

CLIENT:-

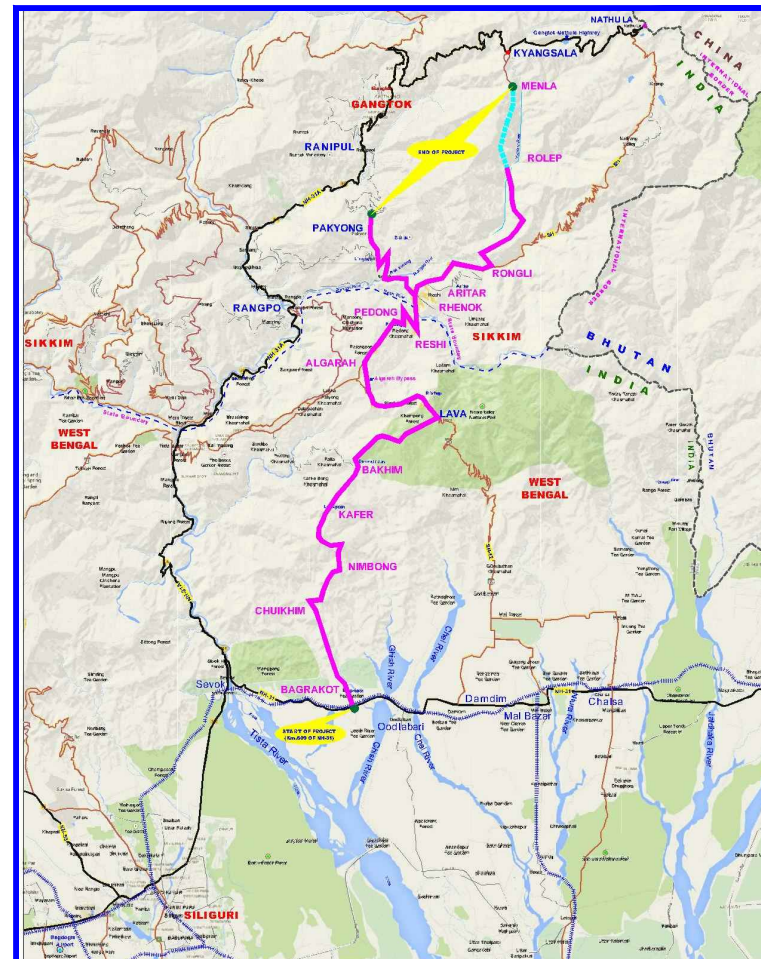


NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Against Supplementary Agreement dated 05.12.2019 - To execute the work of preparation of DPR as 'Additional work' for Package-II, III, IV-C and V which forms part of the original Contract Agreement dated 30.09.2014 for Preparation of Feasibility Report cum Preliminary Design for alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim -Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and from Rhenok-Rorathang-Pakyong along with spur from Aritar-Rolep-Menla in the State of Sikkim.

DRAFT DETAILED PROJECT REPORT

PACKAGE- II (B)
(Km 27+200 To Km 37+600)
HIGHWAY:-PLAN & PROFILE



May -2020

CONSULTANT :-

SA INFRASTRUCTURE CONSULTANTS PVT. LTD.

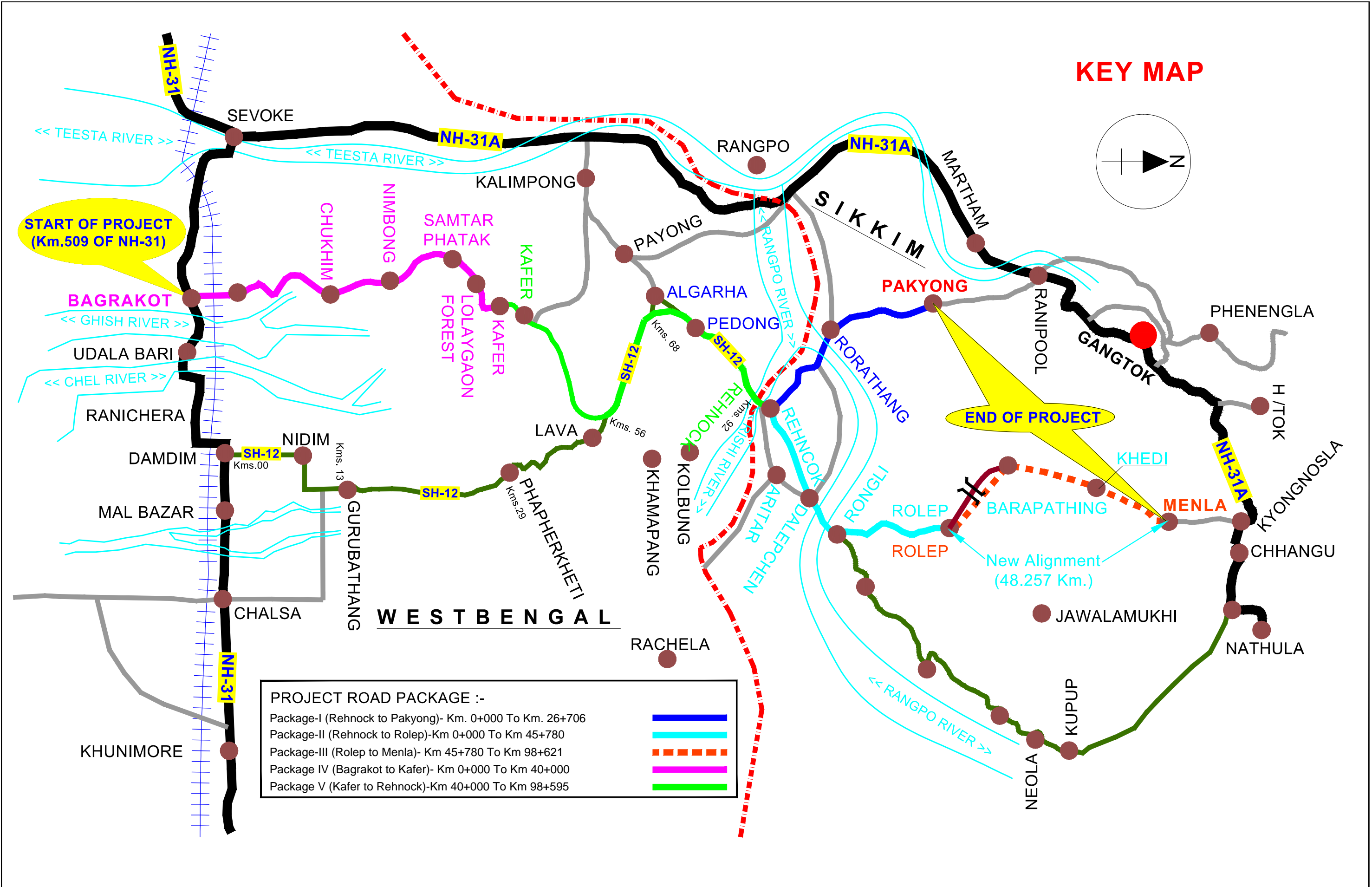
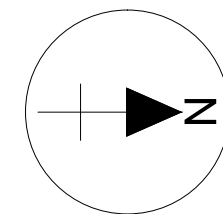


In Association with
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh.

GENERAL DRAWING



KEY MAP



PROJECT ROAD PACKAGE :-

Package-I (Rehnock to Pakyong)- Km. 0+000 To Km. 26+706	
Package-II (Rehnock to Rolep)-Km 0+000 To Km 45+780	
Package-III (Rolep to Menla)- Km 45+780 To Km 98+621	
Package IV (Bagrakot to Kafer)- Km 0+000 To Km 40+000	
Package V (Kafer to Rehnock)-Km 40+000 To Km 98+595	

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
RO	Sep 2017	Final Feasibility Report	
RO	Nov 2016	Draft Feasibility Report	
RO	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

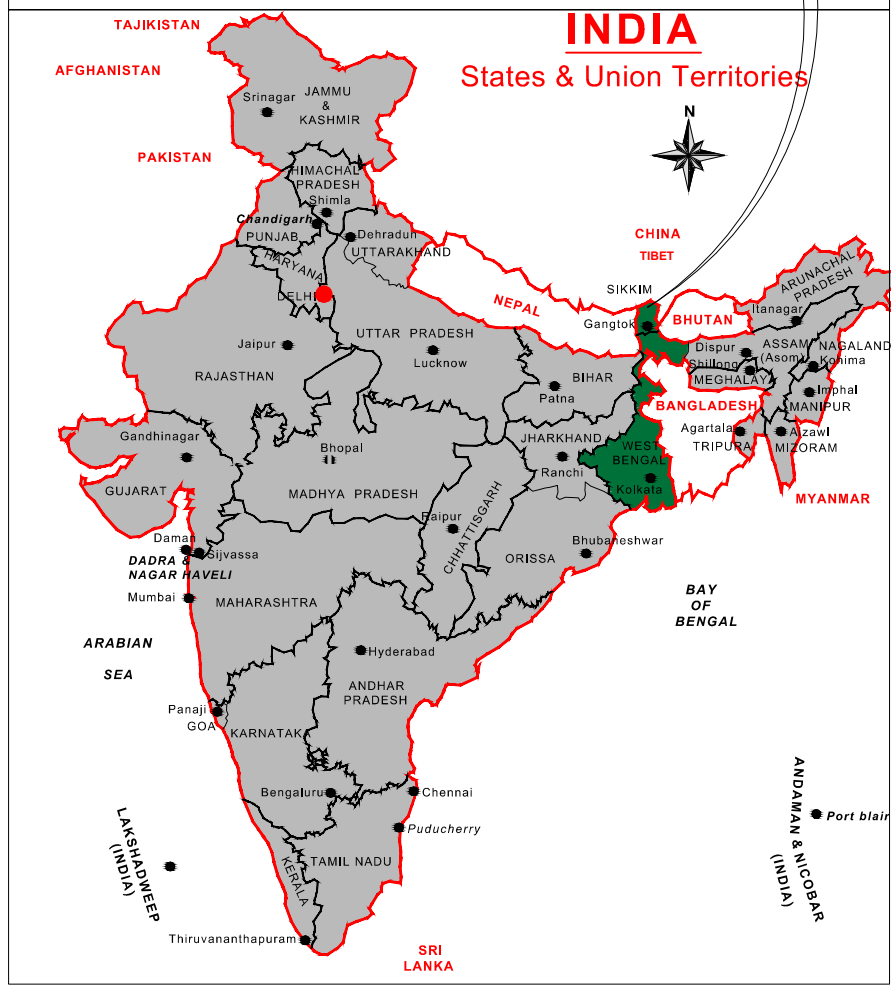
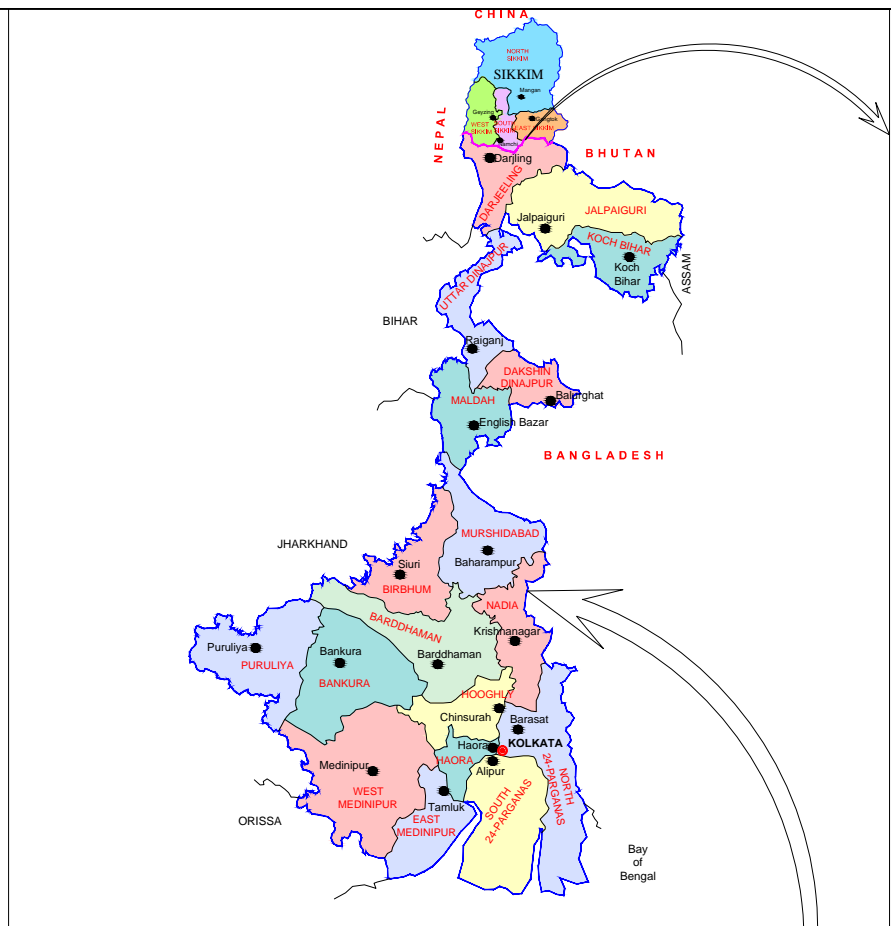
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

DATE : May 2020	Revision	RO
DESIGNED BY	DRAWN BY	CHECKED BY
P.S	Naresh	R.Nayak
APPROVED BY		
		L.A.Z.
SCALE:- H-1:2000, V-1:100, For A3 Paper Size		

PACKAGE-2
RESHI BORDER-ROLEP
KEY PLAN

Dwg. No. :- SAICPL-SESPL/NHDCL/WB-SKM/P&P/



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
RO	Sep 2017	Final Feasibility Report	
RO	Nov 2016	Draft Feasibility Report	
RO	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
In Association with
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

DATE :	May 2020	Revision	RO
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S	Naresh	R.Nayak	L.A.Z.
SCALE:-	H-1:2000, V-1:100,) For A3 Paper Size		

PACKAGE-2
RESHI BORDER-ROLEP
LOCATION MAP

Dwg. No. :- SAICPL-SESPL/NHDCL/WB-SKM/P&P/

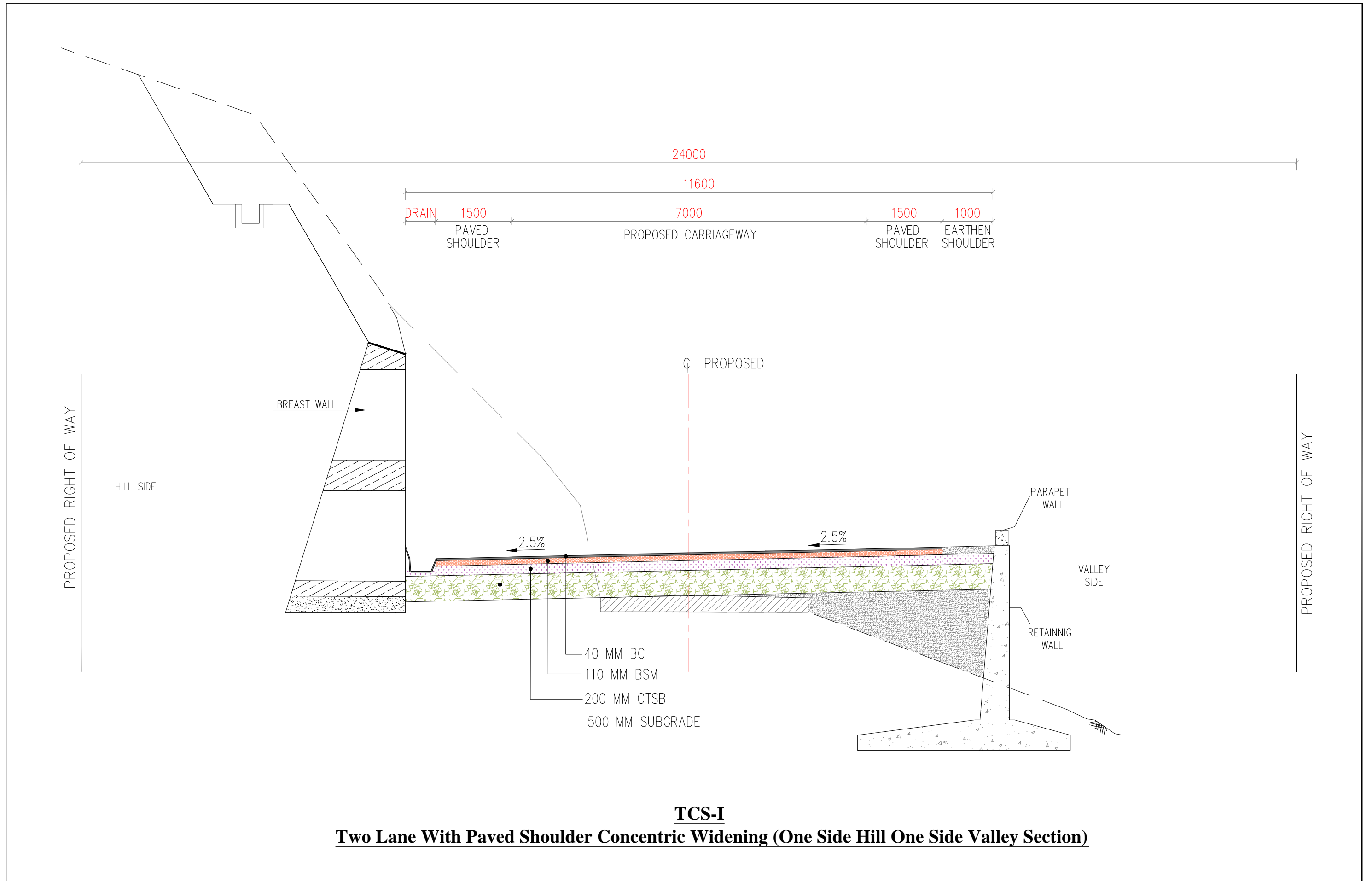
HORIZONTAL & VERTICAL REPORT

HIP No.	Chainage	LC	Transitio n length (Ls)	Circular Angle	Radius	Length of curve (Lc)	ARC DETAILS				Total Deflectio n	Shift (#)	Tangent Dist (Ts)	Apex Dist (Es)	HIP CO ORDINATE		Speed V	e	Hand of Arc	HIP No.	Chainage	LC	Transitio n length (Ls)	Circular Angle	Radius	Length of curve (Lc)	ARC DETAILS				Total Deflectio n	Shift (#)	Tangent Dist (Ts)	Apex Dist (Es)	HIP CO ORDINATE		Speed V	e	Hand of Arc
							Start X	Start Y	End X	End Y					EASTING	NORTHING											Start X	Start Y	End X	End Y					EASTING	NORTHING			
01	27+264	46.65	0	35.639	75	46.651	667305.2	3011333	667350.73	3011339.3	35.64	0.000	24.11	3.78	667327.019	3011343.655	40	7.00	Right	94	35+671	57.69	0	44.074	-75	57.692	669450	3016496	669458.14	3016551.4	44.07	0.000	30.36	5.91	669442.79	3016525.191	40	5.93	Left
02	27+322	48.90	0	37.355	-75	48.897	667360.7	3011337	667408.25	3011344.3	37.36	0.000	25.36	4.17	667385.639	3011332.819	40	7.00	Left	95	35+825	60.63	10	167.009	-18	60.63	669475.1	3016582	669439.63	3016587	198.84	0.231	-104.89	-129.39	669514.527	3016735.154	20	2.5%	Left
03	27+389	62.06	0	47.407	75	62.055	667417.8	3011349	667477.96	3011352.4	47.41	0.000	32.93	6.91	667447.124	3011363.988	40	7.00	Right	96	35+825	38.54	0	29.441	75	38.538	669441.6	3016576	669441.41	3016537.6	29.44	0.000	19.70	2.55	669446.508	3016556.649	40	7.00	Right
04	27+512	128.79	0	98.384	-75	128.785	667484.6	3011350	667584.23	3011404.4	98.38	0.000	86.86	39.76	667565.961	3011319.498	40	7.00	Left	97	35+873	25.16	0	14.418	100	25.164	669437.4	3016522	669433.95	3016497.6	14.42	0.000	12.65	0.80	669434.081	3016510.245	40	7.00	Right
05	27+579	45.69	0	34.908	75	45.694	667584.5	3011406	667606.76	3011445	34.91	0.000	23.58	3.62	667589.502	3011428.93	40	7.00	Right	98	35+898	23.35	0	17.841	-75	23.354	669433.9	3016496	669430.1	3016473.2	17.84	0.000	11.77	0.92	669433.822	3016484.388	40	7.00	Left
06	27+694	24.38	0	2.794	500	24.378	667665.8	3011500	667684.01	3011516.1	2.79	0.000	12.18	0.15	667674.689	3011508.235	40	2.5%	Right	99	35+963	41.98	0	32.071	75	41.981	669420.3	3016444	669418.54	3016402.3	32.07	0.000	21.56	3.04	669413.455	3016423.212	40	7.00	Right
07	27+789	28.64	0	10.941	-150	28.644	667736.1	3011560	667756.13	3011580.5	10.94	0.000	14.36	0.69	667747.106	3011569.342	40	4.74	Left	100	36+056	30.41	0	96.783	-18	30.405	669431.1	3016351	669415.72	3016328.6	96.78	0.000	20.27	9.11	669435.845	3016331.059	40	7.00	Left
08	27+877	92.84	0	35.46	150	92.835	667772.5	3011601	667848.79	3011651.1	35.46	0.000	47.96	7.48	667802.611	3011638.131	40	4.74	Right	101	36+097	39.92	0	108.925	21	39.923	669414.6	3016328	669391.52	3016353.7	108.93	0.000	29.40	15.13	669385.379	3016324.975	40	7.00	Right
09	27+957	55.32	0	31.696	-100	55.32	667854.9	3011653	667901.46	3011681.3	31.70	0.000	28.39	3.95	667882.225	3011680.418	40	7.00	Left	102	36+129	35.29	0	26.957	75	35.286	669392.2	3016357	669391.3	3016391.7	26.96	0.000	17.98	2.12	669395.919	3016374.344	40	7.00	Right
10	28+080	72.67	0	13.878	-300	72.666	667942.3	3011726	667984.62	3011784.4	13.88	0.000	36.52	2.21	667967.041	3011752.448	40	2.5%	Left	103	36+180	42.98	0	32.833	-75	42.978	669388.2	3016403	669389.34	3016445.6	32.83	0.000	22.10	3.19	669382.536	3016424.622	40	7.00	Left
11	28+224	68.25	0	52.141	75	68.253	668018.8	3011847	668072.73	3011884.6	52.14	0.000	36.69	8.49	668036.498	3011878.863	40	7.00	Right	104	36+269	40.94	0	111.689	-21	40.936	669400.7	3016481	669379.3	3016508	111.69	0.000	30.95	16.40	669410.181	3016510.073	40	7.00	Left
12	28+300	42.57	0	12.195	-200	42.569	668094.8	3011888	668135.85	3011899.3	12.20	0.000	21.37	1.14	668115.942	3011891.548	40	3.56	Left	105	36+304	36.57	0	99.788	21	36.574	669379.2	3016508	669360.21	3016482.2	99.79	0.000	24.93	11.60	669354.365	3016506.403	40	7.00	Right
13	28+353	44.25	0	5.071	500	44.251	668145.5	3011903	668187.34	3011917.2	5.07	0.000	22.14	0.49	668166.082	3011911.064	40	2.5%	Right	106	36+358	43.33	0	33.104	-75	43.333	669365	3016462	669362.74	3016419.7	33.10	0.000	22.29	3.24	669370.204	3016440.681	40	7.00	Left
14	28+430	50.33	0	28.838	-100	50.332	668215.8	3011925	668258.16	3011950.7	28.84	0.000	25.71	3.25	668239.99	3011932.532	40	7.00	Left	107	36+457	62.61	0	71.746	-50	62.611	669348.6	3016380	669300.38	3016346.7	71.75	0.000	36.16	11.71	669336.524	3016345.863	40	4.74	Left
15	28+515	98.27	0	18.769	300	98.273	668265.8	3011958	668345.29	3012015.4	18.77	0.000	49.58	4.07	668300.824	3011993.44	40	2.5%	Right	108	36+516	45.22	0	34.547	75	45.222	669291.2	3016347	669248.34	3016334.6	34.55	0.000	23.32	3.54	669267.839	3016347.422	40	7.00	Right
16	28+619	85.62	0	49.059	-100	85.623	668353.8	3012020	668406.26	3012083.9	49.06	0.000	45.64	9.92	668394.698	3012039.765	40	7.00	Left	109	36+616	107.95	0	82.466	75	107.948	669237.8	3016328	669211.37	3016232.5	82.47	0.000	65.74	24.73	669182.855	3016291.712	40	7.00	Right
17	28+707	78.82	0	9.032	500	78.818	668408.5	3012092	668434.36	3012166.7	9.03	0.000	39.48	1.56	668418.479	3012130.571	40	2.5%	Right	110	36+748	37.38	0	28.554	-75	37.377	669241.9	3016169	669249.19	3016132.9	28.55	0.000	19.08	2.39	669250.134	3016151.994	40	7.00	Left
18	28+816	50.66	0	38.702	75	50.661	668451.7	3012206	668485.66	3012242.6	38.70	0.000	26.34	4.49	668462.312	3012230.391	40	7.00	Right	111	36+805	29.27	0	22.362	75	29.272	669248	3016109	669252.22	3016080.3	22.36	0.000	14.82	1.45	669247.268	3016094.252	40	7.00	Right
19	28+899	92.57	0	70.718	-75	92.569	668490.8	3012245	668530.31	3012322.6	70.72	0.000	53.22	16.96	668537.998	3012269.942	40	7.00	Left	112	36+931	14.51	0	11.086	-75	14.511	669266.3	3015982	669263.03	3015969.3	11.09	0.000	7.28	0.35	669269.328	3015975.613	40	7.00	Left
20	28+961	39.93	0	30.505	75	39.931	668530	3012325	668534.76	3012363.9	30.51	0.000	20.45	2.74	668527.038	3012344.998	40	7.00	Right	113	37+009	11.90	0	9.089	-75	11.898	669326.3	3015913	669333.19	3015903.3	9.09	0.000	5.96	0.24	669329.38	3015907.906	40	7.00	Left
21	29+003	32.68	0	24.965	-75	32.68	668537	3012369	668542.49	3012401.4	24.97	0.000	16.61	1.82	668543.293	3012384.836	40	7.00	Left	114	37+061	41.54	0	23.798	100	41.536	669349.1	3015884	669368.36	3015847.6	23.80	0.000	21.07	2.20	669362.59	3015867.898	40	7.00	Right
22	29+076	38.62	0	29.502	75	38.618	668540.7	3012438	668548.05	3012475.5	29.50	0.000	19.75	2.56	668539.763	3012457.871	40	7.00	Right	115	37+163	26.95	0	15.442	-100	26.951	669386.9	3015783	669397.67	3015757.9	15.44	0.000	13.56	0.91	669390.62	3015769.475	40	7.00	Left
23	29+136	63.87	0	48.79	75	63.865	668551.6	3012481	668599.84	3012520.3	48.79	0.000	34.01	7.35	668566.907	3012511.761	40	7.00	Right	116	37+202	20.33	0	15.529	75	20.327	669405.8	3015745	669413.88	3015726	15.53	0.000	10.23	0.69	669411.097	3015735.848	40	7.00	Right
24	29+199	37.28	0	28.478	-75	37.278	668613.6	3012524	668645.96	3012541.5	28.48	0.000	19.03	2.38	668632.029	3012528.575	40	7.00	Left	117	37+281	52.07	0	99.443	30	52.068	669423	3015694	669397.45	3015655.9	99.44	0.000	35.40	16.40	669432.634	3015659.789	20	5.93	Right
25	29+236	28.11	0	21.472	75	28.106	668649.8	3012545	668673.45	3012560	21.47	0.000	14.22	1.34	668660.218	3012554.82	40	7.00	Right	118	37+430	31.79	0	60.712	30	31.789	669283.7	3015643	669255.97	3015655.5	60.71	0.000	17.57	4.77	669266.206	3015641.219	20	5.93	Right
26	29+318	29.01	0	16.621	100	29.009	668722.9	3012580	668751.07	3012586.1	16.62	0.000	14.61	1.06	668736.518	3012584.849	40	7.00	Right	119	37+493	42.25	0	32.273	75	42.245	669240.1	3015678	669226.18	3015716.9	32.27	0.000	21.70	3.08	669227.458	3015695.233	40	7.00	Right
27	29+380	32.42	0	18.574	-100	32.417	668781.9	3012589	668813.2	3012596.6	18.57	0.000	16.35	1.33	668798.194	3012590.096	40	7.00	Left	120	37+538	28.66	0	21.896	-75	28.662	669225.6	3015727	669218.54	3015754.5	21.90	0.000	14.51	1.39	669224.732	3015741.361	40	7.00	Left
28	29+417	12.74	0	7.301	100	12.743	668826.7	3012602	668838.65	3012606.8	7.30	0.000	6.38	0.20	668832.526	3012604.978	40	7.00	Right	121	37+607	82.72	0	9.479	-500	82.717	669212.6	3015767	669171.25	3015838.6	9.48	0.000	41.46	1.72	669194.881	3015804.572	40	2.5%	Left

VERTICAL ALIGNMENT REPORT										
IP		Type of Curve	Curve Leng	K Value	Start		End		Gradient	
Chainage	Level				Chainage	Level	Chainage	Level	In	Out
27467.43	1062.4	Hog	100	2219.287	27417.43	1059.15	27517.43	1065.627	6.5	6.455
27998.26	1096.664	Hog	200	2798.697	27898.26	1090.209	28098.26	1103.047	6.455	6.383
28541.94	1131.369	Sag	200	1847.431	28441.94	1124.985	28641.94	1137.86	6.383	6.492
29675	1204.922	Hog	100	484.087	29625	1201.676	29725	1208.065	6.492	6.285
30790	1275	Hog	200	31.822	30690	1268.715	30890	1275	6.285	0
31100	1275	Hog	200	70.756	31000	1275	31200	1272.173	0	-2.827
31683.14	1258.517	Hog	200	329.85	31583.14	1261.344	31783.14	1255.084	-2.827	-3.433
31945.8	1249.5	Sag	60	17.478	31915.8	1250.53	31975.8	1249.5	-3.433	0
32230	1249.5	Hog	60	15.429	32200	1249.5	32260	1248.333	0	-3.889
32320	1246	Sag	60	15.429	32290	1247.167	32350	1246	-3.889	0
32456.97	1246	Hog	100	20.291	32406.97	1246	32506.97	1243.536	0	-4.928
32831.68	1227.533	Sag	100	34.194	32781.68	1229.998	32881.68	1226.531	-4.928	-2.004
33141.62	1221.323	Hog	128.728	562.28	33077.25	1222.612	33205.98	1219.885	-2.004	-2.233
33380	1216	Sag	200	89.574	33280	1218.233	33480	1216	-2.233	0
33850	1216	Hog	200	62.405	33750	1216	33950	1212.795	0	-3.205
34255.63	1203	Sag	100	31.202	34205.63	1204.602	34305.63	1203	-3.205	0
34460.98	1203	Hog	100	15.725	34410.98	1203	34510.98	1199.82	0	-6.359
36772.59	1056	Hog	60	416.415	36742.59	1057.908	36802.59	1054.049	-6.359	-6.503
37232.8	1026.07	Sag	150	23.061	37157.8	1030.948	37307.8	1026.07	-6.505	0
37541.59	1026.07	Sag	150	25.496	37466.59	1026.07	37616.59	1030.482	0	5.883

RO Sep 2017	Final Feasibility Report					Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways) Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. <small>In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301, Uttar Pradesh.</small>	Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim	DATE :	May 2020	Revision	RO	PACKAGE-2 RESHI BORDER-ROLEP VERTICAL REPORT Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/HVD/
RO Nov 2016	Draft Feasibility Report				DESIGNED BY			DRAWN BY	CHECKED BY	APPROVED BY		
RO Dec 2014	Linear Plan											
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS		SCALE:- NTS) For A3 Paper Size							

TYPICAL CROSS SECTION



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

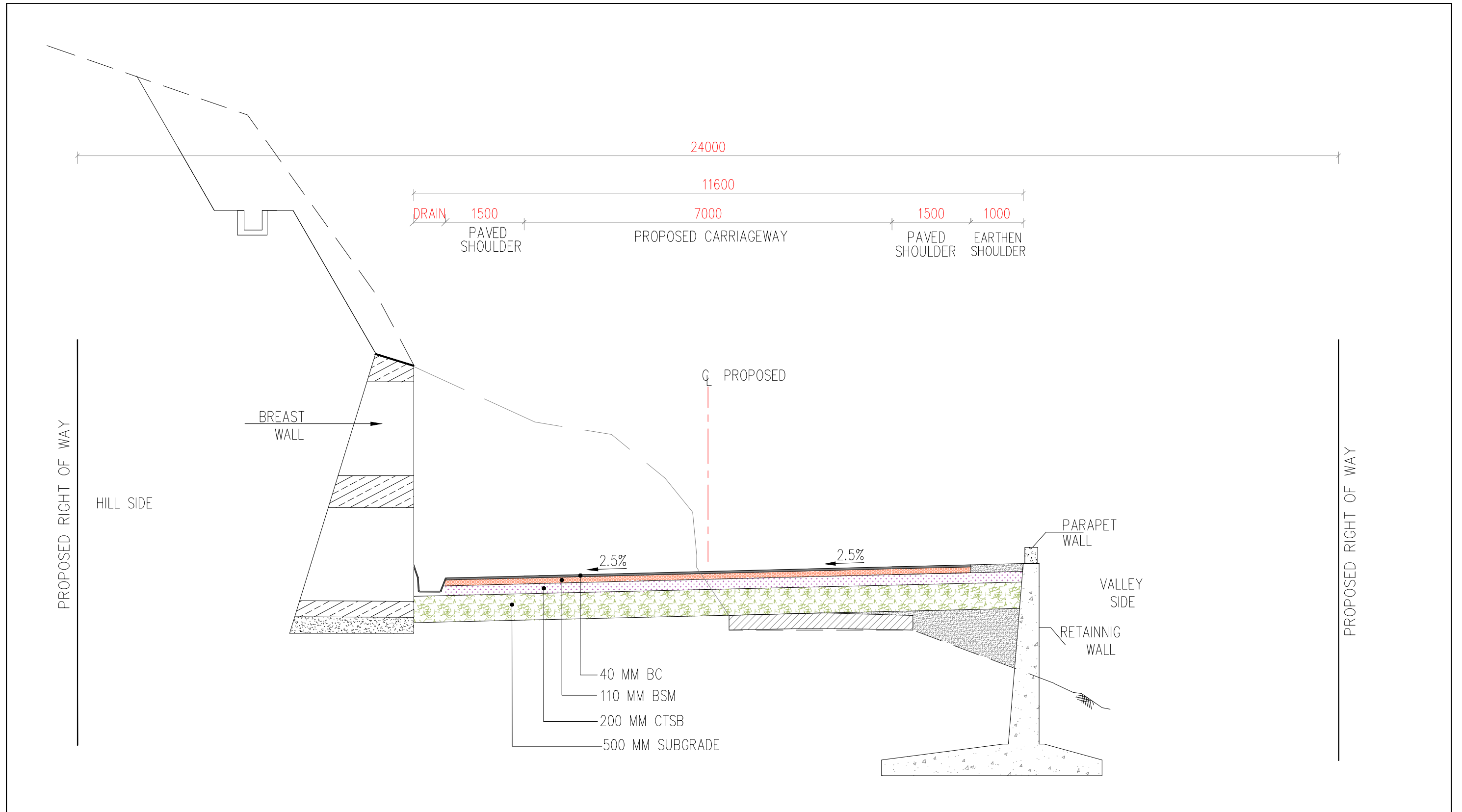
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
In Association with
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

DATE :	May 2020	Revision	R0
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S	Naresh	R.Nayak	L.A.Z.
SCALE: - NTS) For A3 Paper Size			

PACKAGE-2
RESHI BORDER-ROLEP
TYPICAL CROSS SECTION

Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/TCS/1



TCS-II
Two Lane With Paved Shoulder Eccentric Left Side Widening (One Side Hill One Side Valley Section)

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
In Association with
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

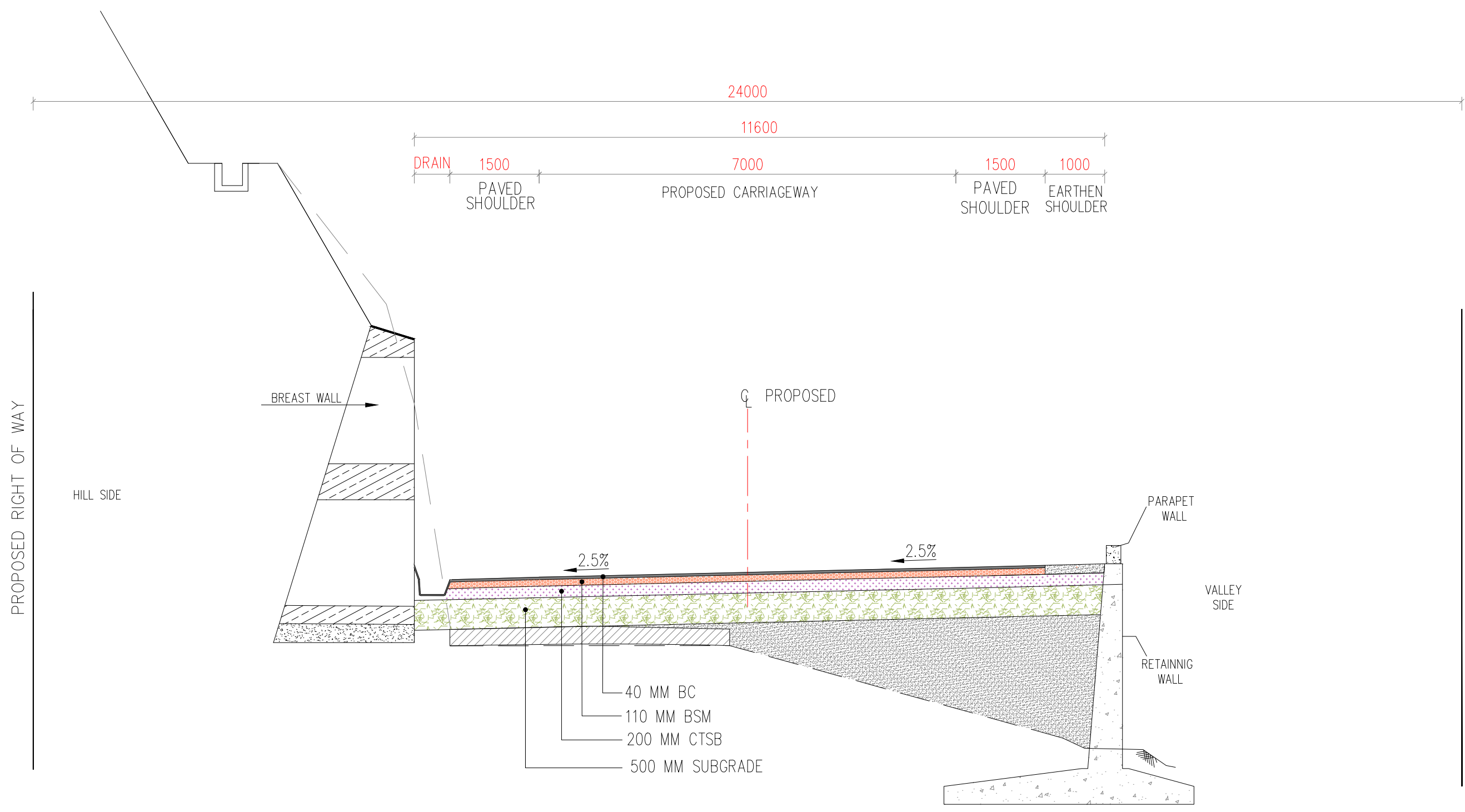
Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S	Naresh	R.Nayak	L.A.Z.

