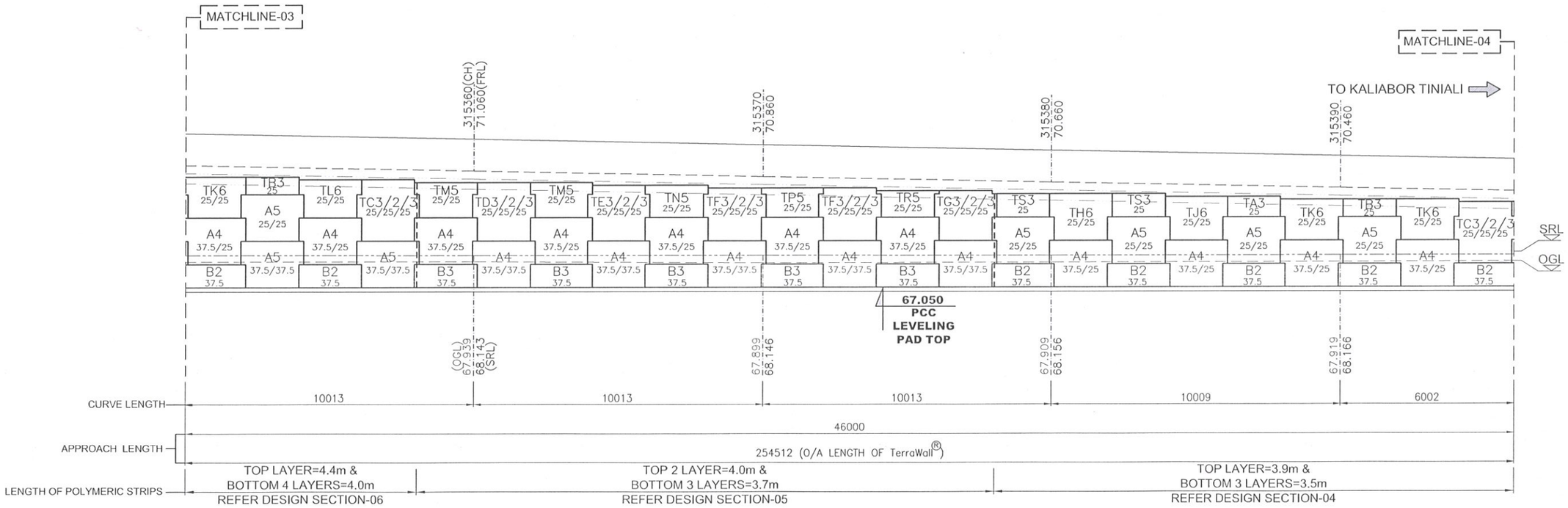
SCALE:-	1:150
DATE:-	30/11/2020
SHEET NO.:-	03/06

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - KALIABOR TINIALI END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-03 | REV.

DRAWING STATUS:- ISSUED FOR APPROVAL | 00



DEVELOPED APPROACH ELEVATION (PART 4)

(RIGHT HAND SIDE WALL - KALIABOR TINIALI END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

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Rev.	Date	Description on Revisions
		Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd

AUTHORISED SIGNATORY | DATE

PROOF CHECKED CONSULTANT:- CE TESTING Company Pvt. Ltd

AUTHORISED SIGNATORY | DATE

DESIGN CONSULTANT:- AECOM

DESIGN DIRECTOR | DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- Reinforced Earth India Pvt. Ltd.
E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044
Tel: +91 11 46457600-7601, F +91 11 46457630
www.terraarmeindia.com

