

CLIENT:-



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

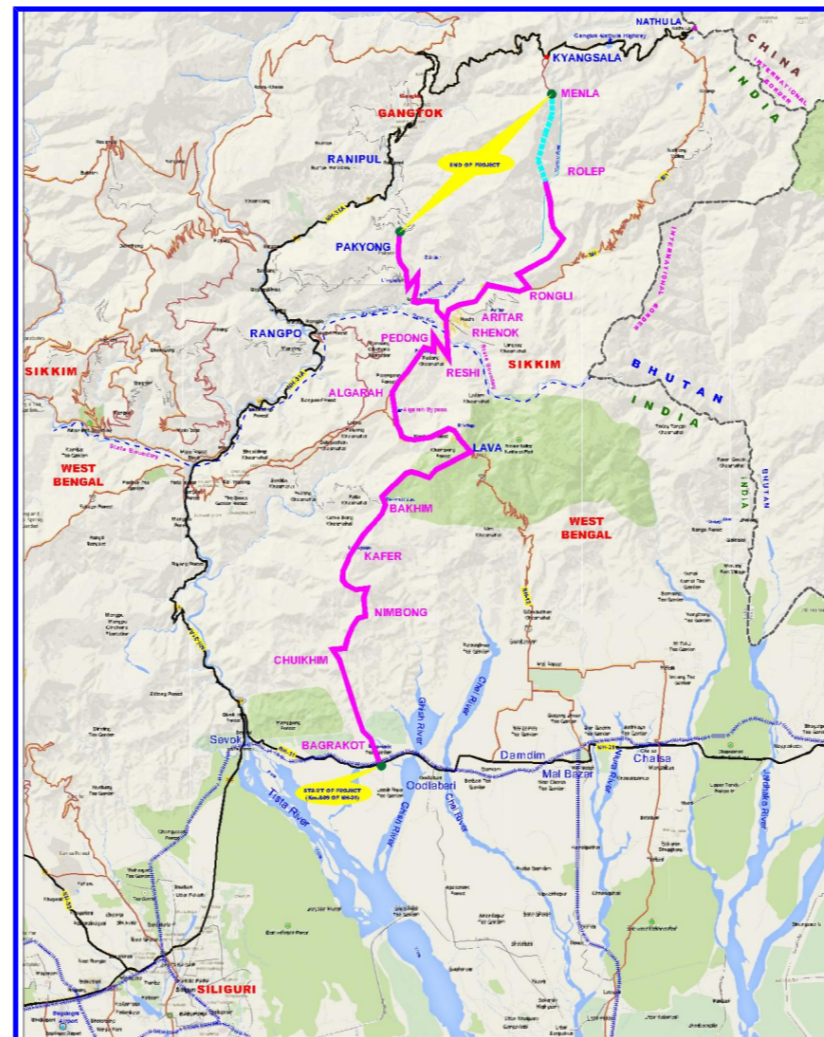
Against Supplementary Agreement dated 05.12.2019 - To execute the work of preparation of DPR as 'Additional work' for Package-II, III, IV-C and V which forms part of the original Contract Agreement dated 30.09.2014 for Preparation of Feasibility Report cum Preliminary Design for alternative Highway to 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. (Package:- II-B)

DRAFT DETAILED PROJECT REPORT

PACKAGE- II (B)

(Km 27+200 To Km 37+600)

STRUCTURE DRAWINGS



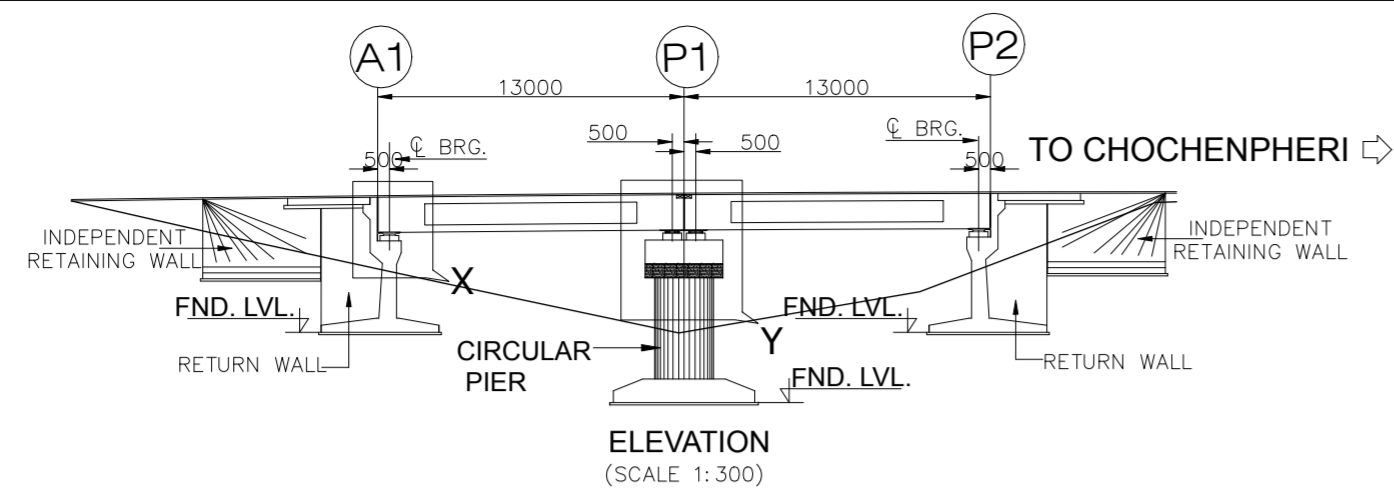
MAY -2020

CONSULTANT :-

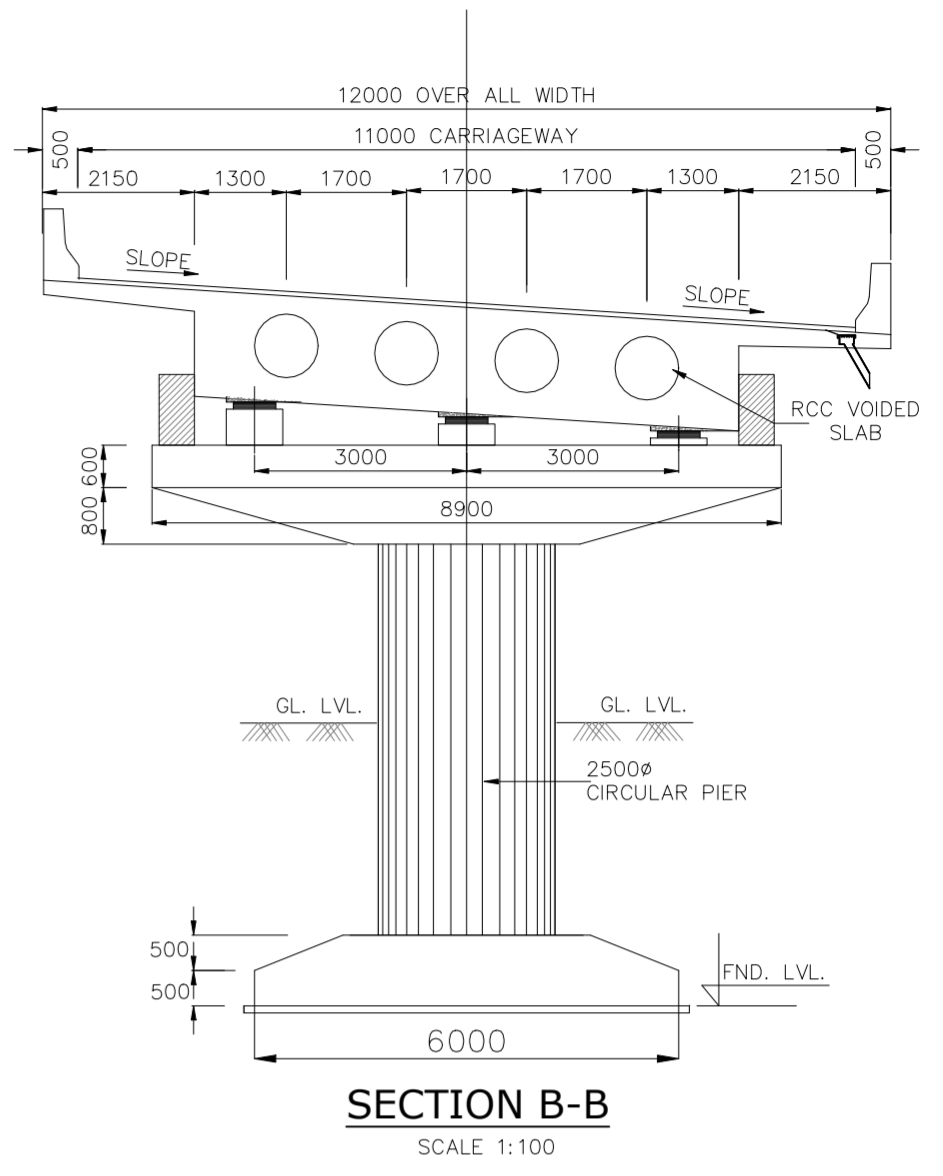
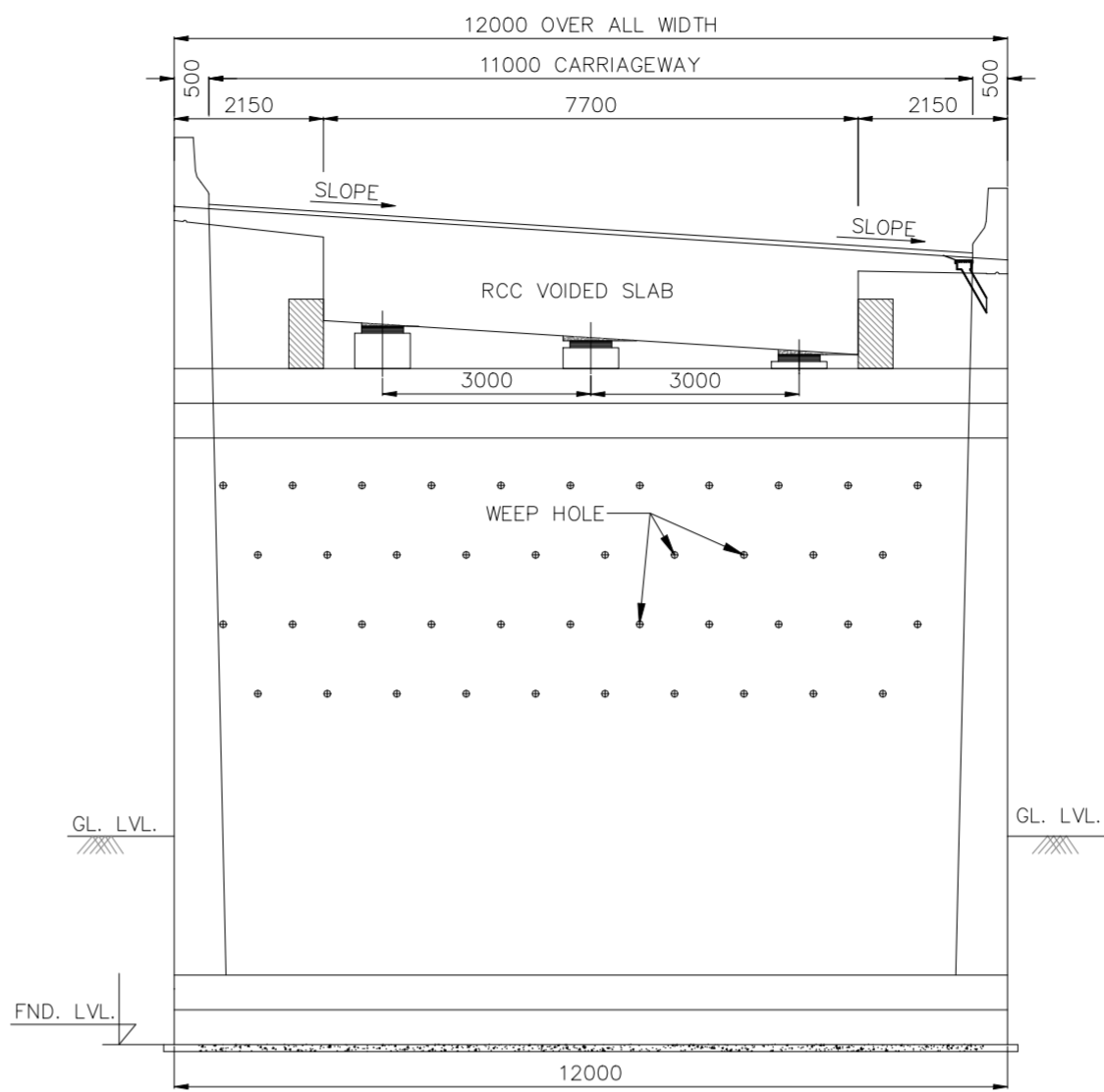
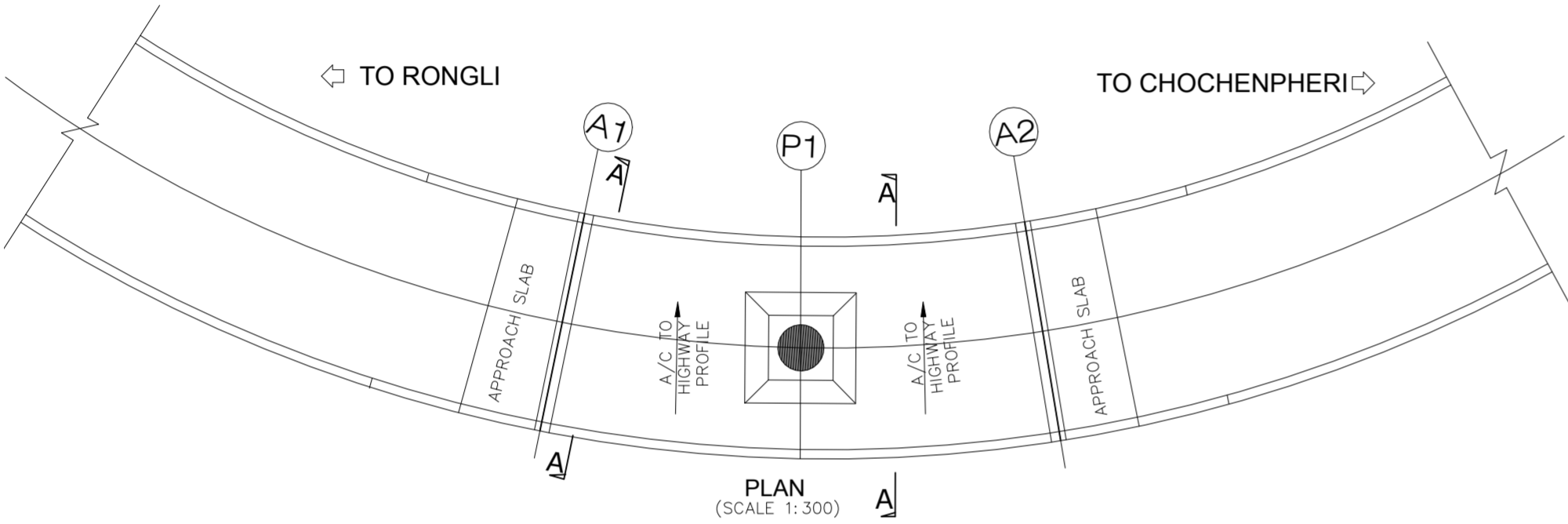
SA INFRASTRUCTURE CONSULTANTS PVT. LTD.



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.

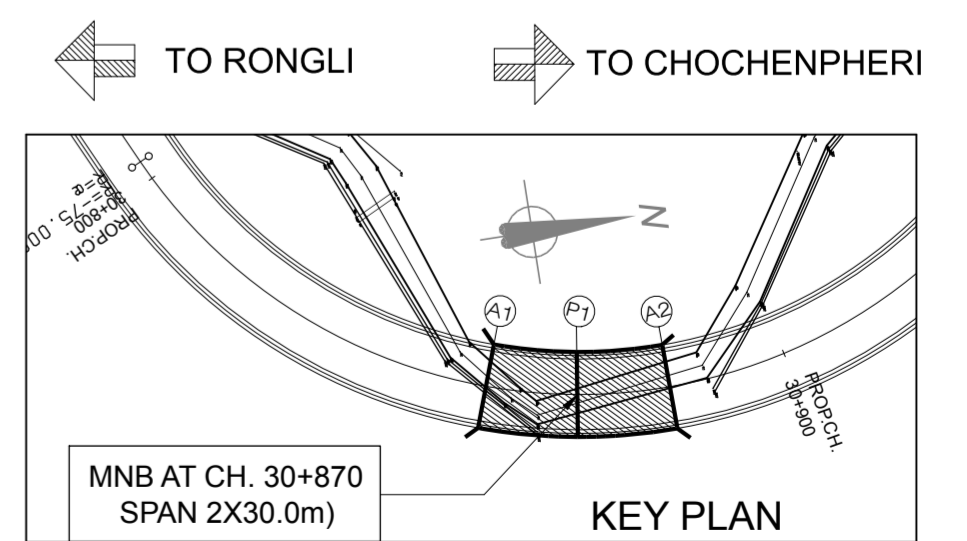
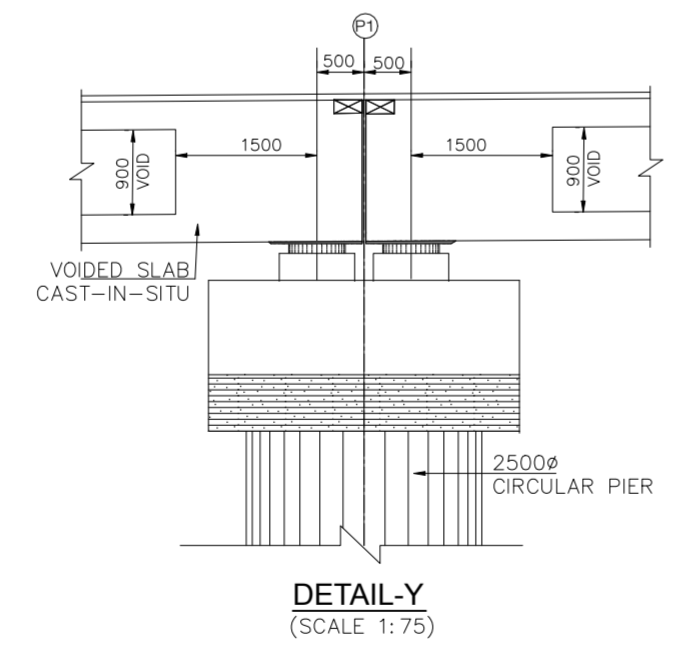
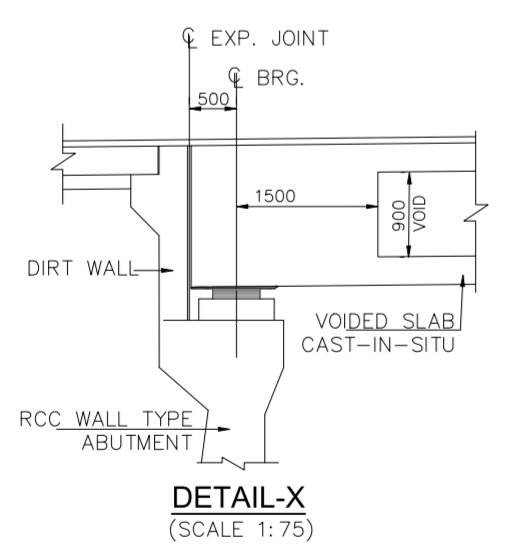


FORMATION LEVEL	1274.859	1274.937	1275.112
GROUND LEVEL (LHS)-12(M)	1274.984	1269.280	1274.464
CHAINAGE	30+850	30+870	30+890



NOTES

- ALL DIMENSIONS ARE MILLIMETERS AND LEVELS ARE IN METERS.
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- BRIDGE HAS BEEN DESIGNED FOR CARRIAGEWAY LIVE LOAD OF 1 LANE 70R +1 LANE CLASS A OR 3 LANES OF CLASS A WHICHEVER GIVES WORST EFFECT.
- GRADE OF CONCRETE FOR VARIOUS ELEMENTS ARE AS FOLLOWS:-
 - (i) SUPERSTRUCTURE----- M40
 - (ii) RCC SUBSTRUCTURE & FOUNDATION --- M40
 - (iii) RCC RAILING -----M30
 - (iv) RCC CRASH BARRIER ----- M40
 - (v) APPROACH SLAB ----- M30
 - (vi) PEDESTAL ----- M40
- TYPE OF BEARING PROPOSED HERE IS POT-PTFE AS PER IRC:83, PART-III
- SINGLE STRIP SEAL EXPANSION JOINT IS USED.
- GRADE OF CEMENT IS USED HERE IS OPC 43/OPc 53.
- ALL REINFORCEMENT BARS ARE TMT BARS (GRADE DESIGNATION Fe500D) AS PER IS:1786.
- BRIDGE HAS BEEN DESIGNED CONSIDERING SEISMIC ZONE AS IV.
- SUPERELEVATION SHALL BE MAINTAINED AS PER HIGHWAY PLAN & PROFILE.
- SAFE BEARING CAPACITY FOR PRILIMINARY DESIGN AT FOUNDING LEVEL IS CONSIDERED AS 40t/m²