DATE : May 2020
Revision R0
SCALE:- NTS) For A3 Paper Size

PACKAGE-2
RESHI BORDER-ROLEP
TYPICAL CROSS SECTION

Dwg. No. :- SAICPL-SESPL/NHDCL/WB-SKM/TCS/2



TCS-III
Two Lane With Paved Should Eccentric Right Widening (One Side Hill One Side Valley Section)

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

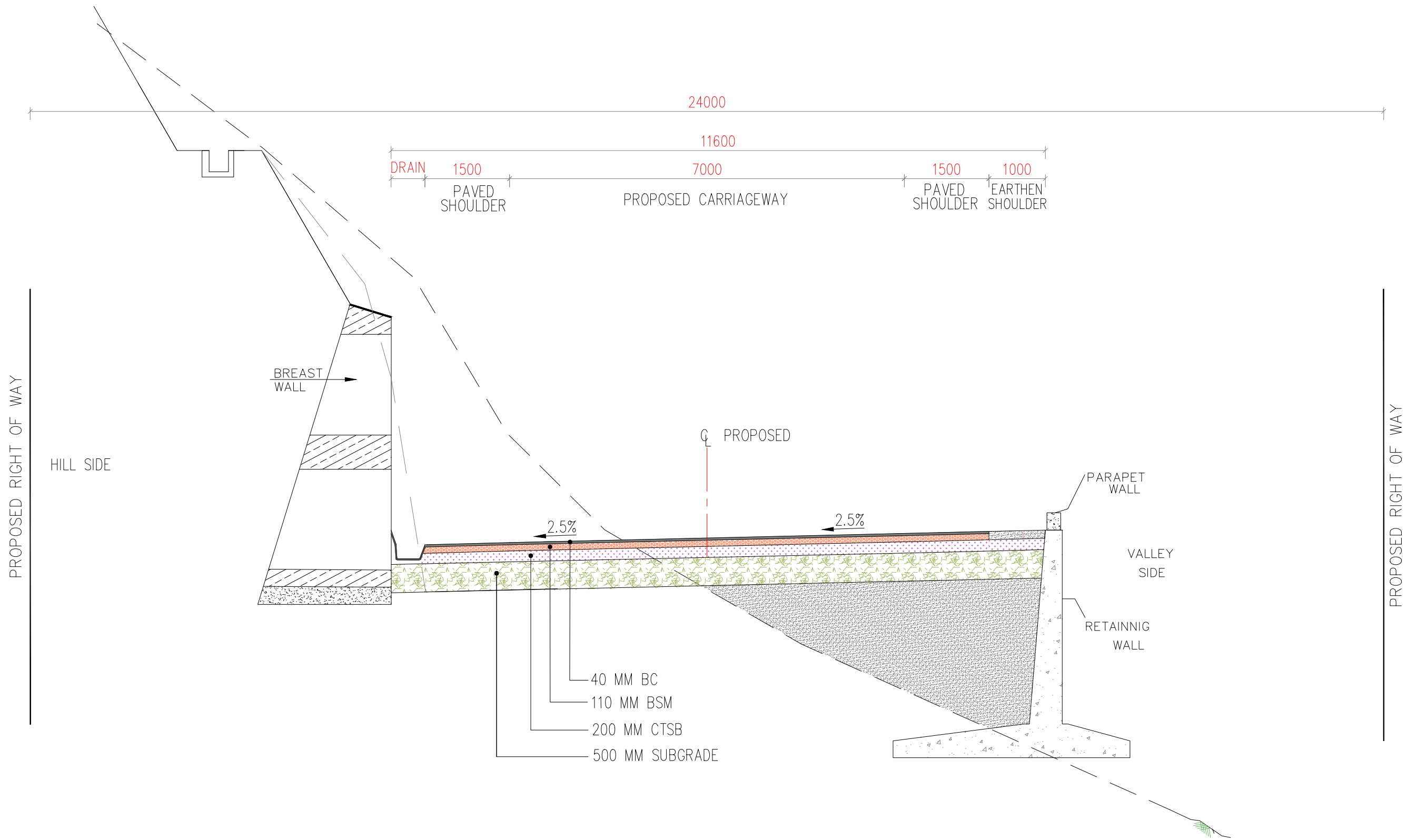
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
In Association with
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

DATE :	May 2020	Revision	R0
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S	Naresh	R.Nayak	L.A.Z.
SCALE:-	NTS) For A3 Paper Size		

PACKAGE-2
RESHI BORDER-ROLEP
TYPICAL CROSS SECTION

Dwg. No. :- SAICPL-SESPL/NHDCL/WB-SKM/TCS/3



TCS-IV
Two Lane With Paved Shoulder (One Side Hill One Side Valley Section)
(Re-Alignment)

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

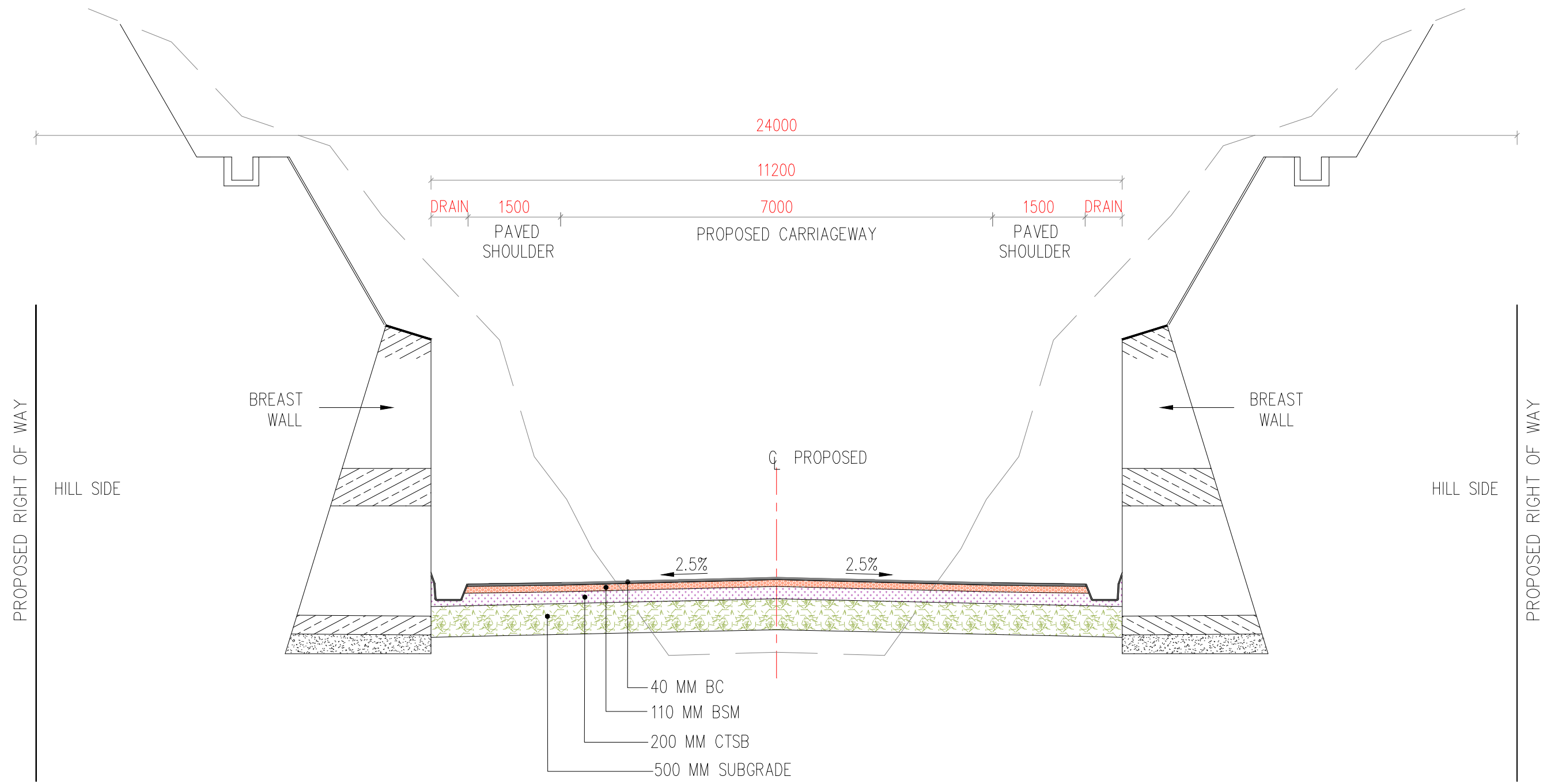
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
In Association with
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

DATE :	May 2020	Revision	R0
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S	Naresh	R.Nayak	L.A.Z.
SCALE:-	NTS) For A3 Paper Size		

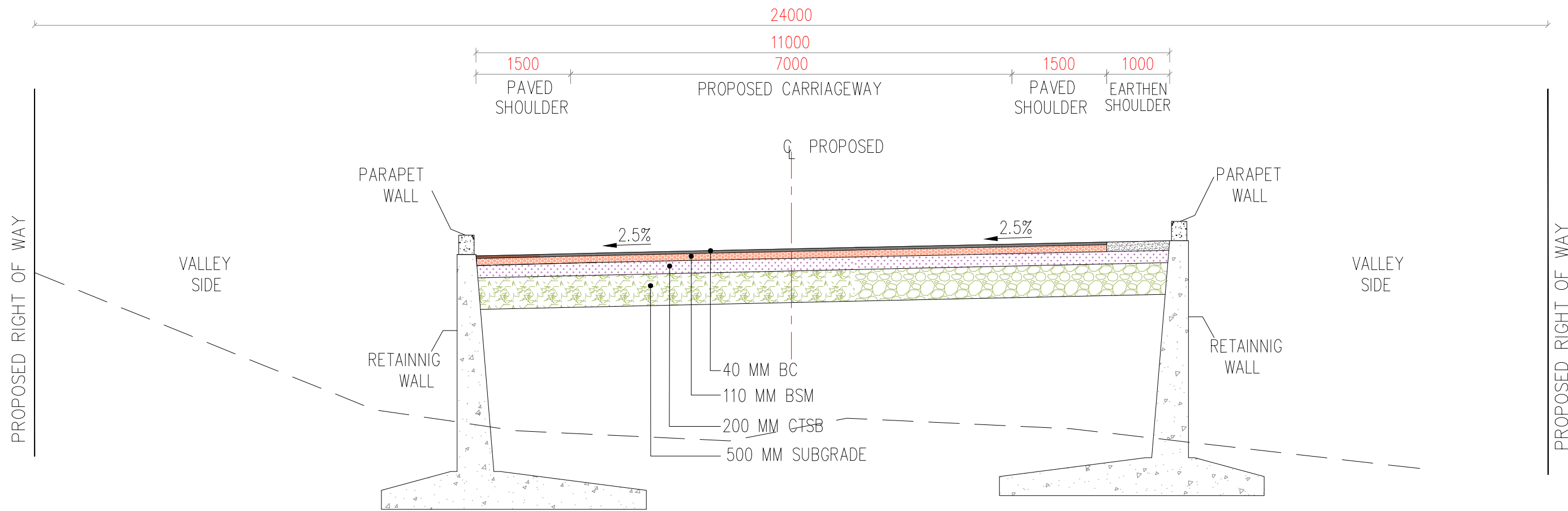
PACKAGE-2
RESHI BORDER-ROLEP
TYPICAL CROSS SECTION

Dwg. No. :- SAICPL-SESPL/NHDCL/WB-SKM/TCS/4



TCS-V
Two Lane With Paved Shoulder Concentric Widening (Both Side Hill Section)

		Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)		Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim		DATE : May 2020 Revision R0		PACKAGE-2 RESHI BORDER-ROLEP TYPICAL CROSS SECTION	
		Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301, Uttar Pradesh.		DESIGNED BY: P.S. DRAWN BY: Naresh CHECKED BY: R.Nayak APPROVED BY: L.A.Z.		SCALE: - NTS) For A3 Paper Size			
REV	DATE	DESCRIPTION OF REVISIONS		INITIALS					
R0	Sep 2017	Final Feasibility Report							
R0	Nov 2016	Draft Feasibility Report							
R0	Dec 2014	Linear Plan							



TCS-VIII
Two Lane With Paved Shoulder (Both Side Valley Section)
(Re-Alignment)

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

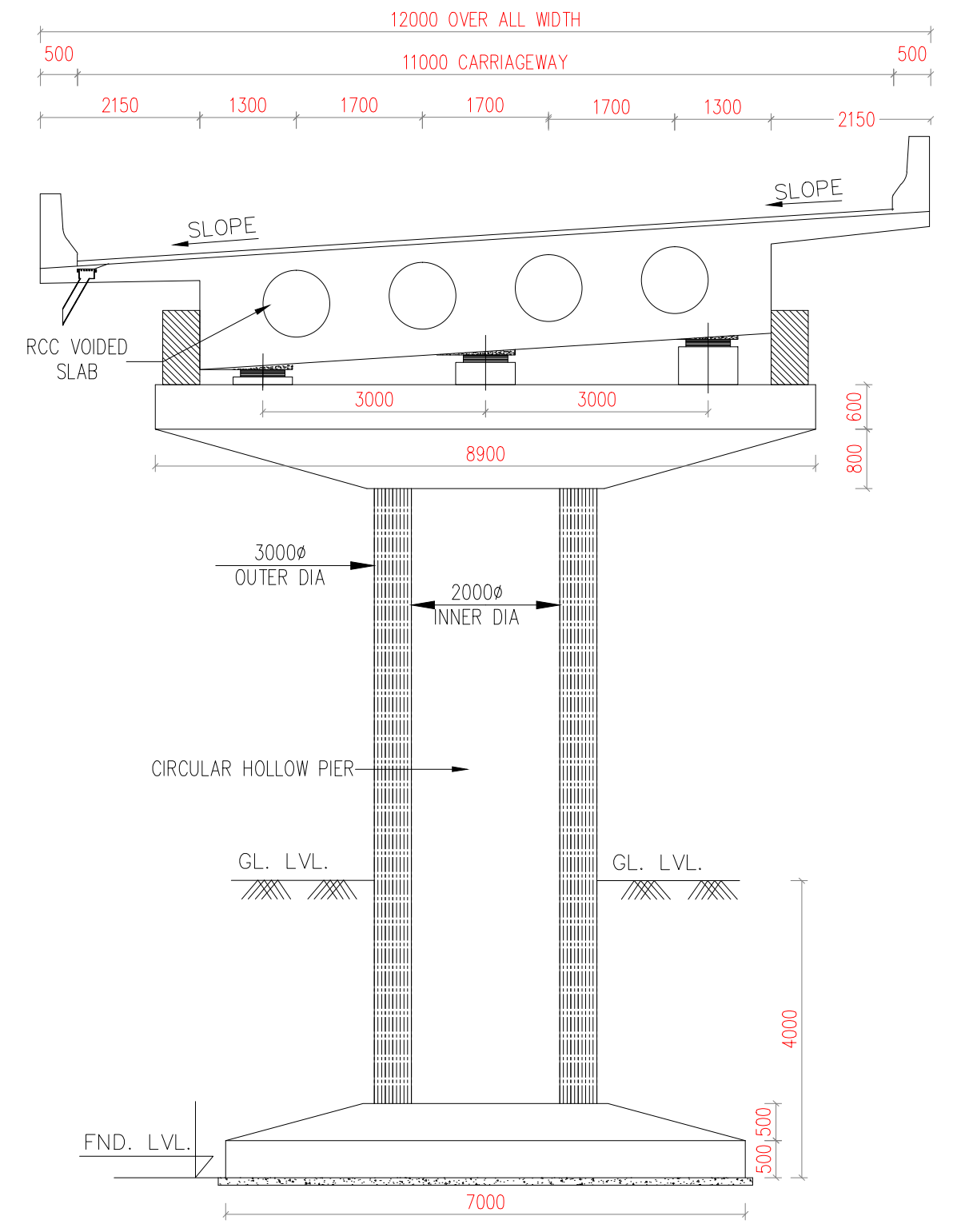
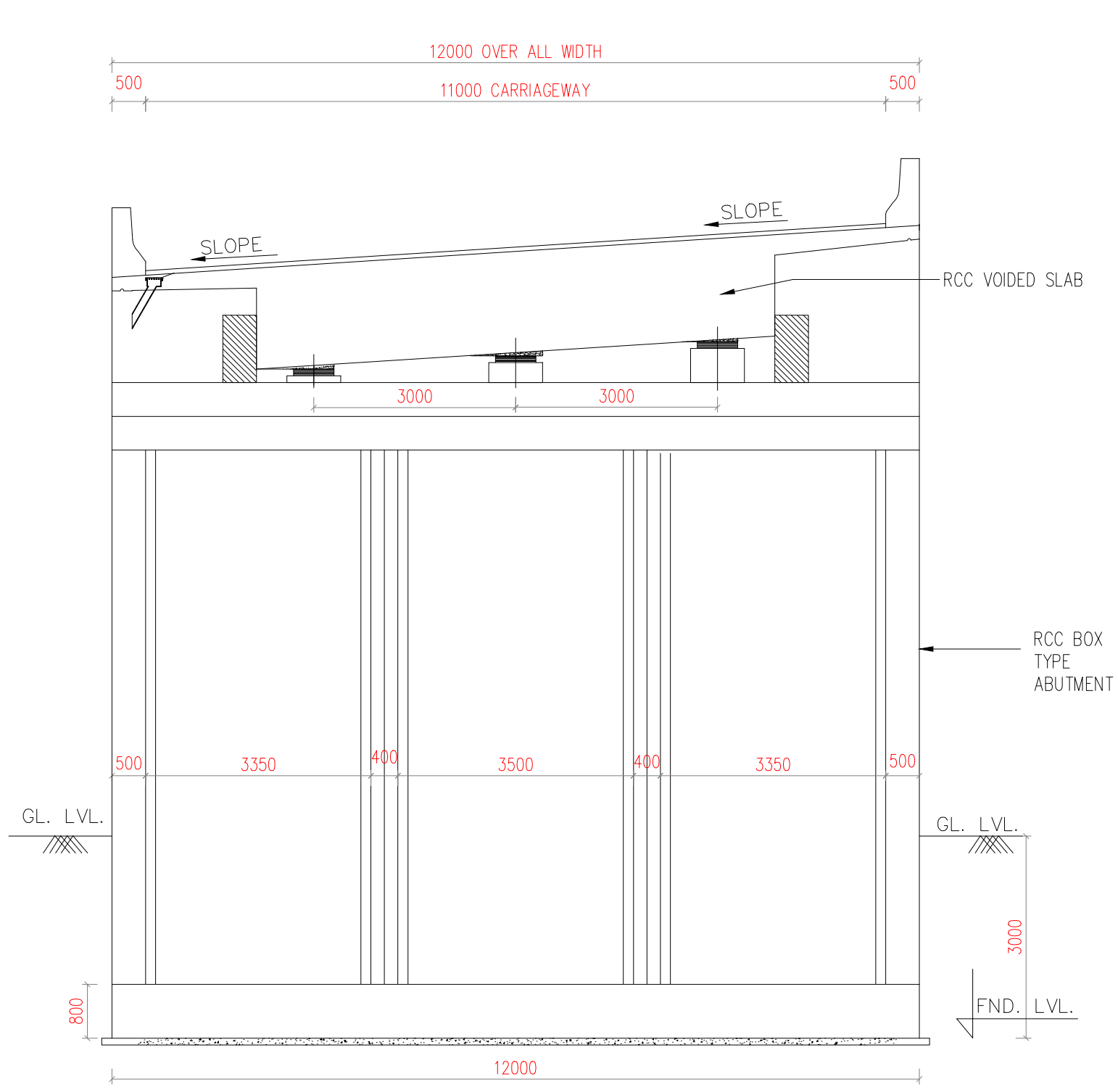
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
In Association with
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

DATE :	May 2020	Revision	R0
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S	Naresh	R.Nayak	L.A.Z.
SCALE:-		NTS) For A3 Paper Size	

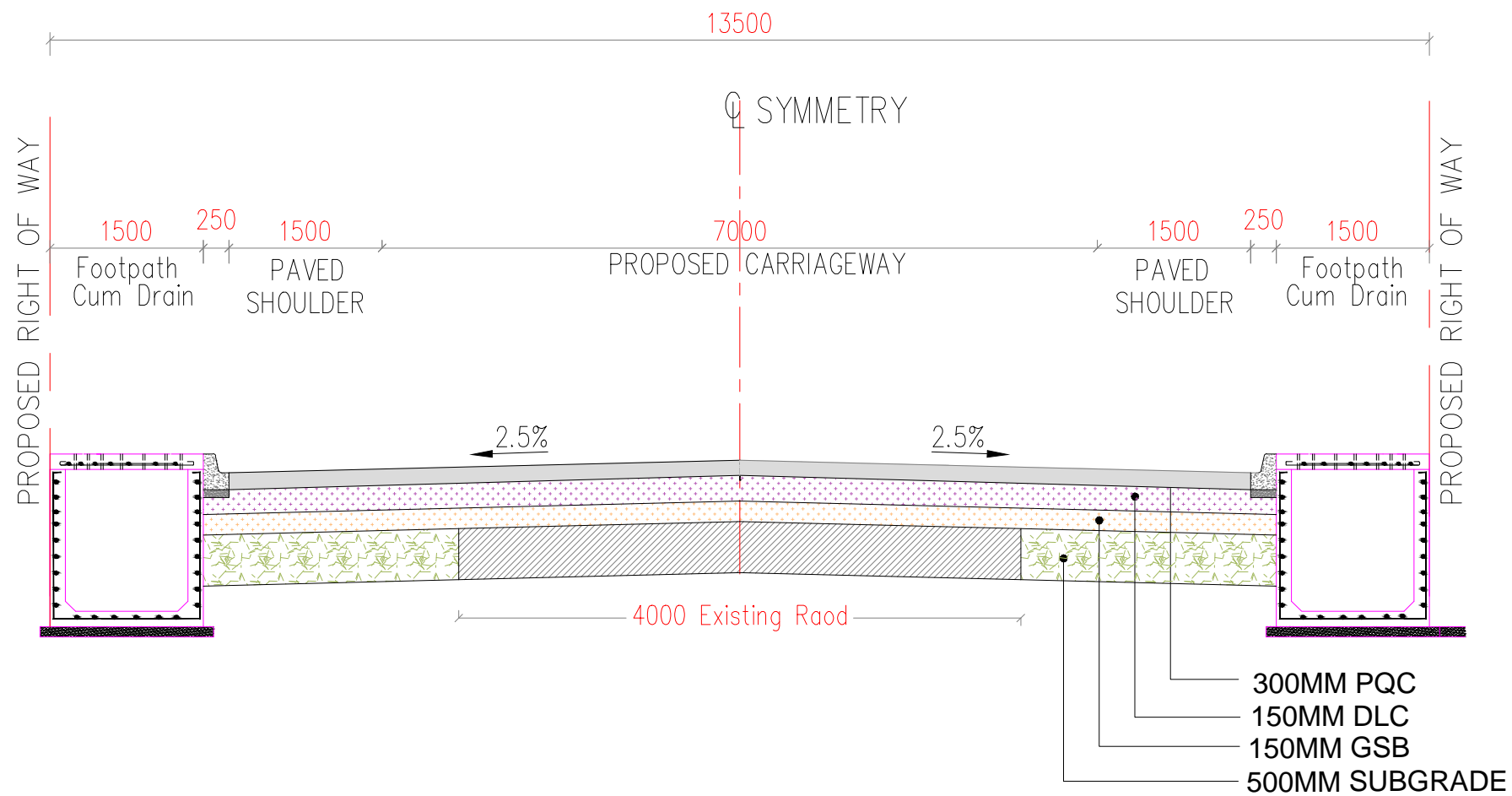
PACKAGE-2
RESHI BORDER-ROLEP
TYPICAL CROSS SECTION

Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/TCS/8



TCS-IX
TYPICAL CROSS SECTION FOR ELEVATED STRUCTURE
(Including Box Abutment Length)

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)		Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim		DATE : May 2020 Revision R0		PACKAGE-2 RESHI BORDER-ROLEP TYPICAL CROSS SECTION
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301, Uttar Pradesh.		DESIGNED BY : P.S. DRAWN BY : Naresh CHECKED BY : R.Nayak APPROVED BY : L.A.Z.		SCALE : - NTS) For A3 Paper Size		
R0 Sep 2017 Final Feasibility Report R0 Nov 2016 Draft Feasibility Report R0 Dec 2014 Linear Plan	INITIALS	Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/TCS/09				



TCS -X
Two Lane Carriageway With Paved Shoulders Including Both Side Drain Cum Footpath

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED <small>(Ministry of Road Transport & Highways)</small>		Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim		DATE : May 2020	Revision R0	PACKAGE-2 RESHI BORDER-ROLEP TYPICAL CROSS SECTION
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. <small>In Association with Specialized Engineering Service Pvt. Ltd., 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh.</small>		DESIGNED BY: P.S. DRAWN BY: Naresh CHECKED BY: R.Nayak APPROVED BY: L.A.Z.		SCALE: - NTS For A3 Paper Size		
REV DATE DESCRIPTION OF REVISIONS INITIALS	R0 Sep 2017 Final Feasibility Report R0 Nov 2016 Draft Feasibility Report R0 Dec 2014 Linear Plan		Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/TCS/10			

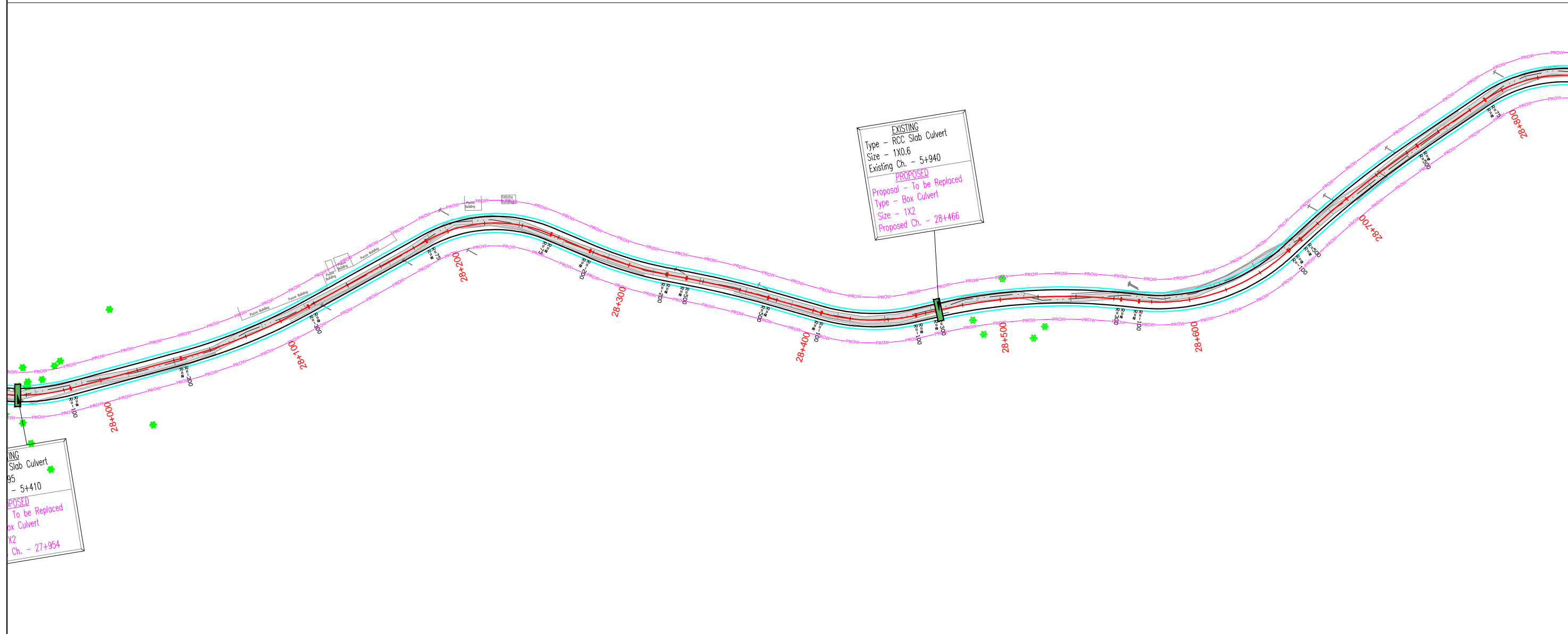
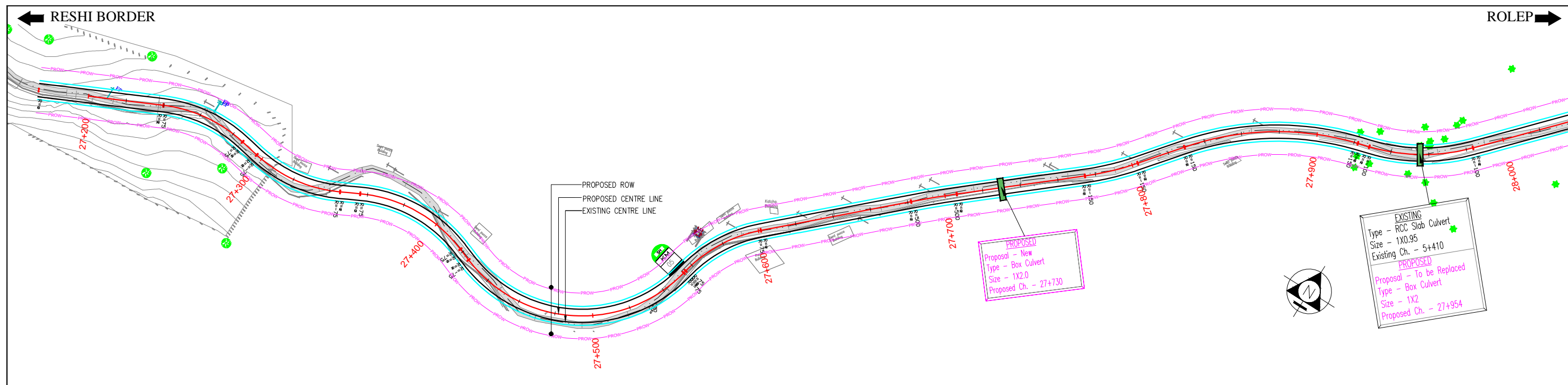
Sl. No	Proposed Chainage		Length (Km)	Type of alignment	TCS
	From (Km)	To (Km)			
1	27.200	27.230	0.030	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
2	27.230	27.400	0.170	Two lane with Paved shoulder Realignment Widening (Both Side Hill)	VII
3	27.400	27.600	0.200	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
4	27.600	27.730	0.130	Two lane with Paved shoulder Eccentric Widening right side (One Side Hill, One side Valley section)	III
5	27.730	27.910	0.180	Two lane with Paved shoulder Concentric (Both Side Valley section)	VI
6	27.910	27.990	0.080	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
7	27.990	28.350	0.360	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
8	28.350	28.380	0.030	Two lane with Paved shoulder Concentric (Both Side Valley section)	VI
9	28.380	28.430	0.050	Two lane with Paved shoulder Concentric (Both Side Valley section)	VI
10	28.430	28.480	0.050	Two lane with Paved shoulder Eccentric Widening left side (One Side Hill, One side Valley section)	II
11	28.480	28.930	0.450	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
12	28.930	29.250	0.320	Two lane with Paved shoulder Realignment Widening (Both Side Hill)	VII
13	29.250	29.450	0.200	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
14	29.450	29.540	0.090	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
15	29.540	29.600	0.060	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
16	29.600	29.640	0.040	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
17	29.640	30.100	0.460	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
18	30.100	30.510	0.410	Two lane with Paved shoulder Realignment Widening (Both Side Hill)	VII
19	30.510	30.550	0.040	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
20	30.550	30.620	0.070	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
21	30.620	30.740	0.120	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
22	30.740	30.920	0.180	Two lane with Paved shoulder Realignment Widening (Both Side Hill)	VII
23	30.920	30.980	0.060	Two lane with Paved shoulder Realignment (One Side Hill, One side Valley section)	IV
24	30.980	31.060	0.080	Two lane with Paved shoulder Realignment (Both Side Valley section)	VIII
25	31.060	31.150	0.090	Two lane with Paved shoulder Realignment (One Side Hill, One side Valley section)	IV
26	31.150	31.250	0.100	Two lane with Paved shoulder Realignment Widening (Both Side Hill)	VII
27	31.250	31.300	0.050	Two lane with Paved shoulder Realignment (One Side Hill, One side Valley section)	IV
28	31.300	31.710	0.410	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
29	31.710	31.740	0.030	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
30	31.740	31.800	0.060	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
31	31.800	31.940	0.140	Two lane with Paved shoulder Realignment Widening (Both Side Hill)	VII
32	31.940	32.050	0.110	Two lane with Paved shoulder Realignment (Both Side Valley section)	VIII
33	32.050	32.330	0.280	Two lane with Paved shoulder Realignment (One Side Hill, One side Valley section)	IV
34	32.330	32.510	0.180	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
35	32.510	32.570	0.060	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
36	32.570	33.100	0.530	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
37	33.100	33.210	0.110	Two lane with Paved shoulder Realignment (One Side Hill, One side Valley section)	IV
38	33.210	33.420	0.210	Two lane with Paved shoulder Realignment (Both Side Valley section)	VIII
39	33.420	33.540	0.120	Two lane with Paved shoulder Realignment Widening (Both Side Hill)	VII
40	33.540	33.620	0.080	Two lane with Paved shoulder Realignment (One Side Hill, One side Valley section)	IV

Sl. No	Proposed Chainage		Length (Km)	Type of alignment	TCS
	From (Km)	To (Km)			
40	33.540	33.620	0.080	Two lane with Paved shoulder Realignment (One Side Hill, One side Valley section)	IV
41	33.620	33.690	0.070	Two lane with Paved shoulder Realignment (Both Side Valley section)	VIII
42	33.690	33.750	0.060	Two lane with Paved shoulder Realignment (One Side Hill, One side Valley section)	IV
43	33.750	33.820	0.070	Two lane with Paved shoulder Realignment (Both Side Valley section)	VIII
44	33.820	33.970	0.150	Two lane with Paved shoulder Realignment Widening (Both Side Hill)	VII
45	33.970	34.030	0.060	Two lane with Paved shoulder Realignment (Both Side Valley section)	VIII
46	34.030	34.150	0.120	Two lane with Paved shoulder Realignment Widening (Both Side Hill)	VII
47	34.150	34.270	0.120	Two lane with Paved shoulder Realignment (One Side Hill, One side Valley section)	IV
48	34.270	34.570	0.300	Two lane with Paved shoulder Realignment Widening (Both Side Hill)	VII
49	34.570	34.700	0.130	Two lane with Paved shoulder Realignment (One Side Hill, One side Valley section)	IV
50	34.700	34.770	0.070	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
51	34.770	34.870	0.100	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
52	34.870	35.270	0.400	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
53	35.270	35.570	0.300	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
54	35.570	35.800	0.230	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
55	35.800	36.570	0.770	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
56	36.570	36.670	0.100	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
57	36.670	36.730	0.060	Two lane with Paved shoulder Concentric (Both Side Valley section)	VI
58	36.730	36.780	0.050	Two lane with Paved shoulder Concentric Widening (Both Side Hill)	V
59	36.780	36.890	0.110	Two lane with Paved shoulder Concentric (Both Side Valley section)	VI
60	36.890	37.120	0.230	Two lane carriageway with Paved shoulders including both side drain cum footpath (Builtup Area-Mount)	X
61	37.120	37.540	0.420	Elevated Structure (including box abutment length)	IX
62	37.540	37.600	0.060	Two lane with Paved shoulder Concentric Widening (One Side Hill, One side Valley section)	I
Total Length (km)			10.400		

