GOVERNMENT OF GUJARAT

ROADS AND BUILDINGS DEPARTMENT

Second Gujarat State Highway Project
(Under Assistance from World Bank)

Contract No. GSHP-II/NCB/02A

NAME OF WORK- Widening and Strengthening to Two Lanes with Hard Shoulders of Bayad – Dhoridungri State Highway-69 in North Gujarat Region (from km 0+000 to 17+961)

BIDDING DOCUMENTS

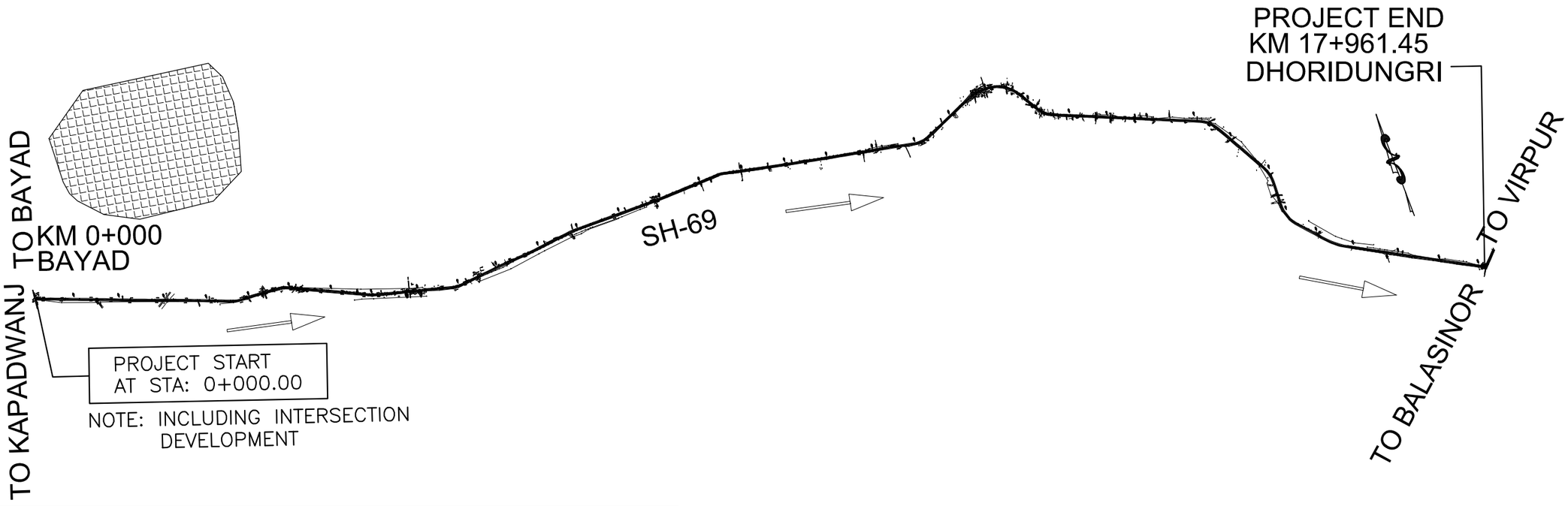
[For National Competitive Bidding (NCB) with Post-Qualification Requirements]

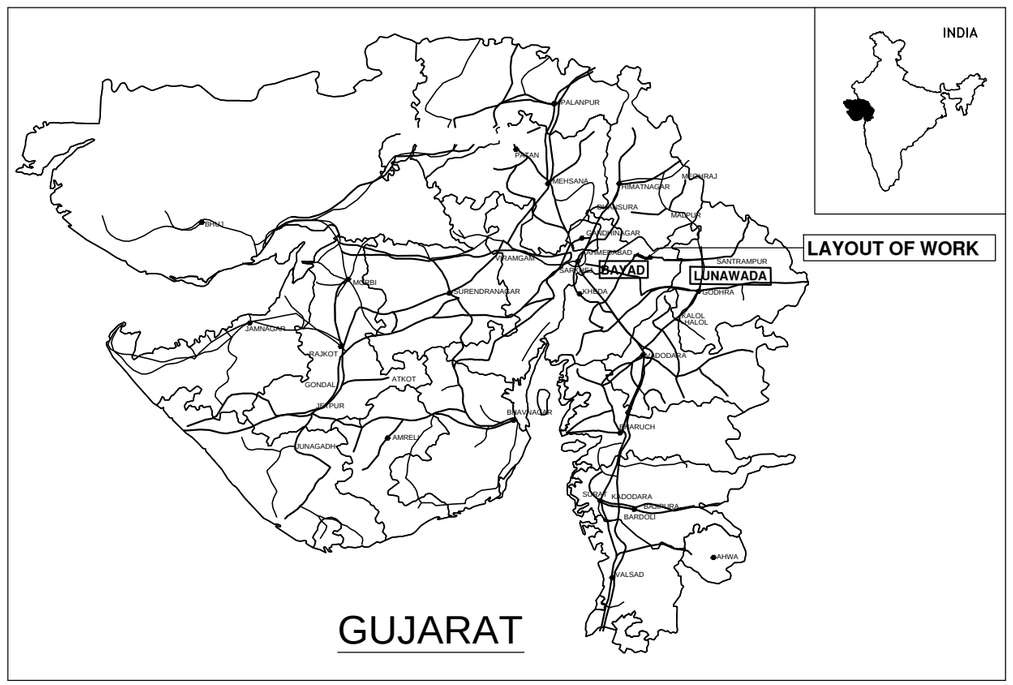
Volume II: Drawings

Issued to M/s.

Executive Engineer State Road Project Division, R&BD, 709, E- Block,Kuber Bhavan, Vadodara (Gujarat), India PIN-390 001	Phone: 0265-2418381 E-mail:exesrd-vad-rnb@gujarat.gov.in

SECOND GUJARAT STATE HIGHWAYS PROJECT





BAYAD TO DHORIDUNGRI SH-69
KM 0+000 TO KM 17+961.45

VOLUME-II - DRAWING VOLUME

TENDER DRAWINGS

ROADS & BUILDINGS DEPARTMENT
GOVERNMENT OF GUJARAT

CORRIDOR : BAYD-DHORIDUNGRI (SH-69)

LIST OF DRAWINGS

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No.	REVISION	DATE	BY

SCALE :

CAD FILE: LIST-BL

DRAWN:	KIRAN
CHECKED:	—
DESIGNED:	—
CHECKED:	—

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

BAYAD-DHORIDUNGRI (SH-69)

LIST OF DRAWINGS

DATE:	PROJECT:	DWG No:	REV.
JULY'2012	PPWCS	PPWCS/BL/LIST-01	0

BAYAD - DHORIDUNGRI

BRIDGES AND CROSS DRAINAGE STRUCTURES

DRAWING TITLE	DRAWING NO.	SHEET NO.
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No.	REVISION	DATE	BY

SCALE :

CAD FILE: STR–LIST–BL – R1

DRAWN:	HARSHAL
CHECKED:	H.M. MODI
DESIGNED:	D.A. SONI
APPROVED:	SAGAR

LASA INDIA

PROJECT CO–ORDINATING CONSULTING SERVICES

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR: BAYAD – DHORIDUNGRI
SCHEDULE OF STRUCTURES

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/LIST/02	

HIGHWAY DRAWINGS

EXISTING

EXISTING ROAD

RIGHT OF WAY — EX-ROW / EX-ROW

RAILWAY LINE

ELECTRICAL POLE — °EL

ELECTRIC LINE (OVER HEAD) — E E E

TELEPHONE POLE — °T

TELEPHONE LINE (OVER HEAD) — T T

FENCE — X X

HIGH VOLTAGE TRANSFORMER — HTLC

WATER SUPPLY PIPE LINE — W

TELEPHONE CABLES (UNDERGROUND) — UT

GUTTER LINE — GL

FIBRE OPTIC LINE — FOTS FOTS

SEWAGE LINE — S

GAS LINE — GAS GAS / G G

CULVERT — CULVERT

MINOR/MAJOR BRIDGE — MNBR/MJBR

CATCH BASIN — CB

MAN HOLE — MANHOLE MANHOLE

BUILDING

WALL

TREE (BUSHES)

CHURCH

MOSQUE

TEMPLE (SHRINE)

BUS STAND — BUS STAND

WATER WELL — WELL

GATE

PETROL PUMP — PETROL PUMP

KILOMETER STONE

RETAINING WALL

OFC STONE — OFC

(URBAN AREA) LIGHT POLE

CART TRACK

WATER PIPE LINE

GPS POINT
ELEVATION

BM

GSP STONE

GSPL(GAS PIPE LINE) — G

BOUNDARY STONE — BS

HT LINE — E E E

SIGN

TBM — TBM–12 RL:50.374m

NORTH — NORTH

PROPOSED

CONTROL LINE / CL — 5–000

PROPOSED ROW — PROP–ROW

ROAD SIGNS — S25(R)

LIMIT OF CONSTRUCTION

SPIRAL TO CURVE POINT	SC
SPIRAL TO TANGENT POINT	ST
TANGENT OF CURVE POINT	PC
CURVE TO TANGENT POINT	PT
CURVE TO SPIRAL POINT	CS
CURVE TO CURVE POINT	PRC
SPIRAL TO SPIRAL POINT	SS
NORTHING	N
EASTING	E
POINT OF INTERSECTION	PI
BEGIN VERTICAL CURVE STATION	BVCS BVCE
END VERTICAL CURVE STATION	EVCS EVCE
ELEVATION	ELEV
POINT OF VERTICAL INTERSECTION	PVI
VERTICAL COEFFICIENT	K
SUPER ELEVATION / CROSS FALL (M/M)	e
RHS / LHS	RIGHT/LEFT HAND SIDE

LAND ACQUISITION — PROPOSED:LAQ Area = 40093.72 Sqm. (REFER IN TABLE)

RAISED PEDESTRIAN CROSSING

RUMBLE STRIPS

PEDESTRIAN CROSSING

GENERAL NOTES: –

1. UTILITIES SHOWN ON THE DRAWINGS ARE BASED ON THE INFORMATION AVAILABLE DURING THE DESIGN AND MAY BE INCOMPLETE . LOCATIONS OF UTILITIES ARE REPRESENTATIVE ONLY.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THEIR EXTENT AND LOCATION. UNDERGROUND UTILITIES SHALL BE UNCOVERED IN THE FIELD TO VERIFY DEPTH OF COVER.
3. CONTRACTOR IS TO COORDINATE WITH RELOCATION OF UTILITIES WITH CONCERNED DEPTT.
4. KILOMETER STONES & HECTOMETER STONES SHALL BE PLACED ACCORDING TO THE DESIGN CHAINAGE.
5. DESIGN CHAINAGE AND EXISTING CHAINGE DIFFER DUE TO EXISTING KILOMETER STONES ON SITE ARE NOT LOCATED UNIFORMLY AND NOT EQUAL TO 1000m DISTANCE.

No.	REVISION	DATE	BY

SCALE :

CAD FILE: LEGEND–GSHP–II.DWG

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	NAGA
CHECKED:	SAGAR

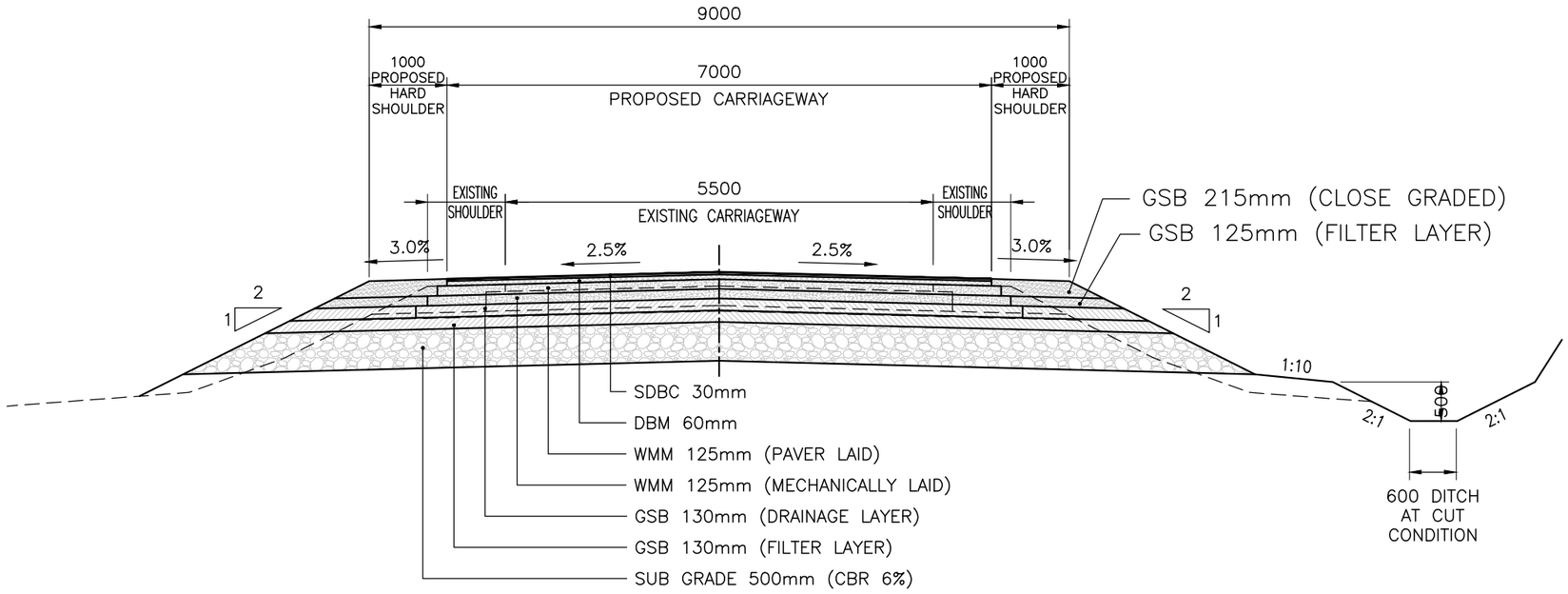
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

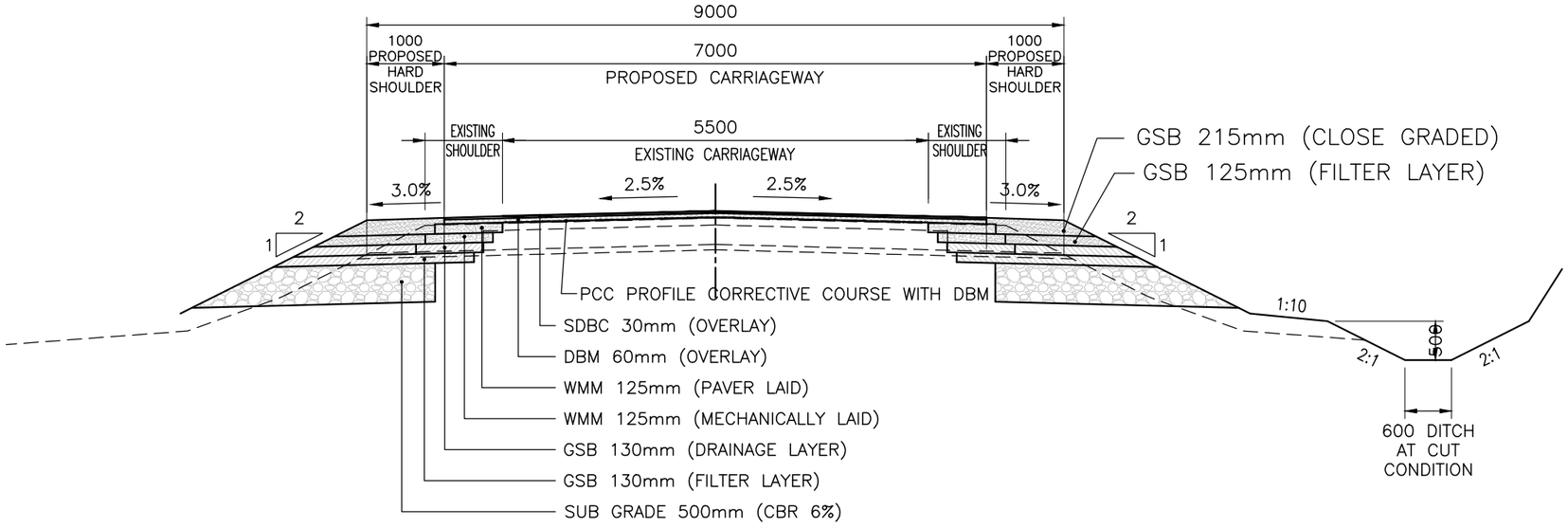
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

LEGEND AND GENERAL NOTES

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/LEGEND	0



TYPE-A : RECONSTRUCTION/NEW



TYPE-B : CONCENTRIC WIDENING

NOTES:–

1. ALL DIMENSIONS ARE IN MILLIMETERS (UNLESS OTHERWISE SPECIFIED).
2. EMBANKMENT AND SUBGRADE SHALL BE UNIFORM NOT EXCEEDING 200MM COMPACTED THICKNESS.
3. STRIPPING OF EXISTING GROUND AND EMBANKMENT SIDE SLOPES TO M.O.R.T.H. CLAUSE 305.3.3.
4. EXISTING GROUND UNDER NEW EMBANKMENT TO BE PREPARED IN ACCORDANCE WITH M.O.R.T.H. B) TO HAVE PI 6–8 & GRADE–I OF TABLE 400–1 IN M.O.R.T.H.
6. REFER TO SPECIFICATION CLAUSE 301.6 FOR PREPARATION OF CUT FORMATION.
7. WMM PAVER – WET MIX PAVER LAID, WMM MECHANICAL – WET MIX GRADER LAID.
8. GRANULAR SUB–BASE SHALL CONFORM TO –COARSE GRADING 1 IN TABLE 400–2 FOR PAVEMENT AND COARSE GRADING 1 IN TABLE 400–1 FOR GRANULAR SHOULDER AS PER MORTH SPECIFICATIONS .
9. SUBGRADE EXTENDS 500MM FROM THE BOTTOM OF SUB–BASE. EXISTING EMBANKMENT SIDE SLOPE TO BE STEPPED IN ACCORDANCE WITH M.O.R.T.H. CLAUSE 305.4.1

No.	REVISION	DATE	BY

SCALE :
A2 1:50
A3 1:75

CAD FILE: CS–1_BL

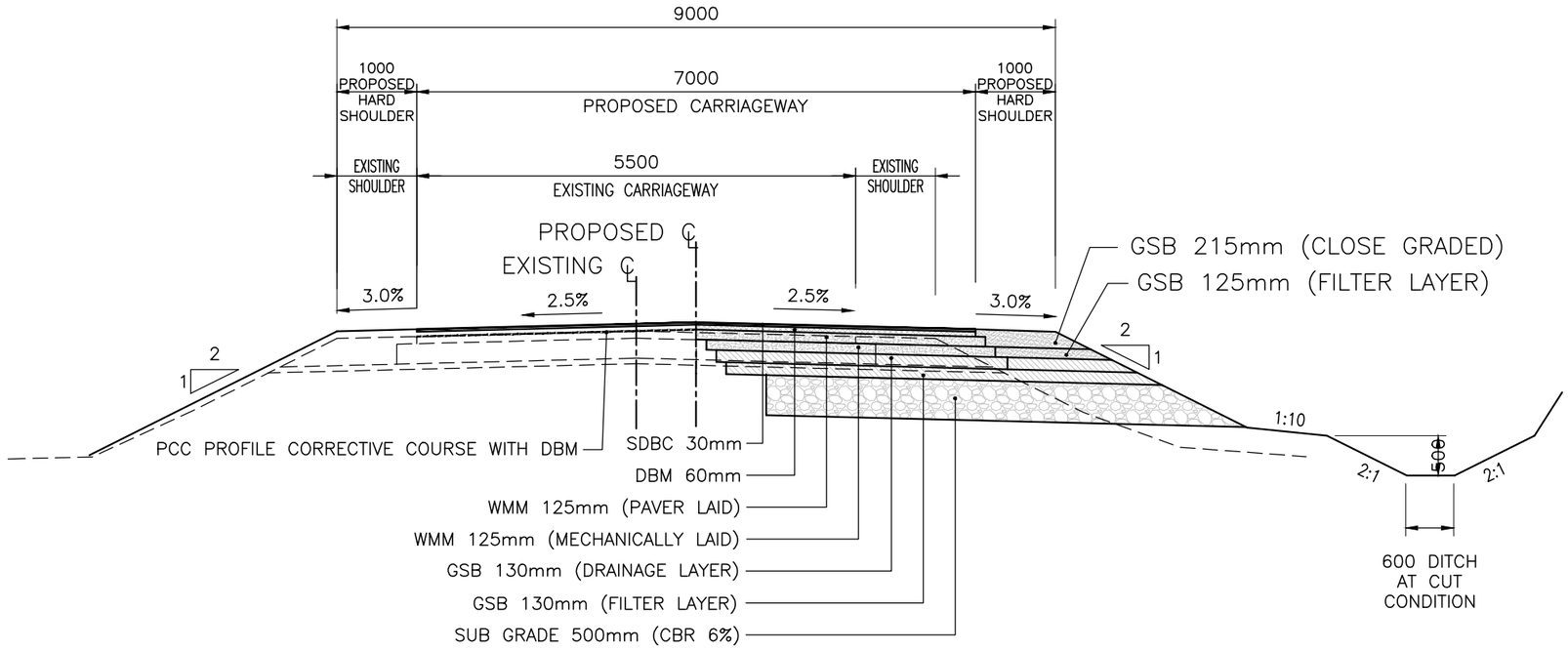
DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD – DHORIDUNGRI
TYPICAL CROSS SECTION
(FOR 2 LANE)

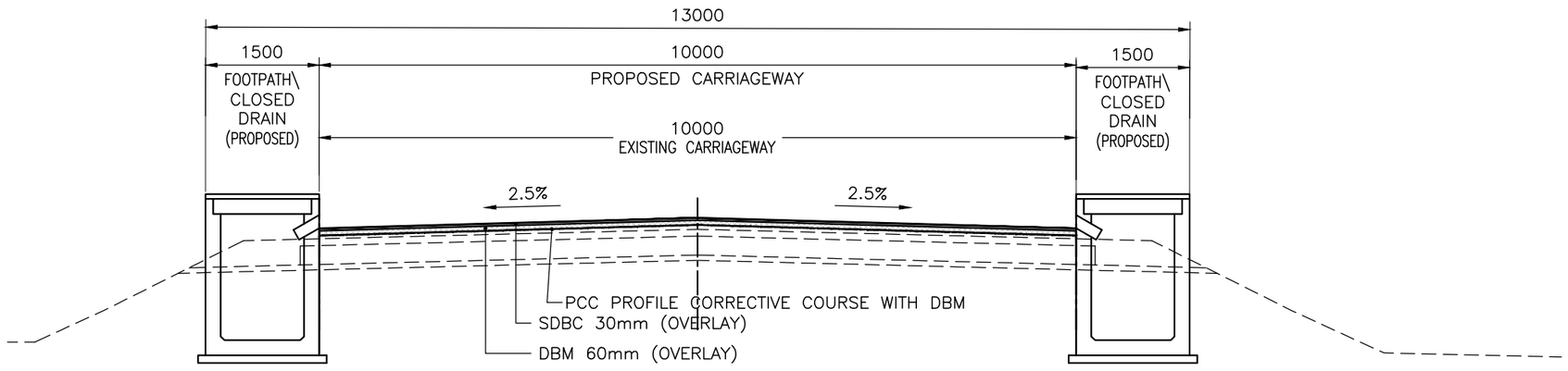
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BL/CS/01	0



TYPE-C : ECCENTRIC WIDENING

NOTES:–

1. ALL DIMENSIONS ARE IN MILLIMETERS (UNLESS OTHERWISE SPECIFIED).
2. EMBANKMENT AND SUBGRADE SHALL BE UNIFORM NOT EXCEEDING 200MM COMPACTED THICKNESS.
3. STRIPPING OF EXISTING GROUND AND EMBANKMENT SIDE SLOPES TO M.O.R.T.H. CLAUSE 305.3.3.
4. EXISTING GROUND UNDER NEW EMBANKMENT TO BE PREPARED IN ACCORDANCE WITH M.O.R.T.H. B) TO HAVE PI 6–8 & GRADE–I OF TABLE 400–1 IN M.O.R.T.H.
6. REFER TO SPECIFICATION CLAUSE 301.6 FOR PREPARATION OF CUT FORMATION.
7. WMM PAVER – WET MIX PAVER LAID, WMM MECHANICAL – WET MIX GRADER LAID.
8. GRANULAR SUB–BASE SHALL CONFORM TO –COARSE GRADING 1 IN TABLE 400–2 FOR PAVEMENT AND COARSE GRADING 1 IN TABLE 400–1 FOR GRANULAR SHOULDER AS PER MORTH SPECIFICATIONS .
9. SUBGRADE EXTENDS 500MM FROM THE BOTTOM OF SUB–BASE. EXISTING EMBANKMENT SIDE SLOPE TO BE STEPPED IN ACCORDANCE WITH M.O.R.T.H. CLAUSE 305.4.1



TYPE-D : OVERLAY + CLOSED DRAIN

No.	REVISION	DATE	BY

SCALE :
A2 1:50
A3 1:75

CAD FILE: CS–1_BL

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	NAGA
CHECKED:	SAGAR

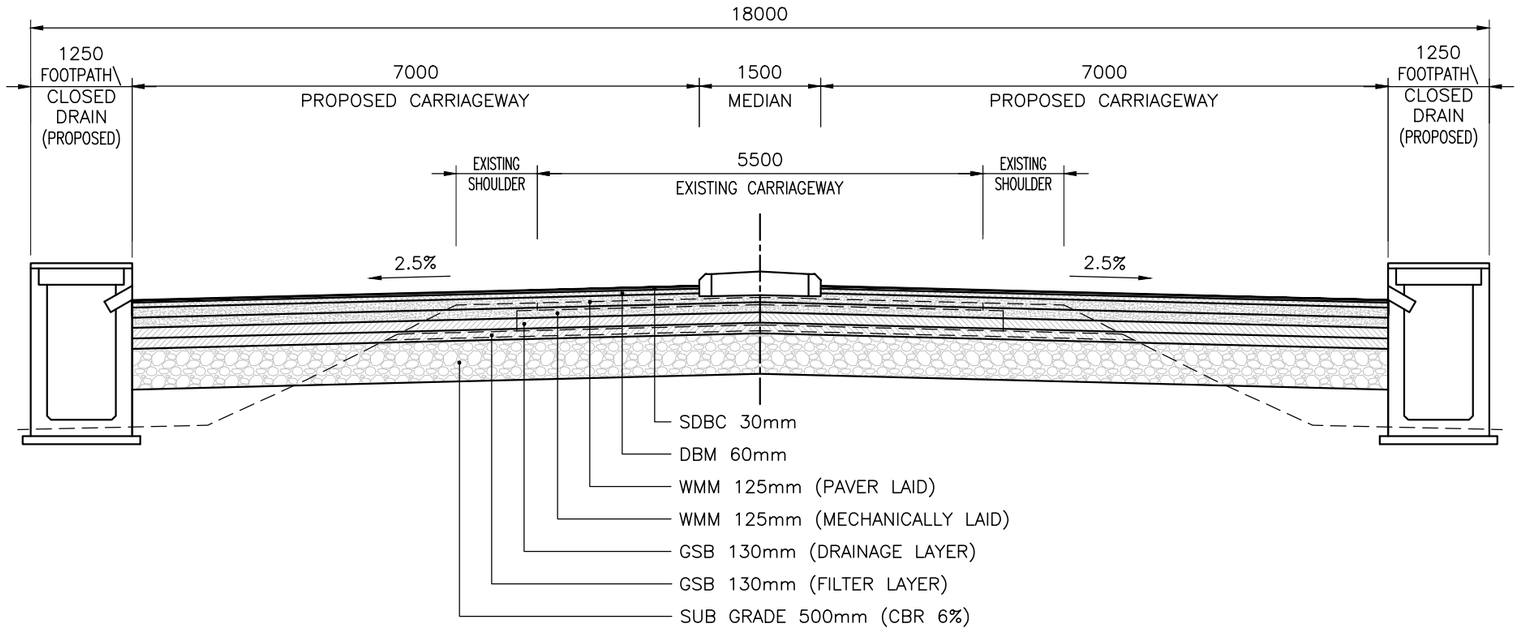
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

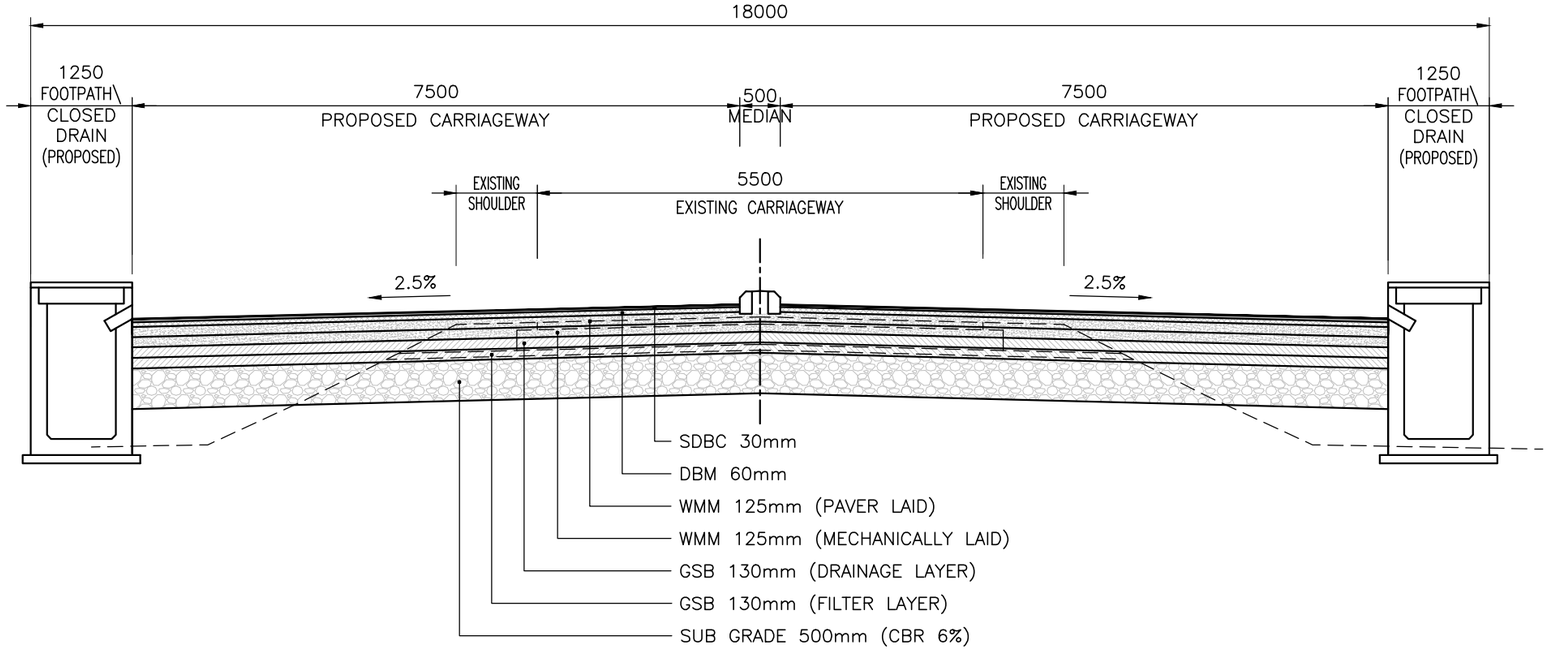
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD – DHORIDUNGRI
TYPICAL CROSS SECTION
(FOR 2 LANE)

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BL/CS/02	0



TYPE-E : RECONSTRUCTION 4 LANE (FOR INTERSECTION)



TYPE-G : RECONSTRUCTION 4 LANE

BAYAD TO DHORIDUNGRI		
CHAINAGE		TYPE
FROM	TO	
0.000	0.100	Type E
0.100	10.000	Type A
10.000	11.000	Type B
11.000	12.400	Type G
12.400	13.950	Type B
13.950	14.225	Type C
14.225	14.900	Type B
14.900	15.175	Type C
15.175	15.450	Type B
15.450	15.650	Type C
15.650	16.000	Type B
16.000	17.861	Type A
17.861	17.961	Type E

NOTES:–

1. ALL DIMENSIONS ARE IN MILLIMETERS (UNLESS OTHERWISE SPECIFIED).
2. EMBANKMENT AND SUBGRADE SHALL BE UNIFORM NOT EXCEEDING 200MM COMPACTED THICKNESS.
3. STRIPPING OF EXISTING GROUND AND EMBANKMENT SIDE SLOPES TO M.O.R.T.H. CLAUSE 305.3.3.
4. EXISTING GROUND UNDER NEW EMBANKMENT TO BE PREPARED IN ACCORDANCE WITH M.O.R.T.H. B) TO HAVE PI 6–8 & GRADE–I OF TABLE 400–1 IN M.O.R.T.H.
6. REFER TO SPECIFICATION CLAUSE 301.6 FOR PREPARATION OF CUT FORMATION.
7. WMM PAVER – WET MIX PAVER LAID, WMM MECHANICAL – WET MIX GRADER LAID.
8. GRANULAR SUB–BASE SHALL CONFORM TO –COARSE GRADING 1 IN TABLE 400–2 FOR PAVEMENT AND COARSE GRADING 1 IN TABLE 400–1 FOR GRANULAR SHOULDER AS PER MORTH SPECIFICATIONS .
9. SUBGRADE EXTENDS 500MM FROM THE BOTTOM OF SUB–BASE. EXISTING EMBANKMENT SIDE SLOPE TO BE STEPPED IN ACCORDANCE WITH M.O.R.T.H. CLAUSE 305.4.1

No.	REVISION	DATE	BY

SCALE :
A2 1:60
A3 1:90

CAD FILE: CS–1_BL

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	NAGA
CHECKED:	SAGAR

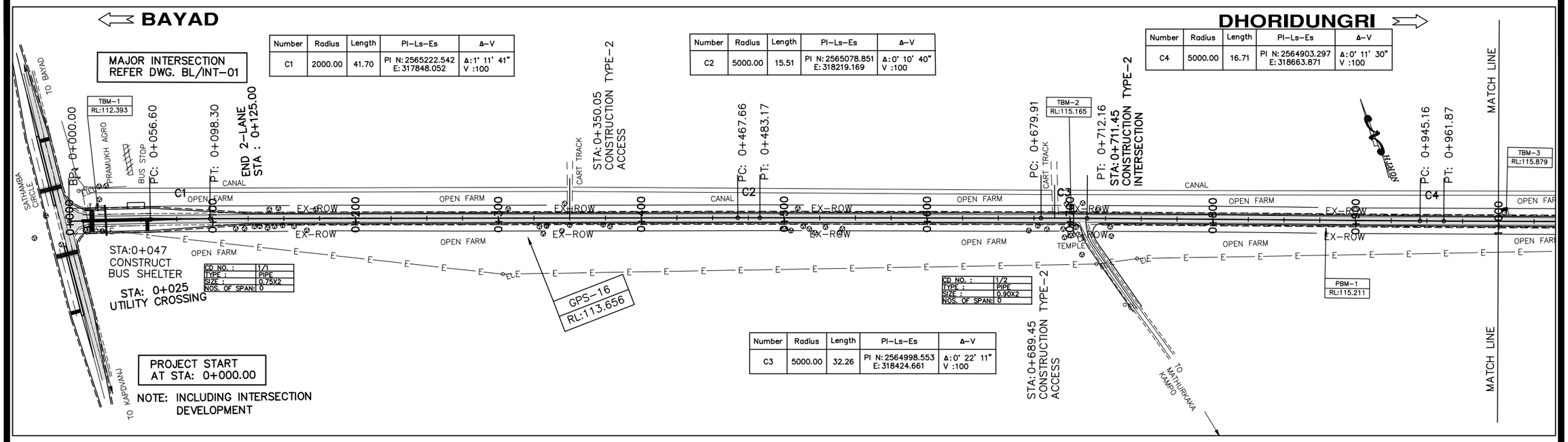
LASA INDIA

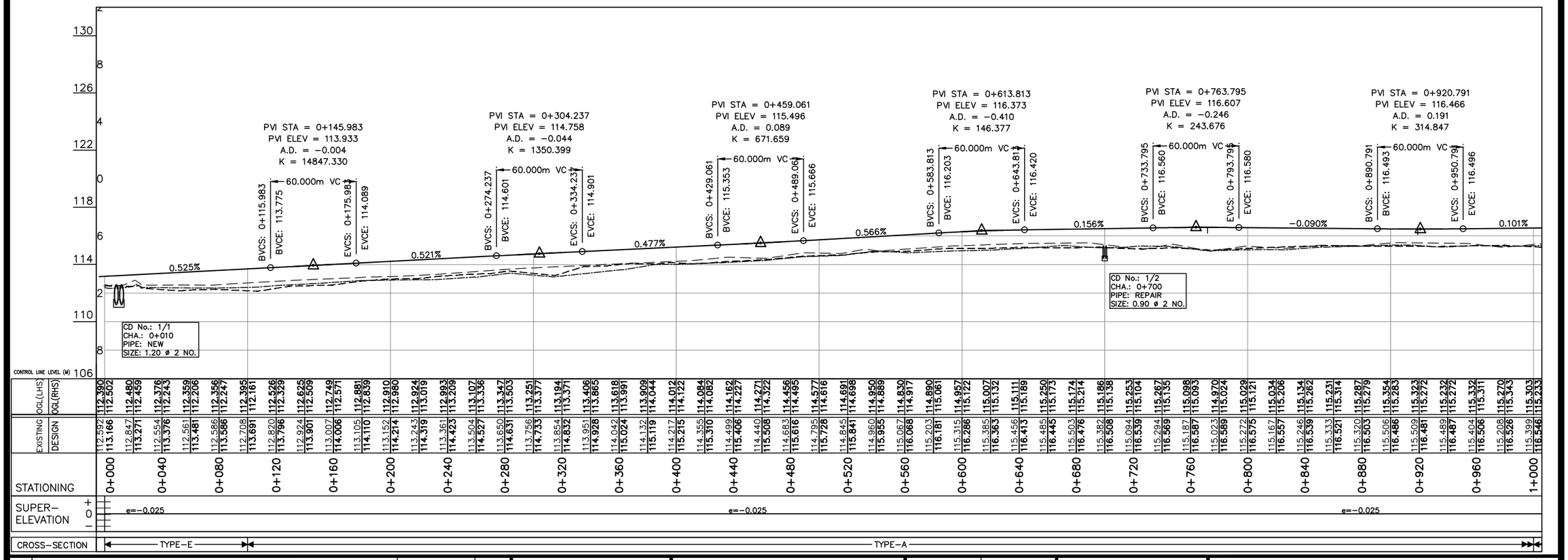
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD – DHORIDUNGRI
TYPICAL CROSS SECTION
(FOR 2 & 4 LANE)

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BL/CS/03	0





No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : HORIZONTAL 1 : 2000
VERTICAL 1 : 200
CAD FILE: PPBD_00–01

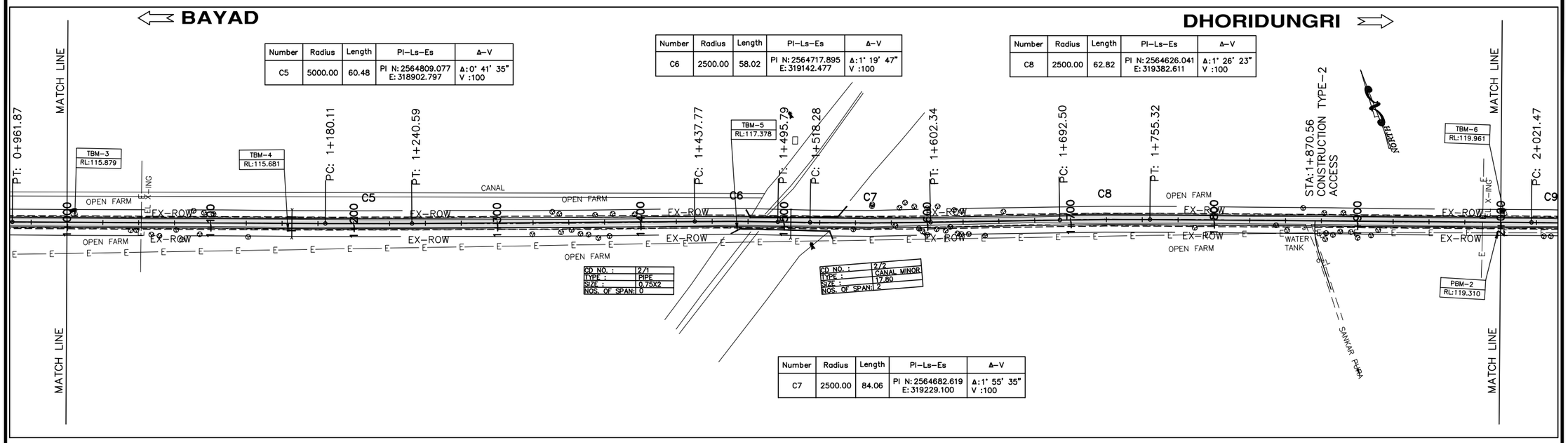
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

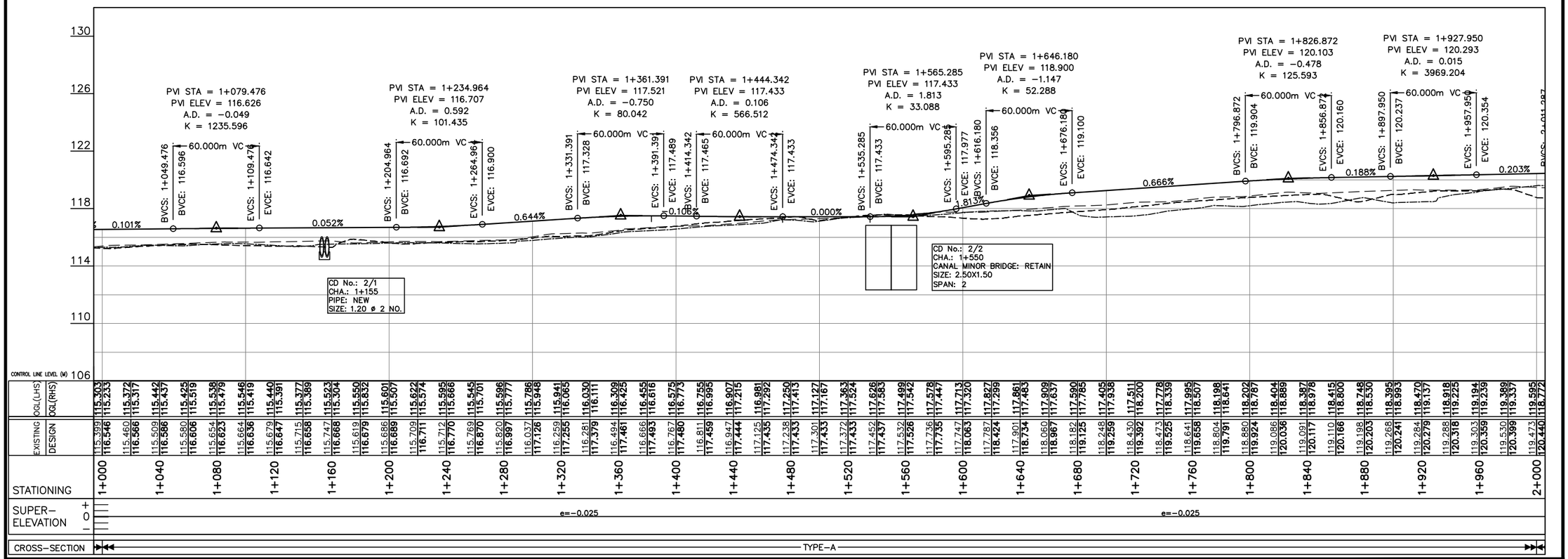
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 00+000 TO STA. 01+000

DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/01	0





No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : HORIZONTAL 1 : 2000
VERTICAL 1 : 200

CAD FILE: PPBD_01–02

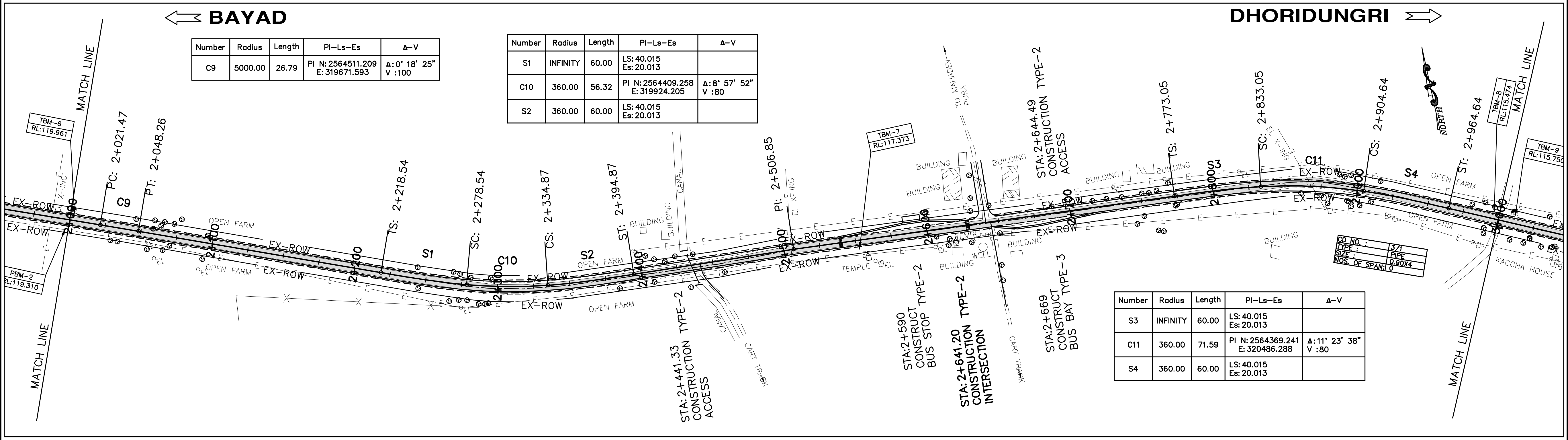
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 01+000 TO STA. 02+000

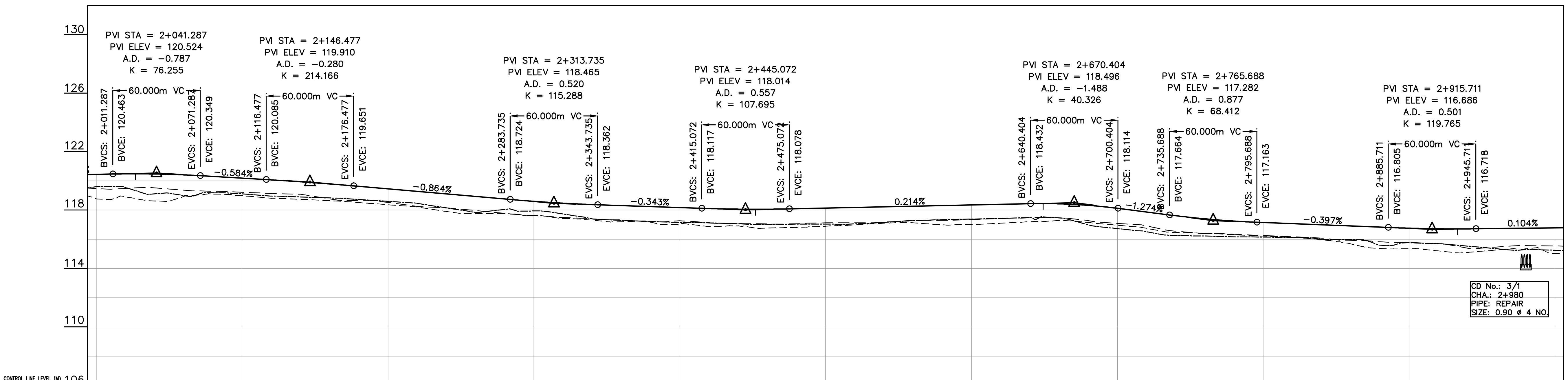
DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/02	0



Number	Radius	Length	PI-Ls-Es	Δ-V
C9	5000.00	26.79	PI N: 2564511.209 E: 319671.593	Δ: 0° 18' 25" V :100

Number	Radius	Length	PI-Ls-Es	Δ-V
S1	INFINITY	60.00	LS: 40.015 Es: 20.013	
C10	360.00	56.32	PI N: 2564409.258 E: 319924.205	Δ: 8° 57' 52" V :80
S2	360.00	60.00	LS: 40.015 Es: 20.013	

Number	Radius	Length	PI-Ls-Es	Δ-V
S3	INFINITY	60.00	LS: 40.015 Es: 20.013	
C11	360.00	71.59	PI N: 2564369.241 E: 320486.288	Δ: 11° 23' 38" V :80
S4	360.00	60.00	LS: 40.015 Es: 20.013	



STATIONING	OGL(LHS)	OGL(RHS)	EXISTING	DESIGN
2+000	119.595	118.772	119.473	120.440
	119.552	118.911	119.480	120.476
2+040	119.201	118.528	119.517	120.467
	118.986	118.931	119.360	120.406
2+080	119.186	119.099	119.288	120.298
	119.107	118.980	119.219	120.181
2+120	118.953	118.807	119.126	120.064
	118.896	118.734	119.079	119.935
2+160	118.828	118.638	118.768	119.787
	118.725	118.512	118.641	119.620
2+200	118.598	118.362	118.518	119.448
			118.255	119.275
2+240			118.142	119.102
	117.839		117.966	118.929
2+280	118.118	117.744	117.766	118.757
	117.948	117.628	117.637	118.595
2+320	117.730	117.419	117.493	118.468
	117.398		117.396	118.376
2+360			117.324	118.306
			117.184	118.238
2+400	117.155	117.082	117.269	118.169
	117.123	116.877	117.114	118.101
2+440	117.056	116.910	117.076	118.060
	117.015	116.764	117.052	118.057
2+480	117.035	116.815	117.061	118.089
	117.034	116.897	117.126	118.132
2+520	117.055	116.988	117.124	118.174
	117.153	117.098	117.171	118.217
2+560	117.277	117.128	117.290	118.260
	117.342	116.994	117.288	118.303
2+600	117.383	117.021	117.350	118.345
	117.430	117.101	117.416	118.388
2+640	117.479	117.198	117.476	118.431
	117.460	117.285	117.462	118.426
2+680	116.994	117.141	117.278	118.322
	116.728	116.963	117.084	118.119
2+720	116.517	116.748	116.912	117.864
	116.265	116.474	116.553	117.611
2+760	116.224	116.407	116.396	117.398
	116.170	116.307	116.344	117.243
2+800			116.251	117.146
			116.173	117.066
2+840	116.016	115.968	116.082	116.987
	115.976	115.681	115.898	116.908
2+880	115.597	115.357	115.828	116.828
	115.761	115.354	115.775	116.757
2+920	115.688		115.713	116.718
			115.392	116.713
2+960			115.468	116.732
	115.296	115.344	115.564	116.753
3+000	115.249	115.029	115.539	116.774

Additional stationing: 2+199.56, 2+237.53, 2+278.54, 2+334.87, 2+375.88, 2+413.85, 2+754.06, 2+792.03, 2+833.05, 2+904.64, 2+945.65, 2+983.62

SUPER-ELEVATION (+ / 0 / −): e=-0.025; RHS e=0.070 LHS; e=-0.025; e=-0.025; e=-0.025; LHS e=0.070 RHS; e=-0.0