REV	DATE	DESCRIPTION OF REVISIONS	INITIALS

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

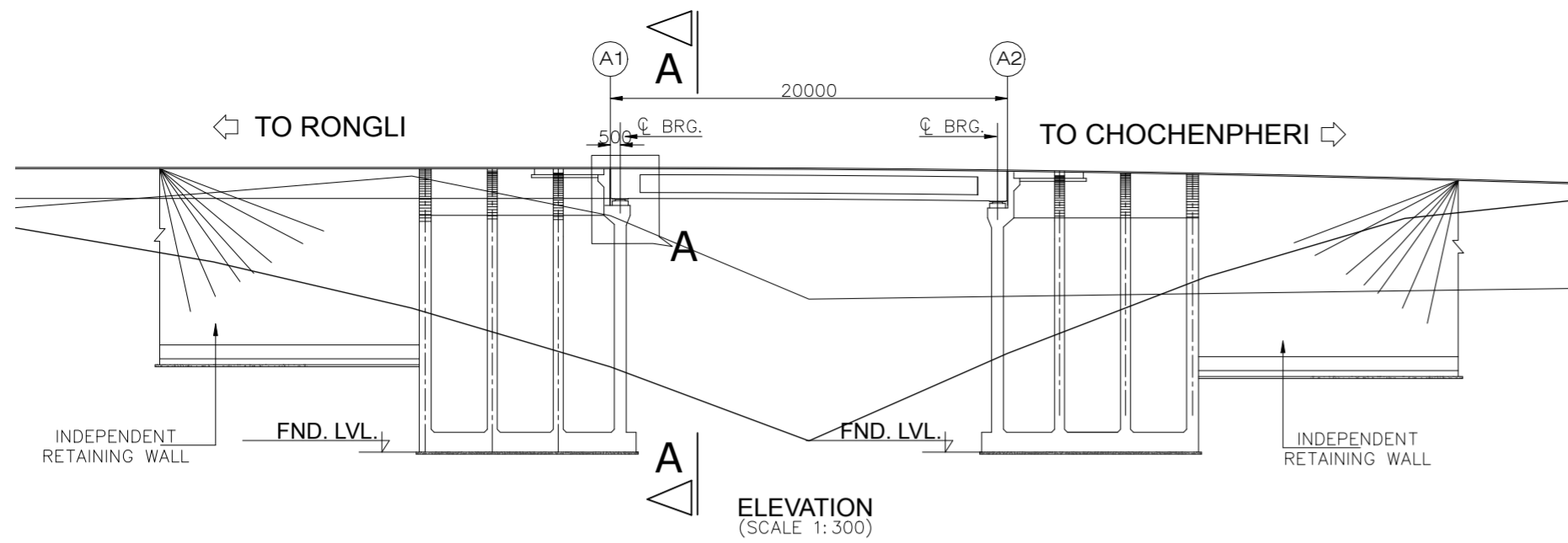
CONSULTANT: S.A. Infrastructure Consultants Pvt. Ltd.
 1101A, 11 Floor Tower A-II, Ansal Corporate Park, Plot No. 7A/1, Sector 142, Noida-201301 (Uttar Pradesh)
 Phone No- 0120-6148000 Fax-0120-6148090 Email: info@sainfra.com

PROJECT : 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- Chui khim -Nimdong-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:- II-B)

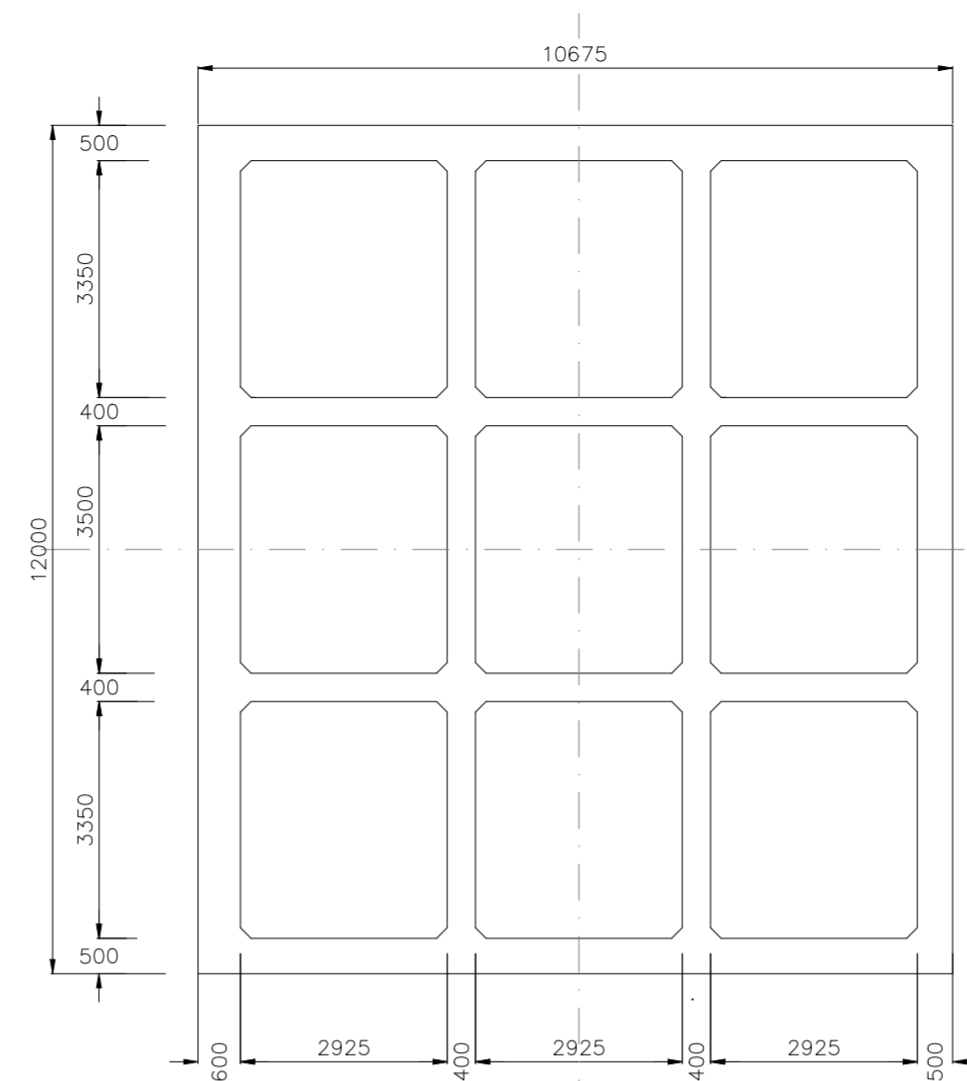
DATE : MAY-2020	REVISION R0
DESIGNED BY RAVI KUMAR	DRAWN BY A SEN
CHECKED BY A.REHMAN	APPROVED BY S.Shukla
SCALE:- AS SHOWN	SHEET:- 01 OF 01

GENERAL ARRANGEMENT DRAWINGS OF MNB AT CH- 30+870 (SPAN-2x13.0)

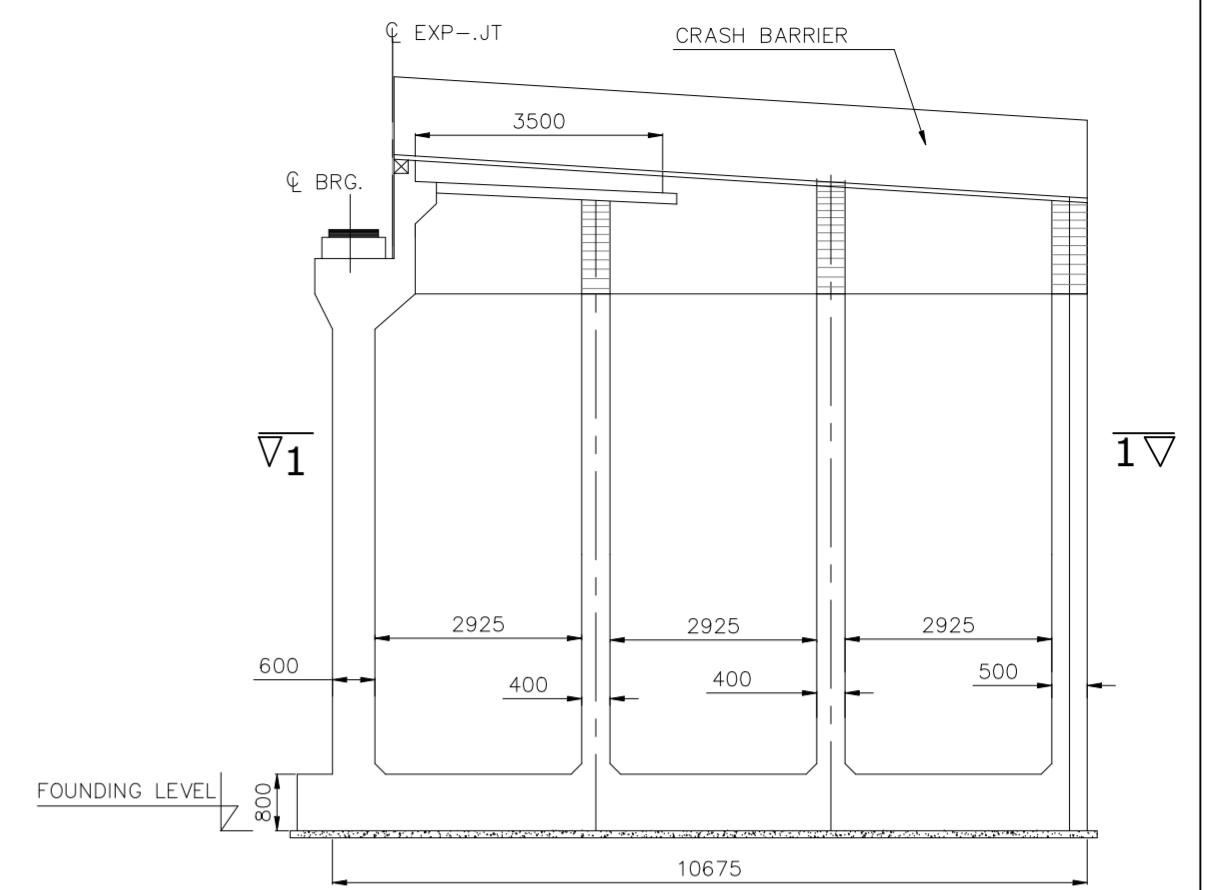
DWG. NO. :- SAICPL-SESPL/NHIDC/WB-SKM/38+870GAD-01



FORMATION LEVEL	1249.500	1249.500	
EX.GROUND LEVEL	1249.000	1243.000	
GROUND LEVEL (RHS)-12(M)	1239.447	1237.640	1235.715
CHAINAGE	32+180	32+190	32+200



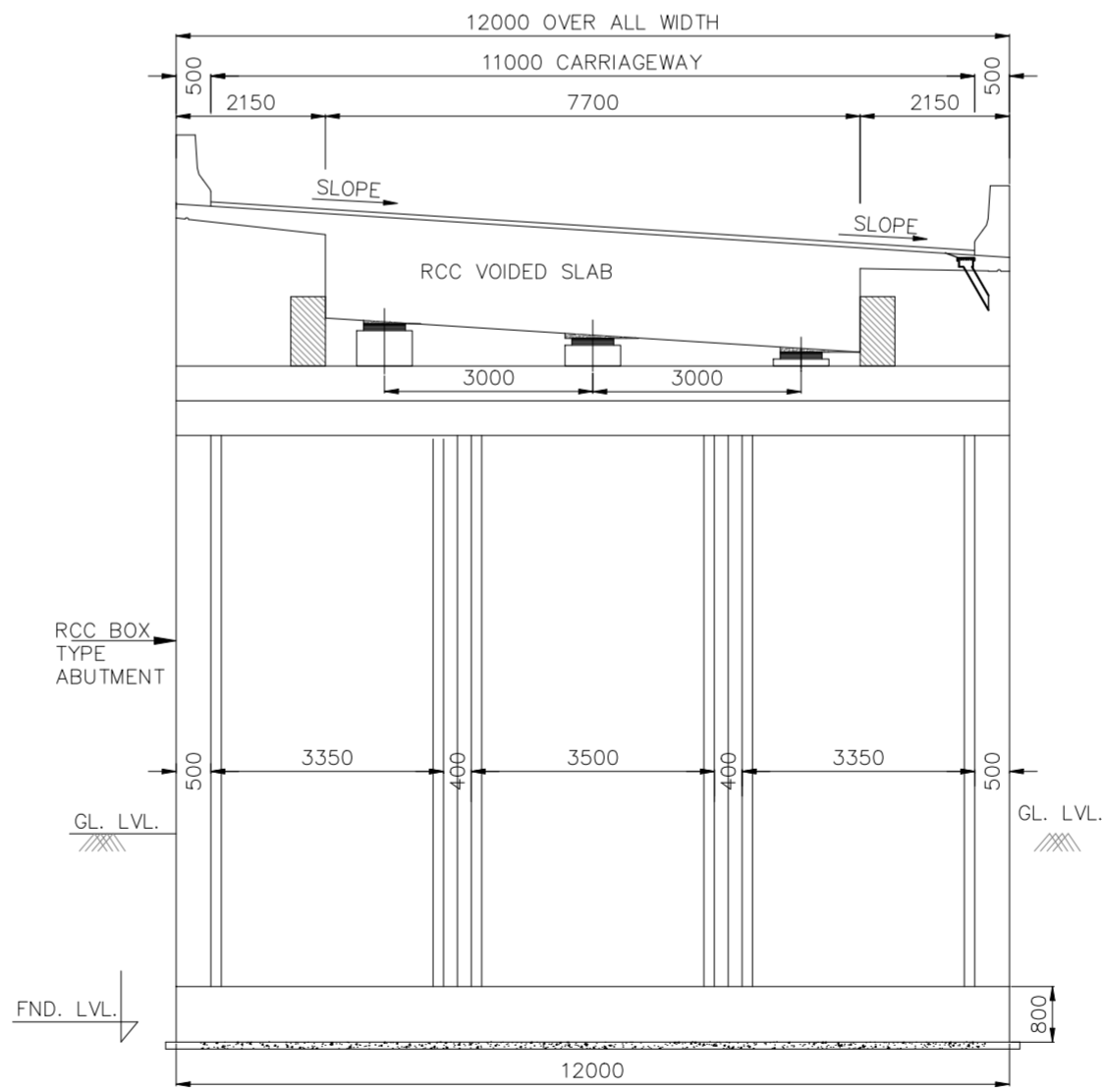
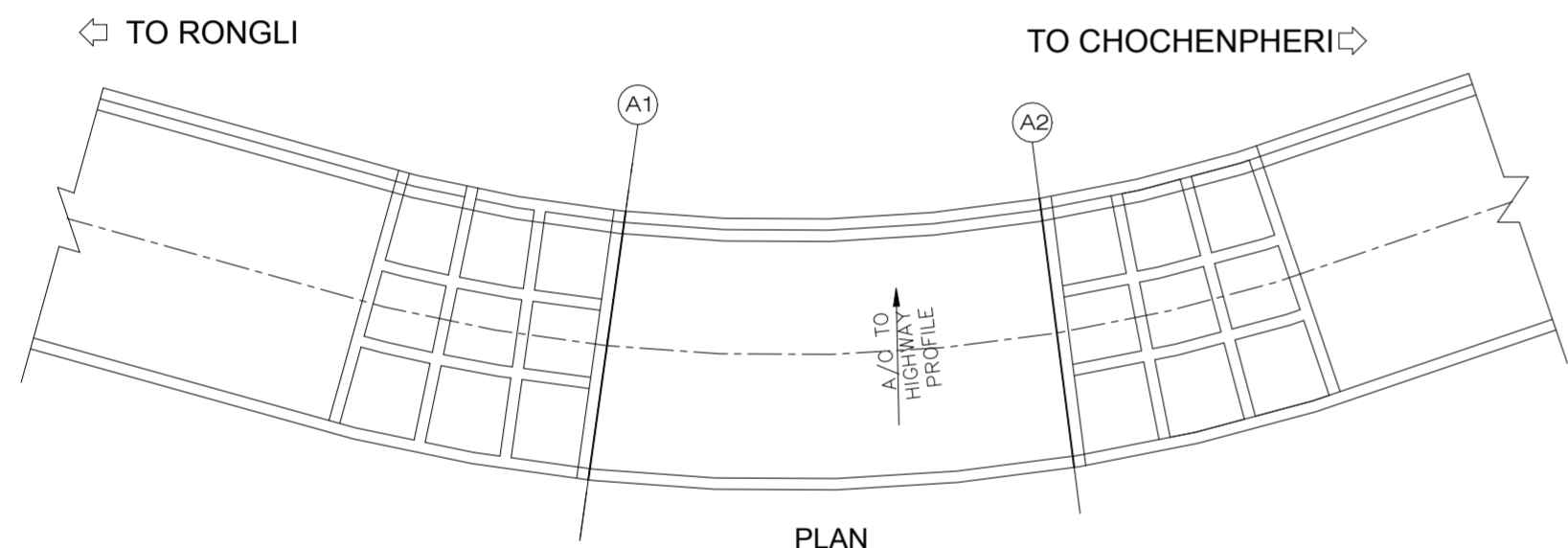
SECTION 1-1
SCALE 1:100



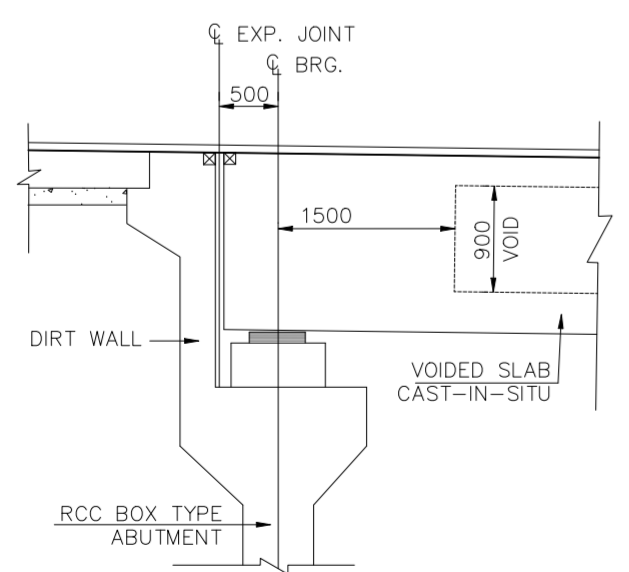
BOX ABUTMENT
SCALE 1:100

NOTES

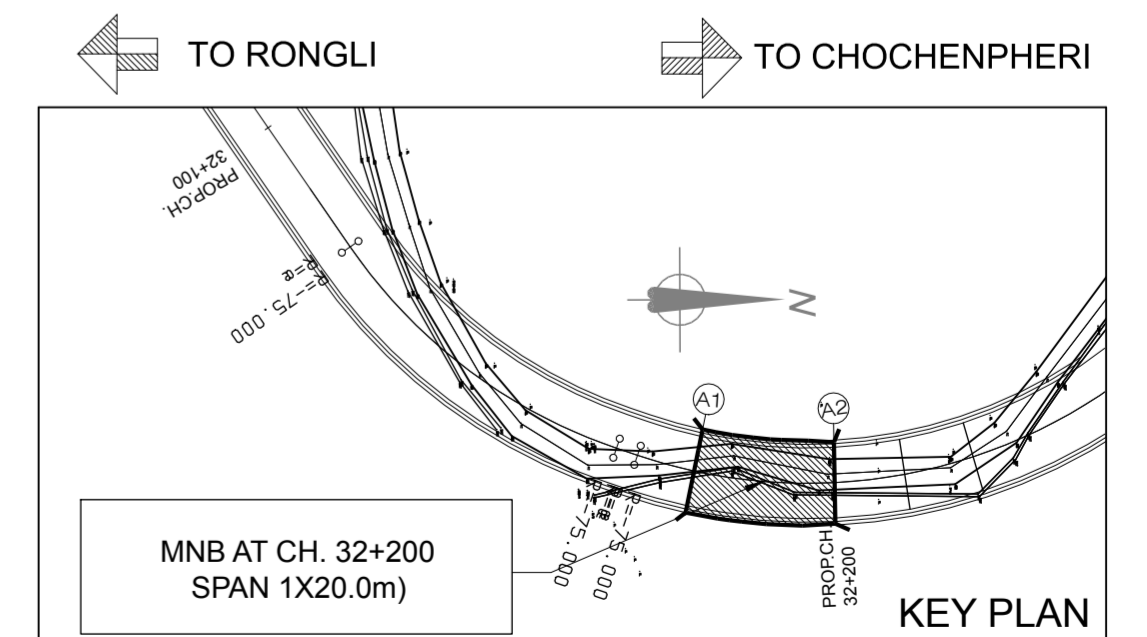
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SECTION A-A
SCALE 1:100



DETAIL-A
SCALE 1:60



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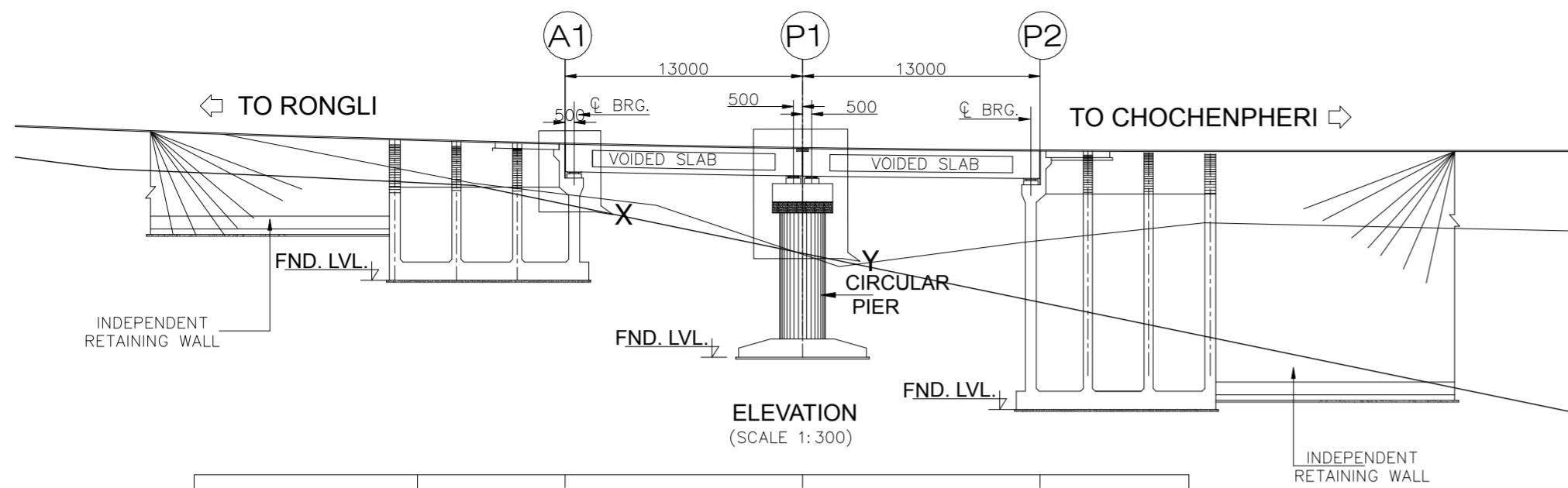
CONSULTANT: S.A. Infrastructure Consultants Pvt. Ltd.
1101A, 11 Floor Tower A-II, Ansal Corporate Park,
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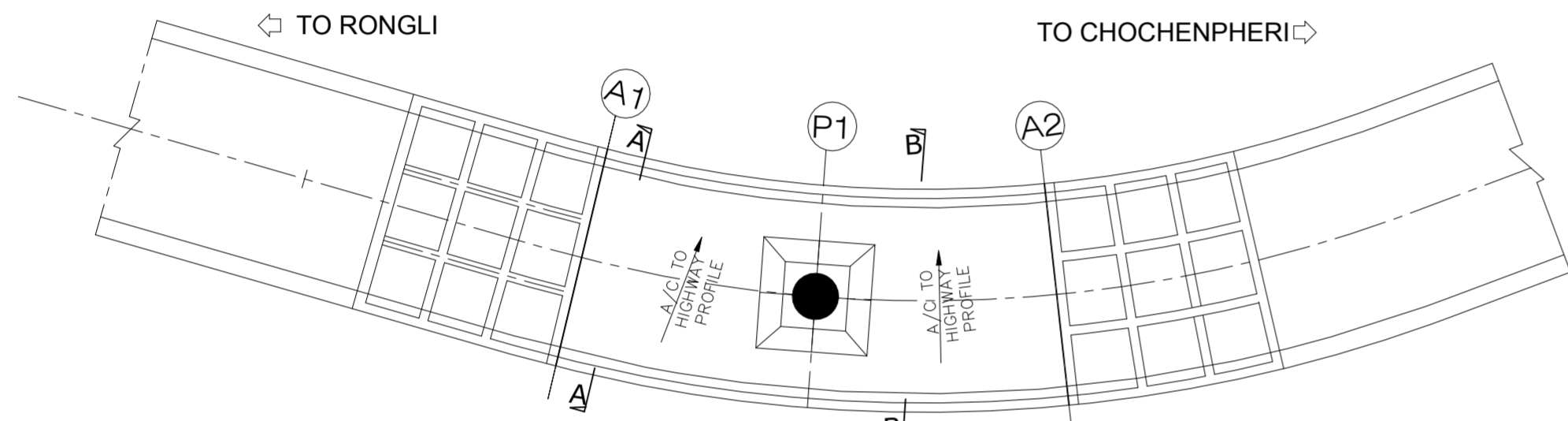
DATE: MAY-2020		REVISION R0	
DESIGNED BY RAVI KUMAR	DRAWN BY A SEN	CHECKED BY AREHMAN	APPROVED BY S.Shukla
SCALE:- AS SHOWN		SHEET:- 01 OF 02	