RO Sep 2017	Final Feasibility Report					Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)	Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim	DATE : May 2020	Revision	RO	PACKAGE-2 RESHI BORDER-ROLEP TYPICAL CROSS SECTION TCS SCHEDULE	
RO Nov 2016	Draft Feasibility Report							DESIGNED BY	DRAWN BY	CHECKED BY		APPROVED BY
RO Dec 2014	Linear Plan							P.S	Naresh	R.Nayak		L.A.Z.
REV	DATE	DESCRIPTION OF REVISIONS			INITIALS	Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301, Uttar Pradesh.		SCALE:--	NTS) For A3 Paper Size		Dwg. No. :- SAICPL--SESPL/NHDCL/WB-SKM/TCS/12	

PLAN & PROFILE





REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
RO	Sep 2017	Final Feasibility Report	
RO	Nov 2016	Draft Feasibility Report	
RO	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
In Association with
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

DATE : May 2020	Revision	RO
DESIGNED BY	DRAWN BY	CHECKED BY
P.S	Naresh	R.Nayak
		L.A.Z.
SCALE:-	H-1:2000, V-1:100,) For A3 Paper Size	

PACKAGE-2
RESHI BORDER-ROLEP
PLAN & PROFILE
PLAN-(Km 27+200 To Km 28+750)

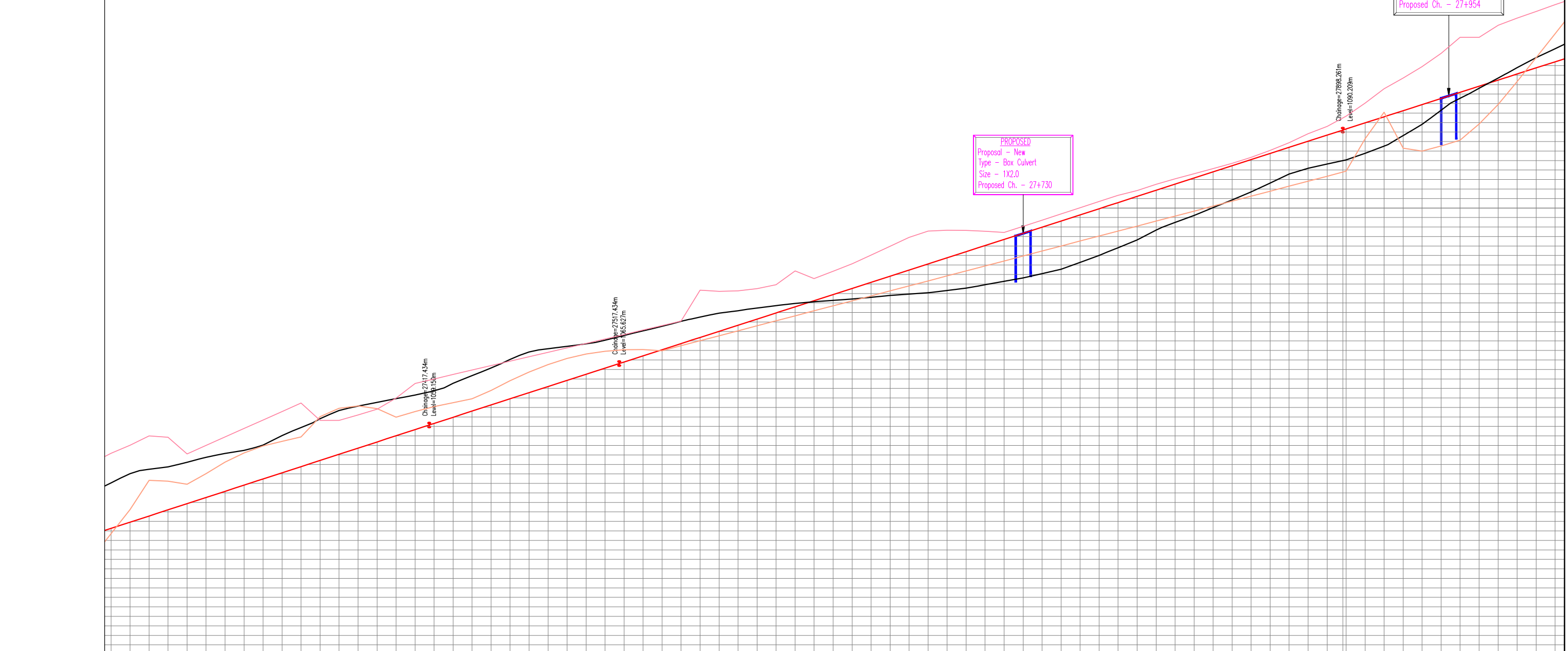
Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/P&P/01

← RESHI BORDER

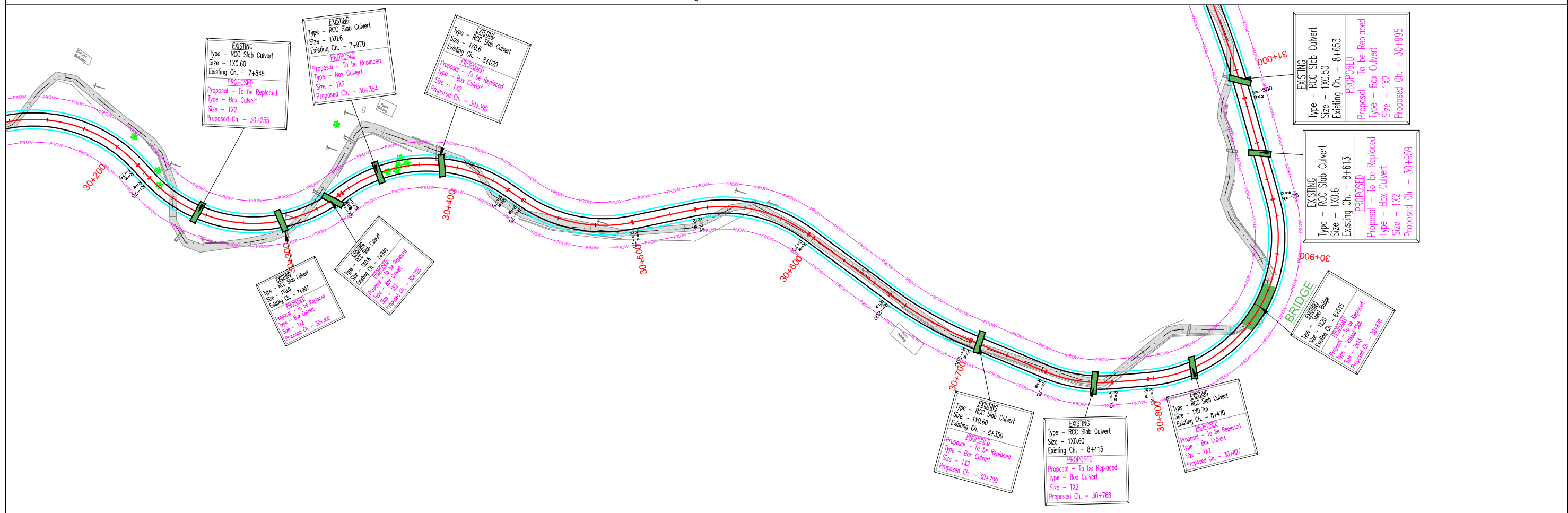
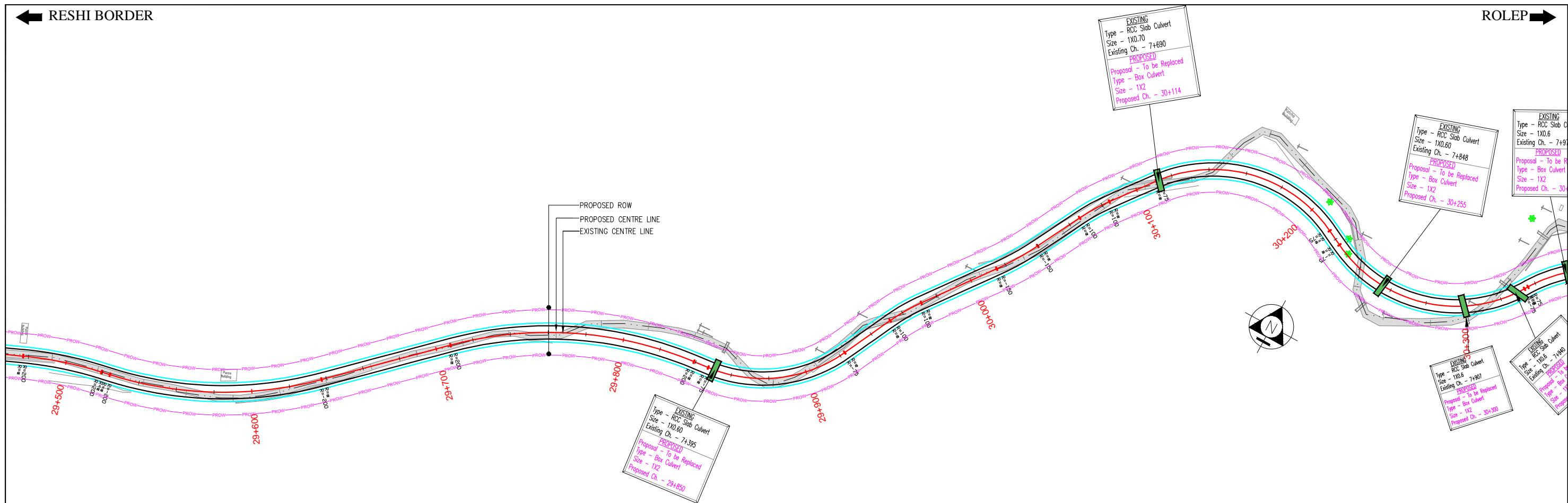
ROLEP →

EXISTING
Type - RCC Slab Culvert
Size - 1X0.95
Existing Ch. - 5+410

PROPOSED
Proposal - To be Replaced
Type - Box Culvert
Size - 1X2
Proposed Ch. - 27+954



DESIGN LEVELS	1063.061	1048.267	1056.167	1047.714	1063.061	1048.267	1067.014	1050.247	1054.021	1048.917	1067.999	1053.319	1054.490	1049.567	1067.862	1053.229	1054.746	1050.217	1066.107	1052.921	1055.229	1050.867	1067	1054.030	1055.749	1051.517	1067.893	1055.236	1056.159	1052.167	1068.786	1056.213	1056.488	1052.817	1069.679	1056.952	1057.044	1053.467	1060.572	1057.431	1058.043	1054.117	1061.465	1057.891	1058.889	1054.767	1063.640	1060.038	1059.821	1055.417	1069.638	1060.913	1060.677	1056.067	1060.201	1061.160	1061.149	1056.717	1060.816	1060.865	1061.538	1057.367	1061.933	1059.977	1061.928	1058.017	1063.532	1060.568	1062.314	1058.667	1064	1061.088	1062.750	1059.317	1064.488	1061.501	1063.540	1059.966	1064.936	1061.914	1064.358	1060.616	1065.404	1062.787	1065.154	1061.264	1065.872	1063.811	1066.051	1061.913	1066.340	1064.724	1066.650	1062.561	1066.808	1065.511	1067.183	1063.208	1067.276	1066.157	1067.431	1063.855	1067.744	1066.620	1067.701	1064.501	1068.712	1066.915	1068.079	1065.147	1068.688	1067.074	1068.581	1065.793	1069.148	1067.094	1069.067	1066.439	1069.616	1066.975	1069.552	1067.084	1070.094	1067.500	1070.063	1067.729	1070.557	1073.349	1068.025	1070.518	1068.375	1073.225	1068.550	1070.931	1069.020	1073.282	1069.075	1071.106	1069.666	1073.512	1069.600	1071.476	1070.311	1073.927	1070.125	1071.721	1070.957	1075.388	1070.650	1071.950	1071.682	1074.573	1071.175	1072.125	1072.248	1075.341	1071.700	1072.284	1072.883	1076.123	1072.225	1072.427	1073.539	1077.059	1072.750	1072.602	1074.184	1077.976	1073.275	1072.792	1074.630	1078.903	1073.900	1072.939	1075.475	1079.576	1074.325	1073.074	1076.121	1079.639	1074.850	1073.309	1076.766	1079.636	1075.375	1073.564	1077.412	1079.552	1075.900	1073.919	1078.057	1079.435	1076.425	1074.281	1078.703	1080.069	1076.950	1074.642	1079.348	1080.724	1077.475	1075.083	1079.994	1081.379	1078	1075.564	1080.639	1082.039	1078.525	1076.271	1081.285	1082.688	1079.050	1077.016	1081.530	1083.339	1079.575	1077.823	1082.575	1083.836	1080.100	1078.633	1083.221	1084.510	1080.625	1079.678	1083.866	1085.072	1081.150	1080.481	1084.512	1085.614	1081.675	1081.227	1085.157	1086.153	1082.200	1082.051	1085.803	1086.707	1082.725	1082.659	1086.448	1087.349	1083.250	1083.695	1087.094	1088.065	1083.775	1084.633	1087.739	1088.875	1084.300	1085.571	1088.385	1089.822	1084.825	1086.196	1089.030	1090.593	1085.350	1086.632	1089.676	1091.672	1085.875	1087.065	1090.321	1093.053	1089.308	1087.761	1090.966	1094.552	1092.080	1088.511	1091.611	1095.692	1088.301	1089.829	1092.256	1096.899	1088	1090.921	1092.900	1096.899	1088	1092.299	1093.544	1096.282	1088.544	1092.299	1093.544	1099.976	1090.855	1094.606	1094.630	1101.253	1092.903	1095.686	1095.473	1102.005	1095.314	1096.781	1096.115	1102.707	1097.854	1097.837	1096.759	1103.410	1100.354	1098.778	1097.399
GROUND LEVELS	1065.167	1047.714	1067.014	1050.247	1054.021	1048.917	1067.999	1053.319	1054.490	1049.567	1067.862	1053.229	1054.746	1050.217	1066.107	1052.921	1055.229	1050.867	1067	1054.030	1055.749	1051.517	1067.893	1055.236	1056.159	1052.167	1068.786	1056.213	1056.488	1052.817	1069.679	1056.952	1057.044	1053.467	1060.572	1057.431	1058.043	1054.117	1061.465	1057.891	1058.889	1054.767	1063.640	1060.038	1059.821	1055.417	1069.638	1060.913	1060.677	1056.067	1060.201	1061.160	1061.149	1056.717	1060.816	1060.865	1061.538	1057.367	1061.933	1059.977	1061.928	1058.017	1063.532	1060.568	1062.314	1058.667	1064	1061.088	1062.750	1059.317	1064.488	1061.501	1063.540	1059.966	1064.936	1061.914	1064.358	1060.616	1065.404	1062.787	1065.154	1061.264	1065.872	1063.811	1066.051	1061.913	1066.340	1064.724	1066.650	1062.561	1066.808	1065.511	1067.183	1063.208	1067.276	1066.157	1067.431	1063.855	1067.744	1066.620	1067.701	1064.501	1068.712	1066.915	1068.079	1065.147	1068.688	1067.074	1068.581	1065.793	1069.148	1067.094	1069.067	1066.439	1069.616	1066.975	1069.552	1067.084	1070.094	1067.500	1070.063	1067.729	1070.557	1073.349	1068.025	1070.518	1068.375	1073.225	1068.550	1070.931	1069.020	1073.282	1069.075	1071.106	1069.666	1073.512	1069.600	1071.476	1070.311	1073.927	1070.125	1071.721	1070.957	1075.388	1070.650	1071.950	1071.682	1074.573	1071.175	1072.125	1072.248	1075.341	1071.700	1072.284	1072.883	1076.123	1072.225	1072.427	1073.539	1077.059	1072.750	1072.602	1074.184	1077.976	1073.275	1072.792	1074.630	1078.903	1073.900	1072.939	1075.475	1079.576	1074.325	1073.074	1076.121	1079.639	1074.850	1073.309	1076.766	1079.636	1075.375	1073.564	1077.412	1079.552	1075.900	1073.919	1078.057	1079.435	1076.425	1074.281	1078.703	1080.069	1076.950	1074.642	1079.348	1080.724	1077.475	1075.083	1079.994	1081.379	1078	1075.564	1080.639	1082.039	1078.525	1076.271	1081.285	1082.688	1079.050	1077.016	1081.530	1083.339	1079.575	1077.823	1082.575	1083.836	1080.100	1078.633	1083.221	1084.510	1080.625	1079.678	1083.866	1085.072	1081.150	1080.481	1084.512	1085.614	1081.675	1081.227	1085.157	1086.153	1082.200	1082.051	1085.803	1086.707	1082.725	1082.659	1086.448	1087.349	1083.250	1083.695	1087.094	1088.065	1083.775	1084.633	1087.739	1088.875	1084.300	1085.571	1088.385	1089.822	1084.825	1086.196	1089.030	1090.593	1085.350	1086.632	1089.676	1091.672	1085.875	1087.065	1090.321	1093.053	1089.308	1087.761	1090.966	1094.552	1092.080	1088.511	1091.611	1095.692	1088.301	1089.829	1092.256	1096.899	1088	1090.921	1092.900	1096.899	1088	1092.299	1093.544	1096.282	1088.544	1092.299	1093.544	1099.976	1090.855	1094.606	1094.630	1101.253	1092.903	1095.686	1095.473	1102.005	1095.314	1096.781	1096.115	1102.707	1097.854	1097.837	1096.759	1103.410	1100.354	1098.778	1097.399				
GR 12 M LEFT LEVELS	1065.167	1047.714	1067.014	1050.247	1054.021	1048.917	1067.999	1053.319	1054.490	1049.567	1067.862	1053.229	1054.746	1050.217	1066.107	1052.921	1055.229	1050.867	1067	1054.030	1055.749	1051.517	1067.893	1055.236	1056.159	1052.167	1068.786	1056.213	1056.488	1052.817	1069.679	1056.952	1057.044	1053.467	1060.572	1057.431	1058.043	1054.117	1061.465	1057.891	1058.889	1054.767	1063.640	1060.038	1059.821	1055.417	1069.638	1060.913	1060.677	1056.067	1060.201	1061.160	1061.149	1056.717	1060.816	1060.865	1061.538	1057.367	1061.933	1059.977	1061.928	1058.017	1063.532	1060.568	1062.314	1058.667	1064	1061.088	1062.750	1059.317	1064.488	1061.501	1063.540	1059.966	1064.936	1061.914	1064.358	1060.616	1065.404	1062.787	1065.154	1061.264	1065.872	1063.811	1066.051	1061.913	1066.340	1064.724	1066.650	1062.561	1066.808	1065.511	1067.183	1063.208	1067.276	1066.157	1067.431	1063.855	1067.744	1066.620	1067.701	1064.501	1068.712	1066.915	1068.079	1065.147	1068.688	1067.074	1068.581	1065.793	1069.148	1067.094	1069.067	1066.439	1069.616	1066.975	1069.552	1067.084	1070.094	1067.500	1070.063	1067.729	1070.557	1073.349	1068.025	1070.518	1068.375	1073.225	1068.550	1070.931	1069.020	1073.282	1069.075	1071.106	1069.666	1073.512	1069.600	1071.476	1070.311	1073.927	1070.125	1071.721	1070.957	1075.388	1070.650	1071.950	1071.682	1074.573	1071.175	1072.125	1072.248	1075.341	1071.700	1072.284	1072.883	1076.123	1072.225	1072.427	1073.539	1077.059	1072.750	1072.602	1074.184	1077.976	1073.275	1072.792	1074.630	1078.903	1073.900	1072.939	1075.475	1079.576	1074.325	1073.074	1076.121	1079.639	1074.850	1073.309	1076.766	1079.636	1075.375	1073.564	1077.412	1079.552	1075.900	1073.919	1078.057	1079.435	1076.425	1074.281	1078.703	1080.069	1076.950	1074.642	1079.348	1080.724	1077.475	1075.083	1079.994	1081.379	1078	1075.564	1080.639	1082.039	1078.525	1076.271	1081.285	1082.688	1079.050	1077.016	1081.530	1083.339	1079.575	1077.823	1082.575	1083.836	1080.100	1078.633	1083.221	1084.510	1080.625	1079.678	1083.866	1085.072	1081.150	1080.481	1084.512	1085.614	1081.675	1081.227	1085.157	1086.153	1082.200	1082.051	1085.803	1086.707	1082.725	1082.659	1086.448	1087.349	1083.250	1083.695	1087.094	1088.065	1083.775	1084.633	1087.739	1088.875	1084.300	1085.571	1088.385	1089.822	1084.825	1086.196	1089.030	1090.593	1085.350	1086.632	1089.676	1091.672	1085.875	1087.065	1090.321	1093.053	1089.308	1087.761	1090.966	1094.552	1092.080	1088.511	1091.611	1095.692	1088.301	1089.829	1092.256	1096.899	1088	1090.921	1092.900	1096.899	1088	1092.299	1093.544	1096.282	1088.544	1092.299	1093.544	1099.976	1090.855	1094.606	1094.630	1101.253	1092.903	1095.686	1095.473	1102.005	1095.314	1096.781	1096.115	1102.707	1097										



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

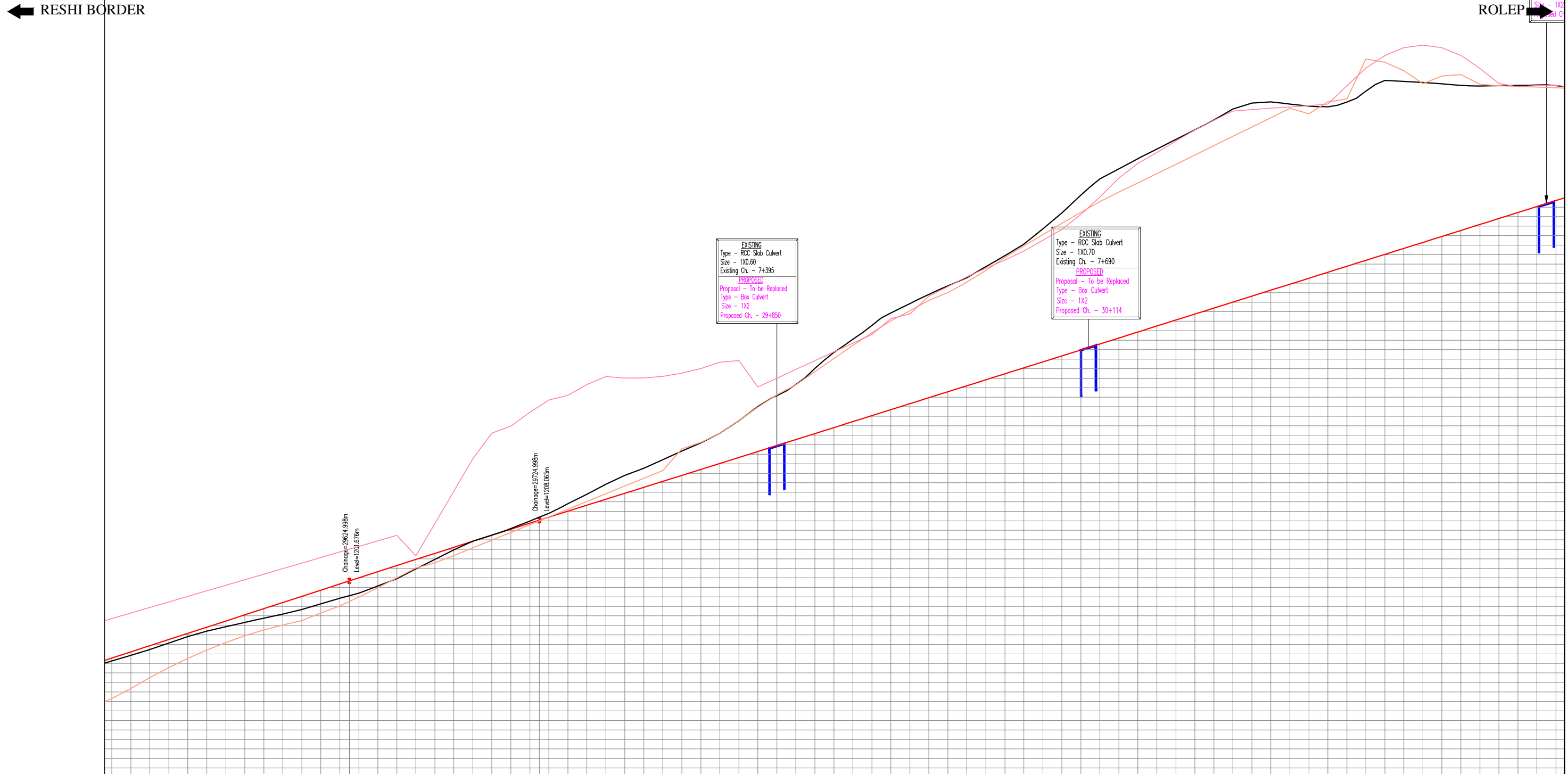
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

DATE : May 2020	Revision	R0	
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S	Naresh	R.Nayak	L.A.Z.
SCALE: -	H=1:2000, V=1:100, For A3 Paper Size		

PACKAGE-2
RESHI BORDER-ROLEP
PLAN & PROFILE
PLAN-(Km 28+750 To Km 31+000)

Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/P&P/02



Datum: 1180.000	
DESIGN LEVELS	193.562, 193.248, 193.587, 194.211, 194.860, 194.580, 195.509, 196.158, 196.808, 197.457, 198.106, 198.755, 199.404, 200.053, 200.703, 201.352, 202.001, 202.648, 203.293, 203.936, 204.577, 205.215, 205.852, 206.487, 207.120, 207.750, 208.379, 209.007, 209.636, 210.264, 210.893, 211.521, 212.150, 212.778, 213.407, 214.035, 214.664, 215.292, 215.921, 216.549, 217.178, 217.806, 218.435, 219.063, 219.692, 220.320, 220.949, 221.577, 222.206, 222.834, 223.463, 224.091, 224.720, 225.348, 225.977, 226.605, 227.234, 227.862, 228.491, 229.119, 229.748, 230.376, 231.005, 231.633, 232.262, 232.890, 233.519, 234.147, 234.776, 235.404, 236.033, 236.661, 237.290, 237.918, 238.547, 239.175, 239.804, 240.432, 241.061, 241.689
GROUND LEVELS	193.248, 193.587, 194.211, 194.860, 195.509, 196.158, 196.808, 197.457, 198.106, 198.755, 199.404, 200.053, 200.703, 201.352, 202.001, 202.648, 203.293, 203.936, 204.577, 205.215, 205.852, 206.487, 207.120, 207.750, 208.379, 209.007, 209.636, 210.264, 210.893, 211.521, 212.150, 212.778, 213.407, 214.035, 214.664, 215.292, 215.921, 216.549, 217.178, 217.806, 218.435, 219.063, 219.692, 220.320, 220.949, 221.577, 222.206, 222.834, 223.463, 224.091, 224.720, 225.348, 225.977, 226.605, 227.234, 227.862, 228.491, 229.119, 229.748, 230.376, 231.005, 231.633, 232.262, 232.890, 233.519, 234.147, 234.776, 235.404, 236.033, 236.661, 237.290, 237.918, 238.547, 239.175, 239.804, 240.432, 241.061, 241.689
GR 12 M LEFT LEVELS	193.248, 193.587, 194.211, 194.860, 195.509, 196.158, 196.808, 197.457, 198.106, 198.755, 199.404, 200.053, 200.703, 201.352, 202.001, 202.648, 203.293, 203.936, 204.577, 205.215, 205.852, 206.487, 207.120, 207.750, 208.379, 209.007, 209.636, 210.264, 210.893, 211.521, 212.150, 212.778, 213.407, 214.035, 214.664, 215.292, 215.921, 216.549, 217.178, 217.806, 218.435, 219.063, 219.692, 220.320, 220.949, 221.577, 222.206, 222.834, 223.463, 224.091, 224.720, 225.348, 225.977, 226.605, 227.234, 227.862, 228.491, 229.119, 229.748, 230.376, 231.005, 231.633, 232.262, 232.890, 233.519, 234.147, 234.776, 235.404, 236.033, 236.661, 237.290, 237.918, 238.547, 239.175, 239.804, 240.432, 241.061, 241.689
GR 12 M RIGHT LEVELS	193.587, 194.211, 194.860, 195.509, 196.158, 196.808, 197.457, 198.106, 198.755, 199.404, 200.053, 200.703, 201.352, 202.001, 202.648, 203.293, 203.936, 204.577, 205.215, 205.852, 206.487, 207.120, 207.750, 208.379, 209.007, 209.636, 210.264, 210.893, 211.521, 212.150, 212.778, 213.407, 214.035, 214.664, 215.292, 215.921, 216.549, 217.178, 217.806, 218.435, 219.063, 219.692, 220.320, 220.949, 221.577, 222.206, 222.834, 223.463, 224.091, 224.720, 225.348, 225.977, 226.605, 227.234, 227.862, 228.491, 229.119, 229.748, 230.376, 231.005, 231.633, 232.262, 232.890, 233.519, 234.147, 234.776, 235.404, 236.033, 236.661, 237.290, 237.918, 238.547, 239.175, 239.804, 240.432, 241.061, 241.689
Horizontal	Vertical curves with radii: R=200m, R=75m, R=103.315m, etc.
Vertical	Vertical curve lengths: L=70.459m, L=100m, L=43.678m, etc.
Superelevation	Superelevation rates: 0=3.560, 0=7, 0=4.740, etc.
Chainage	29500, 29510, 29520, 29530, 29540, 29550, 29560, 29570, 29580, 29590, 29600, 29610, 29620, 29630, 29640, 29650, 29660, 29670, 29680, 29690, 29700, 29710, 29720, 29730, 29740, 29750, 29760, 29770, 29780, 29790, 29800, 29810, 29820, 29830, 29840, 29850, 29860, 29870, 29880, 29890, 29900, 29910, 29920, 29930, 29940, 29950, 29960, 29970, 29980, 29990, 30000, 30010, 30020, 30030, 30040, 30050, 30060, 30070, 30080, 30090, 30100, 30110, 30120, 30130, 30140, 30150, 30160, 30170, 30180, 30190, 30200, 30210, 30220, 30230, 30240, 30250, 30260

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
RO	Sep 2017	Final Feasibility Report	
RO	Nov 2016	Draft Feasibility Report	
RO	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

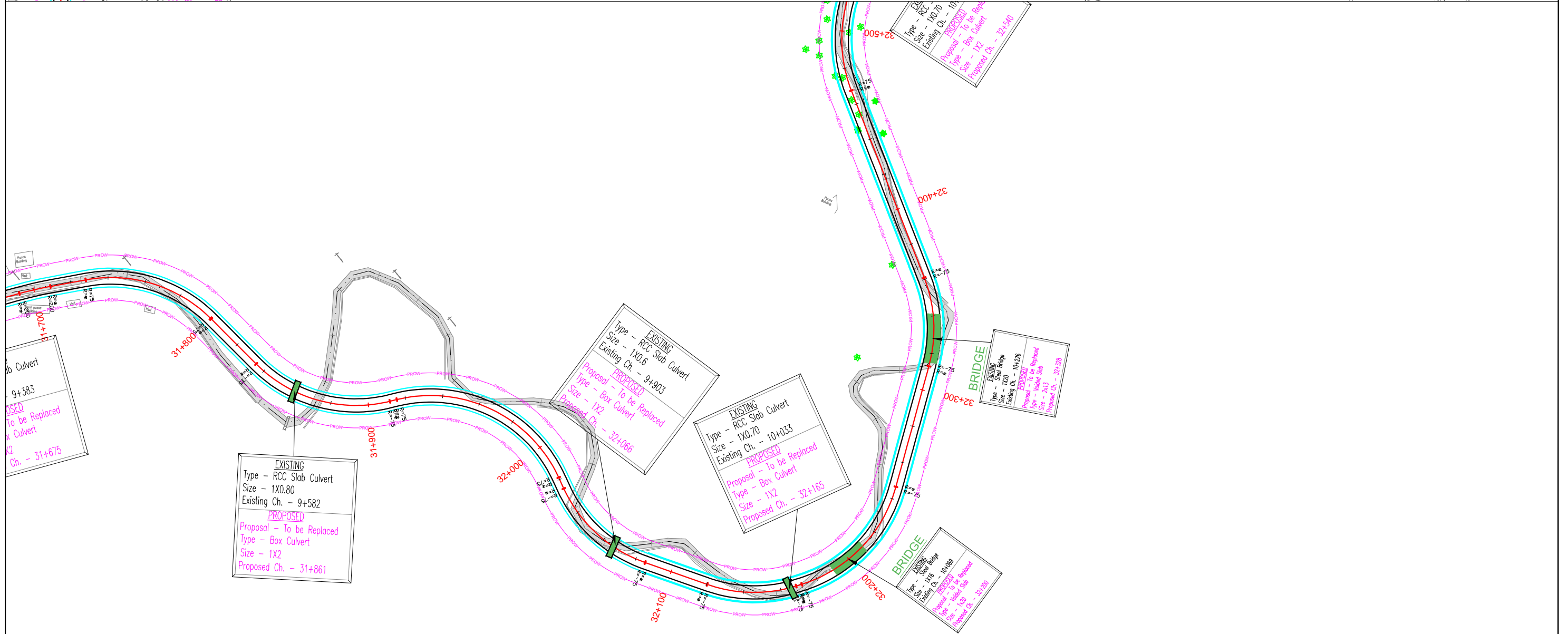
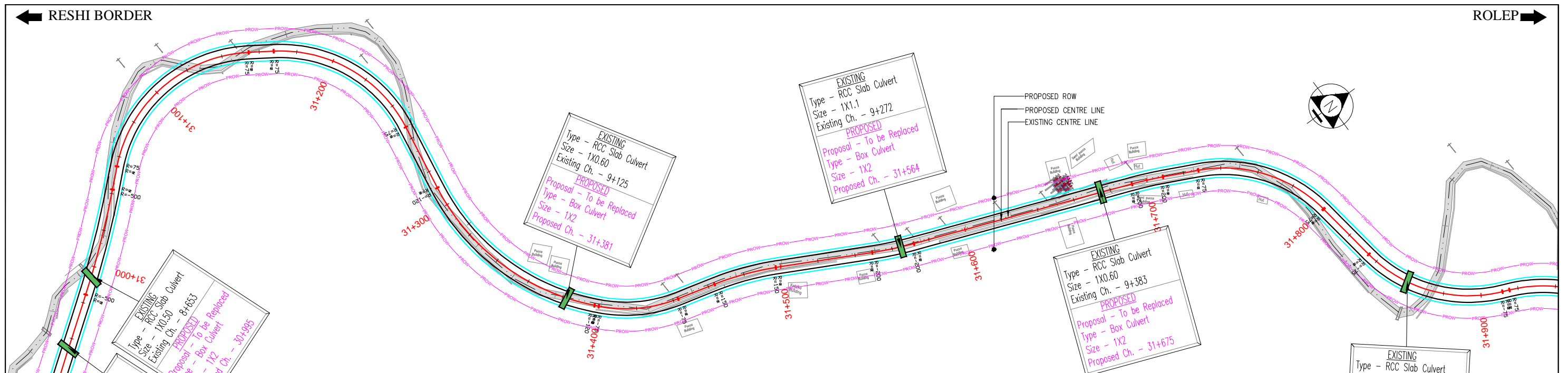
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

DATE :	Apr 2018	Revision	RO
DESIGNED BY	P.S	CHECKED BY	R.Nayak
DRAWN BY	Naresh	APPROVED BY	L.A.Z.
SCALE:-	H-1:2000, V-1:200,) For A3 Paper Size		

PACKAGE-2A
RESHI BORDER-ROLEP
PLAN & PROFILE
PROFILE-(Km 29+500 to Km 30+250)

Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/P&P/



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
In Association with
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

DATE : May 2020	Revision	R0	
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S.	Naresh	R.Nayak	L.A.Z.
SCALE:-	H-1:2000, V-1:100,) For A3 Paper Size		

PACKAGE-2
RESHI BORDER-ROLEP
PLAN & PROFILE
PLAN-(Km 31+000 To Km 32+500)

Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/P&P/03

← RESHI BORDER

ROLEP →

EXISTING
Type - RCC Slab Culvert
Size - 1X0.50
Existing Ch. - 8+653

PROPOSED
Proposal - To be Replaced
Type - Box Culvert
Size - 1X2
Proposed Ch. - 30+995

EXISTING
Type - RCC Slab Culvert
Size - 1X0.60
Existing Ch. - 9+125

PROPOSED
Proposal - To be Replaced
Type - Box Culvert
Size - 1X2
Proposed Ch. - 31+381

EXISTING
Type - RCC Slab Culvert
Size - 1X1.1
Existing Ch. - 9+272

PROPOSED
Proposal - To be Replaced
Type - Box Culvert
Size - 1X2
Proposed Ch. - 31+564

EXISTING
Type - RCC Slab Culvert
Size - 1X0.60
Existing Ch. - 9+383

PROPOSED
Proposal - To be Replaced
Type - Box Culvert
Size - 1X2
Proposed Ch. - 31+675



Datum: 1230.000
DESIGN LEVELS
GROUND LEVELS
GR 12 M LEFT LEVELS
GR 12 M RIGHT LEVELS
Horizontal
Vertical
Superelevation
Chainage

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
RO	Sep 2017	Final Feasibility Report	
RO	Nov 2016	Draft Feasibility Report	
RO	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