DRAWN	INITIAL:- SDG	FINAL:- KS	APPROVED BY
SG	CHECKED BY		AA

SCALE:- 1:150

DATE:- 30/11/2020

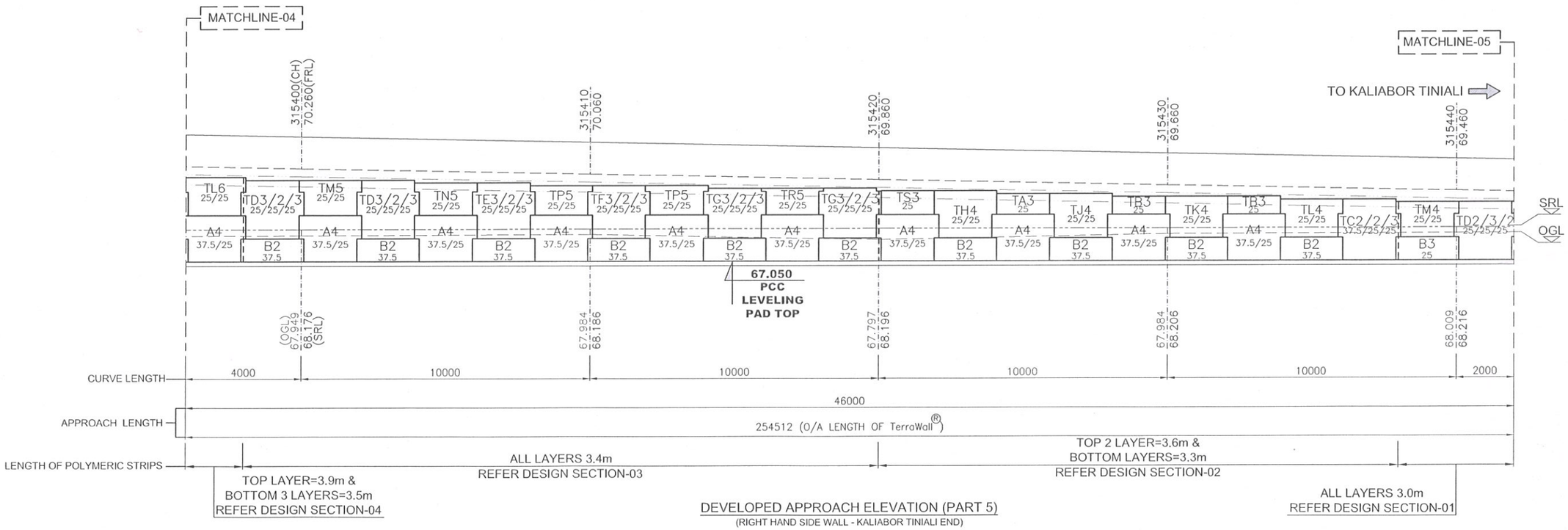
SHEET NO.:- 04/06

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - KALIABOR TINIALI END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-03 | REV. 00

DRAWING STATUS:- ISSUED FOR APPROVAL



DEVELOPED APPROACH ELEVATION (PART 5)

(RIGHT HAND SIDE WALL - KALIABOR TINIALI END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782002 (Assam)
03/07/24

AECOM India Private Limited Gurgaon

Reinforced Earth India Pvt. Ltd.

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

CE TESTING COMPANY PVT. LTD. KOLKATA

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Rev.	Date	Description on Revisions
		Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd

AUTHORISED SIGNATORY | DATE

PROOF CHECKED CONSULTANT:- CE TESTING Company Pvt. Ltd

AUTHORISED SIGNATORY | DATE

DESIGN CONSULTANT:- AECOM

DESIGN DIRECTOR | DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- REINFORCED EARTH INDIA PVT. LTD.
terre armee
Leaders in Innovation and Technology
8-11, BLOCK-B1 EXTENSION (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044
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SG	INITIAL: SDG	FINAL: KS	AA
DRAWN	CHECKED BY		APPROVED BY