CROSS-SECTION: TYPE-A

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m VERTICAL 1 : 200

CAD FILE: PPBD_02-03-R1

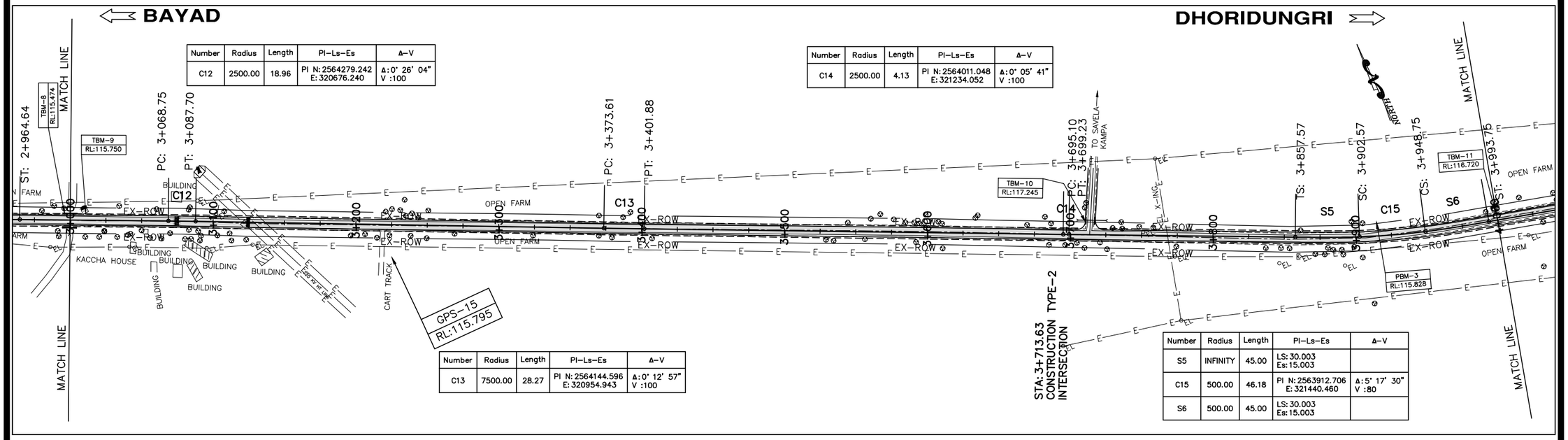
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGRI (SH-69)
PLAN / PROFILE
STA. 02+000 TO STA. 03+000

DATE: AUG'2012 | PROJECT: PPWCS | DWG No: PPWCS/BD/PP/03 | REV. 0

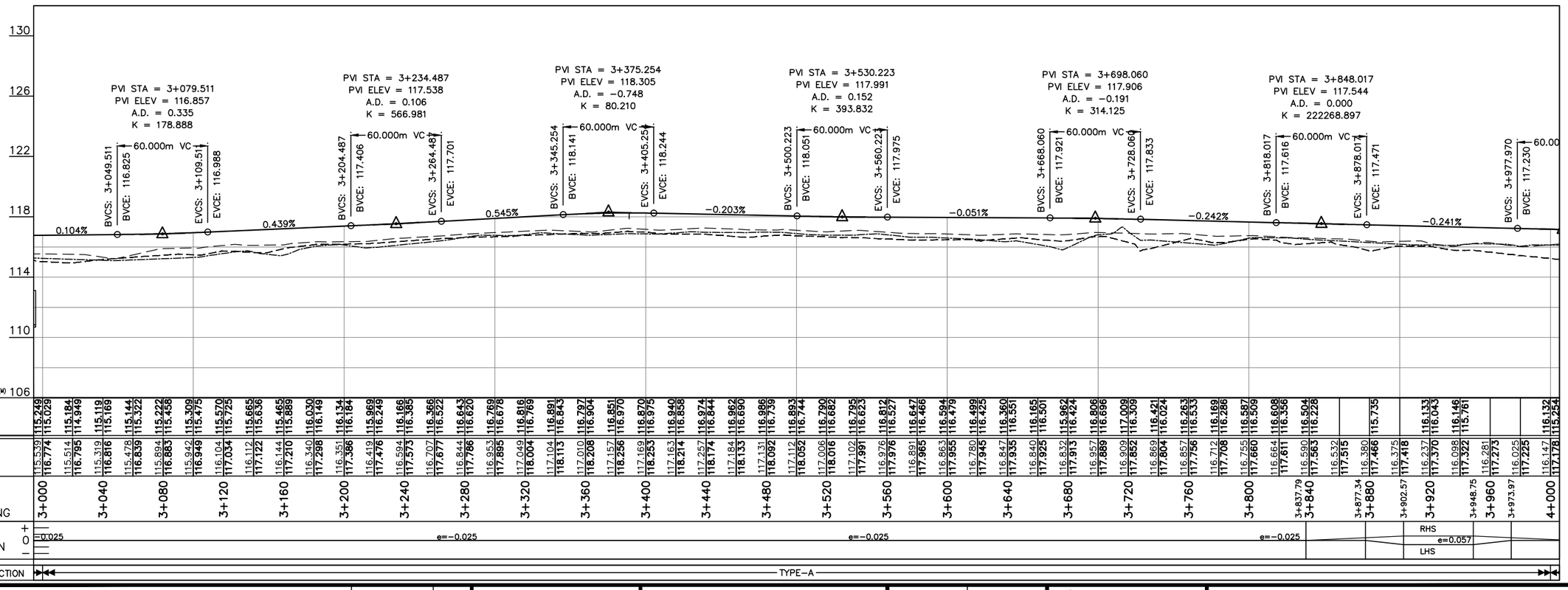


Number	Radius	Length	PI–Ls–Es	Δ–V
C12	2500.00	18.96	PI N: 2564279.242 E: 320676.240	Δ: 0° 26' 04" V :100

Number	Radius	Length	PI–Ls–Es	Δ–V
C14	2500.00	4.13	PI N: 2564011.048 E: 321234.052	Δ: 0° 05' 41" V :100

Number	Radius	Length	PI–Ls–Es	Δ–V
C13	7500.00	28.27	PI N: 2564144.596 E: 320954.943	Δ: 0° 12' 57" V :100

Number	Radius	Length	PI–Ls–Es	Δ–V
S5	INFINITY	45.00	LS: 30.003 Es: 15.003	
C15	500.00	46.18	PI N: 2563912.706 E: 321440.460	Δ: 5° 17' 30" V :80
S6	500.00	45.00	LS: 30.003 Es: 15.003	



OGL(LHS)	OGL(RHS)	EXISTING	DESIGN	STATIONING
115.249	115.029	115.539	116.774	3+000
115.184	114.949	115.514	116.795	3+040
115.119	115.169	115.319	116.816	3+080
115.144	115.322	115.478	116.839	3+120
115.222	115.458	115.894	116.883	3+160
115.309	115.475	115.942	116.949	3+200
115.570	115.725	116.104	117.034	3+240
115.665	115.836	116.112	117.122	3+280
115.465	115.889	116.144	117.210	3+320
116.030	116.149	116.340	117.298	3+360
116.134	116.184	116.351	117.386	3+400
115.969	116.249	116.419	117.476	3+440
116.166	116.385	116.594	117.573	3+480
116.366	116.522	116.707	117.677	3+520
116.643	116.620	116.844	117.786	3+560
116.769	116.678	116.953	117.895	3+600
116.816	116.769	117.049	118.004	3+640
116.891	116.843	117.104	118.113	3+680
116.797	116.904	117.010	118.208	3+720
116.851	116.970	117.157	118.256	3+760
116.870	116.975	117.169	118.253	3+800
116.940	116.858	117.163	118.214	3+837.79
116.974	116.844	117.257	118.174	3+840
116.962	116.690	117.184	118.133	3+877.34
116.986	116.739	117.131	118.092	3+880
116.893	116.744	117.112	118.052	3+902.57
116.790	116.682	117.006	118.016	3+920
116.795	116.623	117.102	117.991	3+948.75
116.812	116.527	116.976	117.976	3+960
116.647	116.466	116.891	117.965	3+973.97
116.594	116.479	116.863	117.955	4+000
116.499	116.425	116.780	117.945	
116.360	116.551	116.847	117.935	
116.165	116.501	116.840	117.925	
115.962	116.424	116.832	117.913	
116.806	116.696	116.957	117.889	
117.009	116.309	116.909	117.852	
116.421	116.024	116.869	117.804	
116.263	116.533	116.857	117.756	
116.169	116.286	116.712	117.708	
116.587	116.509	116.755	117.660	
116.608	116.356	116.664	117.611	
116.504	116.228	116.590	117.563	
		116.532	117.515	
115.735		116.380	117.466	
		116.375	117.418	
116.133	116.043	116.237	117.370	
116.146	115.761	116.098	117.322	
		116.281	117.273	
		116.025	117.225	
116.132	115.254	116.147	117.178	

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: PPBD_03–04–R1

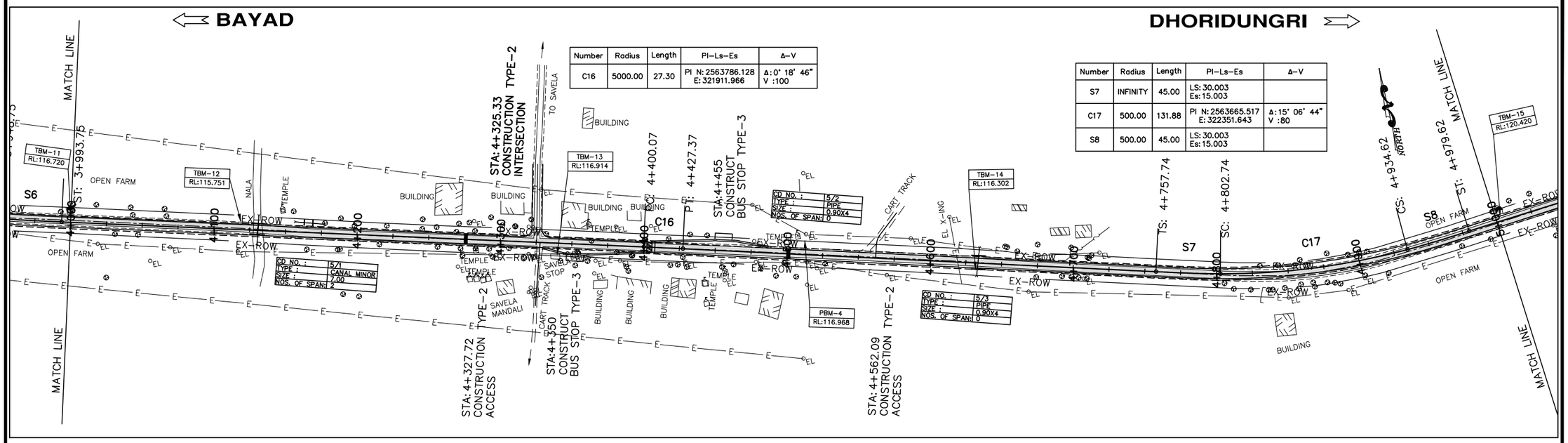
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

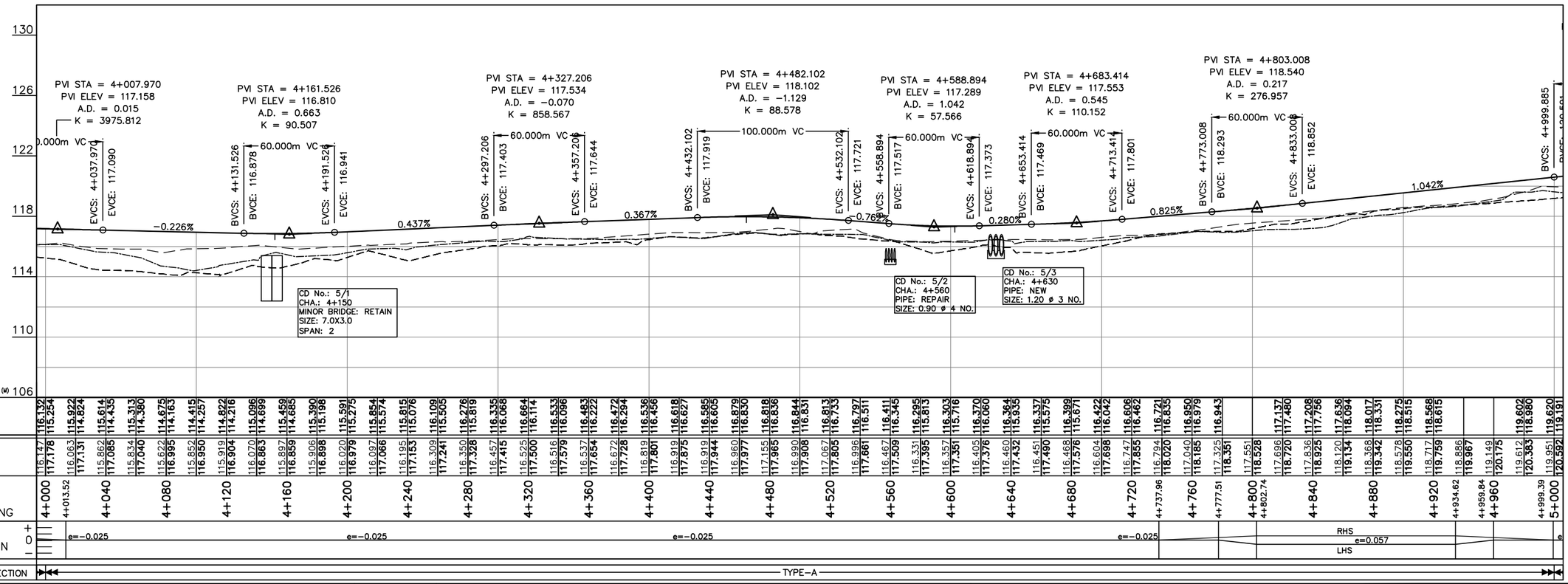
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 03+000 TO STA. 04+000

DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/04	0





No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : HORIZONTAL 1 : 2000 (20 10 0 20 40 60 80 100 m)
VERTICAL 1 : 200 (2 1 0 2 4 6 8 10 m)
CAD FILE: PPBD_04-05

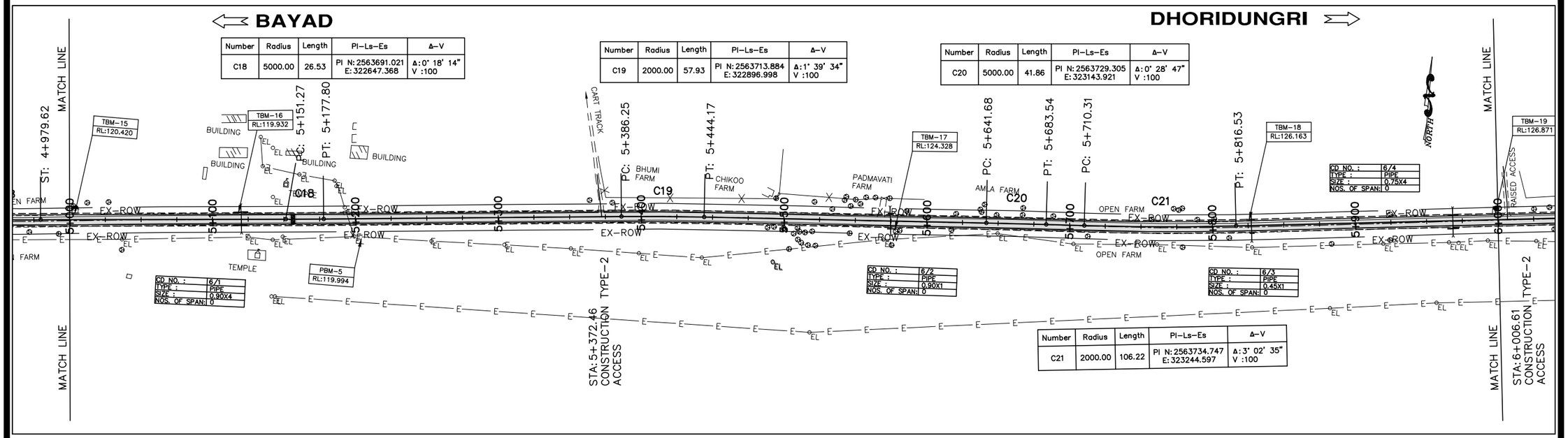
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

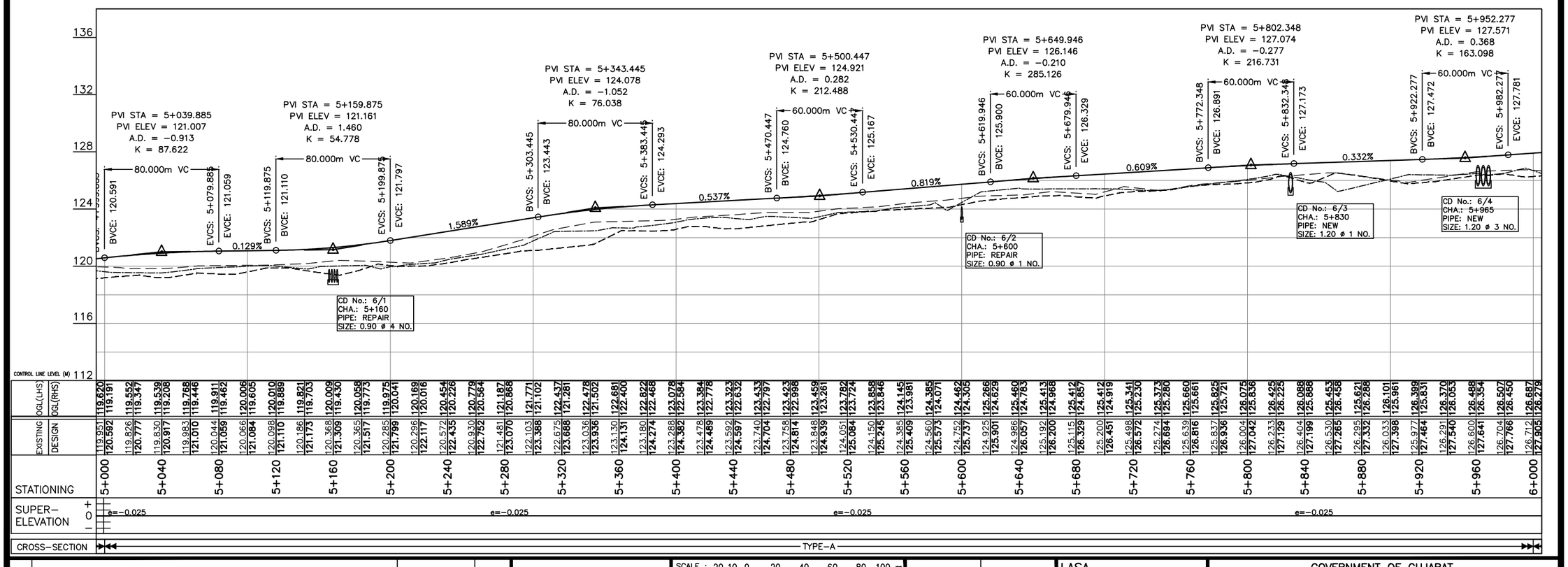
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGRI (SH-69)
PLAN / PROFILE
STA. 04+000 TO STA. 05+000

DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/05	0





No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: PPBD_05–06–R1

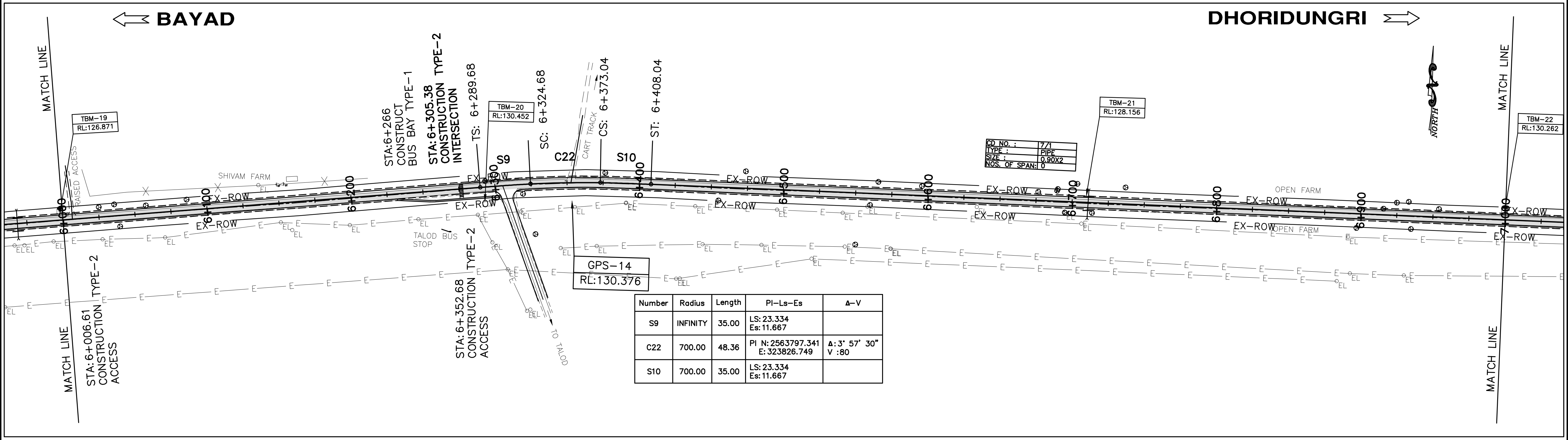
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

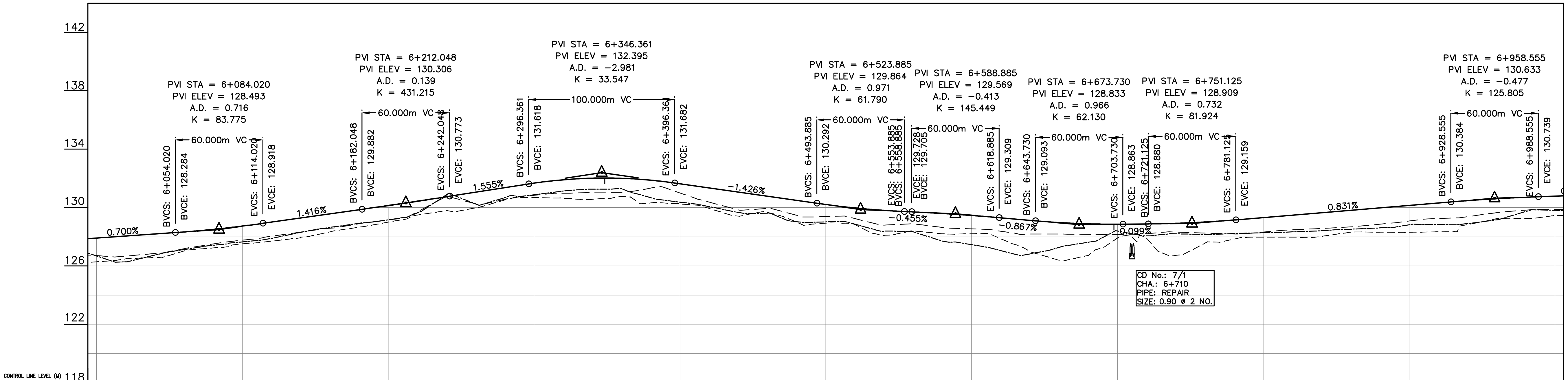
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 05+000 TO STA. 06+000

DATE: AUG'2012 | PROJECT: PPWCS | DWG No: PPWCS/BD/PP/06 | REV. 0



Number	Radius	Length	PI–Ls–Es	Δ–V
S9	INFINITY	35.00	LS: 23.334 Es: 11.667	
C22	700.00	48.36	PI N: 2563797.341 E: 323826.749	Δ: 3° 57' 30" V :80
S10	700.00	35.00	LS: 23.334 Es: 11.667	



STATIONING	OGL(LHS)	OGL(RHS)	EXISTING	DESIGN
6+000	126.687	126.279	126.712	127.905
	126.283	126.493	126.676	128.045
6+040	126.745	126.576	126.854	128.185
	127.125	127.026	127.185	128.328
6+080	127.419	127.236	127.505	128.506
	127.647	127.515	127.765	128.731
6+120	127.889	127.698	128.034	129.003
	128.304	127.971	128.320	129.286
6+160	128.640	128.336	128.587	129.569
	128.920	128.655	128.895	129.853
6+200	129.158	129.002	129.154	130.140
	129.632	129.490	129.708	130.436
6+240	130.885	129.797	130.756	130.741
	130.246	129.976	130.256	131.052
6+268.15				
6+280	130.679	130.521	130.565	131.363
			130.840	131.672
6+311.22				
6+320	131.140	130.716	130.986	131.902
6+324.68				
	131.263	130.596	131.055	132.012
6+360	131.110	130.766	131.046	132.004
6+373.04				
			131.332	131.876
6+386.51				
6+400			131.001	131.631
	130.068	129.942	130.373	131.345
6+429.58				
6+440	129.668	129.409	129.838	131.060
	129.574	129.675	129.940	130.775
6+480	129.033	129.013	129.473	130.490
	129.019	128.931	129.384	130.208
6+520	128.859	128.833	129.245	129.975
	128.383	128.105	128.795	129.807
6+560	128.339	128.408	128.888	129.700
	127.706	128.201	128.639	129.594
6+600	127.460	128.202	128.540	129.460
	127.053	127.864	128.381	129.299
6+640	126.825	127.005	128.182	129.126
	127.276	126.389	128.191	128.973
6+680	127.625	126.730	128.167	128.885
	128.390	127.910	128.145	128.860
6+720	128.063	127.911	128.214	128.879
	128.201	126.723	128.316	128.920
6+760	128.157	127.559	128.255	129.010
	128.221	127.844	128.189	129.149
6+800	128.275	127.968	128.321	129.315
	128.335	127.966	128.475	129.482
6+840	128.417	128.030	128.563	129.648
	128.522	128.315	128.674	129.814
6+880	128.607	128.316	128.861	129.980
	128.819	128.311	129.081	130.146
6+920	128.838	128.337	129.246	130.313
	128.902	128.831	129.376	130.474
6+960	129.159	129.245	129.653	130.606
	129.728	129.259	129.826	130.706
7+000	129.815	129.455	129.869	130.780

SUPER-ELEVATION (+ / 0 / −): e=−0.025 ; e=−0.025 ; LHS e=0.041 ; RHS ; e=−0.025 ; e=−0.025 ; e=−0.025

CROSS-SECTION: TYPE-A

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m — HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m — VERTICAL 1 : 200

CAD FILE: PPBD_06-07-R1

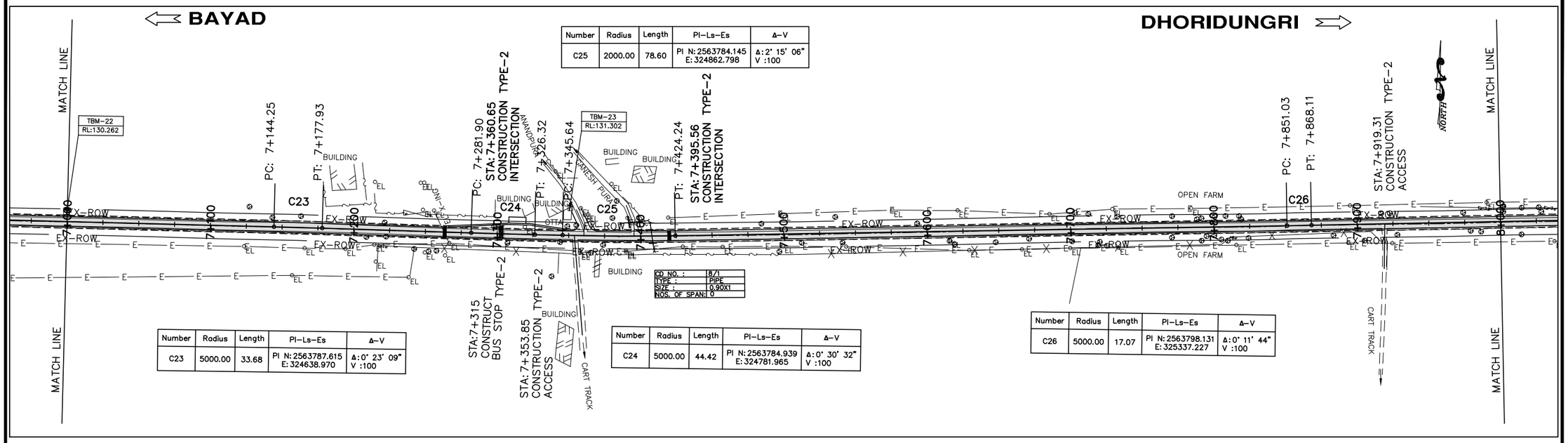
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGRI (SH-69)
PLAN / PROFILE
STA. 06+000 TO STA. 07+000

DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/07	0

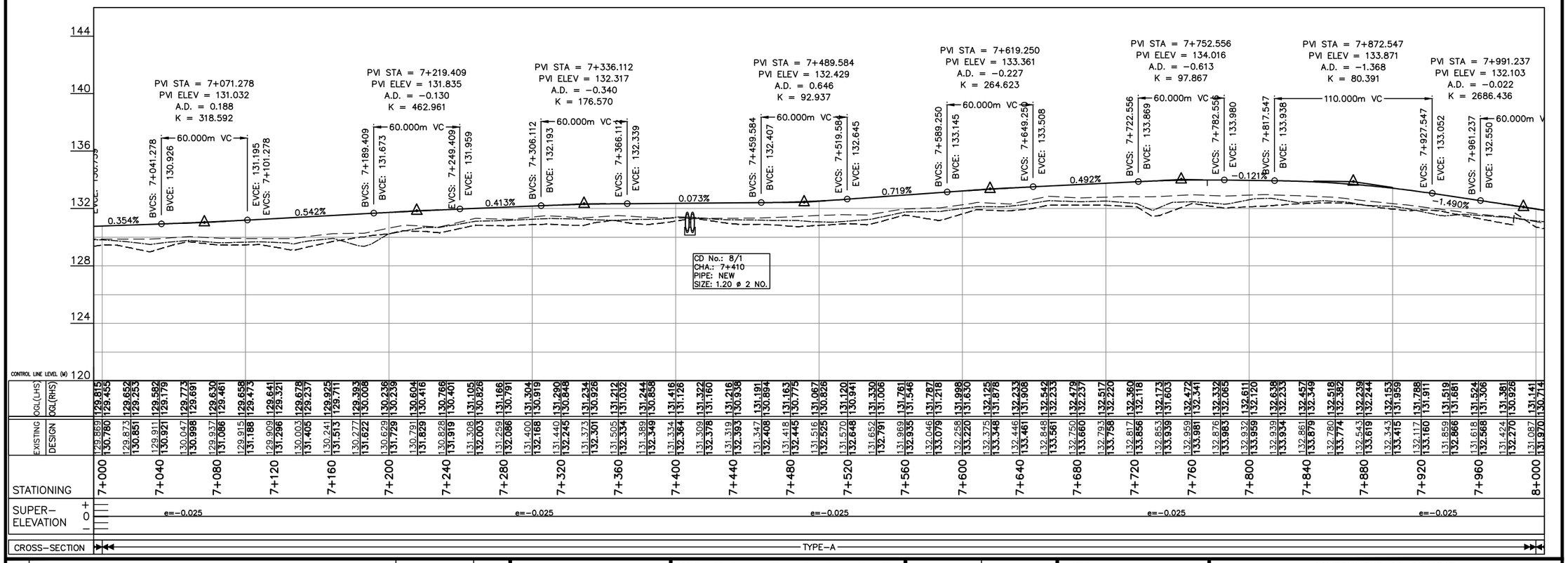


Number	Radius	Length	PI–Ls–Es	Δ–V
C23	5000.00	33.68	PI N: 2563787.615 E: 324638.970	Δ: 0° 23' 09" V :100

Number	Radius	Length	PI–Ls–Es	Δ–V
C24	5000.00	44.42	PI N: 2563784.939 E: 324781.965	Δ: 0° 30' 32" V :100

Number	Radius	Length	PI–Ls–Es	Δ–V
C25	2000.00	78.60	PI N: 2563784.145 E: 324862.798	Δ: 2° 15' 06" V :100

Number	Radius	Length	PI–Ls–Es	Δ–V
C26	5000.00	17.07	PI N: 2563798.131 E: 325337.227	Δ: 0° 11' 44" V :100



EXISTING OGL(LHS)	EXISTING OGL(RHS)	DESIGN	STATIONING
129.815	129.435	130.780	7+000
129.652	129.253	130.851	7+020
129.873	129.179	130.921	7+040
129.582	129.691	130.998	7+060
130.047	129.773	131.086	7+080
129.937	129.630	131.188	7+100
129.915	129.461	131.296	7+120
129.909	129.658	131.405	7+140
130.003	129.473	131.513	7+160
130.241	129.641	131.622	7+180
130.277	129.321	131.729	7+200
130.629	129.678	131.822	7+220
130.791	129.237	131.919	7+240
130.828	129.925	132.003	7+260
131.308	129.711	132.086	7+280
131.259	130.393	132.168	7+300
131.400	130.008	132.245	7+320
131.440	130.236	132.301	7+340
131.373	130.239	132.334	7+360
131.505	130.604	132.349	7+380
131.389	130.416	132.364	7+400
131.334	130.766	132.378	7+420
131.309	130.401	132.393	7+440
131.319	131.105	132.408	7+460
131.347	130.826	132.445	7+480
131.418	131.166	132.525	7+500
131.516	130.791	132.648	7+520
131.570	131.304	132.791	7+540
131.652	130.919	132.935	7+560
131.969	131.290	132.946	7+580
131.761	130.848	133.079	7+600
132.046	131.163	133.220	7+620
132.258	130.775	133.348	7+640
132.375	131.067	133.461	7+660
132.446	130.826	133.561	7+680
132.848	131.234	133.660	7+700
132.750	130.926	133.758	7+720
132.793	131.212	133.856	7+740
132.817	131.032	133.939	7+760
132.853	131.244	134.003	7+780
132.959	130.858	133.981	7+800
132.876	131.416	133.983	7+820
132.932	131.126	133.959	7+840
132.939	131.322	133.934	7+860
132.861	131.160	133.879	7+880
132.780	131.216	133.774	7+900
132.543	130.938	133.619	7+920
132.343	131.105	133.415	7+940
132.117	130.826	133.160	7+960
131.859	131.191	132.886	7+980
131.618	130.894	132.568	8+000
131.424	131.163	132.270	8+020
131.087	130.775	131.970	8+040

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : HORIZONTAL 1 : 2000
VERTICAL 1 : 200
CAD FILE: PPBD_07–08

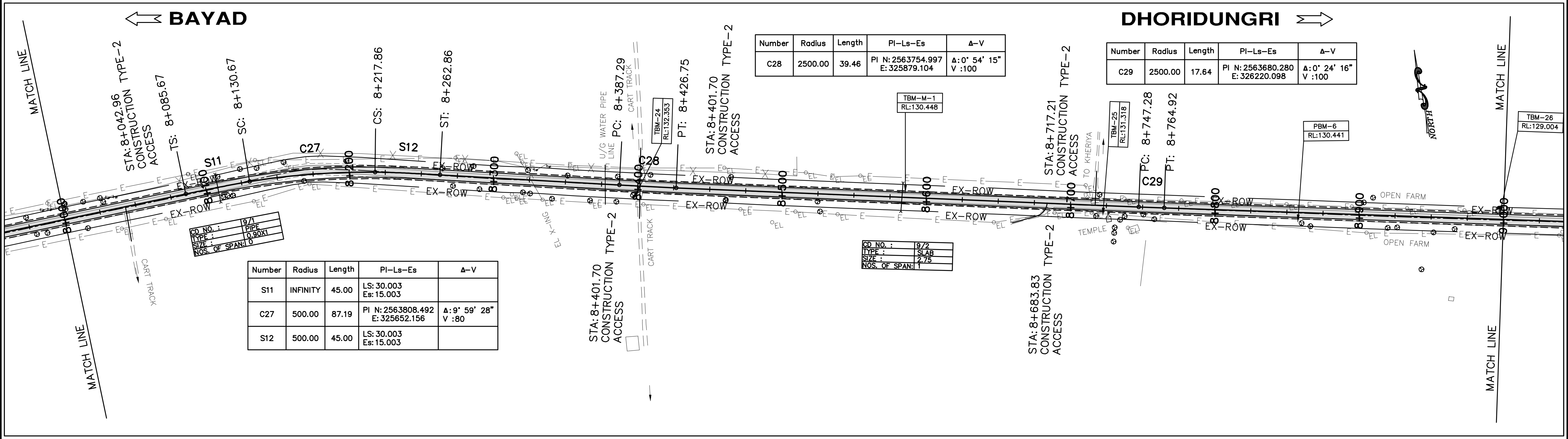
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 07+000 TO STA. 08+000

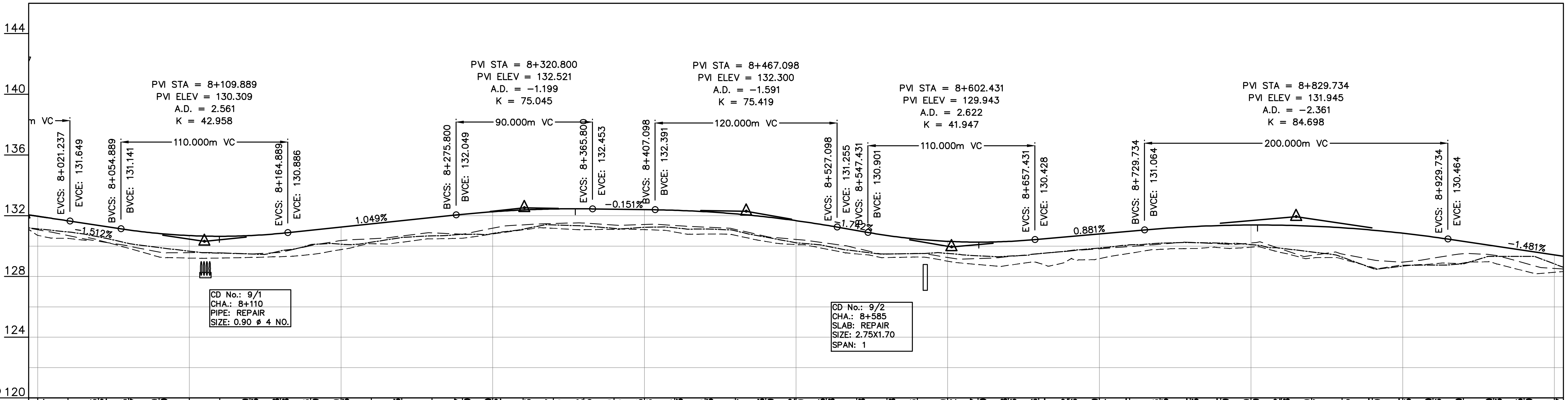
DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/08	0



Number	Radius	Length	PI-Ls-Es	Δ-V
S11	INFINITY	45.00	LS: 30.003 Es: 15.003	
C27	500.00	87.19	PI N: 2563808.492 E: 325652.156	Δ: 9° 59' 28" V :80
S12	500.00	45.00	LS: 30.003 Es: 15.003	

Number	Radius	Length	PI-Ls-Es	Δ-V
C28	2500.00	39.46	PI N: 2563754.997 E: 325879.104	Δ: 0° 54' 15" V :100

Number	Radius	Length	PI-Ls-Es	Δ-V
C29	2500.00	17.64	PI N: 2563680.280 E: 326220.098	Δ: 0° 24' 16" V :100



STATIONING	OGL(LHS)	OGL(RHS)	EXISTING	DESIGN
8+000	131.141	130.714	131.087	131.970
	130.931	130.511	130.700	131.668
8+040	130.613	130.402	130.329	131.366
	130.175	129.857	130.009	131.066
8+065.89				
8+080	129.910	129.290	129.614	130.834
			129.573	130.695
8+105.44				
8+120			129.559	130.650
8+130.67				
	129.489	129.253	129.482	130.697
8+160	129.728	129.308	129.595	130.837
	130.106	129.449	130.034	131.044
8+200	130.129	129.773	130.361	131.254
8+217.86				
			130.485	131.464
8+240	130.573		130.670	131.673
8+243.08				
			130.876	131.883
8+280	130.777	130.520	130.781	132.092
8+282.63				
	130.830	130.802	131.181	132.264
8+320	131.118	131.073	131.401	132.382
	131.397	131.173	131.488	132.447
8+360	131.332	131.085	131.518	132.459
	131.170	131.105	131.394	132.432
8+400	131.245	131.086	131.425	132.401
	131.194	130.933	131.363	132.360
8+440	131.125	130.793	131.254	132.269
	131.012	130.717	131.104	132.126
8+480	130.593	130.309	130.645	131.929
	130.222	130.109	130.441	131.679
8+520	130.005	129.808	130.198	131.376
	129.671	129.488	129.858	131.031
8+560	129.481	129.248	129.489	130.701
	129.516	129.281	129.510	130.460
8+600	129.519	129.012	129.255	130.315
	129.367	128.790	129.185	130.265
8+640	129.338	128.736	129.309	130.310
	129.506	128.884	129.497	130.450
8+680	129.692	129.096	129.673	130.626
	129.879	129.174	129.825	130.803
8+720	130.084	129.531	129.974	130.979
	130.196	129.785	130.131	131.149
8+760	130.234	129.823	130.250	131.277
	130.204	129.889	130.147	131.358
8+800	130.100	129.929	130.210	131.392
	129.862	129.578	129.810	131.378
8+840	129.619	129.217	129.389	131.318
	129.281	129.155	129.480	131.210
8+880	128.544	128.610	129.101	131.055
	128.684	128.735	128.947	130.852
8+920	128.750	128.836	129.208	130.603
	128.840	128.891	129.509	130.312
8+960	129.320	128.893	129.402	130.016
	129.325	128.370	128.896	129.720
9+000	128.831	128.277	128.531	129.424

SUPER-ELEVATION (+ / 0 / –): e=-0.025; LHS e=0.057 RHS; e=-0.025; e=-0.025; e=-0.025

CROSS-SECTION: TYPE-A

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m VERTICAL 1 : 200

CAD FILE: PPBD_08-09

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

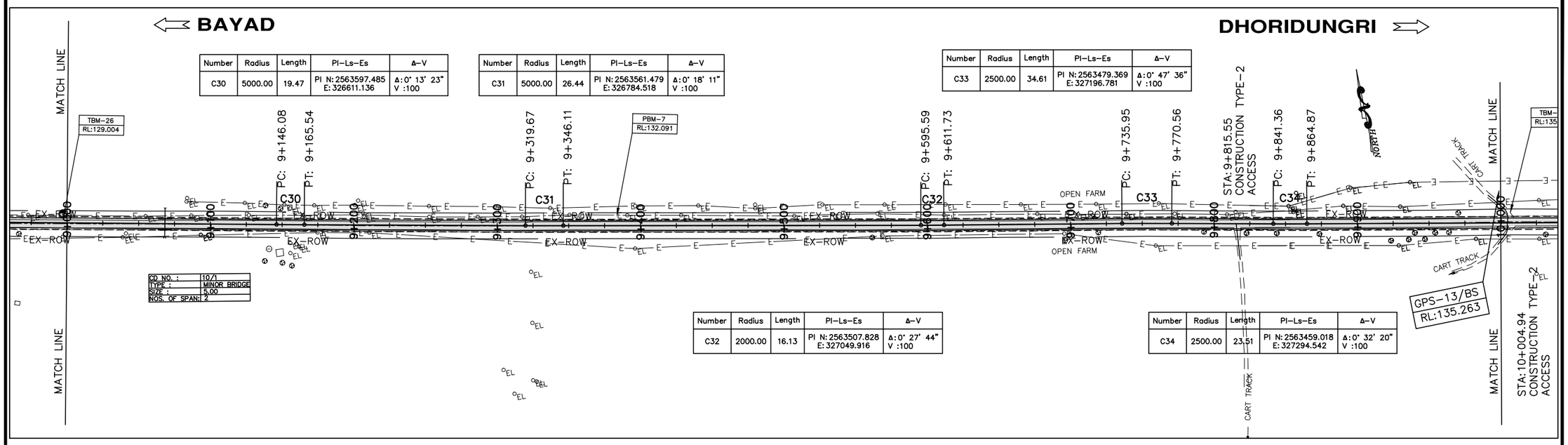
LASA INDIA

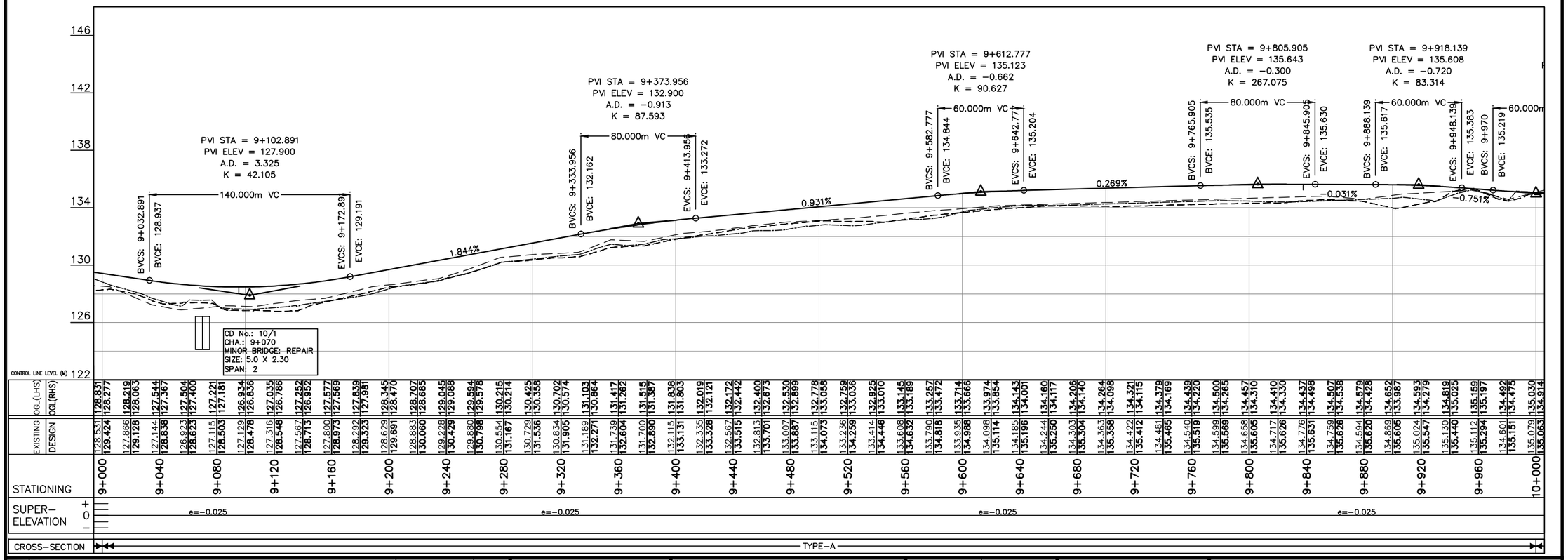
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGRI (SH-69)
PLAN / PROFILE
STA. 08+000 TO STA. 09+000

DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/09	0





No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : HORIZONTAL 1 : 2000
VERTICAL 1 : 200

CAD FILE: PPBD_09–10

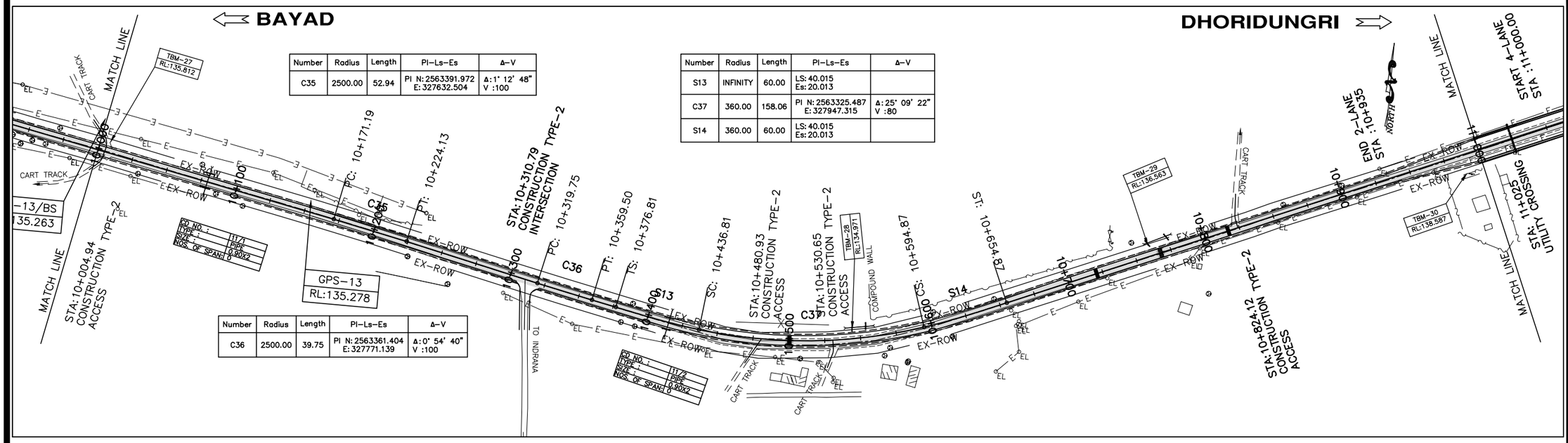
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 09+000 TO STA. 10+000

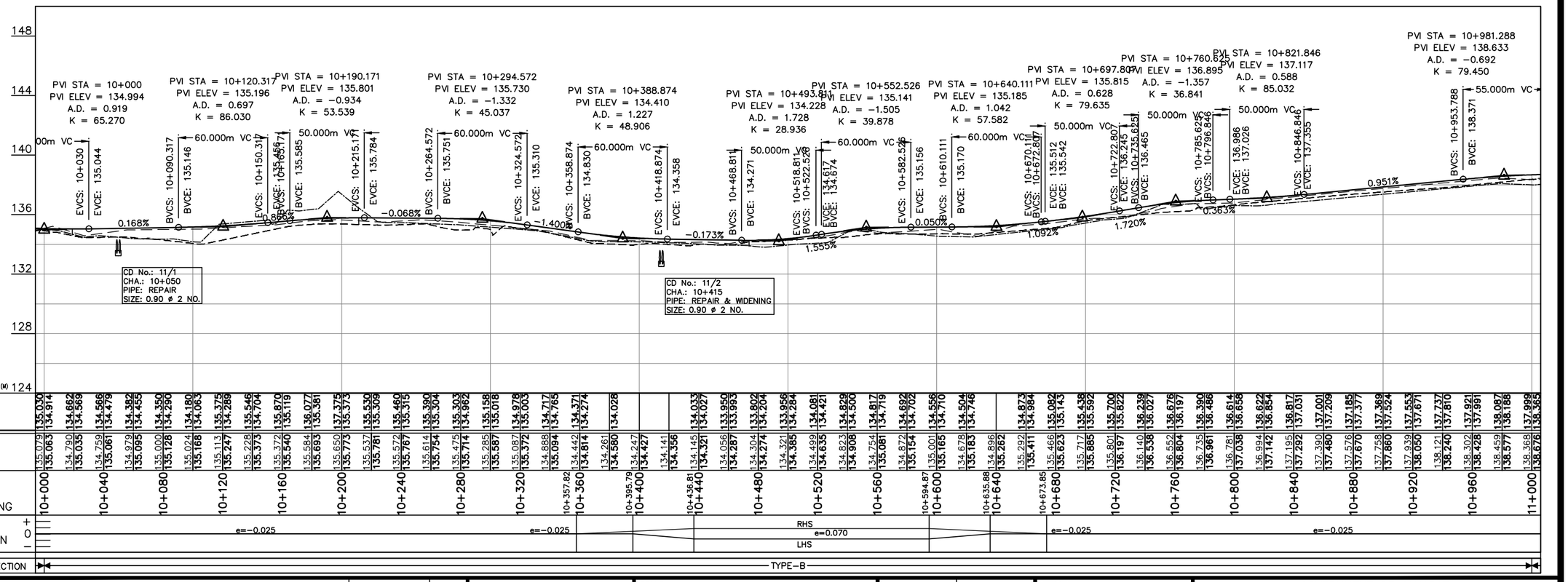
DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/10	0



Number	Radius	Length	PI–Ls–Es	Δ–V
C35	2500.00	52.94	PI N: 2563391.972 E: 327632.504	Δ: 1° 12' 48" V :100

Number	Radius	Length	PI–Ls–Es	Δ–V
C36	2500.00	39.75	PI N: 2563361.404 E: 327771.139	Δ: 0° 54' 40" V :100

Number	Radius	Length	PI–Ls–Es	Δ–V
S13	INFINITY	60.00	LS: 40.015 Es: 20.013	
C37	360.00	158.06	PI N: 2563325.487 E: 327947.315	Δ: 25° 09' 22" V :80
S14	360.00	60.00	LS: 40.015 Es: 20.013	



No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: PPBD_10–11–R1

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

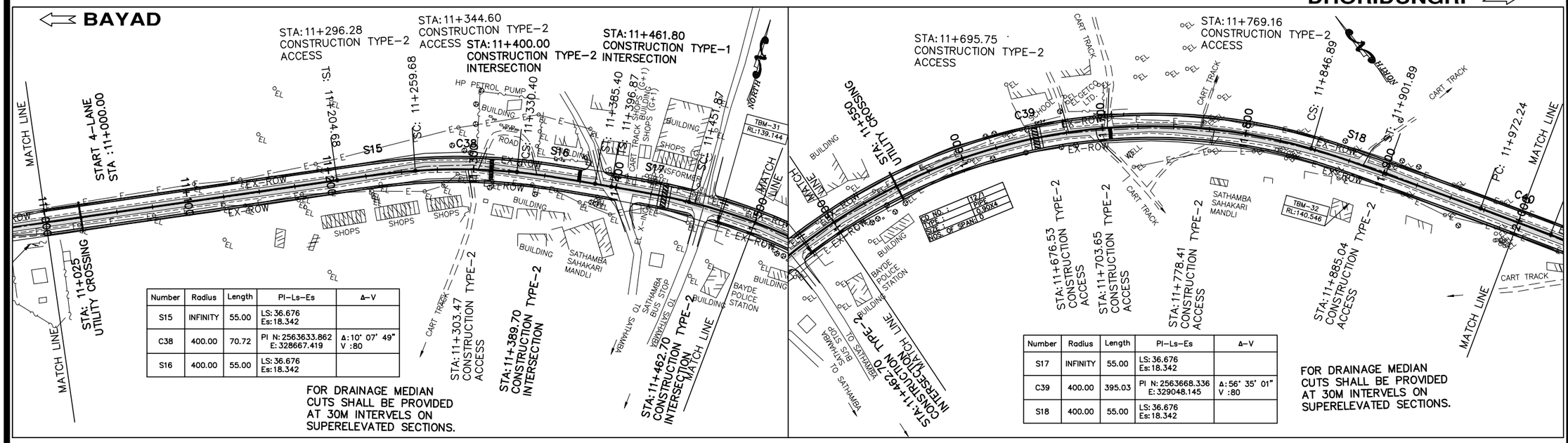
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 10+000 TO STA. 11+000

DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/11	0

DHORIDUNGRI ⟹

⟸ BAYAD

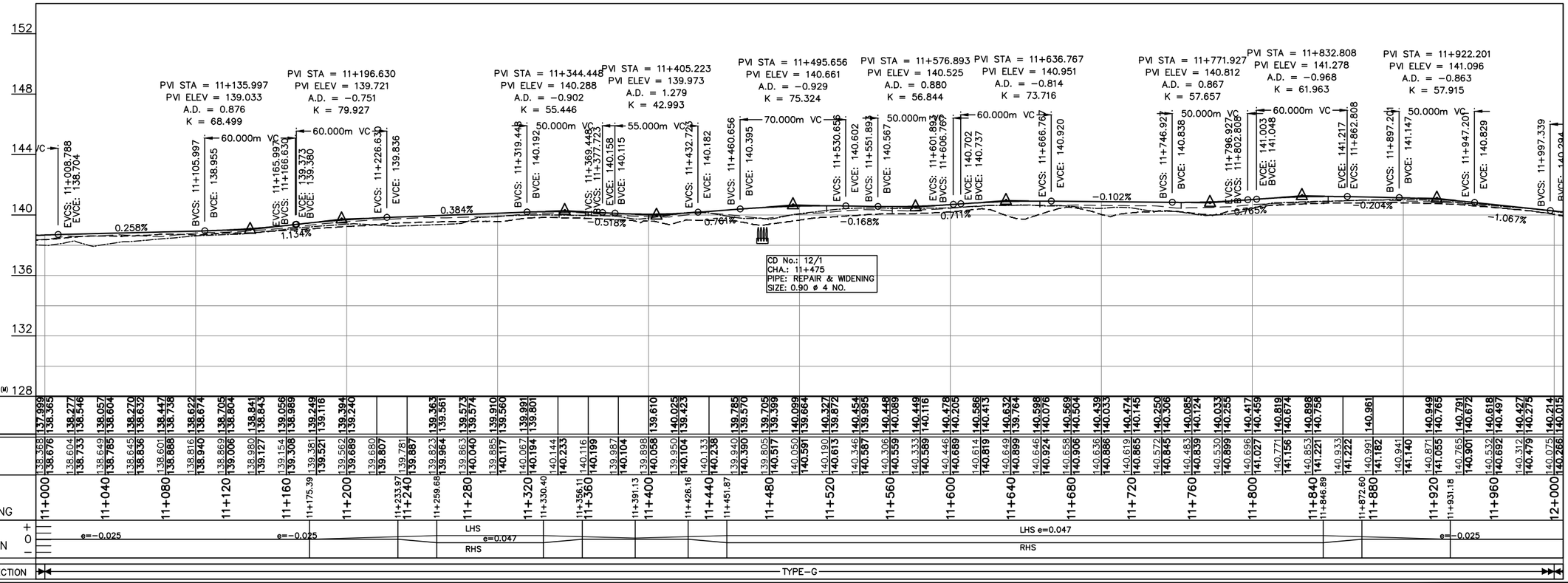


Number	Radius	Length	PI–Ls–Es	Δ–V
S15	INFINITY	55.00	LS: 36.676 Es: 18.342	
C38	400.00	70.72	PI N: 2563633.862 E: 328667.419	Δ: 10° 07' 49" V :80
S16	400.00	55.00	LS: 36.676 Es: 18.342	

FOR DRAINAGE MEDIAN CUTS SHALL BE PROVIDED AT 30M INTERVELS ON SUPERELEVATED SECTIONS.