GENERAL ARRANGEMENT DRAWINGS OF MNB AT CH- 32+200 (SPAN-1x20.0)

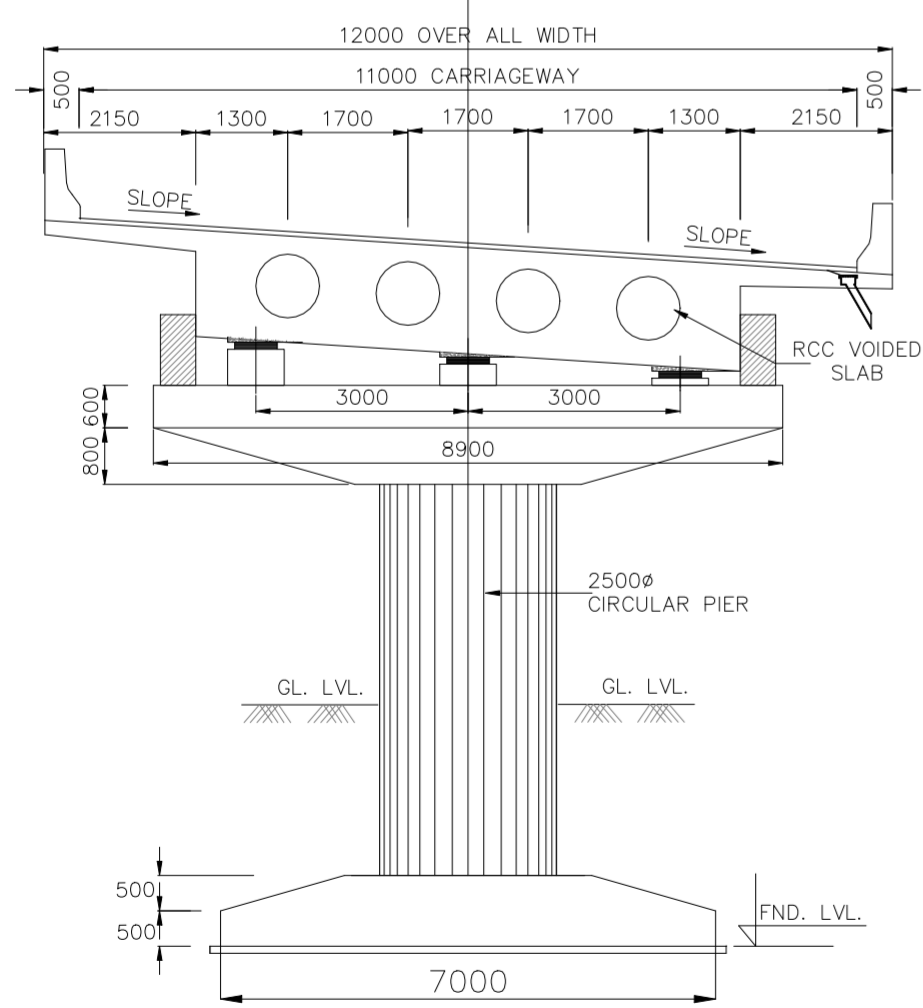
DWG. NO. :- SAICPL-SESPL/NHIDC/WB-SKM/32+200GAD-01



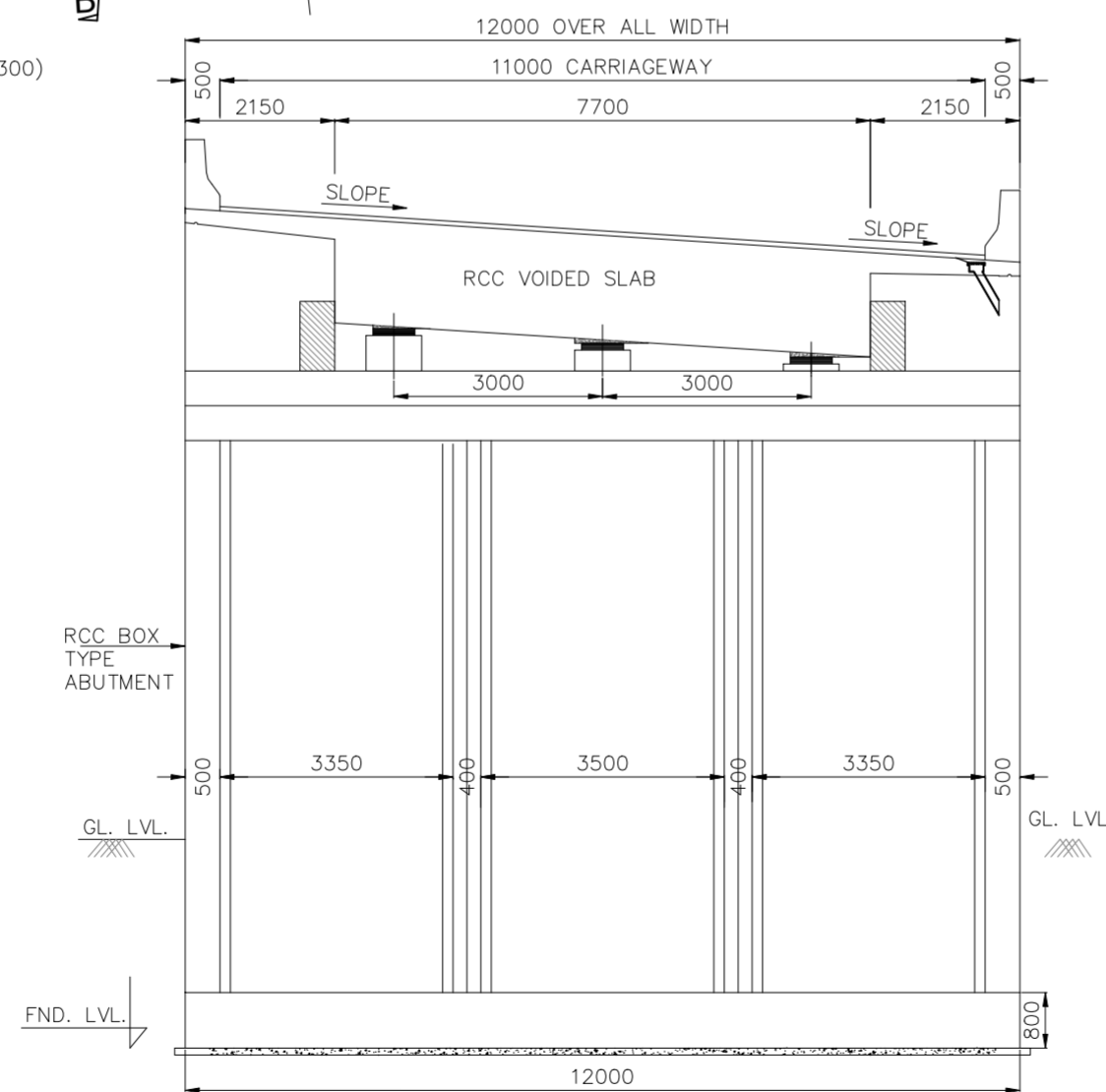
FORMATION LEVEL	1246.292	1246.130	1246.032
EX.GROUND LEVEL	1242.990	1239.632	1240.953
GROUND LEVEL (RHS)-12(M)	1242.051	1239.330	1237.885
CHAINAGE	32+315	32+328	32+341



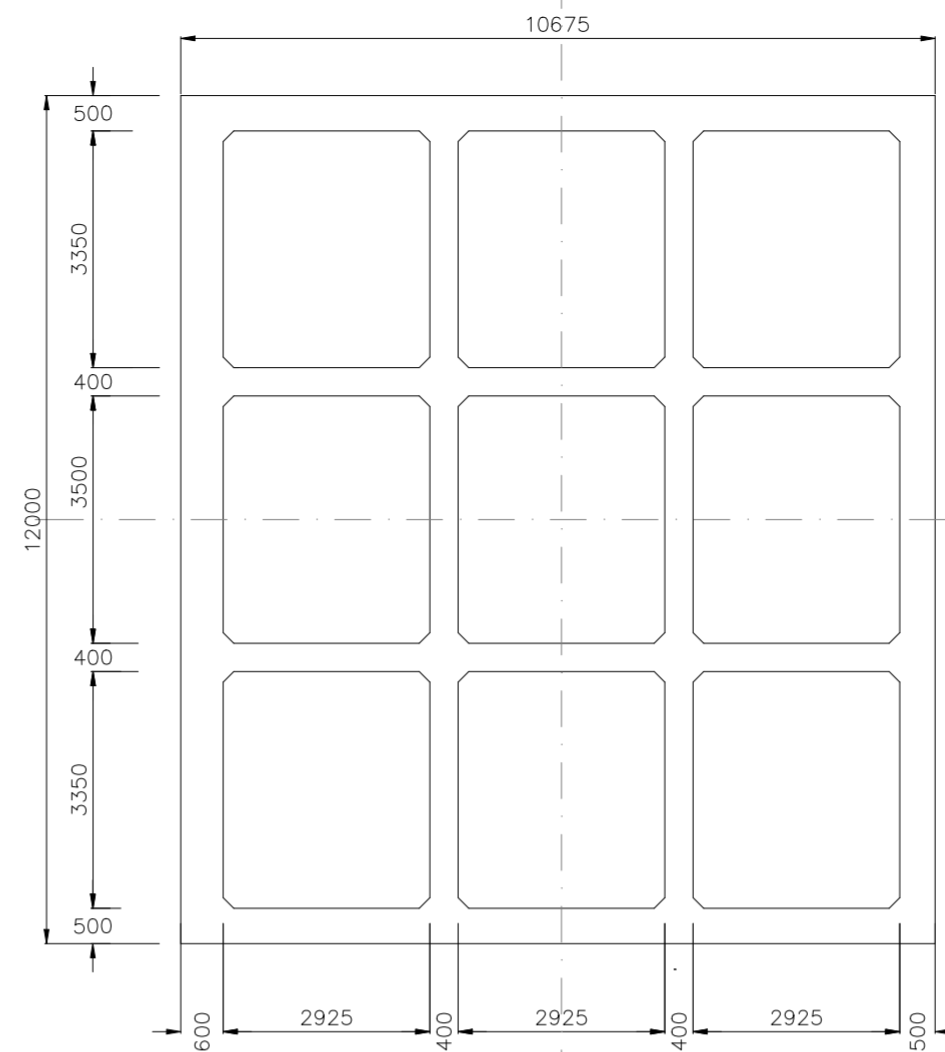
PLAN (SCALE 1:300)



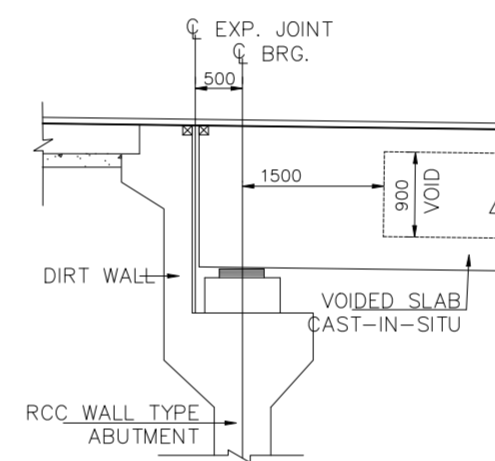
SECTION B-B (SCALE 1:100)



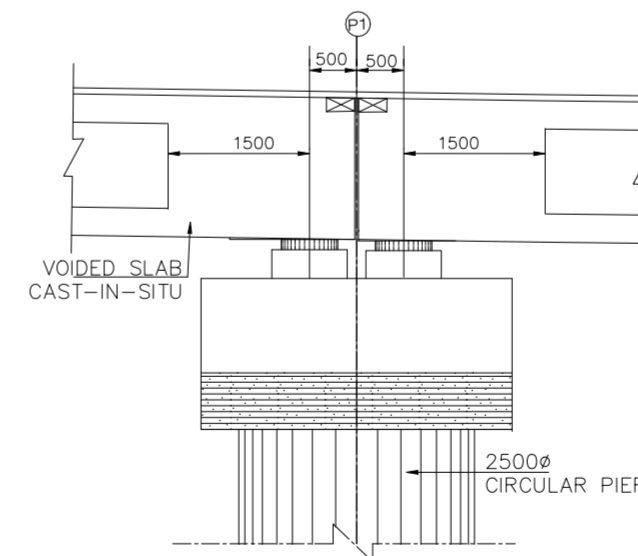
SECTION A-A (SCALE 1:100)



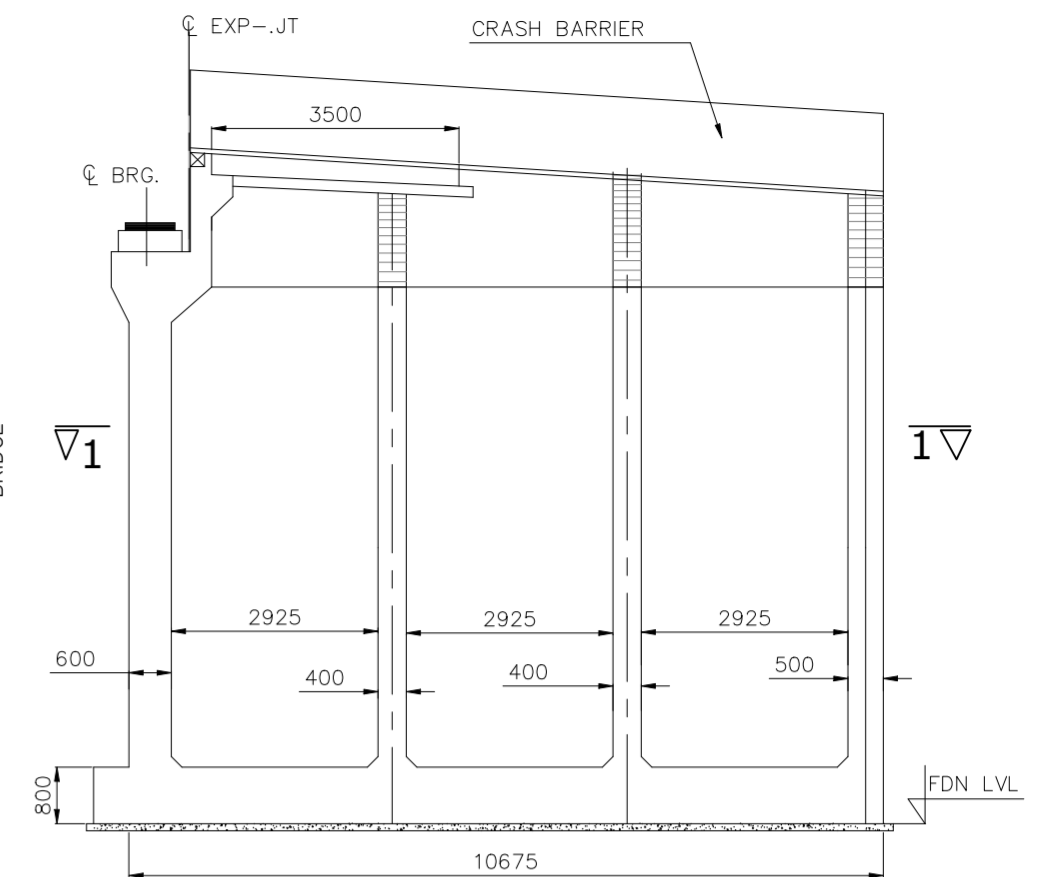
SECTION 1-1 (SCALE 1:100)



DETAIL-X (SCALE 1:75)



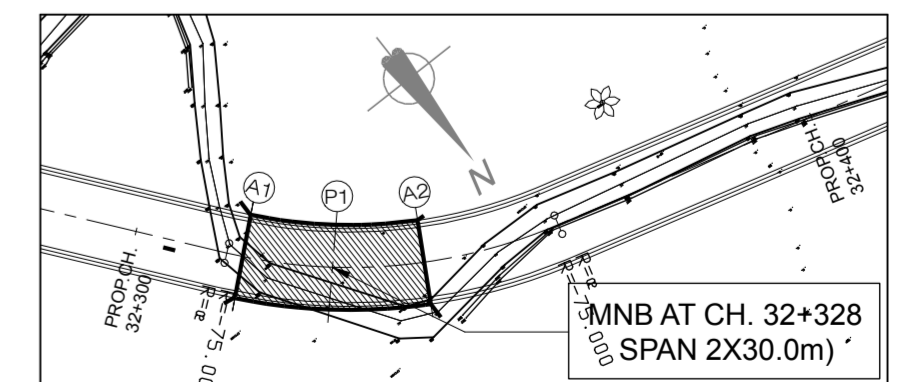
DETAIL-Y (SCALE 1:75)



BOX ABUTMENT (SCALE 1:100)

NOTES

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KEY PLAN

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS

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

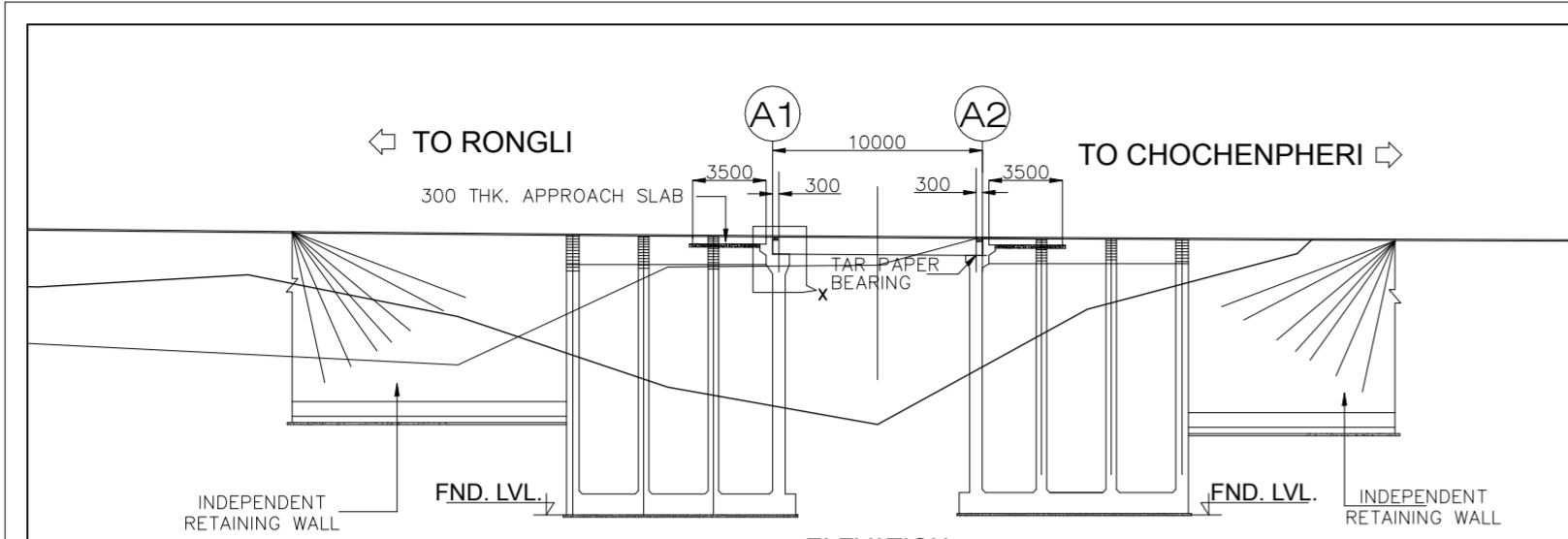
CONSULTANT: S.A. Infrastructure Consultants Pvt. Ltd. 1101A, 11 Floor Tower A-II, Ansal Corporate Park, Plot No. 7A/1, Sector 142, Noida-201301 (Uttar Pradesh) Phone No- 0120-6148000 Fax-0120-6148090 Email: info@sainfra.com

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DATE: MAY-2020	REVISION R0
DESIGNED BY: RAVI KUMAR	DRAWN BY: A SEN
CHECKED BY: AREHMAN	APPROVED BY: S.Shukla
SCALE:- AS SHOWN	SHEET:- 01 OF 01