SCALE:- 1:150

DATE:- 30/11/2020

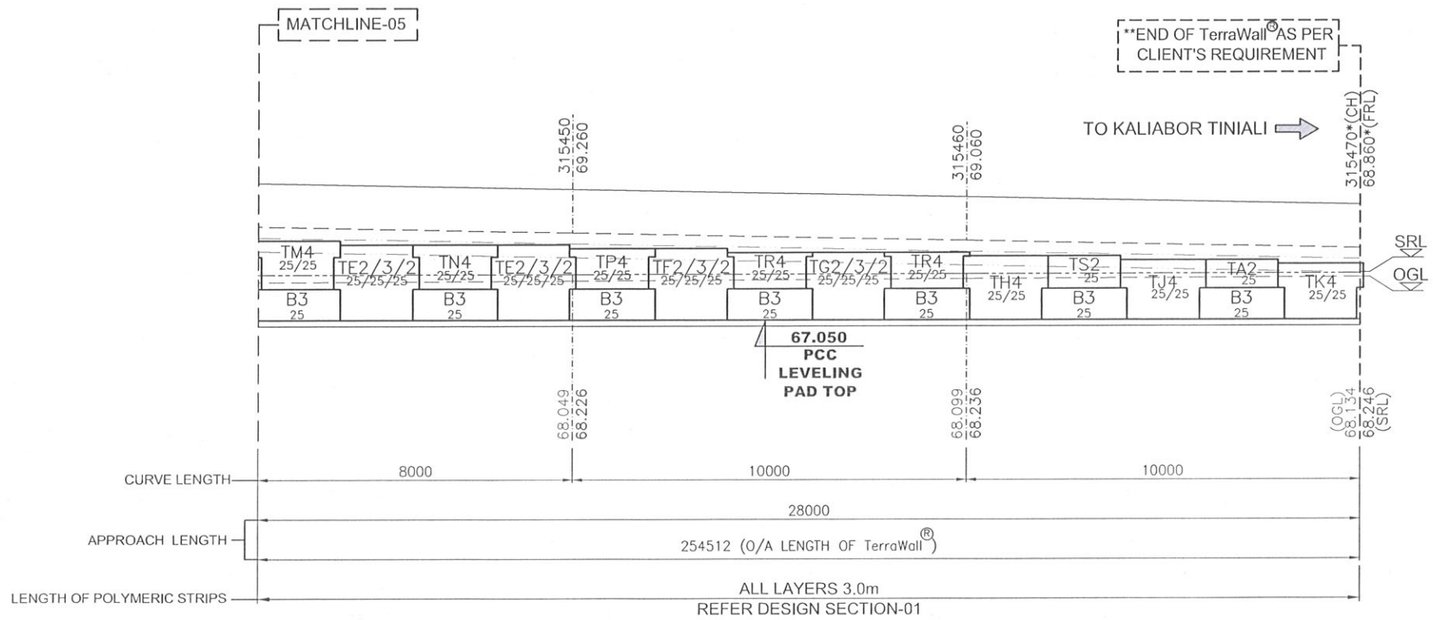
SHEET NO.:- 05/06

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:- GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - KALIABOR TINIALI END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-03 | REV.

DRAWING STATUS:- ISSUED FOR APPROVAL | 00



DEVELOPED APPROACH ELEVATION (PART 6)

(RIGHT HAND SIDE WALL - KALIABOR TINIALI END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782002 (Assam)
03/12/21

AECOM India Private Limited Gurgaon

Reinforced Earth India Pvt. Ltd.

**ADEQUATE PROTECTION SHALL BE TAKEN BY THE CONTRACTOR SUCH THAT THE LAST PANEL SHALL REMAIN IN POSITION AND RENDERS UNDAMAGED.

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

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Rev.	Date	Description on Revisions
		Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd — AUTHORISED SIGNATORY — DATE

PROOF CHECKED CONSULTANT:- CE TESTING Company Pvt. Ltd — AUTHORISED SIGNATORY — DATE

DESIGN CONSULTANT:- AECOM — DESIGN DIRECTOR — DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- Reinforced Earth India Pvt. Ltd. — E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 — Tel +91 11 46457600-7601, F +91 11 46457630 — www.terraemeaindia.com

SG	SDG	KS	AA
DRAWN	CHECKED BY (INITIAL:-)	CHECKED BY (FINAL:-)	APPROVED BY

SCALE:- 1:150

DATE:- 30/11/2020

SHEET NO.:- 06/06

STRUCTURE:- FLYOVER AT CH. 314+992

TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (RIGHT HAND SIDE WALL - KALIABOR TINIALI END)

DRG NO.:- TAInd-E/19759/FLY/314+992/GA-03 — REV. 00

DRAWING STATUS:- ISSUED FOR APPROVAL

NOTE :-

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRG. NO. TAInd-E/19759/FLY/314+992/DET-01
- FOR PANEL DETAIL REFER PANEL REINFORCEMENT DRAWINGS.
- ANY UNSUITABLE SOIL BENEATH THE RAMP PORTION SHALL BE REMOVED AND REPLACED WITH SELECTED BACK FILL.