Number	Radius	Length	PI–Ls–Es	Δ–V
S17	INFINITY	55.00	LS: 36.676 Es: 18.342	
C39	400.00	395.03	PI N: 2563668.336 E: 329048.145	Δ: 56° 35' 01" V :80
S18	400.00	55.00	LS: 36.676 Es: 18.342	

FOR DRAINAGE MEDIAN CUTS SHALL BE PROVIDED AT 30M INTERVELS ON SUPERELEVATED SECTIONS.



No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: PPBD_11–12–R1

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 11+000 TO STA. 12+000

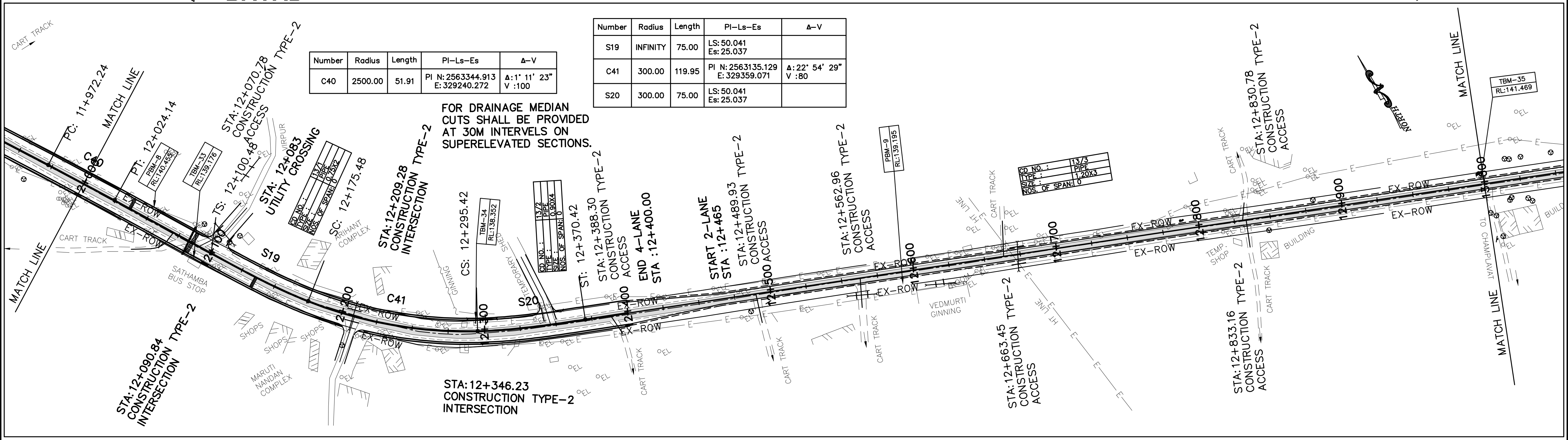
DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/12	0

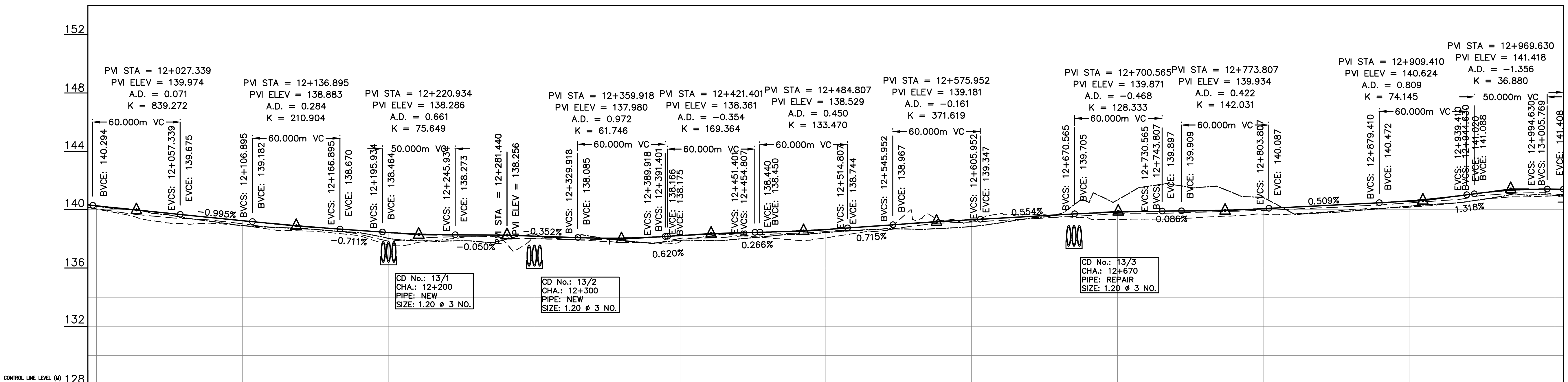
⇐ BAYAD DHORIDUNGRI ⇒

Number	Radius	Length	PI–Ls–Es	Δ–V
C40	2500.00	51.91	PI N:2563344.913 E:329240.272	Δ:1° 11' 23" V :100

Number	Radius	Length	PI–Ls–Es	Δ–V
S19	INFINITY	75.00	LS:50.041 Es:25.037	
C41	300.00	119.95	PI N:2563135.129 E:329359.071	Δ:22° 54' 29" V :80
S20	300.00	75.00	LS:50.041 Es:25.037	

FOR DRAINAGE MEDIAN CUTS SHALL BE PROVIDED AT 30M INTERVELS ON SUPERELEVATED SECTIONS.





STATIONING	OGL(LHS)	OGL(RHS)	EXISTING	DESIGN
12+000	140.214	140.015	140.075	140.266
	140.008	139.588	139.762	140.055
12+040	139.741	139.221	139.548	139.850
	139.462	139.090	139.395	139.649
12+080	139.177	139.065	139.262	139.450
	138.901	138.927	139.032	139.251
12+120	138.620		138.812	139.056
			138.718	138.878
12+160			138.562	138.720
	138.432	138.234	138.317	138.577
12+200	137.992	137.595	137.841	138.436
	137.936	137.807	138.024	138.331
12+240	137.851	137.967	138.129	138.279
	137.827	138.148	138.144	138.266
12+280	137.959	137.790	138.097	138.256
	138.294		138.033	138.190
12+320	137.979		137.954	138.120
			137.975	138.058
12+360	137.864	137.757	137.915	138.053
	137.705	137.736	137.696	138.112
12+400	137.902	137.807	138.023	138.226
	137.883	138.188	138.063	138.328
12+440	137.989	138.241	138.182	138.406
	138.178	138.073	138.308	138.464
12+480	138.313	137.900	138.389	138.540
	138.435	138.074	138.502	138.646
12+520	138.574	138.375	138.580	138.781
	138.691	138.569	138.579	138.924
12+560	138.667	139.316	138.889	139.064
	138.719	139.267	139.089	139.195
12+600	138.853	139.208	139.157	139.314
	139.110	139.725	139.264	139.425
12+640	139.415	139.685	139.376	139.536
	139.701	139.564	139.490	139.647
12+680	140.525	139.439	139.600	139.754
	140.672	139.342	139.747	139.834
12+720	141.591	139.358	139.757	139.884
	141.690	139.373	139.780	139.905
12+760	141.556	139.487	139.839	139.932
	141.125	139.580	139.897	139.986
12+800	140.841	139.692	139.960	140.068
	139.770	139.710	140.040	140.169
12+840	139.780	139.827	140.127	140.271
	139.907	140.024	140.219	140.373
12+880	140.074	140.099	140.327	140.475
	140.241	140.175	140.464	140.605
12+920	140.383	140.336	140.611	140.789
	140.556	140.558	140.801	141.027
12+960	140.857	140.803	141.046	141.259
	141.005	140.885	141.148	141.385
13+000	140.987	140.954	141.077	141.406

Additional stationing marks: 12+070.52, 12+130.43, 12+175.48, 12+295.42, 12+340.47, 12+400.38

SUPER–ELEVATION (+ 0 –): e=–0.025 (12+000 to 12+070.52); RHS / LHS e=0.063 (12+175.48 to 12+295.42); e=–0.025 (from 12+400); e=–0.025; e=–0.025

CROSS–SECTION: TYPE–G (12+000 to 12+400); TYPE–B (12+400 to 13+000)

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m VERTICAL 1 : 200

CAD FILE: PPBD_12–13–R1

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

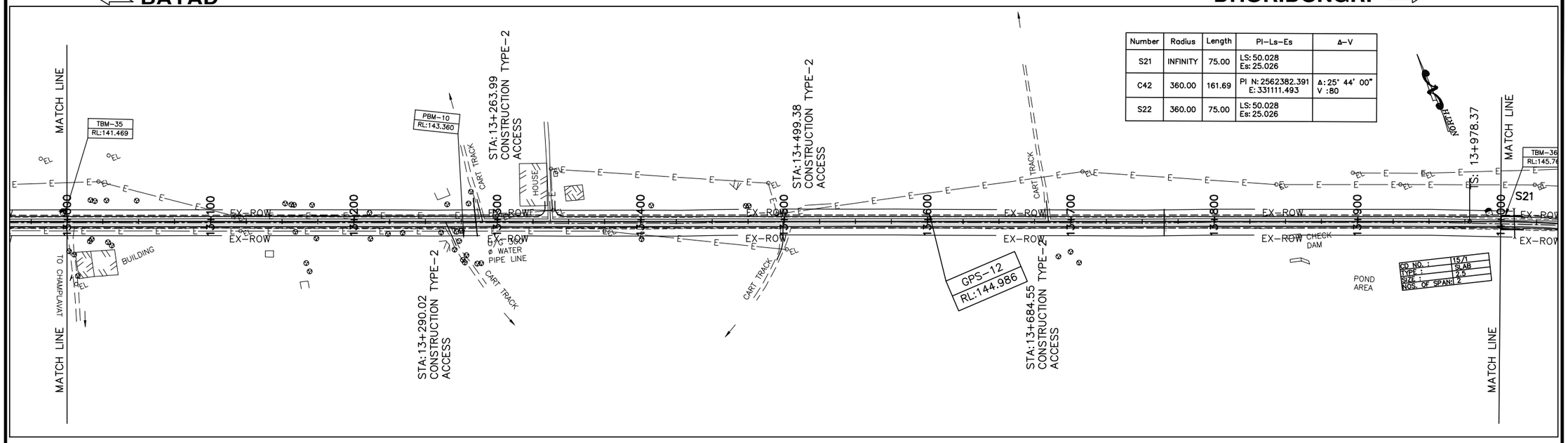
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

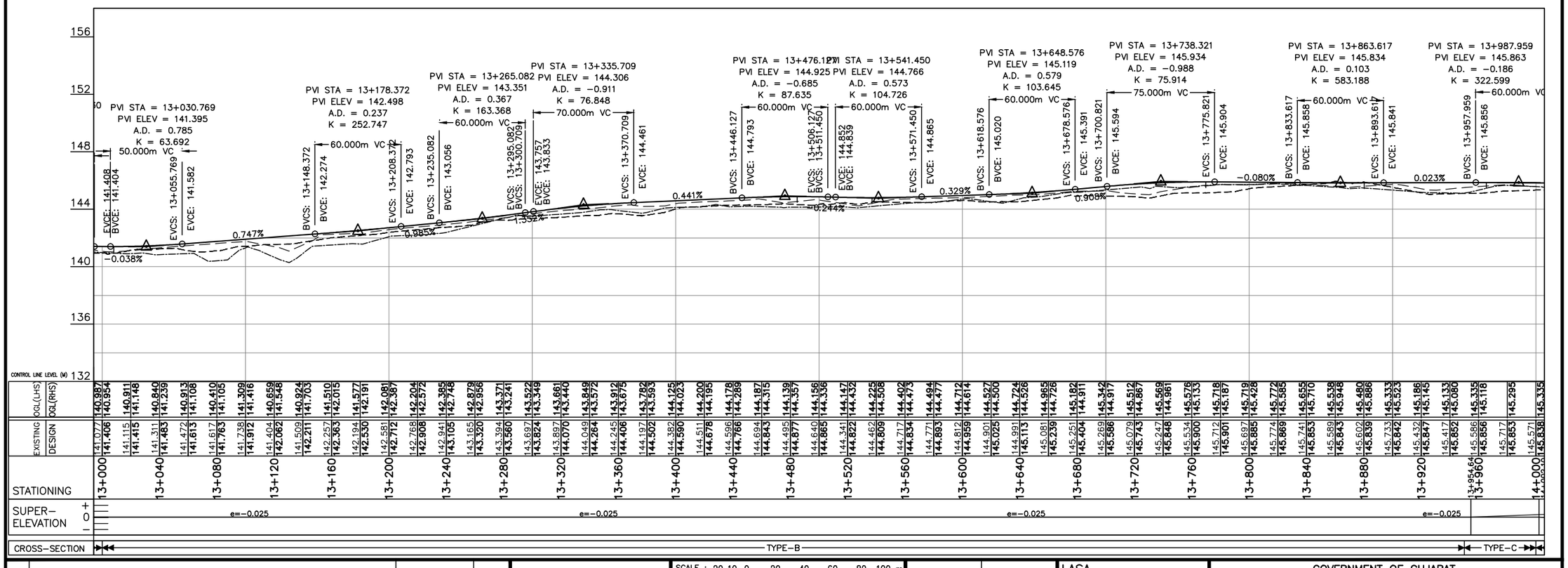
CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 12+000 TO STA. 13+000

DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/13	0

BAYAD ⟸ ⟹ **DHORIDUNGRI**



Number	Radius	Length	PI–Ls–Es	Δ–V
S21	INFINITY	75.00	LS: 50.028 Es: 25.026	
C42	360.00	161.69	PI N: 2562382.391 E: 331111.493	Δ: 25° 44' 00" V :80
S22	360.00	75.00	LS: 50.028 Es: 25.026	



No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: PPBD_13-14

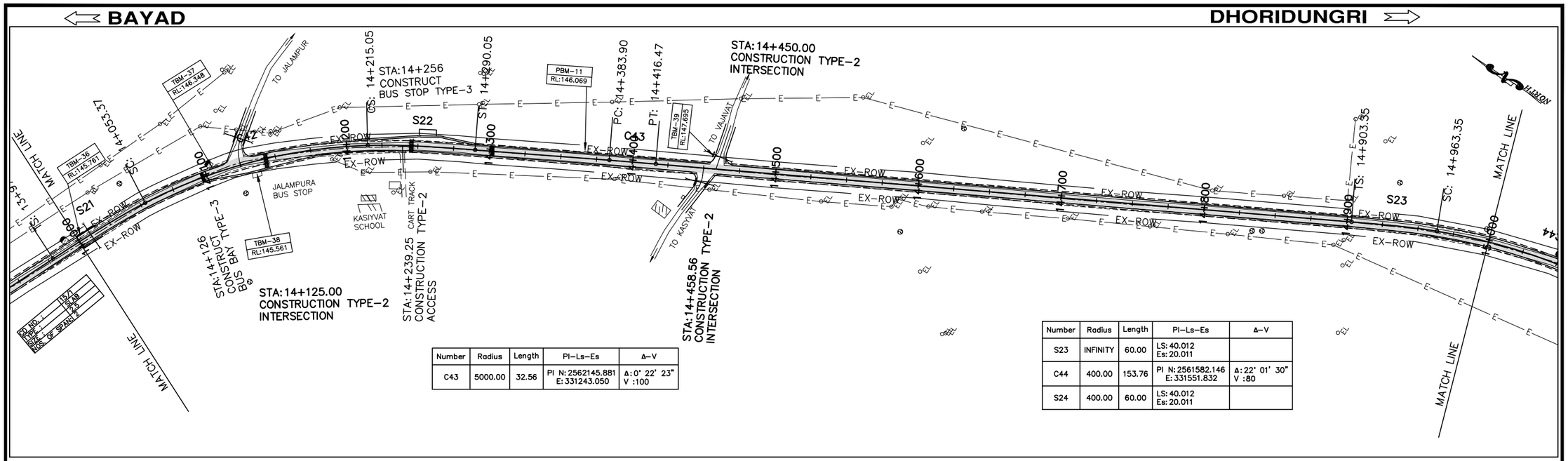
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

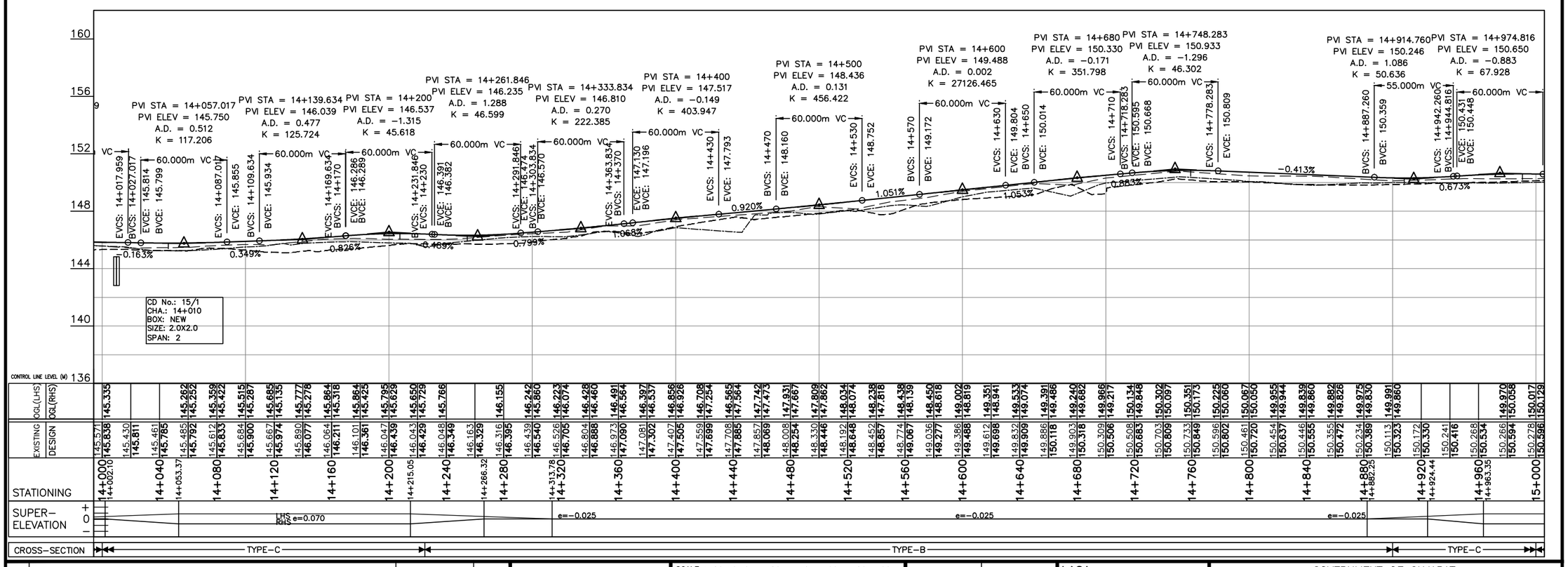
CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 13+000 TO STA. 14+000

DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/14	0



Number	Radius	Length	Pl–Ls–Es	Δ–V
C43	5000.00	32.56	Pl N: 2562145.881 E: 331243.050	Δ: 0° 22' 23" V :100

Number	Radius	Length	Pl–Ls–Es	Δ–V
S23	INFINITY	60.00	LS: 40.012 Es: 20.011	
C44	400.00	153.76	Pl N: 2561582.146 E: 331551.832	Δ: 22° 01' 30" V :80
S24	400.00	60.00	LS: 40.012 Es: 20.011	



No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : HORIZONTAL 1 : 2000
VERTICAL 1 : 200

CAD FILE: PPBD_14–15

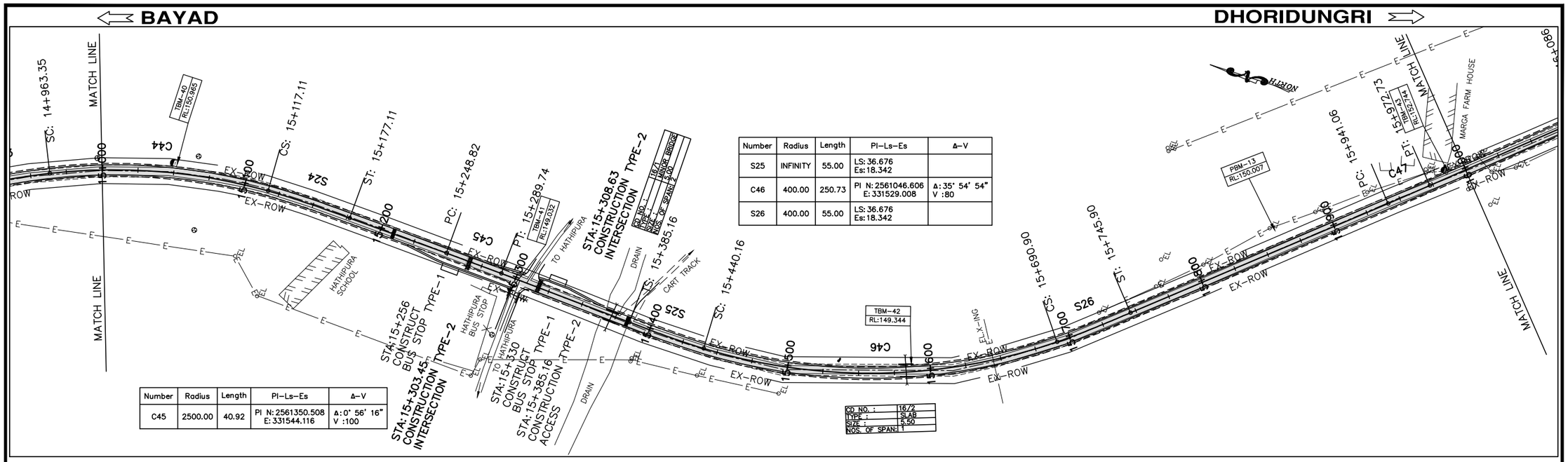
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

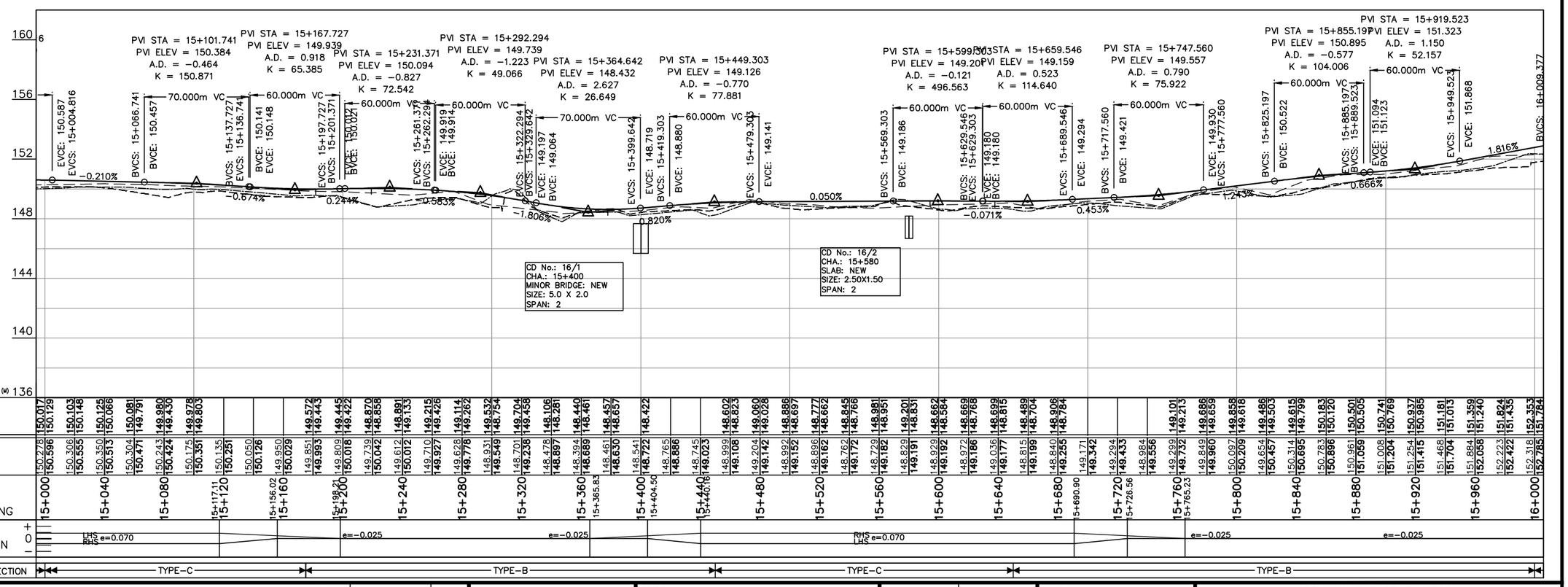
CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 14+000 TO STA. 15+000

DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/15	0



Number	Radius	Length	PI–Ls–Es	Δ–V
S25	INFINITY	55.00	LS: 36.676 Es:18.342	
C46	400.00	250.73	PI N:2561046.606 E:331529.008	Δ:35° 54' 54" V :80
S26	400.00	55.00	LS: 36.676 Es:18.342	

Number	Radius	Length	PI–Ls–Es	Δ–V
C45	2500.00	40.92	PI N:2561350.508 E:331544.116	Δ:0° 56' 16" V :100



No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : HORIZONTAL 1 : 2000
VERTICAL 1 : 200

CAD FILE: PPBD_15–16

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

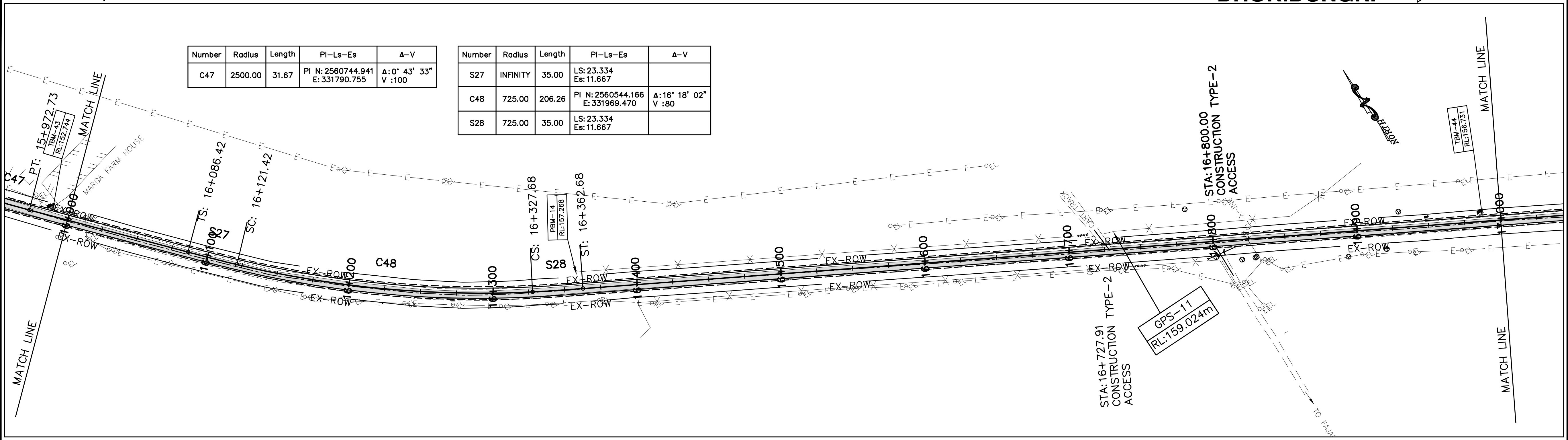
CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 15+000 TO STA. 16+000

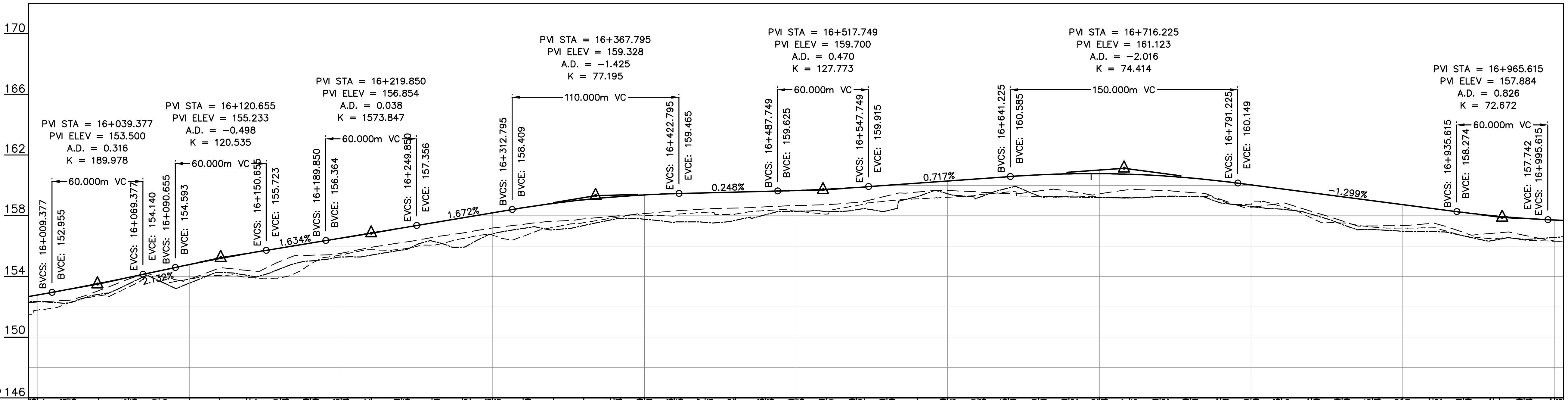
DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/16	0

⇦ BAYAD DHORIDUNGRI ⇨

Number	Radius	Length	PI-Ls-Es	Δ-V
C47	2500.00	31.67	PI N: 2560744.941 E: 331790.755	Δ: 0° 43' 33" V :100

Number	Radius	Length	PI-Ls-Es	Δ-V
S27	INFINITY	35.00	LS: 23.334 Es: 11.667	
C48	725.00	206.26	PI N: 2560544.166 E: 331969.470	Δ: 16° 18' 02" V :80
S28	725.00	35.00	LS: 23.334 Es: 11.667	





STATIONING	OGL(LHS)	OGL(RHS)	EXISTING	DESIGN
16+000	152.353	151.784	152.318	152.785
	152.256	152.245	152.432	153.151
16+040	152.821	152.721	153.061	153.536
	153.516	153.305	153.835	153.942
16+064.12				
16+080	153.719	153.715	154.019	154.366
			153.831	154.789
16+108.72				
16+120			154.553	155.183
16+121.42				
	154.044	153.914	154.373	155.544
16+160	154.519	153.928	155.001	155.876
	155.030	154.830	155.399	156.203
16+200	155.296	155.428	155.526	156.530
	155.412	155.761	155.921	156.859
16+240	155.739	155.875	156.236	157.191
	156.381	156.059	156.575	157.526
16+280	155.891	156.552	156.867	157.860
	156.856	156.726	157.193	158.195
16+320	157.171	156.650	157.437	158.526
16+327.68				
16+340.38			157.637	158.816
16+360			157.793	159.054
	157.764	157.868	157.969	159.240
16+384.98				
16+400	157.770	158.039	158.145	159.375
	157.543	157.985	158.321	159.457
16+440	157.567	158.226	158.446	159.507
	157.702	158.113	158.512	159.557
16+480	158.073	158.343	158.590	159.606
	158.299	158.305	158.672	159.662
16+520	158.269	158.109	158.728	159.746
	158.400	158.672	158.876	159.862
16+560	158.329	158.970	159.310	160.003
	159.261	159.111	159.561	160.146
16+600	159.450	159.218	159.661	160.289
	159.179	159.383	159.570	160.433
16+640	159.825	159.569	159.459	160.576
	159.310	159.289	159.633	160.696
16+680	159.239	159.292	159.613	160.762
	159.202	159.238	159.440	160.774
16+720	159.167	159.193	159.731	160.733
	159.259	159.272	159.675	160.638
16+760	159.260	159.289	159.531	160.489
	158.844	159.009	159.074	160.286
16+800	158.610	158.760	158.559	160.035
	158.433	158.615	158.830	159.775
16+840	158.094	157.850	158.287	159.515
	157.430	157.530	157.663	159.256
16+880	157.103	157.258	157.330	158.996
	156.982	157.190	157.359	158.736
16+920	156.944	157.202	157.506	158.477
	156.679	156.680	156.905	158.218
16+960	156.384	156.494	156.852	157.998
	156.450	156.398	156.713	157.833
17+000	156.574	156.326	156.332	157.721

SUPER-ELEVATION: e=-0.025 | RHS LHS e=0.039 | e=-0.025 | e=-0.025 | e=-0.025

CROSS-SECTION: TYPE-A

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m VERTICAL 1 : 200

CAD FILE: PPBD_16-17

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

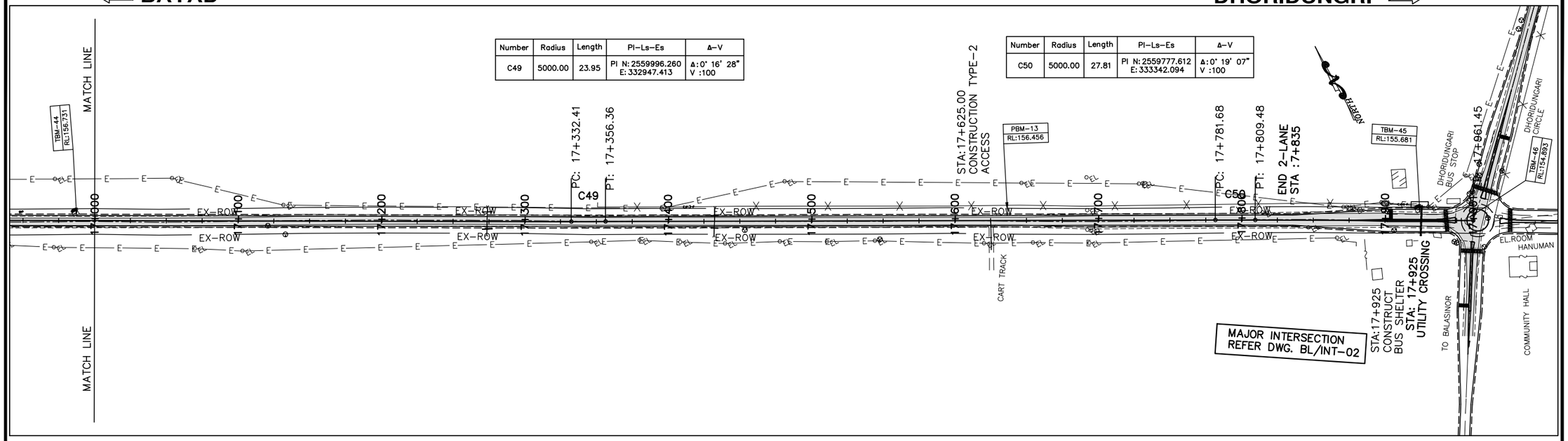
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

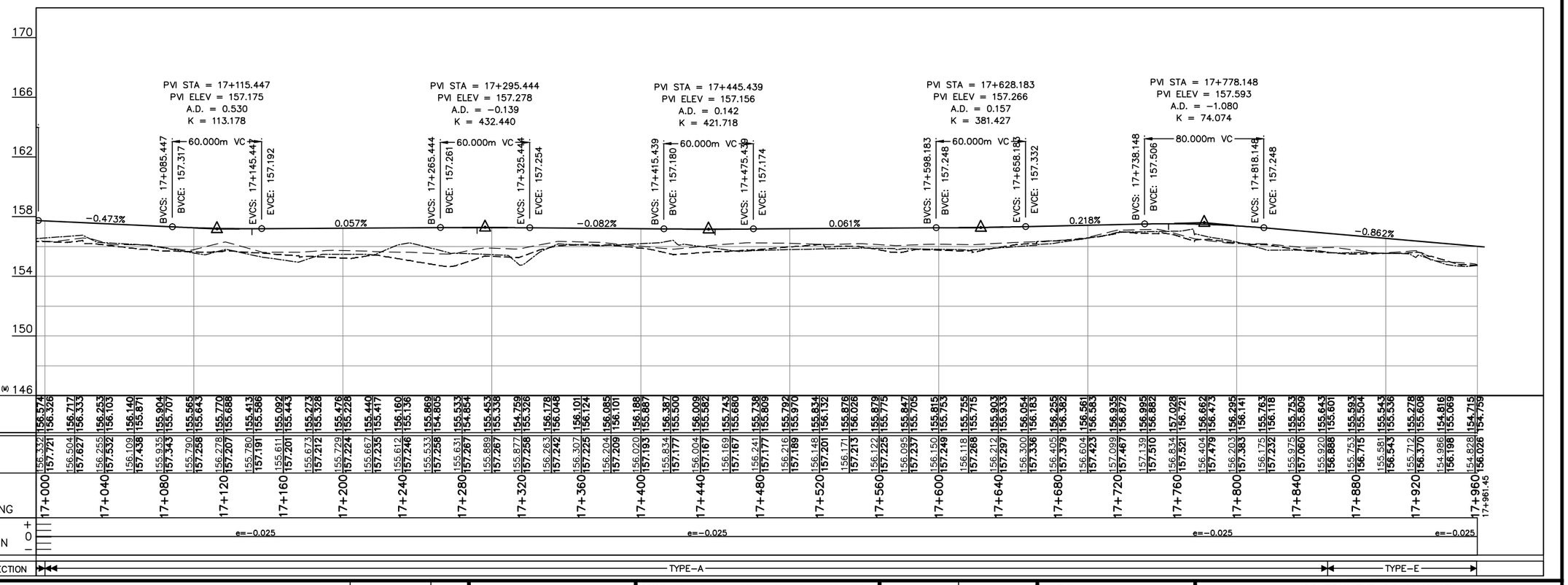
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGRI (SH-69)
PLAN / PROFILE
STA. 16+000 TO STA. 17+000

DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/17	0

BAYAD ⟸ ⟹ DHORIDUNGRI





No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: PPBD_17–18

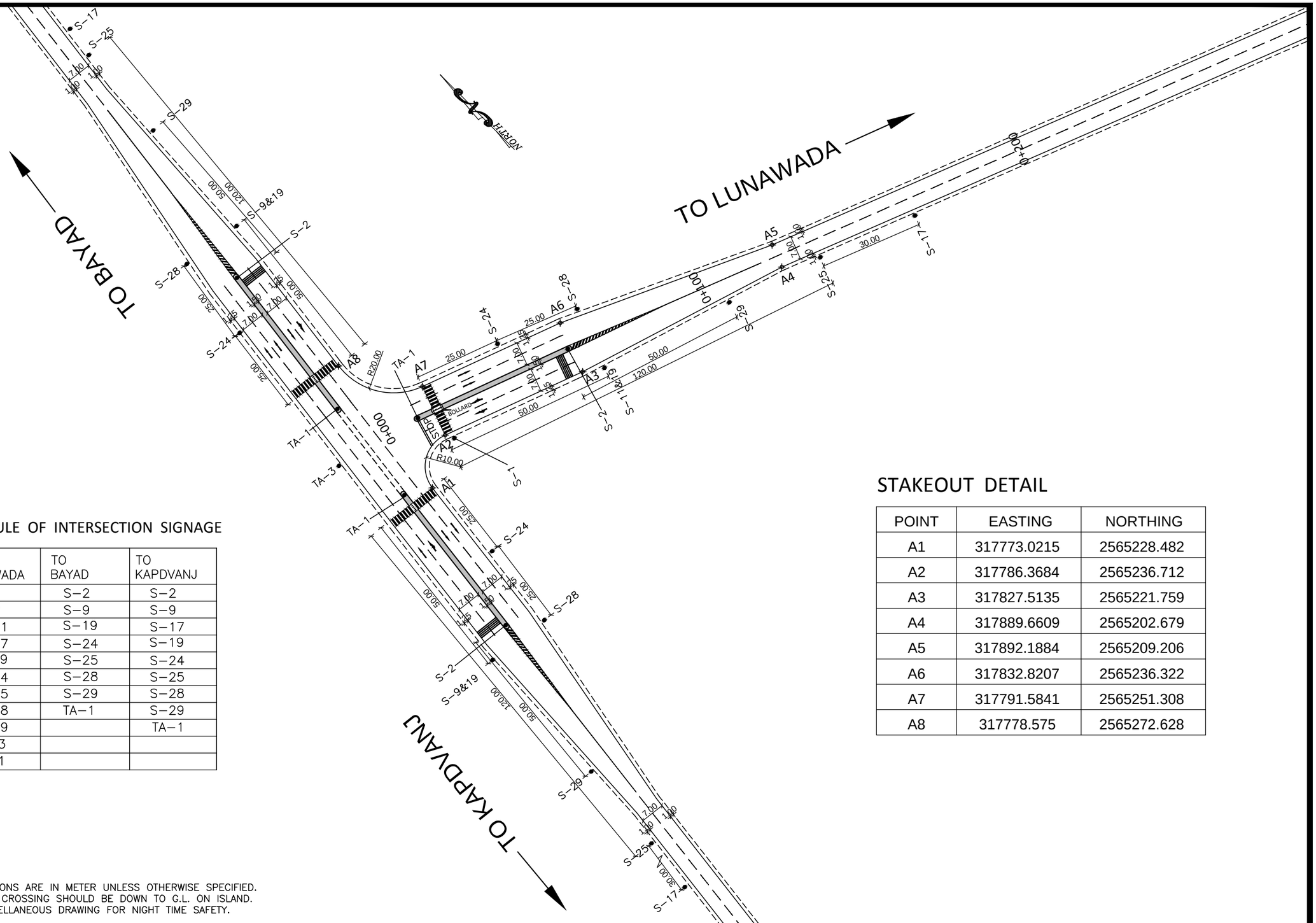
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	RAMANA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGRI (SH–69)
PLAN / PROFILE
STA. 17+000 TO STA. 17+961

DATE:	PROJECT:	DWG No:	REV.
AUG'2012	PPWCS	PPWCS/BD/PP/18	0



SCHEDULE OF INTERSECTION SIGNAGE

TO LUNAWADA	TO BAYAD	TO KAPDVANJ
S-1	S-2	S-2
S-2	S-9	S-9
S-11	S-19	S-17
S-17	S-24	S-19
S-19	S-25	S-24
S-24	S-28	S-25
S-25	S-29	S-28
S-28	TA-1	S-29
S-29		TA-1
TA-3		
TA-1		

STAKEOUT DETAIL

POINT	EASTING	NORTHING
A1	317773.0215	2565228.482
A2	317786.3684	2565236.712
A3	317827.5135	2565221.759
A4	317889.6609	2565202.679
A5	317892.1884	2565209.206
A6	317832.8207	2565236.322
A7	317791.5841	2565251.308
A8	317778.575	2565272.628

NOTE:-
1. ALL DIMENSIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. PEDESTRIAN CROSSING SHOULD BE DOWN TO G.L. ON ISLAND.
3. REFER MISCELLANEOUS DRAWING FOR NIGHT TIME SAFETY.

No.	REVISION	DATE	BY

SCALE : 1 : 750

CAD FILE: 1. INT 0+000 (BAYAD)

DRAWN:	HARSHAL
CHECKED:	DIV'S
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

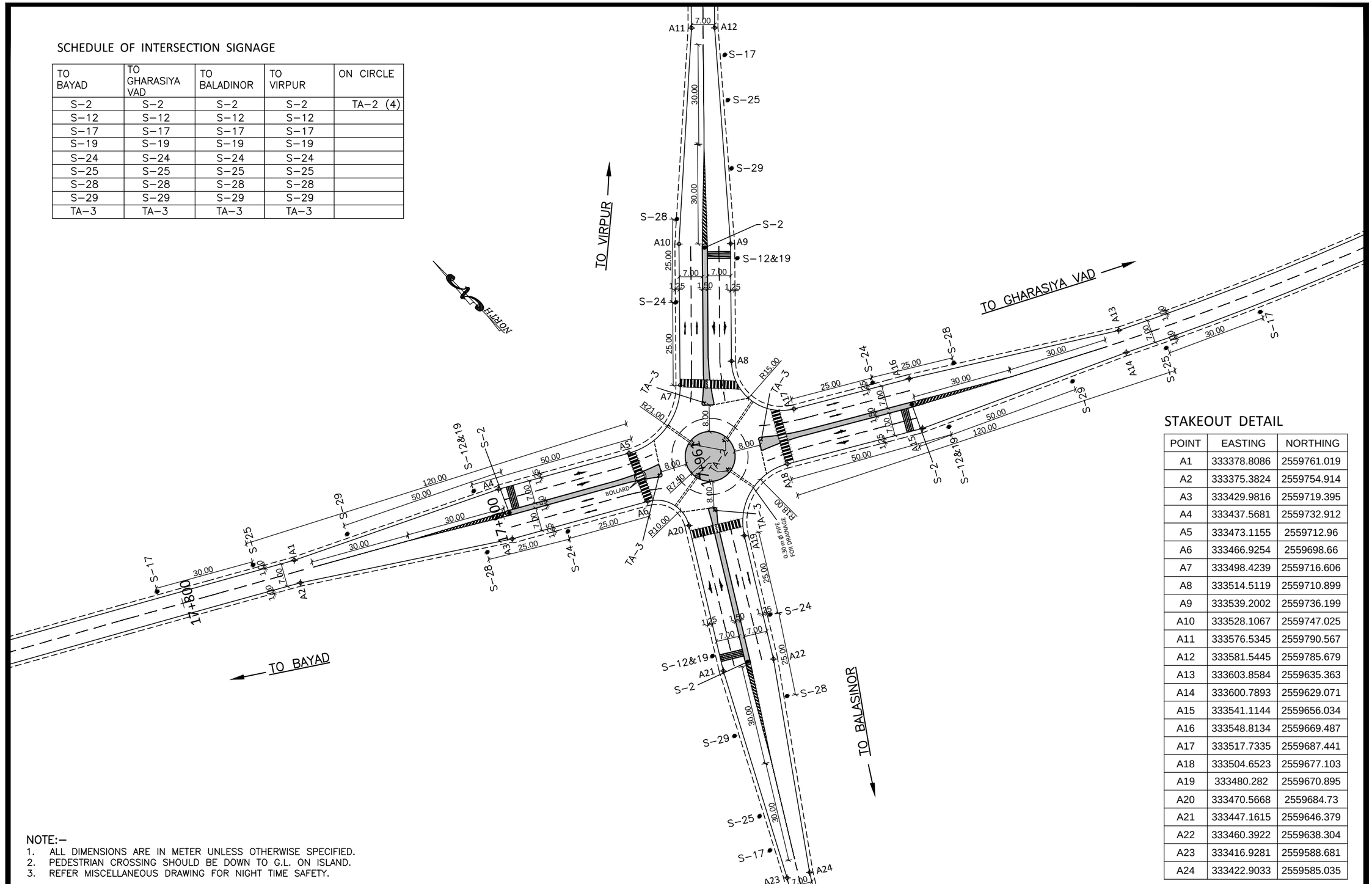
CORRIDOR : BAYAD TO DHORIDUNGRI SH-69

DETAILS OF INTERSECTION AT CH. 0+000 NEAR BAYAD

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BL/INT-01	0

SCHEDULE OF INTERSECTION SIGNAGE

TO BAYAD	TO GHARASIYA VAD	TO BALADINOR	TO VIRPUR	ON CIRCLE
S–2	S–2	S–2	S–2	TA–2 (4)
S–12	S–12	S–12	S–12	
S–17	S–17	S–17	S–17	
S–19	S–19	S–19	S–19	
S–24	S–24	S–24	S–24	
S–25	S–25	S–25	S–25	
S–28	S–28	S–28	S–28	
S–29	S–29	S–29	S–29	
TA–3	TA–3	TA–3	TA–3	



NOTE:–
1. ALL DIMENSIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. PEDESTRIAN CROSSING SHOULD BE DOWN TO G.L. ON ISLAND.
3. REFER MISCELLANEOUS DRAWING FOR NIGHT TIME SAFETY.