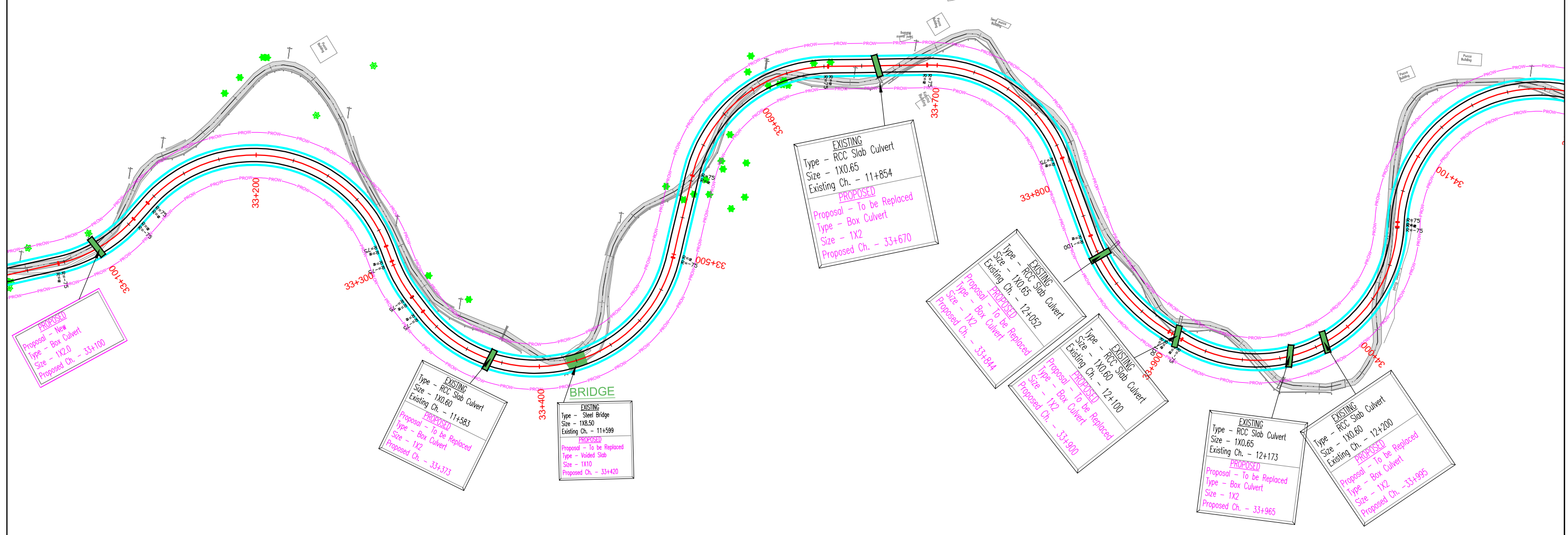
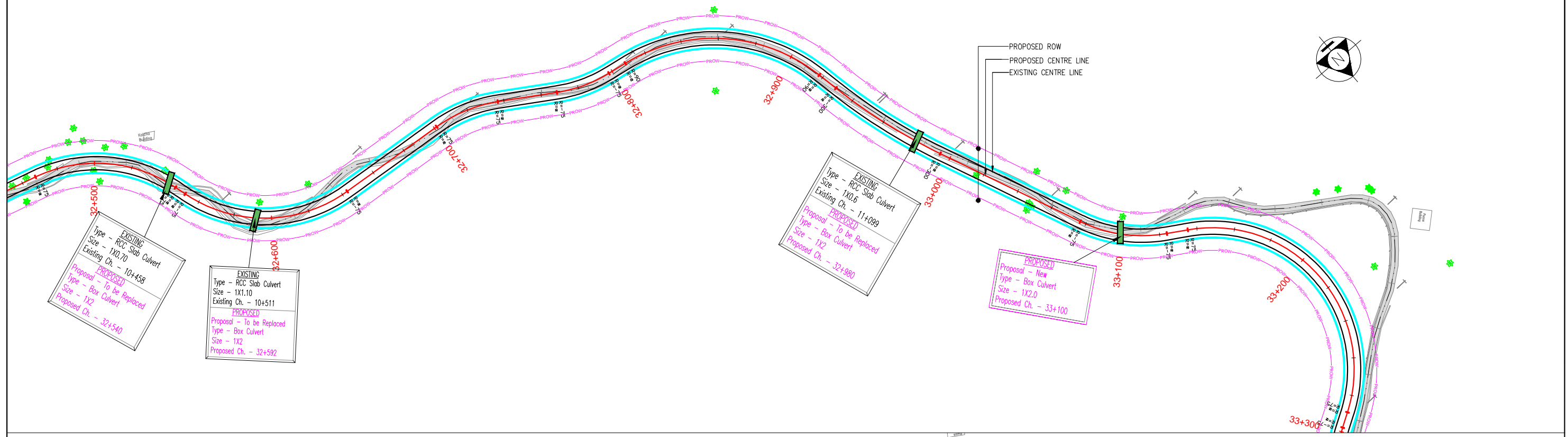
DATE : Apr 2018	Revision	RO
DESIGNED BY	DRAWN BY	CHECKED BY
P.S	Naresh	R.Nayak
		L.A.Z.
SCALE: -	H=1:2000, V=1:200, For A3 Paper Size	

PACKAGE- 2A
RESHI BORDER-ROLEP
PLAN & PROFILE
PROFILE-(Km 31+000 To Km 31+750)

Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/P&P/

← RESHI BORDER

→ ROLEP



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
RO	Sep 2017	Final Feasibility Report	
RO	Nov 2016	Draft Feasibility Report	
RO	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
In Association with
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

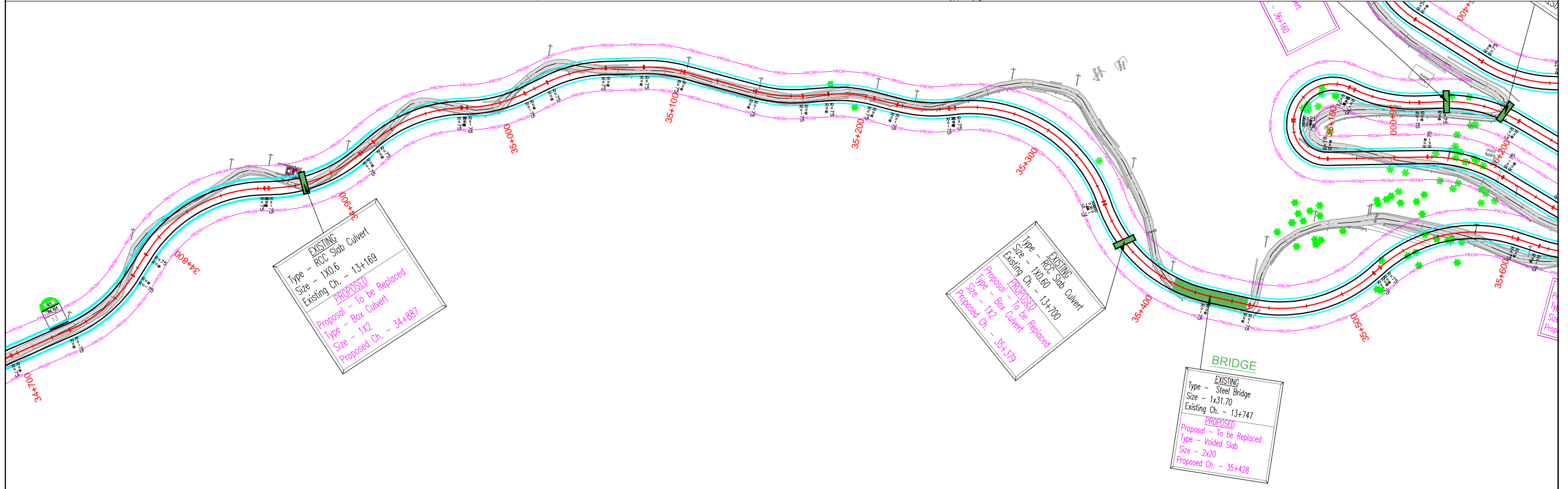
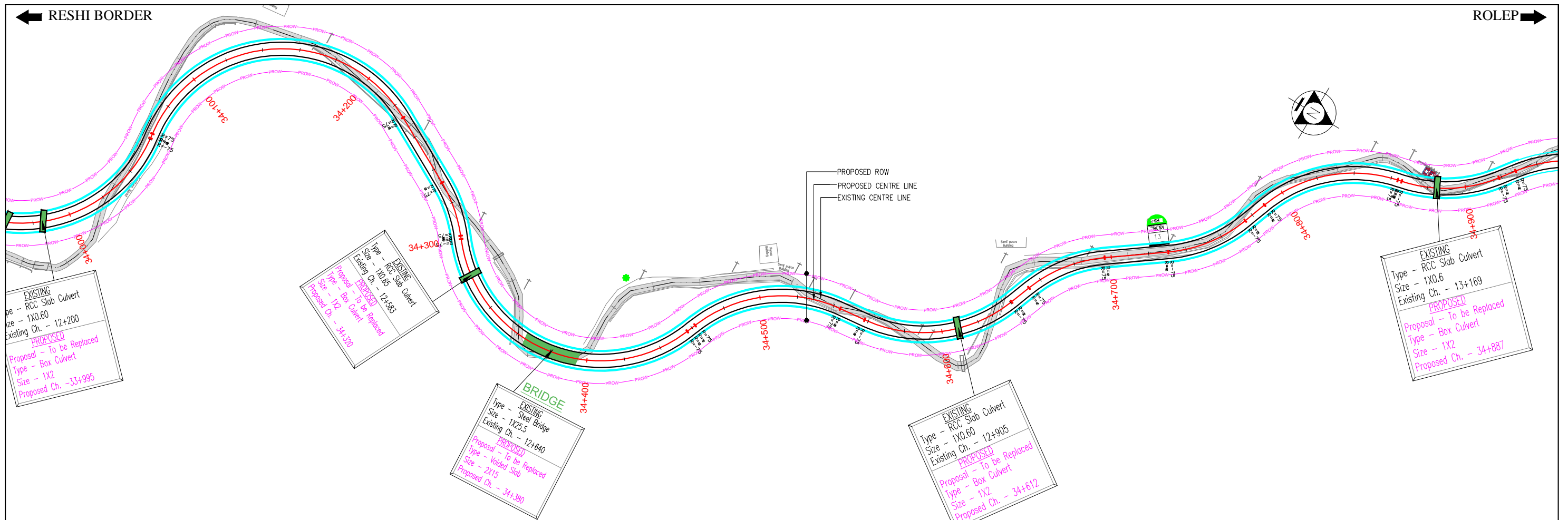
Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

DATE : May 2020		Revision RO	
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S	Naresh	R.Nayak	L.A.Z.

SCALE: - H=1:2000,
V=1:100, For A3 Paper Size

PACKAGE-2
RESHI BORDER-ROLEP
PLAN & PROFILE
PLAN-(Km 32+500 To Km 34+000)

Dwg. No. :- SAICPL-SESPL/NHDCL/WB-SKM/P&P/04



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

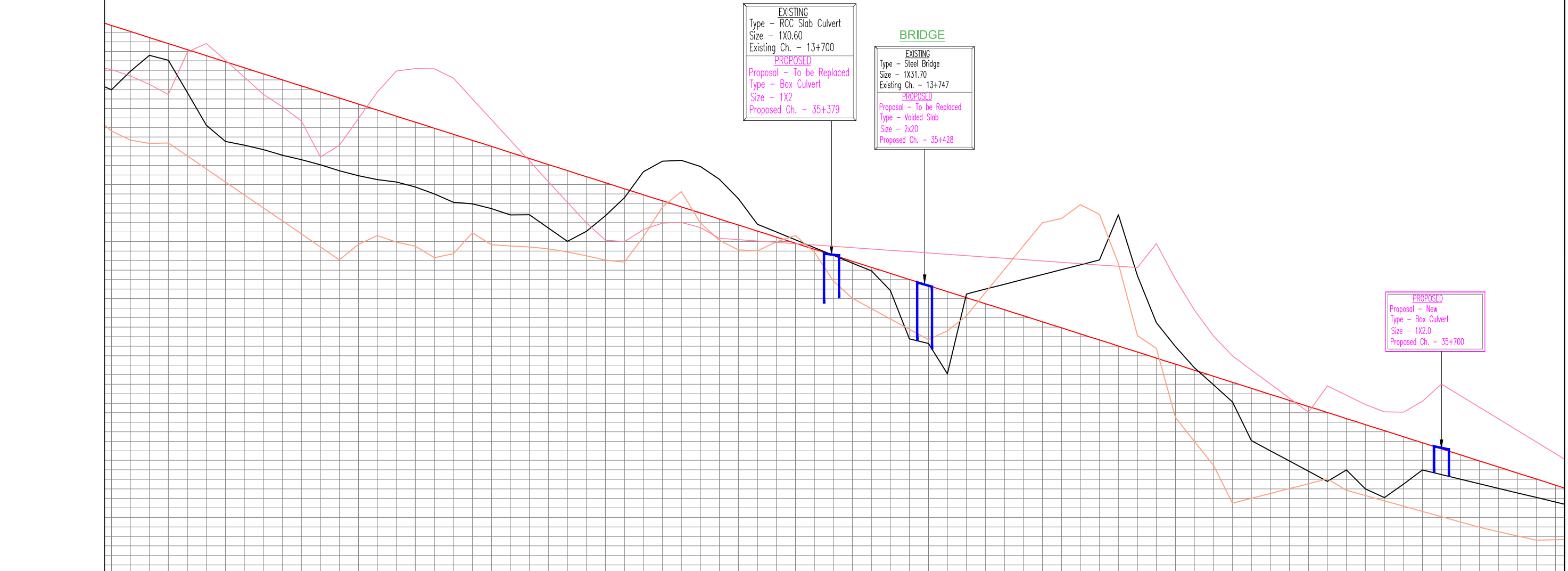
DATE :	May 2020	Revision	RO
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S	Naresh	R.Nayak	L.A.Z.
SCALE:-	H-1:2000, V-1:100,) For A3 Paper Size		

PACKAGE-2
RESHI BORDER-ROLEP
PLAN & PROFILE
PLAN-(Km 34+000 To Km 35+500)

Dwg. No. :- SAICPL-SESPL/NHDCL/WB-SKM/P&P/05

← RESHI BORDER

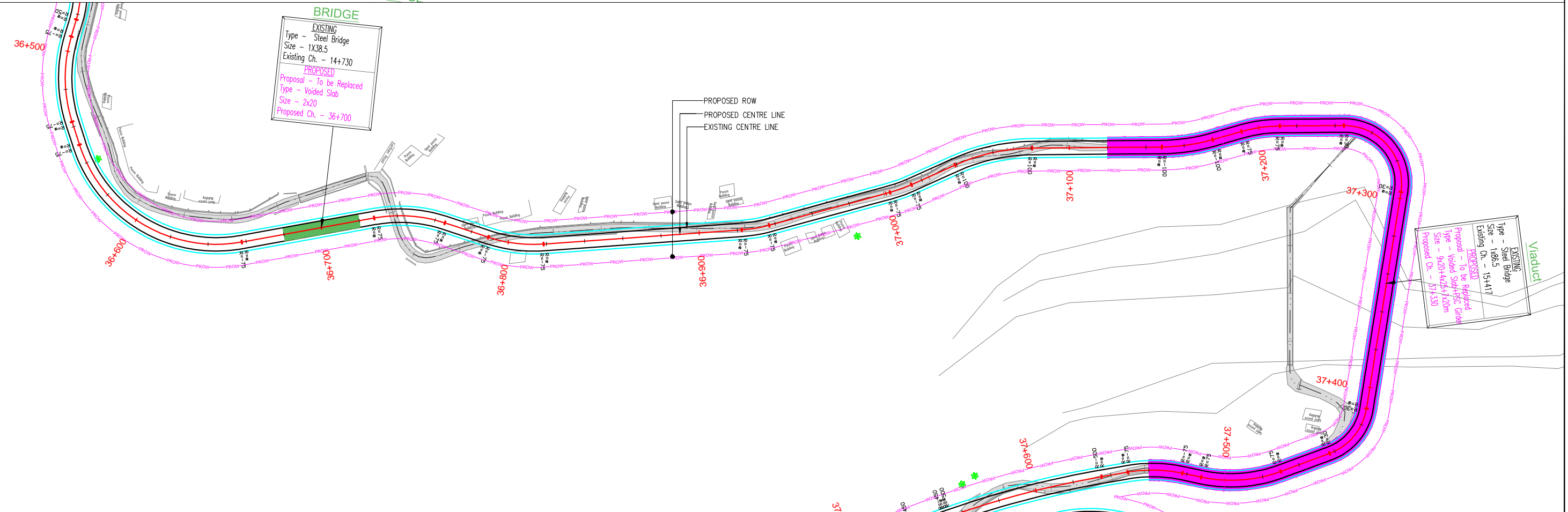
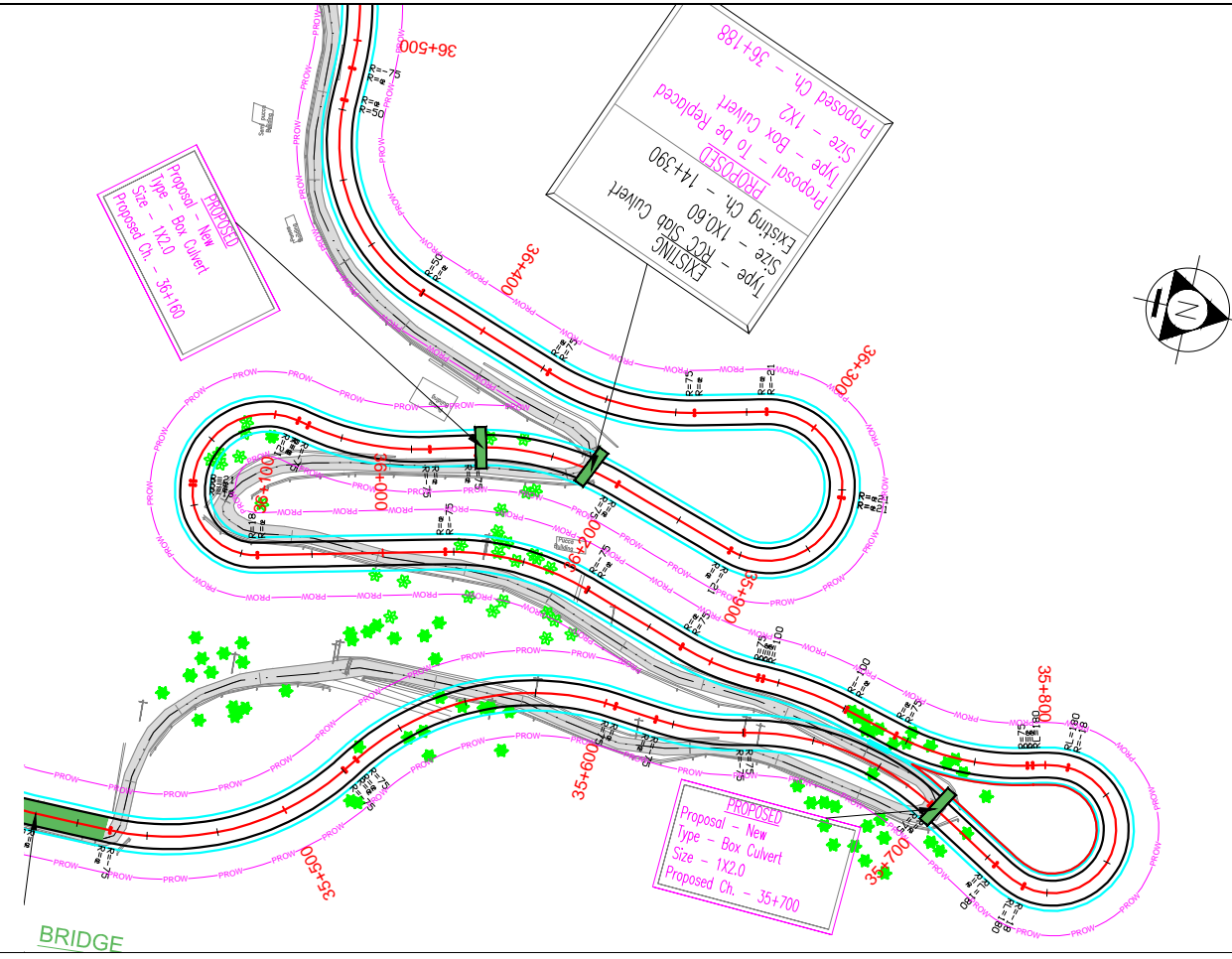
ROLEP →



Datum: 1110.000	
DESIGN LEVELS	1168.737, 1168.951, 1168.883, 1168.087, 1167.451, 1166.815, 1166.179, 1165.543, 1164.907, 1164.271, 1163.635, 1162.999, 1162.363, 1161.727, 1161.092, 1160.456, 1159.820, 1159.184, 1158.548, 1157.912, 1157.276, 1156.640, 1156.004, 1155.368, 1154.732, 1154.096, 1153.460, 1152.824, 1152.188, 1151.552, 1150.916, 1150.280, 1149.644, 1149.008, 1148.372, 1147.736, 1147.100, 1146.464, 1145.828, 1145.192, 1144.556, 1143.920, 1143.284, 1142.648, 1142.012, 1141.376, 1140.740, 1140.104, 1139.468, 1138.832, 1138.196, 1137.560, 1136.924, 1136.288, 1135.652, 1135.016, 1134.380, 1133.744, 1133.108, 1132.472, 1131.836, 1131.200, 1130.564, 1129.928, 1129.292, 1128.656, 1128.020, 1127.384, 1126.748, 1126.112, 1125.476, 1124.840, 1124.204, 1123.568, 1122.932, 1122.296, 1121.660, 1121.024, 1120.388, 1119.752, 1119.116, 1118.480, 1117.844, 1117.208, 1116.572, 1115.936, 1115.300, 1114.664, 1140.028, 1139.392, 1138.756, 1138.120, 1137.484, 1136.848, 1136.212, 1135.576, 1134.940, 1134.304, 1133.668, 1133.032, 1132.396, 1131.760, 1131.124, 1130.488, 1129.852, 1129.216, 1128.580, 1127.944, 1127.308, 1126.672, 1126.036, 1125.400, 1124.764, 1124.128, 1123.492, 1122.856, 1122.220, 1121.584, 1120.948, 1120.312, 1119.676, 1119.040, 1118.404, 1117.768, 1117.132, 1116.496, 1115.860, 1115.224, 1114.588, 1113.952, 1113.316, 1112.680, 1112.044, 1111.408, 1110.772, 1110.136, 1109.500, 1108.864, 1108.228, 1107.592, 1106.956, 1106.320, 1105.684, 1105.048, 1104.412, 1103.776, 1103.140, 1102.504, 1101.868, 1101.232, 1100.596, 1099.960, 1099.324, 1098.688, 1098.052, 1097.416, 1096.780, 1096.144, 1095.508, 1094.872, 1094.236, 1093.600, 1092.964, 1092.328, 1091.692, 1091.056, 1090.420, 1089.784, 1089.148, 1088.512, 1087.876, 1087.240, 1086.604, 1085.968, 1085.332, 1084.696, 1084.060, 1083.424, 1082.788, 1082.152, 1081.516, 1080.880, 1080.244, 1079.608, 1078.972, 1078.336, 1077.700, 1077.064, 1076.428, 1075.792, 1075.156, 1074.520, 1073.884, 1073.248, 1072.612, 1071.976, 1071.340, 1070.704, 1070.068, 1069.432, 1068.796, 1068.160, 1067.524, 1066.888, 1066.252, 1065.616, 1064.980, 1064.344, 1063.708, 1063.072, 1062.436, 1061.800, 1061.164, 1060.528, 1059.892, 1059.256, 1058.620, 1057.984, 1057.348, 1056.712, 1056.076, 1055.440, 1054.804, 1054.168, 1053.532, 1052.896, 1052.260, 1051.624, 1050.988, 1050.352, 1049.716, 1049.080, 1048.444, 1047.808, 1047.172, 1046.536, 1045.900, 1045.264, 1044.628, 1043.992, 1043.356, 1042.720, 1042.084, 1041.448, 1040.812, 1040.176, 1039.540, 1038.904, 1038.268, 1037.632, 1036.996, 1036.360, 1035.724, 1035.088, 1034.452, 1033.816, 1033.180, 1032.544, 1031.908, 1031.272, 1030.636, 1030.000, 1029.364, 1028.728, 1028.092, 1027.456, 1026.820, 1026.184, 1025.548, 1024.912, 1024.276, 1023.640, 1023.004, 1022.368, 1021.732, 1021.096, 1020.460, 1019.824, 1019.188, 1018.552, 1017.916, 1017.280, 1016.644, 1016.008, 1015.372, 1014.736, 1014.100, 1013.464, 1012.828, 1012.192, 1011.556, 1010.920, 1010.284, 1009.648, 1009.012, 1008.376, 1007.740, 1007.104, 1006.468, 1005.832, 1005.196, 1004.560, 1003.924, 1003.288, 1002.652, 1002.016, 1001.380, 1000.744, 1000.108, 999.472, 998.836, 998.200, 997.564, 996.928, 996.292, 995.656, 995.020, 994.384, 993.748, 993.112, 992.476, 991.840, 991.204, 990.568, 989.932, 989.296, 988.660, 988.024, 987.388, 986.752, 986.116, 985.480, 984.844, 984.208, 983.572, 982.936, 982.300, 981.664, 981.028, 980.392, 979.756, 979.120, 978.484, 977.848, 977.212, 976.576, 975.940, 975.304, 974.668, 974.032, 973.396, 972.760, 972.124, 971.488, 970.852, 970.216, 969.580, 968.944, 968.308, 967.672, 967.036, 966.400, 965.764, 965.128, 964.492, 963.856, 963.220, 962.584, 961.948, 961.312, 960.676, 960.040, 959.404, 958.768, 958.132, 957.496, 956.860, 956.224, 955.588, 954.952, 954.316, 953.680, 953.044, 952.408, 951.772, 951.136, 950.500, 949.864, 949.228, 948.592, 947.956, 947.320, 946.684, 946.048, 945.412, 944.776, 944.140, 943.504, 942.868, 942.232, 941.596, 940.960, 940.324, 939.688, 939.052, 938.416, 937.780, 937.144, 936.508, 935.872, 935.236, 934.600, 933.964, 933.328, 932.692, 932.056, 931.420, 930.784, 930.148, 929.512, 928.876, 928.240, 927.604, 926.968, 926.332, 925.696, 925.060, 924.424, 923.788, 923.152, 922.516, 921.880, 921.244, 920.608, 919.972, 919.336, 918.700, 918.064, 917.428, 916.792, 916.156, 915.520, 914.884, 914.248, 913.612, 912.976, 912.340, 911.704, 911.068, 910.432, 909.796, 909.160, 908.524, 907.888, 907.252, 906.616, 905.980, 905.344, 904.708, 904.072, 903.436, 902.800, 902.164, 901.528, 900.892, 900.256, 899.620, 898.984, 898.348, 897.712, 897.076, 896.440, 895.804, 895.168, 894.532, 893.896, 893.260, 892.624, 891.988, 891.352, 890.716, 890.080, 889.444, 888.808, 888.172, 887.536, 886.900, 886.264, 885.628, 884.992, 884.356, 883.720, 883.084, 882.448, 881.812, 881.176, 880.540, 879.904, 879.268, 878.632, 877.996, 877.360, 876.724, 876.088, 875.452, 874.816, 874.180, 873.544, 872.908, 872.272, 871.636, 871.000, 870.364, 869.728, 869.092, 868.456, 867.820, 867.184, 866.548, 865.912, 865.276, 864.640, 864.004, 863.368, 862.732, 862.096, 861.460, 860.824, 860.188, 859.552, 858.916, 858.280, 857.644, 857.008, 856.372, 855.736, 855.100, 854.464, 853.828, 853.192, 852.556, 851.920, 851.284, 850.648, 850.012, 849.376, 848.740, 848.104, 847.468, 846.832, 846.196, 845.560, 844.924, 844.288, 843.652, 843.016, 842.380, 841.744, 841.108, 840.472, 839.836, 839.200, 838.564, 837.928, 837.292, 836.656, 836.020, 835.384, 834.748, 834.112, 833.476, 832.840, 832.204, 831.568, 830.932, 830.296, 829.660, 829.024, 828.388, 827.752, 827.116, 826.480, 825.844, 825.208, 824.572, 823.936, 823.300, 822.664, 822.028, 821.392, 820.756, 820.120, 819.484, 818.848, 818.212, 817.576, 816.940, 816.304, 815.668, 815.032, 814.396, 813.760, 813.124, 812.488, 811.852, 811.216, 810.580, 810.944, 810.308, 809.672, 809.036, 808.400, 807.764, 807.128, 806.492, 805.856, 805.220, 804.584, 803.948, 803.312, 802.676, 802.040, 801.404, 800.768, 800.132, 799.496, 798.860, 798.224, 797.588, 796.952, 796.316, 795.680, 795.044, 794.408, 793.772, 793.136, 792.500, 791.864, 791.228, 790.592, 789.956, 789.320, 788.684, 788.048, 787.412, 786.776, 786.140, 785.504, 784.868, 784.232, 783.596, 782.960, 782.324, 781.688, 781.052, 780.416, 779.780, 779.144, 778.508, 777.872, 777.236, 776.600, 775.964, 775.328, 774.692, 774.056, 773.420, 772.784, 772.148, 771.512, 770.876, 770.240, 769.604, 768.968, 768.332, 767.696, 767.060, 766.424, 765.788, 765.152, 764.516, 763.880, 763.244, 762.608, 761.972, 761.336, 760.700, 760.064, 759.428, 758.792, 758.156, 757.520, 756.884, 756.248, 755.612, 754.976, 754.340, 753.704, 753.068, 752.432, 751.796, 751.160, 750.524, 749.888, 749.252, 748.616, 747.980, 747.344, 746.708, 746.072, 745.436, 744.800, 744.164, 743.528, 742.892, 742.256, 741.620, 740.984, 740.348, 739.712, 739.076, 738.440, 737.804, 737.168, 736.532, 735.896, 735.260, 734.624, 733.988, 733.352, 732.716, 732.080, 731.444, 730.808, 730.172, 729.536, 728.900, 728.264, 727.628, 726.992, 726.356, 725.720, 725.084, 724.448, 723.812, 723.176, 722.540, 721.904, 721.268, 720.632, 719.996, 719.360, 718.724, 718.088, 717.452, 716.816, 716.180, 715.544, 714.908, 714.272, 713.636, 713.000, 712.364, 711.728, 711.092, 710.456, 709.820, 709.184, 708.548, 707.912, 707.276, 706.640, 706.004, 705.368, 704.732, 704.096, 703.460, 702.824, 702.188, 701.552, 700.916, 700.280, 699.644, 699.008, 698.372, 697.736, 697.100, 696.464, 695.828, 695.192, 694.556, 693.920, 693.284, 692.648, 692.012, 691.376, 690.740, 690.104, 689.468, 688.832, 688.196, 687.560, 686.924, 686.288, 685.652, 685.016, 684.380, 683.744, 683.108, 682.472, 681.836, 681.200, 680.564, 679.928, 679.292, 678.656, 678.020, 677.384, 676.748, 676.112, 675.476, 674.840, 674.204, 673.568, 672.932, 672.296, 671.660, 671.024, 670.388, 669.752, 669.116, 668.480, 667.844, 667.208, 666.572, 665.936, 665.300, 664.664, 664.028, 663.392, 662.756, 662.120, 661.484, 660.848, 660.212, 659.576, 658.940, 658.304, 657.668, 657.032, 656.396, 655.760, 655.124, 654.488, 653.852, 653.216, 652.580, 651.944, 651.308, 650.672, 650.036, 649.400, 648.764, 648.128, 647.492, 646.856, 646.220, 645.584, 644.948, 644.312, 643.676, 643.040, 642.404, 641.768, 641.132, 640.496, 639.860, 639.224, 638.588, 637.952, 637.316, 636.680, 636.044, 635.408, 634.772, 634.136, 633.500, 632.864, 632.228, 631.592, 630.956, 630.320, 629.684, 629.048, 628.412, 627.776, 627.140, 626.504, 625.868, 625.232, 624.596, 623.960, 623.324, 622.688, 622.052, 621.416, 620.780, 620.144, 619.508, 618.872, 618.236, 617.600, 616.964, 616.328, 615.692, 615.056, 614.420, 613.784, 613.148, 612.512, 611.876, 611.240, 610.604, 609.968, 609.332, 608.696, 608.060, 607.424, 606.788, 606.152, 605.516, 604.880, 604.244, 603.608, 602.972, 602.336, 601.700, 601.064, 600.428, 599.792, 599.156, 598.520, 597.884, 597.248, 596.612, 595.976, 595.340, 594.704, 594.068, 593.432, 592.796, 592.160, 591.524, 590.888, 590.252, 589.616, 588.980, 588.344, 587.708, 587.072, 586.436, 585.800, 585.164, 584.528, 583.892, 583.256, 582.620, 581.984, 581.348, 580.712, 580.076, 579.440, 578.804, 578.168, 577.532, 576.896, 576.260, 575.624, 574.988, 574.352, 573.716, 573.080, 572.444, 571.808, 571.172, 570.536, 569.900, 569.264, 568.628, 567.992, 567.356, 566.720, 566.084, 565.448, 564.812, 564.176, 563.540, 562.904, 562.268, 561.632, 560.996, 560.360, 559.724, 559.088, 558.452, 557.816, 557.180, 556.544, 555.908, 555.272, 554.636, 554.000, 553.364, 552.728, 552.092, 551.456, 550.820, 550.184, 549.548, 548.912, 548.276, 547.640, 547.004, 546.368, 545.732, 545.096, 544.460, 543.824, 543.188, 542.552, 541.916, 541.280, 540.644, 539.008, 538.372, 537.736, 537.100, 536.464, 535.828, 535.192, 534.556, 533.920, 533.284, 532.648, 532.012, 531.376, 530.740, 530.104, 529.468, 528.832, 528.196, 527.560, 526.924, 526.288, 525.652, 525.016, 524.380, 523.744, 523.108, 522.472, 521.836, 521.200, 520.564, 519.928, 519.292, 518.656, 518.020, 517.384, 516.748, 516.112, 515.476, 514.840, 514.204, 513.568, 512.932, 512.296, 511.660, 511.024, 509.388, 508.752, 508.116, 507.480, 506.844, 506.208, 505.572, 504.936, 504.300, 503.664, 503.028, 502.392, 501.756, 501.120, 500.484, 499.848, 499.212, 498.576, 497.940, 497.304, 496.668, 496.032, 495.396, 494.760, 494.124, 493.488, 492.852, 492.216, 491.580, 490.944, 490.308, 489.672, 489.036, 488.400, 487.764, 487.128, 486.492, 485.856, 485.220, 484.584, 483.948, 483.312, 482.676, 482.040, 481.404, 480.768, 480.132, 479.496, 478.860, 478.224, 477.588, 476.952, 476.316, 475.680, 475.044, 474.408, 473.772, 473.136, 472.500, 471.864, 471.228, 470.592, 469.956, 469.320, 468.684, 468.048, 467.412, 466.776, 466.140, 465.504, 464.868, 464.232, 463.596, 462.960, 462.324, 461.688, 461.052, 460.416, 459.780, 459.144, 458.508, 457.872, 457.236, 456.600, 455.964, 455.328, 454.692, 454.056, 453.420, 452.784, 452.148, 451.512, 450.876, 450.240, 449.604, 448.968, 448.332, 447.696, 447.060, 446.424, 445.788, 445.152, 444.516, 443.880, 443.244, 442.608, 441.972, 441.336, 440.700, 440.064, 439.428, 438.792, 438.156, 437.520, 436.884, 436.248, 435.612, 434.976, 434.340, 433.704, 433.068, 432.432, 431.796, 431.160, 430.524, 429.888, 429.252, 428.616, 427.980, 427.344, 426.708, 426.072, 425.436, 424.800, 424.164, 423.528, 422.892, 422.256, 421.620, 420.984, 420.348, 419.712, 419.076, 418.440, 417.804, 417.168, 416.532, 415.896, 415.260, 414.624, 413.988, 413.352, 412.716, 412.080, 411.444, 410.808, 410.172, 409.536, 408.900, 408.264, 407.628, 406.992, 406.356, 405.720, 405.084, 404.448, 403.812, 403.176, 402.540, 401.904, 401.268, 400.632, 399.996, 399.360, 398.724, 398.088, 397.452, 396.816, 396.180, 395.544, 394.908, 394.272, 393.636, 393.000, 392.364, 391.728, 391.092, 390.456, 389.820, 389.184, 388.548, 387.912, 387.276, 386.640, 386.004, 385.368, 384.732, 384.096, 383.460, 382.824, 382.188, 381.552, 380.916, 380.280, 379.644, 379.008, 378.372, 377.736, 377.100,