*THESE DIMENSIONS, CHAINAGES & LEVELS SHALL BE VERIFIED AT THE SITE WELL BEFORE COMMENCEMENT OF WORK AND ANY VARIATION (IF FOUND) SHALL BE BROUGHT TO THE NOTICE OF ENGINEER-IN-CHARGE & THIS OFFICE.

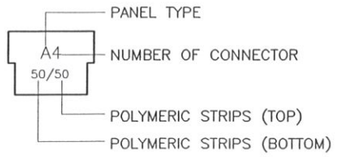
LET'S SAVE THE ALL SMALL CUT PIECES OF SOIL REINFORCING ELEMENT WHICH CONTRIBUTES TO WASTAGE SHALL SUITABLY BE PLACED IN DIFFERENT LAYERS EITHER IN REINFORCED OR IN RETAINED ZONE. NONE OF THE PIECES SHALL BE DISPOSED OR LEFT IN A MANNER THAT MAY LEAD TO LAND CONTAMINATION AND SOLID WASTE GENERATION.

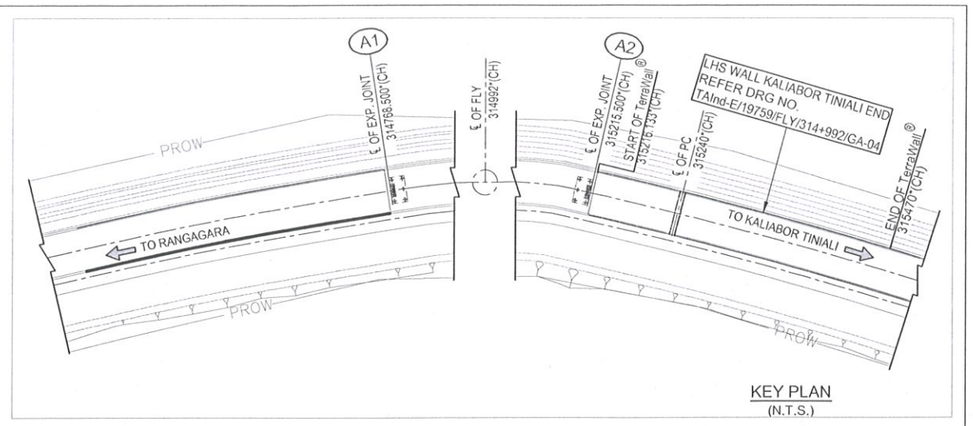
CAUTIONS :-

MOVEMENT OF HEAVY MACHINERIES OR COMPACTION PLANTS (MASS >1 MT) WITH IN 1.5 M DISTANCE FROM PANELS COULD LEAD TO MISALIGNMENT/STRUCTURAL DAMAGE OF THE WALL FACING AND OVERSTRESSING OF THE REINFORCEMENT LAYERS.