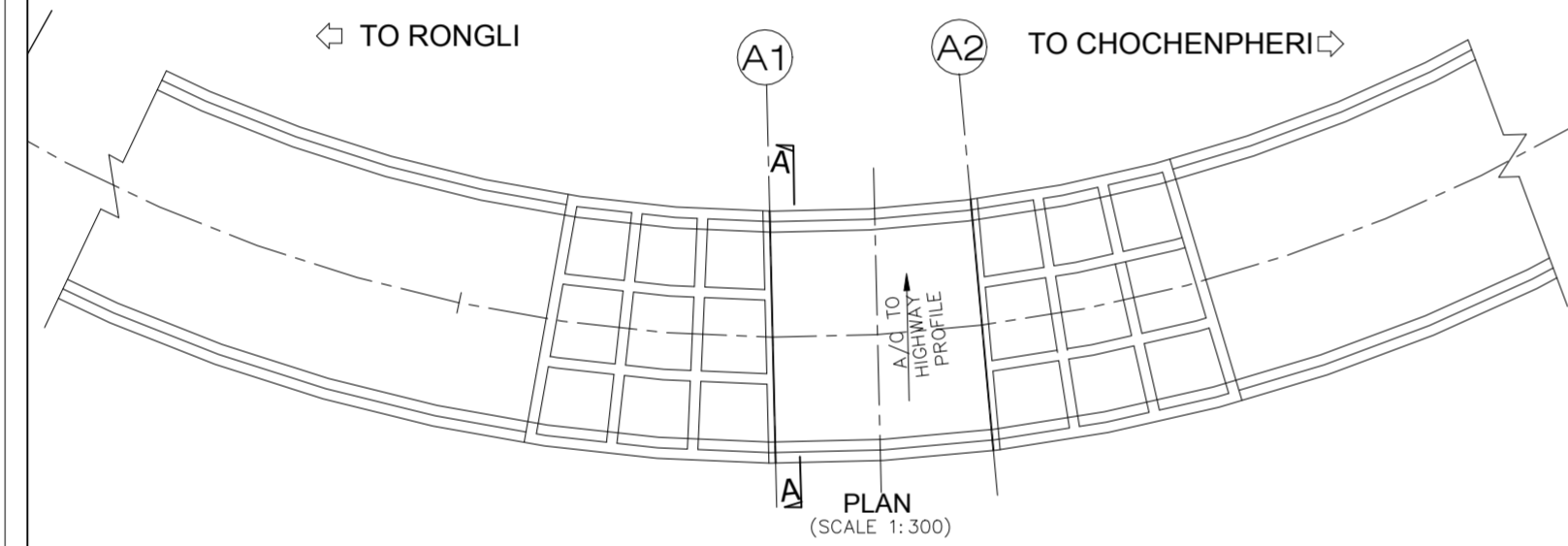
GENERAL ARRANGEMENT DRAWINGS OF MNB AT CH- 32+328 (SPAN-2x13.0)

DWG. NO. :- SAICPL-SESPL/NHIDC/WB-SKM/32+328GAD-01

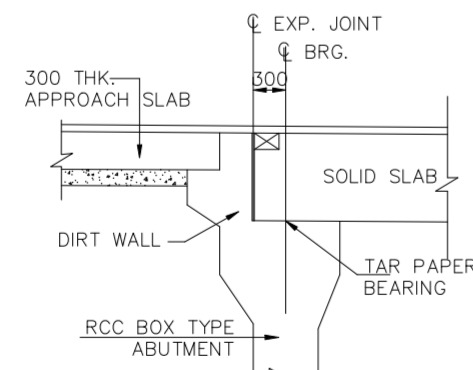


ELEVATION
(SCALE 1:300)

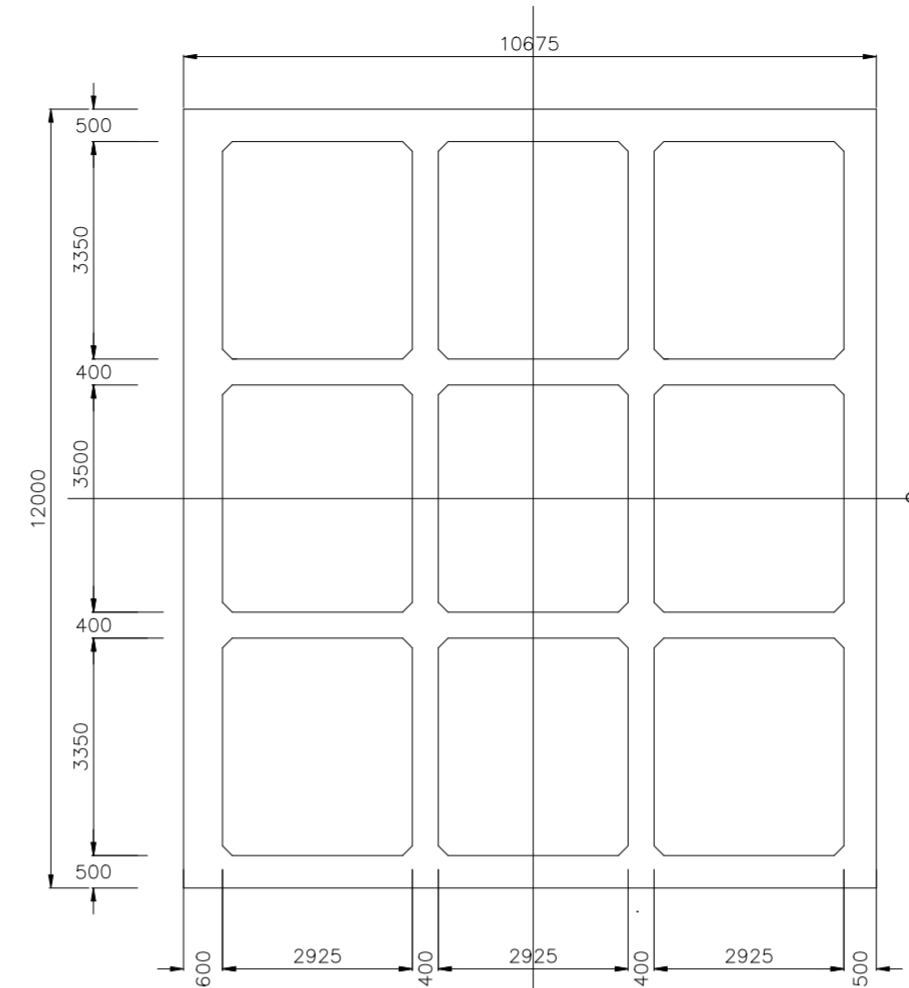
FORMATION LEVEL	1216.237	1216.170	
EX.GROUND LEVEL	1214.785	1216.180	
GROUND LEVEL (RHS)-12(M)	1208.010	1207.070	1209.980
CHAINAGE	33+415	33+420	33+425



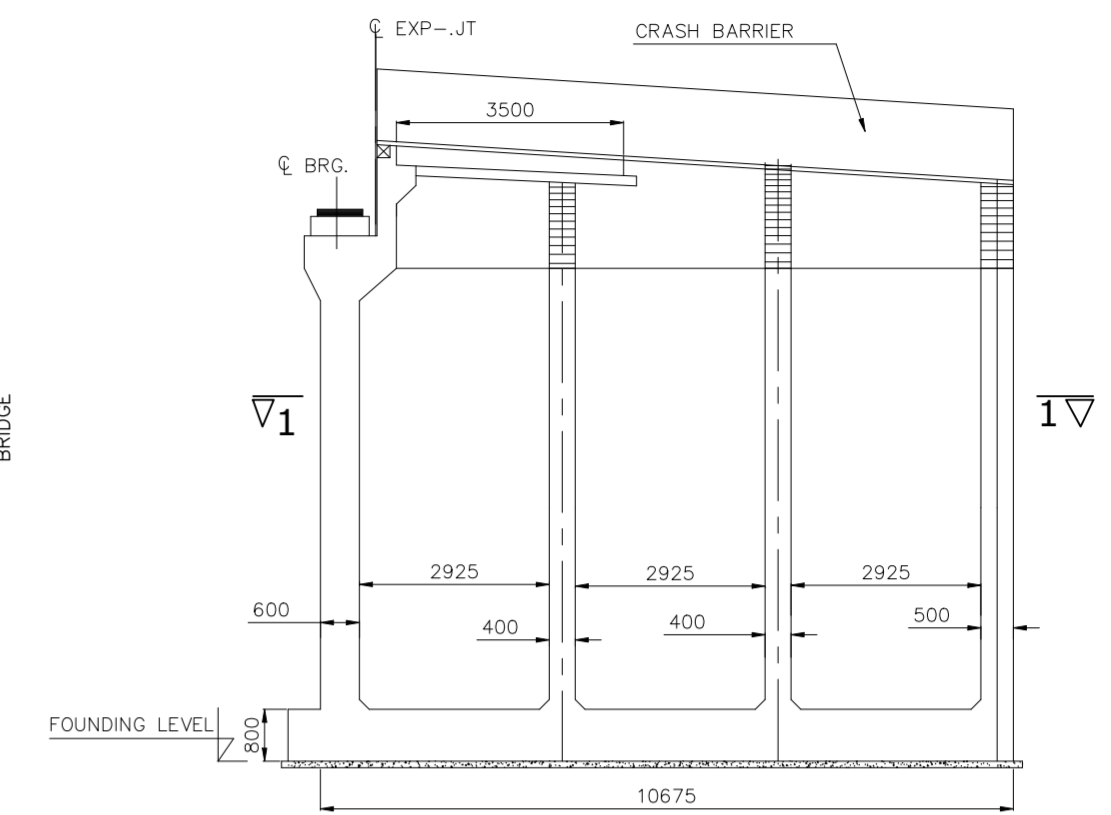
PLAN
(SCALE 1:300)



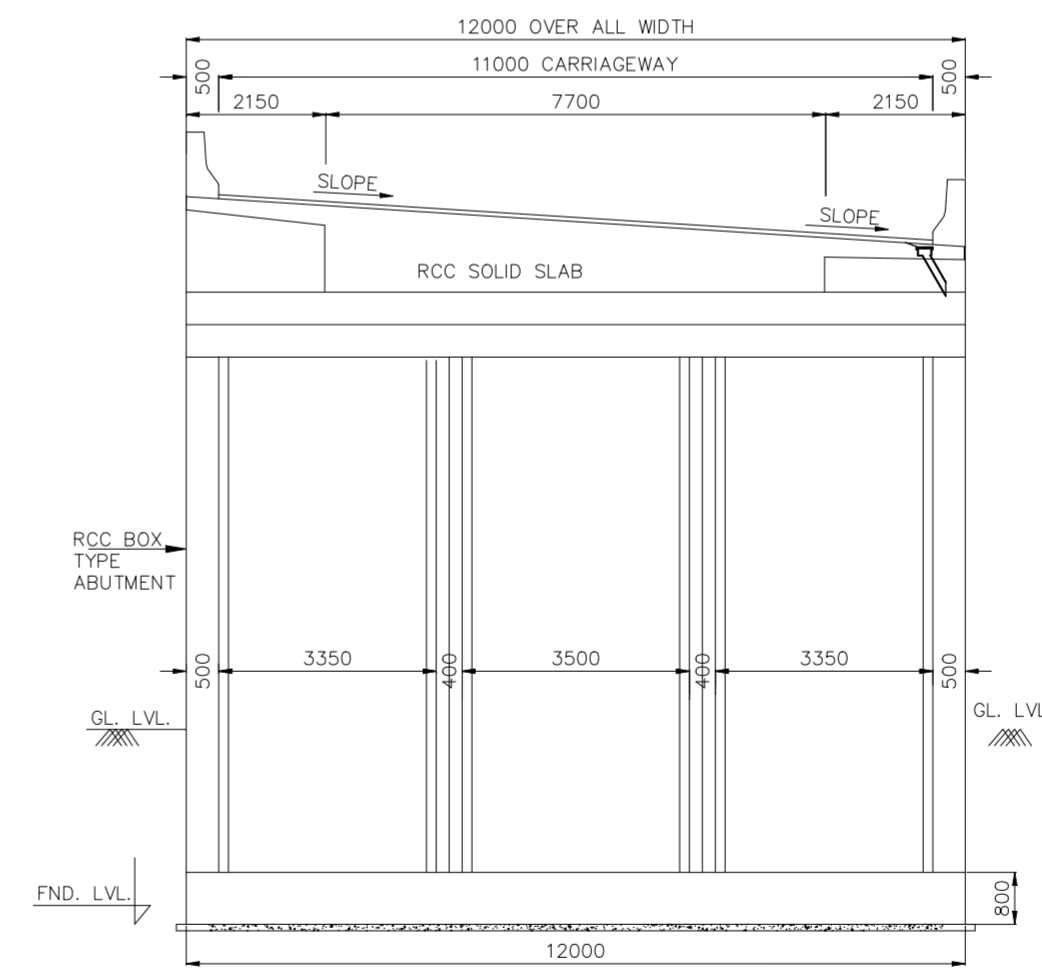
DETAIL-X
(SCALE 1:60)



SECTION 1-1
SCALE 1:100



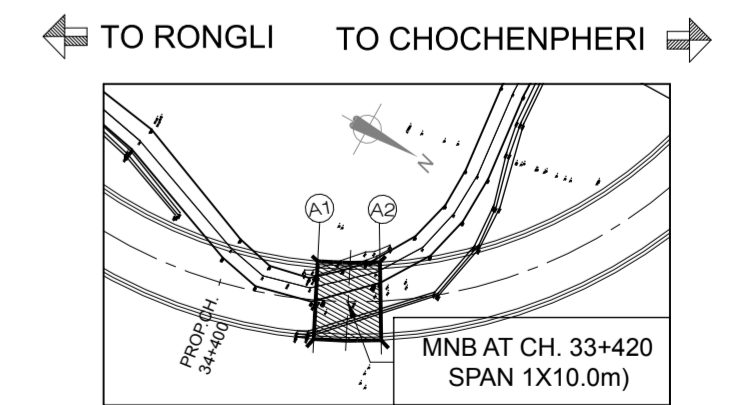
BOX ABUTMENT
SCALE 1:100



SECTION A-A
SCALE 1:100

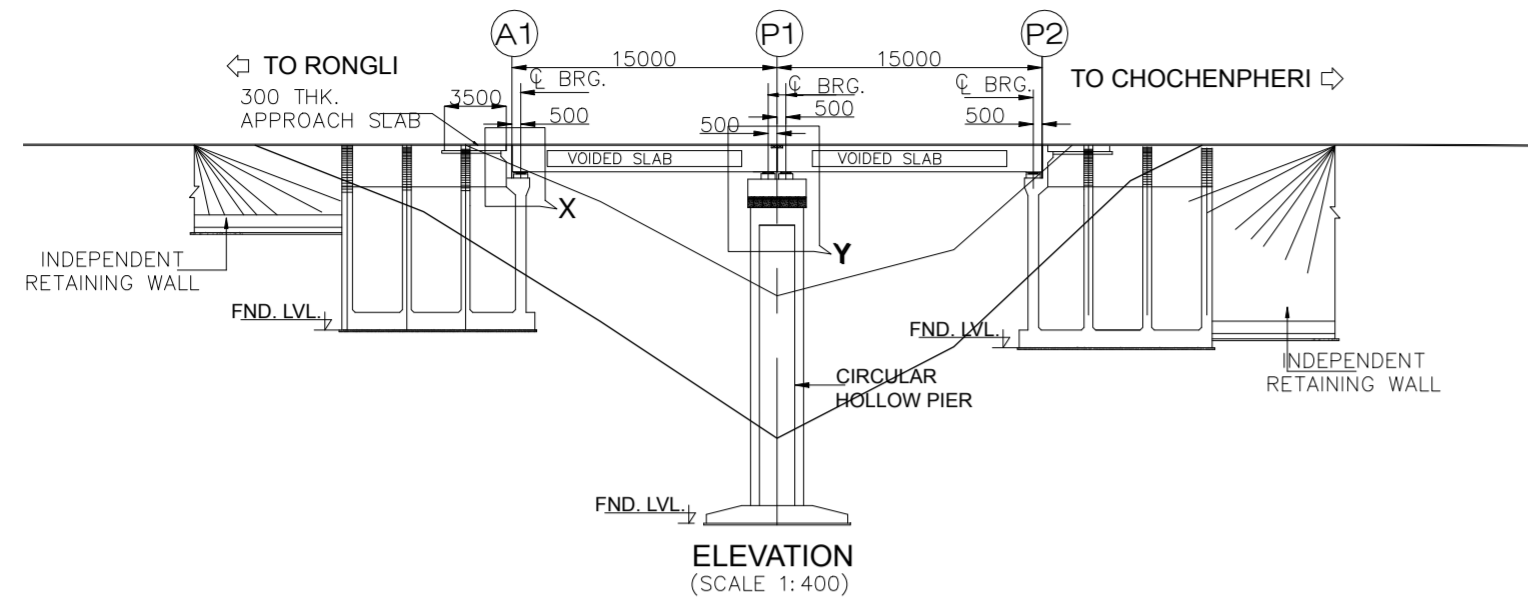
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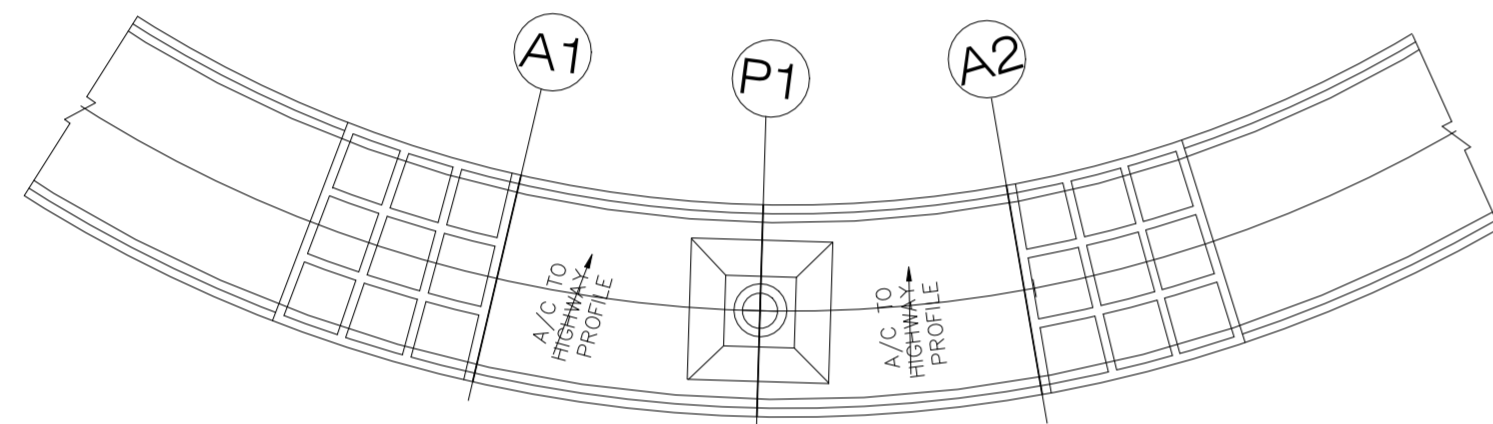
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				<p>CONSULTANT: S.A. Infrastructure Consultants Pvt. Ltd. 1101A, 11 Floor Tower A-II, Ansal Corporate Park, Plot No. 7A/1, Sector 142, Noida-201301 (Uttar Pradesh) Phone No- 0120-6148000 Fax-0120-6148090 Email: info@sainfra.com</p>	<p>DESIGNED BY: RAVI KUMAR</p>	<p>DRAWN BY: A SEN</p>	<p>CHECKED BY: A REHMAN</p>	<p>APPROVED BY: S.Shukla</p>	<p>DWG. NO. :- SAICPL-SESPL/NHDC/WB-SKM/33+420GAD-01</p>
REV	DATE	DESCRIPTION OF REVISIONS	INITIALS	<p>SCALE:- AS SHOWN</p>		<p>SHEET:- 01 OF 01</p>			

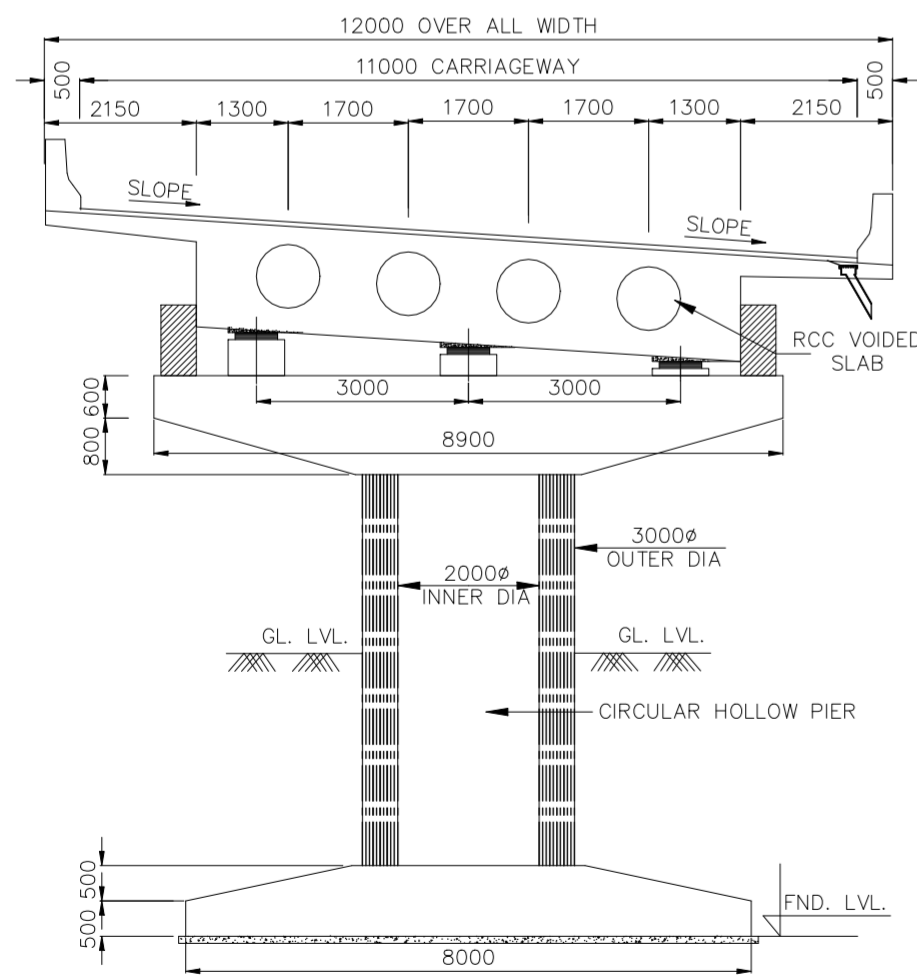


ELEVATION
(SCALE 1:400)