← RESHI BORDER

ROLEP →



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

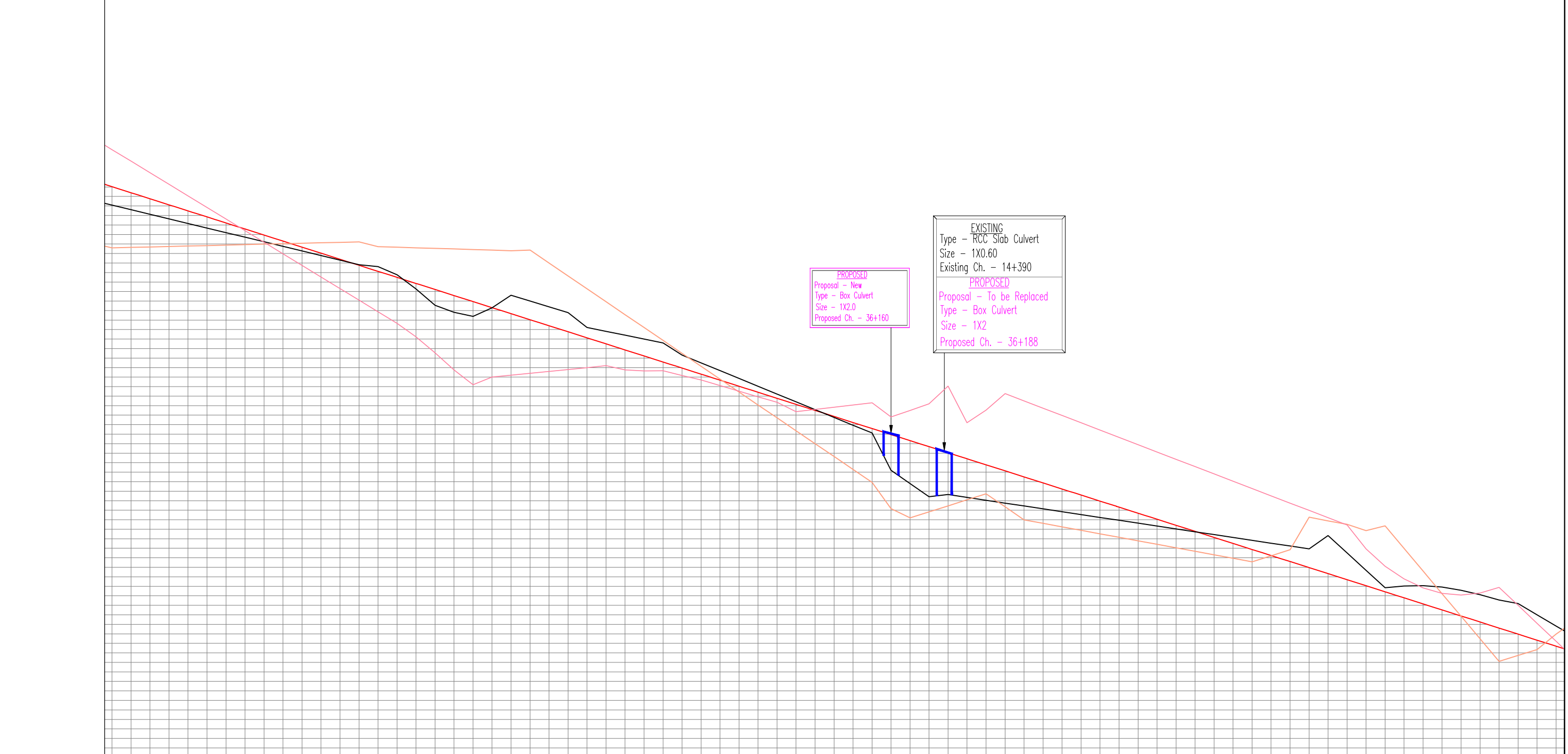
DATE :	May 2020	Revision	R0
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
P.S	Naresh	R.Nayak	L.A.Z.
SCALE:-	H-1:2000, V-1:100,) For A3 Paper Size		

PACKAGE-2
RESHI BORDER-ROLEP
PLAN & PROFILE
PLAN-(Km 35+500 To Km 37+600)

Dwg. No. :- SAICPL-SESPL/NHDCL/WB-SKM/P&P/06

← RESHI BORDER

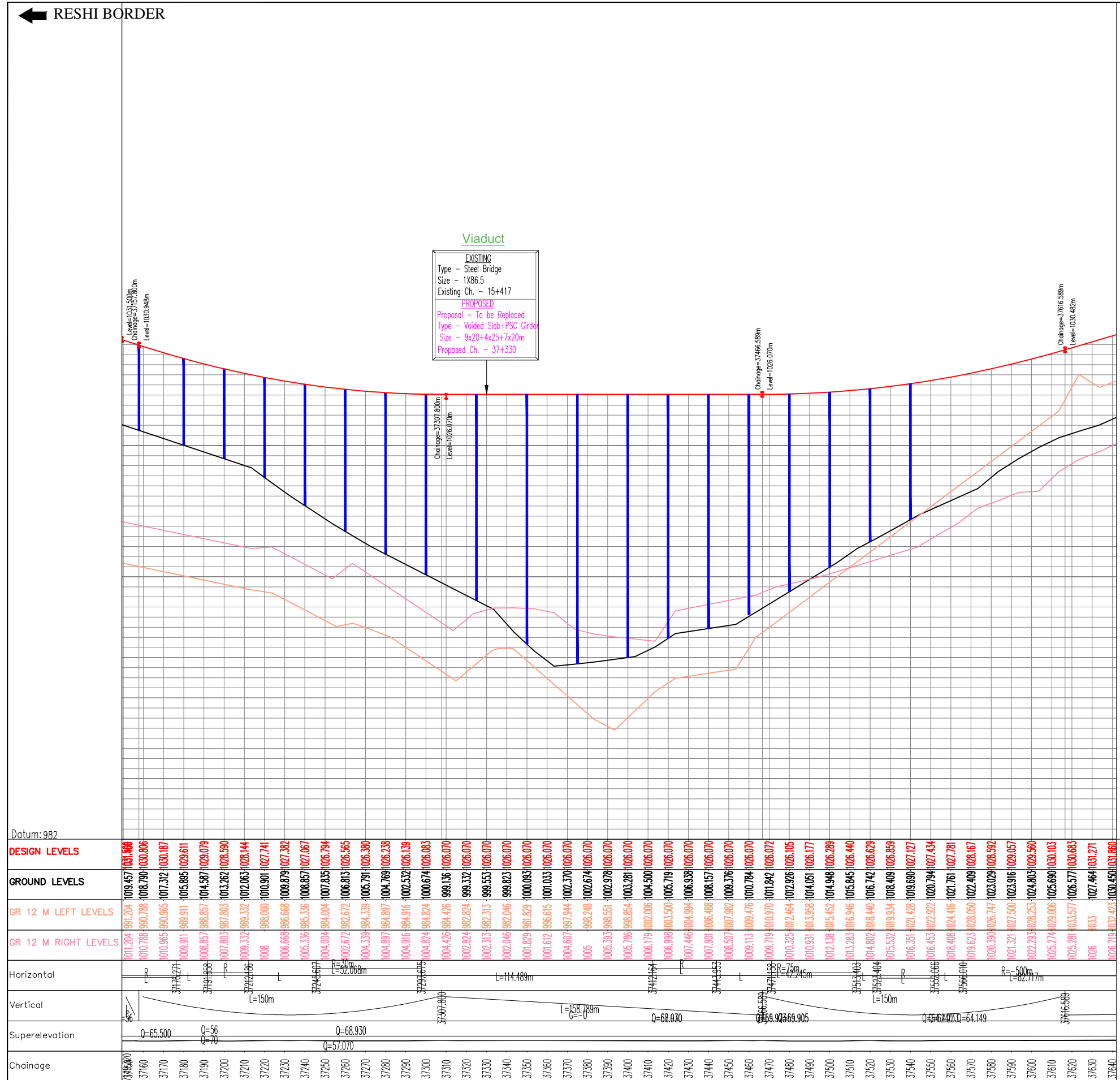
ROLEP →



Datum: 1060.000	
DESIGN LEVELS	1124.926 1114.586 1119.090 1121.029 1123.710 1114.644 1118.608 1120.393 1122.492 1114.652 1118.126 1119.757 1121.274 1114.740 1117.644 1119.121 1120.056 1114.788 1117.162 1118.485 1118.838 1114.836 1116.680 1117.849 1117.620 1114.884 1116.198 1117.213 1116.402 1114.932 1115.716 1116.577 1115.184 1114.980 1115.234 1115.941 1113.966 1115.028 1114.752 1115.305 1112.748 1115.076 1114.270 1114.669 1113.530 1115.124 1113.788 1114.033 1110.312 1115.172 1113.306 1113.397 1109.094 1115.220 1112.824 1112.762 1107.876 1114.725 1112.615 1112.126 1106.658 1114.664 1111.768 1111.490 1105.235 1114.603 1110.270 1110.854 1103.544 1114.542 1108.557 1110.218 1101.768 1114.481 1107.820 1109.582 1100.191 1114.420 1107.384 1108.946 1101.200 1114.298 1109.606 1107.674 1101.400 1114.357 1109.109 1107.038 1101.600 1113.108 1108.394 1106.402 1101.800 1111.643 1107.788 1105.766 1102.200 1109.929 1105.814 1104.495 1101.761 1107.572 1105.408 1103.659 1101.657 1106.215 1105.002 1103.223 1101.667 1104.858 1104.596 1102.587 1101.172 1103.501 1103.320 1101.951 1100.697 1102.144 1102.500 1101.315 1100.697 1100.109 1100.797 1101.680 1100.679 1109.521 1099.430 1100.860 1100.043 11096.933 1098.073 1100.040 1099.407 11096.345 1096.716 1099.220 1098.771 11097.371 1096.359 1098.400 1098.135 11097.605 1094.002 11097.590 1097.499 11097.839 1092.645 1096.760 1096.864 11096.073 1091.288 1095.940 1096.228 11096.307 1099.931 1095.120 1095.592 11096.561 1096.809 1097.175 1091.200 1094.956 11097.500 1096.199 1098.811 1094.320 11096.191 1096.831 1098.422 1093.684 11010.051 1097.463 1098.651 1093.048 11096.197 1098.095 11098.350 1092.412 11097.527 1098.727 1098.049 1091.776 11099.268 1097.359 1097.748 1091.140 11096.500 1095.991 1097.447 1090.594 11097.732 1095.623 1097.146 1099.868 11096.964 1095.255 1096.845 1099.232 11096.196 1094.887 1096.544 1098.597 11095.428 1094.519 1096.243 1097.961 11094.600 1094.151 1095.942 1097.325 11093.892 1093.793 1095.641 1096.689 11093.124 1093.415 1095.340 1096.053 11092.356 1093.047 1095.039 1095.417 11091.588 1092.679 1094.738 1094.781 11090.820 1092.311 1094.437 1094.145 11090.052 1091.943 1094.136 1093.509 11089.294 1091.575 1093.635 1092.873 11098.516 1092.207 1093.534 1092.237 11097.748 1092.839 1093.233 1091.601 11096.900 1096.265 1092.932 1090.965 11096.212 1095.880 1094.340 1090.330 11095.444 1095.520 1092.598 1079.694 11092.939 1094.850 1094.676 1079.058 11091.107 1095.358 1078.843 1078.422 11075.784 1092.992 1079.036 1077.786 11078.838 1090.606 1079.066 1077.150 11078.261 1078.230 1078.927 1076.514 11078.075 1075.854 1078.580 1075.878 11078.297 1073.478 1078.106 1075.242 11078.889 1071.102 1077.552 1074.606 11077.176 1071.726 1077.175 1073.970 11075.111 1072.350 1076.334 11073.222 1073.974 1074.825 1072.699
GROUND LEVELS	1119.090 1118.608 1119.757 1117.644 1118.485 1116.680 1117.849 1117.213 1115.941 1115.305 1114.669 1114.033 1113.397 1112.824 1112.126 1111.490 1110.854 1110.218 1109.582 1108.946 1108.310 1107.674 1107.038 1106.402 1105.766 1105.130 1104.495 1103.859 1103.223 1102.587 1101.951 1101.315 1100.679 1100.043 1099.407 1098.771 1098.135 1097.499 1096.864 1096.228 1095.592 1094.956 1094.320 1093.684 1093.048 1092.412 1091.776 1091.140 1090.504 1089.868 1089.232 1088.597 1087.961 1087.325 1086.689 1086.053 1085.417 1084.781 1084.145 1083.509 1082.873 1082.237 1081.601 1080.965 1080.330 1079.694 1079.058 1078.422 1077.786 1077.150 1076.514 1075.878 1075.242 1074.606 1073.970 1073.334 1072.699
GR 12 M LEFT LEVELS	1124.926 1114.586 1119.090 1121.029 1123.710 1114.644 1118.608 1120.393 1122.492 1114.652 1118.126 1119.757 1121.274 1114.740 1117.644 1119.121 1120.056 1114.788 1117.162 1118.485 1118.838 1114.836 1116.680 1117.849 1117.620 1114.884 1116.198 1117.213 1116.402 1114.932 1115.716 1116.577 1115.184 1114.980 1115.234 1115.941 1113.966 1115.028 1114.752 1115.305 1112.748 1115.076 1114.270 1114.669 1113.530 1115.124 1113.788 1114.033 1110.312 1115.172 1113.306 1113.397 1109.094 1115.220 1112.824 1112.762 1107.876 1114.725 1112.615 1112.126 1106.658 1114.664 1111.768 1111.490 1105.235 1114.603 1110.270 1110.854 1103.544 1114.542 1108.557 1110.218 1101.768 1114.481 1107.820 1109.582 1100.191 1114.420 1107.384 1108.946 1101.200 1114.298 1109.606 1107.674 1101.400 1114.357 1109.109 1107.038 1101.600 1113.108 1108.394 1106.402 1101.800 1111.643 1107.788 1105.766 1102.200 1109.929 1105.814 1104.495 1101.761 1107.572 1105.408 1103.659 1101.657 1106.215 1105.002 1103.223 1101.667 1104.858 1104.596 1102.587 1101.172 1103.501 1103.320 1101.951 1100.697 1102.144 1102.500 1101.315 1100.697 1100.109 1100.797 1101.680 1100.679 1109.521 1099.430 1100.860 1100.043 11096.933 1098.073 1100.040 1099.407 11096.345 1096.716 1099.220 1098.771 11097.371 1096.359 1098.400 1098.135 11097.605 1094.002 11097.590 1097.499 11097.839 1092.645 1096.760 1096.864 11096.073 1091.288 1095.940 1096.228 11096.307 1099.931 1095.120 1095.592 11096.561 1096.809 1097.175 1091.200 1094.956 11097.500 1096.199 1098.811 1094.320 11096.191 1096.831 1098.422 1093.684 11010.051 1097.463 1098.651 1093.048 11096.197 1098.095 11098.350 1092.412 11097.527 1098.727 1098.049 1091.776 11099.268 1097.359 1097.748 1091.140 11096.500 1095.991 1097.447 1090.594 11097.732 1095.623 1097.146 1099.868 11096.964 1095.255 1096.845 1099.232 11096.196 1094.887 1096.544 1098.597 11095.428 1094.519 1096.243 1097.961 11094.600 1094.151 1095.942 1097.325 11093.892 1093.793 1095.641 1096.689 11093.124 1093.415 1095.340 1096.053 11092.356 1093.047 1095.039 1095.417 11091.588 1092.679 1094.738 1094.781 11090.820 1092.311 1094.437 1094.145 11090.052 1091.943 1094.136 1093.509 11089.294 1091.575 1093.635 1092.873 11098.516 1092.207 1093.534 1092.237 11097.748 1092.839 1093.233 1091.601 11096.900 1096.265 1092.932 1090.965 11096.212 1095.880 1094.340 1090.330 11095.444 1095.520 1092.598 1079.694 11092.939 1094.850 1094.676 1079.058 11091.107 1095.358 1078.843 1078.422 11075.784 1092.992 1079.036 1077.786 11078.838 1090.606 1079.066 1077.150 11078.261 1078.230 1078.927 1076.514 11078.075 1075.854 1078.580 1075.878 11078.297 1073.478 1078.106 1075.242 11078.889 1071.102 1077.552 1074.606 11077.176 1071.726 1077.175 1073.970 11075.111 1072.350 1076.334 11073.222 1073.974 1074.825 1072.699
GR 12 M RIGHT LEVELS	1124.926 1114.586 1119.090 1121.029 1123.710 1114.644 1118.608 1120.393 1122.492 1114.652 1118.126 1119.757 1121.274 1114.740 1117.644 1119.121 1120.056 1114.788 1117.162 1118.485 1118.838 1114.836 1116.680 1117.849 1117.620 1114.884 1116.198 1117.213 1116.402 1114.932 1115.716 1116.577 1115.184 1114.980 1115.234 1115.941 1113.966 1115.028 1114.752 1115.305 1112.748 1115.076 1114.270 1114.669 1113.530 1115.124 1113.788 1114.033 1110.312 1115.172 1113.306 1113.397 1109.094 1115.220 1112.824 1112.762 1107.876 1114.725 1112.615 1112.126 1106.658 1114.664 1111.768 1111.490 1105.235 1114.603 1110.270 1110.854 1103.544 1114.542 1108.557 1110.218 1101.768 1114.481 1107.820 1109.582 1100.191 1114.420 1107.384 1108.946 1101.200 1114.298 1109.606 1107.674 1101.400 1114.357 1109.109 1107.038 1101.600 1113.108 1108.394 1106.402 1101.800 1111.643 1107.788 1105.766 1102.200 1109.929 1105.814 1104.495 1101.761 1107.572 1105.408 1103.659 1101.657 1106.215 1105.002 1103.223 1101.667 1104.858 1104.596 1102.587 1101.172 1103.501 1103.320 1101.951 1100.697 1102.144 1102.500 1101.315 1100.697 1100.109 1100.797 1101.680 1100.679 1109.521 1099.430 1100.860 1100.043 11096.933 1098.073 1100.040 1099.407 11096.345 1096.716 1099.220 1098.771 11097.371 1096.359 1098.400 1098.135 11097.605 1094.002 11097.590 1097.499 11097.839 1092.645 1096.760 1096.864 11096.073 1091.288 1095.940 1096.228 11096.307 1099.931 1095.120 1095.592 11096.561 1096.809 1097.175 1091.200 1094.956 11097.500 1096.199 1098.811 1094.320 11096.191 1096.831 1098.422 1093.684 11010.051 1097.463 1098.651 1093.048 11096.197 1098.095 11098.350 1092.412 11097.527 1098.727 1098.049 1091.776 11099.268 1097.359 1097.748 1091.140 11096.500 1095.991 1097.447 1090.594 11097.732 1095.623 1097.146 1099.868 11096.964 1095.255 1096.845 1099.232 11096.196 1094.887 1096.544 1098.597 11095.428 1094.519 1096.243 1097.961 11094.600 1094.151 1095.942 1097.325 11093.892 1093.793 1095.641 1096.689 11093.124 1093.415 1095.340 1096.053 11092.356 1093.047 1095.039 1095.417 11091.588 1092.679 1094.738 1094.781 11090.820 1092.311 1094.437 1094.145 11090.052 1091.943 1094.136 1093.509 11089.294 1091.575 1093.635 1092.873 11098.516 1092.207 1093.534 1092.237 11097.748 1092.839 1093.233 1091.601 11096.900 1096.265 1092.932 1090.965 11096.212 1095.880 1094.340 1090.330 11095.444 1095.520 1092.598 1079.694 11092.939 1094.850 1094.676 1079.058 11091.107 1095.358 1078.843 1078.422 11075.784 1092.992 1079.036 1077.786 11078.838 1090.606 1079.066 1077.150 11078.261 1078.230 1078.927 1076.514 11078.075 1075.854 1078.580 1075.878 11078.297 1073.478 1078.106 1075.242 11078.889 1071.102 1077.552 1074.606 11077.176 1071.726 1077.175 1073.970 11075.111 1072.350 1076.334 11073.222 1073.974 1074.825 1072.699
Horizontal	1124.926 1114.586 1119.090 1121.029 1123.710 1114.644 1118.608 1120.393 1122.492 1114.652 1118.126 1119.757 1121.274 1114.740 1117.644 1119.121 1120.056 1114.788 1117.162 1118.485 1118.838 1114.836 1116.680 1117.849 1117.620 1114.884 1116.198 1117.213 1116.402 1114.932 1115.716 1116.577 1115.184 1114.980 1115.234 1115.941 1113.966 1115.028 1114.752 1115.305 1112.748 1115.076 1114.270 1114.669 1113.530 1115.124 1113.788 1114.033 1110.312 1115.172 1113.306 1113.397 1109.094 1115.220 1112.824 1112.762 1107.876 1114.725 1112.615 1112.126 1106.658 1114.664 1111.768 1111.490 1105.235 1114.603 1110.270 1110.854 1103.544 1114.542 1108.557 1110.218 1101.768 1114.481 1107.820 1109.582 1100.191 1114.420 1107.384 1108.946 1101.200 1114.298 1109.606 1107.674 1101.400 1114.357 1109.109 1107.038 1101.600 1113.108 1108.394 1106.402 1101.800 1111.643 1107.788 1105.766 1102.200 1109.929 1105.814 1104.495 1101.761 1107.572 1105.408 1103.659 1101.657 1106.215 1105.002 1103.223 1101.667 1104.858 1104.596 1102.587 1101.172 1103.501 1103.320 1101.951 1100.697 1102.144 1102.500 1101.315 1100.697 1100.109 1100.797 1101.680 1100.679 1109.521 1099.430 1100.860 1100.043 11096.933 1098.073 1100.040 1099.407 11096.345 1096.716 1099.220 1098.771 11097.371 1096.359 1098.400 1098.135 11097.605 1094.002 11097.590 1097.499 11097.839 1092.645 1096.760 1096.864 11096.073 1091.288 1095.940 1096.228 11096.307 1099.931 1095.120 1095.592 11096.561 1096.809 1097.175 1091.200 1094.956 11097.500 1096.199 1098.811 1094.320 11096.191 1096.831 1098.422 1093.684 11010.051 1097.463 1098.651 1093.048 11096.197 1098.095 11098.350 1092.412 11097.527 1098.727 1098.049 1091.776 11099.268 1097.359 1097.748 1091.140 11096.500 1095.991 1097.447 1090.594 11097.732 1095.623 1097.146 1099.868 11096.964 1095.255 1096.845 1099.232 11096.196 1094.887 1096.544 1098.597 11095.428 1094.519 1096.243 1097.961 11094.600 1094.151 1095.942 1097.325 11093.892 1093.793 1095.641 1096.689 11093.124 1093.415 1095.340 1096.053 11092.356 1093.047 1095.039 1095.417 11091.588 1092.679 1094.738 1094.781 11090.820 1092.311 1094.437 1094.145 11090.052 1091.943 1094.136 1093.509 11089.294 1091.575 1093.635 1092.873 11098.516 1092.207 1093.534 1092.237 11097.748 1092.839 1093.233 1091.601 11096.900 1096.265 1092.932 1090.965 11096.212 1095.880 1094.340 1090.330 11095.444 1095.520 1092.598 1079.694 11092.939 1094.850 1094.676 1079.058 11091.107 1095.358 1078.843 1078.422 11075.784 1092.992 1079.036 1077.786 11078.838 1090.606 1079.066 1077.150 11078.261 1078.230 1078.927 1076.514 11078.075 1075.854 1078.580 1075.878 11078.297 1073.478 1078.106 1075.242 11078.889 1071.102 1077.552 1074.606 11077.176 1071.726 1077.175 1073.970 11075.111 1072.350 1076.334 11073.222 1073.974 1074.825 1072.699
Vertical	1124.926 1114.586 1119.090 1121.029 1123.710 1114.644 1118.608 1120.393 1122.492 1114.652 1118.126 1119.757 1121.274 1114.740 1117.644 1119.121 1120.056 1114.788 1117.162 1118.485 1118.838 1114.836 1116.680 111

← RESHI BORDER

ROLEP →



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
RO	Sep 2017	Final Feasibility Report	
RO	Nov 2016	Draft Feasibility Report	
RO	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

DATE :	Revision	RO
Apr 2018		
DESIGNED BY	DRAWN BY	CHECKED BY
P.S	Naresh	R.Nayak
		APPROVED BY
		L.A.Z.

SCALE: - H=1:2000, V=1:200, For A3 Paper Size

PACKAGE- 2A
RESHI BORDER-ROLEP
PLAN & PROFILE
PROFILE-(Km 37+150 To Km 37+600)

Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/P&P/

STANDARD DRAWING



CAUTIONARY/WARNING SIGNS



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

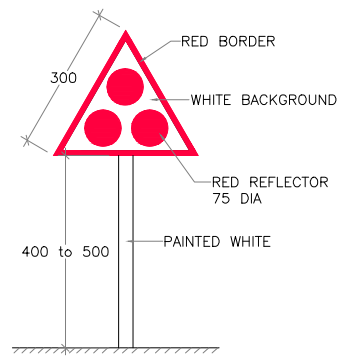
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida 201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

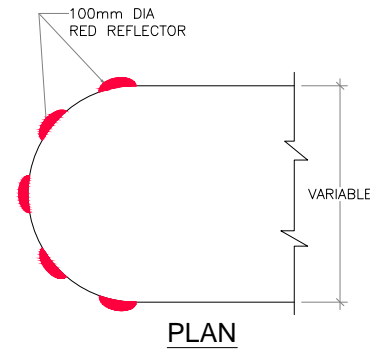
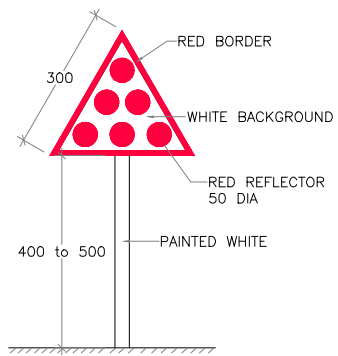
DATE : May 2020	Revision R0
DESIGNED BY Vijay Gupta	DRAWN BY Naresh
CHECKED BY Vijay Gupta	APPROVED BY Sanjay Shukla
SCALE: -NTS	

PACKAGE- 2
RESHI BORDER-ROLEP
ROAD SIGN
(Sheet 1 of 3)

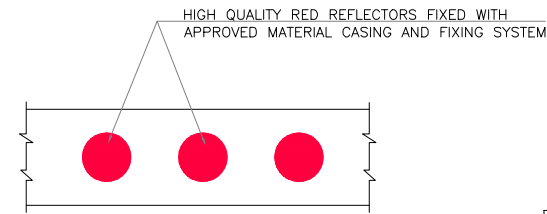
Dwg. No. :- SAICPL-SESP/L/NHIDCL/WB-SKM/Misc/01



CLUSTER OF RED REFLECTORS
TA-1

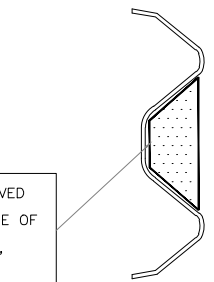


PLAN

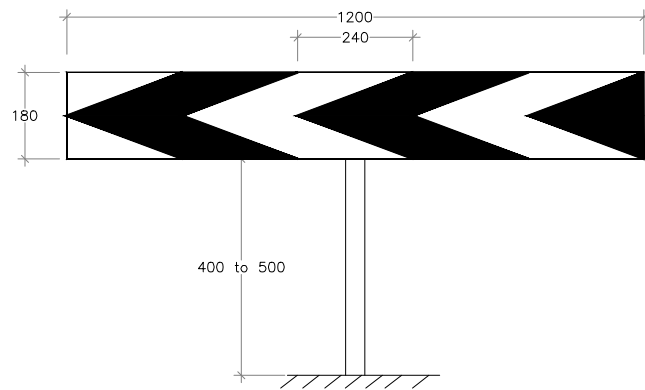


ELEVATION

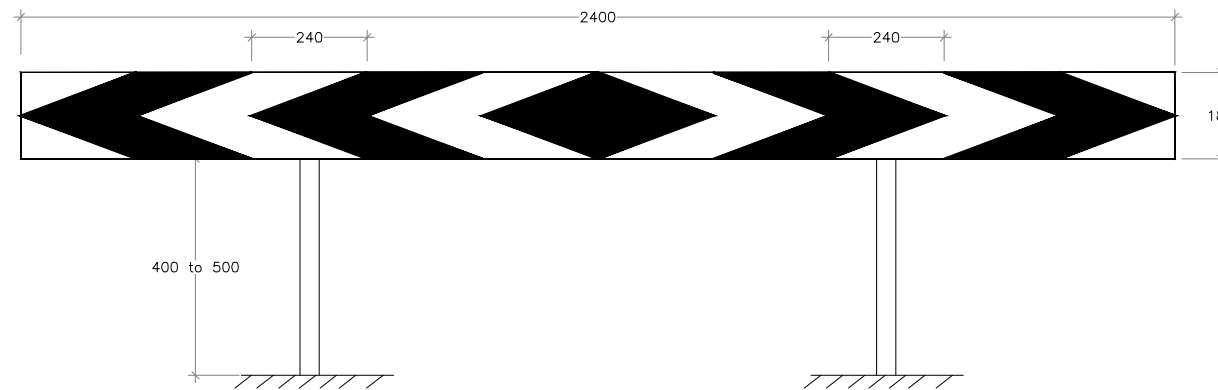
HIGH QUALITY RED REFLECTORS OF APPROVED SIZE AND SHAPE (TO FIXED IN THE SHAPE OF W-BEAM), FIXED WITH APPROVED MATERIAL, CASING ANF FIXUP SYSTEM



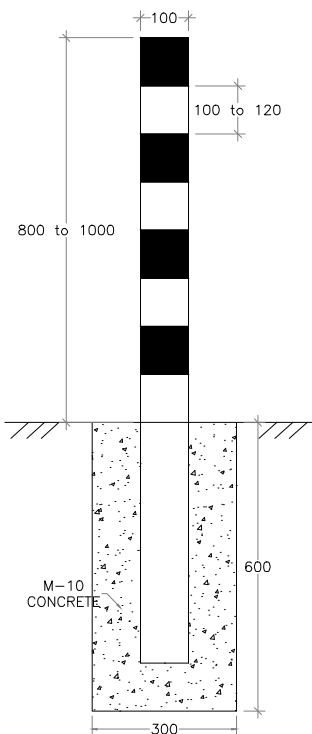
ON W-BEAM OF
METAL BEAM
CRASH BARRIER
TA-3



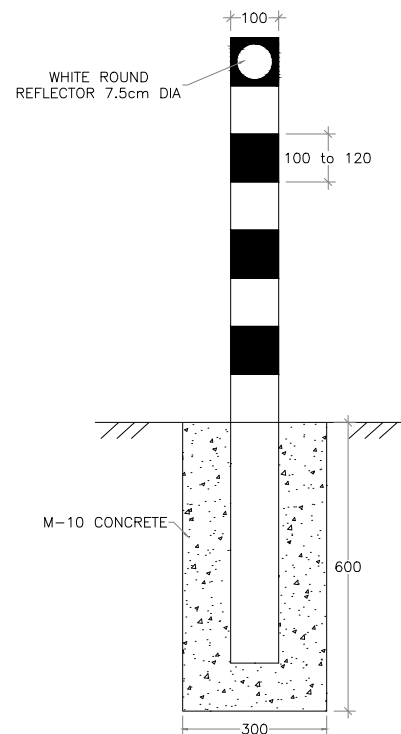
ONE-WAY HAZARD MARKER



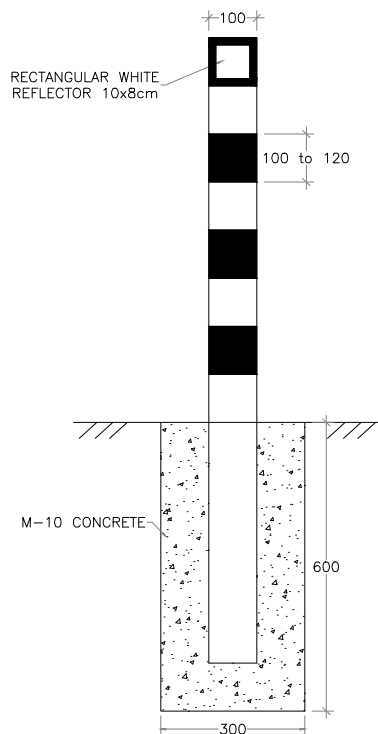
TWO-WAY HAZARD MARKER



DELINEATOR
WITHOUT
REFLECTOR

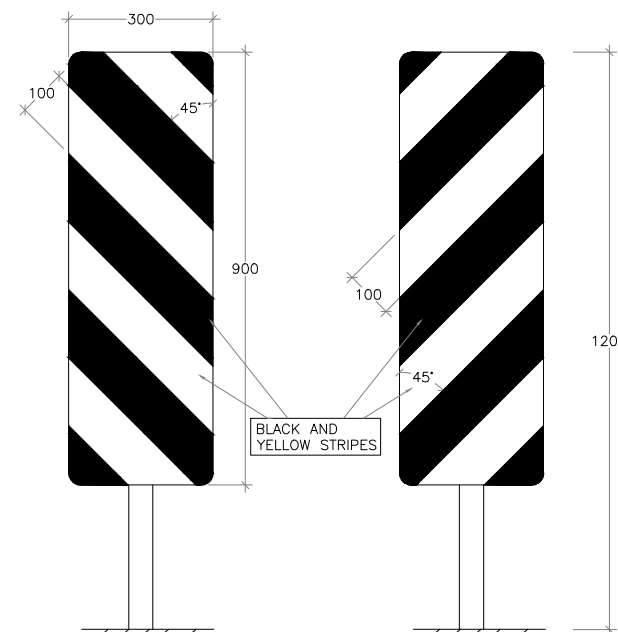


DELINEATOR
WITH CIRCULAR
REFLECTOR



DELINEATOR
WITH RECTANGULAR
REFLECTOR

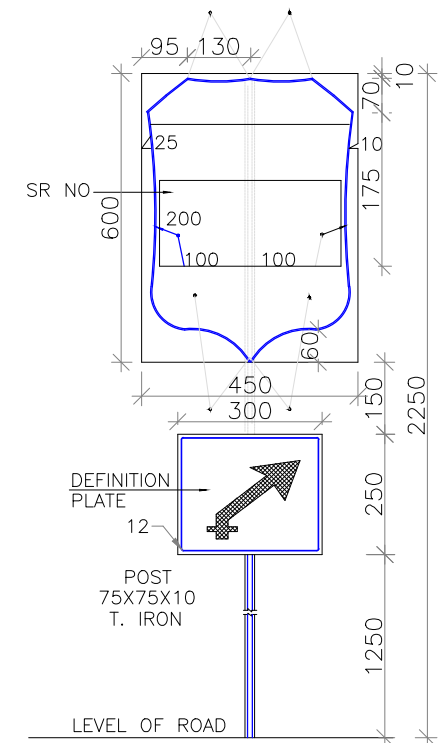
ROADWAY DELINEATORS



LEFT

RIGHT

OBJECT HAZARD MARKERS



ASSEMBLY OF ROUTE MARK SIGN
ARRANGEMENT FOR ERECTION OF
STATE ROUTE MARKER SIGN

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

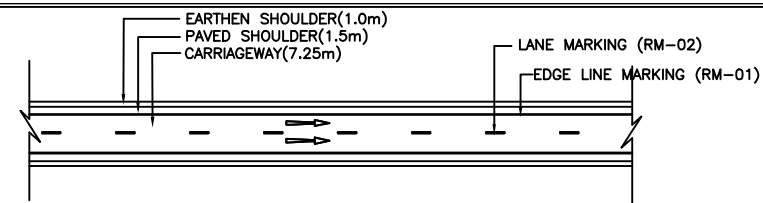
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. In Association with Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

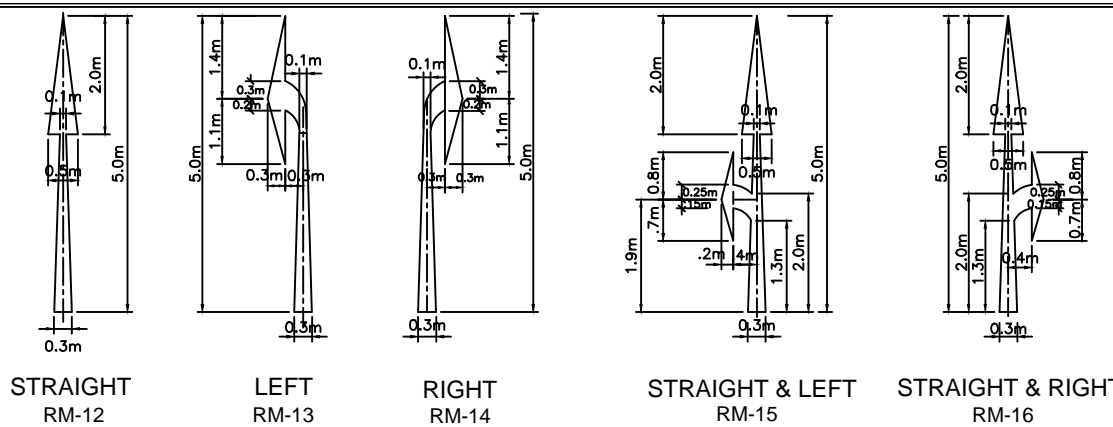
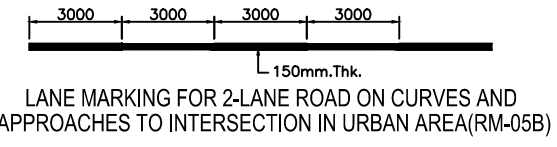
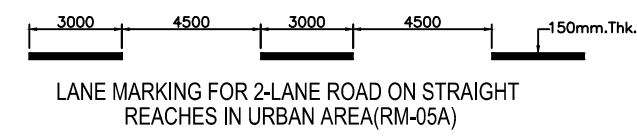
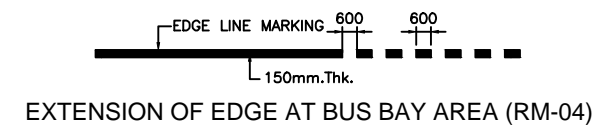
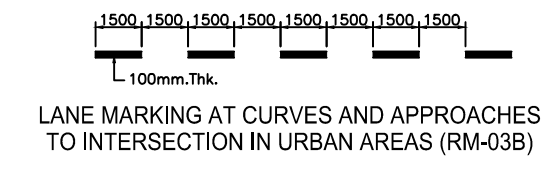
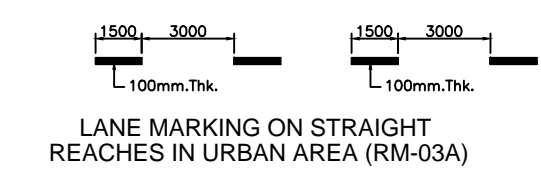
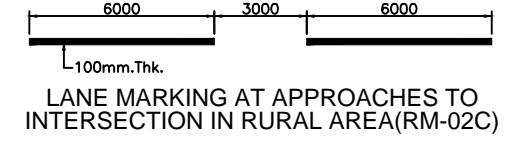
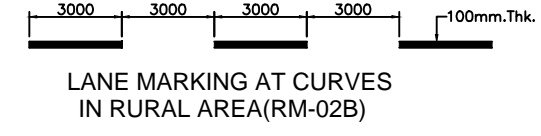
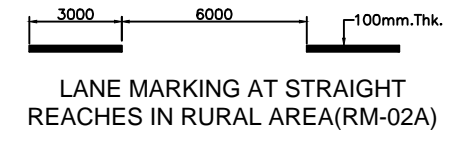
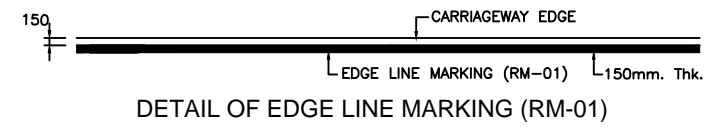
DATE : May 2020	Revision R0		
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Vijay Gupta	Naresh	Vijay Gupta	Sanjay Shukla
SCALE: -NTS			