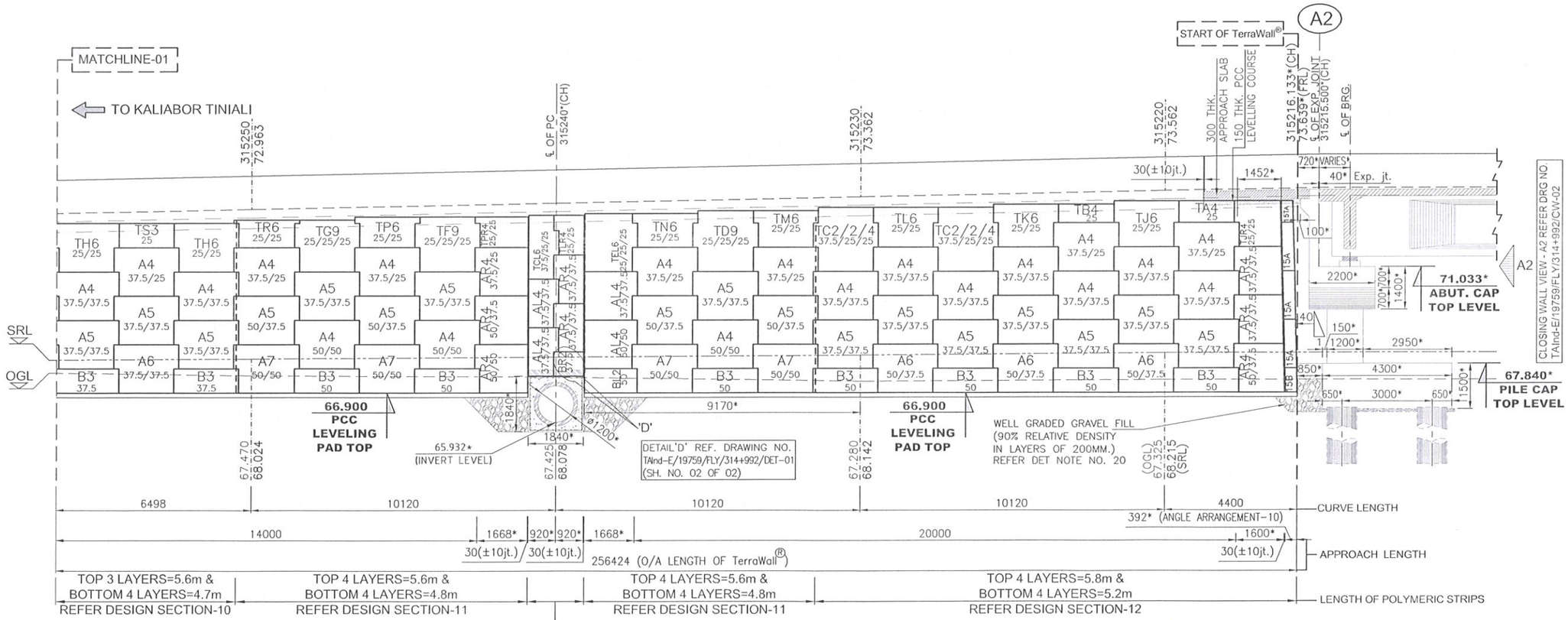
- SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

LEGEND:





KEY PLAN
(N.T.S.)



DEVELOPED APPROACH ELEVATION (PART 1)
(LEFT HAND SIDE WALL - KALIABOR TINIALI END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)

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Rev.	Date	Description on Revisions

Revisions

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd — AUTHORISED SIGNATORY — DATE

PROOF CHECKED CONSULTANT:- CE TESTING Company Pvt. Ltd — AUTHORISED SIGNATORY — DATE

DESIGN CONSULTANT:- AECOM — DESIGN DIRECTOR — DATE

PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.

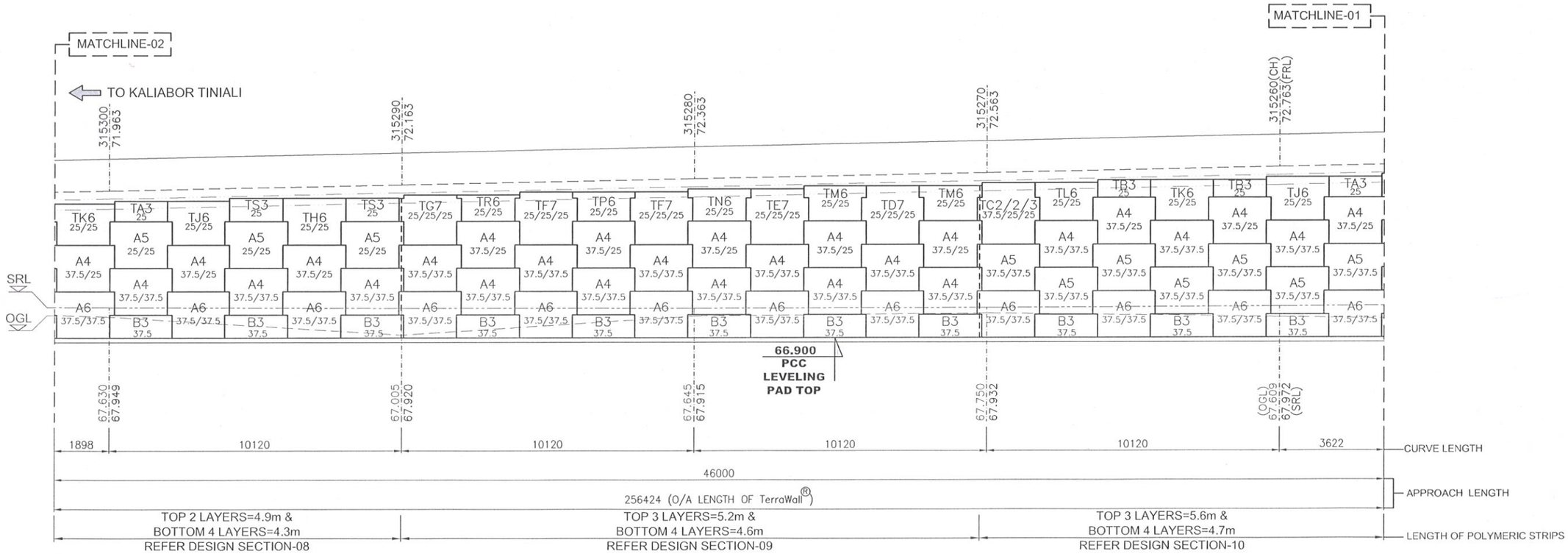
EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD, 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA