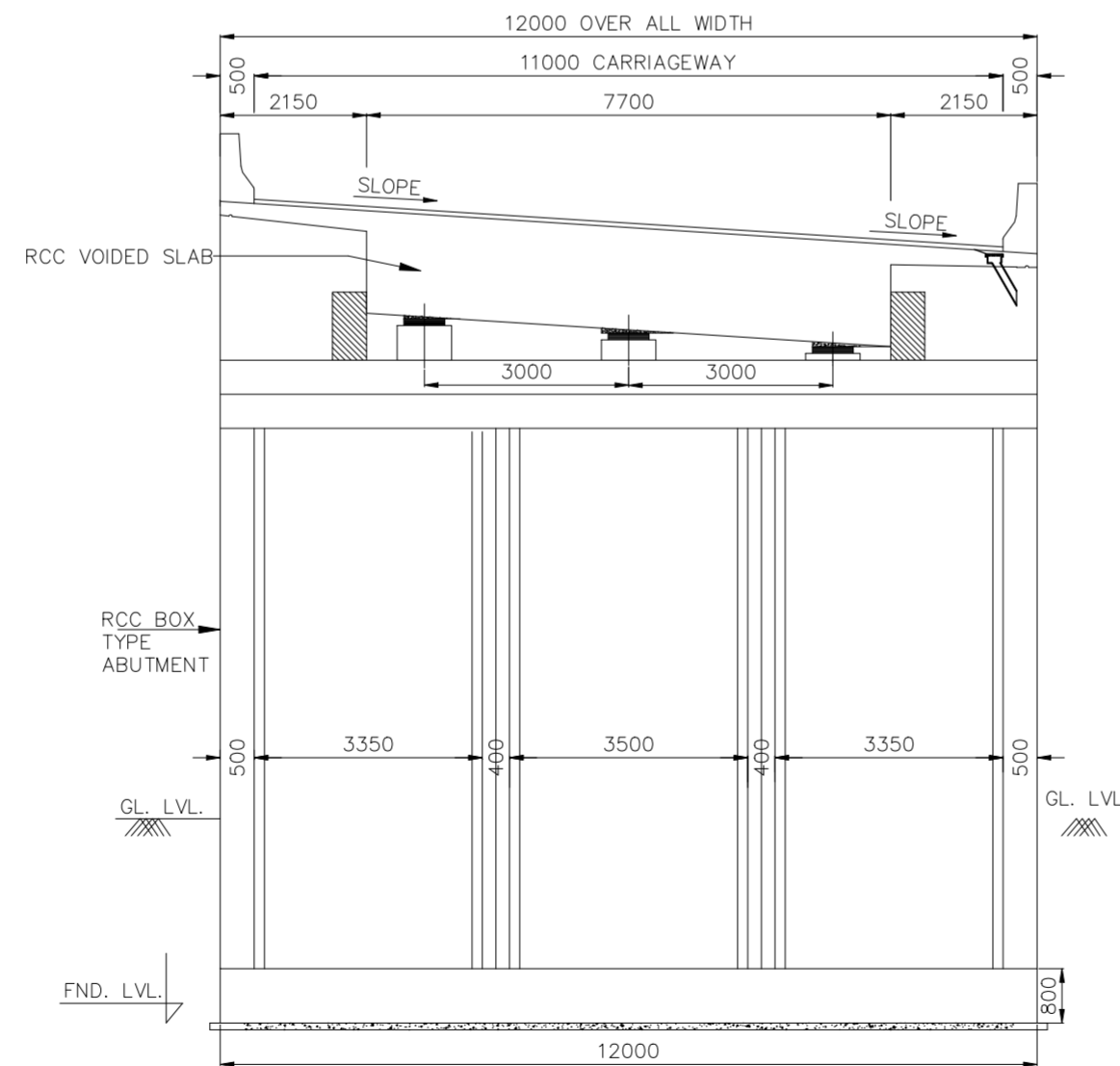
FORMATION LEVEL	1203.000	1203.000	1203.000
EX.GROUND LEVEL	1201.857	1194.420	1201.427
GROUND LEVEL (RHS)-12(M)	1192.973	1186.358	1191.534
CHAINAGE	34+365	34+380	34+395



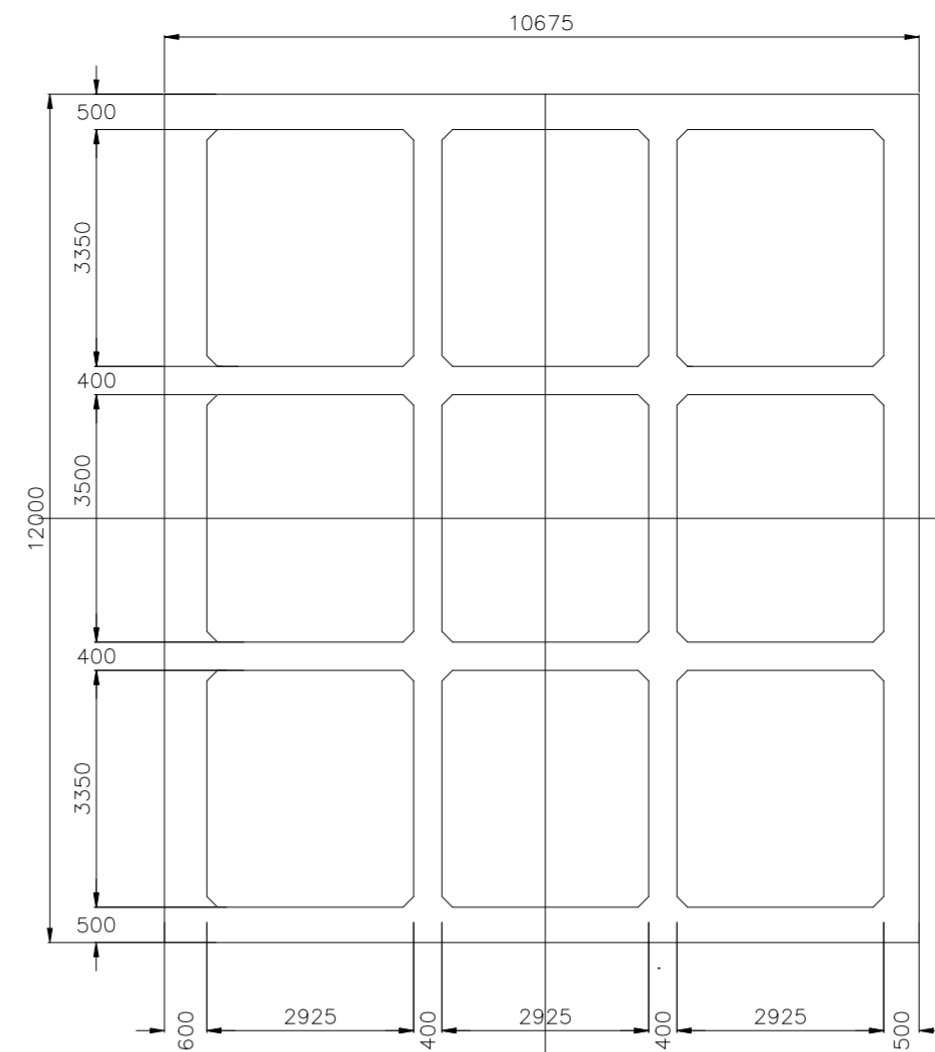
PLAN
(SCALE 1:400)



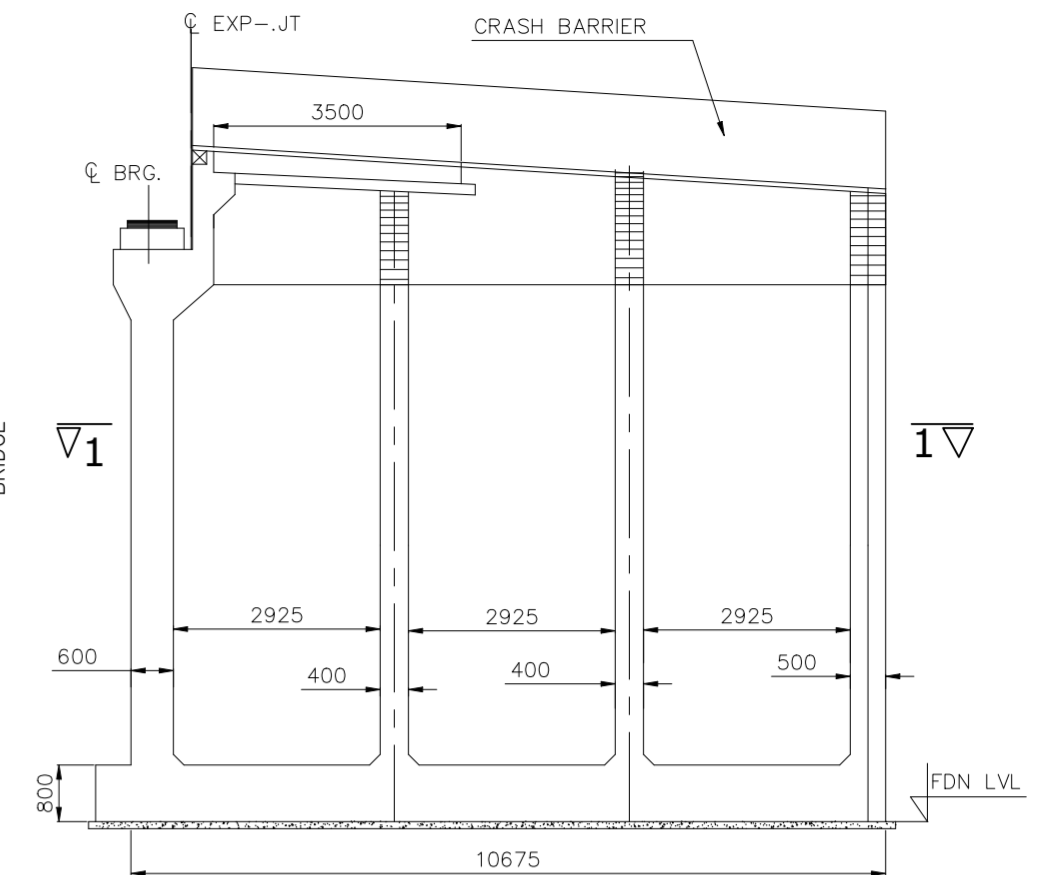
SECTION B-B
SCALE 1:100



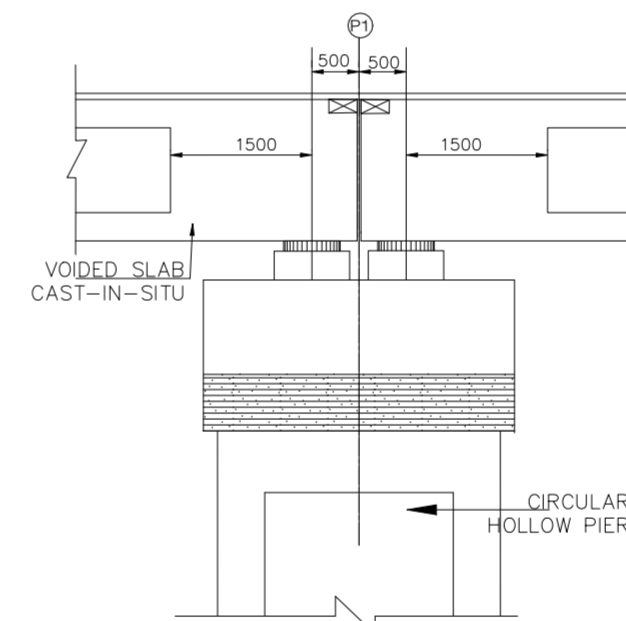
SECTION A-A
SCALE 1:100



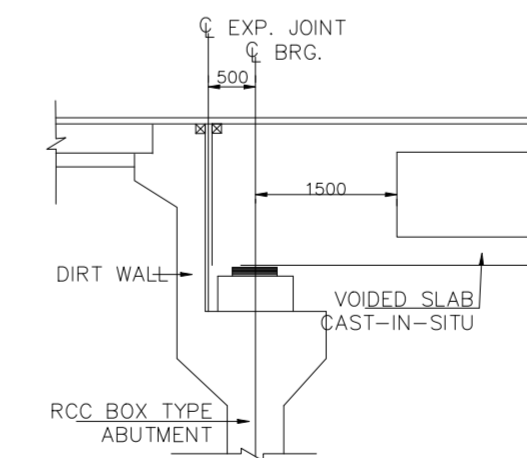
SECTION 1-1
SCALE 1:100



BOX ABUTMENT
SCALE 1:100



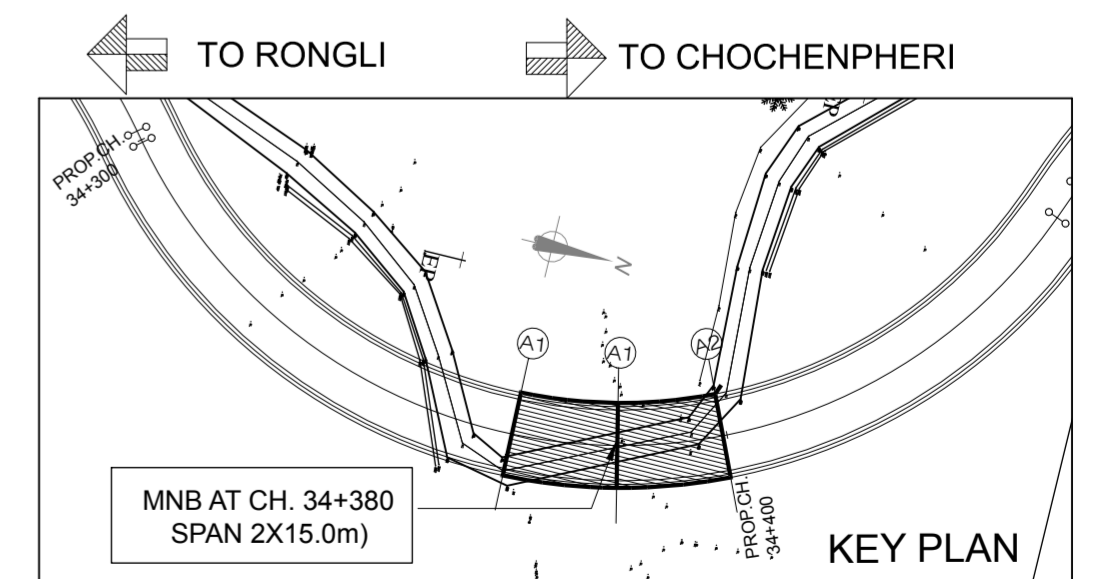
DETAIL-Y
(SCALE 1:75)



DETAIL-X
(SCALE 1:75)

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- THE DIMENSION OF THE FOUNDATION SHOWN HERE TENTATIVE ONLY. THIS SHALL BE FINALIZED AFTER DETAILED SUBSOIL INVESTIGATION.
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- GRADE OF CONCRETE FOR VARIOUS ELEMENTS ARE AS FOLLOWS:-
 (i) RCC SUPERSTRUCTURE ----- M40
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 (iii) RCC RAILING -----M30
 (iv) RCC CRASH BARRIER ----- M40
 (v) APPROACH SLAB ----- M30
 (vi) PEDESTAL ----- M40
- TYPE OF BEARING PROPOSED HERE IS POT-PTEE AS PER IRC:83, PART-III
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- GRADE OF CEMENT IS USED HERE IS OPC 43/OPc 53.
- ALL REINFORCEMENT BARS ARE TMT BARS (GRADE DESIGNATION Fe500D) AS PER IS:1786.
- BRIDGE HAS BEEN DESIGNED CONSIDERING SEISMIC ZONE AS IV.
- SUPERELEVATION SHALL BE MAINTAINED AS PER HIGHWAY PLAN & PROFILE.
- SAFE BEARING CAPACITY FOR PRELIMINARY DESIGN AT FOUNDING LEVEL IS CONSIDERED AS 40t/m²



KEY PLAN

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS

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

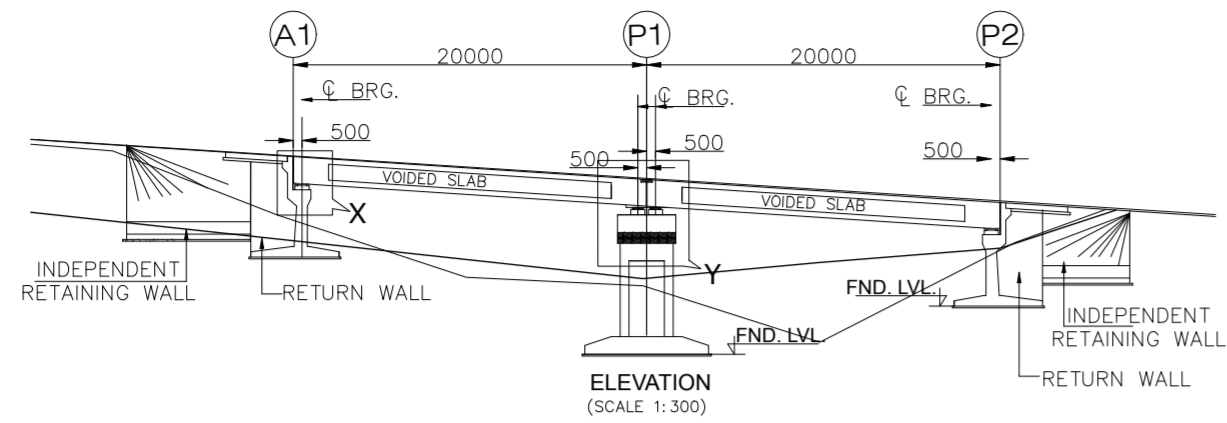
CONSULTANT: S.A. Infrastructure Consultants Pvt. Ltd.
1101A, 11 Floor Tower A-II, Ansal Corporate Park,
Plot No. 7A/1, Sector 142, Noida-201301 (Uttar Pradesh)
Phone No- 0120-6148000 Fax-0120-6148090
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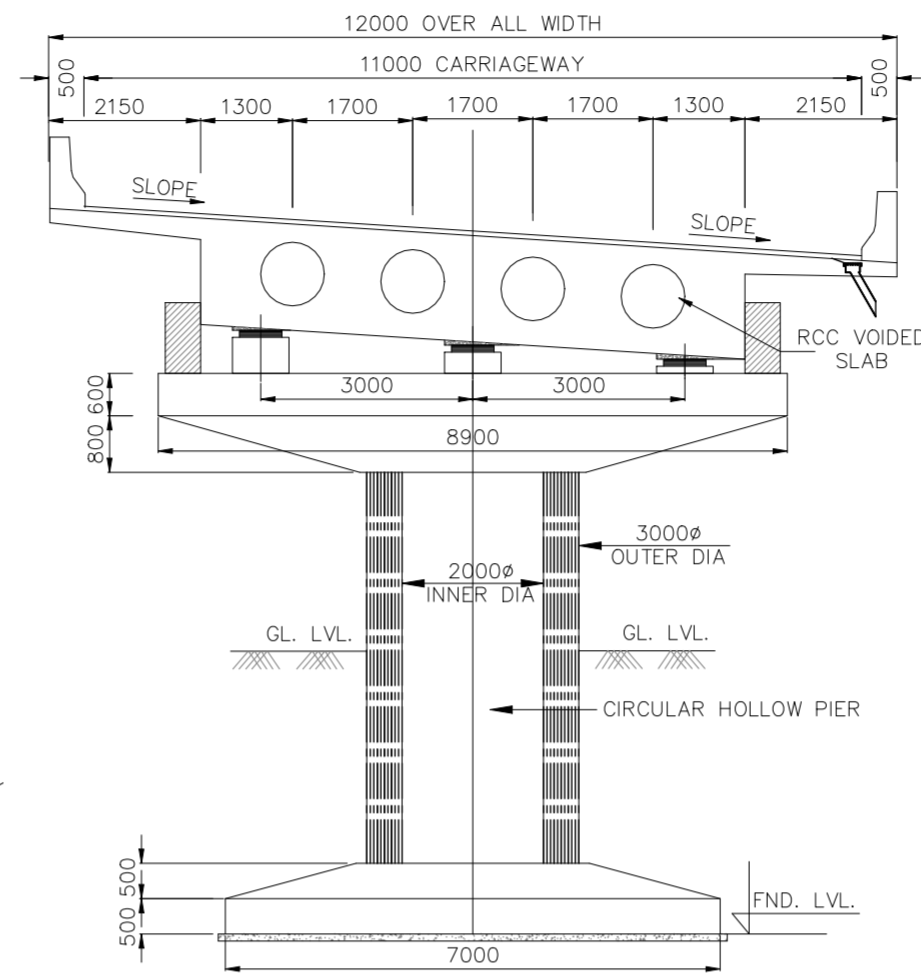
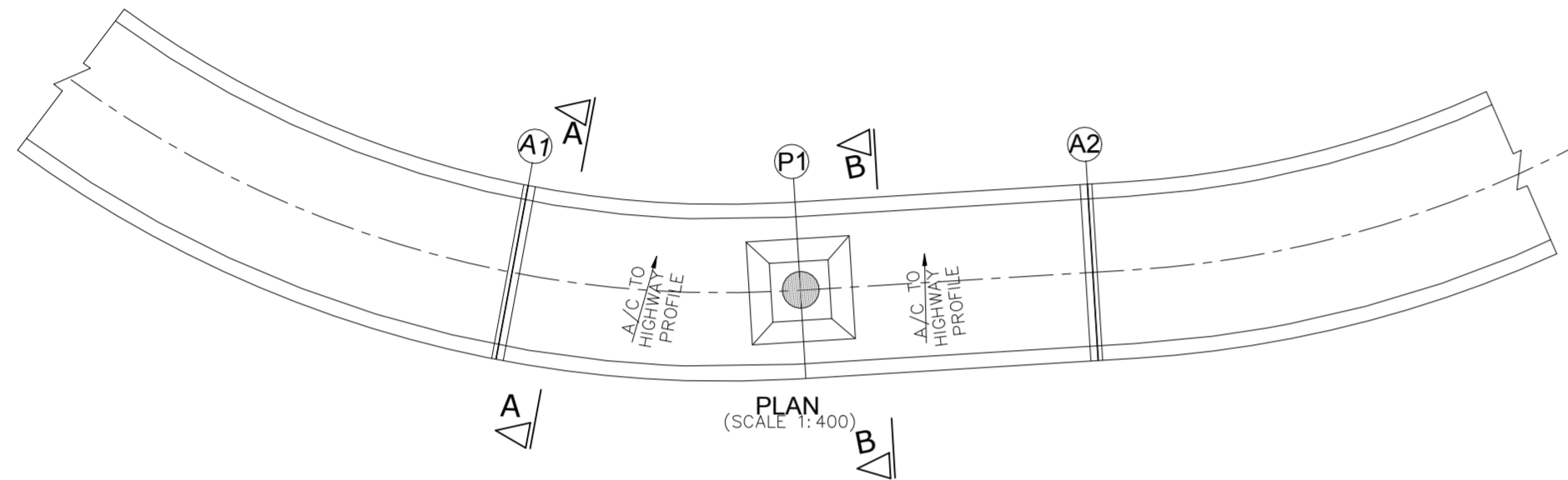
DATE : MAY-2020	REVISION R0
DESIGNED BY RAVI KUMAR	DRAWN BY A SEN
CHECKED BY AREHMAN	APPROVED BY S.Shukla
SCALE:- AS SHOWN	SHEET:- 01 OF 02

GENERAL ARRANGEMENT DRAWINGS OF MNB AT CH- 34+380 (SPAN-2x15.0)