PACKAGE - 2
RESHI BORDER-ROLEP
ROAD SIGN
(Sheet 03 of 03)

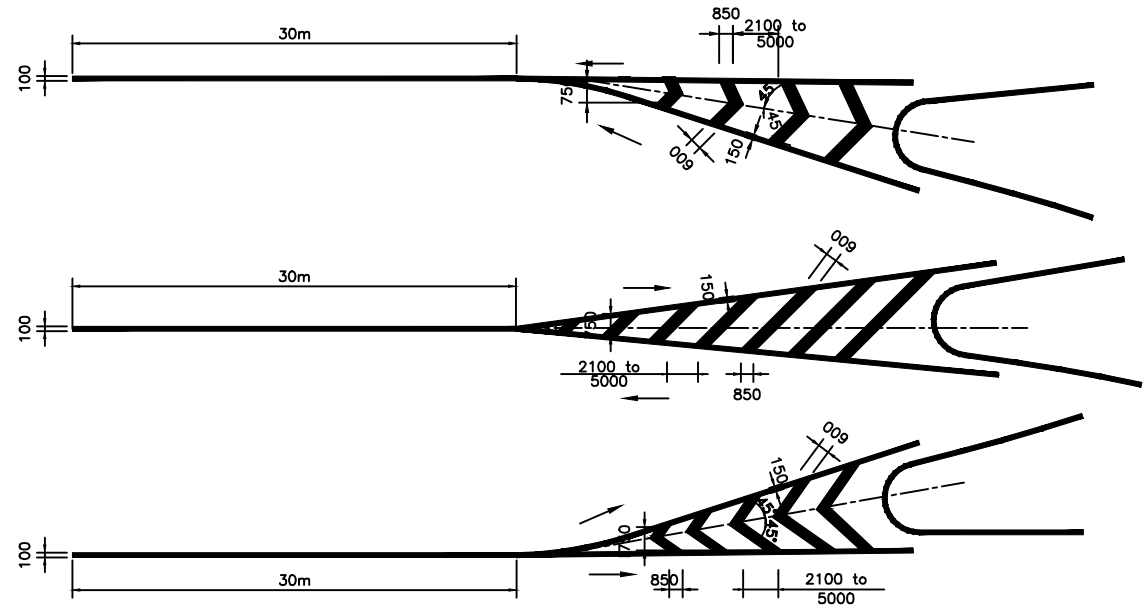
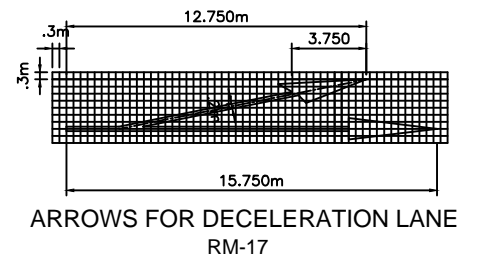
Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/Misc/03



TYPICAL LAYOUT OF ROAD MARKINGS FOR 2-LANE



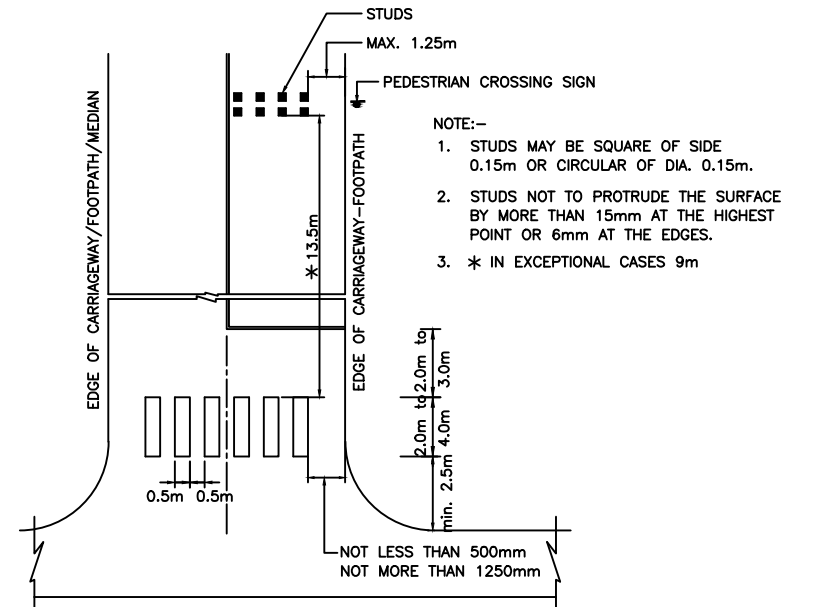
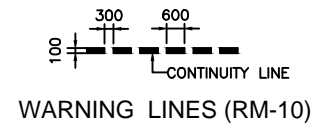
ROUTE DIRECTIONAL ARROWS FOR PROJECT ROAD
(ALL THE ARROWS ARE IN WHITE COLOUR)



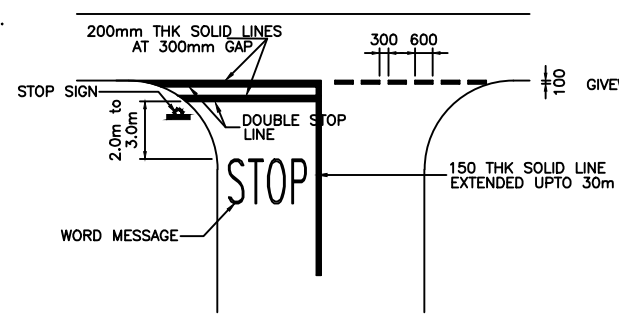
TOTAL LENGTH OF MARKING (m)	CLEAR SPACING BETWEEN DIAGONALS OR CHEVRONS(mm)	
	SPEED(<75km/h)	SPEED(>75km/h)
<6	2100	-
6 TO 22	3500	-
>22	5000	-
<10	-	4000
>10	-	6000

1. ALL LENGTHS AND SPACINGS IN THE TABLE ARE MEASURED PARALLEL TO ROAD CENTRE LANE.
2. FIRST DIAGONAL OR CHEVRON IS TO BE SO LOCATED THAT ITS LENGTH IS AT LEAST EQUAL TO ITS WIDTH.
3. WIDTH OF ALL DIAGONALS/CHEVRONS MEASURED AT RIGHT ANGLES TO THE DIAGONALS OR CHEVRONS IS 600mm.

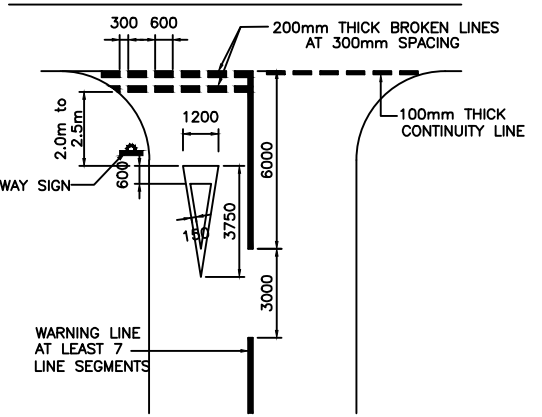
DETAILS OF DIAGONAL AND CHEVRON MARKINGS (RM-09)



PEDISTRIAN CROSSING AT AN UNSIGNALISED INTERSECTION (RM-08)



STOP LINE MARKINGS FOR USE WITH STOP SIGN (RM-06)



MARKINGS FOR GIVE WAY LINES (RM-07)

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida 201301, Uttar Pradesh.

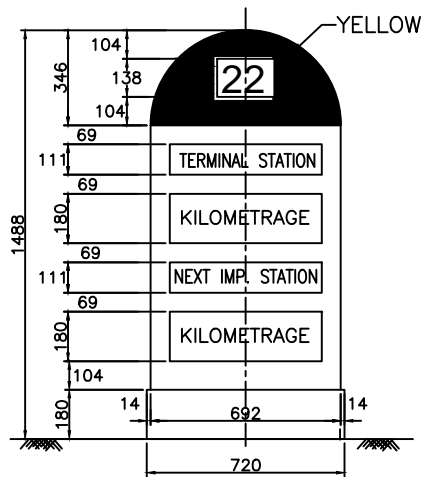
Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Vijay Gupta	Naresh	Vijay Gupta	Sanjay Shukla

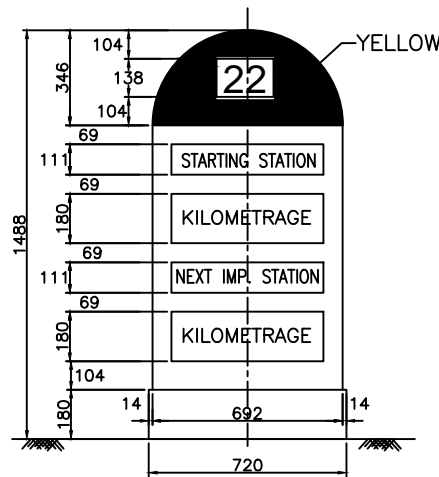
DATE : May 2020
Revision R0
SCALE: -NTS

PACKAGE- 2
RESHI BORDER-ROLEP
DETAIL OF ROAD MARKING

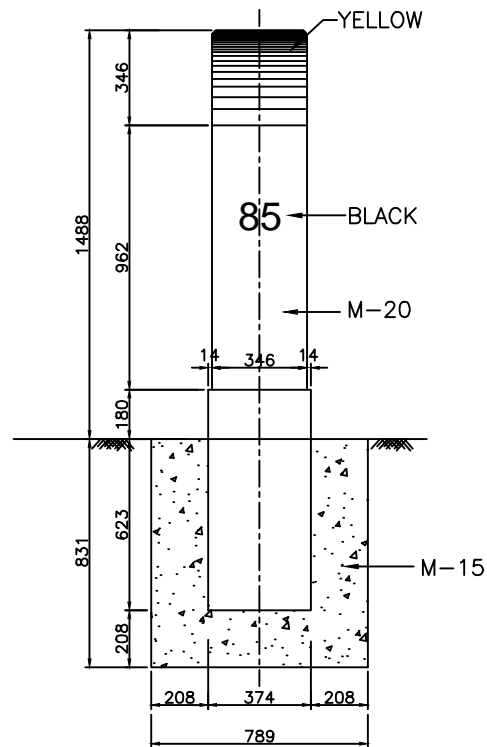
Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/Misc/04



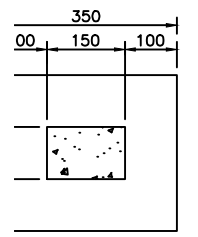
ELEVATION
FACE-I



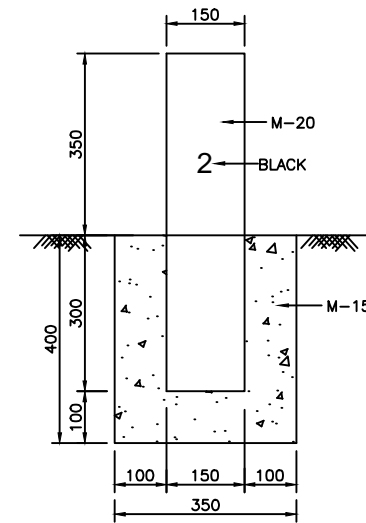
ELEVATION
FACE-II



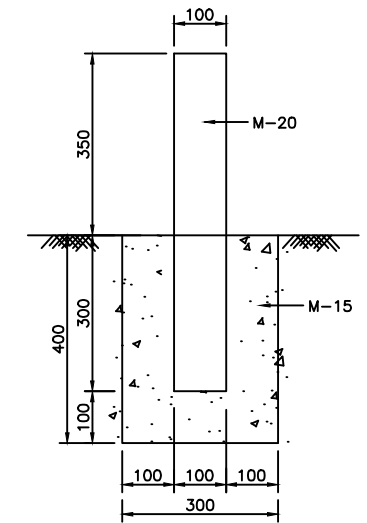
SIDE ELEVATION



TIONAL PLAN

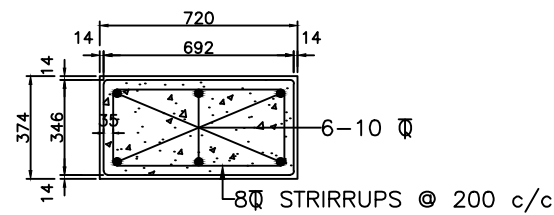


FRONT ELEVATION



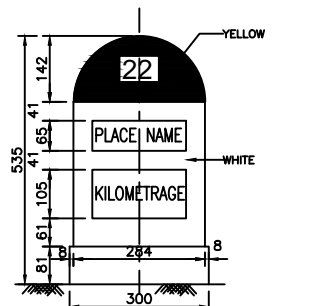
SIDE ELEVATION

DETAIL OF 200 METRE STONE
(SCALE 1:10)

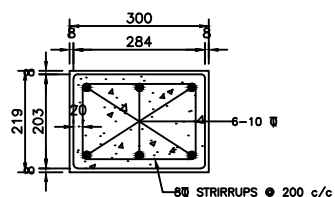


SECTIONAL PLAN

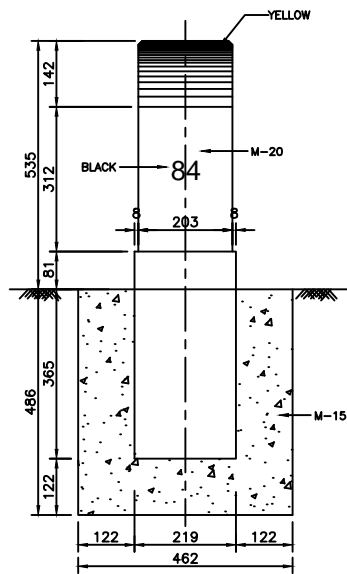
DETAIL OF FIFTH KILOMETRE STONE
(SCALE 1:20)



ELEVATION

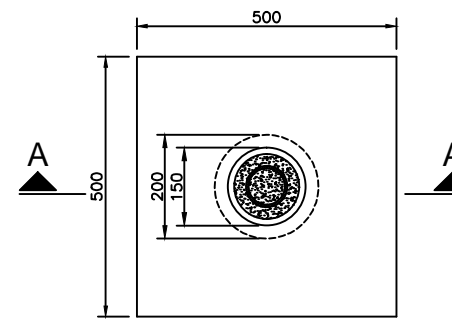


SECTIONAL PLAN

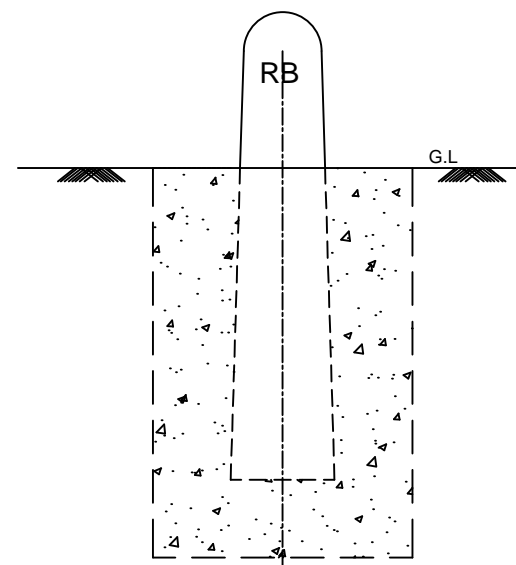


SIDE ELEVATION

DETAIL OF KILOMETRE STONE
(SCALE 1:10)



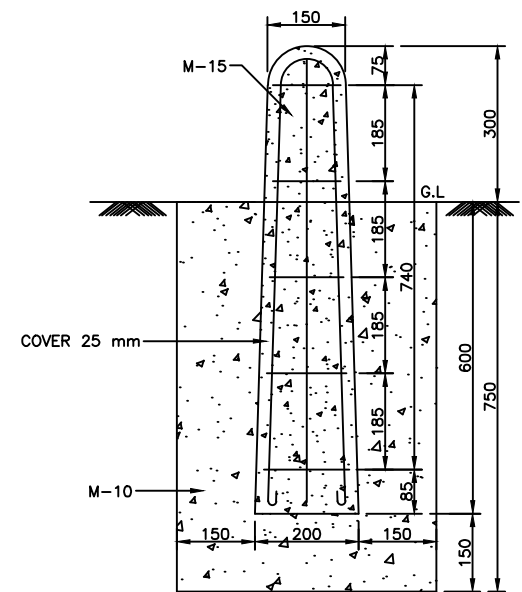
PLAN



ELEVATION

BAR BENDING SCHEDULE FOR BOUNDARY STONE

S NO.	TYPE OF M.S. BAR	NO OF BARS	SHAPE OF BARS	DIA IN mm	LENGTH OF ONE BAR INCLUDING HOOKS
1.	MAIN BARS	2	⌈	6 mm	1.48 m
2.	TOPMOST STIRRUP	1	⊙	6 mm	370 mm
3.	STIRRUP (FIRST FROM TOP)	1	⊙	6 mm	405 mm
4.	STIRRUP (SECOND FROM TOP)	1	⊙	6 mm	440mm
5.	STIRRUP (THIRD FROM TOP)	1	⊙	6 mm	475 mm
6.	BOTTOMMOST STIRRUP	1	⊙	6 mm	810 mm



SECTION A-A

DETAIL OF BOUNDARY STONE
(SCALE 1:10)

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida 201301, Uttar Pradesh.

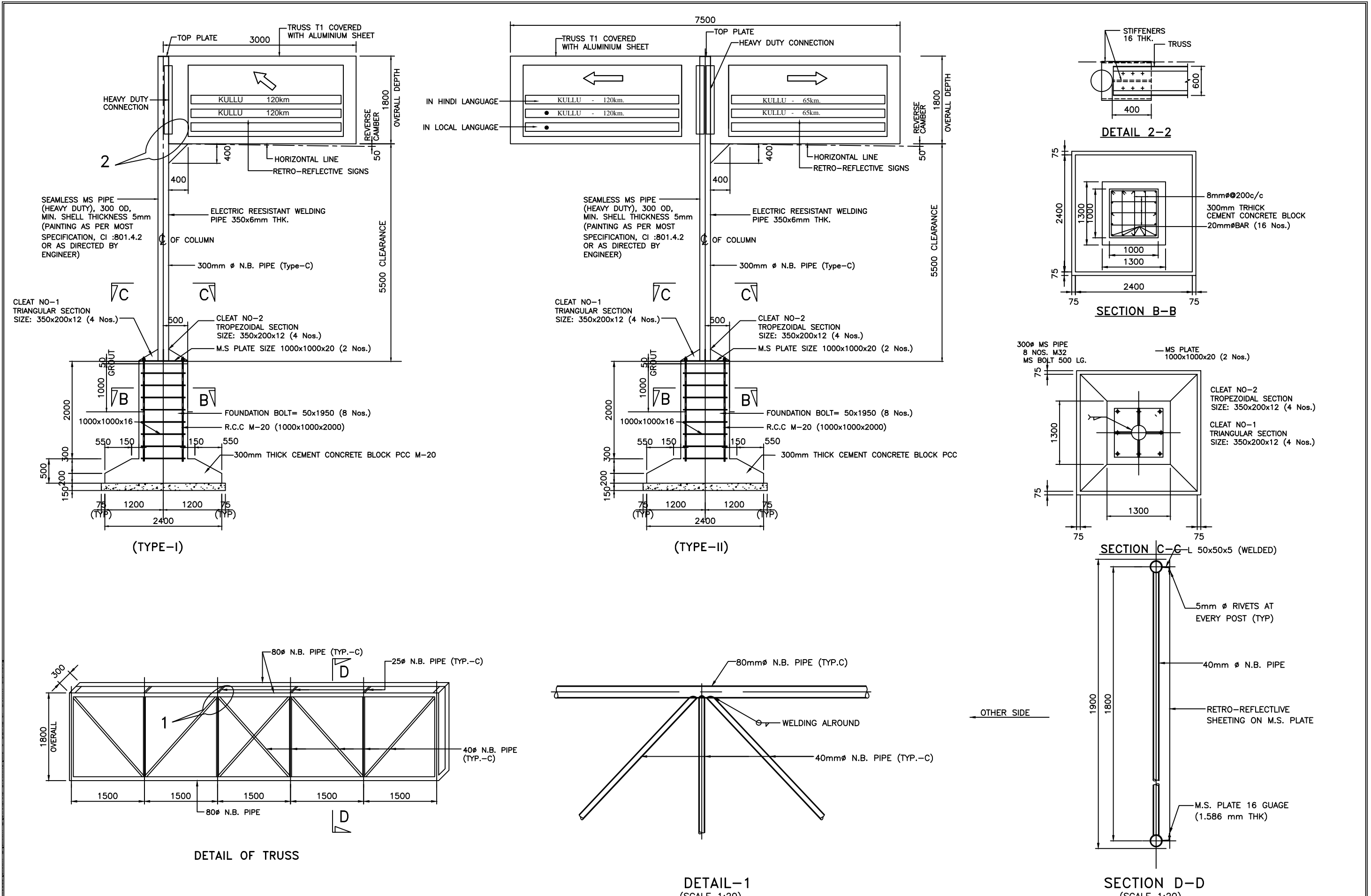
Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

DATE :	Revision	RO	
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Vijay Gupta	Naresh	Vijay Gupta	Sanjay Shukla

SCALE:-NTS

PACKAGE- 2
RESHI BORDER-ROLEP
DETAIL OF DISTANCE STONE
& BOUNDARY STONE

Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/Misc/05



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

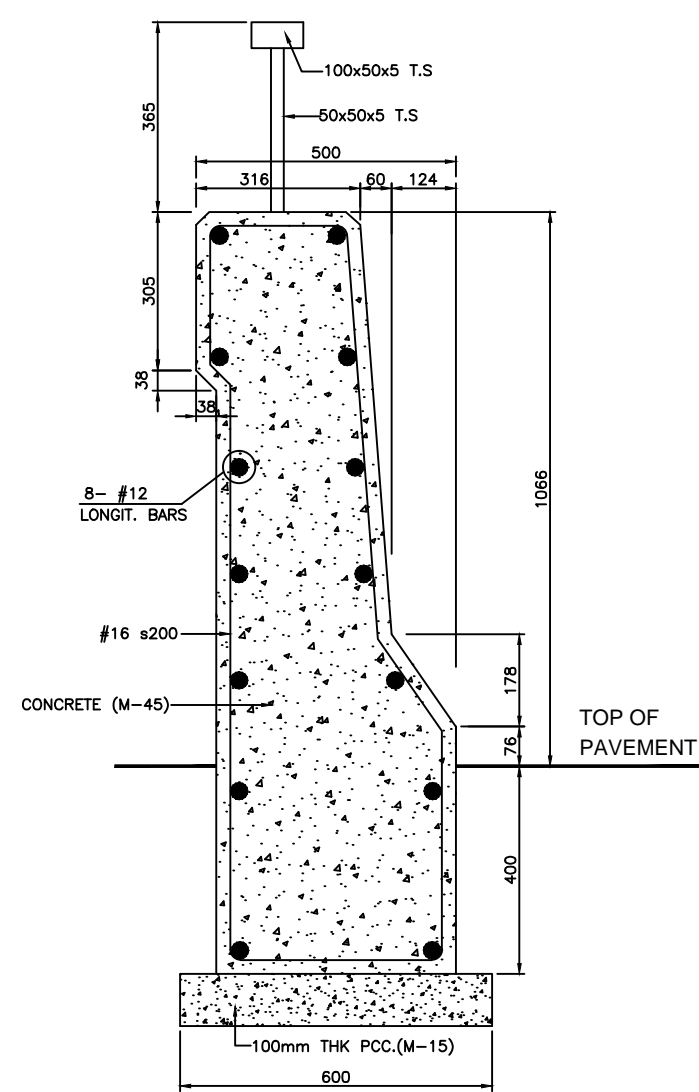
Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida 201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

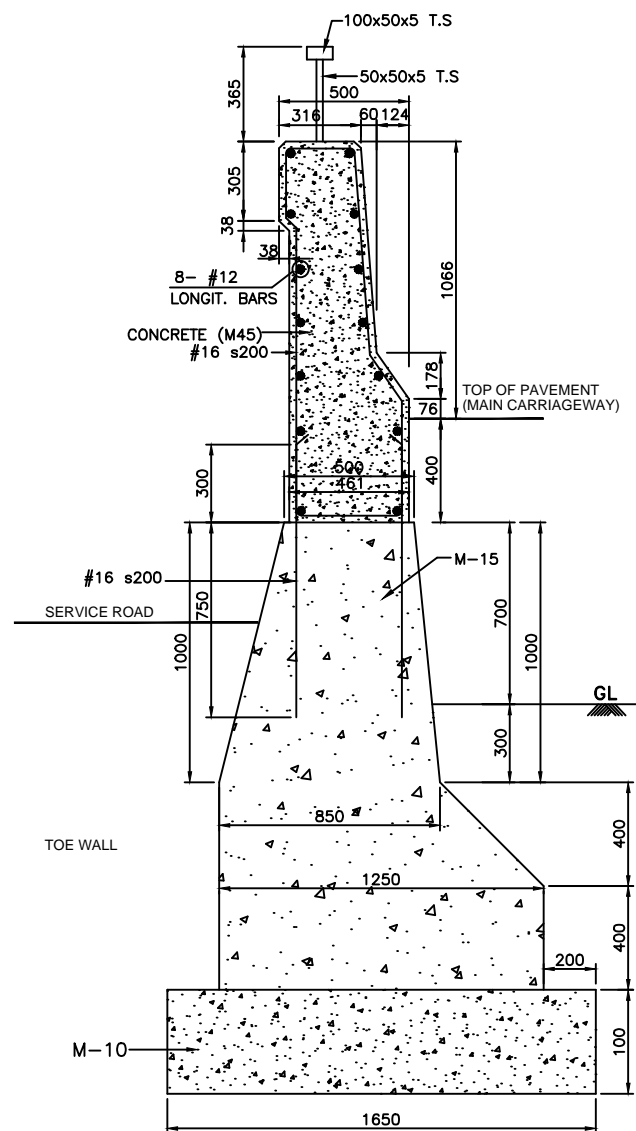
DATE : May 2020	Revision	R0	
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Vijay Gupta	Naresh	Vijay Gupta	Sanjay Shukla
SCALE: -NTS			

PACKAGE-2
RESHI BORDER-ROLEP
DETAILS OF OVERHEAD
GANTRY SIGN

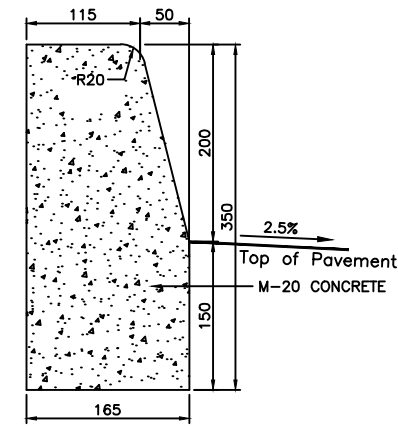
Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/Misc/06



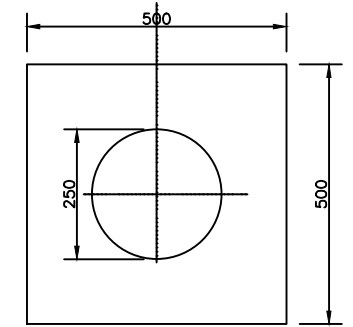
DETAILS OF JERCY TYPE CRASH BARRIER



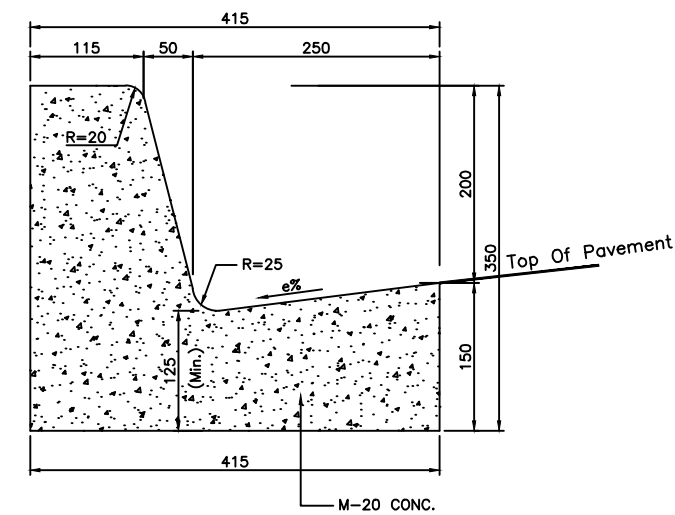
NEWJERSY TYPE CRASH BARRIER BETWEEN MAIN CARRIAGEWAY AND SERVICE ROAD



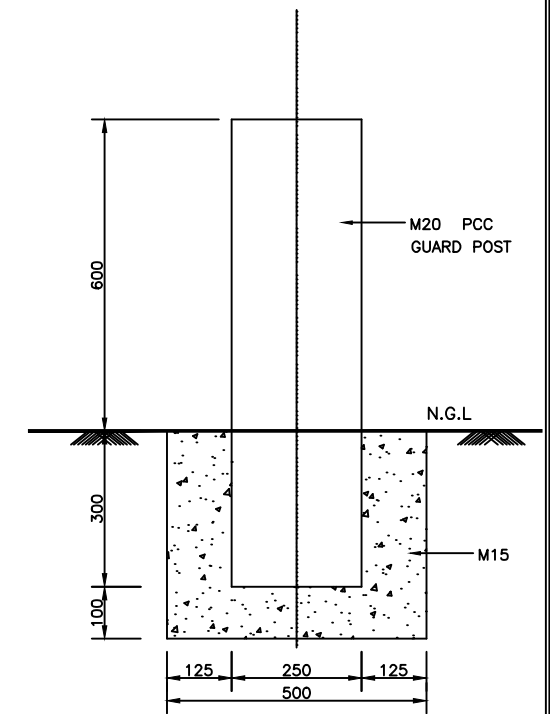
CENTRAL MEDIAN KERB STONE (ON MEDIAN SIDE FOR NORMAL CAMBERED SECTIONS)



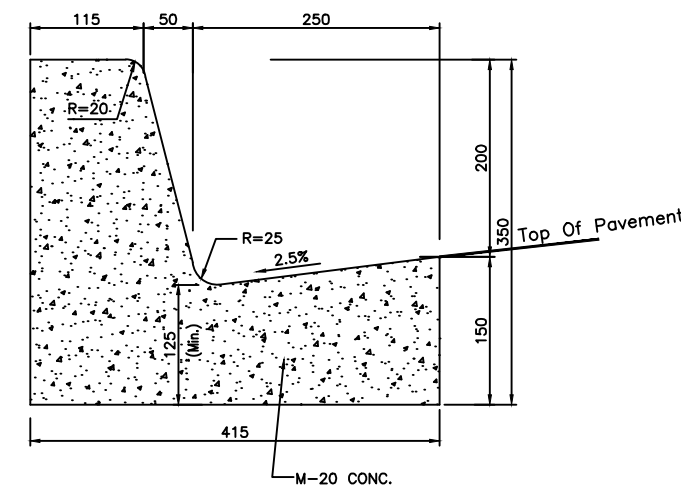
PLAN



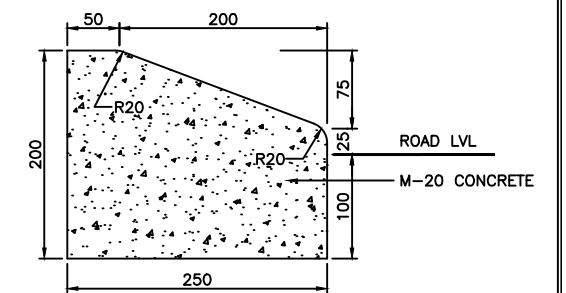
KERB WITH CHANNEL (ON MEDIAN SIDE FOR SUPER ELEVATED SECTIONS)



ELEVATION OF GUARD POST



KERB WITH CHANNEL (ON FOOTPATH SIDE)



MOUNTABLE TYPE KERB STONE (ON CHANNELISING ISLANDS AT INTERSECTIONS)

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

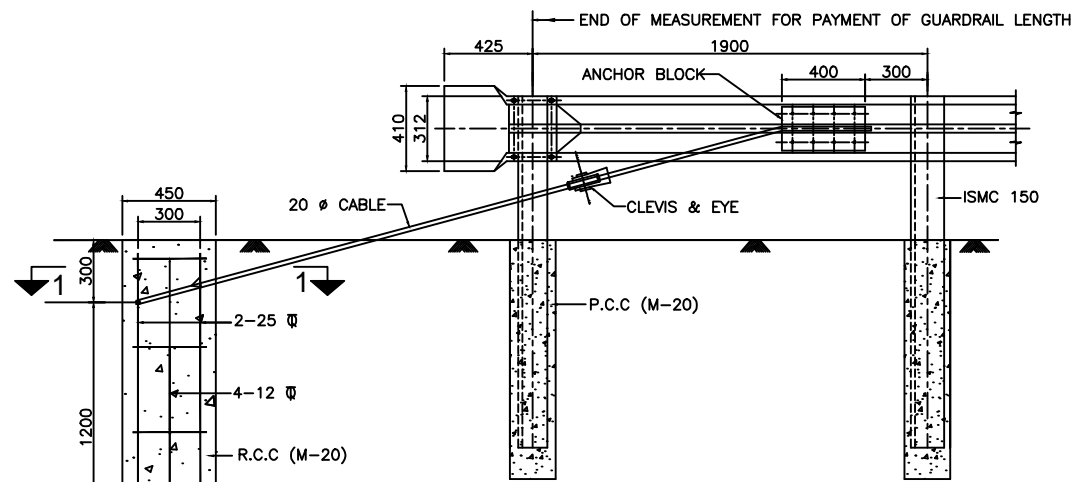
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Vijay Gupta	Naresh	Vijay Gupta	Sanjay Shukla

DATE : May 2020 Revision R0

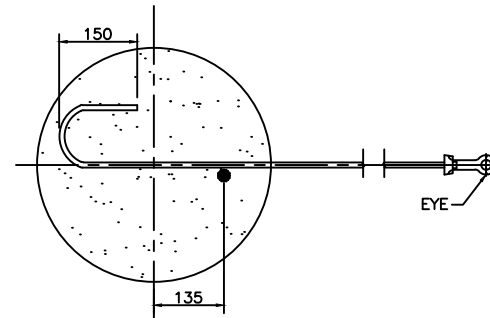
SCALE: -NTS

PACKAGE- 2
RESHI BORDER-ROLEP
DETAIL OF CRASH BARRIER,
KERB STONE & MEDIAN

Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/Misc/07

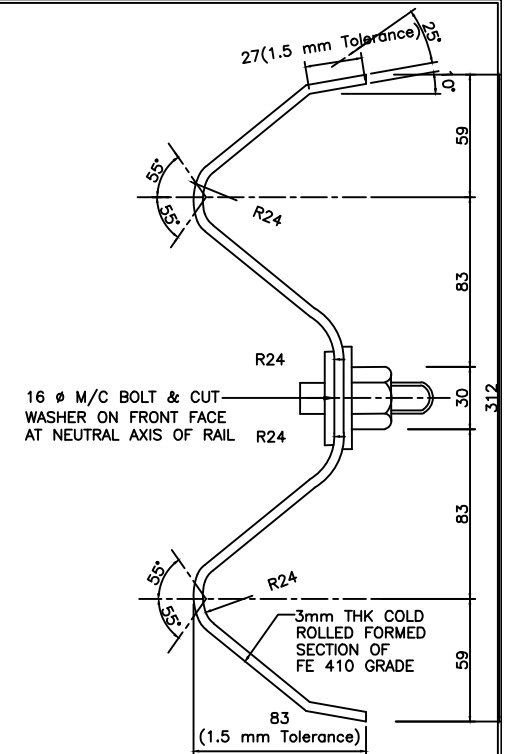


DETAIL OF BREAKAWAY CABLE ANCHOR ASSEMBLY
SCALE 1:25

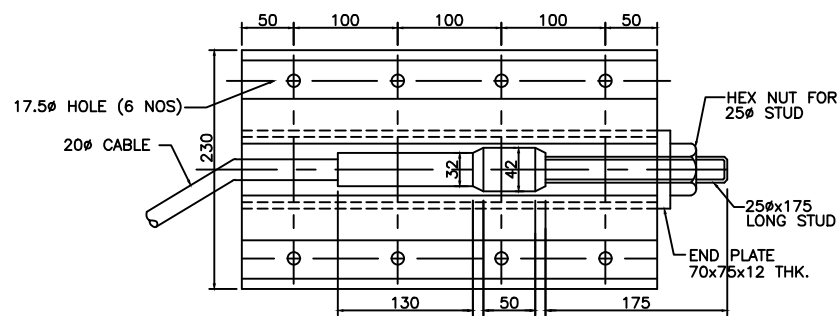


SECTION 1-1
SCALE 1:10

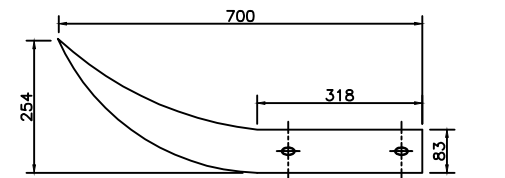
* PARABOLIC CURVE
EQUATION: $y = \frac{wx^2}{l}$
WHERE
w = TANGENT OFFSET AT MAXIMUM FLARE (1200mm)
l = TOTAL LENGTH OF FLARE (11400mm)
y = TANGENT OFFSET AT ANY POINT IN GUARDRAIL FLARE
x = DISTANCE FROM POINT OF TANGENT TO ANY POINT OF OFFSET