PREPARED BY:- REINFORCED EARTH INDIA PVT. LTD.
E-11, BLOCK-B1 EXTENSION (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044
Tel +91 11 46457600-7601, F +91 11 46457630
www.terraemeeindia.com

DRAWN	INITIAL:- SDG	FINAL:- KS	APPROVED BY
SG	CHECKED BY		AA

SCALE:- 1:150
DATE:- 30/11/2020
SHEET NO.:- 01/06

STRUCTURE:- FLYOVER AT CH. 314+992
TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (LEFT HAND SIDE WALL - KOHIMA END)
DRG NO.:- TAInd-E/19759/FLY/314+992/GA-04 — REV.
DRAWING STATUS:- ISSUED FOR APPROVAL — 00



DEVELOPED APPROACH ELEVATION (PART 2)

(LEFT HAND SIDE WALL - KALIABOR TINIALI END)

Bridge Engineer
Stup Consultants Pvt. Ltd.
Nagaon-782001 (Assam)
03/12/24

AECOM India Private Limited Gurgaon

Reinforced Earth India Pvt. Ltd.

– SERVICE ROAD EMBANKMENT FILL SHALL BE COMPLETED BEFORE STARTING OF RE WALL WORK.

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Rev.	Date	Description on Revisions
		Revisions

CE TESTING (I) PVT. LTD. KOLKATA

CLIENT :- NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED	AUTHORITY'S ENGINEER:- STUP CONSULTANTS Pvt. Ltd & AYOLEEZA CONSULTANTS Pvt. Ltd	PROOF CHECKED CONSULTANT:- CE TESTING Company Pvt. Ltd	DESIGN CONSULTANT:- AECOM	PROJECT:- Four Laning of NH-37 from Rangagara to Kaliabor Tiniali (CH. 297.000 Km to CH 315.315 Km) in Nagaon District in the state of Assam under SARDP-NE, Phase A on EPC Mode.	EPC CONTRACTOR:- SIMPLEX INFRASTRUCTURES LTD 27, SHAKESPEARE SARANI, KOLKATA-17, INDIA
	AUTHORISED SIGNATORY / DATE	AUTHORISED SIGNATORY / DATE	DESIGN DIRECTOR / DATE		

PREPARED BY:- terre armee — REINFORCED EARTH INDIA PVT. LTD. E-11, BLOCK-B1 EXTENSION, (OPPOSITE NTPC BADARPUR), MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 Tel: +91 11 46457600-7601, F +91 11 46457630 www.terrearmeeindia.com

SG	SDG	KS	AA
DRAWN	CHECKED BY (INITIAL:-)	(FINAL:-)	APPROVED BY

SCALE:-	1:150
DATE:-	30/11/2020
SHEET NO.:-	02/06
STRUCTURE:- FLYOVER AT CH. 314+992	
TITLE:-GENERAL ARRANGEMENT OF APPROACH RAMP (LEFT HAND SIDE WALL - KOHIMA END)	
DRG NO.:- TAInd-E/19759/FLY/314+992/GA-04	REV.
DRAWING STATUS:- ISSUED FOR APPROVAL	00