STAKEOUT DETAIL

POINT	EASTING	NORTHING
A1	333378.8086	2559761.019
A2	333375.3824	2559754.914
A3	333429.9816	2559719.395
A4	333437.5681	2559732.912
A5	333473.1155	2559712.96
A6	333466.9254	2559698.66
A7	333498.4239	2559716.606
A8	333514.5119	2559710.899
A9	333539.2002	2559736.199
A10	333528.1067	2559747.025
A11	333576.5345	2559790.567
A12	333581.5445	2559785.679
A13	333603.8584	2559635.363
A14	333600.7893	2559629.071
A15	333541.1144	2559656.034
A16	333548.8134	2559669.487
A17	333517.7335	2559687.441
A18	333504.6523	2559677.103
A19	333480.282	2559670.895
A20	333470.5668	2559684.73
A21	333447.1615	2559646.379
A22	333460.3922	2559638.304
A23	333416.9281	2559588.681
A24	333422.9033	2559585.035

No.	REVISION	DATE	BY

SCALE : 1 : 750

CAD FILE: 2. INT 17+961 (DHORIDUGRI)

DRAWN:	HARSHAL
CHECKED:	DIV'S
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD TO DHORIDUNGRI SH–69

DETAILS OF INTERSECTION AT CH. 17+961 NEAR DHORIDUGRI

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BL/INT–02	0

CORRIDOR: BAYAD TO DHORIDUNGARI

BAYAD TO DHORIDUNGARI

ACCESS		
SR. NO.	CHAINAGE	TYPE
1	0+350.05	TYPE–2
2	0+689.45	TYPE–2
3	1+870.56	TYPE–2
4	2+441.33	TYPE–2
5	2+644.49	TYPE–2
6	4+327.72	TYPE–2
7	4+562.09	TYPE–2
8	5+372.46	TYPE–2
9	6+006.61	TYPE–2
10	6+352.68	TYPE–2
11	7+353.85	TYPE–2
12	7+919.31	TYPE–2
13	8+042.96	TYPE–2
14	8+401.70	TYPE–2
15	8+401.70	TYPE–2
16	8+717.21	TYPE–2
17	8+683.83	TYPE–2
18	9+815.55	TYPE–2
19	10+004.94	TYPE–2
20	10+480.93	TYPE–2
21	10+530.65	TYPE–2
22	11+296.28	TYPE–2
23	11+303.47	TYPE–2
24	11+344.60	TYPE–2
25	11+695.75	TYPE–2
26	11+676.53	TYPE–2
27	11+703.65	TYPE–2
28	11+778.41	TYPE–2
29	11+769.16	TYPE–2
30	11+885.04	TYPE–2
31	12+070.78	TYPE–2
32	12+388.30	TYPE–2
33	12+489.93	TYPE–2
34	12+562.96	TYPE–2
35	12+663.45	TYPE–2
36	12+833.16	TYPE–2
37	12+830.78	TYPE–2
38	13+290.02	TYPE–2
39	13+263.99	TYPE–2
40	13+499.38	TYPE–2
41	13+684.55	TYPE–2
42	14+239.25	TYPE–2
43	15+385.16	TYPE–2
44	16+727.91	TYPE–2
45	17+625.00	TYPE–2

INTERSECTION		
SR. NO.	CHAINAGE	TYPE
1	0+711.45	TYPE–2
2	2+641.20	TYPE–2
3	3+713.63	TYPE–2
4	4+325.33	TYPE–2
5	6+305.38	TYPE–2
6	7+360.65	TYPE–2
7	7+395.56	TYPE–2
8	10+310.79	TYPE–2
9	10+824.12	TYPE–2
10	11+389.70	TYPE–2
11	11+400.00	TYPE–2
12	11+461.80	TYPE–1
13	11+462.70	TYPE–2
14	12+090.84	TYPE–2
15	12+209.28	TYPE–2
16	12+346.23	TYPE–2
17	14+125.00	TYPE–2
18	14+458.56	TYPE–2
19	14+450.00	TYPE–2
20	15+303.45	TYPE–2
21	15+308.63	TYPE–2
22	16+800.00	TYPE–2

ZEBRA CROSSING		
Sr. No	Station	LOCATION
BAYAD-DHORIDUNGRI		
1	2+625	MAHADEVPURA
2	3+075	VIRAJINA MUVADA
3	5+155	SAVELA
4	6+280	TALOD
5	7+305	ANANDPURA
6	10+500	SCHOOL AT SATHAMBA
7	10+770	SCHOOL AT SATHAMBA
8	11+305	SATHAMBA
9	12+085	SATHAMBA
10	14+145	JALAMPURA
11	14+245	JALAMPURA
12	15+265	HATHIPURA
13	15+320	HATHIPURA

RAISED PEDESTRIAN CROSSING		
Sr. No	STATION	LOCATION
BAYAD-DHORIDUNGRI		
1	4+405	SAVELA
2	11+435	SATHAMBA
3	11+655	SATHAMBA

Rumble strips		
Sr. No	STATION	LOCATION
BAYAD-DHORIDUNGRI		
1	2+540	MAHADEVPURA
2	4+275	SAVELA
3	4+500	SAVELA
4	7+265	ANANDPURA
5	7+420	ANANDPURA
6	10+720	SCHOOL AT SATHAMBA (CH.10+775)
7	10+820	SCHOOL AT SATHAMBA (CH.10+775)
8	11+375	SATHAMBA LHS
9	11+605	SCHOOL AT SATHAMBA LHS (CH.11+660)
10	11+705	SCHOOL AT SATHAMBA RHS (CH.11+660)
11	12+035	SATHAMBA BUS STOP
12	12+135	SATHAMBA BUS STOP
13	14+100	JALAMPUR
14	14+300	JALAMPUR
15	15+210	HATHIPURA
16	15+385	HATHIPURA

MAJOR INTERSECTION					
Sr. No	CHAINAGE	NAME	RUMBLE STRIPS	ZEBRA CROSSING	SPEED HUMP
BAYAD-DHORIDUNGRI					
1	000+000	BAYAD	3	3	–
2	17+961	DHORIDUNGRI	4	4	–

No.	REVISION	DATE	BY

SCALE :

CAD FILE: 1 Schedule_Access & Int.–R1

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR: BAYAD TO DHORIDUNGARI
INTERSECTION, ACCESS, ZEBRA CROSSING, MAJOR INTERSECTION
RAISED PEDESTRIAN CROSSING, RUMBLE STRIPS

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BL/H/SCH/01	0

BAYAD-DHORIDUNGRI LOCATION SCHEDULE OF SIGNAGE (LEFT SIDE)

Sr. No	Chainage	Sign	Side
Bayad–Dhoridungri			
1	00+025	S45	LHS
2	00+560	S9(R)	LHS
3	00+680	S21	LHS
4	01+715	S9(R)	LHS
5	01+835	S21	LHS
6	02+130	S5(L)	LHS
7	02+475	S19	LHS
8	02+490	S29	LHS
9	02+500	S16	LHS
10	02+510	S45	LHS
11	02+520	S4	LHS
12	02+540	S53	LHS
13	02+680	S5(R)	LHS
14	02+800	S58	LHS
15	02+925	S19	LHS
16	02+975	S29	LHS
17	03+560	S9(L)	LHS
18	03+680	S21	LHS
19	04+175	S9(L)	LHS
20	04+225	S29	LHS
21	04+250	S4	LHS
22	04+265	S19	LHS
23	04+275	S53	LHS
24	04+350	S16	LHS
25	04+370	S45	LHS
26	04+550	S58	LHS
27	05+005	S19	LHS
28	05+055	S29	LHS
29	05+120	S53	LHS
30	06+125	S19	LHS
31	06+155	S9(R)	LHS
32	06+170	S17	LHS
33	06+180	S29	LHS
34	06+195	S45	LHS
35	06+275	S21	LHS
36	07+155	S19	LHS
37	07+210	S29	LHS
38	07+220	S9(L)	LHS
39	07+230	S45	LHS
40	07+250	S53	LHS
41	07+260	S4	LHS
42	07+345	S21	LHS
43	07+500	S58	LHS
44	08+570	S9(R)	LHS
45	08+670	S21	LHS
46	10+160	S9(R)	LHS
47	10+260	S21	LHS
48	10+290	S5(L)	LHS
49	10+350	S19	LHS
50	10+365	S16	LHS
51	10+400	S29	LHS
52	10+575	S16	LHS
53	10+620	S19	LHS
54	10+635	S9(L)	LHS
55	10+670	S29	LHS
56	10+725	S4	LHS
57	10+800	S58	LHS
58	10+960	S46	LHS
59	11+140	S29	LHS
60	11+155	S19	LHS
61	11+200	S4	LHS
62	11+265	S8	LHS
63	11+280	S19	LHS
64	11+295	S46	LHS
65	11+305	S4	LHS
66	11+325	S29	LHS
67	11+375	S53	LHS
68	11+410	S45	LHS
69	11+460	S50	LHS
70	11+500	S19	LHS
71	11+510	S16	LHS
72	11+540	S9(L)	LHS
73	11+550	S29	LHS
74	11+700	S58	LHS

Sr. No	Chainage	Sign	Side
Bayad–Dhoridungri			
75	11+800	S38	LHS
76	11+925	S19	LHS
77	11+940	S9(L)	LHS
78	11+985	S29	LHS
79	12+025	S5(L)	LHS
80	12+040	S9(R)	LHS
81	12+060	S21	LHS
82	12+065	S45	LHS
83	12+520	S57	LHS
84	12+850	S9(R)	LHS
85	12+960	S21	LHS
86	13+125	S13(R)	LHS
87	13+905	S5(R)	LHS
88	13+975	S9(L)	LHS
89	13+995	S19	LHS
90	14+050	S29	LHS
91	14+075	S16	LHS
92	14+095	S21	LHS
93	14+170	S45	LHS
94	14+175	S4	LHS
95	14+250	S58	LHS
96	14+305	S8	LHS
97	14+425	S21	LHS
98	15+025	S16	LHS
99	15+120	S19	LHS
100	15+150	S9(R)	LHS
101	15+160	S29	LHS
102	15+245	S45	LHS
103	15+270	S21	LHS
104	16+650	S9(R)	LHS
105	16+770	S21	LHS
106	17+775	S45	LHS
107	17+890	S50	LHS

No.	REVISION	DATE	BY

SCALE :

CAD FILE: 2 SIGNAGE SCHEDULE –1 BL

DRAWN:	KIRAN
CHECKED:	NAGA
DESIGNED:	–
CHECKED:	–

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR: BAYAD–DHORIDUNGRI
LOCATION SCHEDULE OF SIGNAGE–LHS

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BL/H/SCH/02	0

BAYAD-DHORIDUNGRI LOCATION SCHEDULE OF SIGNAGE (RIGHT SIDE)

Sr. No	Chainage	Sign	Side
Bayad–Dhoridungri			
1	00+200	S45	RHS
2	00+740	S21	RHS
3	00+860	S9(L)	RHS
4	01+895	S21	RHS
5	02+015	S9(L)	RHS
6	02+480	S5(R)	RHS
7	02+550	S58	RHS
8	02+740	S53	RHS
9	02+755	S45	RHS
10	02+775	S19	RHS
11	02+790	S29	RHS
12	02+800	S16	RHS
13	02+810	S4	RHS
14	03+050	S5(L)	RHS
15	03+175	S29	RHS
16	03+225	S19	RHS
17	03+740	S21	RHS
18	03+860	S9(R)	RHS
19	04+250	S58	RHS
20	04+405	S53	RHS
21	04+430	S45	RHS
22	04+475	S9(R)	RHS
23	04+535	S19	RHS
24	04+550	S4	RHS
25	04+560	S29	RHS
26	04+650	S16	RHS
27	05+180	S53	RHS
28	05+255	S29	RHS
29	05+305	S19	RHS
30	06+335	S21	RHS
31	06+350	S45	RHS
32	06+375	S29	RHS
33	06+400	S17	RHS
34	06+425	S19	RHS
35	06+455	S9(L)	RHS
36	07+300	S58	RHS
37	07+380	S45	RHS
38	07+405	S21	RHS
39	07+425	S53	RHS
40	07+455	S19	RHS
41	07+470	S29	RHS
42	07+500	S4	RHS
43	07+525	S9(R)	RHS
44	08+730	S21	RHS
45	08+870	S9(L)	RHS
46	10+340	S21	RHS
47	10+460	S9(L)	RHS
48	10+600	S29	RHS
49	10+635	S16	RHS
50	10+650	S19	RHS
51	10+725	S58	RHS
52	10+745	S5(R)	RHS
53	10+800	S4	RHS
54	10+870	S29	RHS
55	10+880	S16	RHS

Sr. No	Chainage	Sign	Side
Bayad–Dhoridungri			
56	10+920	S19	RHS
57	10+935	S9(R)	RHS
58	11+020	S46	RHS
59	11+200	S58	RHS
60	11+355	S46	RHS
61	11+400	S4	RHS
62	11+470	S45	RHS
63	11+485	S53	RHS
64	11+520	S50	RHS
65	11+550	S29	RHS
66	11+575	S8	RHS
67	11+600	S19	RHS
68	11+700	S4	RHS
69	11+750	S29	RHS
70	11+800	S19	RHS
71	11+810	S16	RHS
72	11+850	S9(R)	RHS
73	12+120	S21	RHS
74	12+140	S45	RHS
75	12+185	S29	RHS
76	12+235	S19	RHS
77	12+250	S9(R)	RHS
78	12+350	S29	RHS
79	12+360	S19	RHS
80	12+360	S9(L)	RHS
81	12+445	S5(R)	RHS
82	12+700	S37	RHS
83	12+820	S57	RHS
84	13+030	S21	RHS
85	13+150	S9(L)	RHS
86	13+425	S13(R)	RHS
87	14+155	S21	RHS
88	14+175	S58	RHS
89	14+205	S45	RHS
90	14+250	S4	RHS
91	14+275	S9(R)	RHS
92	14+350	S29	RHS
93	14+365	S5(L)	RHS
94	14+375	S16	RHS
95	14+395	S19	RHS
96	14+485	S21	RHS
97	14+605	S8	RHS
98	15+325	S16	RHS
99	15+330	S21	RHS
100	15+330	S45	RHS
101	15+430	S29	RHS
102	15+450	S9(L)	RHS
103	15+470	S19	RHS
104	16+830	S21	RHS
105	16+950	S9(L)	RHS
106	17+950	S50	RHS

No.	REVISION	DATE	BY

SCALE :

CAD FILE: 3 SIGNAGE SCHEDULE –2 BL

DRAWN:	KIRAN
CHECKED:	NAGA
DESIGNED:	–
CHECKED:	–

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR: BAYAD–DHORIDUNGRI
LOCATION SCHEDULE OF SIGNAGE–RHS

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BL/H/SCH/03	0

CORRIDOR: BAYAD TO DHORIDUNGRI

Crash barrier					
LHS			RHS		
LOCATION	FROM	TO	LOCATION	FROM	TO
SH-69 (BAYAD TO DHORIDUNGRI)					
TREE	0+340	0+345	TREES	0+330	0+345
TREES	0+695	0+710	TREES	0+500	0+540
TREE	1+080	1+085	TREE	0+670	0+675
TREES	1+555	1+620	TREES	1+060	1+080
TREE	1+860	1+865	TREE	1+125	1+130
TREES	2+055	2+075	TREES	1+370	1+380
TREES	2+400	2+415	TREES	1+595	1+640
TREE	2+630	2+635	TREES	1+875	1+910
TREE	2+765	2+770	TREES	2+030	2+100
TREES	2+880	2+915	TREES	2+265	2+295
TREES	2+985	3+080	TREES	2+615	2+630
TREES	3+220	3+250	TREE	2+745	2+755
TREES	3+370	3+385	TREES	2+880	2+905
TREES	3+555	3+675	TREES	2+985	3+125
TREES	4+000	4+070	TREES	3+220	3+250
TREES	4+175	4+310	TREE	3+605	3+610
TREES	4+430	4+440	TREES	3+710	3+730
TREES	4+650	4+710	TREES	3+870	3+905
TREES	5+000	5+020	TREES	4+160	4+190
TREES	5+540	5+565	TREES	4+270	4+320
TREES	5+635	5+670	TREES	4+420	4+475
TREES	5+770	5+780	TREES	4+800	5+000
TREE	6+470	6+475	TREES	5+505	5+550
TREE	6+690	6+735	TREE	6+455	6+460
TREE	6+920	6+935	TREE	6+895	6+935
TREE	7+700	7+730	TREE	7+235	7+260
TREE	8+000	8+025	TREE	7+620	7+650
TREE	8+125	8+160	TREE	7+700	7+735
TREES	8+900	8+910	TREE	7+790	7+825
TREES	13+010	13+075	TREE	8+010	8+015
TREES	13+400	13+410	TREES	8+290	8+390
TREES	13+470	13+480	TREES	8+730	8+760
TREES	14+995	15+000	TREES	8+920	8+955
			TREES	9+920	9+950
			TREES	10+030	10+035
			TREES	10+105	10+110
			TREES	10+225	10+230
			TREES	10+380	10+390
			TREES	10+565	10+615
			TREES	12+845	12+850
			TREES	13+000	13+030
			TREES	13+175	13+225
			TREES	13+395	13+405
			TREES	14+830	14+845
			TREES	16+800	16+830
			TREES	17+130	17+135

Footpath with RCC drain					
Sr. no	Location	From	To	Side	
1	SATHMBA	11+000	12+400	BOTH	
Footpath					
Sr. no	Location	From	To	Side	Pedestrian guide rail (SIDE)
SH-69 (BAYAD TO DHORIDUNGRI)					
1	MAHADEVPURA	2+535	2+725	BOTH	BOTH
2	VIRAJI NA MUVADA	3+025	3+125	BOTH	–
3	SAVELA	4+250	4+500	BOTH	BOTH
4	SAVELA	5+100	5+200	BOTH	–
5	SATHAMBA	10+450	10+775	BOTH	BOTH
6	JALAMPURA	14+100	14+300	BOTH	BOTH
7	HATHIPURA	15+225	15+350	BOTH	BOTH

Speed limit in following Locations				
Sr. no	from	To	Village	Speed limit
SH-69 (BAYAD TO DHORIDUNGRI)				
1	2+550	2+800	MAHADEVPURA	30
2	4+250	4+550	SAVELA	30
3	7+300	7+500	ANANDPURA KAMPA	30
4	10+725	10+800	SATHAMBA SCHOOL	30
5	11+200	11+700	SATHAMBA	30
6	14+175	14+250	KASHYAVANT SCHOOL	30

SIGNAGE FOR MEDIAN OPENING (B-D)			
Left Side signs		Right Side signs	
STATION	SIGN TYPE	STATION	SIGN TYPE
11+250	S39	11+350	S39
11+350	S39	11+430	S39
11+430	S39	11+480	S39
11+650	S39	11+750	S39
12+040	S39	12+140	S39
12+300	S39	12+400	S39

MEDIAN OPENING - (SATHAMBA)	
Bayad-Dhoridungri	
Sr. No	**Locations**
1	11+300
2	11+400
3	11+460
4	11+700
5	12+090
6	12+345

UTILITY CROSSING		
BAYAD TO DHORIDUNGRI		
	UTILITY CROSSING	
SR.NO.	STATION	LOCATION
1	STA: 0+025	BAYAD
2	STA: 11+025	SATHAMBA
3	STA: 11+550	
4	STA: 12+083	
5	STA: 17+925	DHORIDUNGRI

Details of Proposed new bus stand + Bus byes						
Sr. No	Chainage	Village	Side	Remarks	TYPE	Condition
1	0+047	BAYAD	LHS	ONLY NEW BUS STOP	BUS SHELTER	OK
2	2+669	MAHADEVPURA	RHS	ONLY BUS BYE	TYPE–3	OK
3	2+590	MAHADEVPURA	LHS	NEW	TYPE–2	
4	4+350	SAVELA	RHS	NEW	TYPE–3	NOT OK
5	4+455	SAVELA	LHS	NEW	TYPE–3	
6	6+266	TALOD	RHS	ONLY BUS BYE	TYPE–1	OK
7	7+315	ANANDPURA KAMPA	LHS	NEW	TYPE–2	
8	14+126	JALAMPUR	RHS	ONLY BUS BYE	TYPE–3	OK
9	14+256	JALAMPUR	LHS	NEW	TYPE–3	
10	15+256	HATHIPURA	RHS	NEW	TYPE–1	NOT OK
11	15+330	HATHIPURA	LHS	NEW	TYPE–1	
12	17+925	DHORIDUNGRI	LHS	ONLY NEW BUS STOP	BUS SHELTER	NOT OK

4 LANE SECTION

SATHAMBA VILLAGE	
FROM	TO
11+000	12+400

No.	REVISION	DATE	BY

SCALE :

CAD FILE: 4 Schedule_Crash barrier & bus stop–R1

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR: BAYAD TO DHORIDUNGRI
CRASH BARRIER, FOOTPATH WITH RCC DRAIN, 4 LANE SECTION
SPEED LIMIT IN FOLLOWING LOCATIONS, UTILITY CROSSING
SPEEPROPOSED NEW BUS STAND + BUS BYES+RETAINING WALL

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BL/H/SCH/04	0

AFP (ALUMINUM BACKED FLEXIBLE PRISMATIC) USED FOR THE FOLLOWING STRUCTURES

BAYAD-DHORIDUNGRI

Sr.No	Design Chainage	Culvert No.	Type
1	0+010	1/1	Pipe Culvert
2	0+700	1/2	Pipe Culvert
3	1+155	2/1	Pipe Culvert
4	1+550	2/2	Canal Minor Bridge
5	2+980	3/1	Pipe Culvert
6	4+150	5/1	Minor Bridge
7	4+560	5/2	Pipe Culvert
8	4+630	5/3	Pipe Culvert
9	5+160	6/1	Pipe Culvert
10	5+600	6/2	Pipe Culvert
11	5+830	6/3	Pipe Culvert
12	5+965	6/4	Pipe Culvert
13	6+710	7/1	Pipe Culvert
14	7+410	8/1	Pipe Culvert
15	8+110	9/1	Pipe Culvert
16	8+585	9/2	Slab Culvert
17	9+070	10/1	Minor Bridge
18	10+050	11/1	Pipe Culvert
19	10+415	11/2	Pipe Culvert
20	11+475	12/1	Pipe Culvert
21	12+200	13/1	Pipe Culvert
22	12+300	13/2	Pipe Culvert
23	12+670	13/3	Pipe Culvert
24	14+010	15/1	Box Culvert
25	15+400	16/1	Minor Bridge
26	15+580	16/2	Box Culvert

No.	REVISION	DATE	BY

SCALE :

CAD FILE: 5 Schedule for AFP–BL

DRAWN:	KIRAN
CHECKED:	NAGA
DESIGNED:	–
CHECKED:	–

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR: BAYAD TO DHORIDUNGRI

AFP (ALUMINUM BACKED FLEXIBLE PRISMATIC) USED FOR THE FOLLOWING STRUCTURES

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BL/H/SCH/05	0

GPS LOCATION OF BAYAD - LUNAWADA

Point ID	Northing	Easting	Elevation	Station (Existing KM)	Side	Offset from Existing C/L	Feature Code
Bayad-Dhori Dungri							
GPS −16	2565122.0090	318070.066	113.656	0+320.78	RHS	13.589	GPS −16 on RCC stone,R/S of
GPS −15	2564194.5762	320799.056	115.795	3+225.64	RHS	22.809	GPS −15 on RCC stone,R/S
GPS −14	2563783.4911	323831.823	130.376	6+353.35	RHS	12.746	GPS −14 on RCC stone,R/S
GPS −13/BS	2563452.2974	327441.828	135.263	9+998.89	LHS	22.069	GPS −13/BS on RCC stone,L/S
GPS −13	2563408.6761	327589.612	135.278	10+152.34	LHS	8.039	GPS −13 on RCC stone,L/S
GPS −12	2562599.8668	330620.026	144.986	13+601.47	LHS	5.853	GPS −12 on RCC stone,R/S
GPS −11	2560305.2119	332418.772	159.024	16+732.18	LHS	11.143	GPS −11 on RCC stone,L/S
Dhori Dungri-Garasiyawada							
GPS−10	2559377.4840	334544.084	156.394	1+110.83	LHS	15.525	GPS−10 on RCC stone R/S
GPS−9A	2559063.7750	336580.583	118.231	3+261.54	LHS	12.066	GPS−9A on Canal R/S
GPS−8	2558708.0740	339648.906	101.467	6+429.52	RHS	11.539	GPS−8 on RCC stone L/S
GPS−7&	2558153.2990	342183.248	97.913	9+070.04	LHS	12.637	GPS−7&TBM−4 on RCC ston
GPS−6	2558570.6194	345391.949	90.92	12+339	RHS	15.96	GPS−6 on RCC stone & TBM−14/1
Lunawada-Garasiyawada							
GPS −2	2558021.588	356267.259	87.376	1+035.20	LHS	18.686	GPS −2 on RCC stone
GPS −2BS	2558064.894	356125.226	88.085	1+183.58	LHS	18.277	GPS −2BS on RCC stone
GPS −3	2560529.263	354076.969	87.108	4+532.18	RHS	34.633	GPS −3 on RCC stone
GPS −4	2561166.37	350798.591	87.629	7+892.82	RHS	160.829	GPS −4 on RCC stone
GPS −5	2559621.77	348366.43	92.57	10+758.03	LHS	25.918	GPS −5 on RCC stone & TBM−11/1

No.	REVISION	DATE	BY

SCALE :

CAD FILE: 6 Schedule for GPS

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP−II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR: BAYAD TO DHORIDUNGRI
SCHEDULE FOR GPS LOCATION

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BL/H/SCH/06	0

TBM Location

Point ID	Northing	Easting	Elevation	Station (Existing KM)	Side	Offset from Existing C/L	Feature Code
BAYAD-DHORI DUNGRI							
TBM-1	2565248.6318	317796.425	112.393	0+020.02	LHS	6.89	TBM-1 on BUS STOP SHATHAMBA
GPS -16	2565122.0090	318070.066	113.656	0+320.78	RHS	13.59	GPS -16 on RCC stone,R/S of
TBM T-2	2565001.0253	318430.962	115.165	0+700.99	LHS	4.64	TBM T-2 on culvert
PBM -1	2564925.6557	318593.022	115.211	0+879.42	RHS	5.44	PBM -1 on RCC stone,R/S
TBM T-3	2564888.5910	318713.941	115.879	1+005.49	LHS	4.69	TBM T -3 on top of KM stone No.1
TBM T -4	2564825.0928	318848.796	115.681	1+154.24	RHS	4.91	TBM T -4 on top of culvert R/S
TBM T-5	2564711.8257	319140.877	117.378	1+467.52	RHS	6.07	TBM T -5 on top of culvert R/S
TBM T-6	2564527.4623	319643.336	119.961	2+002.61	LHS	4.67	TBM T-6 on top of KM ston
PBM -2	2564519.0236	319635.241	119.31	1+998.20	RHS	6.16	PBM -2 on RCC stone,R/S
TBM T-7	2564387.4210	320169.118	117.373	2+552.03	RHS	6.25	TBM T-7 on bus stop
TBM T-8	2564318.7989	320603.986	115.474	2+995.99	LHS	4.81	TBM T -8 on top of culvert R/S
TBM T-9	2564312.7505	320617.568	115.75	3+010.86	LHS	5.16	TBM T-9 on top of KM ston
GPS -15	2564194.5762	320799.056	115.795	3+225.64	RHS	22.81	GPS -15 on RCC stone,R/S
TBM -10	2564013.1033	321250.179	117.245	3+710.84	LHS	8.79	TBM -10 on culvert
PBM -3	2563927.7477	321434.959	115.828	3+915.08	LHS	9.84	PBM -3 on RCC stone,L/S
TBM T-11	2563899.2117	321513.570	116.72	3+999.63	LHS	5.92	TBM T-11 on top of KM ston
TBM T -12	2563868.2788	321628.440	115.751	4+118.59	LHS	5.83	TBM T -12 on top of culvert R/S
TBM T-13	2563797.8241	321838.802	116.914	4+340.03	RHS	7.67	TBM T-13 on bus stop savla
PBM -4	2563769.2332	322009.389	116.968	4+512.14	LHS	9.48	PBM -4 on RCC stone,L/S
TBM T-14	2563724.2544	322121.383	116.302	4+632.04	RHS	4.27	TBM T -14 on top of culvert R/S
TBM T-15	2563682.0299	322486.725	120.42	5+003.72	LHS	4.85	TBM T-15 on top of KM ston
TBM T-16	2563691.9552	322600.888	119.932	5+118.31	LHS	4.93	TBM T -16 on top of culvert L/S
PBM -5	2563680.1650	322688.004	119.994	5+204.01	RHS	14.52	PBM -5 on RCC stone,R/S
TBM T-17	2563718.6283	323059.786	124.328	5+577.97	RHS	5.41	TBM T -17 on top of culvert L/S
TBM T-18	2563745.8589	323306.250	126.163	5+825.90	LHS	4.46	TBM T -18on top of culvert L/S
TBM T-19	2563764.4404	323477.551	126.871	5+998.20	LHS	4.62	TBM T-19 on top of KM ston
TBM T-20	2563781.3428	323771.502	130.452	6+292.28	RHS	10.00	TBM T-20 on bus stop talod
GPS -14	2563783.4911	323831.823	130.376	6+353.35	RHS	12.75	GPS -14 on RCC stone,R/S
TBM T-21	2563797.4573	324187.616	128.156	6+709.65	LHS	4.44	TBM T-21 on culvert
TBM T-22	2563794.6718	324477.387	130.262	6+999.43	LHS	5.12	TBM T-22 on top of KM ston
TBM T-23	2563802.2009	324828.127	131.302	7+350.14	LHS	17.71	TBM T-23 on temple
TBM T-24	2563748.0882	325867.689	132.353	8+397.46	RHS	9.36	TBM T-24 on otta near gate
TBM T-M-1	2563720.1603	326054.184	130.448	8+585.50	LHS	3.44	TBM T -M-1on top of culvert L/S
TBM T-25	2563680.8954	326186.082	131.318	8+722.74	RHS	6.68	TBM T-25 on otta kheriya patiya R/S.
PBM -6	2563652.8803	326318.207	130.441	8+857.76	RHS	6.48	PBM -6 on RCC stone,R/S of
TBM T-26	2563634.4760	326457.235	129.004	8+997.59	LHS	4.31	TBM T-26 on top of KM ston
PBM -7	2563558.6833	326835.666	132.091	9+383.58	LHS	7.39	PBM -7 on RCC stone,L/S
GPS -13/BS	2563452.2974	327441.828	135.263	9+998.89	LHS	22.07	GPS -13/BS on RCC stone,L/S
TBM T-27	2563436.8101	327446.946	135.812	10+006.92	LHS	7.87	TBM T-27on top of KM ston no
GPS -13	2563408.6761	327589.612	135.278	10+152.34	LHS	8.04	GPS -13 on RCC stone,L/S
TBM T-28	2563354.0198	327972.874	134.971	10+544.76	LHS	7.05	TBM T-28on culvert
TBM T-29	2563430.7155	328172.535	136.563	10+760.71	LHS	8.07	TBM T-29on culvert near, school
TBM T-30	2563499.9825	328389.056	138.587	10+987.02	RHS	13.49	TBM T-30on otta essar pump,
TBM T-31	2563638.2110	328847.020	139.144	11+474.93	RHS	8.43	TBM T-31on culvert sathamba,
TBM T-32	2563427.8085	329158.129	140.546	11+884.78	RHS	28.25	TBM T-32on otta sathamba,R/S
PBM -8	2563303.5805	329273.845	140.455	12+050.70	LHS	8.85	PBM -8 on RCC stone,L/S
TBM T-33	2563259.5018	329278.724	139.176	12+091.46	RHS	8.63	TBM T-33on bus stop sathamba
TBM T-34	2563120.5410	329422.394	138.352	12+294.36	LHS	8.40	TBM T-34on culvert ,R/S
PBM -9	2562985.3778	329686.500	139.195	12+591.58	RHS	8.37	PBM -9 on RCC stone,R/S
TBM T-35	2562836.4136	330065.143	141.469	12+998.27	LHS	4.20	TBM T-35on top of KM ston
PBM -10	2562712.8683	330315.120	143.36	13+276.72	RHS	10.66	PBM -10 on RCC stone,R/S
GPS -12	2562599.8668	330620.026	144.986	13+601.47	LHS	5.85	GPS -12 on RCC stone,R/S
TBM T-36	2562439.5872	330988.410	145.761	14+003.16	LHS	4.07	TBM T-36 on culvert L/S
TBM T-37	2562389.1500	331078.597	146.348	14+105.65	LHS	5.18	TBM T-37 on top of KM ston
TBM T-38	2562359.4766	331091.453	145.561	14+134.71	RHS	9.38	TBM T-38 on bus stop
PBM -11	2562178.1217	331231.846	146.069	14+366.56	LHS	5.88	PBM -11 on RCC stone,L/S
TBM T-39	2562101.4763	331277.874	147.695	14+455.86	LHS	9.21	TBM T-39 on culvert
PBM -12	2561748.8400	331475.776	148.982	14+860.21	LHS	13.37	PBM -12 on RCC stone,L/S
TBM -40	2561568.6128	331545.934	150.965	15+051.84	LHS	6.40	TBM -40 on top of KM ston
TBM -41	2561320.7476	331533.647	149.032	15+299.52	RHS	8.98	TBM -41 on culvert
TBM -42	2561038.6011	331571.192	149.344	15+587.16	LHS	5.24	TBM -42 on culvert
PBM -13	2560826.1226	331738.152	150.007	15+861.10	LHS	13.47	PBM -13 on RCC stone,L/S
TBM -43	2560724.0473	331814.596	152.744	15+988.35	LHS	3.92	TBM -43 on top of KM ston
PBM -14	2560487.0570	332092.727	157.268	16+358.85	LHS	10.42	PBM -14 on RCC stone,L/S
GPS -11	2560305.2119	332418.772	159.024	16+732.18	LHS	11.14	GPS -11 on RCC stone,L/S

Point ID	Northing	Easting	Elevation	Station (Existing KM)	Side	Offset from Existing C/L	Feature Code
TBM -44	2560173.9876	332637.833	156.731	16+987.43	LHS	3.74	TBM -44 on top of KM ston
PBM -13	2559861.3213	333206.726	156.456	17+636.60	LHS	7.63	PBM -13 on RCC stone,L/S
TBM -45	2559719.9554	333457.315	155.681	17+924.28	LHS	6.12	TBM -45 on top of KM ston
TBM -46	2559699.7147	333485.960	154.893	17+959.16	LHS	2.49	TBM -46 on circle
DHORI DUNGRI-GARASIYAWADA							
TBM-51	2559631.7834	334036.414	151.180	0+551.24	LHS	94.061	TBM-51 on culvert
GPS-10	2559377.4840	334544.084	156.394	1+110.83	LHS	15.525	GPS-10 on RCC stone R/S
TBM-026	2559296.4960	334820.708	157.042	1+391.85	LHS	38.941	TBM-026 on hill ston R/S
TBM-025	2559037.6810	335349.363	124.554	2+014.91	LHS	7.581	TBM-025 on top of culvert R/S
TBM-024	2558968.1800	335702.837	120.621	2+374.26	RHS	9.447	TBM-024 on top of culvert L/S
TBM-023	2558977.6010	335931.435	121.668	2+602.59	LHS	7.359	TBM-023 on top of culvert R/S
TBM-13	2558983.9860	335961.591	121.102	2+633.38	LHS	11.437	TBM-13 on RCC ston R/S
GPS-9A	2559063.7750	336580.583	118.231	3+261.54	LHS	12.066	GPS-9A on Canal R/S
TBM-022	2559092.2053	336670.505	115.258	3+354.39	LHS	50.852	TBM-022 on culvert L/S
TBM-021	2559085.9970	337024.238	113.934	3+714.73	RHS	9.828	TBM-021 on Building plinth L/S
TBM-12	2559065.8173	337345.243	109.818	4+039.18	LHS	11.142	TBM-12 on RCC ston R/S
TBM-020	2559082.0300	337496.634	108.966	4+193.13	RHS	10.962	TBM-020 on water kundi L/S
TBM-019	2559148.0780	337694.071	107.148	4+401.00	LHS	9.083	TBM-019 on well plinth R/S
TBM-11	2559157.2050	337957.130	107.346	4+664.76	RHS	9.082	TBM-11 on RCC ston L/S
TBM-018	2559117.7450	338217.858	105.070	4+930.85	RHS	1.568	TBM-018 on top of culvert L/S
TBM-10	2558946.0960	338757.659	100.920	5+497.80	RHS	15.058	TBM-10 on RCC ston L/S
TBM-016	2558920.5390	338870.709	102.356	5+613.40	RHS	5.734	TBM-016 on top of culvert L/S
TBM-015	2558855.7050	339034.794	101.670	5+790.53	RHS	5.203	TBM-015 on top of culvert L/S
TBM-9	2558738.2890	339583.998	100.473	6+358.18	RHS	2.447	TBM-9 on RCC ston L/S
GPS-8	2558708.0740	339648.906	101.467	6+429.52	RHS	11.539	GPS-8 on RCC stone L/S
TBM-01	2558666.0050	339825.583	99.946	6+610.38	LHS	5.045	TBM-013 on top of culvert R/S
TBM-8	2558573.1440	340036.521	100.378	6+839.93	RHS	15.555	TBM-8 on RCC ston L/S
TBM-01	2558454.1880	340332.788	100.233	7+160.85	RHS	3.624	TBM-012 on top of culvert R/S
TBM-01	2558307.9030	340707.673	101.007	7+563.15	RHS	6.257	TBM-011 on top of culvert L/S
TBM-7	2558268.7710	340788.263	103.184	7+652.72	RHS	13.804	TBM-7 on RCC ston L/S
TBM-6	2558182.4050	341363.039	96.138	8+245.14	RHS	10.085	TBM-6 on RCC ston L/S
TBM-5	2558188.3280	341726.437	95.243	8+610.90	RHS	11.214	TBM-5 on RCC ston.
TBM-01	2558178.1130	341903.015	96.298	8+786.99	LHS	6.921	TBM-010 on top of culvert R/S
GPS-7&	2558153.2990	342183.248	97.913	9+070.04	LHS	12.637	GPS-7&TBM-4 on RCC ston
TBM-09	2558118.8130	342720.971	93.995	9+609.05	LHS	3.855	TBM-09 on top of culvert R/S
TBM-3	2558248.3890	343279.131	95.591	10+182.92	RHS	12.515	TBM-3 on RCC ston,CANAL
TBM-07	2558359.6870	343507.230	94.856	10+435.32	LHS	9.385	TBM-07 on top of culvert R/S
TBM-2	2558403.1340	343741.418	92.895	10+672.88	RHS	10.605	TBM-2 on RCC ston L/S
TBM-06	2558429.6340	343840.645	95.104	10+775.53	RHS	3.347	TBM-06 on top of culvert L/S
TBM-05	2558489.6960	344155.759	93.034	11+096.31	RHS	6.434	TBM-05 on top of culvert L/S
TBM-04	2558512.0280	344177.802	93.406	11+121.98	LHS	11.542	TBM-04 on Unda Bus stop R/S
TBM-03	2558564.6970	344646.955	93.050	11+591.76	LHS	22.101	TBM-03 on top of culvert R/S
TBM-1	2558540.1840	344822.817	91.667	11+767.34	LHS	7.617	TBM-1 Culvert L/S
TBM T-	2558546.0900	345264.382	91.319	12+211.93	RHS	8.378	TBM T-01 on top of culvert L/S
GPS-6	2558570.6194	345391.949	90.920	12+339	RHS	15.96	GPS-6 on RCC stone & TBM-14/1
LUNAWADA-GARASIYAWADA							
TBM-1/1	2558027.745	357152.984	88.053	0+101.51	RHS	8.488	TBM-1/1
TBM-2/2	2557930.51	356931.438	86.475	0+343.26	LHS	8.952	TBM-2/2
GPS -2	2558021.588	356267.259	87.376	1+035.20	LHS	18.686	GPS -2 on RCC stone
GPS -2BS	2558064.894	356125.226	88.085	1+183.58	LHS	18.277	GPS -2BS on RCC stone
TBM-3/2	2560067.626	354786.826	90.017	3+689.25	RHS	6.489	TBM-3/2 on pavapur Bus stop
TBM-4/1	2560222.282	354532.974	89.416	3+986.31	LHS	3.297	TBM-4/1
GPS -3	2560529.263	354076.969	87.108	4+532.18	RHS	34.633	GPS -3 on RCC stone
TBM-6/1	2560975.629	352855.405	91.86	5+832.38	LHS	2.393	TBM-6/1
TBM-6/2	2560919.982	352256.056	85.984	6+438.32	RHS	7.719	TBM-6/2
TBM-7/2	2561081.087	351316.867	74.549	7+419.80	RHS	132.887	TBM-7/2
GPS -4	2561166.37	350798.591	87.629	7+892.82	RHS	160.829	GPS -4 on RCC stone
TBM-8/2	2560424.794	349964.349	91.203	8+942.67	LHS	10.494	TBM-8/2
TBM-9/2	2560091.121	349541.87	87.042	9+481.22	LHS	8.586	TBM-9/2
TBM-10/1	2559857.583	349148.998	90.754	9+938.66	LHS	14.47	TBM-10/1
TBM-10/2	2559694.228	348556.58	91.852	10+554.23	LHS	19.131	TBM-10/2
GPS -5	2559621.77	348366.43	92.57	10+758.03	LHS	25.918	GPS -5 on RCC stone & TBM-11/1
TBM-12/1	2559153.32	347328.466	89.143	11+914.98	LHS	13.042	TBM-12/1
TBM-12/2	2559006.543	346854.815	87.956	12+408.34	LHS	13.526	TBM-12/2

No.	REVISION	DATE	BY

SCALE :

CAD FILE: 7 Schedule for TBM

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

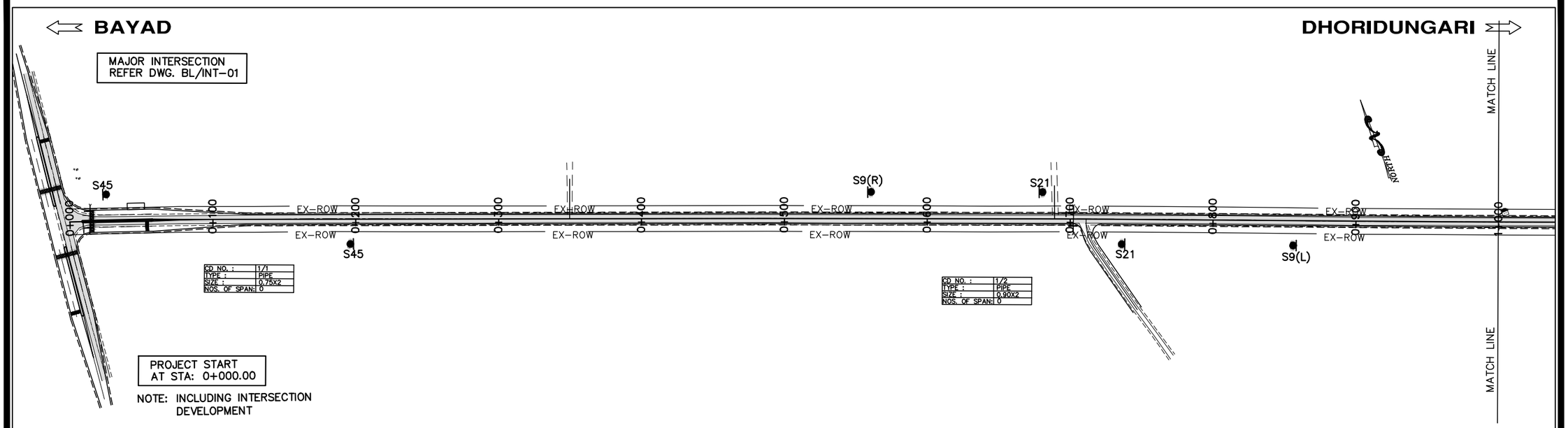
LASA INDIA

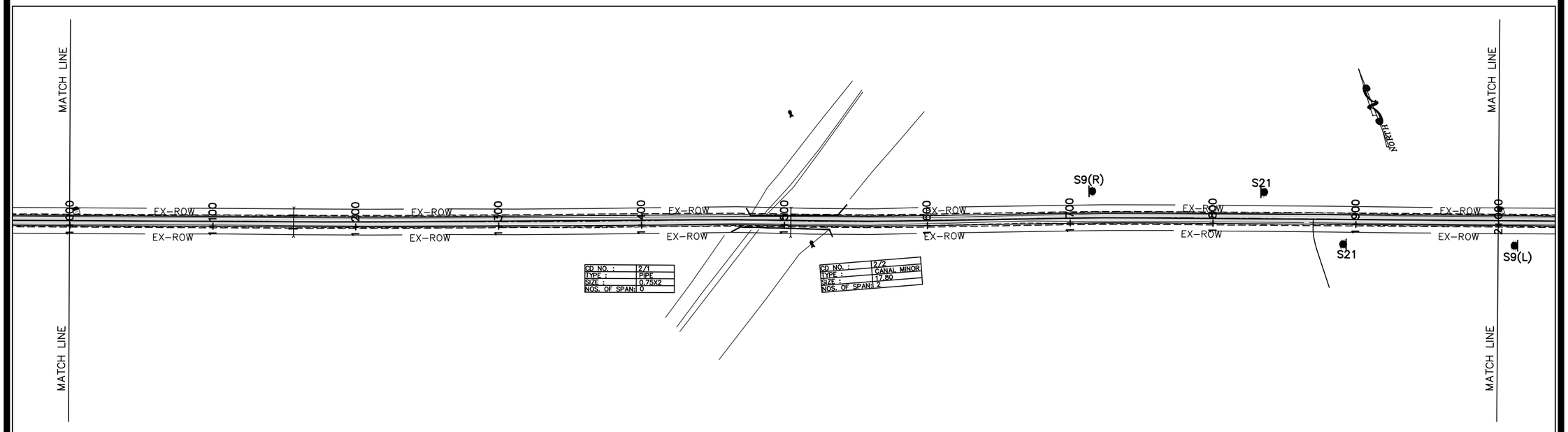
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR: BAYAD TO DHORIDUNGRI
SCHEDULE FOR TBM LOCATION

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BL/H/SCH/07	0





No.	REVISION	DATE	BY

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HORIZONTAL 1 : 2000
A2 SCALE 1:2000
A3 SCALE 1:3000

CAD FILE: SIGNAGE PLAN – BD

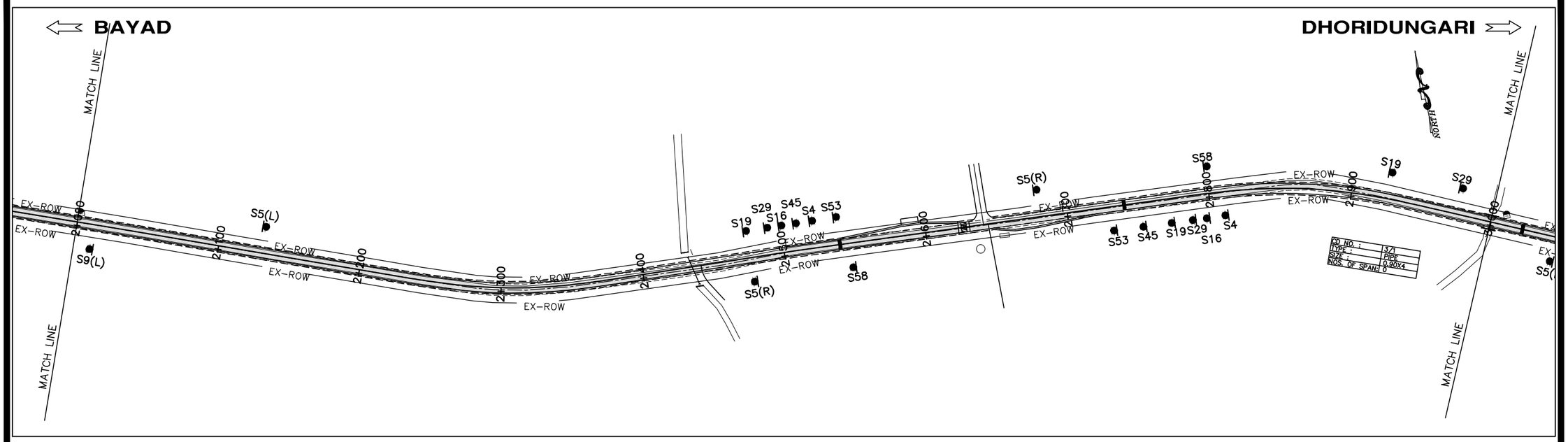
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

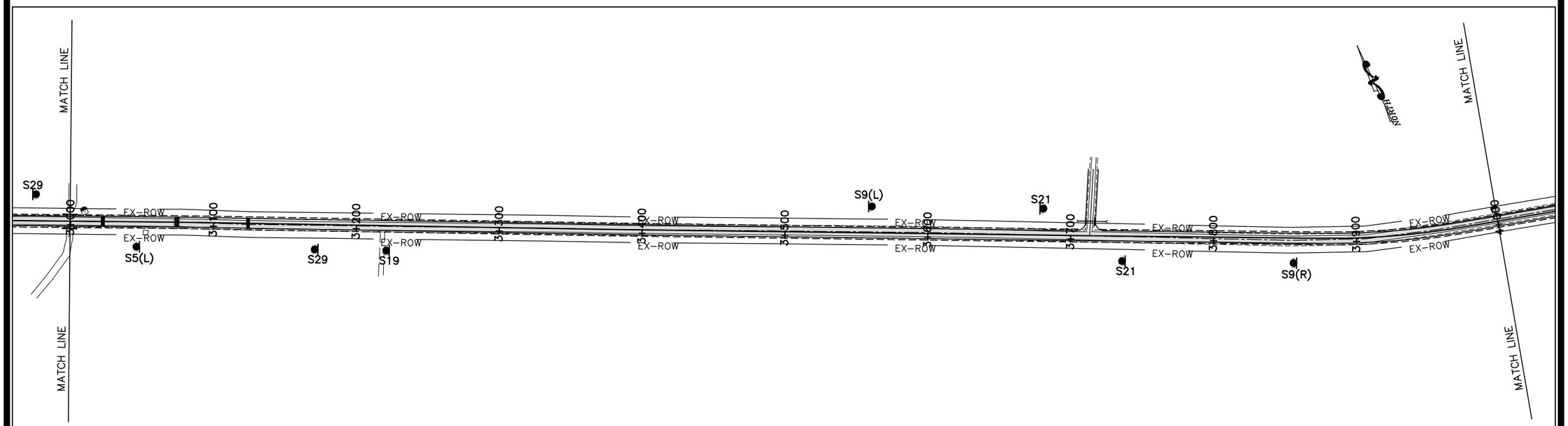
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGARI (SH–69)
SIGNAGE PLAN
STA. 00+000 TO STA. 02+000