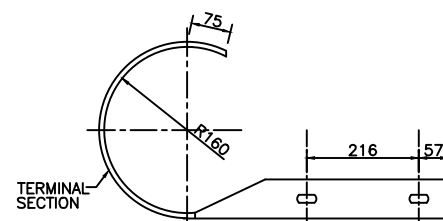
W-BEAM
(SCALE 1:5)



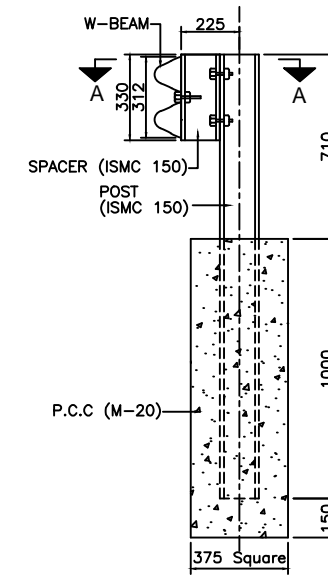
ANCHOR BLOCK DETAILS
(SCALE 1:5)



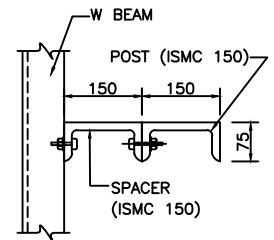
TOP VIEW OF END SECTION TYPE-A
(FLARED END SECTION)
SCALE 1:10



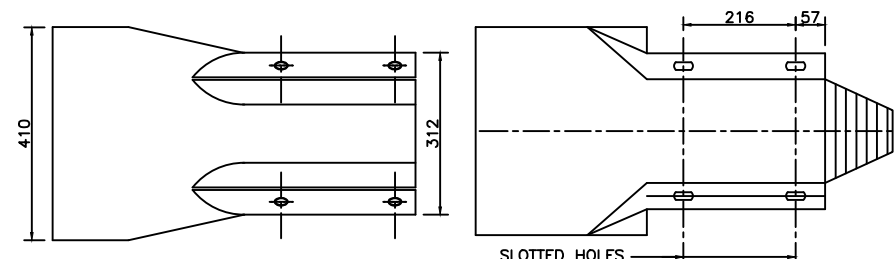
TOP VIEW OF END SECTION OF TYPE-B
(ROUNDED END SECTION)
SCALE 1:10



SECTION 2-2
SCALE 1:20

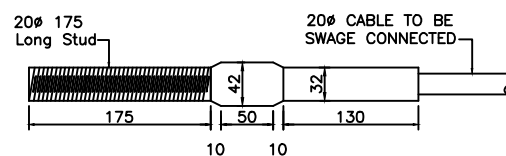


VIEW A-A
SCALE 1:10

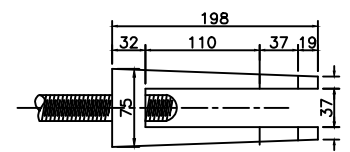


END SECTION TYPE-A
(FLARED END SECTION)
SIDE VIEW
(SCALE 1:10)

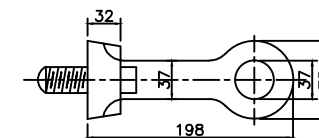
END SECTION TYPE-B
(ROUNDED END SECTION)
SIDE VIEW
(SCALE 1:10)



SWAGED FITTING AND STUD
(SCALE 1:5)



DETAIL OF CLEVIS
(SCALE 1:5)



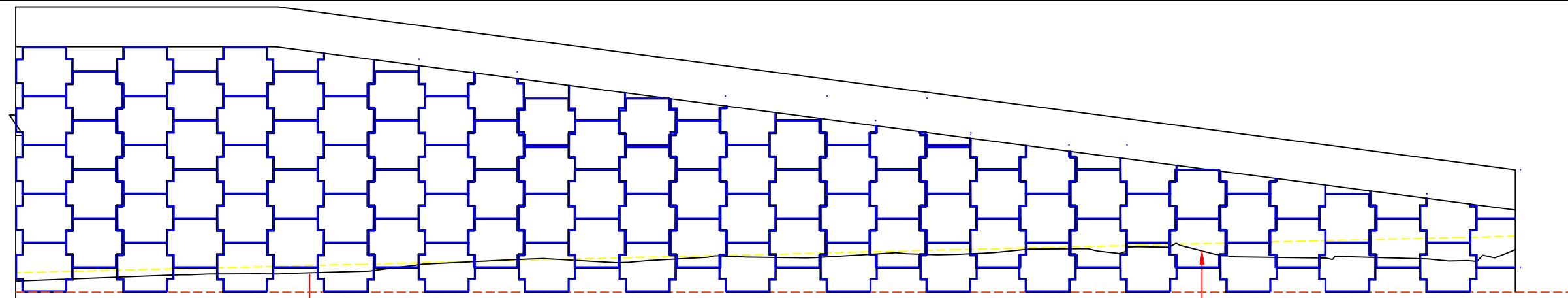
DETAIL OF EYE
(SCALE 1:5)

NOTES:

- METAL BEAM CRASH BARRIERS SHALL BE PROVIDED AT LOCATIONS SPECIFIED IN DRAWINGS AND WHERE INSTRUCTED BY THE ENGINEER
- SUITABLE REFLECTORS ARE TO BE PROVIDED ON W-BEAM AT A SPACING OF 3 M C/C
- ANCHOR CABLE HOOKS TO BE IN CONTACT WITH ANCHOR REINFORCEMENT WHEN CONCRETE IS PLACED
- ALL HOLES IN POSTS AND BLOCKS SHALL BE 21.50MM MAX
- W-BEAM SHALL BE AS PER IS : 5986 - 1992 AND POST, SPACERS ETC SHALL BE PER IS : 2062 - 1992
- W-BEAM, POSTS & SPACERS SHALL BE HOT DIP GALVANISED AS PER SPECIFICATIONS
- AT BRIDGE LOCATIONS, THE METAL BEAM CRASH BARRIER SHALL TERMINATE PREFERABLY WITH END SECTION TYPE A AND CONNECTED WITH BRIDGE/CULVERT RAILING/CRASH BARRIER IN A SUITABLE MANNER AS APPROVED.

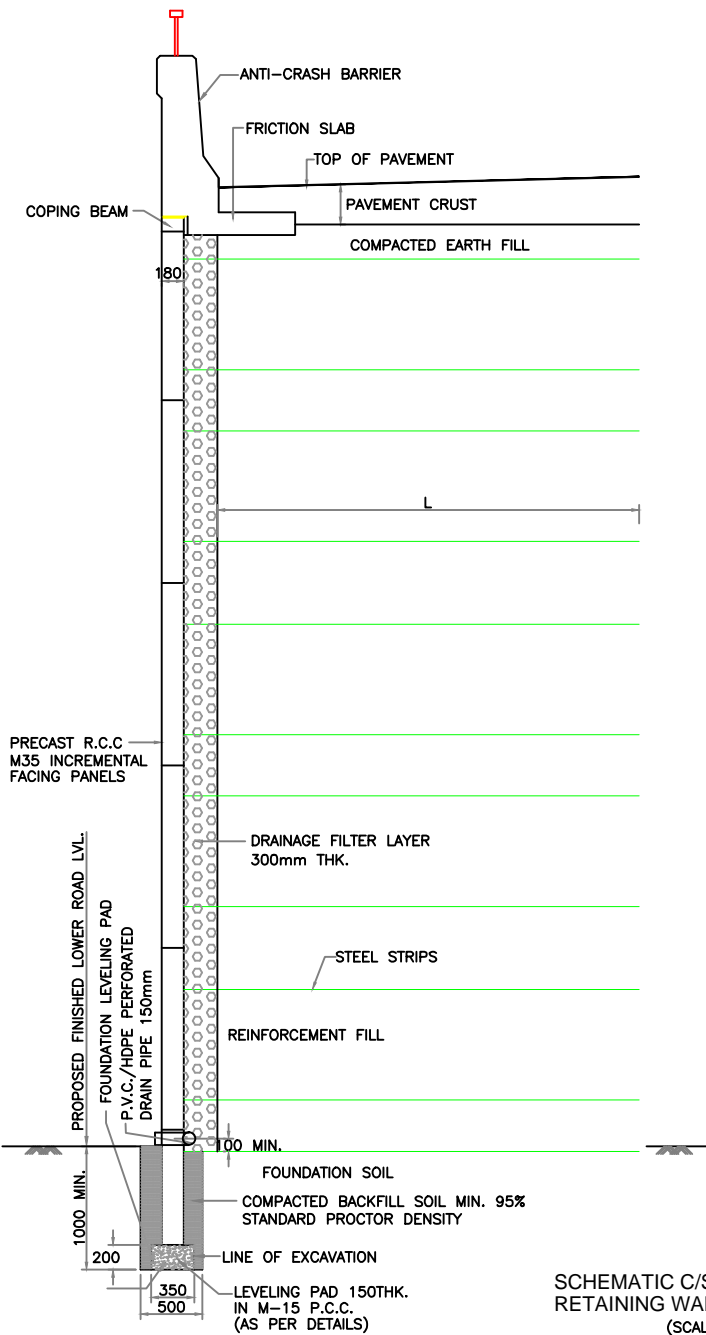
Client :	NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)	Project :	Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim	DATE :	May 2020	Revision	RO	PACKAGE - 2 RESHI BORDER-ROLEP TYPICAL DETAIL OF METAL BEAM CRASH BARRIER
DESIGNED BY	Vijay Gupta	DRAWN BY	Naresh	CHECKED BY	Vijay Gupta	APPROVED BY	Sanjay Shukla	
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS	SCALE:	-NTS			

Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/Misc/08

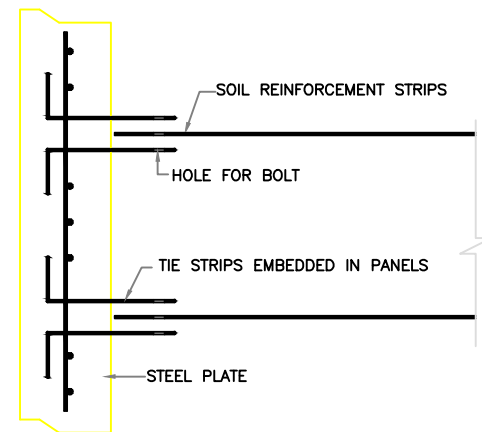


ELEVATION OF REINFORCED EARTH WALL

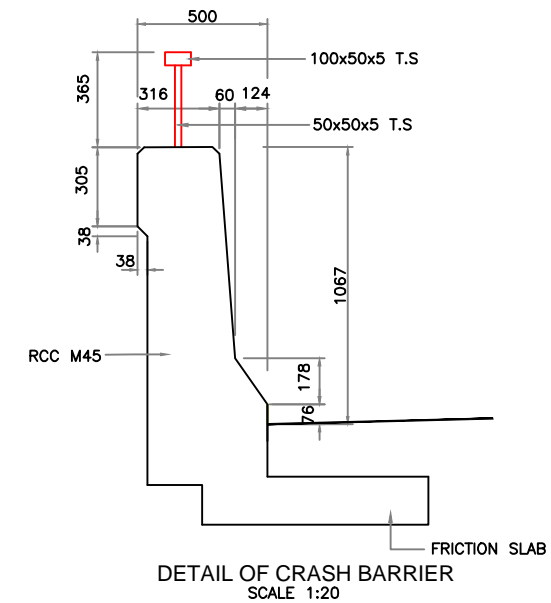
SCALE: H-1:500
V-1:50



SCHMATIC C/S OF REINFORCED SOIL RETAINING WALL FOR APPROACHES (SCALE 1:40)



SCHMATIC C/S OF FACING PANELS WITH TIE STRIPS (NOT TO SCALE)



DETAIL OF CRASH BARRIER SCALE 1:20

1. All dimensions are in mm unless otherwise mentioned.
2. Grade of concrete used in precast concrete panels is of M35
3. Reinforcement used in precast concrete panel is of Fe415.
4. The scheme shown in the drawing is indicative. The contractor shall supply detail design as per manufacturer's design. The design shall conform to the specifications and shall be approved by the Engineer.
5. The paved/ segment layout shall be prepared for each location and got approved by Engineer.

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Vijay Gupta	Naresh	Vijay Gupta	Sanjay Shukla

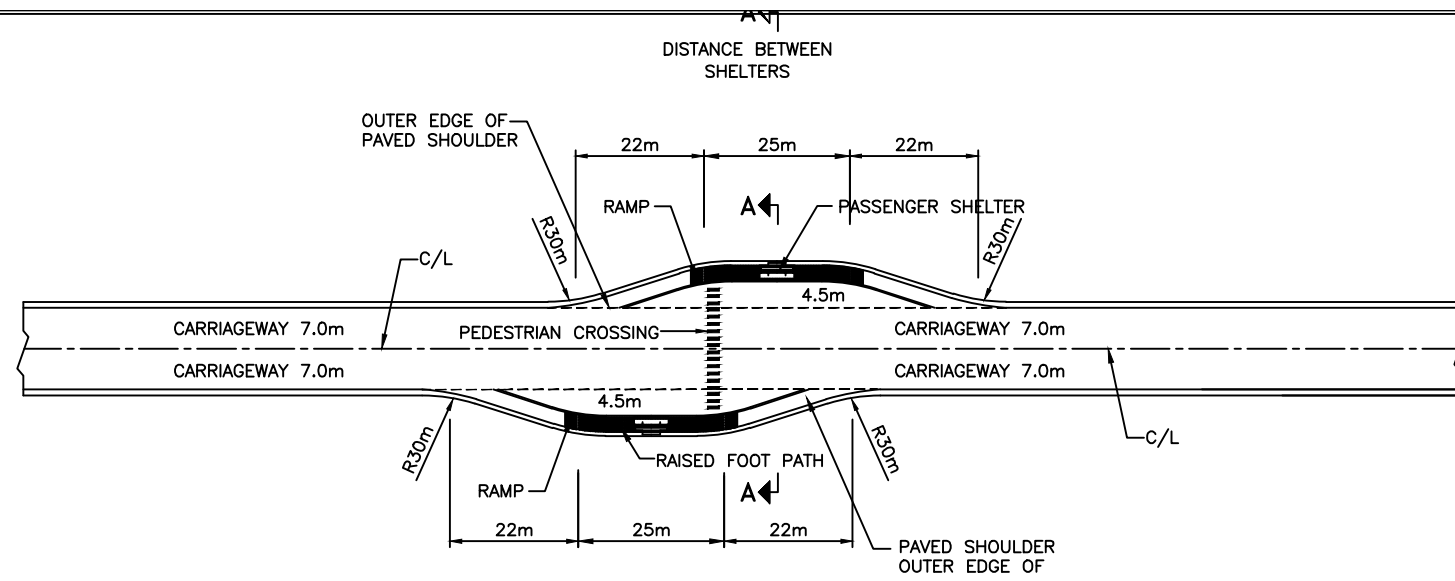
DATE : May 2020

Revision R0

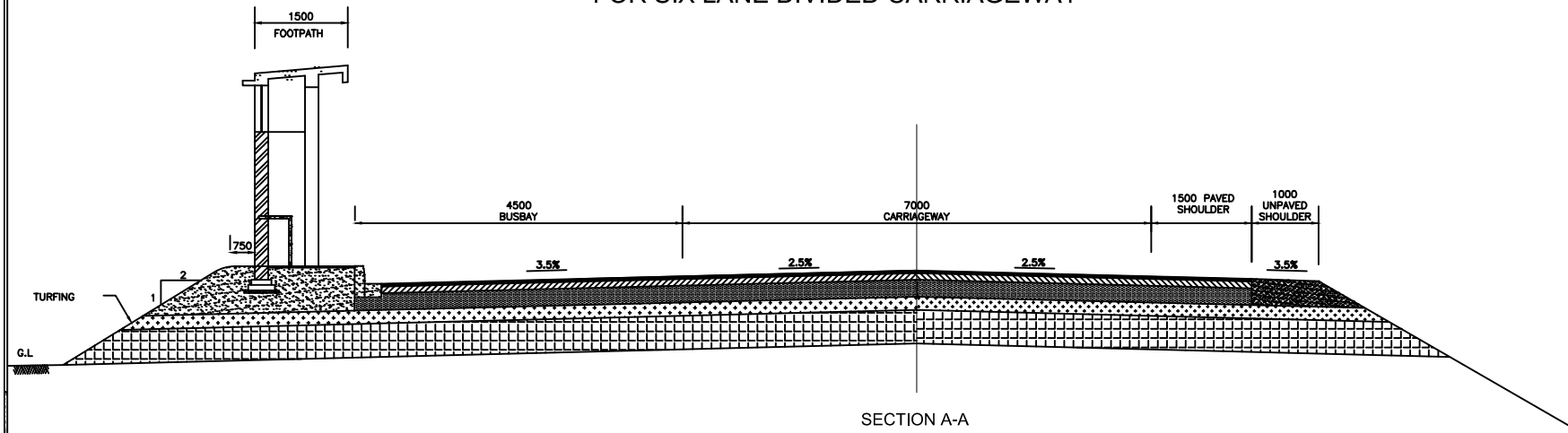
SCALE: -NTS

PACKAGE-2
RESHI BORDER-ROLEP
DETAIL OF RE WALL

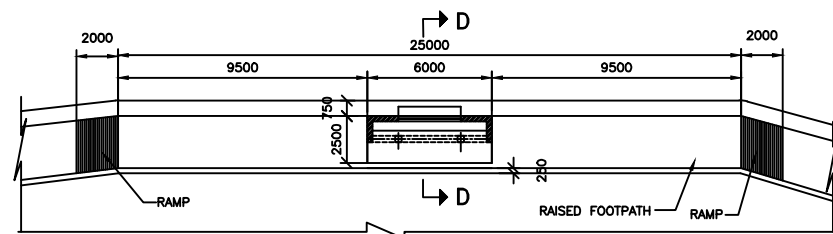
Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/Misc/09



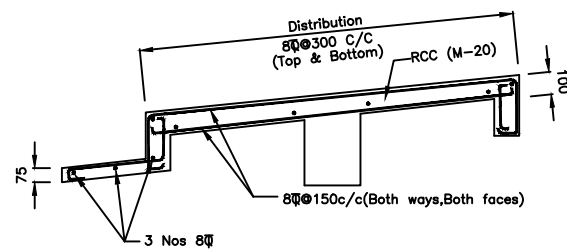
TYPICAL LAYOUT FOR BUS BAY FOR SIX LANE DIVIDED CARRIAGEWAY



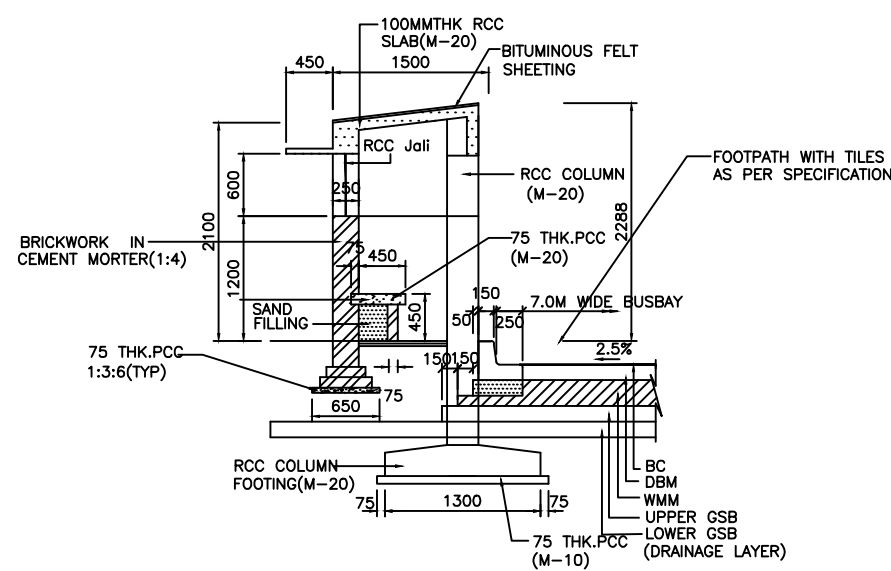
SECTION A-A



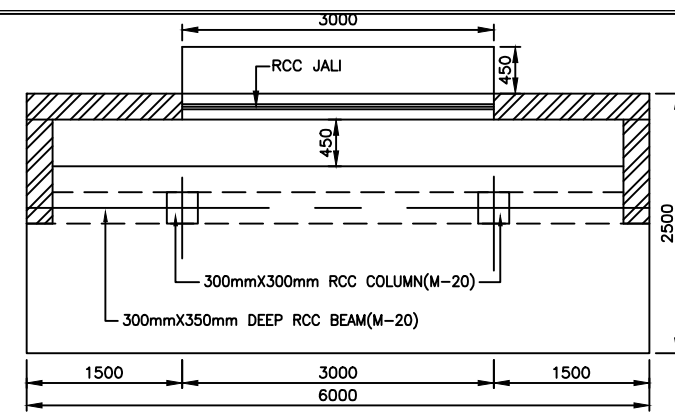
LOCATION OF PASSENGER SHELTER SCALE 1:250



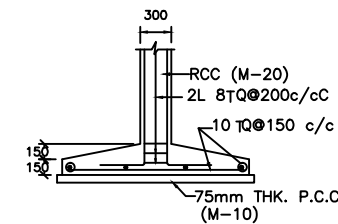
RCC DETAIL OF SLAB



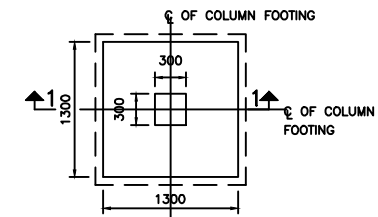
SECTION-D-D Scale 1:50



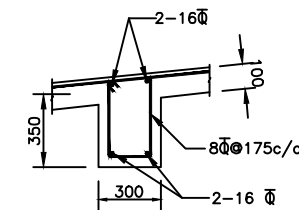
PLAN OF PASSENGER SHELTER SCALE 1:50



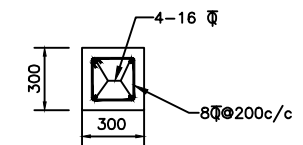
SECTION 1-1 SCALE 1:50



PLAN SHOWING COLUMN FOUNDATION SCALE 1:50



RCC DETAIL OF BEAM SCALE 1:25



RCC DETAIL OF COLUMN SCALE 1:25

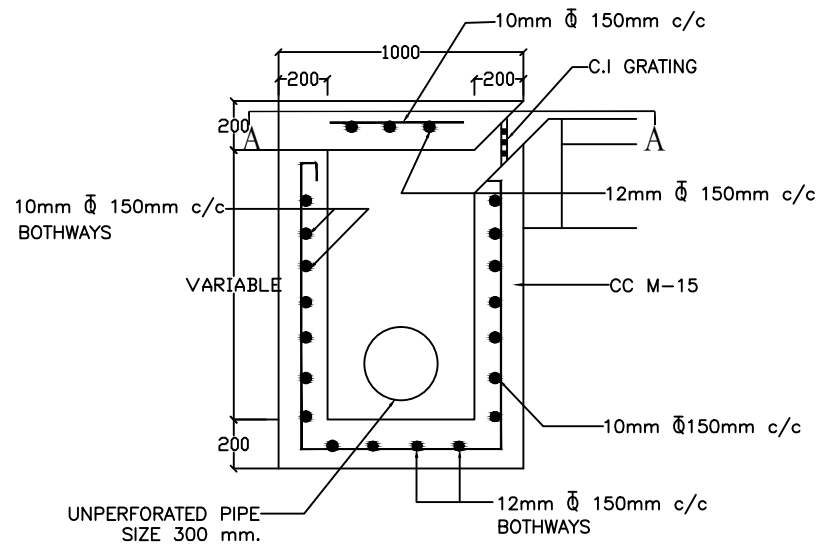
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client :	NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)
Consultant :	SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh.

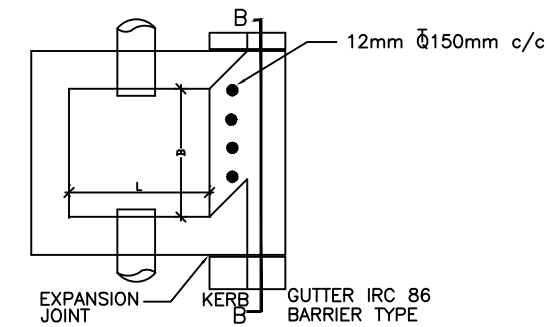
Project :	Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim
-----------	---

DATE :	May 2020	Revision	R0
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Vijay Gupta	Naresh	Vijay Gupta	Sanjay Shukla
SCALE: -NTS			

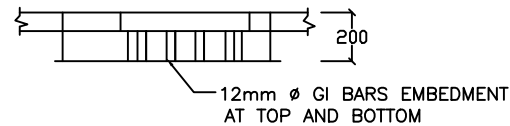
PACKAGE- 2 RESHI BORDER-ROLEP LAYOUT OF BUSBAY, DETAILS OF PASSENGER SHELTER
Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/Misc/10



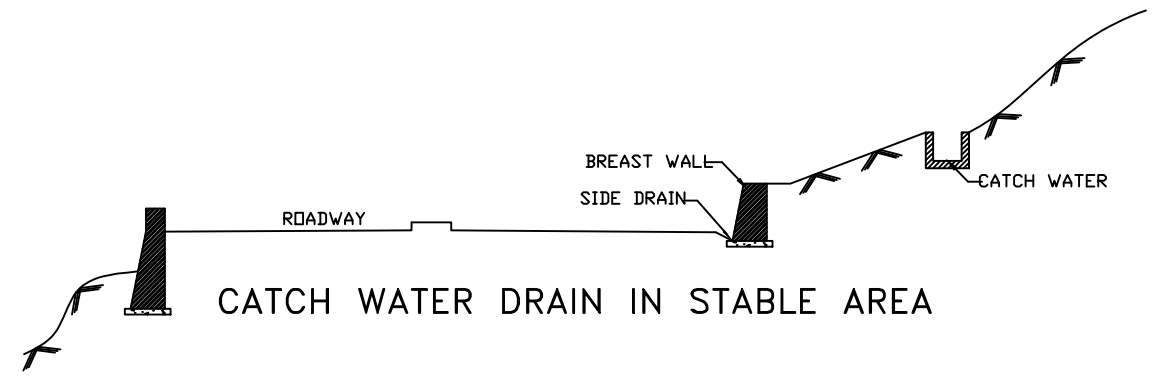
CATCH BASIN INLET CHAMBER



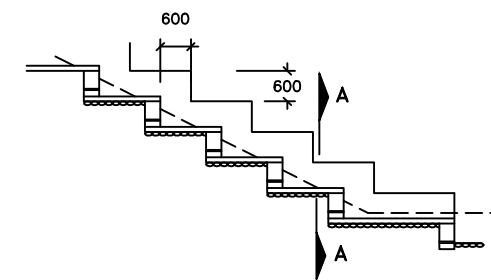
SECTION A-A



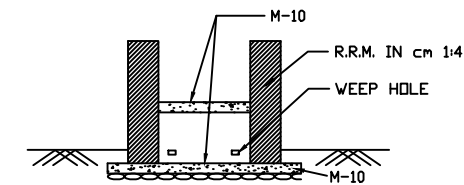
INLET DETAIL AT B-B



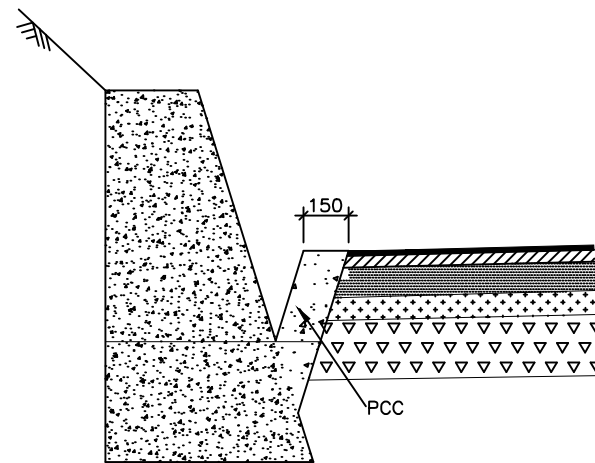
CATCH WATER DRAIN IN STABLE AREA



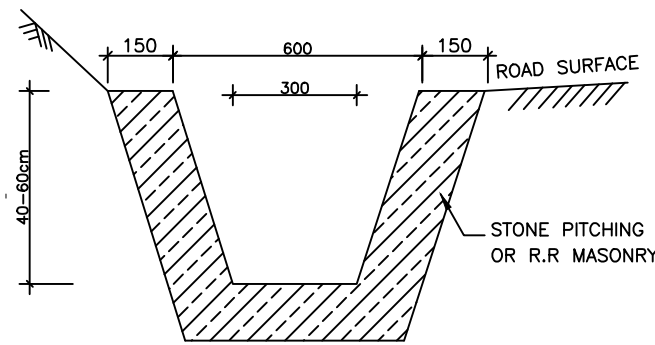
LONGITUDINAL SECTION OF CHUTE



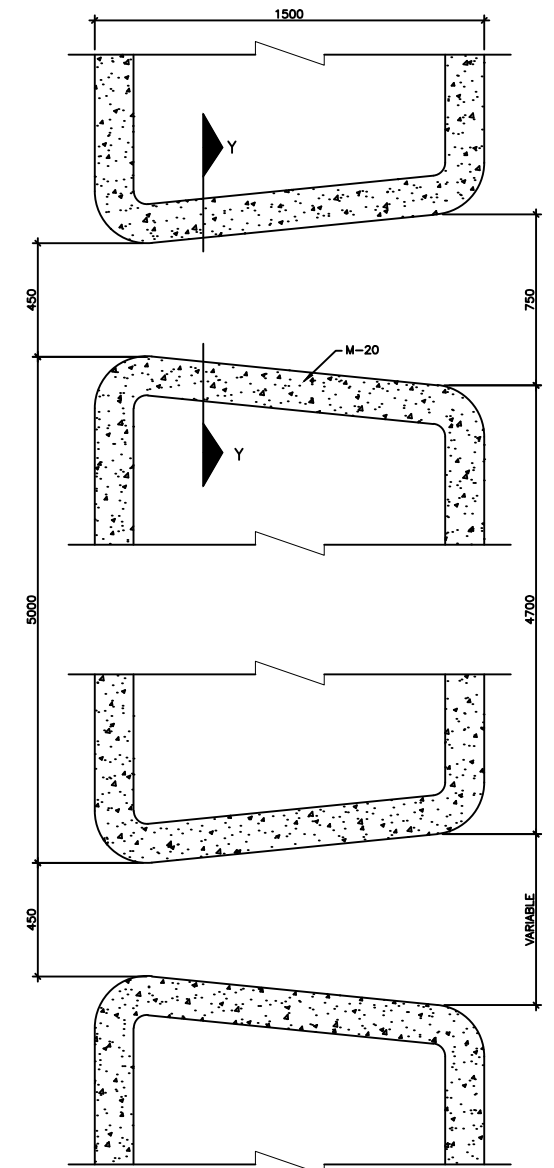
SECTION A-A



HILL SIDE DRAIN



TRAPEZOIDAL DRAIN



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh.

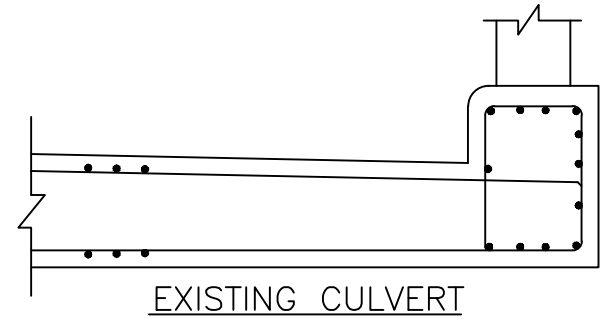
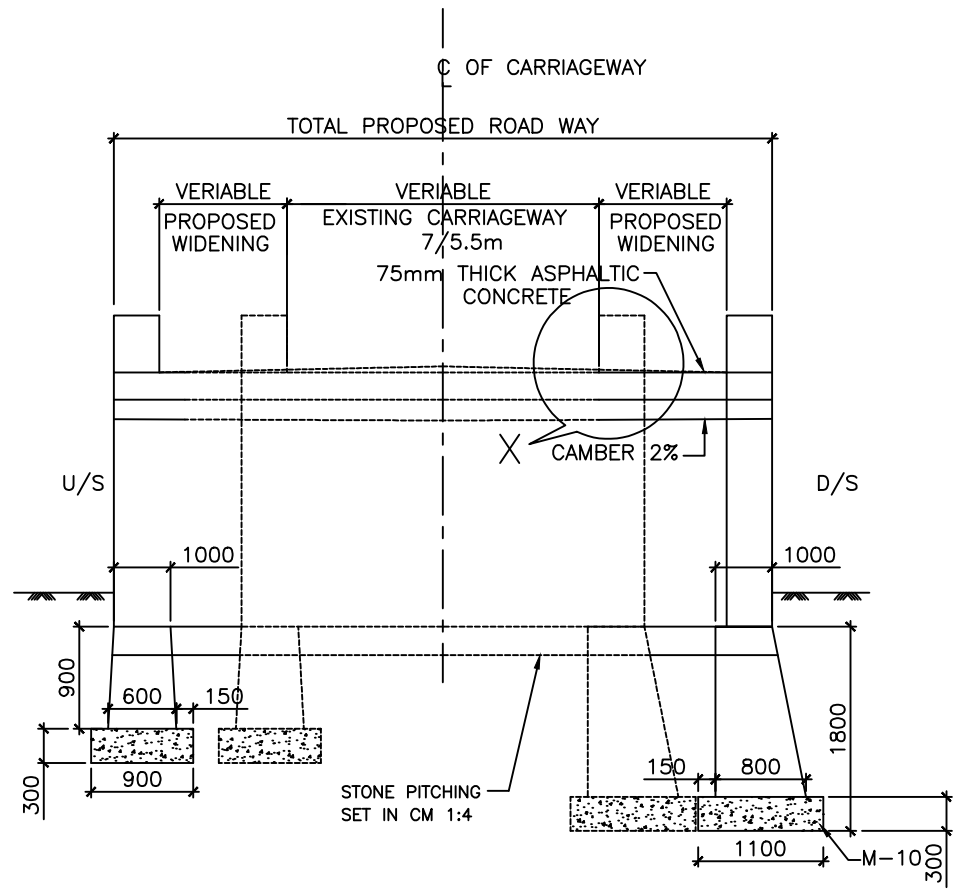
Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Vijay Gupta	Naresh	Vijay Gupta	Sanjay Shukla

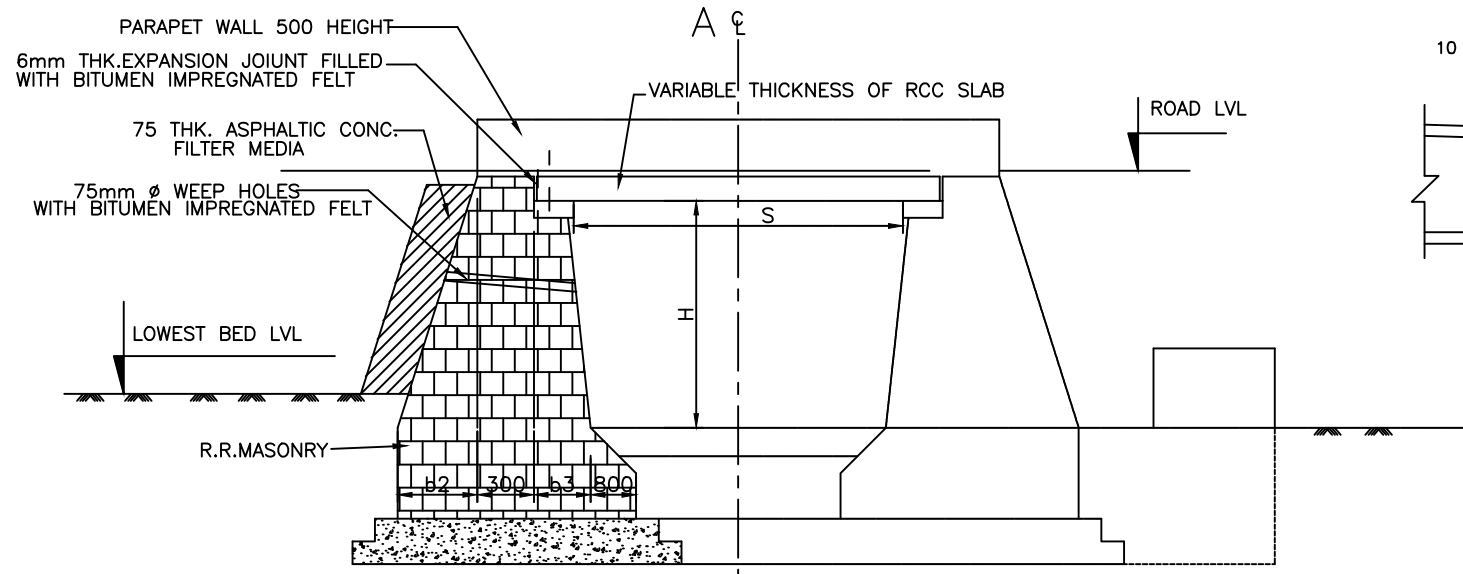
DATE : May 2020
Revision R0
SCALE: -NTS

PACKAGE- 2
RESHI BORDER-ROLEP
DETAIL OF SIDE DRAIN, INLET CHAMBER & MEDIAN CUT DRAIN

Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/Misc/11

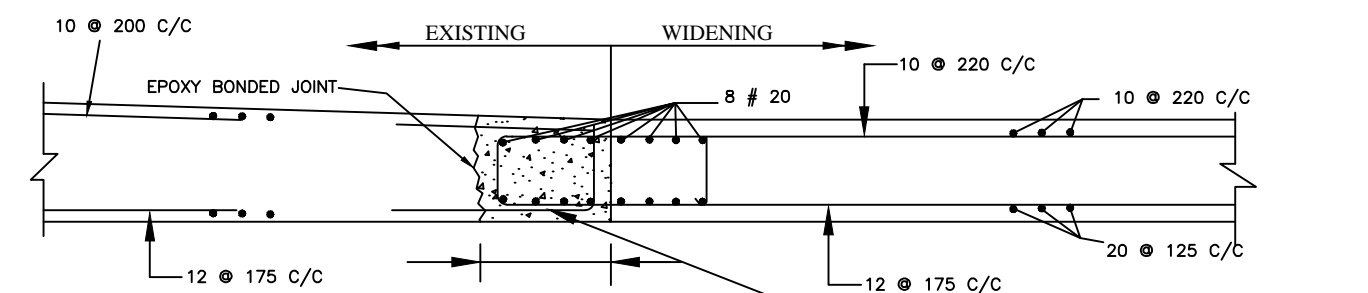


EXISTING CULVERT



HALF SECTIONAL ELEVATION
SHOWING ABUTMENT

H = HEIGHT
S = CLEAR SPAN



DETAIL-X
SECTION SHOWING REINFORCEMENT ARRANGEMENT OF
EXISTING AND NEW CULVERT SLAB

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
(Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD.
Specialized Engineering Service Pvt. Ltd.
1101A, 11th Floor, Tower A-II, Corporate Park,
Plot No. 7A/1, Sector-142,
Noida 201301, Uttar Pradesh.