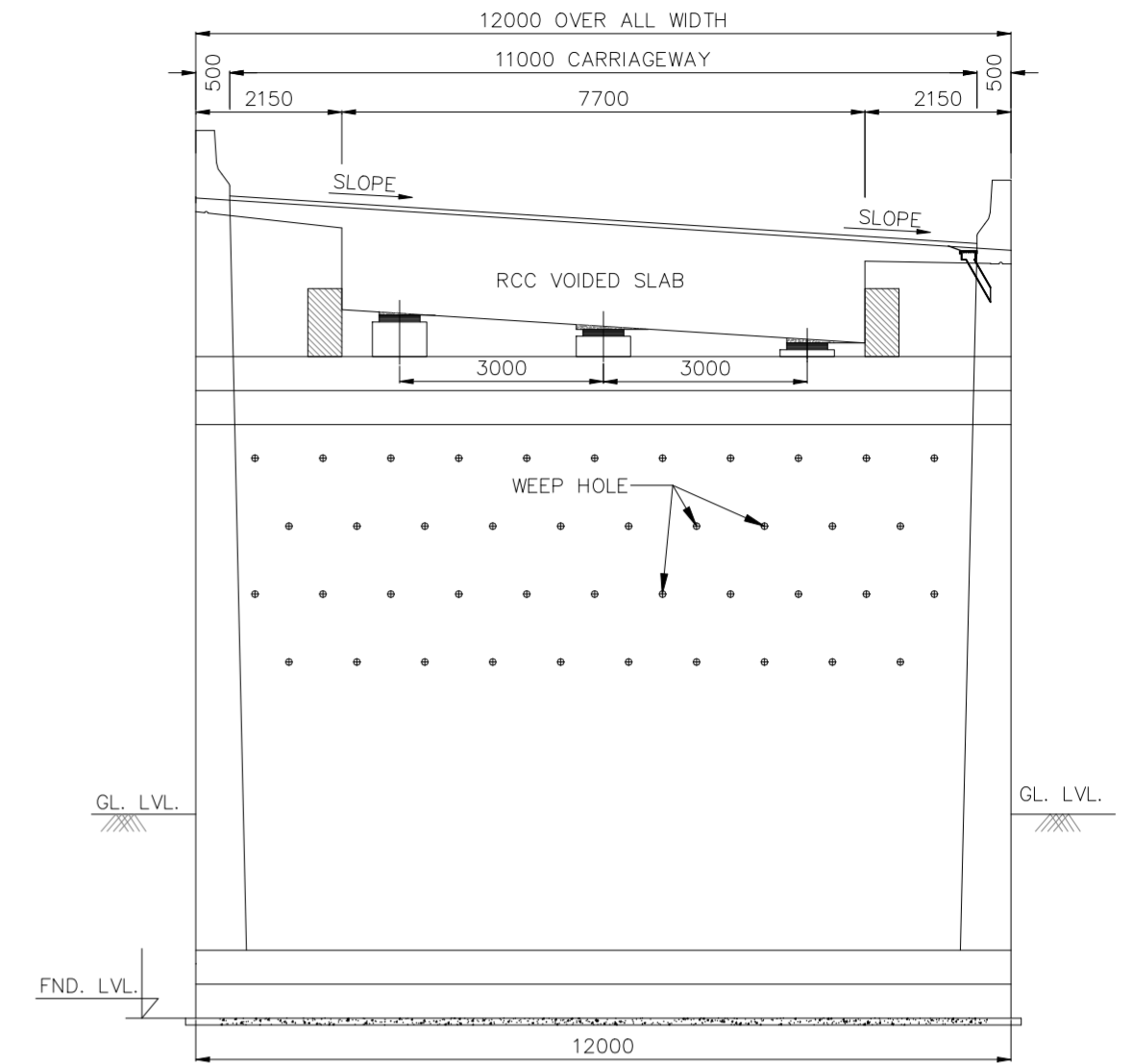
DWG. NO. :- SAICPL-SESPL/NHIDC/WB-SKM/34+380/GAD-01



FORMATION LEVEL	1142.650	1141.370	1140.100
EX.GROUND LEVEL	1140.860	1135.289	1140.490
GROUND LEVEL (RHS)-12(M)	1137.862	1135.694	1138.194
CHAINAGE	35+408	35+428	35+448



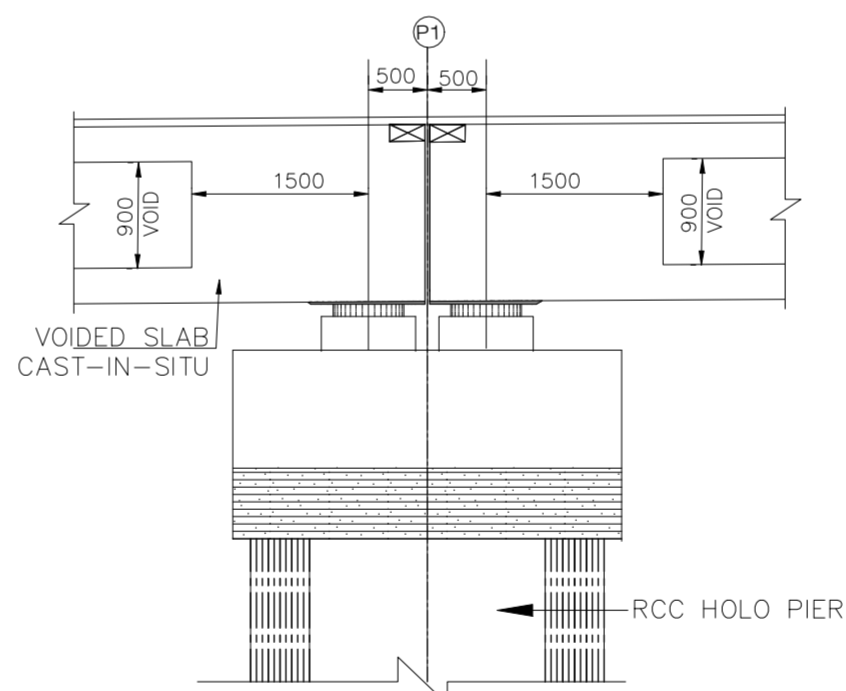
SECTION B-B
SCALE 1:100



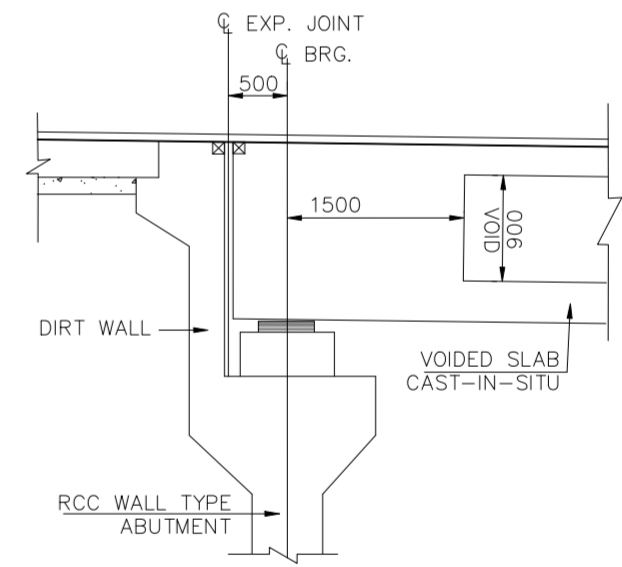
SECTION A-A
SCALE 1:100

NOTES

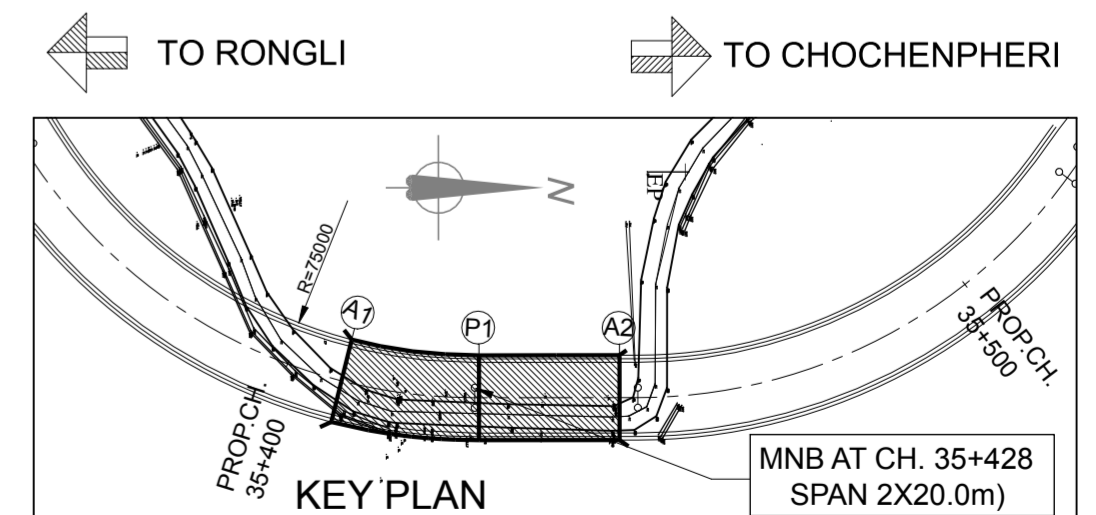
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 - (i) RCC SUPERSTRUCTURE ----- M40
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 - (iv) RCC CRASH BARRIER ----- M40
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DETAIL-Y
(SCALE 1:75)



DETAIL-A
(SCALE 1:60)



KEY PLAN

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS

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

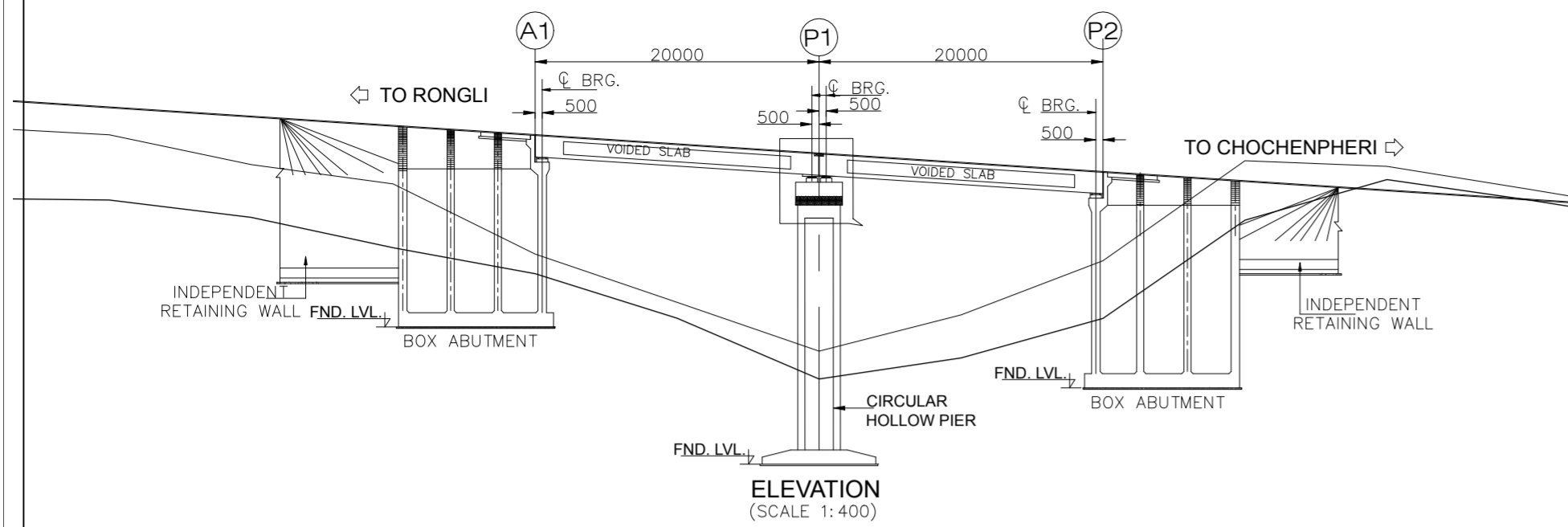
CONSULTANT: S.A. Infrastructure Consultants Pvt. Ltd.
1101A, 11 Floor Tower A-II, Ansal Corporate Park,
Plot No. 7A/1, Sector 142, Noida-201301 (Uttar Pradesh)
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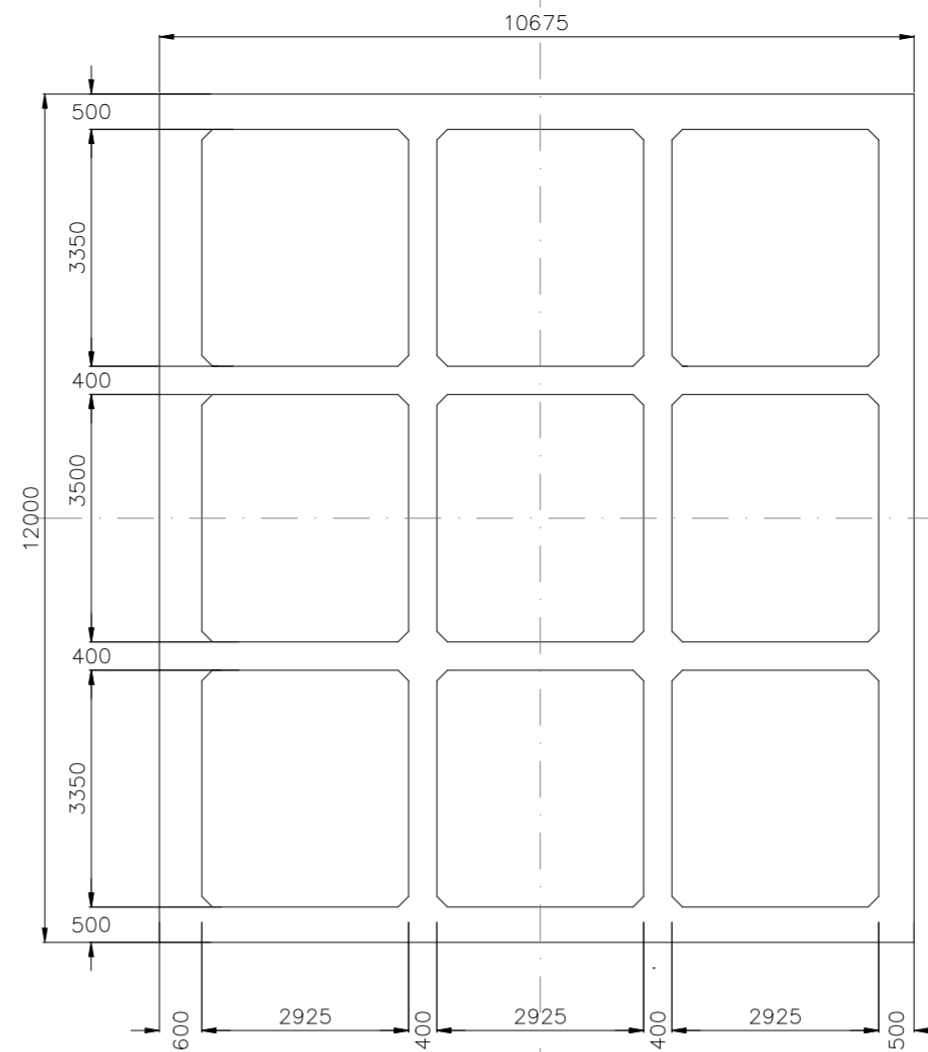
DATE: MAY-2020		REVISION R0	
DESIGNED BY RAVI KUMAR	DRAWN BY A SEN	CHECKED BY A.REHMAN	APPROVED BY S.Shukla
SCALE:- AS SHOWN		SHEET:- 01 OF 01	

GENERAL ARRANGEMENT DRAWINGS OF MNB AT CH- 35+428 (SPAN-2x20.0)

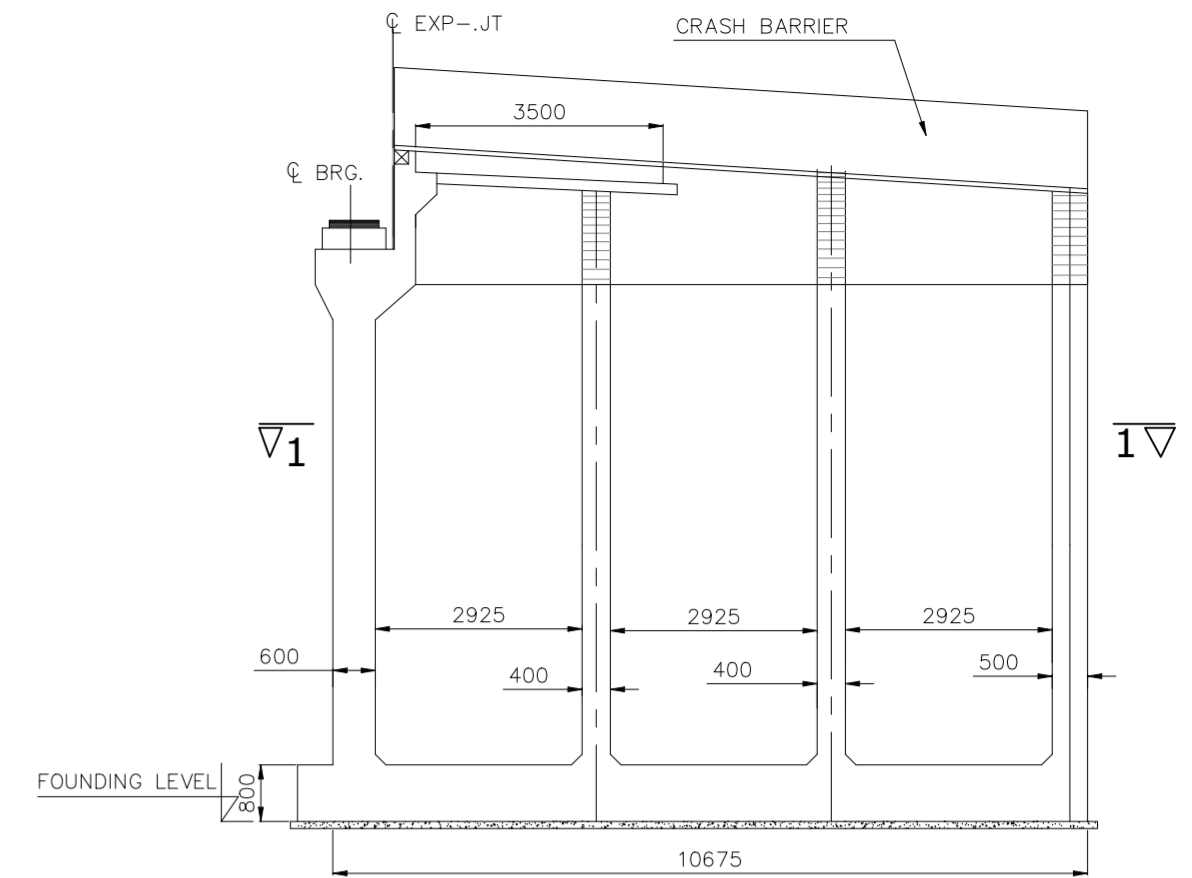
DWG. NO. :- SAICPL-SESPL/NHIDC/WB-SKM/35+428/GAD-01



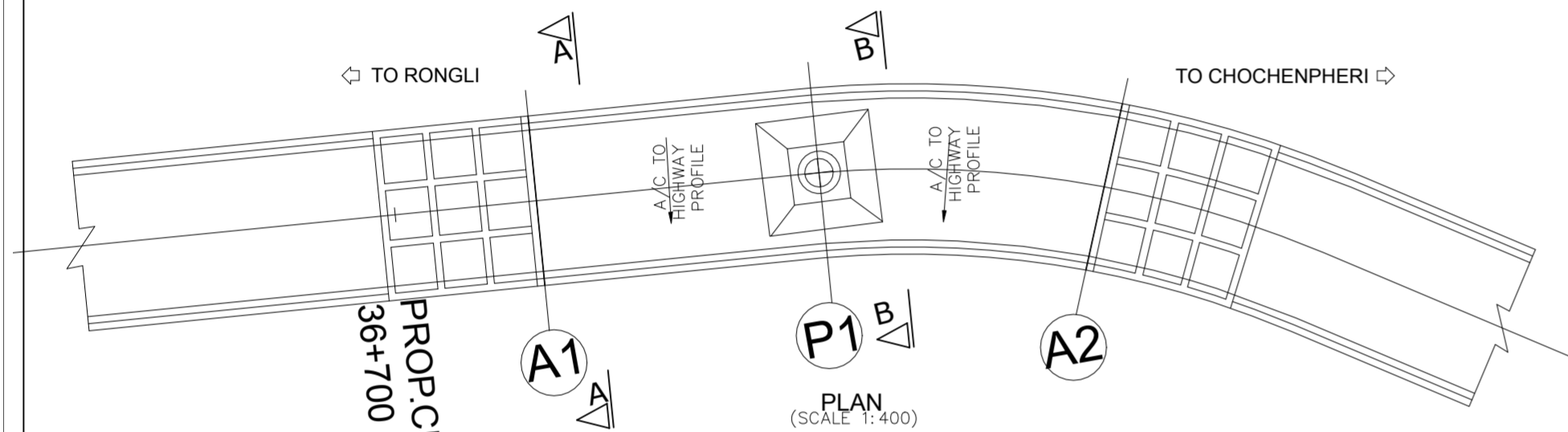
FORMATION LEVEL	1061.000	1060.891	1059.591
EX.GROUND LEVEL	1049.774	1042.930	1049.305
GROUND LEVEL (LHS)-12(M)	1048.391	1044.960	1045.243
CHAINAGE	36+690	36+710	36+730