DATE:	PROJECT:	DWG No:	REV.
JULY'2012	PPWCS	PPWCS/BD/SP/01	0





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A2 SCALE 1:2000
A3 SCALE 1:3000

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LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGARI (SH–69)
SIGNAGE PLAN
STA. 02+000 TO STA. 04+000

DATE:	PROJECT:	DWG No:	REV.
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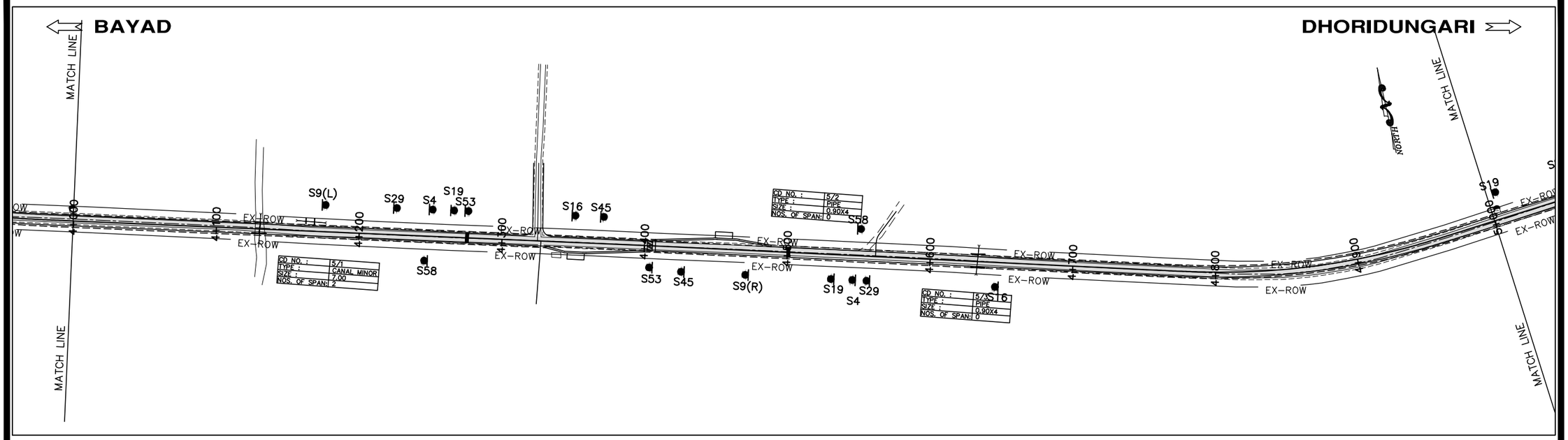

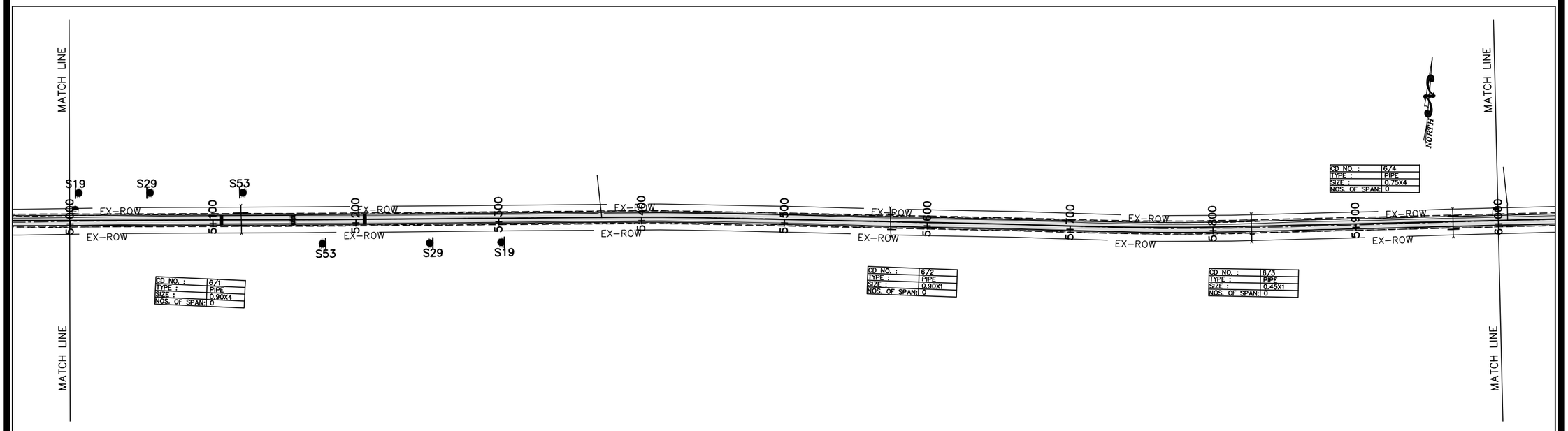

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HORIZONTAL 1 : 2000
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CAD FILE: SIGNAGE PLAN – BD

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LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGARI (SH–69)
SIGNAGE PLAN
STA. 04+000 TO STA. 06+000

DATE:	PROJECT:	DWG No:	REV.
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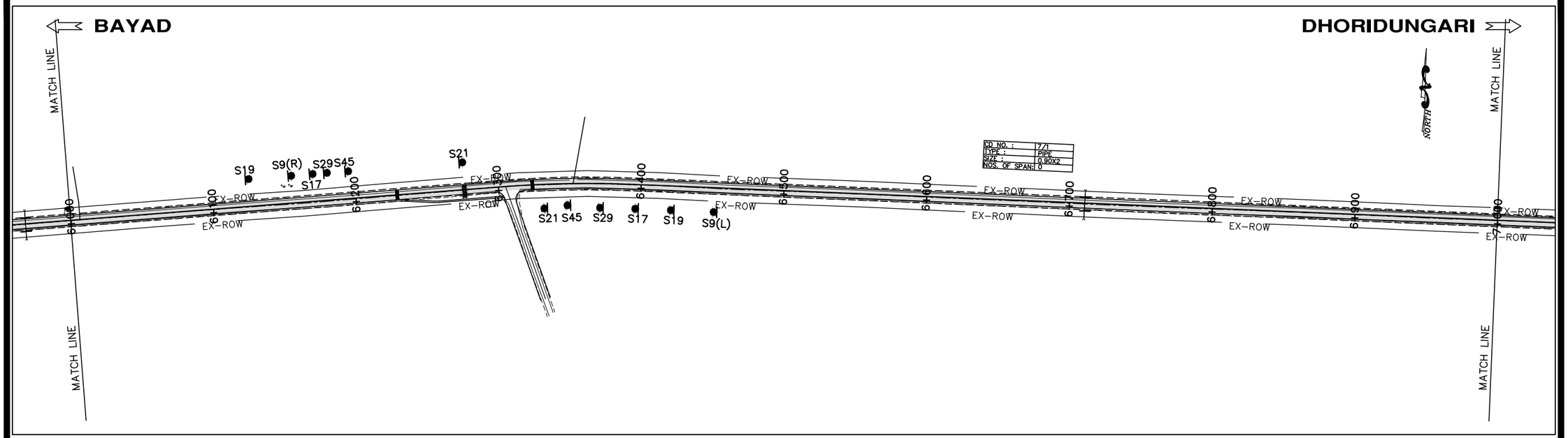

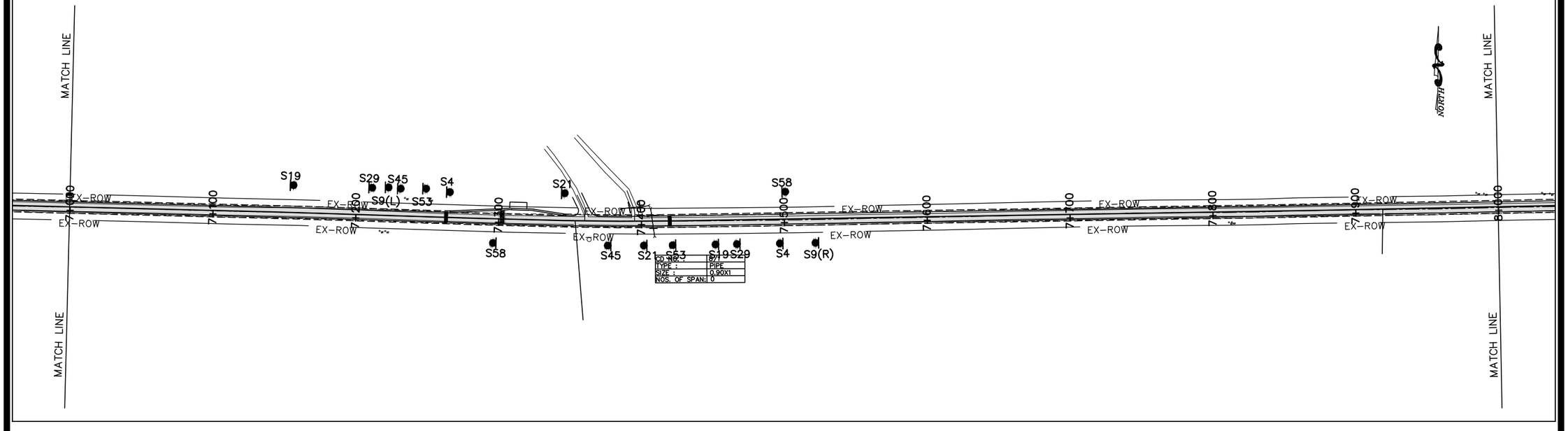

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CAD FILE: SIGNAGE PLAN – BD

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PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGARI (SH–69)
SIGNAGE PLAN
STA. 06+000 TO STA. 08+000

DATE:	PROJECT:	DWG No:	REV.
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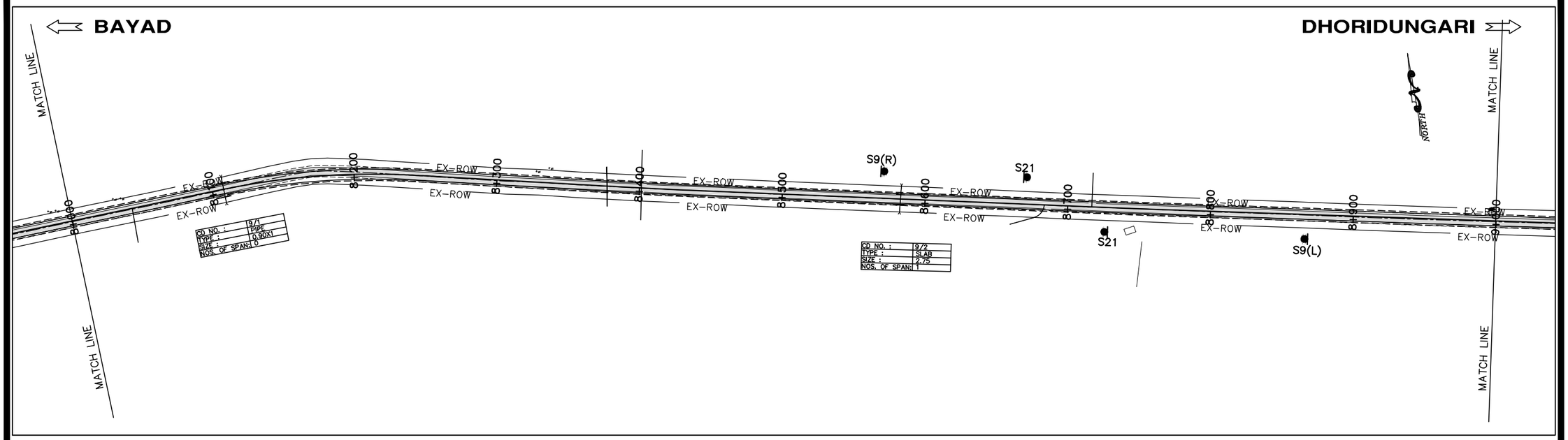

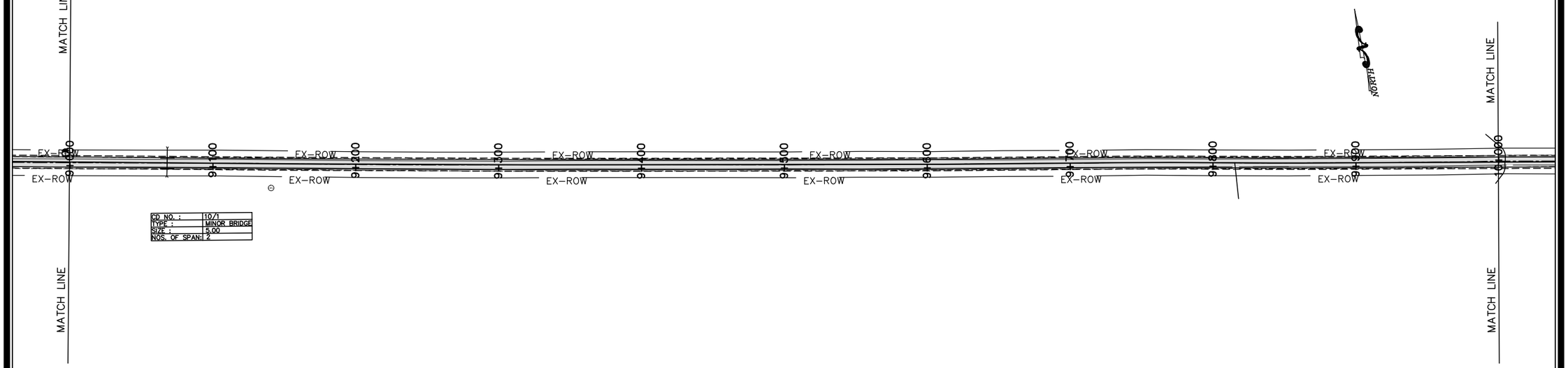

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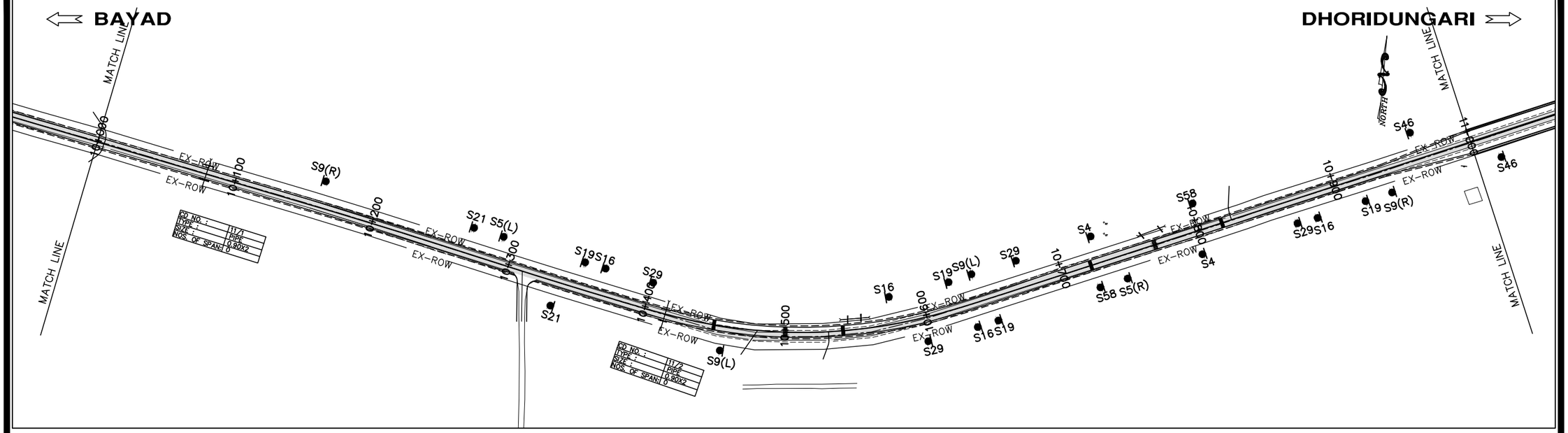
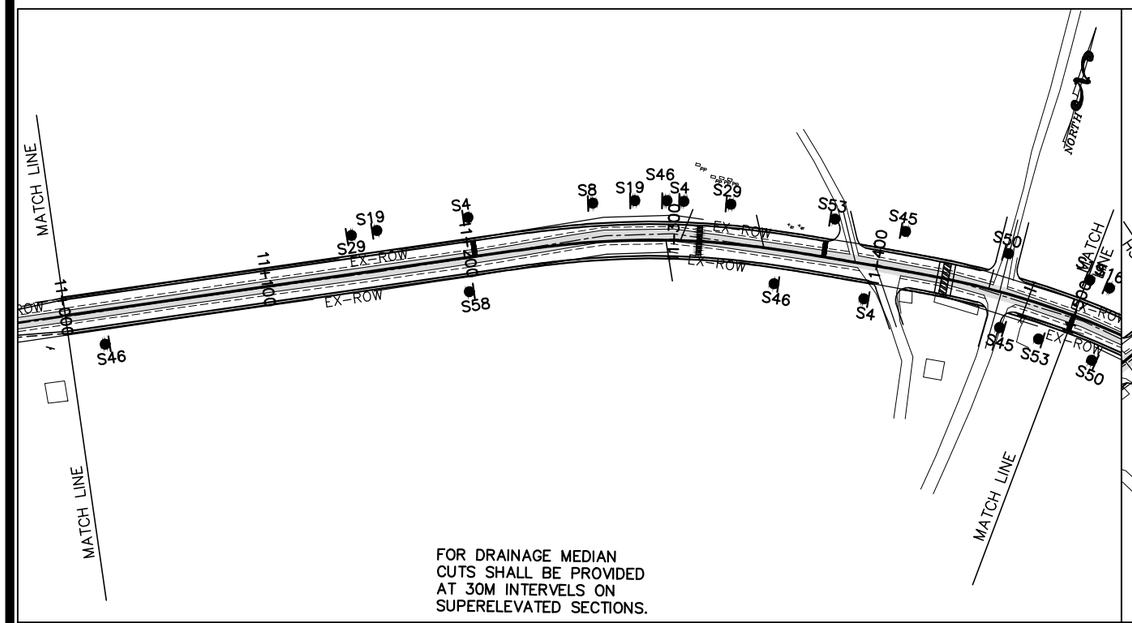
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

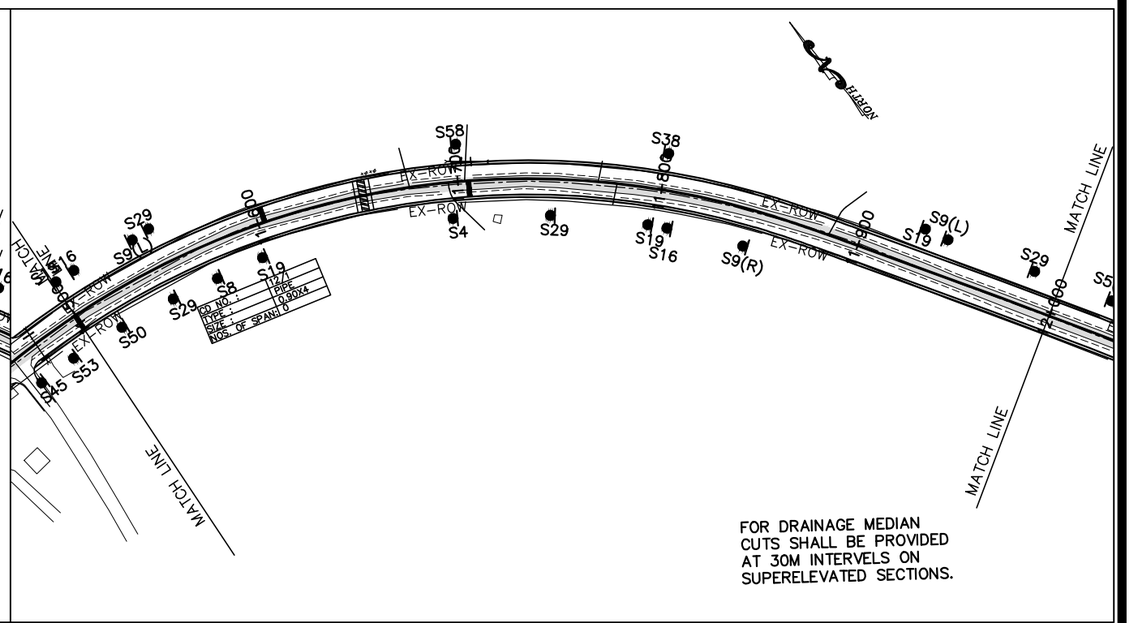
CORRIDOR : BAYAD–DHORIDUNGARI (SH–69)
SIGNAGE PLAN
STA. 08+000 TO STA. 10+000

DATE:	PROJECT:	DWG No:	REV.
JULY'2012	PPWCS	PPWCS/BD/SP/05	0





FOR DRAINAGE MEDIAN CUTS SHALL BE PROVIDED AT 30M INTERVELS ON SUPERELEVATED SECTIONS.



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CAD FILE: SIGNAGE PLAN – BD

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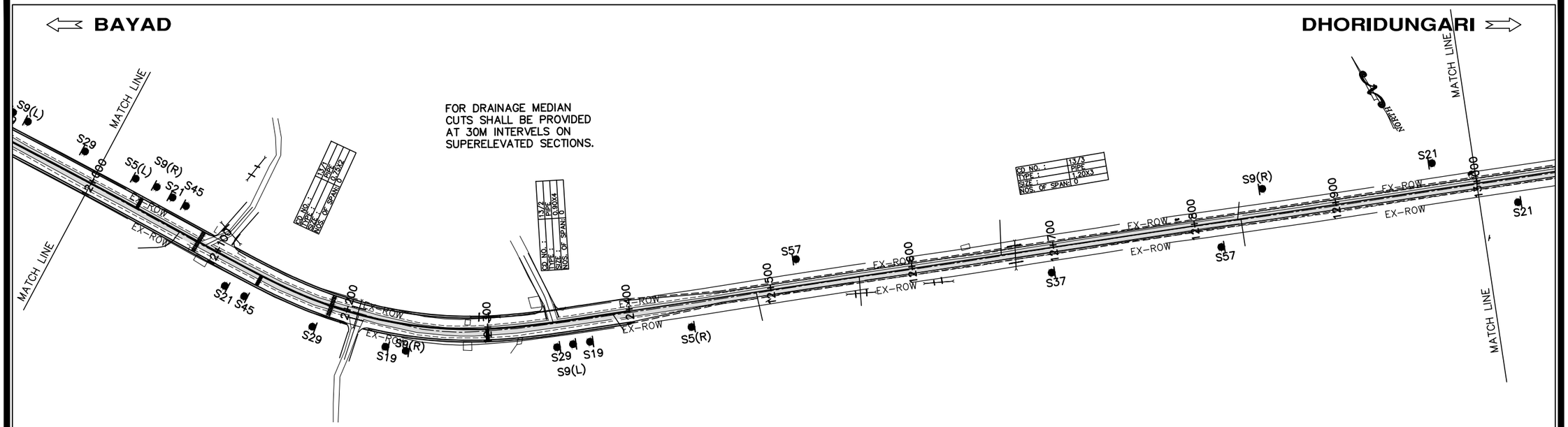
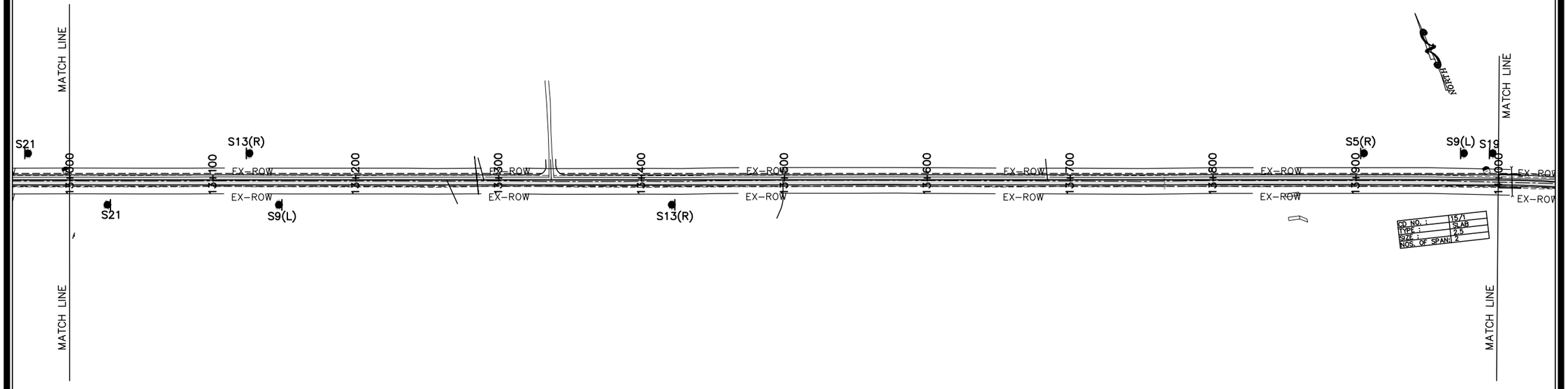
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGARI (SH–69)
SIGNAGE PLAN
STA. 10+000 TO STA. 12+000

DATE:	PROJECT:	DWG No:	REV.
JULY'2012	PPWCS	PPWCS/BD/SP/06	0





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A3 SCALE 1:3000

CAD FILE: SIGNAGE PLAN – BD

DRAWN:	KIRAN
CHECKED:	SAGAR
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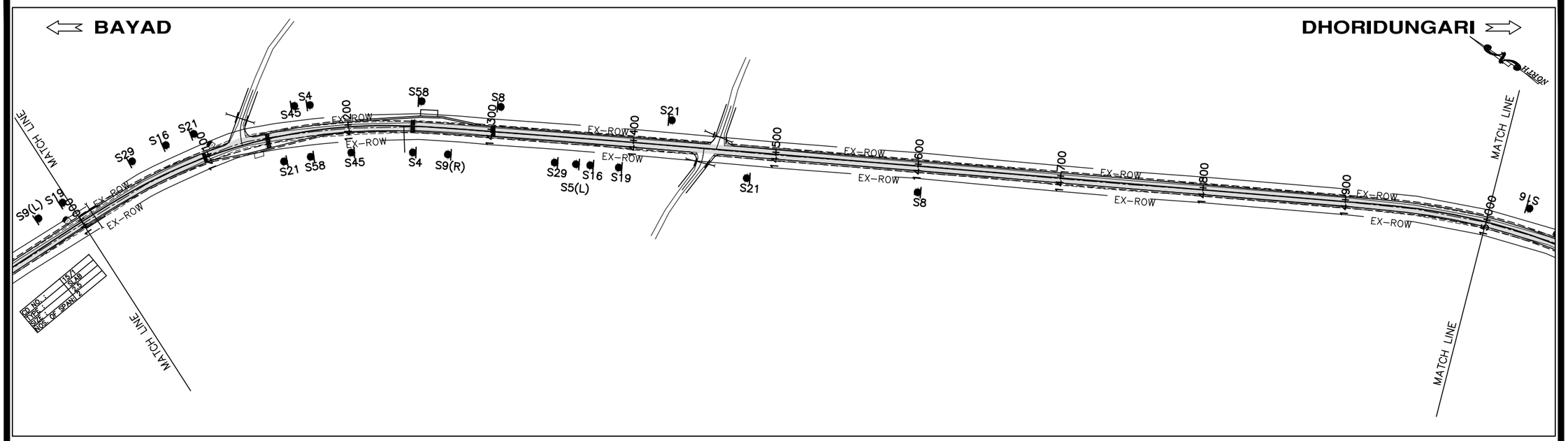
CHECKED:	SAGAR

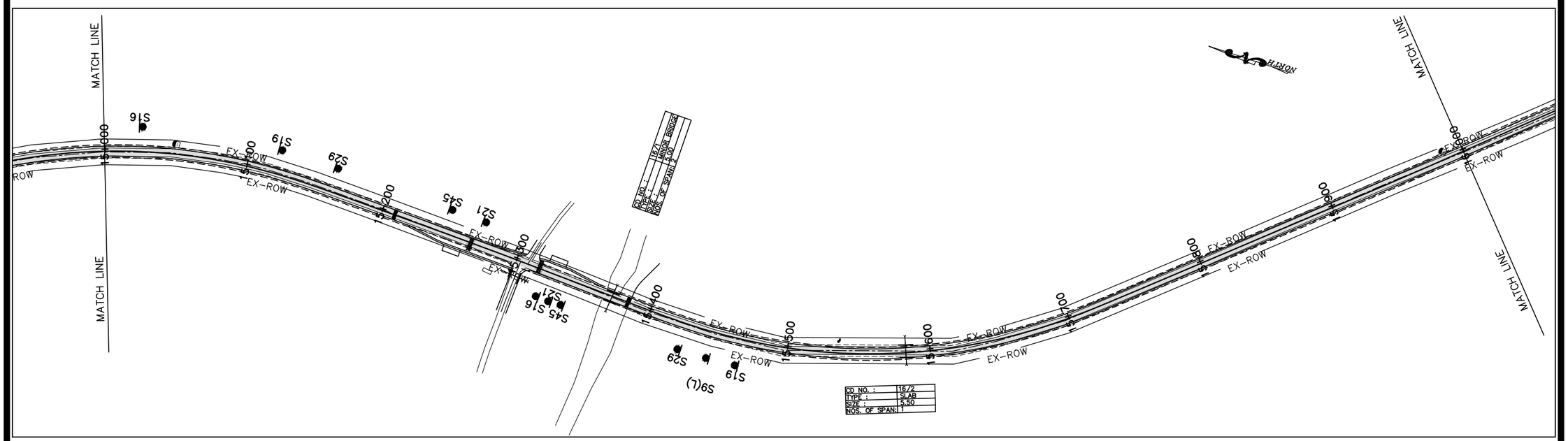
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGARI (SH–69)
SIGNAGE PLAN
STA. 12+000 TO STA. 14+000

DATE:	PROJECT:	DWG No:	REV.
JULY'2012	PPWCS	PPWCS/BD/SP/07	0





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CAD FILE: SIGNAGE PLAN – BD

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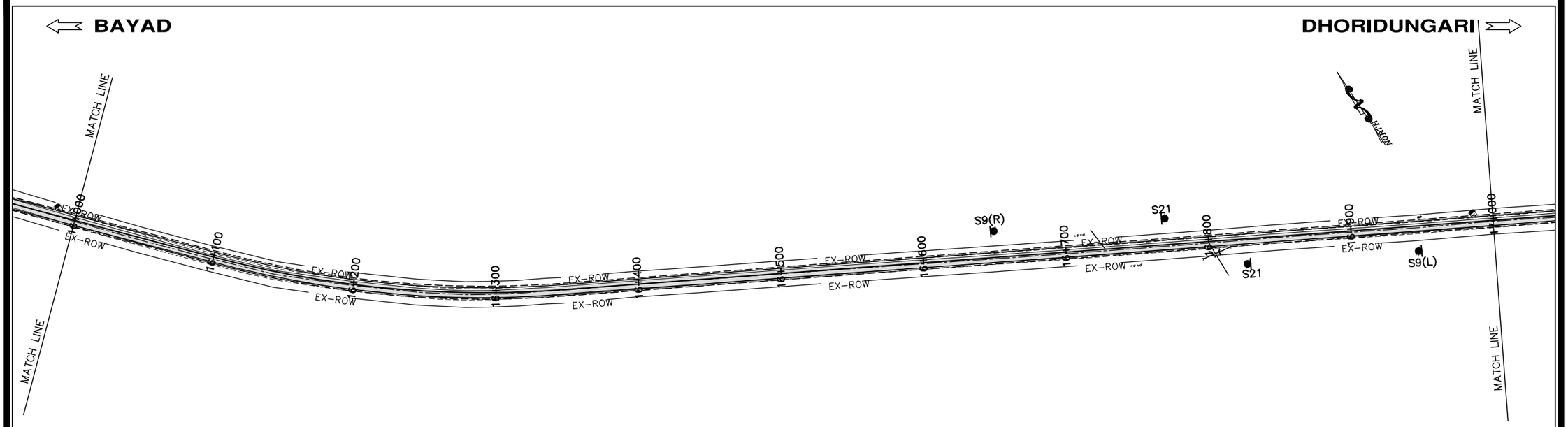
DESIGNED:	NAGA
CHECKED:	SAGAR

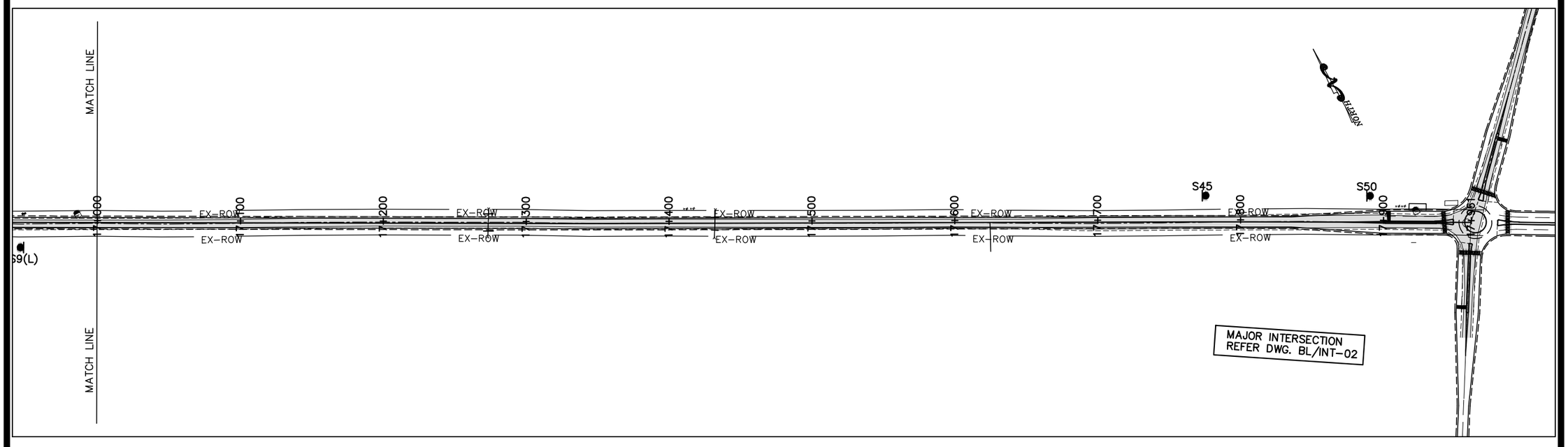
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGARI (SH–69)
SIGNAGE PLAN
STA. 14+000 TO STA. 16+000

DATE:	PROJECT:	DWG No:	REV.
JULY'2012	PPWCS	PPWCS/BD/SP/08	0





No.	REVISION	DATE	BY

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
A2 SCALE 1:2000
A3 SCALE 1:3000

CAD FILE: SIGNAGE PLAN – BD

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD–DHORIDUNGARI (SH–69)
SIGNAGE PLAN
STA. 16+000 TO STA. 17+961

DATE:	PROJECT:	DWG No:	REV.
JULY'2012	PPWCS	PPWCS/BD/SP/09	0

Traffic Management requirements and construction methodology

Contractor's Submission

The Contractor shall submit, for the Engineer's approval, Traffic Management Plans and associated method statements at least 5 working days prior to commencement of the works. The Traffic Management Plans and method statements shall include the following minimum information and details:
- Proposed location and sequence of sub–sections for construction.
- Proposed staging of "half–width" by "half–width" road construction and traffic safety and control.
- Details of transitions to maintain safe traffic flow between various road construction zones.
- Details of temporary diversions in accordance with Specification Clause 112.3.
- Typical details of arrangements for construction under traffic including details of traffic arrangements after the cessation of work each day.

Special consideration shall be given in the Traffic Management Plans to the safety of pedestrians and workers, both by day and at night.
Temporary diversions will be constructed only with the approval of the Engineer.

In general the contractor must plan his works in consideration of the following basic principles:
1. Partial pavement construction over long lengths shall not be permitted. The contractor should concentrate his activities over sections such that he can complete continuous fronts of up to a maximum of say 10km before starting the adjacent front. (10km is taken as a reasonable guide.) The contractor may open more than one continuous 10km front provided that he has the separate resources to do so. The resources working on a 10km front may not be shifted to next front until no longer required on previous front. It is acknowledged that as one front nears completion plant will become available to work on a successive front. This implies some inevitable overlap between one front and its successor, which is acceptable.
2. For road widening operations, excavation adjacent to the existing road shall not be permitted on both sides simultaneously. Earthworks must be completed to the level of the existing road before excavation work on the opposite side will be permitted.
3. The construction operations taking place on a particular front must be managed efficiently such that delays between successive pavement layers are minimized.
4. Before the start of the monsoon season (June) the contractor shall ensure that the pavement over all the fronts is complete, full width, at least to DBM level, but preferably with AC wearing course. The contractor should not start any sections of pavement that he cannot complete before the start of the monsoon season.
5. In the absence of permanent facilities, temporary drainage and erosion control measures, as required by the Specifications, are to be implemented prior to the onset of the monsoon.
6. Each project road has its own unique conditions and therefore the above traffic management concept should be modified to suit, but respecting the basic principle of completion of discrete sections.
7. Works on CD structures requiring diversions should be sequenced in with the overall traffic management plan, but can be treated independently of the established 10km working fronts where separate resources are available.
8. When separate traffic diversions are required for CD works and other situations that demand them the minimum requirements of Spec Cl 112.3 of MORTH should be equaled or bettered. Such diversions should have smooth connections to the road with well–established and clear signage to give all required information to the road user. Such diversions should be maintained throughout their required duration.
9. In general traffic management and safety measures implemented should be inspected regularly by the contractor and the engineer (day and night) to rectify problems before giving cause for complaint.

10. The Employer is highly concerned about the quality of traffic management and safety as an integral part of the project and will not compromise on these aspects at any stage.

Separate traffic diversions as per Spec. Cl. 112.3 of MORTH shall in general be required for the following construction situations as determined by the Engineer:
- For CD reconstruction
- For CD widening if considered necessary by the Engineer
- For new roadworks when the FRL is substantially above existing RL
- For new roadworks when the FRL is substantially below the existing RL such that a separate diversion is required in the judgment of the engineer

The above criteria may be adjusted as decided by the Engineer if alternative methodology is possible and cost–effective as per actual site conditions. The above criteria may also be adjusted when the design centerline is significantly offset with respect to the existing.

In cases where separate traffic diversions are not essential or cost effective the construction methodology should be in accordance with the following guidelines :

The contractor working on a 10km section, the pavement construction (except new alignments) should be limited to 500m sub–sections with a minimum of 1 to1.5 km between successive sub–sections to ease traffic management and safety issues. The earthworks in the widening portions are not limited in this respect. Excavation on both sides of the existing road over the same sub–section simultaneously shall not be permitted for reasons of safety to the traffic, particularly at night. Sub–sections longer than 500m may be authorized by the Engineer if two–way traffic flow can be comfortably managed and the Contractor should maintain dust control, proper road edge delineation, proper signage and traffic control. The number of sub–sections open for construction shall suit the contractor's needs to meet his approved clause 14 Programme.

Where single file traffic is permitted (only applicable to final wearing course operations), the sub–sections shall be reduced to a maximum length whereby safe traffic regulation can be physically managed. Single file traffic may not be permitted at certain locations or times of the day when traffic volumes are such that excessive congestion shall occur.

Three typical traffic management scenarios for which separate traffic diversions are not required are illustrated on the attached drawings and described as follows:

Case 1: Proposed FRL at Approximately the same level as the existing RL (Refer to drawing TM-03)

Stage I

- Traffic running normally on the existing road.
- Construct the earthworks on one side only with proper benching into the existing embankment as appropriate. Temporary additional widening by approximately 1.0 to 1.25m,as directed by the engineer.
- Construct temporary overfilling to match the level of the adjacent existing pavement.
- Install proper edge delineation and temporary road signs to suit next stage.

Stage II
- Divert traffic on new partial construction and half width of existing road. Earth running surface to be kept watered periodically to control dust.
- Breakout half width of the existing road on the other side. Reuse salvaged materials elsewhere or dispose as appropriate.
- Prepare cut formation as per Spec Cl 301.6 of MORTH or as otherwise directed by the Engineer.
- Construct earthworks to the design levels including the use of salvaged materials from the existing road where possible.
- Construct GSB, WMM layers and DBM to the design levels.
- DBM complete to half width. Adjust temporary delineation and signs ready for next stage.

Stage III
- Divert traffic onto the new DBM and work on the other side.
- Scarify temporary earthworks and break out remaining portion of the existing road (savage materials for reuse in earthworks of adjacent section.)
- Prepare cut formation as per Spec Cl 301.6 of MORTH.
- Construct earthworks to the design levels including use of salvaged materials from the existing road where possible.
- Construct GSB and WMM layers to the design levels.
- Construct DBM complete half width (full width now complete)
- Construct AC wearing course complete half width
- Adjust temporary delineation and signs ready for next stage.

Stage IV
- Regulate traffic to single file flow properly controlled by signalmen while the AC wearing course is completed on the other side to complete the full width.
- Shoulders and side slopes made good and finished during this stage.
- This stage with single file traffic flow should be limited to the shortest duration possible to minimize disruption to traffic flow.

(The Engineer may allow the full road width to be open for traffic after completion of DBM (Stage III) provided that wearing course operations follow without undue delay.)

Move to the next 500m and repeat the process. The bituminous paving works should be planned in conjunction with the staging of the road base works to give a continuity of operations in accordance with the contractor's materials production and paving rate. The bituminous paving works must take place as soon as practicable
During paving operations short stretches of alternating single file traffic may be permitted during off–peak times. Traffic control for single file traffic must meet the approval of the Engineer and be diligently controlled throughout its implementation.

No.	REVISION	DATE	BY

SCALE :

CAD FILE: TRAFFIC–MANAGEMENT–NOTES.DWG

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	
CHECKED:	

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TRAFFIC MANAGEMENT REQUIREMENTS AND CONSTRUCTION METHODOLOGY (1 OF 2)

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	TM–01	0

Case 2: Proposed FRL up to 0.5m above the existing RL(Refer to drawing TM-04)

Stage I

- Traffic running normally on the existing road.
- Construct the earthworks on one side only with proper benching into the existing embankment as appropriate. Finish to match level of the existing road.
- Install proper edge delineation and temporary road signs to suit next stage.

Stage II
- Divert traffic on new partial construction and half width of existing road. Earth running surface to be kept watered periodically to control dust.
- Breakout half width of the existing road on the other side. Reuse salvaged materials elsewhere or dispose as appropriate.
- Prepare cut formation as per Spec Cl 301.6 of MORTH. or as otherwise directed by the Engineer.
- Construct earthworks to the design levels including the use of salvaged materials from the existing road where possible.
- Construct GSB to the design levels.
- Adjust temporary delineation and signs ready for next stage.

Stage III
- Divert traffic onto the new GSB and work on the other side.
- Break out remaining portion of the existing road (savage materials for reuse in earthworks of adjacent section.) and trim adjacent earthworks to the required level.
- Prepare cut formation as per Spec Cl 301.6 of MORTH.
- Construct earthworks to the design levels including use of salvaged materials from the existing road where possible.
- Construct GSB and WMM layers to the design levels.
- Construct DBM complete half width. (or AC if approved by The Engineer)
- Adjust temporary delineation and signs ready for next stage.

Stage IV
- Divert traffic onto the new DBM and work on the other side.
- Prepare surface of GSB, repair any traffic damage.
- Construct WMM and DBM. (DBM now complete to full width.)

Stage V
- Regulate traffic to single file flow properly controlled by signalmen while the AC wearing course is completed on each side to complete the full width.
- Shoulders and side slopes made good and finished during this stage.
- This stage with single file traffic flow should be limited to the shortest duration possible to minimize disruption to traffic flow.

Case 3: Proposed FRL 0.5m to >1m above the existing RL(Refer to drawing TM-05)

Stage I

- Traffic running normally on the existing road.
- Construct the earthworks on one side only with proper benching into the existing embankment as appropriate. Finish to match level of the existing road.
- Install proper edge delineation and temporary road signs to suit next stage.

Stage II
- Divert traffic on new partial construction and half width of existing road. Earth running surface to be kept watered periodically to control dust.
- Breakout half width of the existing road on the other side. Reuse salvaged materials elsewhere or dispose as appropriate.
- Prepare cut formation as per Spec Cl 301.6. or as otherwise directed by the Engineer.
- Construct earthworks to the design levels including the use of salvaged materials from the existing road where possible.
- Construct GSB to the design levels.
- Protect half–width construction edge with sandbags or other approved method.
- Adjust temporary delineation and signs ready for next stage.

Stage III
- Divert traffic onto the new GSB and work on the other side.
- Break out remaining portion of the existing road (savage materials for reuse in earthworks of adjacent section.) and trim adjacent earthworks to the required level.
- Prepare cut formation as per Spec Cl 301.6 of MORTH
- Construct earthworks to the design levels including use of salvaged materials from the existing road where possible.
- Construct GSB and WMM layers to the design levels.
- Construct DBM complete half width. (or AC if approv ed by The Engineer)
- Adjust temporary delineation and signs ready for next stage.

Stage IV
- Divert traffic onto the new DBM and work on the other side.
- Construct WMM and DBM. (DBM now complete to full width.)

Stage V
- Regulate traffic to single file flow properly controlled by signal men while the AC wearing course is completed on each side to complete the full width.
- Shoulders and side slopes made good and finished during this stage.
- This stage with single file traffic flow should be limited to the shortest duration possible to minimize disruption to traffic flow.

For all the above construction scenarios there shall be a need for a considerable input into planning and implementing the different stages in a practical and safe manner. There shall correspondingly be a need for clear and explicit signage correctly positioned to give adequate warning and guidance to road users. The contractor shall pay particular attention to the control of dust during the trafficking of earthen or granular surfaces and proper delineation of the edges of the traveled way. Watering to control dust should be carried out at least three times per day. If the Contractor fails to control dust from the trafficking of earthen or granular surfaces the Engineer will instruct the Contractor to apply a temporary bituminous surface treatment at the Contractor's cost. The Contractor is responsible for maintaining and making–good any surface under trafficking to the approval of the Engineer and at no additional cost to the Employer.

The contractor may propose alternative traffic management systems provided that the concept of sectional completion and contained working sub–section are respected.

Other Traffic Management Considerations during Construction

During any particular stage of traffic management, the Contractor shall make sure that adjoining properties and access roads are not cut off unless there are viable alternatives available. Where required, the Contractor shall construct and maintain temporary access respecting all necessary safety requirements.
Bus stops shall be preserved and adjusted to suit the traffic management staging with proper and safe accessibility for pedestrians.
The Contractor must train his personnel who are assigned for the purpose of traffic control and safety. These personnel must understand the importance of their role and have a proper awareness of the concept of safe traffic management. Such personnel should themselves be road users to understand safe traffic control procedures.

Safety Requirements

The importance of proper safety measures cannot be over–emphasized. It is the sole responsibility of the Contractor to implement and maintain all necessary safety measures during the course of the works. The Contractor shall adhere to the requirements of the MOST Specifications and the latest IRC codes, particularly IRC:SP:55–2001 concerning safety in road construction zones. The Engineer shall strictly monitor the Contractor's performance in the execution of his duties with respect to safety and The Engineer shall exercise his authority under the Contract to have any deficiencies remedied.

REFERENCE DRAWINGS

TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT	CASE–1	DWG.NO.	TM–03
TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT	CASE–2	DWG.NO.	TM–04
TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT	CASE–3	DWG.NO.	TM–05
TYPICAL PLAN FOR TRAFFIC MANAGEMENT SEQUENCE DURING CONSTRUCTION		DWG.NO.	TM–06
SCHEMATIC PLAN FOR TRAFFIC MANAGEMENT BETWEEN SUB–SECTION AT DIFFERENT STAGES		DWG.NO.	TM–07
TYPICAL ARRANGEMENT OF TRAFFIC CONTROL DEVICES FOR 500M SUB–SECTION		DWG.NO.	TM–08
TYPICAL ARRANGEMENT OF TRAFFIC DIVERSION AT NEW CULVERT		DWG.NO.	TM–09

No.	REVISION	DATE	BY

SCALE :

CAD FILE: TRAFFIC–MANAGEMENT–NOTES.DWG

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	
CHECKED:	

LASA INDIA

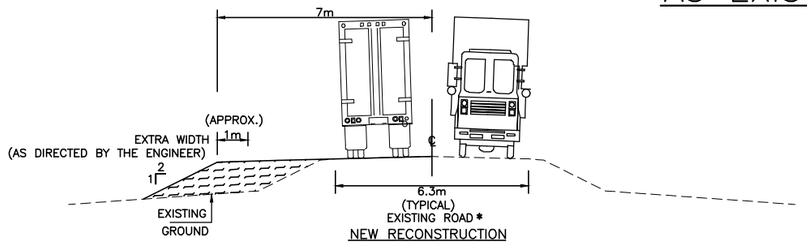
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TRAFFIC MANAGEMENT REQUIREMENTS AND CONSTRUCTION METHODOLOGY (2 OF 2)

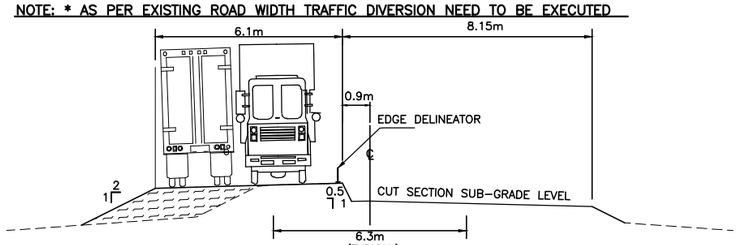
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	TM–02	0

PROPOSED FRL. AT APPROXIMATELY THE SAME LEVEL AS EXISTING ROAD LEVEL.