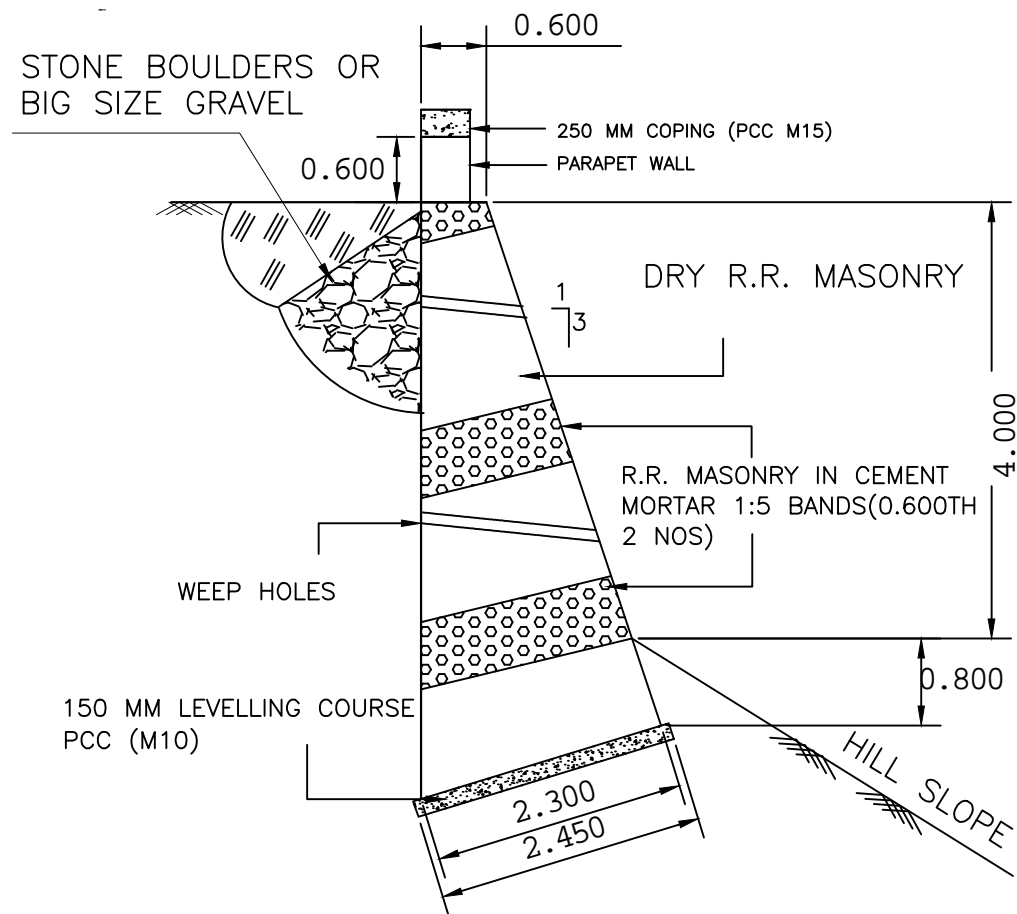
Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
Vijay Gupta	Naresh	Vijay Gupta	Sanjay Shukla

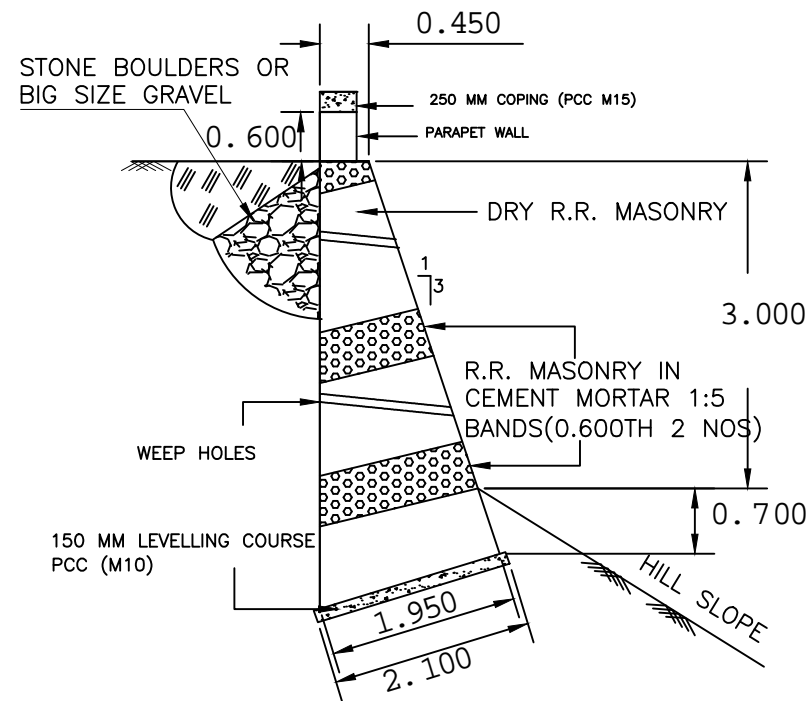
DATE : May 2020
Revision R0
SCALE: -NTS

PACKAGE- 2
RESHI BORDER-ROLEP
TYPICAL EXTENSION ARRANGEMENT
FOR SLAB CULVERT

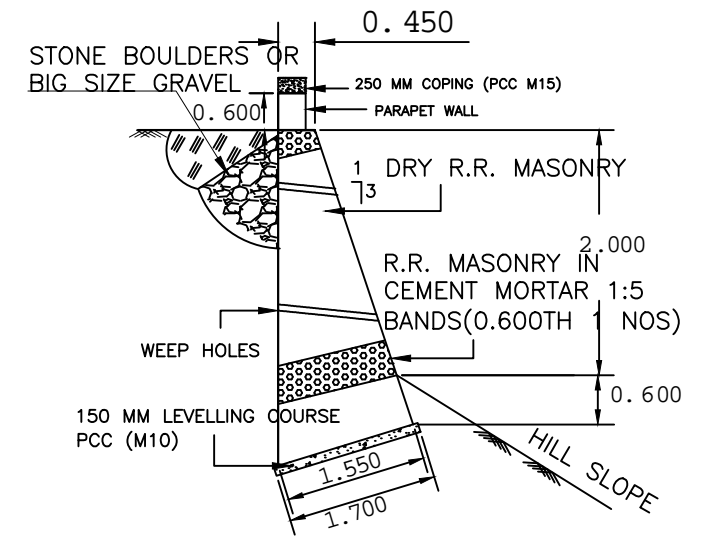
Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/Misc/



RETAINING WALL 4 M. HT.



RETAINING WALL 3 M. HT.

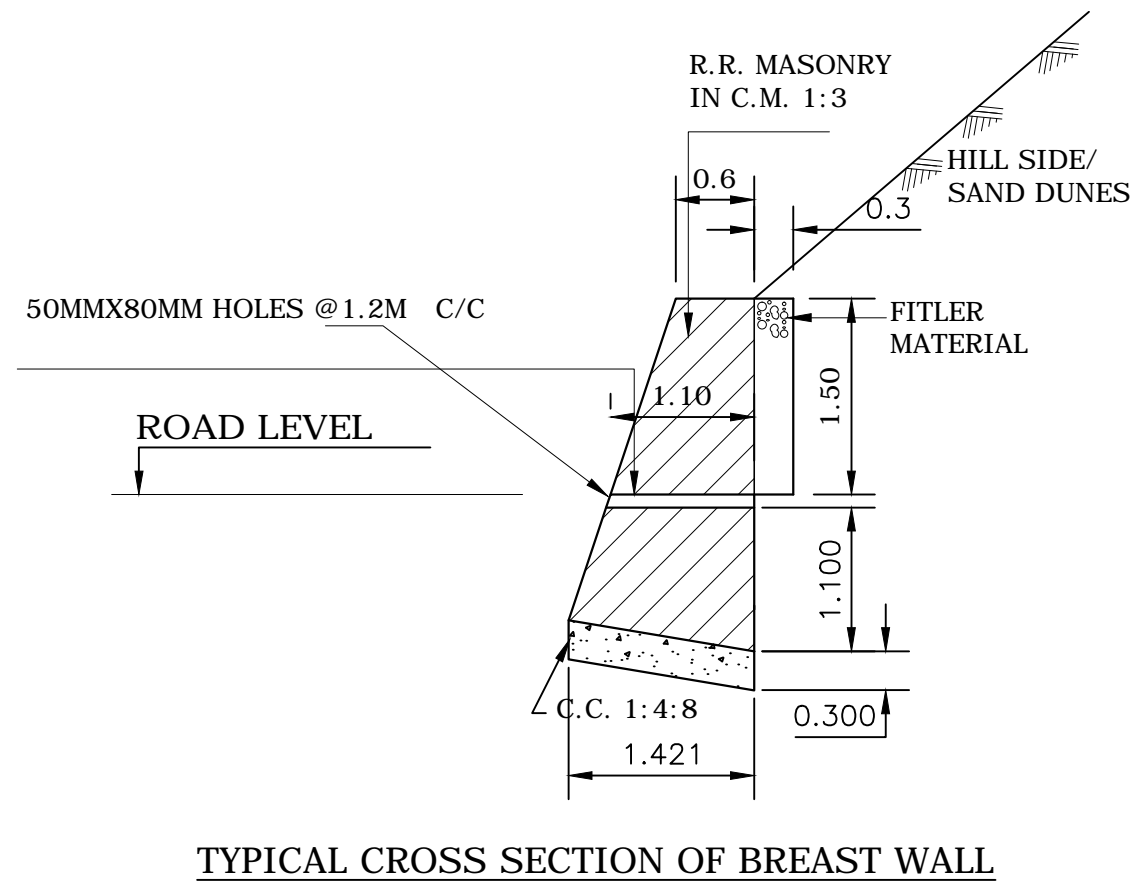
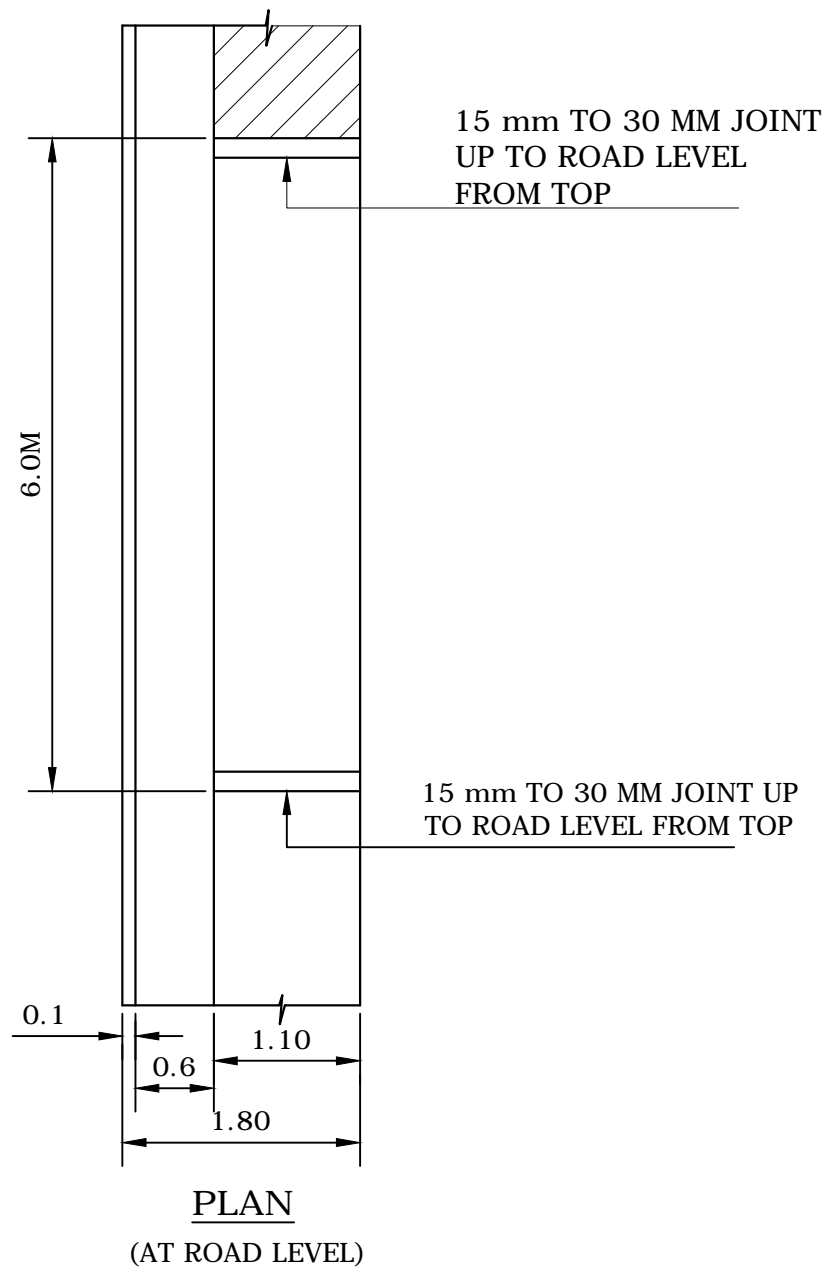


RETAINING WALL 2 M. HT.

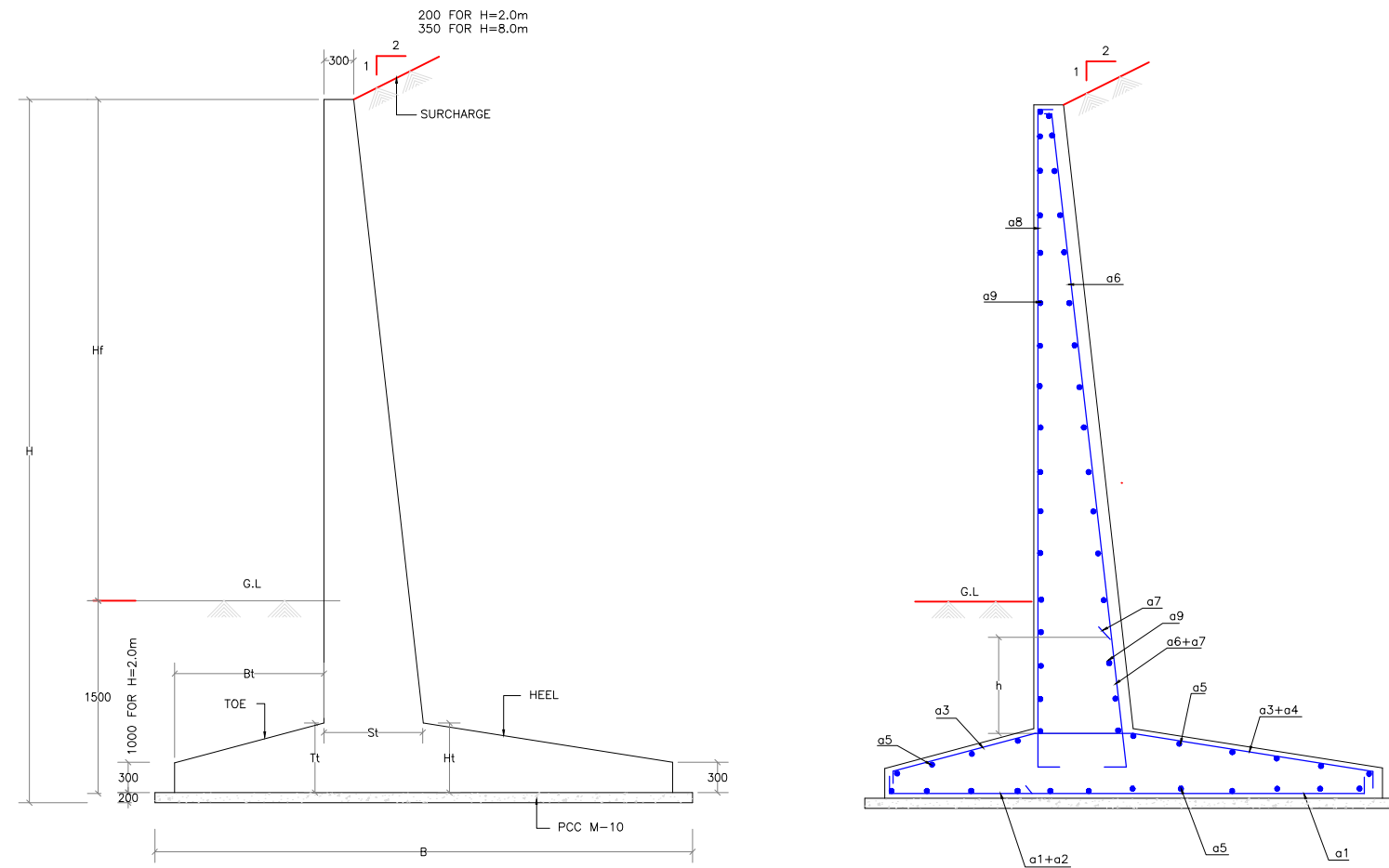
NOTES:-

1. ALL DIMENSIONS IN METRES UNLESS OTHERWISE SPECIFIED
2. DESIGN AS PER GUIDELINES OF IRC:SP:48-1998 (HILL ROAD MANUAL)
3. BATTER TO BE KEPT AS 1:3 UP TO 4.0 M HT. ADJUSTING THE BASE DIMENSIONS SUITABLY

		Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)		Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim		DATE : May 2020 Revision R0		PACKAGE- 2 RESHI BORDER-ROLEP DETAIL OF RETAINING WALL (MASONARY WALL)													
		Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. <small>Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh.</small>		DESIGNED BY DRAWN BY CHECKED BY APPROVED BY		Vijay Gupta Naresh Vijay Gupta Sanjay Shukla															
<table border="1"> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION OF REVISIONS</th> <th>INITIALS</th> </tr> <tr> <td>R0</td> <td>Sep 2017</td> <td>Final Feasibility Report</td> <td></td> </tr> <tr> <td>R0</td> <td>Nov 2016</td> <td>Draft Feasibility Report</td> <td></td> </tr> <tr> <td>R0</td> <td>Dec 2014</td> <td>Linear Plan</td> <td></td> </tr> </table>		REV	DATE	DESCRIPTION OF REVISIONS	INITIALS	R0	Sep 2017			Final Feasibility Report		R0	Nov 2016	Draft Feasibility Report		R0	Dec 2014	Linear Plan		SCALE:- NTS	
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS																		
R0	Sep 2017	Final Feasibility Report																			
R0	Nov 2016	Draft Feasibility Report																			
R0	Dec 2014	Linear Plan																			



					Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)	Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim	DATE : May 2020	Revision	RO	PACKAGE- 2 RESHI BORDER-ROLEP TYPICAL DRAWING OF BREAST WALL	
					Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh.		DESIGNED BY	DRAWN BY	CHECKED BY		APPROVED BY
RO	Sep 2017	Final Feasibility Report					Vijay Gupta	Naresh	Vijay Gupta		Sanjay Shukla
RO	Nov 2016	Draft Feasibility Report									
RO	Dec 2014	Linear Plan									
REV	DATE	DESCRIPTION OF REVISIONS		INITIALS			SCALE: -NTS				Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/Misc/



TYPICAL CROSS SECTION FOR RETAINING WALL

DIMENSIONAL DETAILS OF RETAINING WALL

HEIGHT OF RET.WALL	Hf	B	Bt	St	Sb	Ht	Tt	CONC. GRADE
2.0m	1000	1200	100	200	200	200	200	M25
3.0m	1500	1800	150	300	300	300	300	M25
3.5m	2000	2100	250	300	300	300	300	M25
4.0m	2500	2600	400	300	350	300	300	M25
4.5m	3000	3000	600	300	450	300	300	M25
5.0m	3500	3500	800	300	500	300	300	M25
5.5m	4000	3900	1000	300	550	400	400	M25
6.0m	4500	4400	1200	300	650	400	400	M25
6.5m	5000	4900	1400	300	700	450	450	M25
7.0m	5500	5400	1600	300	1000	500	500	M25
7.5m	6000	5850	1850	300	800	550	550	M30
8.0m	6500	6200	2000	350	800	500	500	M30

REINFORCEMENT DETAILS OF RETAINING WALL

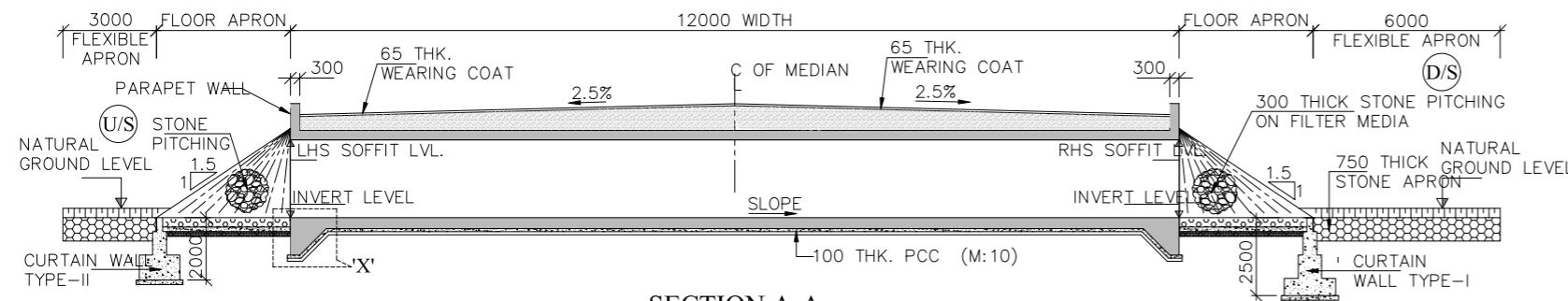
HEIGHT OF RET.WALL	h(mm)	a1	a2	a3	a4	a5	a6	a7	a8	a9
2.0m	NIL	10R@150C/C	NIL	10R@150C/C	NIL	10R@200C/C	10R@150C/C	NIL	10R@150C/C	10R@200C/C
3.0m	NIL	10R@140C/C	NIL	10R@140C/C	NIL	10R@200C/C	12R@140C/C	NIL	10R@140C/C	10R@200C/C
3.5	1450	10R@140C/C	NIL	12R@140C/C	NIL	10R@200C/C	12R@140C/C	10R@140C/C	10R@140C/C	10R@200C/C
4.0m	1950	10R@140C/C	NIL	10R@140C/C	10R@140C/C	10R@200C/C	12R@140C/C	12R@140C/C	10R@140C/C	10R@200C/C
4.5m	3000	10R@150C/C	NIL	10R@150C/C	12R@150C/C	10R@200C/C	12R@150C/C	16R@150C/C	10R@150C/C	10R@200C/C
5.0m	2350	10R@150C/C	10R@150C/C	12R@150C/C	12R@150C/C	10R@200C/C	16R@150C/C	16R@150C/C	10R@150C/C	10R@200C/C
5.5m	2700	10R@140C/C	10R@140C/C	10R@140C/C	12R@140C/C	10R@200C/C	16R@140C/C	16R@140C/C	10R@140C/C	10R@200C/C
6.0m	3300	10R@140C/C	12R@140C/C	10R@140C/C	12R@140C/C	10R@200C/C	16R@140C/C	20R@140C/C	10R@140C/C	10R@200C/C
6.5m	3750	12R@140C/C	12R@140C/C	10R@140C/C	12R@140C/C	10R@200C/C	16R@140C/C	20R@140C/C	10R@140C/C	10R@200C/C
7.0m	5000	12R@150C/C	16R@150C/C	10R@150C/C	10R@150C/C	10R@200C/C	16R@150C/C	20R@150C/C	10R@150C/C	10R@150C/C
7.5m	4100	12R@140C/C	16R@140C/C	10R@140C/C	12R@140C/C	10R@150C/C	20R@140C/C	25R@140C/C	10R@150C/C	10R@150C/C
8.0m	3900	16R@150C/C	20R@150C/C	12R@150C/C	16R@150C/C	10R@150C/C	25R@150C/C	25R@150C/C	10R@150C/C	10R@150C/C

SR N	FROM	TO	LENGTH		
01	20100	20140	40	Both Side Reataining Wall	Avg Ht c.3m
02	20140	20500	360	Left Side Reataining Wall	Avg Ht c.3m
03	20500	20640	140	Left Side Reataining Wall	Avg Ht c.4m
04	21240	21540	300	Left Side Reataining Wall	

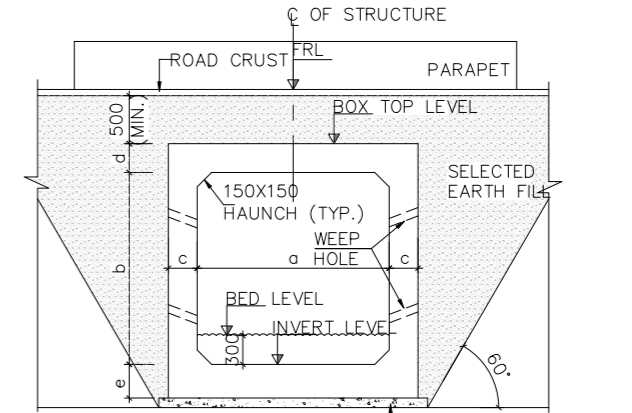
<table border="1"> <tr><td>REV</td><td>DATE</td><td>DESCRIPTION OF REVISIONS</td><td>INITIALS</td></tr> <tr><td>R0</td><td>Sep 2017</td><td>Final Feasibility Report</td><td></td></tr> <tr><td>R0</td><td>Nov 2016</td><td>Draft Feasibility Report</td><td></td></tr> <tr><td>R0</td><td>Dec 2014</td><td>Linear Plan</td><td></td></tr> </table>	REV	DATE	DESCRIPTION OF REVISIONS	INITIALS	R0	Sep 2017	Final Feasibility Report		R0	Nov 2016	Draft Feasibility Report		R0	Dec 2014	Linear Plan		<p>Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)</p> <p>Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-H, Corporate Park, Plot No. 7A/1, Sector-142, Noida 201301, Uttar Pradesh.</p>	<p>Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aitar-Rolep-Menla in the State of Sikkim</p>	<p>DATE : May 2020</p> <table border="1"> <tr><td>DESIGNED BY</td><td>DRAWN BY</td><td>CHECKED BY</td><td>APPROVED BY</td></tr> <tr><td>Vijay Gupta</td><td>Naresh</td><td>Vijay Gupta</td><td>Sanjay Shukla</td></tr> </table> <p>Revision R0</p> <p>SCALE: -NTS</p>	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	Vijay Gupta	Naresh	Vijay Gupta	Sanjay Shukla	<p>PACKAGE- 2 RESHI BORDER-ROLEP TYPICAL DETAILS OF RCC RETAINING WALL</p> <p>Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/Misc/</p>
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS																									
R0	Sep 2017	Final Feasibility Report																										
R0	Nov 2016	Draft Feasibility Report																										
R0	Dec 2014	Linear Plan																										
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY																									
Vijay Gupta	Naresh	Vijay Gupta	Sanjay Shukla																									

TABLE SHOWING DIMENSIONS

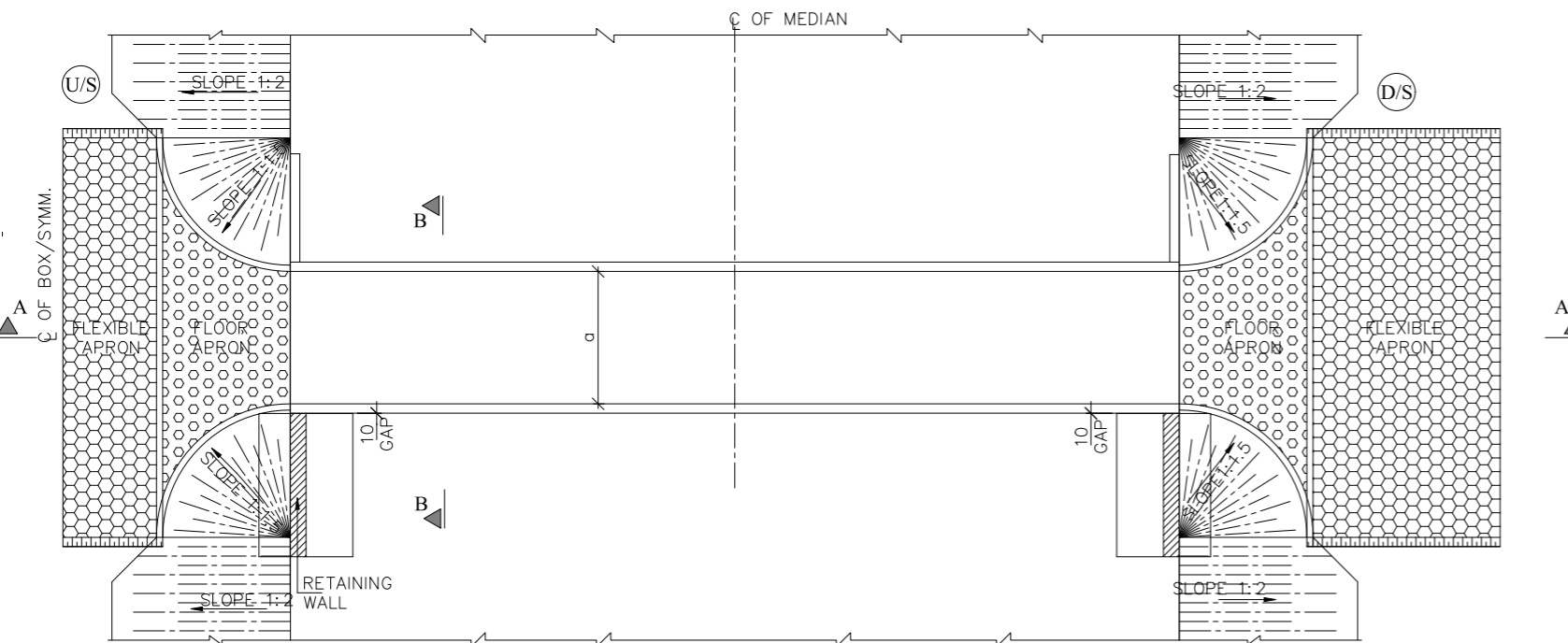
BOX CELL DESIGNATION	a	b	c	d	e	f
Nc/ab/Ec	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
1/22/0	2000	2000	350	350	380	300



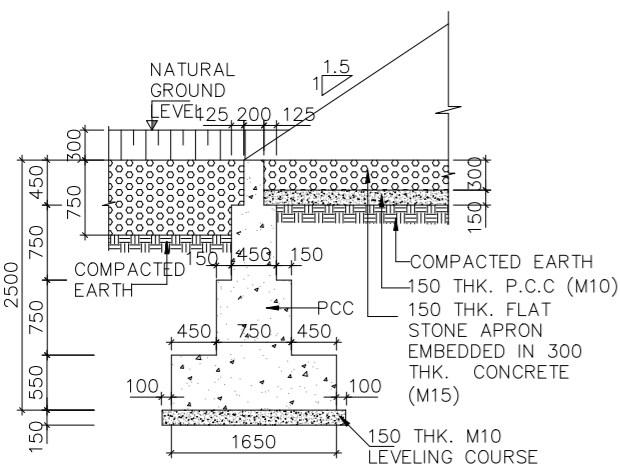
SECTION A-A
(SCALE 1:125)



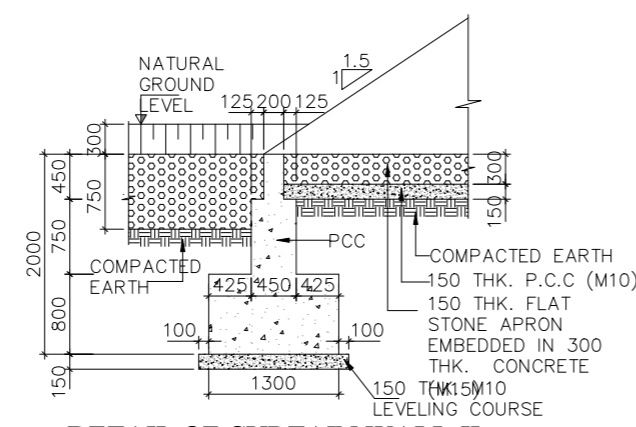
SECTION B-B
(TYPE -2)
(SCALE 1:50)



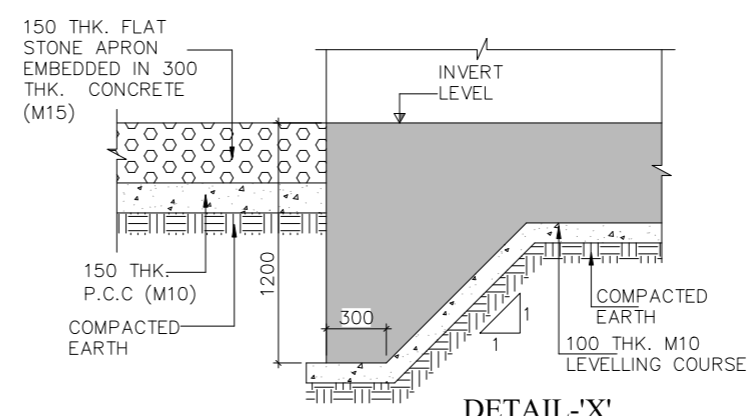
PLAN
(SCALE 1:125)



DETAIL OF CURTAIN WALL-I
(DOWN STREAM SIDE)
(SCALE 1:50)



DETAIL OF CURTAIN WALL-II
(UP STREAM SIDE)
(SCALE 1:50)



DETAIL-'X'
(SCALE 1:25)

NOTES:-

- ALL DIMENSIONS ARE IN mm, LEVELS ARE IN m. & CHAINAGE ARE IN KILOMETER + METER. UNLESS OTHERWISE SPECIFIED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- STRUCTURE LOCATION REFER TO THE CHAINAGE AT STRUCTURE CENTER AND LEVELS AT MEDIAN EDGE.
- THIS DRAWING TO BE READ IN CONJUNCTION TO THE HIGHWAY DRAWINGS. IF THERE IS ANY DIFFERENCE IN CHAINAGE OR LEVELS H/W DRAWINGS WILL PREVAIL.
- GRADE OF CONCRETE:-
 - FOR RCC BOX.....M30
 - FOR PCC CURTAIN WALL.....M15
 - LEVELING COURSE.....M10
 - PARAPET & APPROACH SLAB.....M30
- GRADE OF STEEL SHALL BE Fe-500 CONFIRMING TO IS: 1786.
- 450mm THICK FLOOR APRON SHALL CONSIST OF 300mm THICK M-15 GRADE CONCRETE WITH FLAT STONE EMBEDDED LAID OVER 150mm THICK PCC M-15 GRADE CONCRETE.
- ALL CONSTRUCTION SHALL CONFIRM TO CONTRACT SPECIFICATIONS.
- COMPACTED EARTH SHOULD CONFORM TO CLAUSE 305.2.1.5 OF MORTH SPECIFICATIONS.
- 100MM DIA P.V.C. PIPE AT SPACING 1000c/c IN HORIZONTAL/VERTICAL DIRECTION SHALL BE PROVIDED UP TO 150MM ABOVE GROUND LEVEL FOR WEEP HOLES IN VERTICAL WALL.
- SOFT AND LOOSE PATCHES UNDER THE FOUNDING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
- BOX HEIGHT SHOWN MAY VARY SLIGHTLY TO SUIT THE SITE CONDITION.

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS
R0	Sep 2017	Final Feasibility Report	
R0	Nov 2016	Draft Feasibility Report	
R0	Dec 2014	Linear Plan	

Client : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (Ministry of Road Transport & Highways)

Consultant : SA INFRASTRUCTURE CONSULTANTS PVT. LTD. Specialized Engineering Service Pvt. Ltd. 1101A, 11th Floor, Tower A-II, Corporate Park, Plot No. 7A/1, Sector-142, Noida-201301, Uttar Pradesh.

Project : Consultancy for Preparation of Feasibility Report cum Preliminary Design for Alternative Highway to Gangtok in Sikkim via Bagrakot-Chuikhim-Nimbong-Kafer-Bakhim-Algarah-Rhenok in the State of West Bengal and From Rhenok-Rorathang-Pakyong along with Spur From Aritar-Rolep-Menla in the State of Sikkim

PACKAGE- 2

DATE :	Revision
May 2020	R0
DESIGNED BY	CHECKED BY
DRAWN BY	APPROVED BY
P.S	N.Aresh
	R.Nayak
	L.A.Z.

SCALE:- NTS) For A3 Paper Size

SINGLE CELL R.C.C.BOX CULVERTS
2m x 2m
GENERAL ARRANGEMENT
(WITH EARTH CUSHION)

Dwg. No. :- SAICPL-SESPL/NHIDCL/WB-SKM/BOX/01

DATE: 30/05/2020 - 4:23pm
PATH: C:\Users\Anil\OneDrive\Desktop\box culvert\box culvert.dwg