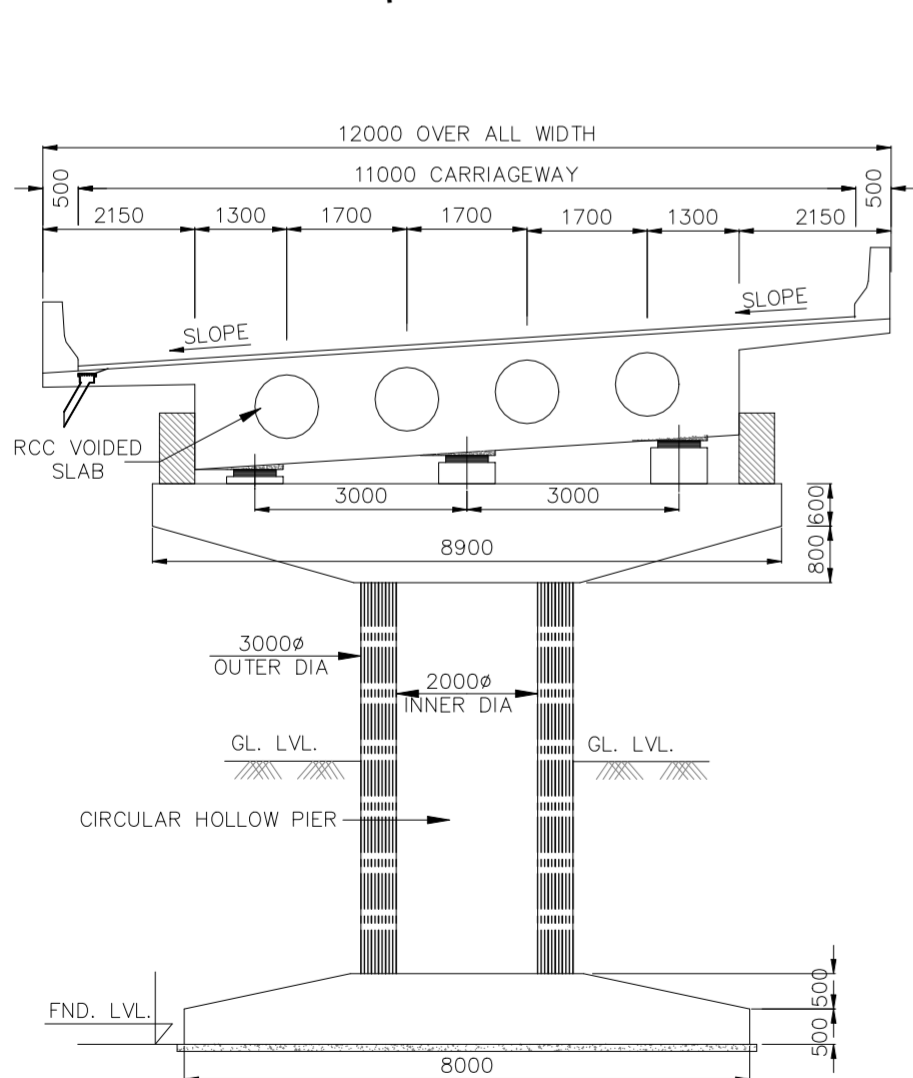
SECTION 1-1
SCALE 1:100



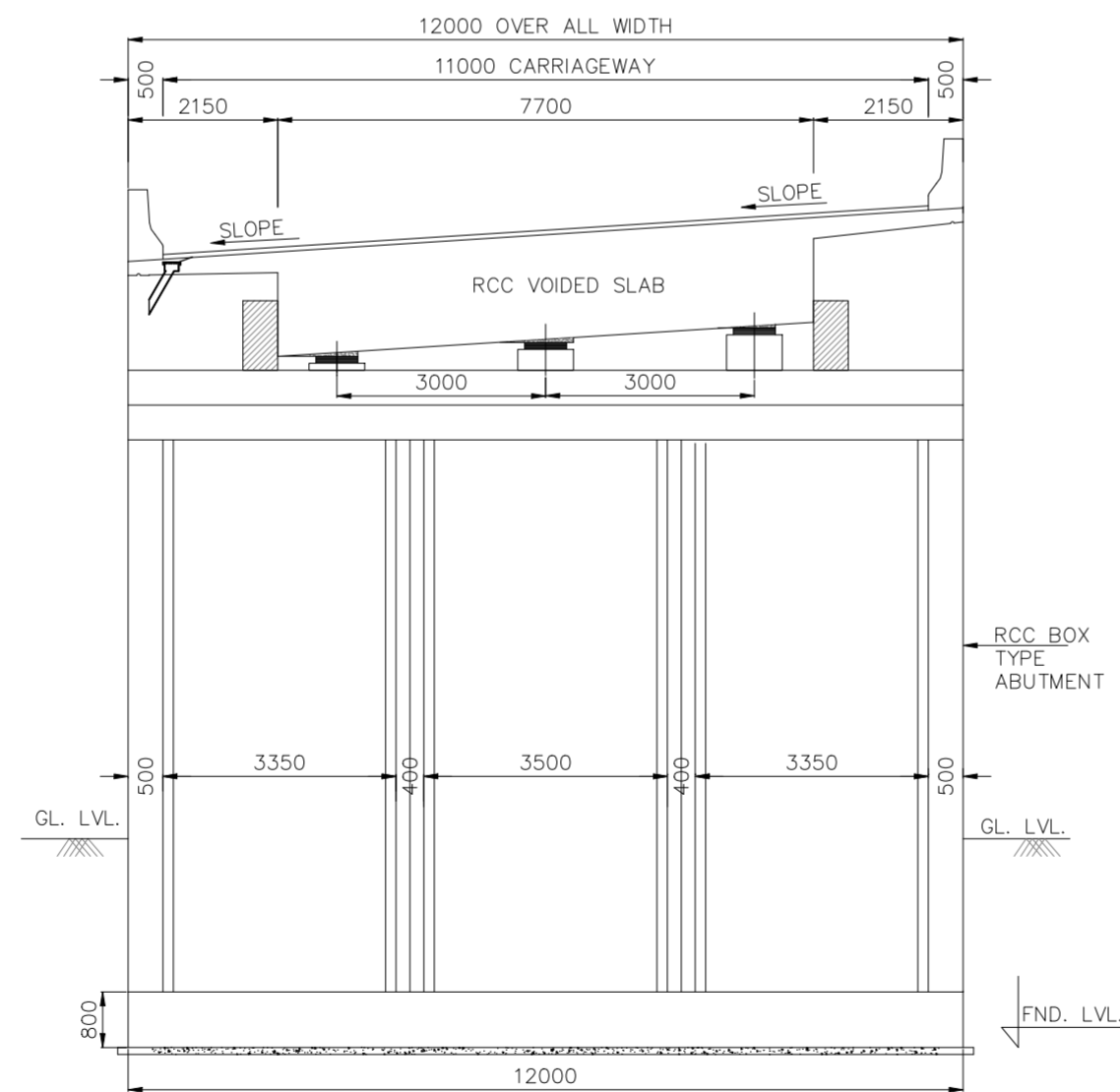
BOX ABUTMENT
SCALE 1:100



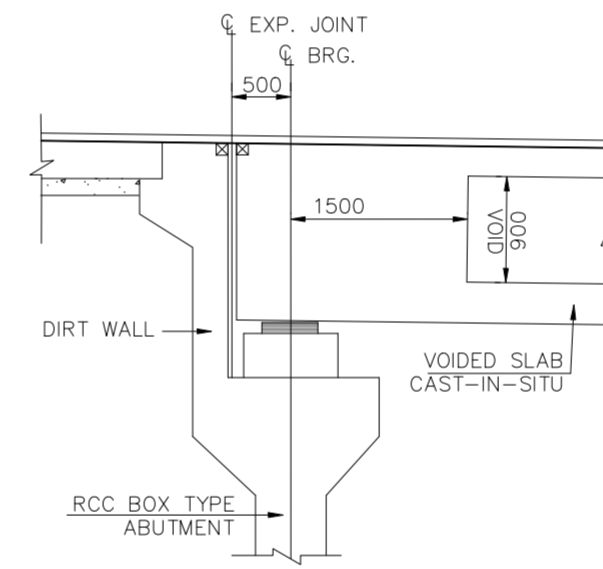
PLAN
(SCALE 1:400)



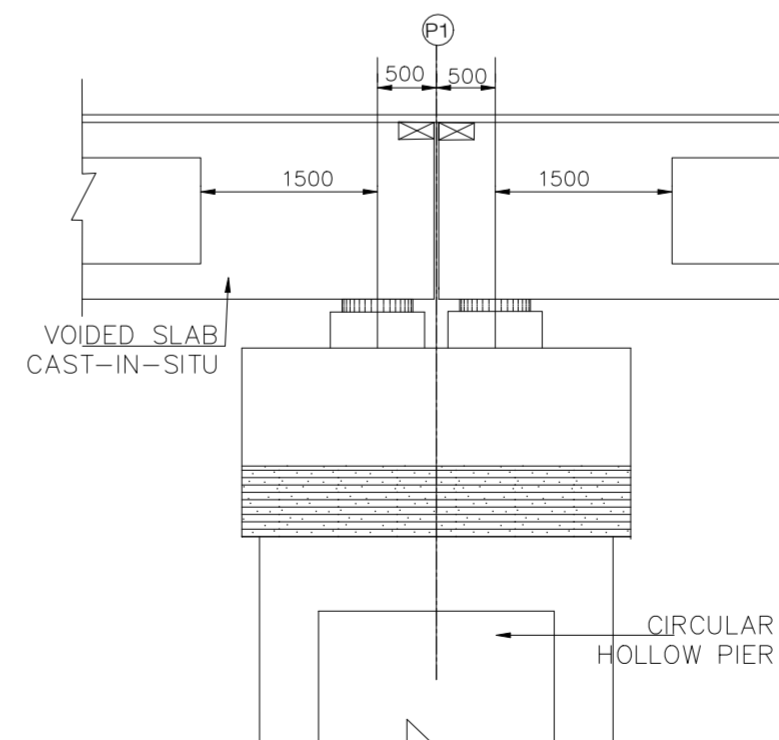
SECTION B-B
SCALE 1:100



SECTION A-A
SCALE 1:100



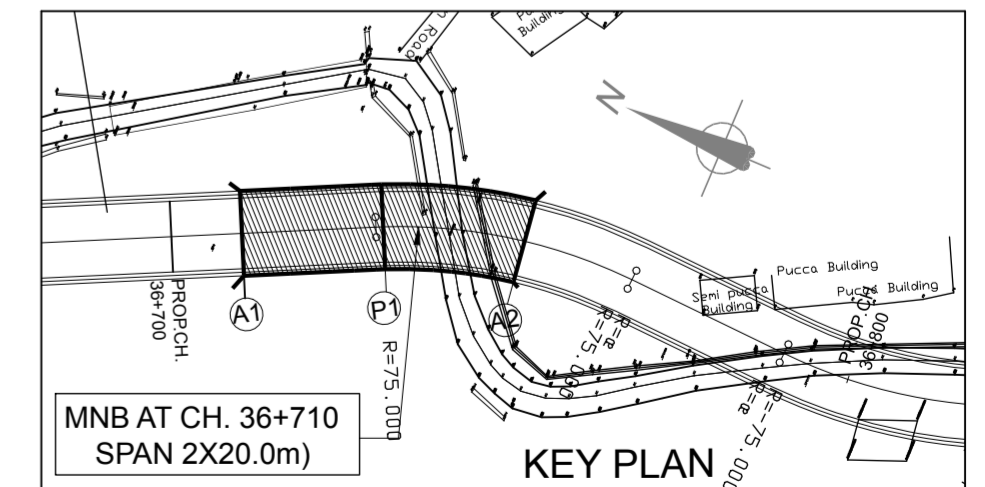
DETAIL-A
(SCALE 1:60)



DETAIL-Y
(SCALE 1:75)

NOTES

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REV	DATE	DESCRIPTION OF REVISIONS	INITIALS

CLIENT : NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED
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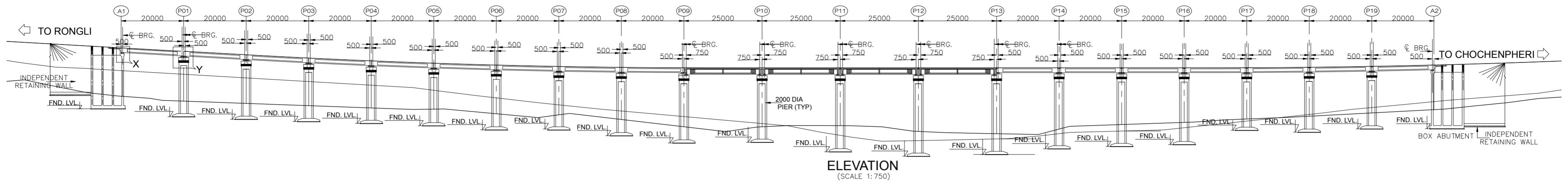
CONSULTANT: S.A. Infrastructure Consultants Pvt. Ltd.
1101A, 11 Floor Tower A-II, Ansal Corporate Park,
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DATE : MAY-2020		REVISION R0	
DESIGNED BY RAVI KUMAR	DRAWN BY A SEN	CHECKED BY AREHMAN	APPROVED BY S.Shukla
SCALE:- AS SHOWN		SHEET:- 01 OF 01	

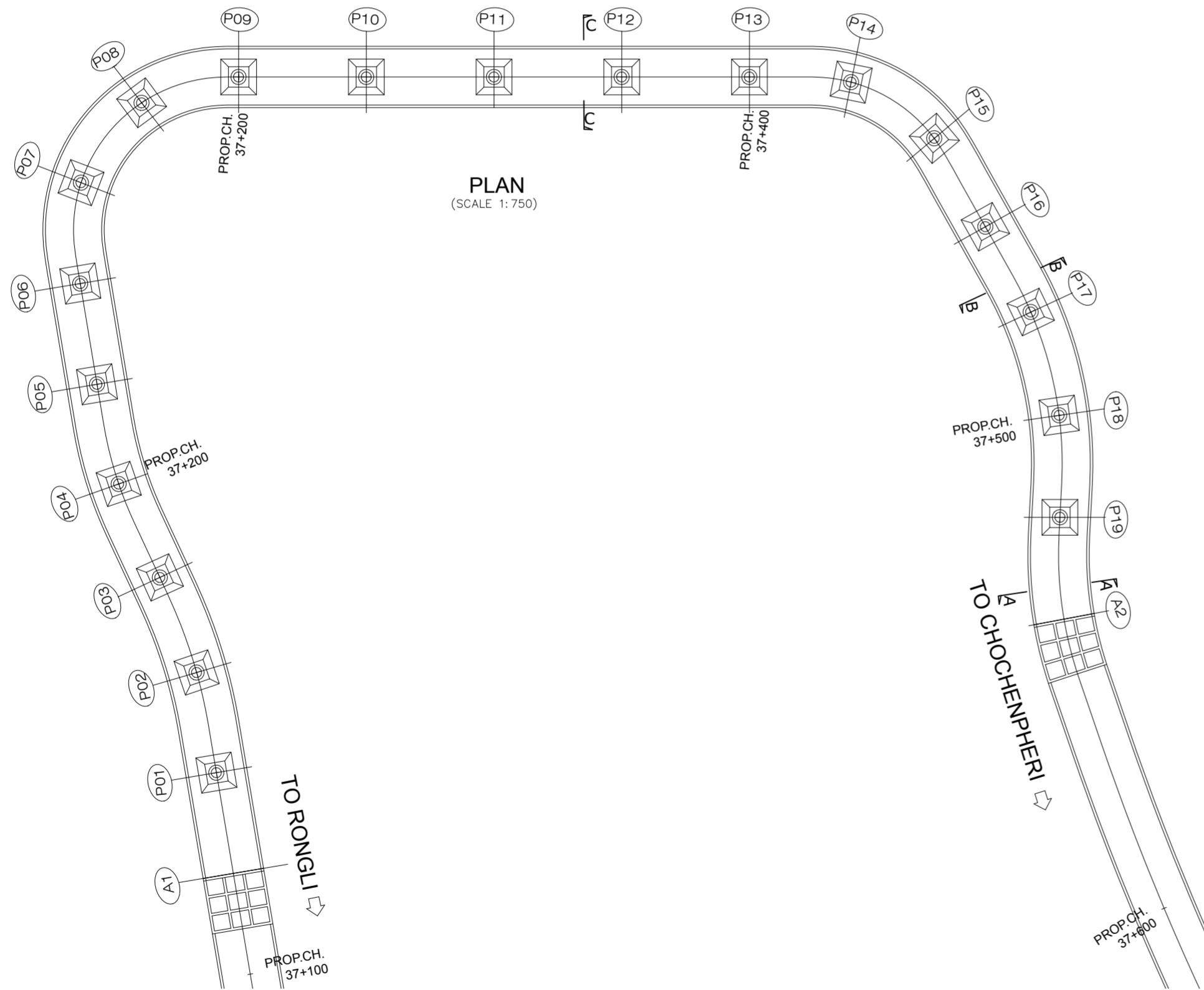
GENERAL ARRANGEMENT DRAWINGS
OF MNB AT CH- 36+710
(SPAN-2x20.0)

DWG. NO. :- SAICPL-SESPL/NHIDC/WB-SKM/35+428/GAD-01

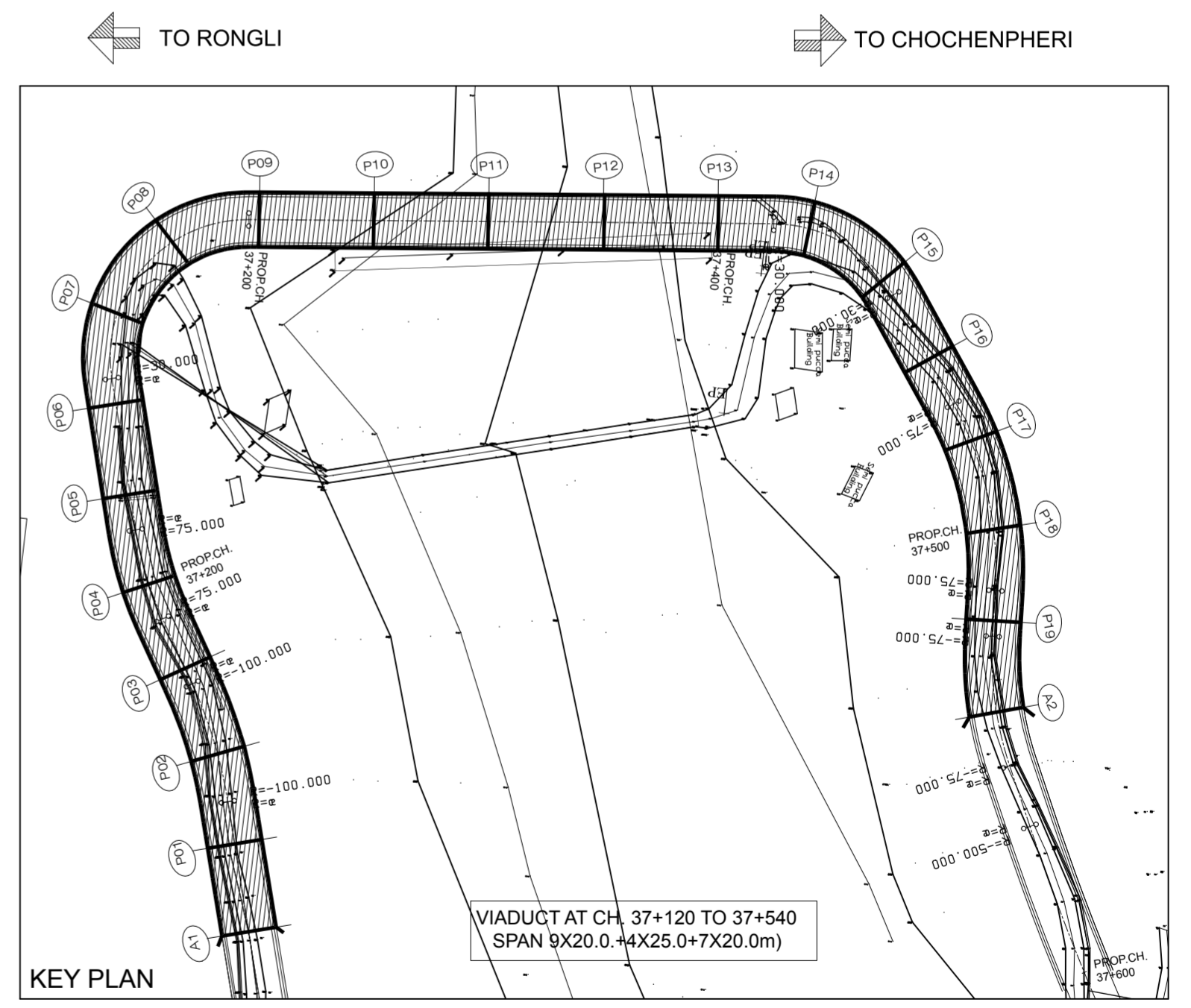


ELEVATION
(SCALE 1:750)

FORMATION LEVEL	1033.407	1032.106	1030.806	1029.611	1028.590	1027.741	1027.067	1026.565	1026.238	1026.083	1026.070	1026.070	1026.070	1026.070	1026.070	1026.070	1026.105	1026.289	1026.629	1027.127	
EX.GROUND LEVEL	1024.698	1021.042	1018.790	1015.895	1013.262	1010.901	1008.857	1006.813	1004.769	1000.674	999.442	1000.093	1002.520	1003.281	1005.719	1008.157	1010.784	1012.926	1014.948	1016.742	1019.690
GROUND LEVEL (LHS)=12(M)	1015.652	1012.942	1010.788	1009.911	1007.803	1008.000	1005.336	1002.672	1004.897	1004.824	1002.563	1001.829	1004.803	1005.786	1006.998	1007.901	1009.113	1010.325	1012.138	1014.802	1016.351
CHAINAGE	37+120	37+140	37+160	37+180	37+200	37+220	37+240	37+260	37+280	37+300	37+325	37+350	37+375	37+400	37+420	37+440	37+460	37+480	37+500	37+520	37+540



PLAN
(SCALE 1:750)