NEW RECONSTRUCTION
STAGE–I

NOTE: * AS PER EXISTING ROAD WIDTH TRAFFIC DIVERSION NEED TO BE EXECUTED



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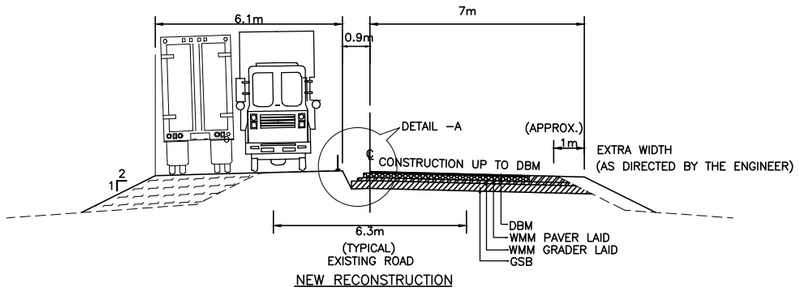
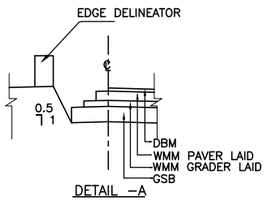
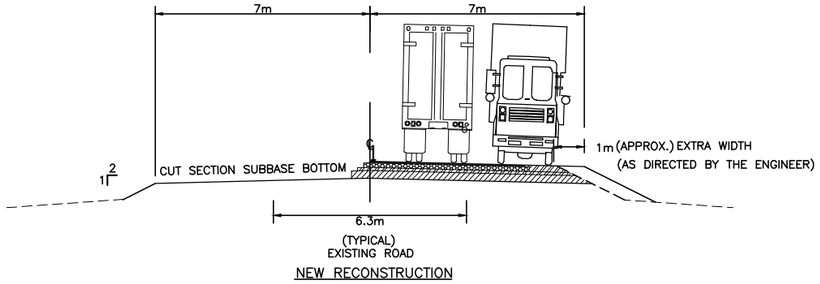
STAGE–IIa



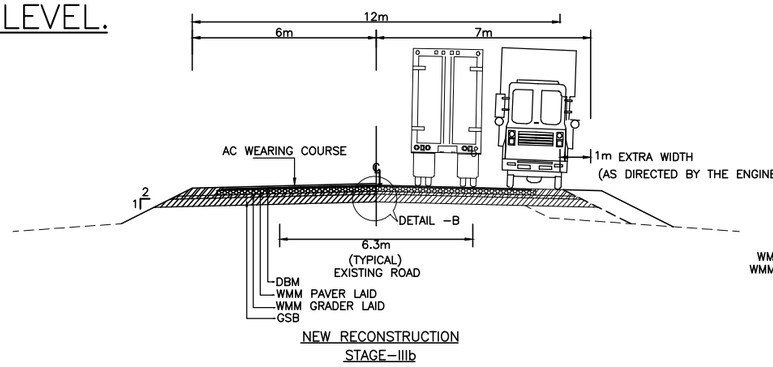
NEW RECONSTRUCTION
STAGE–IIb



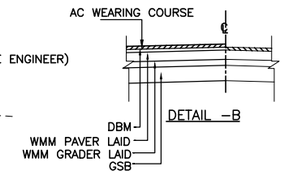
DETAIL –A

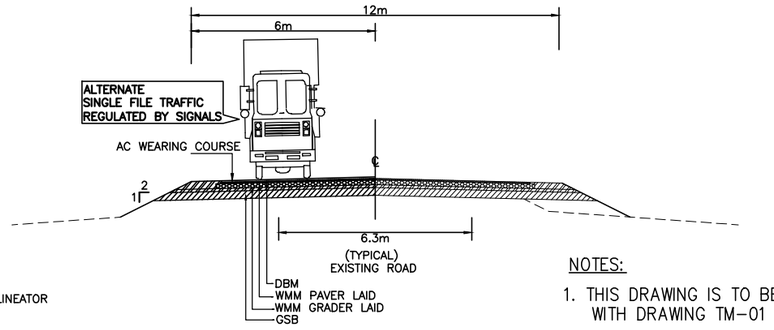


NEW RECONSTRUCTION
STAGE–IIIa

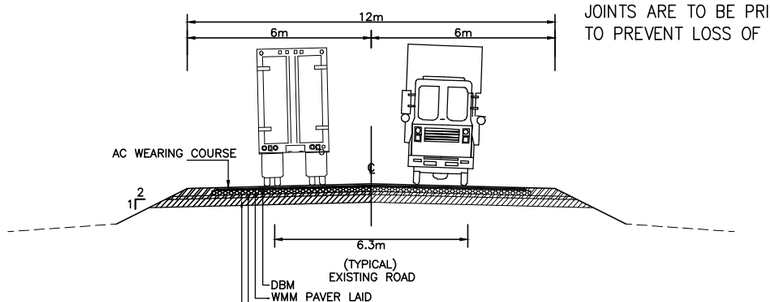


NEW RECONSTRUCTION
STAGE–IIIb





NEW RECONSTRUCTION
STAGE–IVa



NEW RECONSTRUCTION
STAGE–IVb

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING TM–01 TO TM–07
2. THESE DRAWINGS SHOW TYPICAL TRAFFIC MANAGEMENT STAGING DURING CONSTRUCTION. FOR COMPLETE TECHNICAL DETAILS OF THE PAVEMENT WORKS REFER TO THE RELEVANT DRAWINGS AND SPECIFICATIONS.
3. DIMENSIONS SHOWN ACROSS THE WIDTH ARE INDICATIVE OF THE PARTICULAR CONSTRUCTION STAGE. AT INTERMEDIATE STAGES THE WIDTHS SHALL BE THE MINIMUM REQUIRED TO SUSTAIN TWO–WAY TRAFFIC.
4. TEMPORARILY EXPOSED EARTHEN/GRANULAR CONSTRUCTION JOINTS ARE TO BE PRIMED AS DIRECTED BY THE ENGINEER TO PREVENT LOSS OF MATERIAL.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: TRAFFIC–MANAGEMENT.DWG

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	
CHECKED:	

LASA INDIA

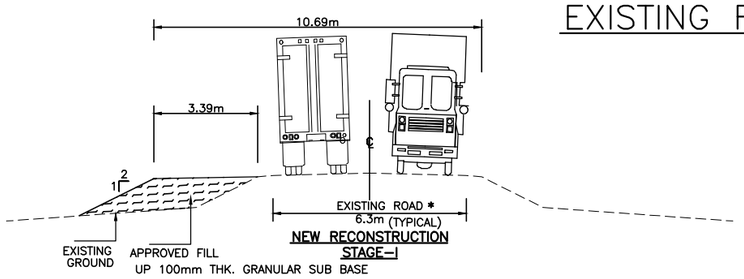
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT CASE–1

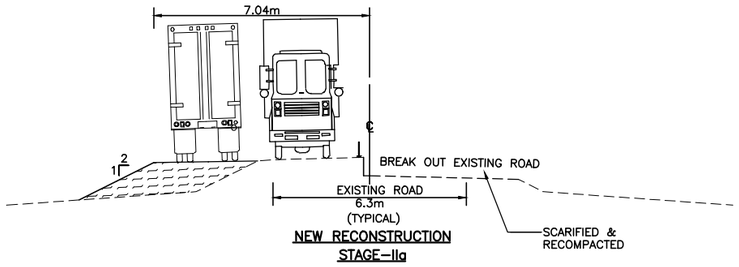
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	TM–03	0

PROPOSED FRL. UP TO 0.5m ABOVE EXISTING ROAD LEVEL.

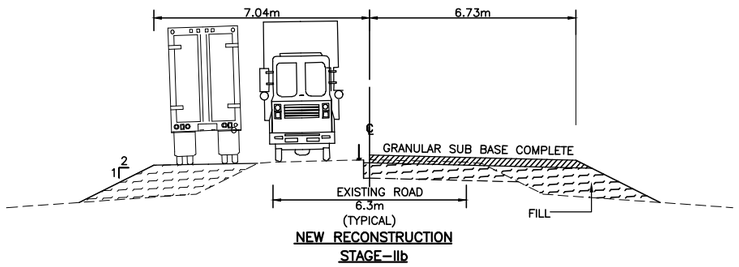


NEW RECONSTRUCTION STAGE–I

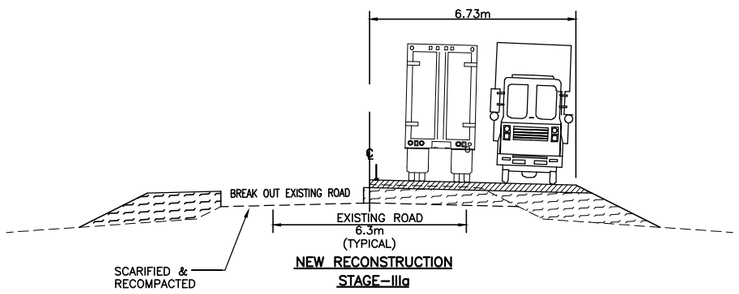
NOTE: * AS PER EXISTING ROAD WIDTH TRAFFIC DIVERSION NEED TO BE EXECUTED



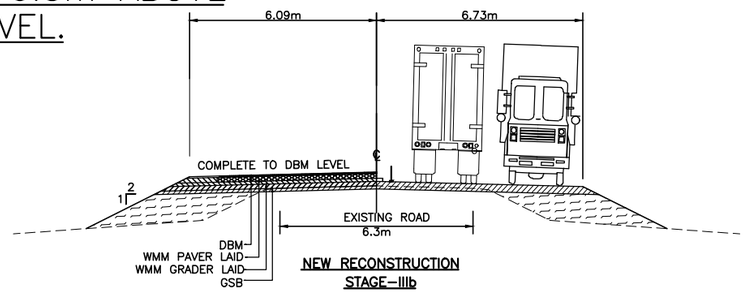
NEW RECONSTRUCTION STAGE–IIa



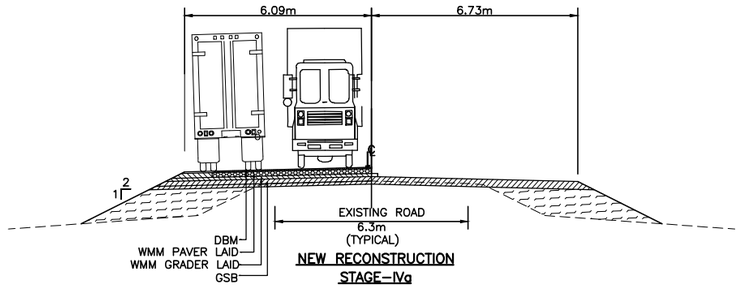
NEW RECONSTRUCTION STAGE–IIb



NEW RECONSTRUCTION STAGE–IIIa



NEW RECONSTRUCTION STAGE–IIIb



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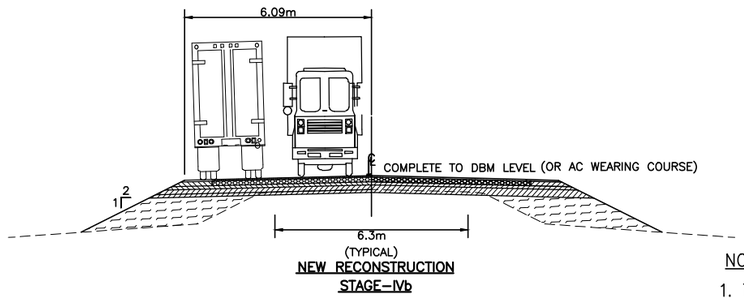
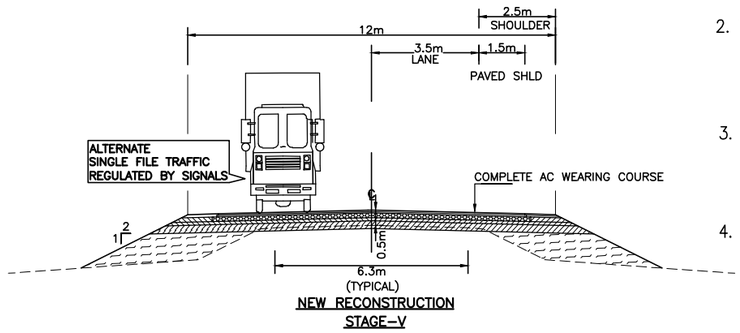


NEW RECONSTRUCTION STAGE–IVb



NEW RECONSTRUCTION STAGE–V

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING TM–01 TO TM–07
2. THESE DRAWINGS SHOW TYPICAL TRAFFIC MANAGEMENT STAGING DURING CONSTRUCTION. FOR COMPLETE TECHNICAL DETAILS OF THE PAVEMENT WORKS REFER TO THE RELEVANT DRAWINGS AND SPECIFICATIONS.
3. DIMENSIONS SHOWN ACROSS THE WIDTH ARE INDICATIVE OF THE PARTICULAR CONSTRUCTION STAGE. AT INTERMEDIATE STAGES THE WIDTHS SHALL BE THE MINIMUM REQUIRED TO SUSTAIN TWO–WAY TRAFFIC.
4. TEMPORARILY EXPOSED EARTHEN/GRANULAR CONSTRUCTION JOINTS ARE TO BE PRIMED AS DIRECTED BY THE ENGINEER TO PREVENT LOSS OF MATERIAL.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: TRAFFIC–MANAGEMENT.DWG

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	
CHECKED:	

LASA INDIA

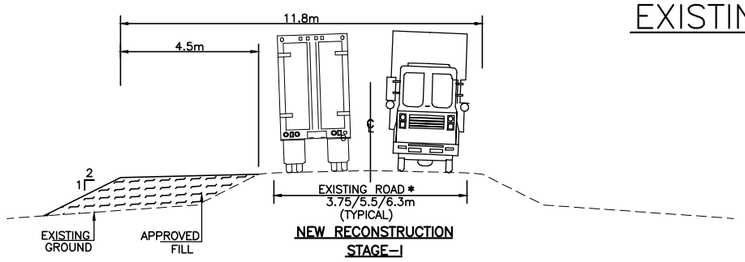
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT CASE–2

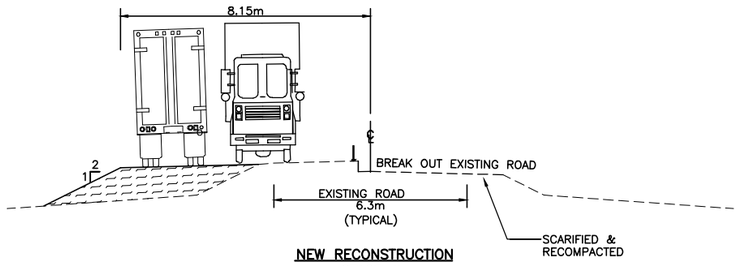
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	TM–04	0

PROPOSED FRL. 0.5m TO ⩾ 1.0 ABOVE EXISTING ROAD LEVEL.

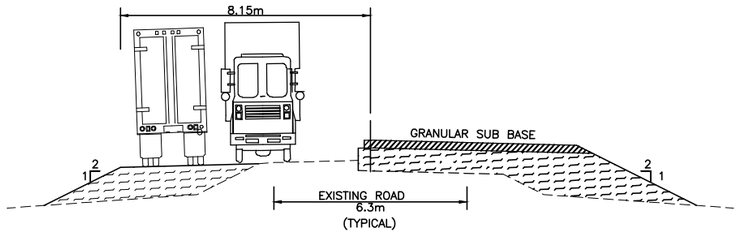


NEW RECONSTRUCTION
STAGE–I

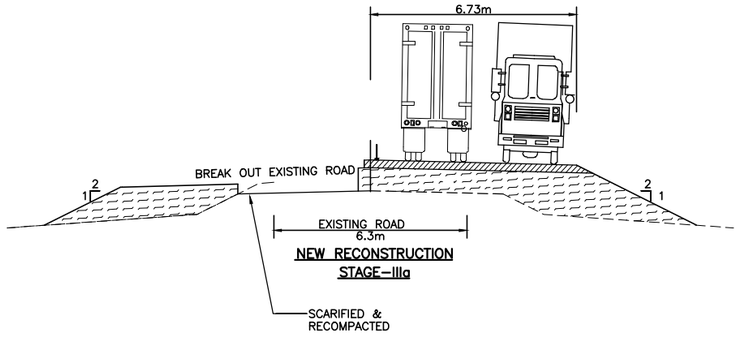
NOTE: * AS PER EXISTING ROAD WIDTH TRAFFIC DIVERSION NEED TO BE EXECUTED



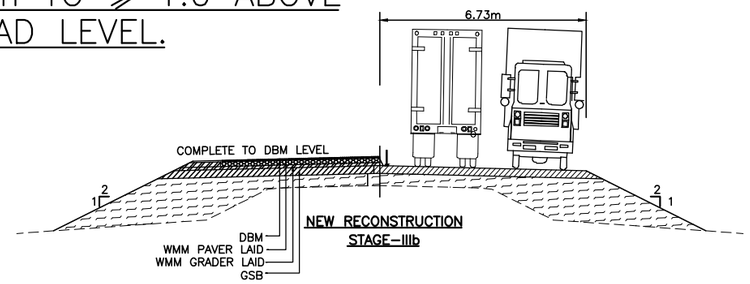
NEW RECONSTRUCTION
STAGE–IIa



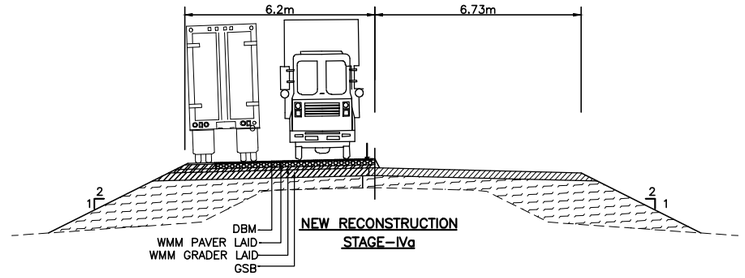
NEW RECONSTRUCTION
STAGE–IIb



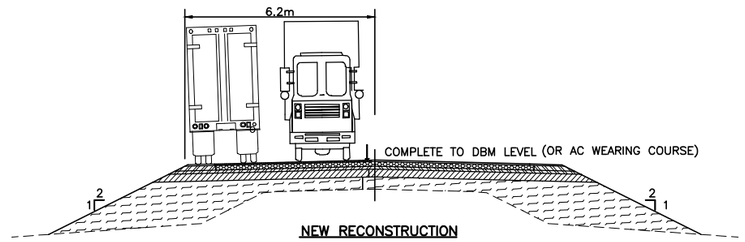
NEW RECONSTRUCTION
STAGE–IIIa



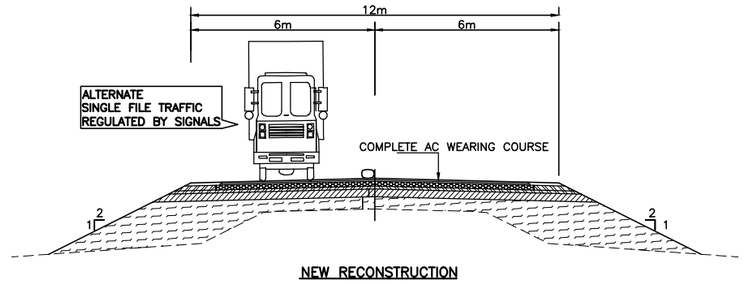
NEW RECONSTRUCTION
STAGE–IIIb



NEW RECONSTRUCTION
STAGE–IVa



NEW RECONSTRUCTION
STAGE–IVb



NEW RECONSTRUCTION
STAGE–V

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING TM–01 TO TM–07
2. THESE DRAWINGS SHOW TYPICAL TRAFFIC MANAGEMENT STAGING DURING CONSTRUCTION. FOR COMPLETE TECHNICAL DETAILS OF THE PAVEMENT WORKS REFER TO THE RELEVANT DRAWINGS AND SPECIFICATIONS.
3. DIMENSIONS SHOWN ACROSS THE WIDTH ARE INDICATIVE OF THE PARTICULAR CONSTRUCTION STAGE. AT INTERMEDIATE STAGES THE WIDTHS SHALL BE THE MINIMUM REQUIRED TO SUSTAIN TWO–WAY TRAFFIC.
4. TEMPORARILY EXPOSED EARTHEN/GRANULAR CONSTRUCTION JOINTS ARE TO BE PRIMED AS DIRECTED BY THE ENGINEER TO PREVENT LOSS OF MATERIAL.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: TRAFFIC–MANAGEMENT.DWG

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	
CHECKED:	

LASA INDIA

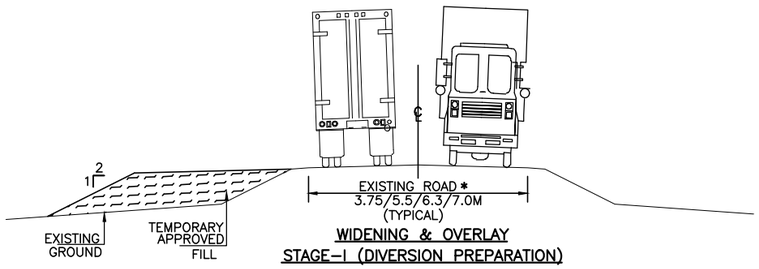
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT CASE–3

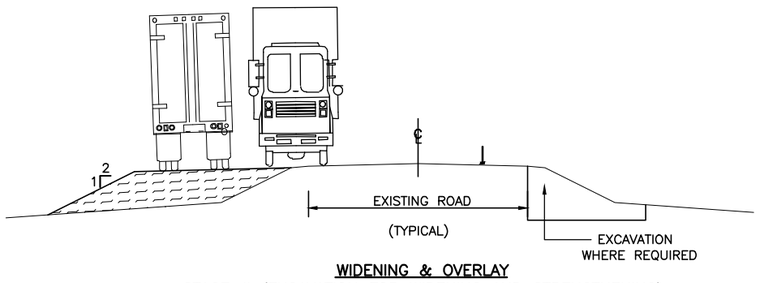
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	TM–05	0

OVERLAY ON EXISTING ROAD

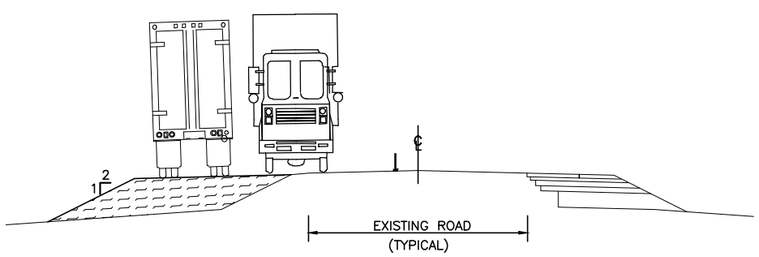


WIDENING & OVERLAY
STAGE–I (DIVERSION PREPARATION)

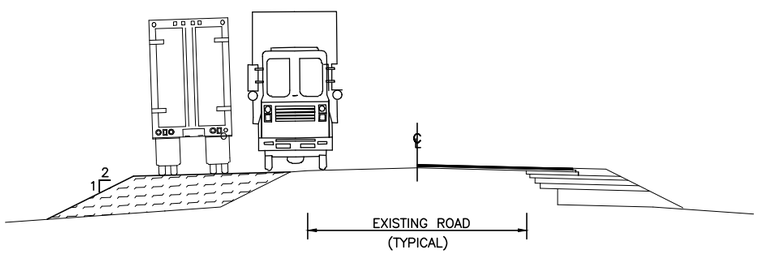
NOTE: * AS PER EXISTING ROAD WIDTH TRAFFIC DIVERSION NEED TO BE EXECUTED



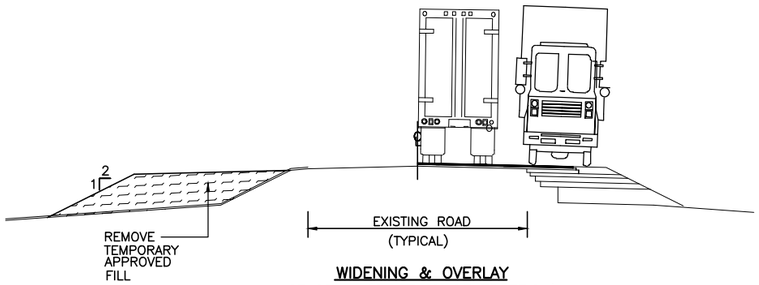
WIDENING & OVERLAY
STAGE–II (EXCAVATION FOR WIDENING AND STRENGTHENING)



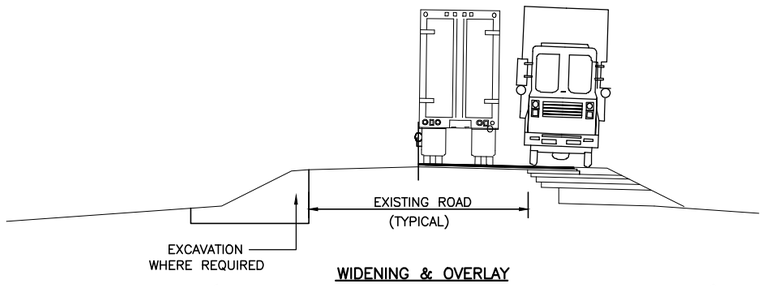
WIDENING & OVERLAY
STAGE–III (LAYERED CONSTRUCTION)



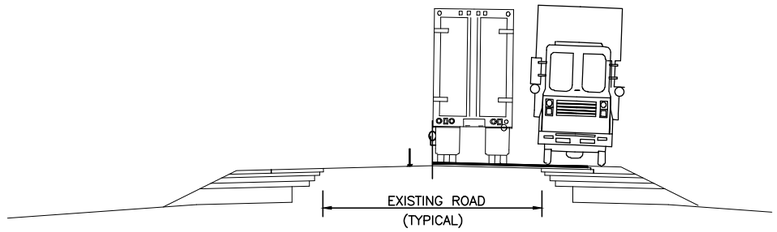
WIDENING & OVERLAY
STAGE–IV (COMPLETION OF BITUMINOUS COURSE)



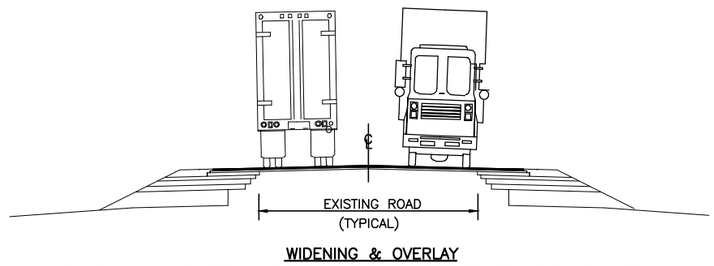
WIDENING & OVERLAY
STAGE–V (SHIFTING OF TRAFFIC)



WIDENING & OVERLAY
STAGE–VI (EXCAVATION FOR WIDENING AND STRENGTHENING OTHER SIDE)



WIDENING & OVERLAY
STAGE–VII (LAYERED CONSTRUCTION OTHER SIDE)



WIDENING & OVERLAY
STAGE–VIII (COMPLETION OF BITUMINOUS COURSE OTHER SIDE AND MATCHING)

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING TM–01 TO TM–07
2. THESE DRAWINGS SHOW TYPICAL TRAFFIC MANAGEMENT STAGING DURING CONSTRUCTION. FOR COMPLETE TECHNICAL DETAILS OF THE PAVEMENT WORKS REFER TO THE RELEVANT DRAWINGS AND SPECIFICATIONS.
3. DIMENSIONS SHOWN ACROSS THE WIDTH ARE INDICATIVE OF THE PARTICULAR CONSTRUCTION STAGE. AT INTERMEDIATE STAGES THE WIDTHS SHALL BE THE MINIMUM REQUIRED TO SUSTAIN TWO–WAY TRAFFIC.
4. TEMPORARILY EXPOSED EARTHEN/GRANULAR CONSTRUCTION JOINTS ARE TO BE PRIMED AS DIRECTED BY THE ENGINEER TO PREVENT LOSS OF MATERIAL.
5. ENGINEER APPROVAL FOR OVERALL TRAFFIC MANAGEMENT IN GENERAL AND SPECIFIC STAGES IN PARTICULAR IS MUST

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: TRAFFIC–MANAGEMENT–WO

DRAWN:	HARSHAL
CHECKED:	DIV'S
DESIGNED:	
CHECKED:	

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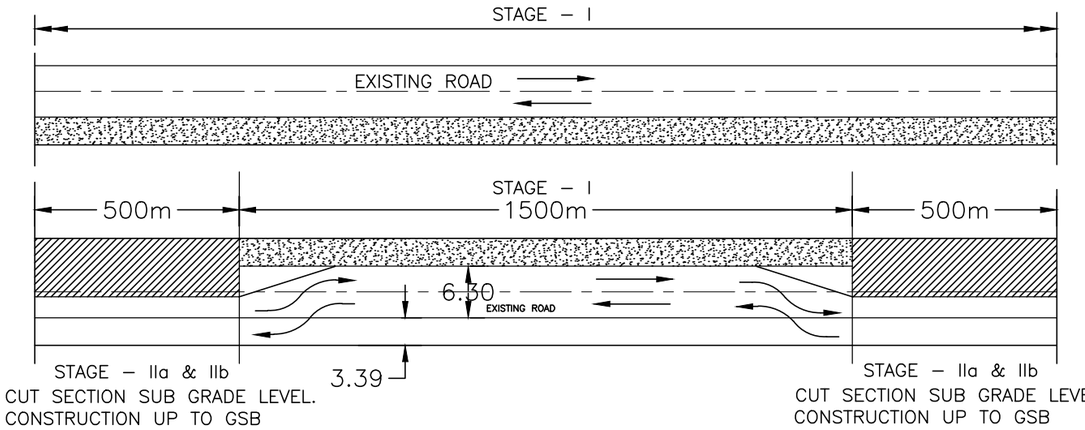
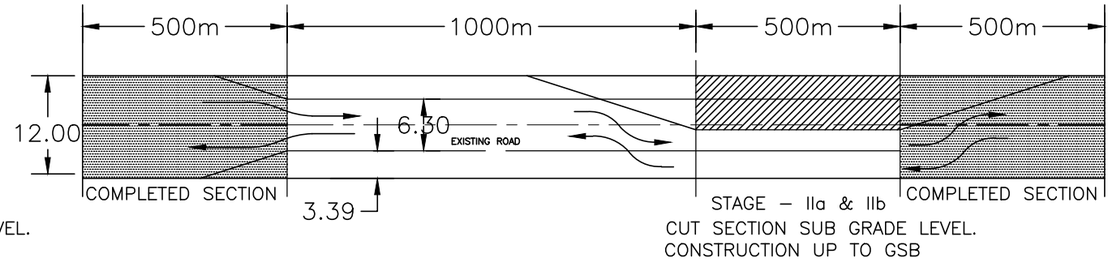
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

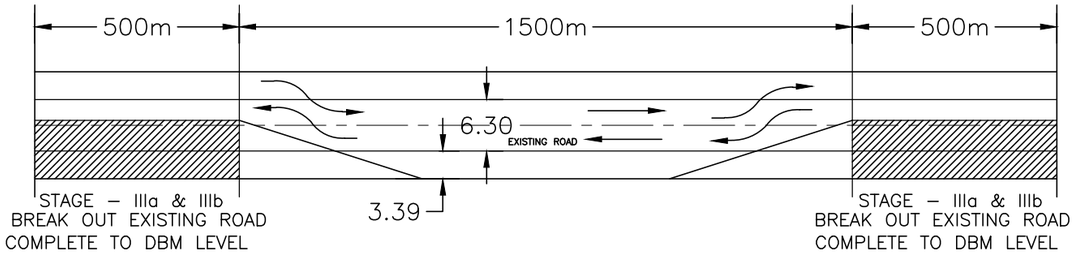
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

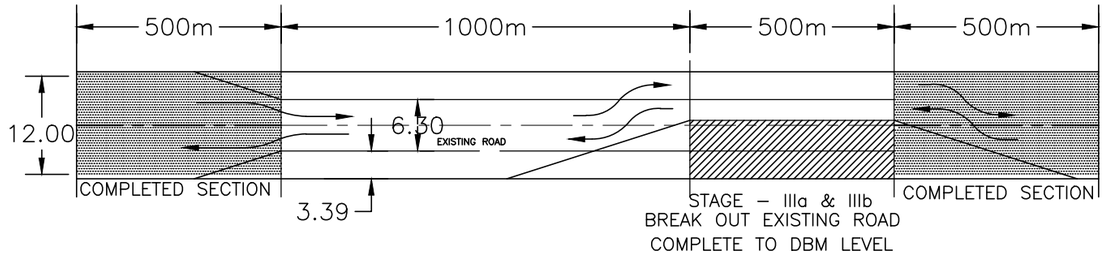
TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT WIDENING & OVERLAY

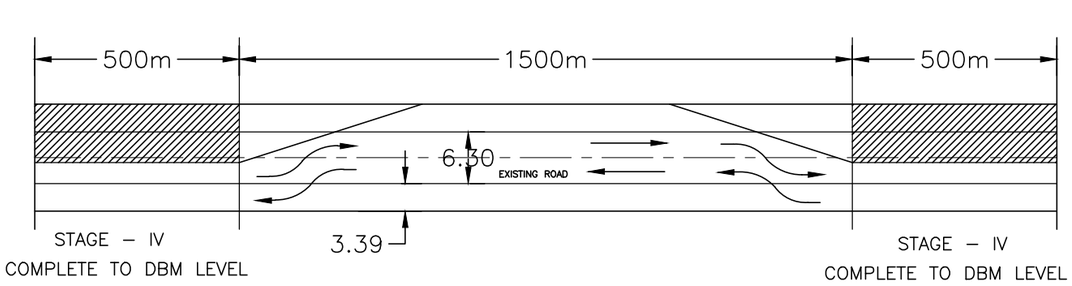
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	TM–05A	0

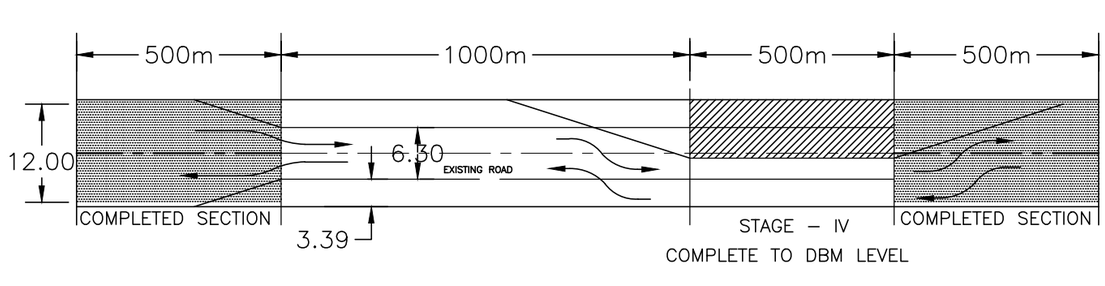


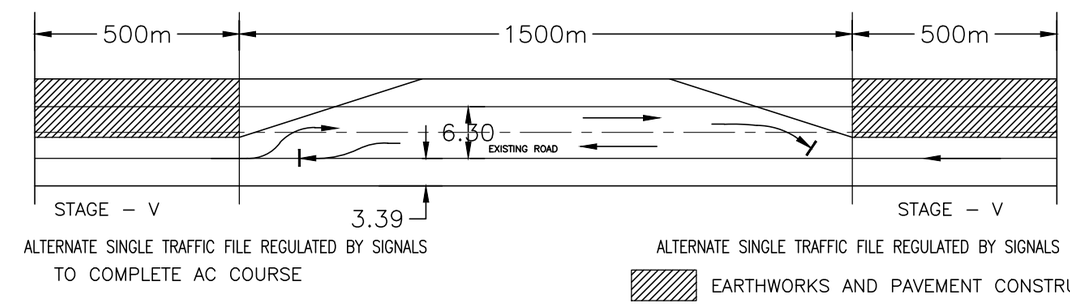


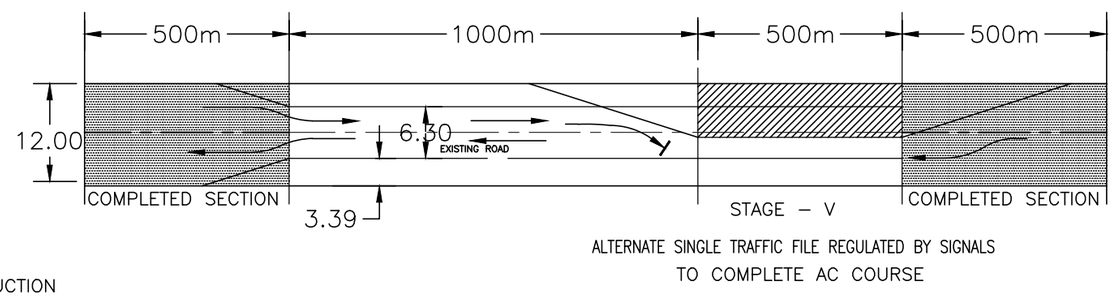












EARTHWORKS AND PAVEMENT CONSTRUCTION

EARTHWORKS ONLY

COMPLETED SECTION

500m SUB–SECTIONS

SUCCESSIVE 500m SUB–SECTIONS

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: TRAFFIC–MANAGEMENT–PLAN

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	
CHECKED:	

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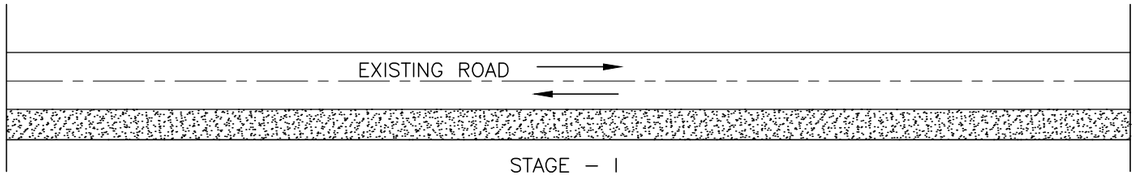
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL PLAN FOR TRAFFIC MANAGEMENT SEQUENCE DURING CONSTRUCTION

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	TM–06	0

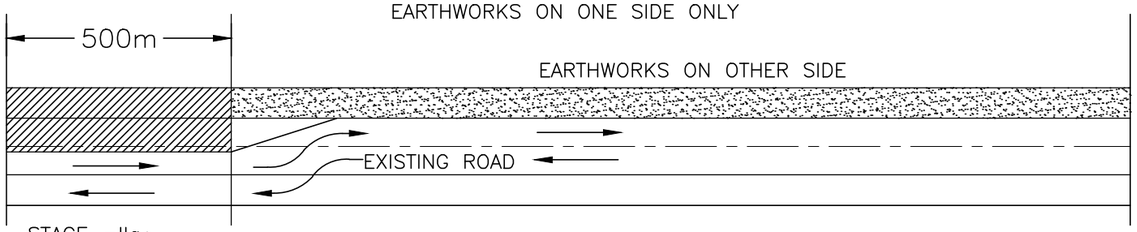
1



STAGE – I

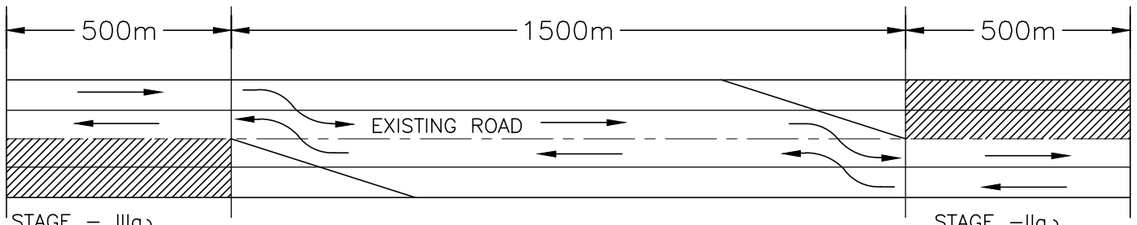
EARTHWORKS ON ONE SIDE ONLY

2



STAGE –IIa } GSB
STAGE –IIb }

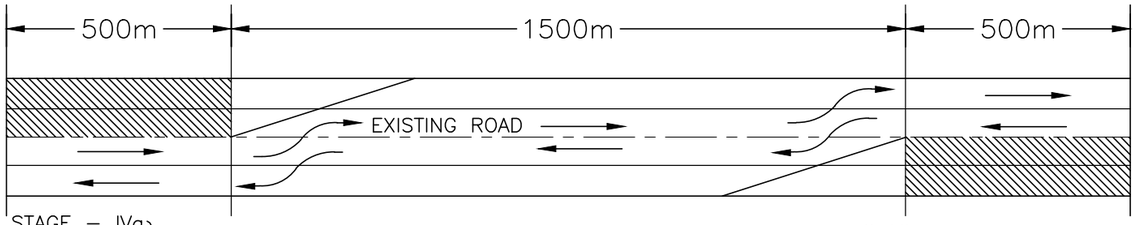
3



STAGE – IIIa } GSB,WMM,DBM
STAGE – IIIb }

STAGE –IIa } GSB
STAGE –IIb }

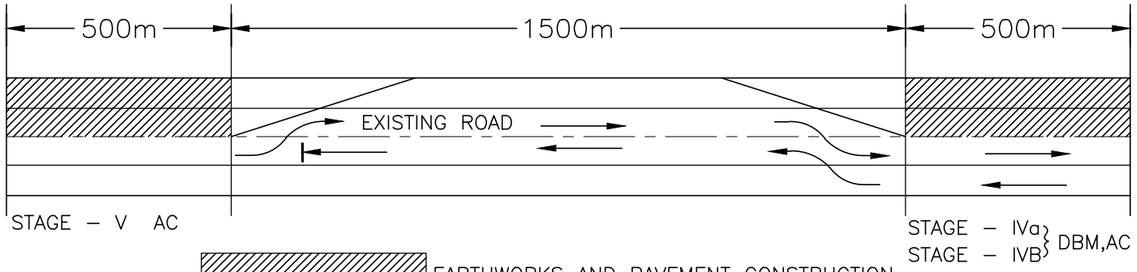
4



STAGE – IVa } DBM,AC
STAGE – IVB }

STAGE – IIIa } GSB,WMM,DBM
STAGE – IIIb }

5



STAGE – V AC

STAGE – IVa } DBM,AC
STAGE – IVB }

EARTHWORKS AND PAVEMENT CONSTRUCTION

EARTHWORKS ONLY

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: TRAFFIC–MANAGEMENT–PLAN

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	
CHECKED:	

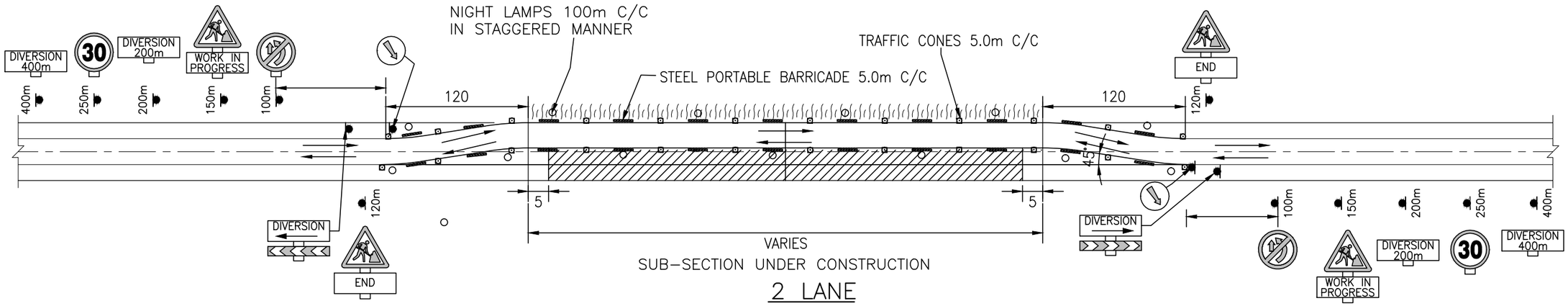
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

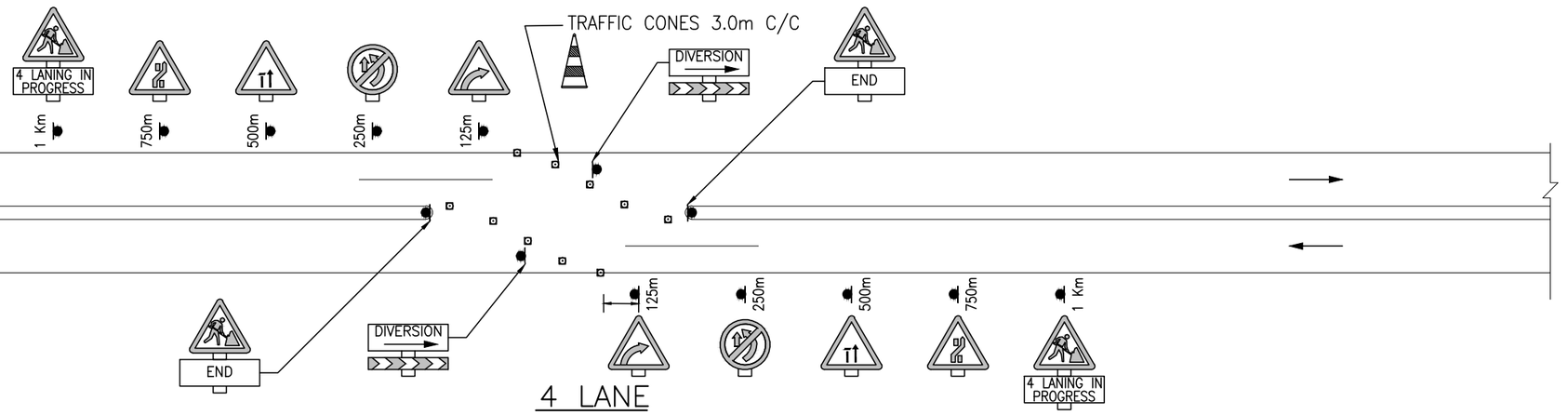
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

SCHEMATIC PLAN FOR TRAFFIC MANAGEMENT BETWEEN SUB–SECTIONS AT DIFFERENT STAGES

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	TM–07	0



2 LANE



4 LANE

SIGN & DELINEATORS INVENTORY AT 2 LANE

DIVERSION BOARD (400m)	2 NOS.
SPEED LIMIT SIGN	2 NOS.
MEN AT WORK SIGN & BOARD	2 NOS.
MEN AT WORK SIGN & BOARD	2 NOS.
DIVERSION BOARD (200m)	2 NOS.
OVERTAKING PROHIBITED SIGN	2 NOS.
DIVERSION BOARD & SIGN	2 NOS.
TRAFFIC CONES	5.0m C/C
KEEP RIGHT	2 NOS.
STEEL PORTABLE BARRICADE	5.0m C/C

SIGN & DELINEATORS INVENTORY AT 4 LANE

MEN AT WORK SIGN & BOARD	2 NOS.
MEN AT WORK SIGN & BOARD	2 NOS.
DIVERSION TO OTHER CARRIAGEWAY SIGN	2 NOS.
LANE CLOSED SIGN	2 NOS.
OVERTAKING PROHIBITED SIGN	2 NOS.
CURVE SIGN	2 NOS.
DIVERSION BOARD & SIGN	2 NOS.
TRAFFIC CONES	3.0m C/C

NOTES:

1. ALL DIMENSIONS ARE IN METER. UNLESS OTHERWISE SPECIFIED
2. CONTRACTOR SHALL SUBMIT DIVERSION PLAN FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL MAINTAIN DIVERSION THROUGHOUT TILL THE CONSTRUCTION IS COMPLETE.
4. CONTRACTOR IS RESPONSIBLE FOR THE SECURITY OF THE SIGNS AND DELINEATORS.
5. PROVIDING BARRICADING/CAUTION TAPES OF HIGH QUALITY PVC TAPE TUBE TYPE TO ENCLOSE CONSTRUCTION AREA.
6. USE TWO ROWS OF ROPE LED LIGHTING WITHIN CONSTRUCTION ZONE DURING NIGHT ON BOTH EDGES OF MOTORABLE CARRIAGEWAY.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: TRAFFIC–MANAGEMENT–PLAN

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	
CHECKED:	

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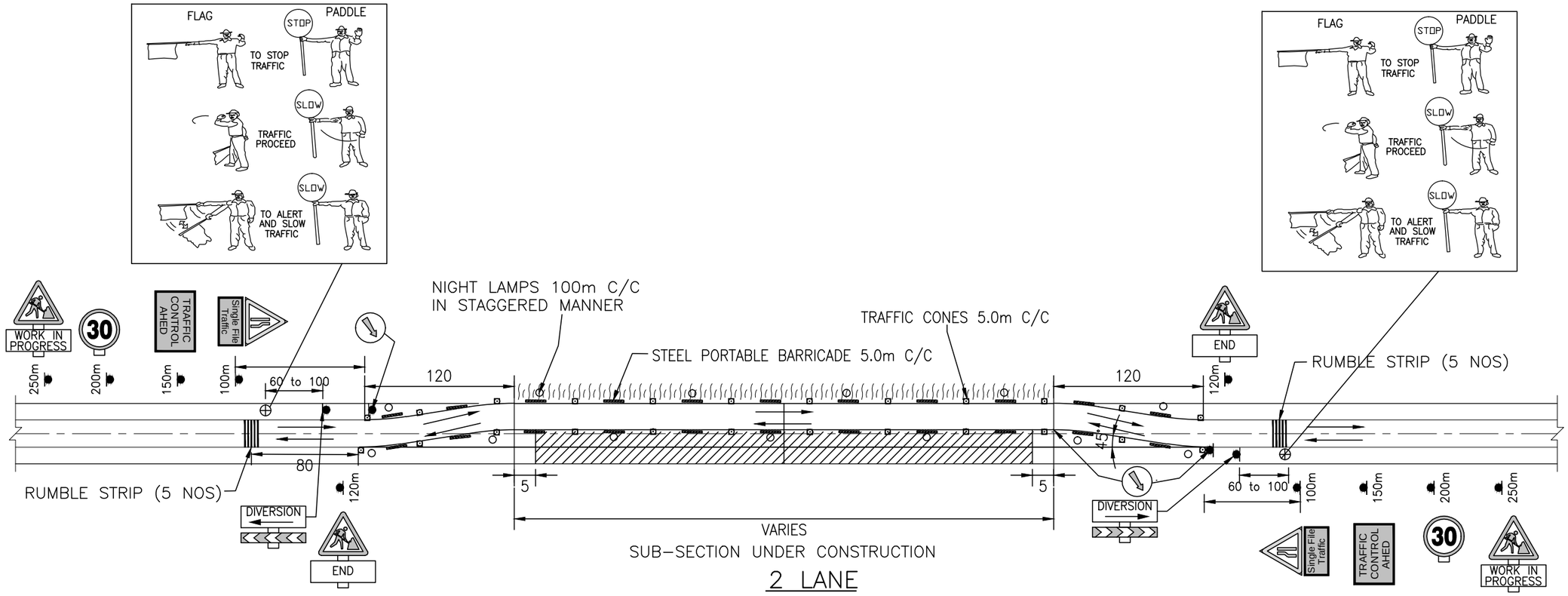
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL ARRANGEMENT OF
TRAFFIC CONTROL DEVICES FOR 500M SUB–SECTION

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	TM–08	0



SIGN & DELINEATORS INVENTORY AT 2 LANE

30	SPEED LIMIT SIGN	2 NOS.
WORK IN PROGRESS	MEN AT WORK SIGN & BOARD	2 NOS.
END	MEN AT WORK SIGN & BOARD	2 NOS.
DIVERSION	DIVERSION BOARD & SIGN	2 NOS.
	TRAFFIC CONES	5.0m C/C
	KEEP RIGHT	3 NOS.
	STEEL PORTABLE BARRICADE	5.0m C/C
Single File Traffic	SINGLE FILE TRAFFIC	2 NOS.
TRAFFIC CONTROL AHED	TRAFFIC CONTROL AHED	2 NOS.

NOTES:

1. A QUALIFIED PERSONNEL AT LEAST AVERAGE INTELLIGENCE, BE MENTALLY ALERT AND GOOD IN PHYSICAL CONDITION BE SELECTED.
2. FLAGMEN SHOULD BE EQUIPPED WITH YELLOW HELMET WITH GREEN REFLECTIVE STICKER FIXED AROUND AND REFLECTIVE JACKET ALONG WITH HAND SIGNALING DEVICES SUCH AS FLAGS AND SIGN PADDLES. RED FLAGS, STOP, SLOW PADDLES AND LIGHTS ARE USED IN CONTROLLING TRAFFIC THROUGH WORK AREA.

   RED FLAG – MINIMUM SIZE 600 X 600 MM (POLYESTER CLOTH ADVISABLE) SECURELY FASTENED TO A STAFF OF LENGTH APPROX. 1 M

   STOP SIGN PADDLE – SHAPE – OCTAGONAL (LIGHT IN WEIGHT) WIDTH – 600 MM WITH RIGID HANDLE. BACKGROUND COLOR – RED, LETTER COLOR – WHITE

   SLOW SIGN PADDLE – SHAPE – OCTAGONAL (LIGHT IN WEIGHT) WIDTH – 600 MM WITH RIGID HANDLE. BACKGROUND COLOR – YELLOW, LETTER COLOR – BLACK, BORDER COLOR–BLACK.
3. FLAGMEN NEED TO MAINTAIN THE FLOW OF TRAFFIC CONTINUOUS PAST A WORK ZONE AT RELATIVELY REDUCED SPEEDS BY SUITABLY REGULATING THE TRAFFIC. HE SHALL STOP THE TRAFFIC FOR A SHORT WHILE WHENEVER REQUIRED (E.G. FOR ENTRY AND EXIT OF CONSTRUCTION EQUIPMENT IN TO WORK ZONE).
4. FLAGMAN SHOULD BE POSITIONED IN A PLACE WHERE HE IS CLEARLY VISIBLE TO APPROACHING TRAFFIC AND AT A SUFFICIENT DISTANCE TO ENABLE THE DRIVERS TO RESPOND FOR HIS FLAGGING INSTRUCTIONS. A FLAGMAN NEVER LEAVES HIS POST UNTIL PROPERLY RELIEVED,
5. THE STANDARD DISTANCE SHALL BE MAINTAINED AT 60 – 100 M BUT CAN BE ALTERED DEPENDING UPON THE APPROACH SPEED AND SITE CONDITIONS. IN URBAN AREAS THIS DISTANCE SHALL BE TAKEN AS 20 M TO 50 M.
6. STANDARD SIGNALS TO BE GIVEN BY FLAG MEN AND THEY SHOULD UNDERGO SPECIAL TASK TRAINING PROGRAM.
7. USE TRAFFIC LED FLASH LIGHTS AT NIGHT INSTEAD OF FLAGS.