KEY PLAN

REV	DATE	DESCRIPTION OF REVISIONS	INITIALS

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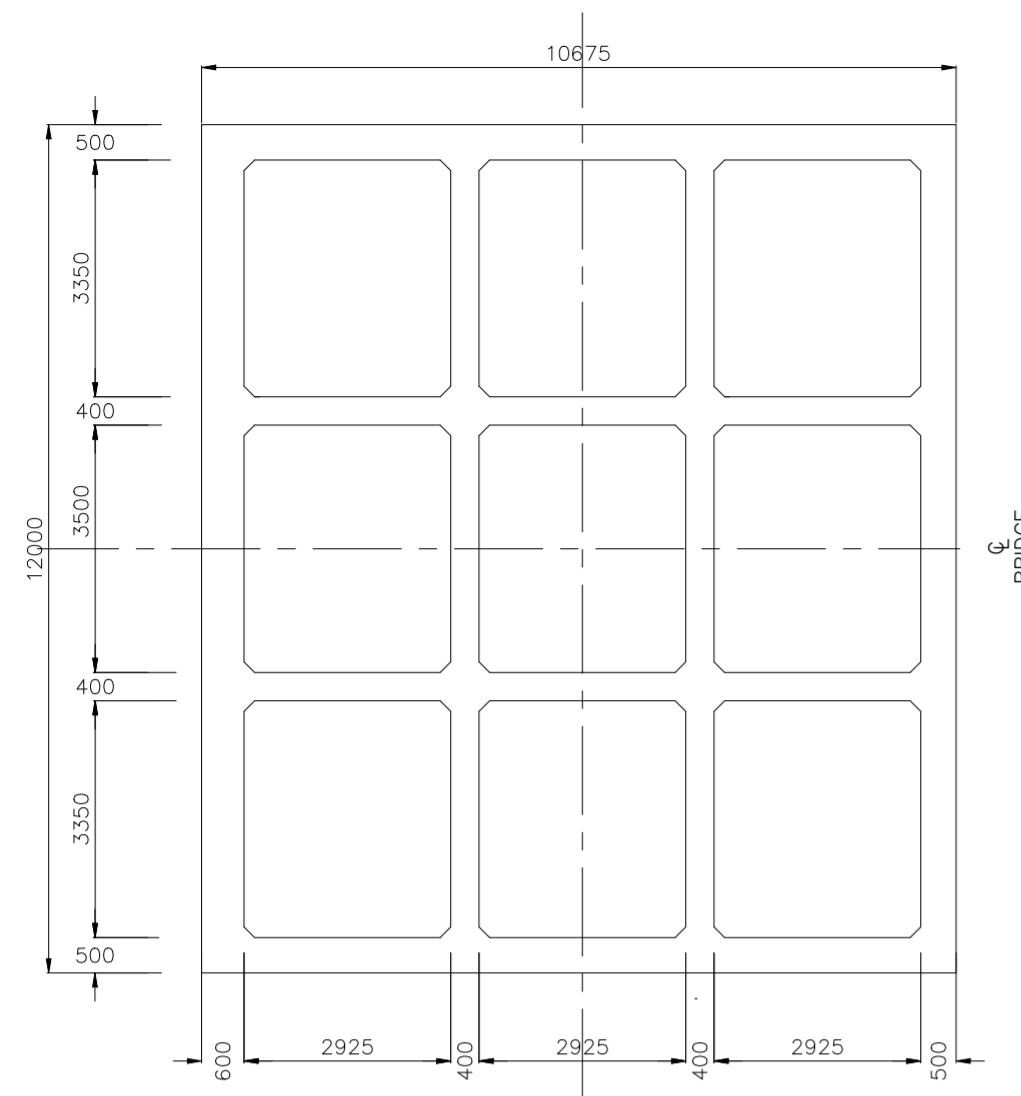
CONSULTANT: S.A. Infrastructure Consultants Pvt. Ltd.
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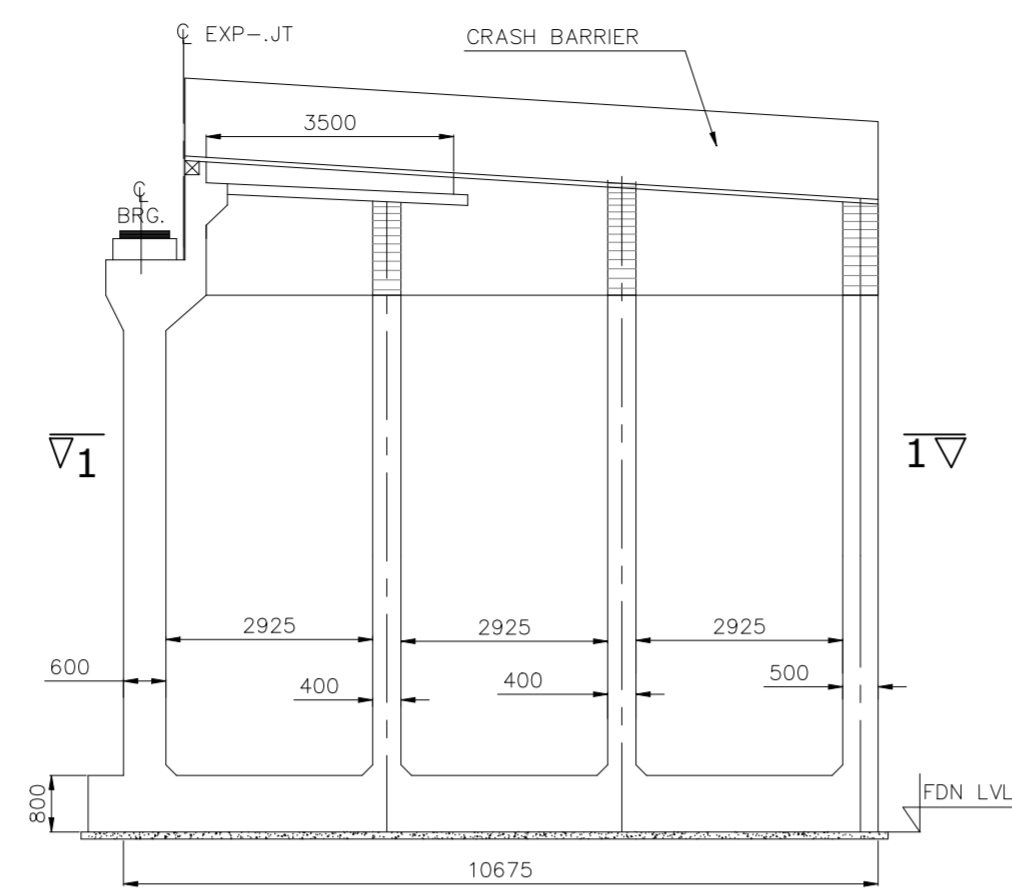
DATE: MAY-2020	REVISION R0
DESIGNED BY RAVI KUMAR	DRAWN BY A SEN
CHECKED BY A.REHMAN	APPROVED BY S.Shukla
SCALE:- AS SHOWN	SHEET:- 01 OF 02

GENERAL ARRANGEMENT DRAWINGS OF VIADUCT CUM MAJOR BRIDGE AT CH- 37+120 TO 37+540 (SPAN-9x20.0+4X25.0+7X20.0m)

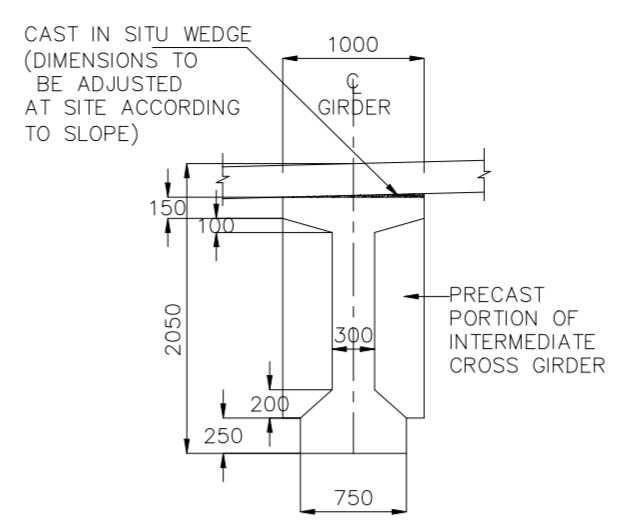
DWG. NO. :- SAICPL-SESPL/NHIDC/WB-SKM/37+120GAD-01



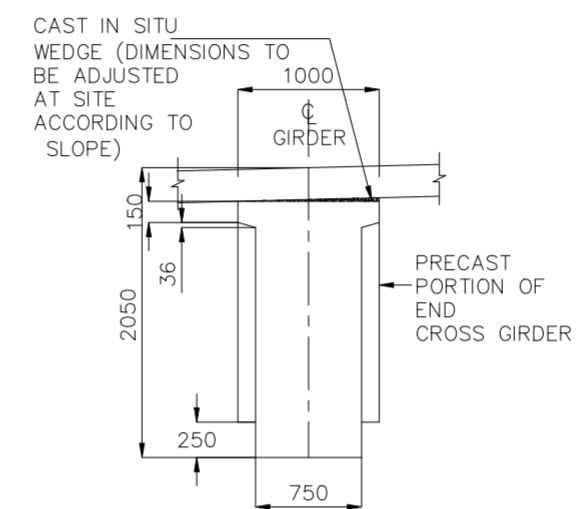
SECTION 1-1
SCALE 1:100



BOX ABUTMENT
SCALE 1:100



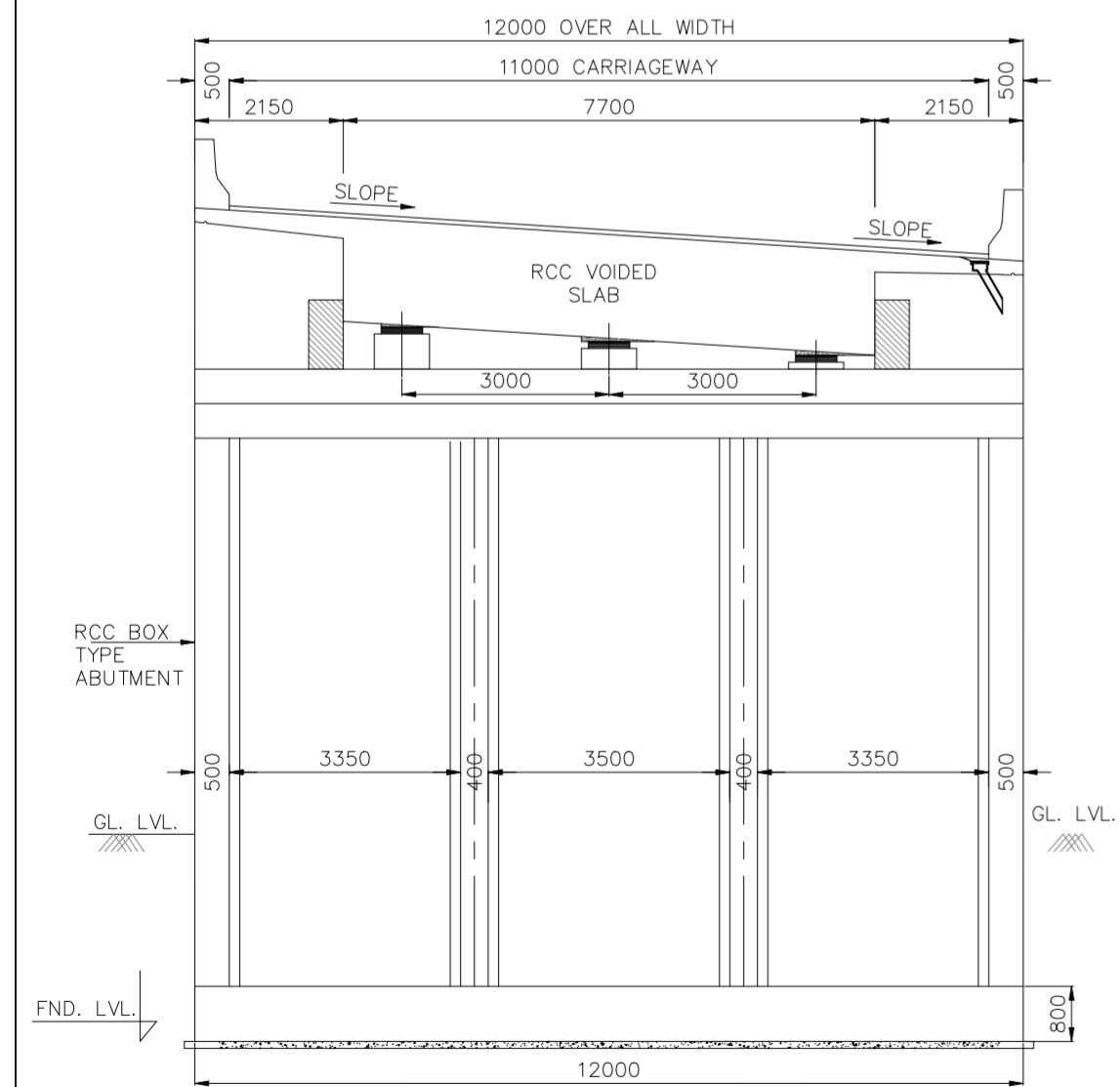
SECTION OF GIRDER AT MID



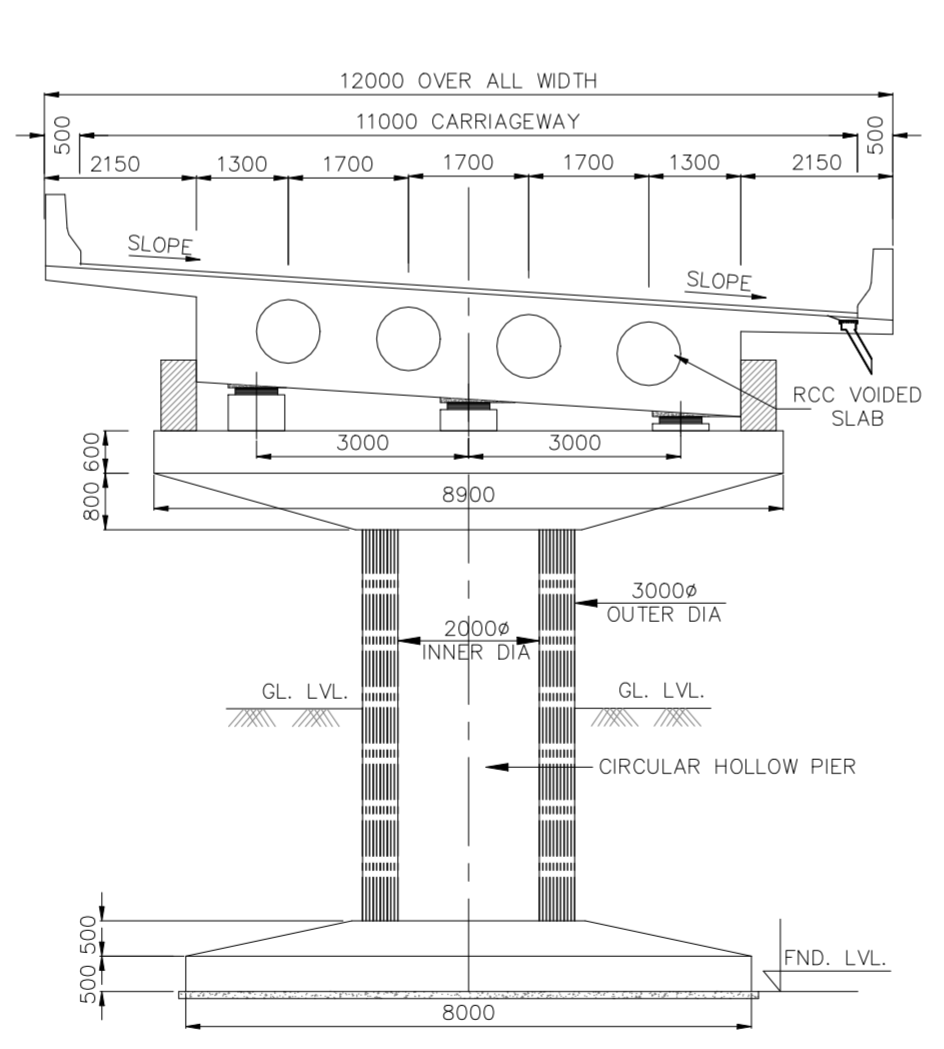
SECTION OF GIRDER AT END

NOTES

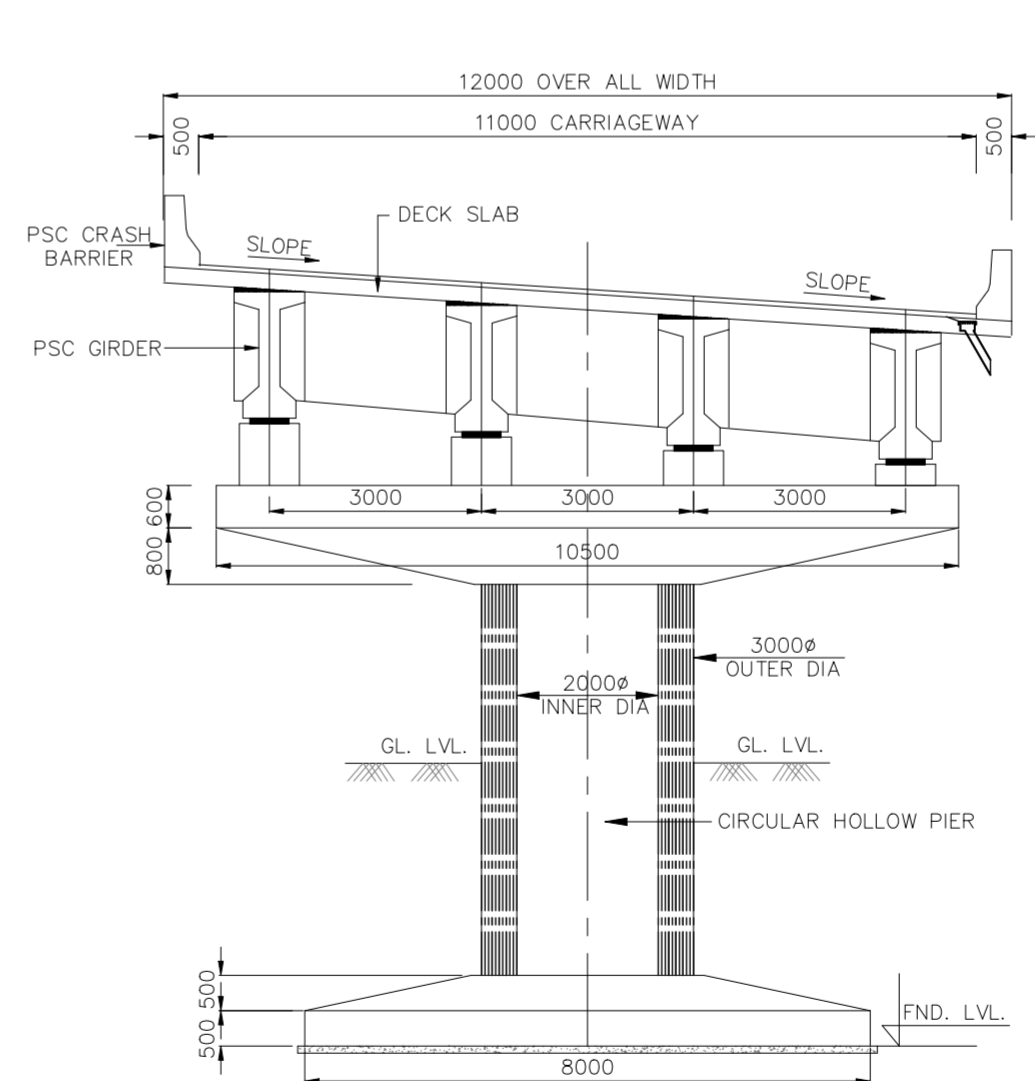
1. ALL DIMENSIONS ARE MILLIMETERS AND LEVELS ARE IN METERS.
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 - (i) SUPERSTRUCTURE(PSC) ----- M45
 - (i) SUPERSTRUCTURE(VOIDED) ----- M40
 - (ii) RCC SUBSTRUCTURE & FOUNDATION --- M40
 - (iii) RCC RAILING -----M30
 - (iv) RCC CRASH BARRIER ----- M40
 - (v) APPROACH SLAB ----- M30
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6. TYPE OF BEARING PROPOSED HERE IS POT-PTE AS PER IRC:83, PART-III
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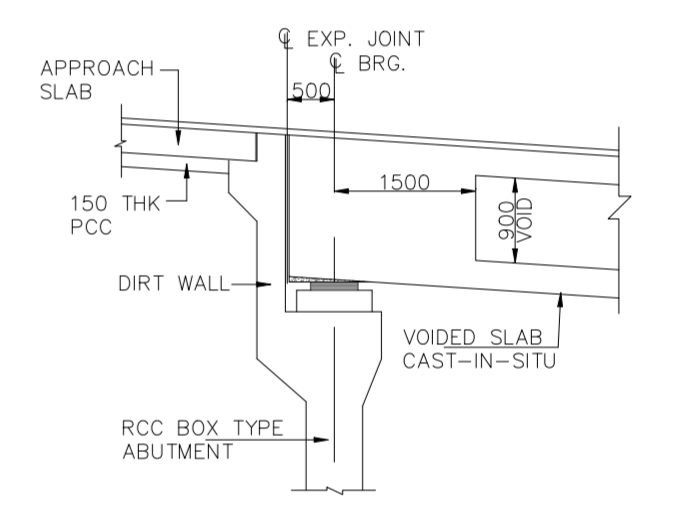
SECTION A-A
SCALE 1:100



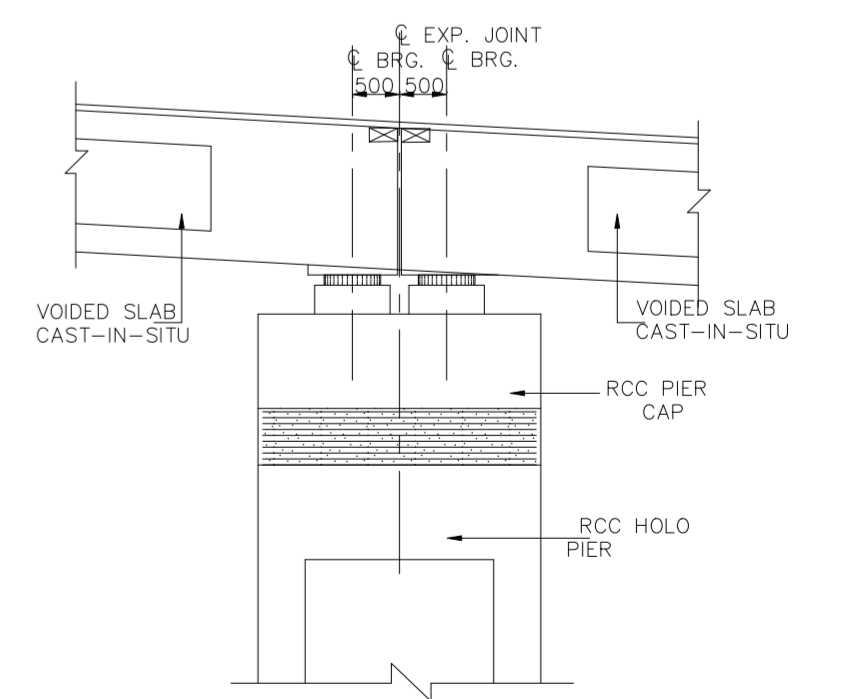
SECTION B-B
SCALE 1:100



SECTION B-B
SCALE 1:100



DETAIL-X
(SCALE 1:75)



DETAIL-Y
(SCALE 1:70)

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DATE : MAY-2020		REVISION R0	
DESIGNED BY RAVI KUMAR	DRAWN BY A SEN	CHECKED BY AREHMAN	APPROVED BY S.Shukla
SCALE:- AS SHOWN		SHEET:- 02 OF 02	

GENERAL ARRANGEMENT DRAWINGS OF VIADUCT CUM MAJOR BRIDGE AT CH- 37+180 TO 37+500 (SPAN-6x20.0+4X25.0+5X20.0m)

DWG. NO. :- SAICPL-SESPL/NHIDC/WB-SKM/37+180GAD-01