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN METER. UNLESS OTHERWISE SPECIFIED
2. CONTRACTOR SHALL SUBMIT DIVERSION PLAN FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL MAINTAIN DIVERSION THROUGHOUT TILL THE CONSTRUCTION IS COMPLETE.
4. CONTRACTOR IS RESPONSIBLE FOR THE SECURITY OF THE SIGNS AND DELINEATORS.
5. PROVIDING BARRICADING/CAUTION TAPES OF HIGH QUALITY PVC TAPE TUBE TYPE TO ENCLOSE CONSTRUCTION AREA.
6. TYPE OF RUMBLE STRIP WILL DEPEND ON ROAD SURFACE(IF SURFACE IS BLACK TOP–BITUMEN, IF GSB–GSB)
7. USE TWO ROWS OF ROPE LED LIGHTING WITHIN CONSTRUCTION ZONE DURING NIGHT ON BOTH EDGES OF MOTORABLE CARRIAGEWAY.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: TRAFFIC–MANAGEMENT–PLAN–1

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	
CHECKED:	

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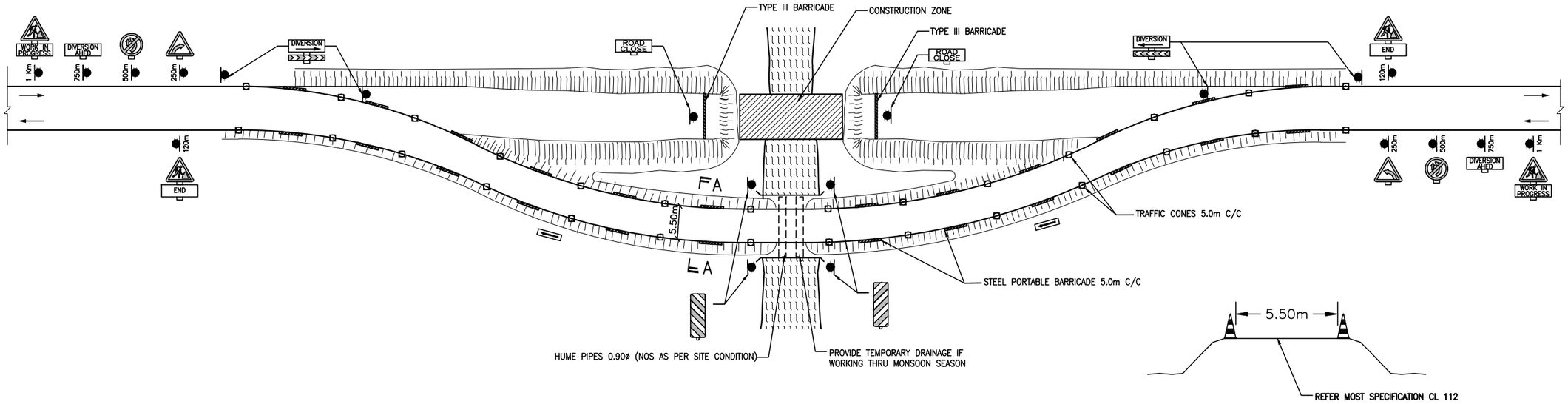
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

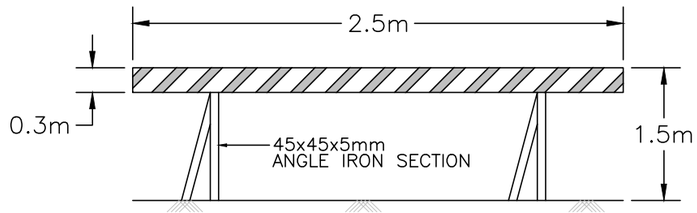
TYPICAL ARRANGEMENT OF TRAFFIC CONTROL BY FLAGMAN AT DIVERSION

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	TM–08A	0

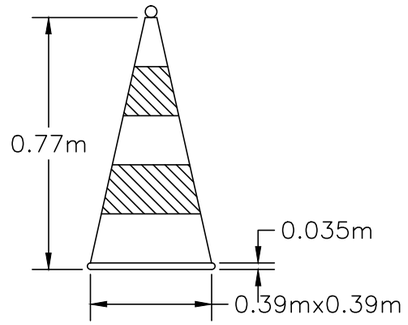


SIGN & DELINEATORS INVENTORY

WORK IN PROGRESS	MEN AT WORK SIGN & BOARD	2 NOS.
END	MEN AT WORK SIGN & BOARD	2 NOS.
DIVERSION AHED	DIVERSION BOARD	2 NOS.
	OVERTAKING PROHIBITED SIGN	2 NOS.
	CURVE SIGN	2 NOS.
DIVERSION	DIVERSION BOARD & SIGN	2 NOS.
ROAD CLOSE	ROAD CLOSED BOARD	2 NOS.
	TYPE III BARRICADE (AS PER IRC:SP:55–2001)	2 NOS.
	HAZARD MARKER	4 NOS.
	TRAFFIC CONES	5.0m C/C
	STEEL PORTABLE BARRICADE	5.0m C/C



STEEL PORTABLE BARRICADE



TRAFFIC CONE

NOTES:

1. ALL DIMENSIONS ARE IN METER. UNLESS OTHERWISE SPECIFIED
2. CONTRACTOR SHALL SUBMIT DIVERSION PLAN FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL MAINTAIN DIVERSION THROUGHOUT TILL THE CONSTRUCTION IS COMPLETE.
4. CONTRACTOR IS RESPONSIBLE FOR THE SECURITY OF THE SIGNS AND DELINEATORS.
5. PROVIDING BARRICADING/CAUTION TAPES OF HIGH QUALITY PVC TAPE TUBE TYPE TO ENCLOSE CONSTRUCTION AREA.
6. USE TWO ROWS OF ROPE LED LIGHTING WITHIN CONSTRUCTION ZONE DURING NIGHT ON BOTH EDGES OF MOTORABLE CARRIAGEWAY.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: TRAFFIC–MANAGEMENT–PLAN STRUCTURE

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	
CHECKED:	

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL ARRANGEMENT OF TRAFFIC DIVERSION AT NEW CULVERT

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	TM–09	0

PROVISION OF SIMPLE CURVE WITH RESPECTIVE DESIGN SPEED

SPEED (kmph)	RADIUS OF SIMPLE CURVE(m)
100	>1800
80	>1200
65	>800
50	>500
40	>300
35	>250
30	>250
25	>170
20	>100

(IRC :38–1988,Table NO.9 Page 31)

NOTES: For curve radius lesser than mentioned above, curve need to be provided with spirals on either sides.
(Provided details about simple curve or spiral curve in design is given with alignment and curve report.)

AD CALCULATION: FOR EQUAL SPIRALS

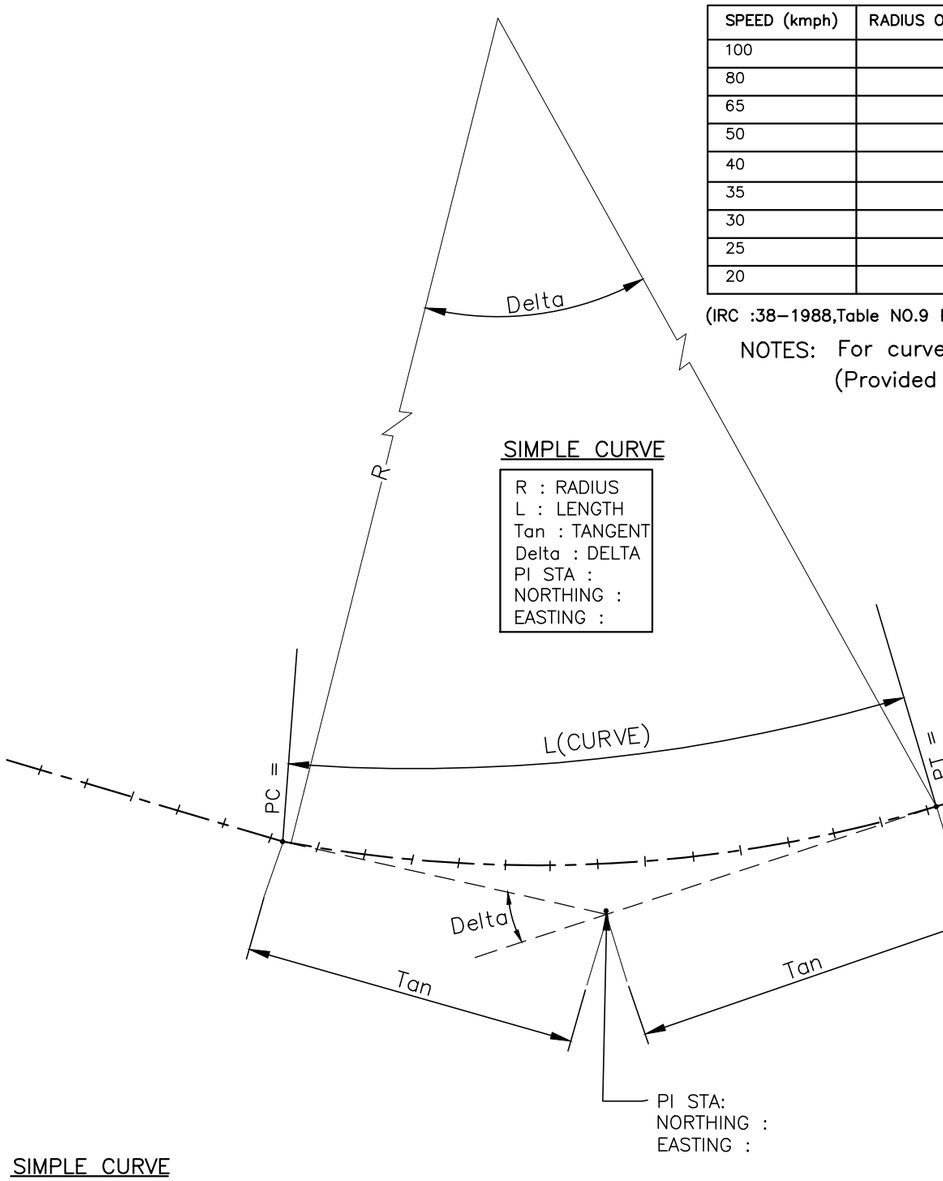
AD = (R+P) * tan(Δ/2) + K

AD CALCULATION: FOR UNEQUAL SPIRALS

AD1 = K1 + (R+P1) * tan(Δ/2) + (P2–P1) cosec(Δ)
AD2 = K2 + (R+P2) * tan(Δ/2) – (P2–P1) cosec(Δ)

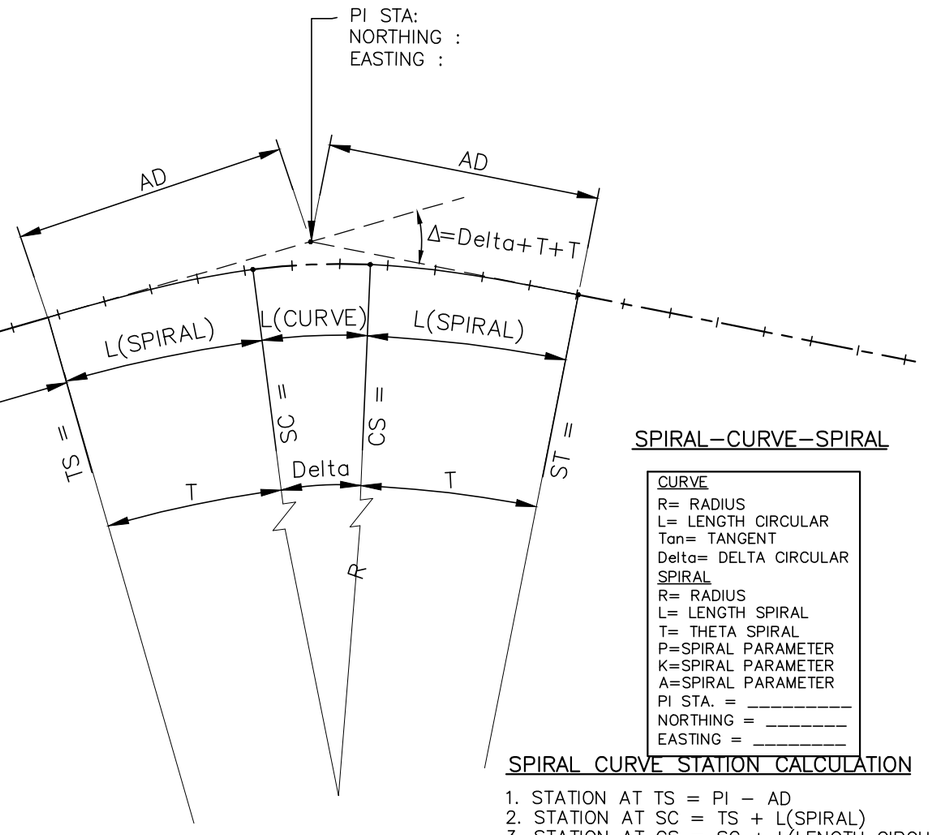
AD CALCULATION: FOR SPIRAL–TO–SPIRAL

AD = (R+P) * tan(T) + K



SIMPLE CURVE

R : RADIUS
L : LENGTH
Tan : TANGENT
Delta : DELTA
PI STA :
NORTHING :
EASTING :



SPIRAL–CURVE–SPIRAL

CURVE
R= RADIUS
L= LENGTH CIRCULAR
Tan= TANGENT
Delta= DELTA CIRCULAR
SPIRAL
R= RADIUS
L= LENGTH SPIRAL
T= THETA SPIRAL
P=SPIRAL PARAMETER
K=SPIRAL PARAMETER
A=SPIRAL PARAMETER
PI STA. = _____
NORTHING = _____
EASTING = _____

SIMPLE CURVE

1. STATION AT PC = PI – Tan
2. STATION AT PT = PC + L

SPIRAL CURVE STATION CALCULATION

1. STATION AT TS = PI – AD
2. STATION AT SC = TS + L(SPIRAL)
3. STATION AT CS = SC + L(LENGTH CIRCULAR)
4. STATION AT ST = CS + L(SPIRAL)

No.	REVISION	DATE	BY

A2 SCALE 1:1000
A3 SCALE 1:1500

SCALE :

CAD FILE: legend–GSHP–II.dwg

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	KUNAL
CHECKED:	SAGAR

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

HORIZONTAL ALIGNMENT
LAYOUT DEFINITIONS

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	HALD	0

Alignment Station and Curve Report

Alignment: - BAYAD - DHORIDUGARI

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+000.000	2565248.995	317775.259
End:	0+056.597	2565229.664	317828.453

Tangent Data

Parameter	Value	Parameter	Value
Length:	56.597	Course:	S 70° 01' 44.6105" E

Curve Point Data

Description	Station	Northing	Easting
PC:	0+056.597	2565229.664	317828.453
RP:		2563349.933	317145.366
PT:	0+098.302	2565215.013	317867.498

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	01° 11' 41.0821"	Type:	RIGHT
Radius:	2000.000		
Length:	41.704	Tangent:	20.853
Mid-Ord:	0.109	External:	0.109
Chord:	41.704	Course:	S 69° 25' 54.0695" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+098.302	2565215.013	317867.498
End:	0+467.656	2565081.652	318211.936

Tangent Data

Parameter	Value	Parameter	Value
Length:	369.354	Course:	S 68° 50' 03.5284" E

Curve Point Data

Description	Station	Northing	Easting
PC:	0+467.656	2565081.652	318211.936
RP:		2560418.951	316406.605
PT:	0+483.169	2565076.028	318226.393

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 10' 39.9549"	Type:	RIGHT
Radius:	5000.000		
Length:	15.513	Tangent:	7.756
Mid-Ord:	0.006	External:	0.006
Chord:	15.513	Course:	S 68° 44' 43.5510" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+483.169	2565076.028	318226.393
End:	0+679.907	2565004.424	318409.639

Tangent Data

Parameter	Value	Parameter	Value
Length:	196.738	Course:	S 68° 39' 23.5735" E

Curve Point Data

Description	Station	Northing	Easting
PC:	0+679.907	2565004.424	318409.639
RP:		2560347.346	316589.850
PT:	0+712.165	2564992.586	318439.646

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 22' 10.7325"	Type:	RIGHT
Radius:	5000.000		
Length:	32.258	Tangent:	16.129
Mid-Ord:	0.026	External:	0.026
Chord:	32.258	Course:	S 68° 28' 18.2073" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+712.165	2564992.586	318439.646
End:	0+945.157	2564906.389	318656.106

Tangent Data

Parameter	Value	Parameter	Value
Length:	232.992	Course:	S 68° 17' 12.8410" E

Curve Point Data

Description	Station	Northing	Easting
PC:	0+945.157	2564906.389	318656.106
RP:		2569551.629	320505.902
PT:	0+961.871	2564900.231	318671.645

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 11' 29.5152"	Type:	LEFT
Radius:	5000.000		
Length:	16.714	Tangent:	8.357
Mid-Ord:	0.007	External:	0.007
Chord:	16.714	Course:	S 68° 22' 57.5986" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+961.871	2564900.231	318671.645
End:	1+180.105	2564820.172	318874.664

Tangent Data

Parameter	Value	Parameter	Value
Length:	218.234	Course:	S 68° 28' 42.3562" E

Curve Point Data

Description	Station	Northing	Easting
PC:	1+180.105	2564820.172	318874.664
RP:		2569471.569	320708.921
PT:	1+240.588	2564798.324	318931.063

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 41' 35.1003"	Type:	LEFT
Radius:	5000.000		
Length:	60.483	Tangent:	30.242
Mid-Ord:	0.091	External:	0.091
Chord:	60.483	Course:	S 68° 49' 29.9064" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+240.588	2564798.324	318931.063
End:	1+437.773	2564728.211	319115.362

Tangent Data

Parameter	Value	Parameter	Value
Length:	197.185	Course:	S 69° 10' 17.4566" E

Curve Point Data

Description	Station	Northing	Easting
PC:	1+437.773	2564728.211	319115.362
RP:		2562391.588	318226.433
PT:	1+495.792	2564706.954	319169.344

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	01° 19' 46.8545"	Type:	RIGHT
Radius:	2500.000		
Length:	58.018	Tangent:	29.010
Mid-Ord:	0.168	External:	0.168
Chord:	58.017	Course:	S 68° 30' 24.0293" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+495.792	2564706.954	319169.344
End:	1+518.279	2564698.472	319190.171

Tangent Data

Parameter	Value	Parameter	Value
Length:	22.487	Course:	S 67° 50' 30.6021" E

Curve Point Data

Description	Station	Northing	Easting
PC:	1+518.279	2564698.472	319190.171
RP:		2567013.838	320133.083
PT:	1+602.339	2564668.083	319268.541

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	01° 55' 35.4030"	Type:	LEFT
Radius:	2500.000		
Length:	84.059	Tangent:	42.034
Mid-Ord:	0.353	External:	0.353
Chord:	84.055	Course:	S 68° 48' 18.3036" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+602.339	2564668.083	319268.541
End:	1+692.499	2564636.904	319353.138

Tangent Data

Parameter	Value	Parameter	Value
Length:	90.160	Course:	S 69° 46' 06.0051" E

Curve Point Data

Description	Station	Northing	Easting
PC:	1+692.499	2564636.904	319353.138
RP:		2562291.149	318488.596
PT:	1+755.316	2564614.442	319411.801

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	01° 26' 22.7708"	Type:	RIGHT
Radius:	2500.000		
Length:	62.817	Tangent:	31.410
Mid-Ord:	0.197	External:	0.197
Chord:	62.815	Course:	S 69° 02' 54.6197" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+755.316	2564614.442	319411.801
End:	2+021.473	2564516.155	319659.145

Tangent Data

Parameter	Value	Parameter	Value
Length:	266.157	Course:	S 68° 19' 43.2342" E

Curve Point Data

Description	Station	Northing	Easting
PC:	2+021.473	2564516.155	319659.145
RP:		2559869.568	317812.737
PT:	2+048.262	2564506.196	319684.013

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 18' 25.1071"	Type:	RIGHT
Radius:	5000.000		
Length:	26.789	Tangent:	13.394
Mid-Ord:	0.018	External:	0.018
Chord:	26.789	Course:	S 68° 10' 30.6807" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+048.262	2564506.196	319684.013
End:	2+218.542	2564442.468	319841.919

Tangent Data

Parameter	Value	Parameter	Value
Length:	170.281	Course:	S 68° 01' 18.1272" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	2+218.542	2564442.468	319841.919
SPI:		2564427.492	319879.026
SC:	2+278.542	2564421.573	319898.144

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	60.000	L Tan:	40.015
Radius:	360.000	S Tan:	20.013
Theta:	04° 46' 28.7339"	P:	0.417
X:	59.958	K:	29.993
Y:	1.666	A:	146.969
Chord:	59.981	Course:	S 69° 36' 47.3682" E

Curve Point Data

Description	Station	Northing	Easting
SC:	2+278.542	2564421.573	319898.144
RP:		2564765.466	320004.620
CS:	2+334.867	2564409.182	319953.029

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	08° 57' 51.5881"	Type:	LEFT
Radius:	360.000		
Length:	56.325	Tangent:	28.220
Mid-Ord:	1.101	External:	1.104
Chord:	56.267	Course:	S 77° 16' 42.6551" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	2+334.867	2564409.182	319953.029
SPI:		2564406.314	319972.836
ST:	2+394.867	2564403.896	320012.778

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	60.000	L Tan:	40.015
Radius:	360.000	S Tan:	20.013
Theta:	04° 46' 28.7339"	P:	0.417
X:	59.958	K:	29.993
Y:	1.666	A:	146.969
Chord:	59.981	Course:	S 84° 56' 37.9420" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+394.867	2564403.896	320012.778
End:	2+506.847	2564397.129	320124.553

Tangent Data

Parameter	Value	Parameter	Value
Length:	111.980	Course:	S 86° 32' 07.1830" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+506.847	2564397.129	320124.553
End:	2+773.048	2564376.667	320389.966

Tangent Data

Parameter	Value	Parameter	Value
Length:	266.201	Course:	S 85° 35' 29.8955" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	2+773.048	2564376.667	320389.966
SPI:		2564373.591	320429.862
SC:	2+833.048	2564370.398	320449.619

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	60.000	L Tan:	40.015
Radius:	360.000	S Tan:	20.013
Theta:	04° 46' 28.7339"	P:	0.417
X:	59.958	K:	29.993
Y:	1.666	A:	146.969
Chord:	59.981	Course:	S 84° 00' 00.6545" E

Curve Point Data

Description	Station	Northing	Easting
SC:	2+833.048	2564370.398	320449.619
RP:		2564015.011	320392.167
CS:	2+904.638	2564352.044	320518.694

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	11° 23' 38.1446"	Type:	RIGHT
Radius:	360.000		
Length:	71.590	Tangent:	35.914
Mid-Ord:	1.778	External:	1.787
Chord:	71.472	Course:	S 75° 07' 12.0894" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	2+904.638	2564352.044	320518.694
SPI:		2564345.010	320537.431
ST:	2+964.638	2564327.877	320573.592

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	60.000	L Tan:	40.015
Radius:	360.000	S Tan:	20.013
Theta:	04° 46' 28.7339"	P:	0.417
X:	59.958	K:	29.993
Y:	1.666	A:	146.969
Chord:	59.981	Course:	S 66° 14' 23.5243" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+964.638	2564327.877	320573.592
End:	3+068.747	2564283.300	320667.675

Tangent Data

Parameter	Value	Parameter	Value
Length:	104.109	Course:	S 64° 38' 54.2832" E

Curve Point Data

Description	Station	Northing	Easting
PC:	3+068.747	2564283.300	320667.675
RP:		2562024.057	319597.246
PT:	3+087.702	2564275.119	320684.774

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 26' 03.9183"	Type:	RIGHT
Radius:	2500.000		
Length:	18.955	Tangent:	9.478
Mid-Ord:	0.018	External:	0.018
Chord:	18.955	Course:	S 64° 25' 52.3240" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+087.702	2564275.119	320684.774
End:	3+373.615	2564150.744	320942.217

Tangent Data

Parameter	Value	Parameter	Value
Length:	285.912	Course:	S 64° 12' 50.3649" E

Curve Point Data

Description	Station	Northing	Easting
PC:	3+373.615	2564150.744	320942.217
RP:		2570903.932	324204.801
PT:	3+401.882	2564138.495	320967.693

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 12' 57.4104"	Type:	LEFT
Radius:	7500.000		
Length:	28.267	Tangent:	14.134
Mid-Ord:	0.013	External:	0.013
Chord:	28.267	Course:	S 64° 19' 19.0701" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+401.882	2564138.495	320967.693
End:	3+695.097	2564011.940	321232.189

Tangent Data

Parameter	Value	Parameter	Value
Length:	293.215	Course:	S 64° 25' 47.7753" E

Curve Point Data

Description	Station	Northing	Easting
PC:	3+695.097	2564011.940	321232.189
RP:		2566267.085	322311.226
PT:	3+699.228	2564010.160	321235.917

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 05' 40.7891"	Type:	LEFT
Radius:	2500.000		
Length:	4.130	Tangent:	2.065
Mid-Ord:	0.001	External:	0.001
Chord:	4.130	Course:	S 64° 28' 38.1698" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+699.228	2564010.160	321235.917
End:	3+857.570	2563942.053	321378.863

Tangent Data

Parameter	Value	Parameter	Value
Length:	158.342	Course:	S 64° 31' 28.5643" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	3+857.570	2563942.053	321378.863
SPI:		2563929.148	321405.949
SC:	3+902.570	2563923.311	321419.770

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	45.000	L Tan:	30.003
Radius:	500.000	S Tan:	15.003
Theta:	02° 34' 41.9163"	P:	0.169
X:	44.991	K:	22.498
Y:	0.675	A:	150.000
Chord:	44.996	Course:	S 65° 23' 02.4834" E

Curve Point Data

Description	Station	Northing	Easting
SC:	3+902.570	2563923.311	321419.770
RP:		2564383.913	321614.309
CS:	3+948.749	2563907.332	321463.080

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	05° 17' 30.3881"	Type:	LEFT
Radius:	500.000		
Length:	46.179	Tangent:	23.106
Mid-Ord:	0.533	External:	0.534
Chord:	46.163	Course:	S 69° 44' 55.6747" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	3+948.749	2563907.332	321463.080
SPI:		2563902.794	321477.380
ST:	3+993.749	2563895.015	321506.357

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	45.000	L Tan:	30.003
Radius:	500.000	S Tan:	15.003
Theta:	02° 34' 41.9163"	P:	0.169
X:	44.991	K:	22.498
Y:	0.675	A:	150.000
Chord:	44.996	Course:	S 74° 06' 48.8660" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+993.749	2563895.015	321506.357
End:	4+400.071	2563789.667	321898.784

Tangent Data

Parameter	Value	Parameter	Value
Length:	406.322	Course:	S 74° 58' 22.7850" E

Curve Point Data

Description	Station	Northing	Easting
PC:	4+400.071	2563789.667	321898.784
RP:		2558960.648	320602.412
PT:	4+427.369	2563782.517	321925.129

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 18' 46.1468"	Type:	RIGHT
Radius:	5000.000		
Length:	27.299	Tangent:	13.649
Mid-Ord:	0.019	External:	0.019
Chord:	27.299	Course:	S 74° 48' 59.7116" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+427.369	2563782.517	321925.129
End:	4+757.737	2563695.120	322243.728

Tangent Data

Parameter	Value	Parameter	Value
Length:	330.368	Course:	S 74° 39' 36.6382" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	4+757.737	2563695.120	322243.728
SPI:		2563687.183	322272.662
SC:	4+802.737	2563683.869	322287.294

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	45.000	L Tan:	30.003
Radius:	500.000	S Tan:	15.003
Theta:	02° 34' 41.9163"	P:	0.169
X:	44.991	K:	22.498
Y:	0.675	A:	150.000
Chord:	44.996	Course:	S 75° 31' 10.5573" E

Curve Point Data

Description	Station	Northing	Easting
SC:	4+802.737	2563683.869	322287.294
RP:		2564171.518	322397.741
CS:	4+934.616	2563671.939	322418.249

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	15° 06' 44.1336"	Type:	LEFT
Radius:	500.000		
Length:	131.879	Tangent:	66.325
Mid-Ord:	4.342	External:	4.380
Chord:	131.497	Course:	S 84° 47' 40.6213" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	4+934.616	2563671.939	322418.249
SPI:		2563672.554	322433.239
ST:	4+979.616	2563675.132	322463.132

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	45.000	L Tan:	30.003
Radius:	500.000	S Tan:	15.003
Theta:	02° 34' 41.9163"	P:	0.169
X:	44.991	K:	22.498
Y:	0.675	A:	150.000
Chord:	44.996	Course:	N 85° 55' 49.3147" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+979.616	2563675.132	322463.132
End:	5+151.273	2563689.881	322634.153

Tangent Data

Parameter	Value	Parameter	Value
Length:	171.656	Course:	N 85° 04' 15.3956" E

Curve Point Data

Description	Station	Northing	Easting
PC:	5+151.273	2563689.881	322634.153
RP:		2568671.390	322204.542
PT:	5+177.800	2563692.231	322660.576

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 18' 14.3409"	Type:	LEFT
Radius:	5000.000		
Length:	26.528	Tangent:	13.264
Mid-Ord:	0.018	External:	0.018
Chord:	26.528	Course:	N 84° 55' 08.2252" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	5+177.800	2563692.231	322660.576
End:	5+386.247	2563711.242	322868.154

Tangent Data

Parameter	Value	Parameter	Value
Length:	208.447	Course:	N 84° 46' 01.0547" E

Curve Point Data

Description	Station	Northing	Easting
PC:	5+386.247	2563711.242	322868.154
RP:		2561719.578	323050.568
PT:	5+444.172	2563715.689	322925.907

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	01° 39' 33.9528"	Type:	RIGHT
Radius:	2000.000		
Length:	57.925	Tangent:	28.965
Mid-Ord:	0.210	External:	0.210
Chord:	57.923	Course:	N 85° 35' 48.0311" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	5+444.172	2563715.689	322925.907
End:	5+641.682	2563728.000	323123.032

Tangent Data

Parameter	Value	Parameter	Value
Length:	197.509	Course:	N 86° 25' 35.0075" E

Curve Point Data

Description	Station	Northing	Easting
PC:	5+641.682	2563728.000	323123.032
RP:		2558737.723	323434.686
PT:	5+683.541	2563730.435	323164.820

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 28' 46.8308"	Type:	RIGHT
Radius:	5000.000		
Length:	41.860	Tangent:	20.930
Mid-Ord:	0.044	External:	0.044
Chord:	41.859	Course:	N 86° 39' 58.4228" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	5+683.541	2563730.435	323164.820
End:	5+710.309	2563731.879	323191.550

Tangent Data

Parameter	Value	Parameter	Value
Length:	26.768	Course:	N 86° 54' 21.8382" E

Curve Point Data

Description	Station	Northing	Easting
PC:	5+710.309	2563731.879	323191.550
RP:		2565728.964	323083.603
PT:	5+816.533	2563740.426	323297.417

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	03° 02' 35.1273"	Type:	LEFT
Radius:	2000.000		

Length:	106.224	Tangent:	53.124
Mid-Ord:	0.705	External:	0.705
Chord:	106.211	Course:	N 85° 23' 04.2746" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	5+816.533	2563740.426	323297.417
End:	6+289.683	2563791.009	323767.855

Tangent Data

Parameter	Value	Parameter	Value
Length:	473.150	Course:	N 83° 51' 46.7109" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	6+289.683	2563791.009	323767.855
SPI:		2563793.503	323791.055
SC:	6+324.683	2563794.460	323802.683

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	35.000	L Tan:	23.334
Radius:	700.000	S Tan:	11.667
Theta:	01° 25' 56.6202"	P:	0.073
X:	34.998	K:	17.500
Y:	0.292	A:	156.525
Chord:	34.999	Course:	N 84° 20' 25.5752" E

Curve Point Data

Description	Station	Northing	Easting
SC:	6+324.683	2563794.460	323802.683
RP:		2563096.819	323860.097
CS:	6+373.043	2563796.760	323850.979

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	03° 57' 29.9518"	Type:	RIGHT
Radius:	700.000		
Length:	48.360	Tangent:	24.190
Mid-Ord:	0.418	External:	0.418
Chord:	48.350	Course:	N 87° 16' 28.3070" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	6+373.043	2563796.760	323850.979
SPI:		2563796.911	323862.646
ST:	6+408.043	2563796.632	323885.978

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	35.000	L Tan:	23.334
Radius:	700.000	S Tan:	11.667
Theta:	01° 25' 56.6202"	P:	0.073
X:	34.998	K:	17.500
Y:	0.292	A:	156.525
Chord:	34.999	Course:	S 89° 47' 28.9612" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+408.043	2563796.632	323885.978
End:	7+144.250	2563787.817	324622.132

Tangent Data

Parameter	Value	Parameter	Value
Length:	736.206	Course:	S 89° 18' 50.0969" E

Curve Point Data

Description	Station	Northing	Easting
PC:	7+144.250	2563787.817	324622.132
RP:		2558788.175	324562.261
PT:	7+177.928	2563787.300	324655.806

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 23' 09.3440"	Type:	RIGHT
Radius:	5000.000		
Length:	33.679	Tangent:	16.839
Mid-Ord:	0.028	External:	0.028
Chord:	33.679	Course:	S 89° 07' 15.4249" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+177.928	2563787.300	324655.806
End:	7+281.900	2563785.355	324759.760

Tangent Data

Parameter	Value	Parameter	Value
Length:	103.972	Course:	S 88° 55' 40.7529" E

Curve Point Data

Description	Station	Northing	Easting
PC:	7+281.900	2563785.355	324759.760
RP:		2568784.480	324853.305
PT:	7+326.319	2563784.721	324804.174

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 30' 32.3864"	Type:	LEFT
Radius:	5000.000		
Length:	44.418	Tangent:	22.209
Mid-Ord:	0.049	External:	0.049
Chord:	44.418	Course:	S 89° 10' 56.9461" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+326.319	2563784.721	324804.174
End:	7+345.642	2563784.531	324823.496

Tangent Data

Parameter	Value	Parameter	Value
Length:	19.323	Course:	S 89° 26' 13.1393" E

Curve Point Data

Description	Station	Northing	Easting
PC:	7+345.642	2563784.531	324823.496
RP:		2565784.435	324843.149
PT:	7+424.239	2563785.303	324902.084

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	02° 15' 05.8763"	Type:	LEFT
Radius:	2000.000		
Length:	78.597	Tangent:	39.303
Mid-Ord:	0.386	External:	0.386
Chord:	78.592	Course:	N 89° 26' 13.9226" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+424.239	2563785.303	324902.084
End:	7+851.035	2563797.880	325328.695

Tangent Data

Parameter	Value	Parameter	Value
Length:	426.796	Course:	N 88° 18' 40.9844" E

Curve Point Data

Description	Station	Northing	Easting
PC:	7+851.035	2563797.880	325328.695
RP:		2568795.708	325181.357
PT:	7+868.106	2563798.412	325345.758

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 11' 44.2396"	Type:	LEFT
Radius:	5000.000		
Length:	17.071	Tangent:	8.536
Mid-Ord:	0.007	External:	0.007
Chord:	17.071	Course:	N 88° 12' 48.8646" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+868.106	2563798.412	325345.758
End:	8+085.668	2563805.565	325563.202

Tangent Data

Parameter	Value	Parameter	Value
Length:	217.562	Course:	N 88° 06' 56.7448" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	8+085.668	2563805.565	325563.202
SPI:		2563806.552	325593.189
SC:	8+130.668	2563806.370	325608.191

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	45.000	L Tan:	30.003
Radius:	500.000	S Tan:	15.003
Theta:	02° 34' 41.9163"	P:	0.169
X:	44.991	K:	22.498
Y:	0.675	A:	150.000
Chord:	44.996	Course:	N 88° 58' 30.6639" E

Curve Point Data

Description	Station	Northing	Easting
SC:	8+130.668	2563806.370	325608.191
RP:		2563306.407	325602.134
CS:	8+217.856	2563797.737	325694.839

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 59' 27.5111"	Type:	RIGHT
Radius:	500.000		
Length:	87.188	Tangent:	43.705
Mid-Ord:	1.899	External:	1.906
Chord:	87.077	Course:	S 84° 18' 37.5833" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	8+217.856	2563797.737	325694.839
SPI:		2563794.956	325709.582
ST:	8+262.856	2563788.072	325738.785

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	45.000	L Tan:	30.003
Radius:	500.000	S Tan:	15.003
Theta:	02° 34' 41.9163"	P:	0.169
X:	44.991	K:	22.498
Y:	0.675	A:	150.000
Chord:	44.996	Course:	S 77° 35' 45.8305" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	8+262.856	2563788.072	325738.785
End:	8+387.291	2563759.523	325859.901

Tangent Data

Parameter	Value	Parameter	Value
Length:	124.436	Course:	S 76° 44' 11.9115" E

Curve Point Data

Description	Station	Northing	Easting
PC:	8+387.291	2563759.523	325859.901
RP:		2566192.838	326433.469
PT:	8+426.748	2563750.774	325898.375

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 54' 15.4159"	Type:	LEFT
Radius:	2500.000		
Length:	39.457	Tangent:	19.729
Mid-Ord:	0.078	External:	0.078
Chord:	39.456	Course:	S 77° 11' 19.6195" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	8+426.748	2563750.774	325898.375
End:	8+747.282	2563682.168	326211.481

Tangent Data

Parameter	Value	Parameter	Value
Length:	320.534	Course:	S 77° 38' 27.3274" E

Curve Point Data

Description	Station	Northing	Easting
PC:	8+747.282	2563682.168	326211.481
RP:		2566124.231	326746.575
PT:	8+764.924	2563678.453	326228.728

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 24' 15.5881"	Type:	LEFT
Radius:	2500.000		
Length:	17.642	Tangent:	8.821
Mid-Ord:	0.016	External:	0.016
Chord:	17.642	Course:	S 77° 50' 35.1215" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	8+764.924	2563678.453	326228.728
End:	9+146.076	2563599.501	326601.613

Tangent Data

Parameter	Value	Parameter	Value
Length:	381.152	Course:	S 78° 02' 42.9155" E

Curve Point Data

Description	Station	Northing	Easting
PC:	9+146.076	2563599.501	326601.613
RP:		2568491.059	327637.308
PT:	9+165.545	2563595.506	326620.667

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 13' 23.1239"	Type:	LEFT
Radius:	5000.000		
Length:	19.468	Tangent:	9.734
Mid-Ord:	0.009	External:	0.009
Chord:	19.468	Course:	S 78° 09' 24.4775" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+165.545	2563595.506	326620.667
End:	9+319.671	2563564.167	326771.573

Tangent Data

Parameter	Value	Parameter	Value
Length:	154.126	Course:	S 78° 16' 06.0394" E

Curve Point Data

Description	Station	Northing	Easting
PC:	9+319.671	2563564.167	326771.573
RP:		2568459.721	327788.215
PT:	9+346.113	2563558.859	326797.478

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 18' 10.8386"	Type:	LEFT
Radius:	5000.000		
Length:	26.443	Tangent:	13.221
Mid-Ord:	0.017	External:	0.017
Chord:	26.443	Course:	S 78° 25' 11.4587" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+346.113	2563558.859	326797.478
End:	9+595.591	2563509.426	327042.009

Tangent Data

Parameter	Value	Parameter	Value
Length:	249.478	Course:	S 78° 34' 16.8780" E

Curve Point Data

Description	Station	Northing	Easting
PC:	9+595.591	2563509.426	327042.009
RP:		2565469.770	327438.304
PT:	9+611.726	2563506.293	327057.836

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 27' 43.9952"	Type:	LEFT
Radius:	2000.000		
Length:	16.135	Tangent:	8.067
Mid-Ord:	0.016	External:	0.016
Chord:	16.135	Course:	S 78° 48' 08.8756" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+611.726	2563506.293	327057.836
End:	9+735.948	2563482.662	327179.790

Tangent Data

Parameter	Value	Parameter	Value
Length:	124.222	Course:	S 79° 02' 00.8732" E

Curve Point Data

Description	Station	Northing	Easting
PC:	9+735.948	2563482.662	327179.790
RP:		2561028.314	326704.206
PT:	9+770.561	2563475.842	327213.725

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 47' 35.7823"	Type:	RIGHT
Radius:	2500.000		
Length:	34.613	Tangent:	17.307
Mid-Ord:	0.060	External:	0.060
Chord:	34.613	Course:	S 78° 38' 12.9820" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+770.561	2563475.842	327213.725
End:	9+841.355	2563461.414	327283.033

Tangent Data

Parameter	Value	Parameter	Value
Length:	70.794	Course:	S 78° 14' 25.0908" E

Curve Point Data

Description	Station	Northing	Easting
PC:	9+841.355	2563461.414	327283.033
RP:		2565908.941	327792.551
PT:	9+864.868	2563456.730	327306.074

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 32' 19.8960"	Type:	LEFT
Radius:	2500.000		
Length:	23.512	Tangent:	11.756
Mid-Ord:	0.028	External:	0.028
Chord:	23.512	Course:	S 78° 30' 35.0388" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+864.868	2563456.730	327306.074
End:	10+171.190	2563397.122	327606.541

Tangent Data

Parameter	Value	Parameter	Value
Length:	306.323	Course:	S 78° 46' 44.9869" E

Curve Point Data

Description	Station	Northing	Easting
PC:	10+171.190	2563397.122	327606.541
RP:		2560944.911	327120.063
PT:	10+224.128	2563386.272	327658.353

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	01° 12' 47.6561"	Type:	RIGHT
Radius:	2500.000		
Length:	52.937	Tangent:	26.470
Mid-Ord:	0.140	External:	0.140
Chord:	52.936	Course:	S 78° 10' 21.1588" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+224.128	2563386.272	327658.353
End:	10+319.747	2563365.684	327751.730

Tangent Data

Parameter	Value	Parameter	Value
Length:	95.619	Course:	S 77° 33' 57.3308" E

Curve Point Data

Description	Station	Northing	Easting
PC:	10+319.747	2563365.684	327751.730
RP:		2565807.045	328290.020
PT:	10+359.497	2563357.434	327790.614

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 54' 39.6131"	Type:	LEFT
Radius:	2500.000		
Length:	39.750	Tangent:	19.875
Mid-Ord:	0.079	External:	0.079
Chord:	39.750	Course:	S 78° 01' 17.1373" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+359.497	2563357.434	327790.614
End:	10+376.807	2563353.976	327807.575

Tangent Data

Parameter	Value	Parameter	Value
Length:	17.310	Course:	S 78° 28' 36.9439" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	10+376.807	2563353.976	327807.575
SPI:		2563345.983	327846.783
SC:	10+436.807	2563343.631	327866.657

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	60.000	L Tan:	40.015
Radius:	360.000	S Tan:	20.013
Theta:	04° 46' 28.7339"	P:	0.417
X:	59.958	K:	29.993
Y:	1.666	A:	146.969
Chord:	59.981	Course:	S 80° 04' 06.1849" E

Curve Point Data

Description	Station	Northing	Easting
SC:	10+436.807	2563343.631	327866.657
RP:		2563701.137	327908.961
CS:	10+594.868	2563359.557	328022.641

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	25° 09' 22.1628"	Type:	LEFT
Radius:	360.000		
Length:	158.061	Tangent:	80.325
Mid-Ord:	8.640	External:	8.852
Chord:	156.794	Course:	N 84° 10' 13.2409" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	10+594.868	2563359.557	328022.641
SPI:		2563365.876	328041.630
ST:	10+654.868	2563381.629	328078.414

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	60.000	L Tan:	40.015
Radius:	360.000	S Tan:	20.013
Theta:	04° 46' 28.7339"	P:	0.417
X:	59.958	K:	29.993
Y:	1.666	A:	146.969
Chord:	59.981	Course:	N 68° 24' 32.6667" E

Tangent Data

Description	PT Station	Northing	Easting

Start:	10+654.868	2563381.629	328078.414
End:	11+204.679	2563598.067	328583.832

Tangent Data

Parameter	Value	Parameter	Value
Length:	549.812	Course:	N 66° 49' 03.4256" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	11+204.679	2563598.067	328583.832
SPI:		2563612.505	328617.546
SC:	11+259.679	2563618.550	328634.863

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	55.000	L Tan:	36.676
Radius:	400.000	S Tan:	18.342
Theta:	03° 56' 20.7054"	P:	0.315
X:	54.974	K:	27.496
Y:	1.260	A:	148.324
Chord:	54.988	Course:	N 68° 07' 50.1383" E

Curve Point Data

Description	Station	Northing	Easting
SC:	11+259.679	2563618.550	328634.863
RP:		2563240.899	328766.695
CS:	11+330.402	2563635.850	328703.342

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	10° 07' 49.1439"	Type:	RIGHT
Radius:	400.000		
Length:	70.723	Tangent:	35.454
Mid-Ord:	1.562	External:	1.568
Chord:	70.631	Course:	N 75° 49' 18.7030" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	11+330.402	2563635.850	328703.342
SPI:		2563638.755	328721.452
ST:	11+385.402	2563642.062	328757.979

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	55.000	L Tan:	36.676
Radius:	400.000	S Tan:	18.342
Theta:	03° 56' 20.7054"	P:	0.315
X:	54.974	K:	27.496
Y:	1.260	A:	148.324
Chord:	54.988	Course:	N 83° 30' 47.2677" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	11+385.402	2563642.062	328757.979
End:	11+396.867	2563643.096	328769.396

Tangent Data

Parameter	Value	Parameter	Value
Length:	11.464	Course:	N 84° 49' 33.9804" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	11+396.867	2563643.096	328769.396
SPI:		2563646.403	328805.923
SC:	11+451.867	2563646.799	328824.260

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	55.000	L Tan:	36.676
Radius:	400.000	S Tan:	18.342
Theta:	03° 56' 20.7054"	P:	0.315
X:	54.974	K:	27.496
Y:	1.260	A:	148.324
Chord:	54.988	Course:	N 86° 08' 20.6930" E

Curve Point Data

Description	Station	Northing	Easting
SC:	11+451.867	2563646.799	328824.260
RP:		2563246.892	328832.880
CS:	11+846.894	2563474.324	329161.931

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	56° 35' 00.8056"	Type:	RIGHT
Radius:	400.000		
Length:	395.028	Tangent:	215.304
Mid-Ord:	47.782	External:	54.264
Chord:	379.170	Course:	S 62° 56' 34.9114" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	11+846.894	2563474.324	329161.931
SPI:		2563459.235	329172.360
ST:	11+901.894	2563427.703	329191.091

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	55.000	L Tan:	36.676
Radius:	400.000	S Tan:	18.342
Theta:	03° 56' 20.7054"	P:	0.315
X:	54.974	K:	27.496
Y:	1.260	A:	148.324
Chord:	54.988	Course:	S 32° 01' 30.5158" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	11+901.894	2563427.703	329191.091
End:	11+972.236	2563367.228	329227.016

Tangent Data

Parameter	Value	Parameter	Value
Length:	70.342	Course:	S 30° 42' 43.8032" E

Curve Point Data

Description	Station	Northing	Easting
PC:	11+972.236	2563367.228	329227.016
RP:		2562090.414	327077.657
PT:	12+024.144	2563322.328	329253.062

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	01° 11' 22.7445"	Type:	RIGHT
Radius:	2500.000		
Length:	51.908	Tangent:	25.955
Mid-Ord:	0.135	External:	0.135
Chord:	51.907	Course:	S 30° 07' 02.4309" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	12+024.144	2563322.328	329253.062
End:	12+100.477	2563255.906	329290.676

Tangent Data

Parameter	Value	Parameter	Value
Length:	76.333	Course:	S 29° 31' 21.0587" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	12+100.477	2563255.906	329290.676
SPI:		2563212.362	329315.335
SC:	12+175.477	2563192.284	329330.292

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	75.000	L Tan:	50.041
Radius:	300.000	S Tan:	25.037
Theta:	07° 09' 43.1008"	P:	0.781
X:	74.883	K:	37.480
Y:	3.122	A:	150.000
Chord:	74.948	Course:	S 31° 54' 34.2883" E

Curve Point Data

Description	Station	Northing	Easting
SC:	12+175.477	2563192.284	329330.292

RP:		2563371.506	329570.873
CS:	12+295.423	2563112.772	329419.029

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	22° 54' 28.8274"	Type:	LEFT
Radius:	300.000		
Length:	119.946	Tangent:	60.785
Mid-Ord:	5.975	External:	6.096
Chord:	119.149	Course:	S 48° 08' 18.5731" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	12+295.423	2563112.772	329419.029
SPI:		2563100.099	329440.623
ST:	12+370.423	2563080.350	329486.601

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	75.000	L Tan:	50.041
Radius:	300.000	S Tan:	25.037
Theta:	07° 09' 43.1008"	P:	0.781
X:	74.883	K:	37.480
Y:	3.122	A:	150.000
Chord:	74.948	Course:	S 64° 22' 02.8579" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	12+370.423	2563080.350	329486.601
End:	13+978.367	2562445.739	330964.016

Tangent Data

Parameter	Value	Parameter	Value
Length:	1607.944	Course:	S 66° 45' 16.0876" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	13+978.367	2562445.739	330964.016
SPI:		2562425.994	331009.983
SC:	14+053.367	2562413.780	331031.826

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	75.000	L Tan:	50.028
Radius:	360.000	S Tan:	25.026
Theta:	05° 58' 05.9173"	P:	0.651
X:	74.919	K:	37.486
Y:	2.602	A:	164.317
Chord:	74.964	Course:	S 64° 45' 54.7732" E

Curve Point Data

Description	Station	Northing	Easting
SC:	14+053.367	2562413.780	331031.826
RP:		2562099.570	330856.120
CS:	14+215.054	2562306.330	331150.824

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	25° 43' 59.6882"	Type:	RIGHT
Radius:	360.000		
Length:	161.687	Tangent:	82.230
Mid-Ord:	9.039	External:	9.272
Chord:	160.331	Course:	S 47° 55' 10.3262" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	14+215.054	2562306.330	331150.824
SPI:		2562285.843	331165.197
ST:	14+290.054	2562242.123	331189.516

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	75.000	L Tan:	50.028
Radius:	360.000	S Tan:	25.026
Theta:	05° 58' 05.9173"	P:	0.651
X:	74.919	K:	37.486
Y:	2.602	A:	164.317
Chord:	74.964	Course:	S 31° 04' 25.8792" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+290.054	2562242.123	331189.516
End:	14+383.902	2562160.109	331235.136

Tangent Data

Parameter	Value	Parameter	Value
Length:	93.848	Course:	S 29° 05' 04.5648" E

Curve Point Data

Description	Station	Northing	Easting
PC:	14+383.902	2562160.109	331235.136
RP:		2559729.607	326865.621
PT:	14+416.465	2562131.601	331250.872

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 22' 23.3385"	Type:	RIGHT
Radius:	5000.000		
Length:	32.563	Tangent:	16.282
Mid-Ord:	0.027	External:	0.027
Chord:	32.563	Course:	S 28° 53' 52.8956" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+416.465	2562131.601	331250.872
End:	14+903.348	2561704.580	331484.770

Tangent Data

Parameter	Value	Parameter	Value
Length:	486.882	Course:	S 28° 42' 41.2263" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	14+903.348	2561704.580	331484.770
SPI:		2561669.488	331503.991
SC:	14+963.348	2561651.267	331512.262

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	60.000	L Tan:	40.012
Radius:	400.000	S Tan:	20.011
Theta:	04° 17' 49.8605"	P:	0.375
X:	59.966	K:	29.994
Y:	1.499	A:	154.919
Chord:	59.985	Course:	S 27° 16' 44.8517" E

Curve Point Data

Description	Station	Northing	Easting
SC:	14+963.348	2561651.267	331512.262
RP:		2561485.934	331148.030
CS:	15+117.112	2561502.609	331547.682

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	22° 01' 30.2804"	Type:	RIGHT
Radius:	400.000		
Length:	153.764	Tangent:	77.843
Mid-Ord:	7.366	External:	7.504
Chord:	152.819	Course:	S 13° 24' 06.2256" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	15+117.112	2561502.609	331547.682
SPI:		2561482.616	331548.516
ST:	15+177.112	2561442.626	331547.184

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	60.000	L Tan:	40.012
Radius:	400.000	S Tan:	20.011
Theta:	04° 17' 49.8605"	P:	0.375
X:	59.966	K:	29.994
Y:	1.499	A:	154.919

Chord:	59.985	Course:	S 00° 28' 32.4005" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	15+177.112	2561442.626	331547.184
End:	15+248.819	2561370.958	331544.797

Tangent Data

Parameter	Value	Parameter	Value
Length:	71.708	Course:	S 01° 54' 28.7751" W

Curve Point Data

Description	Station	Northing	Easting
PC:	15+248.819	2561370.958	331544.797
RP:		2561454.195	329046.183
PT:	15+289.742	2561330.071	331543.100

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 56' 16.3324"	Type:	RIGHT
Radius:	2500.000		
Length:	40.922	Tangent:	20.462
Mid-Ord:	0.084	External:	0.084
Chord:	40.922	Course:	S 02° 22' 36.9413" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	15+289.742	2561330.071	331543.100
End:	15+385.164	2561234.767	331538.362

Tangent Data

Parameter	Value	Parameter	Value
Length:	95.422	Course:	S 02° 50' 45.1075" W

Spiral Point Data

Description	Station	Northing	Easting
TS:	15+385.164	2561234.767	331538.362
SPI:		2561198.136	331536.541
SC:	15+440.164	2561179.798	331536.891

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	55.000	L Tan:	36.676
Radius:	400.000	S Tan:	18.342
Theta:	03° 56' 20.7054"	P:	0.315
X:	54.974	K:	27.496
Y:	1.260	A:	148.324
Chord:	54.988	Course:	S 01° 31' 58.3948" W

Curve Point Data

Description	Station	Northing	Easting
SC:	15+440.164	2561179.798	331536.891
RP:		2561187.430	331936.818
CS:	15+690.898	2560946.658	331617.398

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	35° 54' 53.8564"	Type:	LEFT
Radius:	400.000		
Length:	250.734	Tangent:	129.640
Mid-Ord:	19.486	External:	20.484
Chord:	246.649	Course:	S 19° 03' 02.5262" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	15+690.898	2560946.658	331617.398
SPI:		2560932.012	331628.439
ST:	15+745.898	2560904.310	331652.475

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	55.000	L Tan:	36.676
Radius:	400.000	S Tan:	18.342
Theta:	03° 56' 20.7054"	P:	0.315
X:	54.974	K:	27.496
Y:	1.260	A:	148.324
Chord:	54.988	Course:	S 39° 38' 03.4472" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	15+745.898	2560904.310	331652.475
End:	15+941.058	2560756.903	331780.376

Tangent Data

Parameter	Value	Parameter	Value
Length:	195.160	Course:	S 40° 56' 50.1598" E

Curve Point Data

Description	Station	Northing	Easting
PC:	15+941.058	2560756.903	331780.376
RP:		2562395.313	333668.658
PT:	15+972.732	2560733.111	331801.285

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 43' 33.3566"	Type:	LEFT
Radius:	2500.000		
Length:	31.675	Tangent:	15.838
Mid-Ord:	0.050	External:	0.050
Chord:	31.675	Course:	S 41° 18' 36.8381" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	15+972.732	2560733.111	331801.285
End:	16+086.420	2560648.192	331876.874

Tangent Data

Parameter	Value	Parameter	Value
Length:	113.687	Course:	S 41° 40' 23.5164" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	16+086.420	2560648.192	331876.874
SPI:		2560630.763	331892.388
SC:	16+121.420	2560622.237	331900.354

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	35.000	L Tan:	23.334
Radius:	725.000	S Tan:	11.667
Theta:	01° 22' 58.8057"	P:	0.070
X:	34.998	K:	17.500
Y:	0.282	A:	159.295
Chord:	34.999	Course:	S 42° 08' 03.1101" E

Curve Point Data

Description	Station	Northing	Easting
SC:	16+121.420	2560622.237	331900.354
RP:		2561117.206	332430.100
CS:	16+327.680	2560493.448	332060.573

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	16° 18' 01.6641"	Type:	LEFT
Radius:	725.000		
Length:	206.260	Tangent:	103.831
Mid-Ord:	7.323	External:	7.397
Chord:	205.565	Course:	S 51° 12' 23.1541" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	16+327.680	2560493.448	332060.573
SPI:		2560487.501	332070.611
ST:	16+362.680	2560476.096	332090.968

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	35.000	L Tan:	23.334
Radius:	725.000	S Tan:	11.667
Theta:	01° 22' 58.8057"	P:	0.070
X:	34.998	K:	17.500
Y:	0.282	A:	159.295
Chord:	34.999	Course:	S 60° 16' 43.1981" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	16+362.680	2560476.096	332090.968
End:	17+332.408	2560002.113	332936.966

Tangent Data

Parameter	Value	Parameter	Value
Length:	969.728	Course:	S 60° 44' 22.7918" E

Curve Point Data

Description	Station	Northing	Easting
PC:	17+332.408	2560002.113	332936.966
RP:		2564364.152	335380.859
PT:	17+356.358	2559990.457	332957.888

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	00° 16' 27.9974"	Type:	LEFT
Radius:	5000.000		
Length:	23.950	Tangent:	11.975
Mid-Ord:	0.014	External:	0.014
Chord:	23.950	Course:	S 60° 52' 36.7905" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	17+356.358	2559990.457	332957.888
End:	17+781.679	2559784.349	333329.933

Tangent Data

Parameter	Value	Parameter	Value
Length:	425.321	Course:	S 61° 00' 50.7893" E

Curve Point Data

Description	Station	Northing	Easting
PC:	17+781.679	2559784.349	333329.933
RP:		2555410.654	330906.962
PT:	17+809.485	2559770.807	333354.218

Circular Curve Data

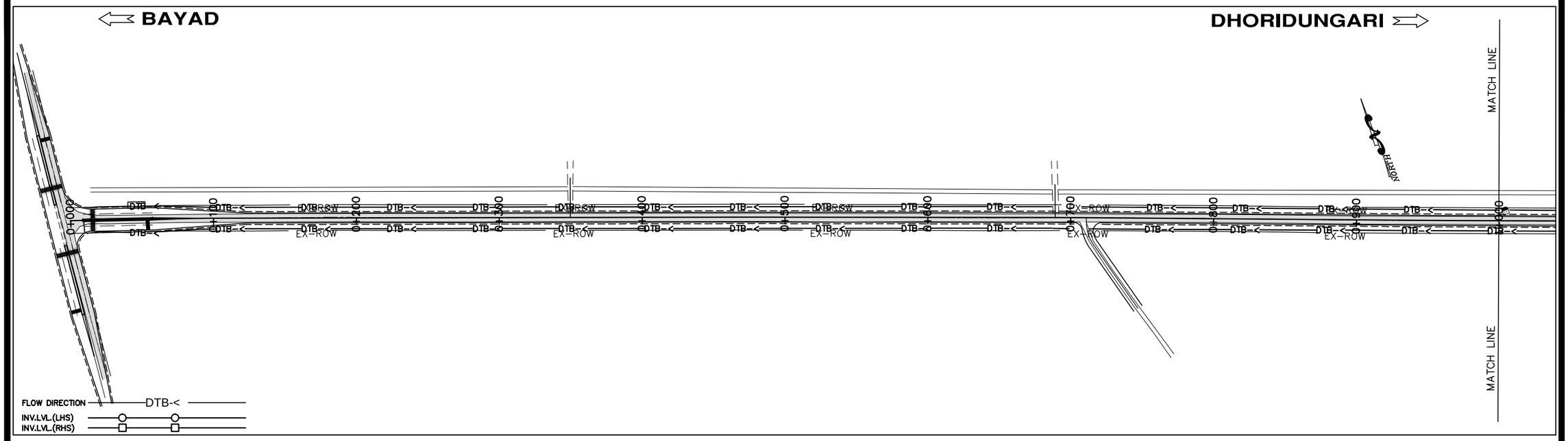
Parameter	Value	Parameter	Value
Delta:	00° 19' 07.0816"	Type:	RIGHT
Radius:	5000.000		
Length:	27.806	Tangent:	13.903
Mid-Ord:	0.019	External:	0.019
Chord:	27.806	Course:	S 60° 51' 17.2485" E

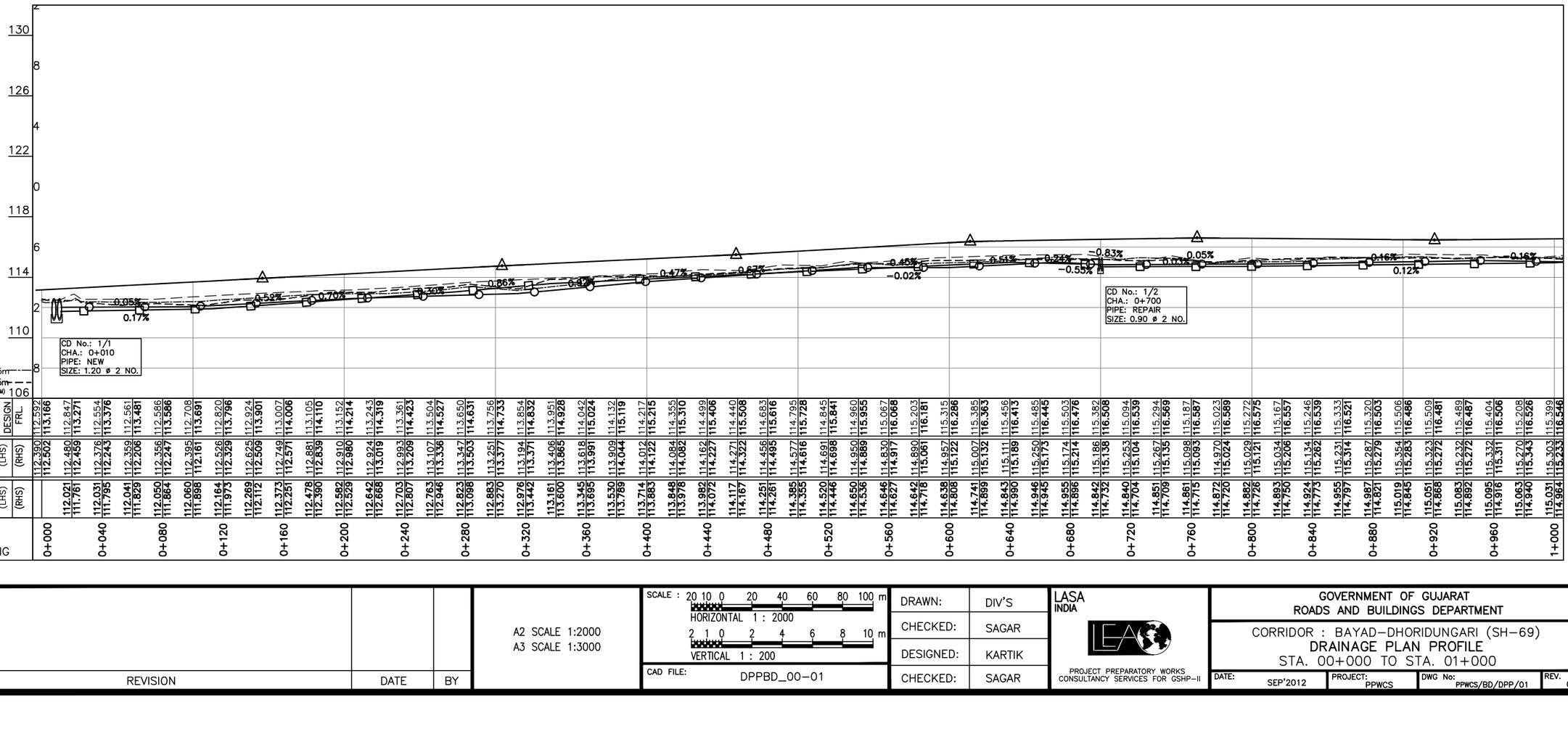
Tangent Data

Description	PT Station	Northing	Easting
Start:	17+809.485	2559770.807	333354.218
End:	17+961.455	2559696.425	333486.741

Tangent Data

Parameter	Value	Parameter	Value
Length:	151.970	Course:	S 60° 41' 43.7077" E





STATIONING	DESIGN FRL.	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
0+000	112.592	112.390	112.502	112.021	111.761
0+020	113.166	112.480	112.459	112.031	111.795
0+040	112.847	112.376	112.243	112.041	111.829
0+060	113.271	112.359	112.206	112.050	111.864
0+080	112.554	112.356	112.247	112.060	111.898
0+100	113.376	112.395	112.161	112.164	111.973
0+120	112.561	112.526	112.329	112.269	112.112
0+140	113.481	112.586	112.586	112.373	112.251
0+160	112.708	112.625	112.509	112.478	112.390
0+180	113.691	112.749	112.571	112.582	112.529
0+200	112.820	112.881	112.839	112.642	112.668
0+220	113.796	112.910	112.980	112.703	112.807
0+240	112.924	112.924	113.019	112.763	112.946
0+260	113.901	112.993	113.209	112.823	113.098
0+280	113.007	113.107	113.336	112.883	113.270
0+300	114.006	113.347	113.503	112.976	113.442
0+320	113.105	113.251	113.377	113.161	113.600
0+340	114.110	113.406	113.865	113.345	113.695
0+360	113.152	113.618	113.991	113.530	113.789
0+380	114.214	113.909	114.044	113.714	113.883
0+400	113.243	114.012	114.122	113.848	113.978
0+420	114.319	114.084	114.082	113.982	114.072
0+440	113.361	114.162	114.227	114.117	114.167
0+460	114.423	114.271	114.322	114.251	114.261
0+480	113.504	114.456	114.495	114.385	114.355
0+500	114.527	114.577	114.616	114.520	114.446
0+520	113.650	114.691	114.698	114.650	114.536
0+540	114.631	114.830	114.917	114.646	114.627
0+560	113.756	114.890	115.061	114.642	114.718
0+580	114.733	114.957	115.122	114.638	114.808
0+600	113.854	115.007	115.132	114.741	114.899
0+620	114.832	115.111	115.189	114.843	114.990
0+640	113.951	115.250	115.173	114.946	114.945
0+660	114.928	115.174	115.214	114.955	114.896
0+680	114.042	115.186	115.138	114.842	114.732
0+700	115.024	115.263	115.104	114.840	114.704
0+720	114.132	115.267	115.155	114.851	114.709
0+740	115.119	115.098	115.093	114.861	114.715
0+760	114.217	114.970	115.024	114.872	114.720
0+780	115.215	115.029	115.121	114.882	114.726
0+800	114.355	115.272	115.575	114.893	114.750
0+820	115.310	115.167	115.557	114.924	114.773
0+840	114.499	115.246	115.539	114.955	114.797
0+860	115.406	115.333	115.521	114.987	114.821
0+880	114.440	115.320	116.503	115.019	114.845
0+900	115.508	115.506	116.486	115.051	114.868
0+920	114.683	115.509	116.481	115.083	114.892
0+940	115.616	115.489	116.487	115.095	115.272
0+960	114.795	115.404	116.506	115.332	115.311
0+980	115.728	115.208	116.526	115.063	114.940
1+000	114.845	115.399	116.546	115.303	115.343
	115.841			115.031	114.964

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : HORIZONTAL 1 : 2000
VERTICAL 1 : 200
CAD FILE: DPPBD_00-01

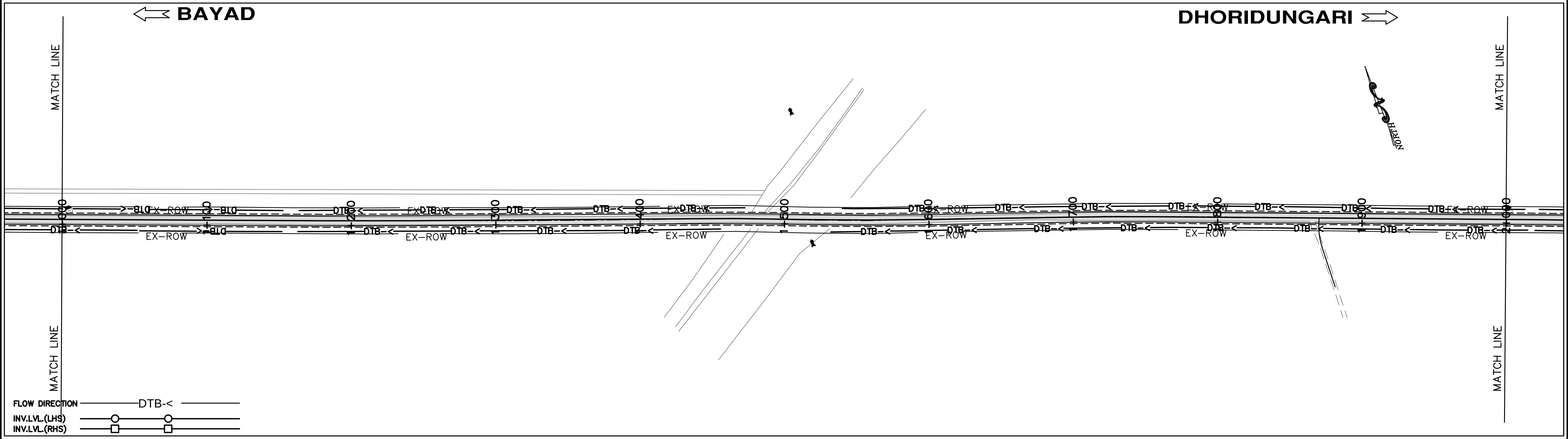
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

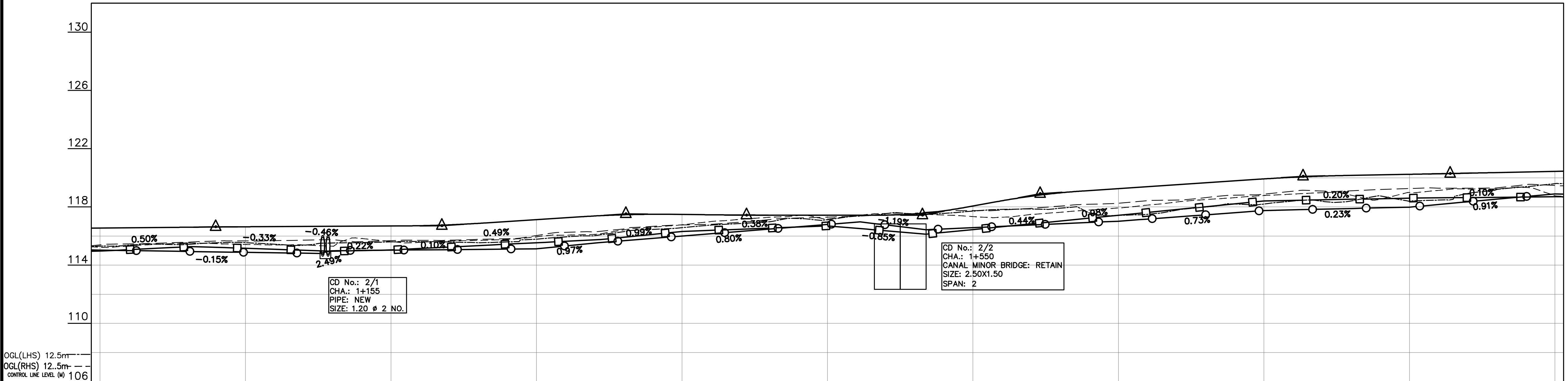
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 00+000 TO STA. 01+000

DATE: SEP'2012 | PROJECT: PPWCS | DWG No: PPWCS/BD/DPP/01 | REV. 0





STATIONING	DESIGN	FRL.	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
1+000	115.399	116.546	115.303	115.233	115.031	114.964
	115.460	116.566	115.372	115.317	115.001	115.064
1+040	115.509	116.586	115.442	115.437	114.971	115.164
	115.580	116.606	115.425	115.519	114.942	115.265
1+080	115.654	116.623	115.538	115.479	114.912	115.223
	115.664	116.636	115.546	115.419	114.882	115.158
1+120	115.679	116.647	115.440	115.391	114.852	115.092
	115.715	116.658	115.377	115.389	114.823	115.026
1+160	115.747	116.668	115.523	115.304	114.989	114.961
	115.619	116.679	115.550	115.832	115.009	115.004
1+200	115.686	116.689	115.601	115.507	115.028	115.049
	115.709	116.711	115.622	115.574	115.048	115.148
1+240	115.712	116.770	115.595	115.666	115.067	115.246
	115.769	116.870	115.545	115.701	115.087	115.344
1+280	115.820	116.997	115.596	115.777	115.106	115.442
	116.037	117.126	115.786	115.948	115.128	115.541
1+320	116.259	117.255	115.941	116.065	115.322	115.639
	116.281	117.379	116.030	116.111	115.517	115.737
1+360	116.494	117.461	116.309	116.425	115.680	115.917
	116.666	117.493	116.455	116.616	115.839	116.116
1+400	116.767	117.480	116.575	116.773	115.998	116.314
	116.811	117.459	116.755	116.995	116.157	116.392
1+440	116.947	117.444	116.907	117.215	116.316	116.469
	117.125	117.435	116.981	117.292	116.475	116.546
1+480	117.238	117.433	117.250	117.413	116.635	116.623
	117.301	117.433	117.127	117.167	116.794	116.700
1+520	117.372	117.433	117.363	117.524	116.953	116.532
	117.452	117.437	117.626	117.583	116.763	116.362
1+560	117.532	117.526	117.499	117.542	116.526	116.193
	117.736	117.735	117.578	117.447	116.490	116.247
1+600	117.747	118.063	117.713	117.320	116.578	116.444
	117.787	118.424	117.827	117.299	116.666	116.640
1+640	117.901	118.734	117.861	117.483	116.754	116.836
	118.060	118.967	117.909	117.637	116.842	117.033
1+680	118.182	119.125	117.590	117.785	116.930	117.229
	118.248	119.259	117.405	117.938	117.018	117.426
1+720	118.430	119.392	117.511	118.200	117.164	117.622
	118.473	119.525	117.778	118.339	117.311	117.819
1+760	118.641	119.658	117.995	118.507	117.457	118.015
	118.804	119.791	118.198	118.641	117.603	118.211
1+800	118.880	119.924	118.202	118.787	117.749	118.408
	119.086	120.036	118.404	118.889	117.798	118.448
1+840	119.091	120.117	118.387	118.978	117.844	118.487
	119.110	120.166	118.415	118.800	117.891	118.526
1+880	119.198	120.203	118.748	118.530	117.938	118.565
	119.268	120.241	118.395	118.993	117.987	118.604
1+920	119.284	120.279	118.470	119.137	118.168	118.623
	119.288	120.318	118.918	119.225	118.349	118.643
1+960	119.303	120.359	119.194	119.239	118.531	118.662
	119.530	120.399	119.389	119.337	118.712	118.682
2+000	119.473	120.440	119.595	118.772	118.893	118.701

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m VERTICAL 1 : 200

CAD FILE: DPPBD_01-02

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

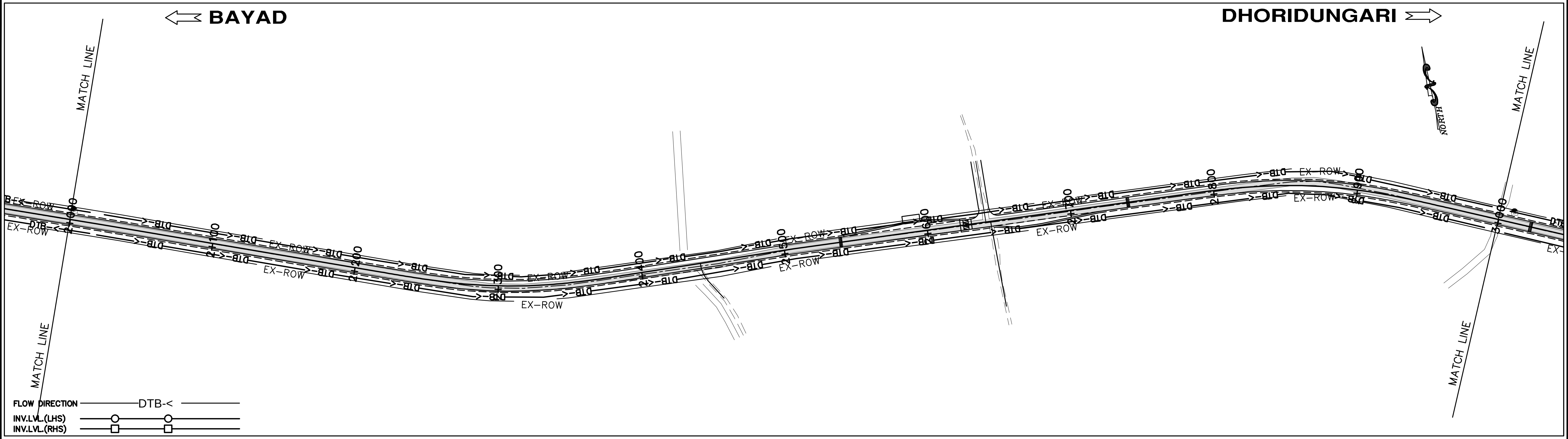
LASA INDIA

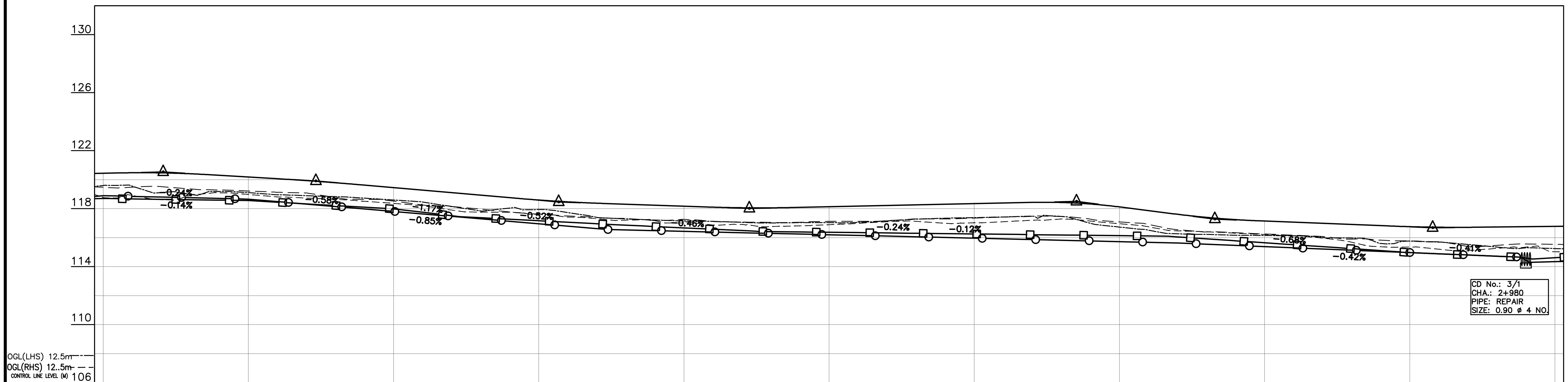
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 01+000 TO STA. 02+000

DATE: SEP'2012 | PROJECT: PPWCS | DWG No: PPWCS/BD/DPP/02 | REV. 0





STATIONING	DESIGN (1st value)	DESIGN FRL.	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
2+000	119.473	120.440	119.595	118.772	118.893	118.701
2+020	119.480	120.476	119.552	118.911	118.845	118.673
2+040	119.517	120.467	119.201	118.528	118.798	118.645
2+060	119.360	120.406	118.986	118.931	118.751	118.617
2+080	119.288	120.298	119.186	119.099	118.703	118.589
2+100	119.219	120.181	119.107	118.980	118.656	118.561
2+120	119.126	120.064	118.953	118.807	118.487	118.446
2+140	119.079	119.935	118.896	118.734	118.317	118.330
2+160	118.768	119.787	118.828	118.638	118.147	118.214
2+180	118.641	119.620	118.725	118.512	117.978	118.098
2+200	118.518	119.448	118.598	118.362	117.808	117.982
2+220	118.255	119.275			117.639	117.750
2+240	118.142	119.102			117.469	117.516
2+260	117.966	118.929	117.839		117.300	117.375
2+280	117.766	118.757	118.118	117.744	117.130	117.271
2+300	117.637	118.595	117.948	117.628	116.961	117.167
2+320	117.493	118.468	117.730	117.419	116.791	117.063
2+340	117.396	118.376	117.398		116.622	116.959
2+360	117.324	118.306			116.533	116.860
2+380	117.184	118.238			116.485	116.767
2+400	117.269	118.169	117.155	117.082	116.438	116.675
2+420	117.114	118.101	117.123	116.877	116.390	116.582
2+440	117.076	118.060	117.056	116.910	116.343	116.489
2+460	117.052	118.057	117.015	116.764	116.296	116.418
2+480	117.061	118.089	117.035	116.815	116.248	116.395
2+500	117.126	118.132	117.034	116.897	116.201	116.371
2+520	117.124	118.174	117.055	116.988	116.154	116.348
2+540	117.171	118.217	117.153	117.098	116.106	116.325
2+560	117.290	118.260	117.277	117.128	116.059	116.301
2+580	117.288	118.303	117.342	116.994	116.011	116.278
2+600	117.350	118.345	117.383	117.021	115.964	116.255
2+620	117.416	118.388	117.430	117.101	115.917	116.231
2+640	117.476	118.431	117.479	117.198	115.869	116.208
2+660	117.462	118.426	117.460	117.285	115.822	116.185
2+680	117.278	118.322	116.994	117.141	115.775	116.161
2+700	117.084	118.119	116.728	116.963	115.727	116.138
2+720	116.912	117.864	116.517	116.748	115.680	116.114
2+740	116.553	117.611	116.265	116.474	115.633	116.055
2+760	116.396	117.398	116.224	116.407	115.551	115.919
2+780	116.344	117.243	116.170	116.307	115.468	115.784
2+800	116.251	117.146			115.385	115.648
2+820	116.173	117.066			115.302	115.513
2+840	116.082	116.987	116.016	115.968	115.219	115.377
2+860	115.898	116.908	115.976	115.681	115.136	115.242
2+880	115.828	116.828	115.597	115.357	115.053	115.106
2+900	115.775	116.757	115.761	115.354	114.970	114.971
2+920	115.713	116.718	115.688		114.887	114.887
2+940	115.392	116.713			114.804	114.804
2+960	115.468	116.732			114.721	114.721
2+980	115.564	116.753	115.296	115.344	114.443	114.597
3+000	115.539	116.774	115.249	115.029	114.341	114.615

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m VERTICAL 1 : 200

CAD FILE: DPPBD_02-03

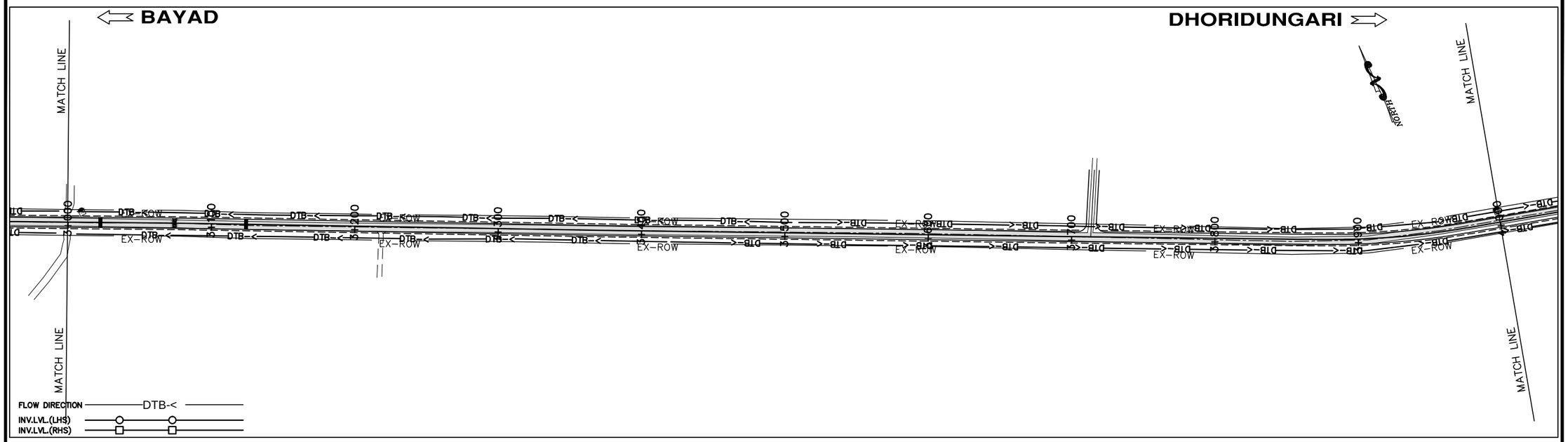
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

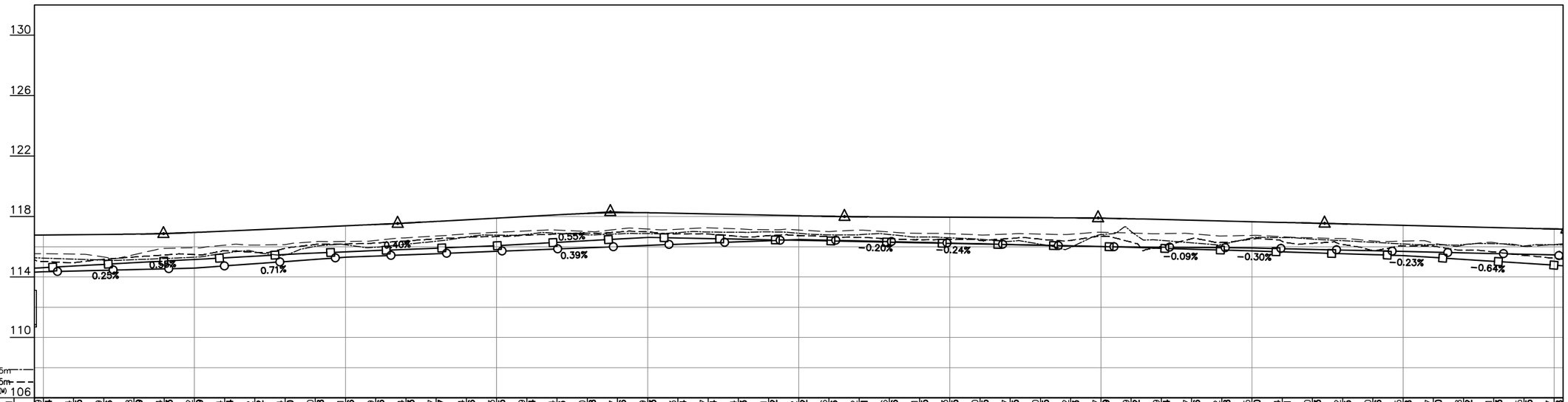
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 02+000 TO STA. 03+000

DATE: SEP'2012 | PROJECT: PPWCS | DWG No: PPWCS/BD/DPP/03 | REV. 0





STATIONING	DESIGN FRL.	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
3+000	115.339 116.774	115.249 115.029		114.341 114.615	
3+020	115.514 116.795	115.184 114.949		114.391 114.724	
3+040	115.319 116.816	115.119 115.169		114.441 114.833	
3+060	115.478 116.839	115.144 115.322		114.491 114.943	
3+080	115.894 116.883	115.222 115.458		114.541 115.052	
3+100	115.942 116.949	115.309 115.475		114.592 115.161	
3+120	116.104 117.034	115.570 115.725		114.735 115.271	
3+140	116.112 117.122	115.665 115.636		114.878 115.380	
3+160	116.144 117.210	115.465 115.889		115.021 115.489	
3+180	116.340 117.298	116.030 116.149		115.163 115.584	
3+200	116.351 117.386	116.134 116.184		115.306 115.685	
3+220	116.419 117.476	115.969 116.249		115.385 115.746	
3+240	116.594 117.573	116.166 116.385		115.463 115.827	
3+260	116.707 117.677	116.366 116.522		115.542 115.907	
3+280	116.844 117.786	116.643 116.620		115.620 115.988	
3+300	116.953 117.895	116.769 116.678		115.698 116.070	
3+320	117.049 118.004	116.816 116.769		115.776 116.180	
3+340	117.104 118.113	116.891 116.843		115.854 116.290	
3+360	117.010 118.208	116.797 116.904		115.933 116.400	
3+380	117.157 118.256	116.851 116.970		116.011 116.510	
3+400	117.169 118.253	116.870 116.975		116.089 116.620	
3+420	117.163 118.214	116.940 116.858		116.167 116.585	
3+440	117.257 118.174	116.974 116.844		116.245 116.545	
3+460	117.184 118.133	116.962 116.690		116.324 116.505	
3+480	117.131 118.092	116.986 116.739		116.402 116.464	
3+500	117.112 118.052	116.893 116.744		116.480 116.424	
3+520	117.006 118.016	116.790 116.682		116.437 116.384	
3+540	117.102 117.991	116.795 116.623		116.389 116.343	
3+560	116.976 117.976	116.812 116.527		116.341 116.303	
3+580	116.891 117.965	116.647 116.466		116.293 116.263	
3+600	116.863 117.955	116.594 116.479		116.246 116.223	
3+620	116.780 117.945	116.499 116.425		116.198 116.182	
3+640	116.847 117.935	116.360 116.551		116.150 116.142	
3+660	116.840 117.925	116.165 116.501		116.102 116.102	
3+680	116.832 117.913	115.962 116.424		116.054 116.061	
3+700	116.957 117.889	116.806 116.696		116.007 116.021	
3+720	116.909 117.852	117.009 116.309		115.989 115.961	
3+740	116.869 117.804	116.421 116.024		115.972 115.901	
3+760	116.857 117.756	116.263 116.533		115.954 115.841	
3+780	116.712 117.708	116.169 116.286		115.937 115.781	
3+800	116.755 117.660	116.587 116.509		115.920 115.721	
3+820	116.664 117.611	116.608 116.356		115.875 115.661	
3+840	116.590 117.563	116.504 116.228		115.829 115.601	
3+860	116.532 117.515			115.782 115.541	
3+880	116.380 117.466	115.735		115.736 115.481	
3+900	116.375 117.418			115.690 115.421	
3+920	116.237 117.370	116.133 116.043		115.644 115.294	
3+940	116.098 117.322	116.146 115.761		115.598 115.166	
3+960	116.281 117.273			115.552 115.037	
3+980	116.025 117.225			115.506 114.909	
4+000	116.147 117.178	116.132 115.254		115.459 114.781	

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: DPPBD_03-04

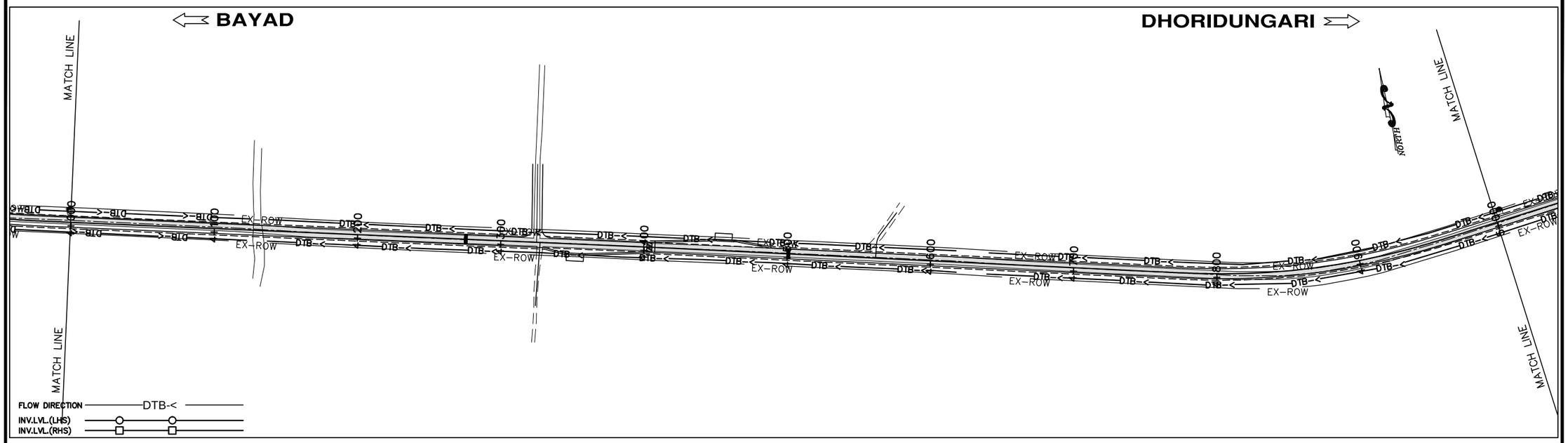
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

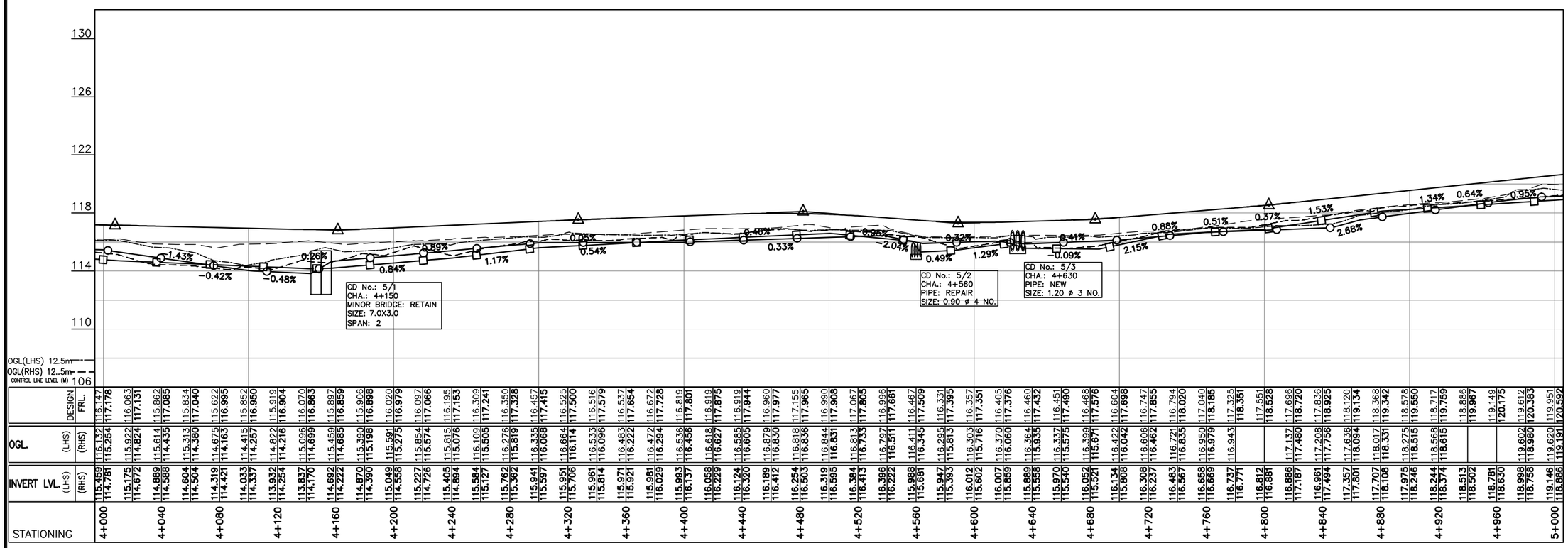
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 03+000 TO STA. 04+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/04	0





	DESIGN FRL.	116.147	116.063	116.131	115.862	115.834	115.622	115.852	115.919	116.070	115.897	115.906	116.020	116.097	116.195	116.309	116.350	116.457	116.335	116.525	116.516	116.537	116.672	116.819	116.919	116.919	116.960	117.067	116.996	116.661	116.467	116.331	116.357	116.405	116.460	116.451	116.468	116.604	116.747	116.794	117.040	117.325	117.551	117.696	117.836	118.120	118.368	118.578	118.717	118.886	119.149	119.951
OGL.	(LHS)	116.132	115.922	115.614	115.313	114.675	114.415	114.822	115.096	115.459	115.390	115.591	115.854	115.815	116.109	116.276	116.335	116.664	116.533	116.483	116.472	116.536	116.618	116.585	116.879	116.813	116.797	116.844	116.818	116.411	116.295	116.303	116.370	116.364	116.337	116.399	116.422	116.606	116.721	116.950	116.943		117.137	117.208	117.636	117.707	118.017	118.275	118.568		119.602	119.620
	(RHS)	115.254	114.824	114.435	114.380	114.163	114.257	114.216	114.699	114.685	115.198	115.275	115.574	115.076	115.505	115.819	116.068	116.114	116.096	116.222	116.294	116.456	116.627	116.805	116.830	116.733	116.511	116.831	116.836	116.345	115.813	115.716	116.060	115.935	115.575	115.671	116.042	116.462	116.835	116.979			117.480	117.756	118.094	118.108	118.331	118.515	118.815		118.980	119.191
INVERT LVL.	(LHS)	115.459	115.175	114.889	114.604	114.319	114.033	113.932	113.837	114.692	114.870	115.049	115.227	115.405	115.584	115.762	115.941	115.951	115.961	115.971	115.981	115.993	116.058	116.124	116.189	116.254	116.319	116.384	116.396	115.988	115.947	116.012	116.007	115.889	115.970	116.052	116.134	116.308	116.483	116.658	116.737		116.812	116.886	116.961	117.357	117.707	117.975	118.244	118.513	118.781	118.998	119.146
	(RHS)	114.781	114.672	114.588	114.504	114.421	114.337	114.254	114.170	114.222	114.390	114.358	114.726	114.894	115.127	115.362	115.597	115.706	115.814	115.921	116.029	116.137	116.229	116.320	116.412	116.503	116.595	116.413	116.222	115.681	115.393	115.602	115.859	115.558	115.540	115.521	115.808	116.237	116.367	116.669	116.771		116.881	117.187	117.494	117.801	118.108	118.246	118.374	118.502		118.758	118.886
STATIONING		4+000			4+040			4+080			4+120			4+160			4+200			4+240			4+280			4+320			4+360			4+400			4+440			4+480			4+520			4+560			4+600			4+640			4+680			4+720			4+760			4+800			4+840			4+880			4+920			4+960			5+000	

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: DPPBD_04-05

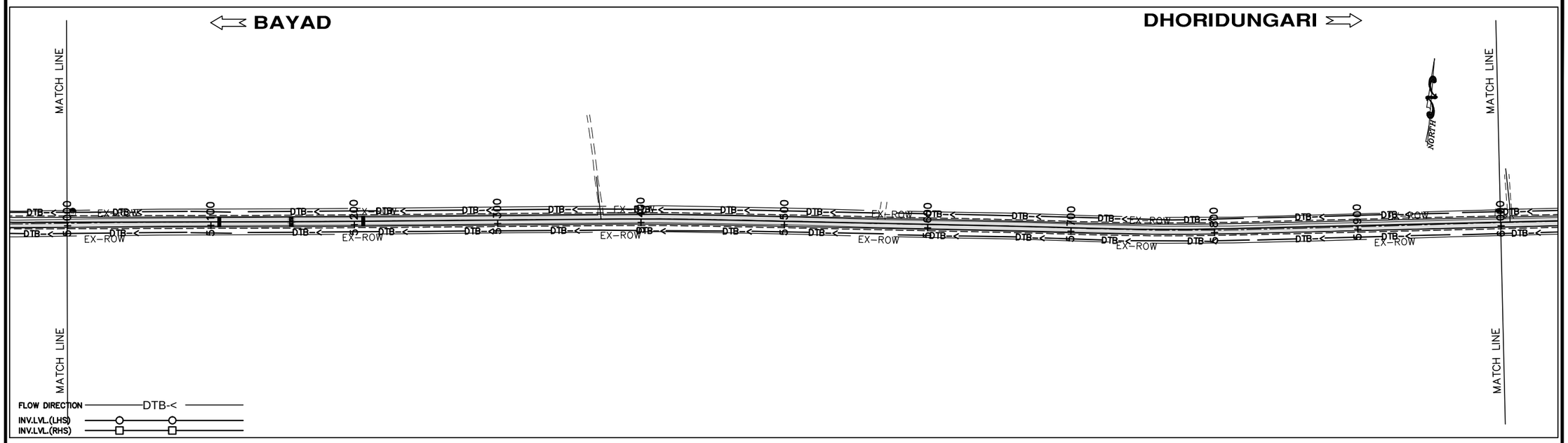
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

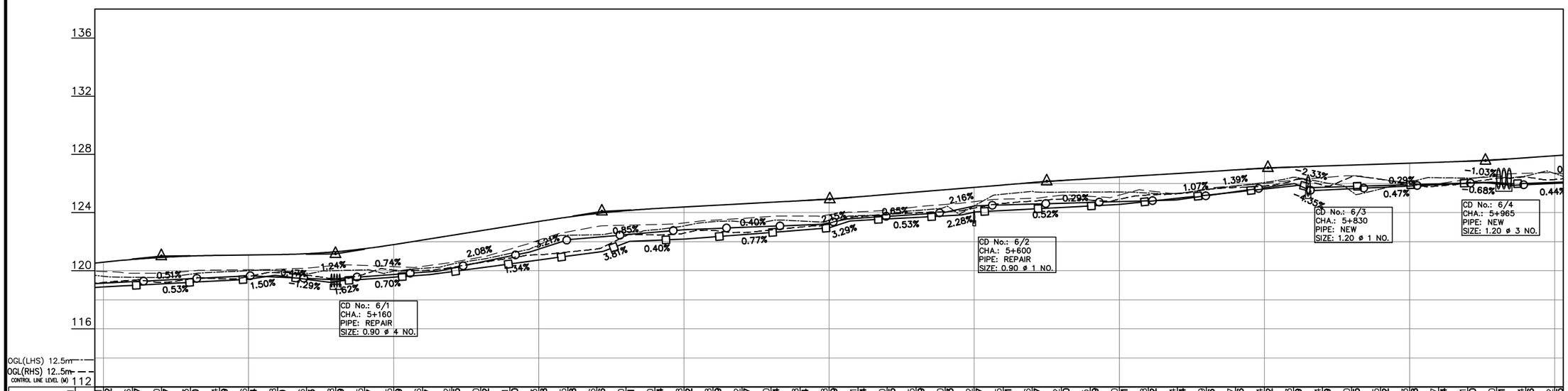
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 04+000 TO STA. 05+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/05	0





STATIONING	DESIGN FRL.	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
5+000	119.925	119.820	119.191	119.145	118.886
5+020	119.826	119.552	119.347	119.247	118.991
5+040	120.777	119.539	119.208	119.349	119.096
5+060	119.983	119.768	119.446	119.450	119.201
5+080	121.010	119.911	119.462	119.552	119.306
5+100	120.044	120.006	119.605	119.653	119.419
5+120	121.059	120.010	119.889	119.561	119.668
5+140	120.066	119.821	119.703	119.468	119.410
5+160	121.084	120.009	119.430	119.431	119.245
5+180	120.098	120.058	119.773	119.596	119.418
5+200	121.110	119.975	120.041	119.743	119.558
5+220	120.186	120.169	120.016	119.891	119.697
5+240	121.173	120.454	120.226	120.168	119.932
5+260	120.368	120.779	120.564	120.585	120.201
5+280	121.309	121.187	120.868	121.002	120.469
5+300	120.365	121.771	121.102	121.489	120.738
5+320	121.517	122.437	121.281	122.131	121.006
5+340	120.285	122.478	121.502	122.306	121.275
5+360	121.799	122.681	122.400	122.477	121.926
5+380	120.296	122.822	122.468	122.647	122.095
5+400	122.117	123.078	122.584	122.817	122.174
5+420	120.572	123.384	122.778	122.897	122.327
5+440	122.435	123.323	122.832	122.977	122.481
5+460	120.930	123.592	124.597	123.056	122.634
5+480	122.752	123.433	122.797	123.136	122.788
5+500	121.481	123.740	123.704	123.459	122.998
5+520	123.070	123.758	124.814	123.848	123.261
5+540	122.103	123.423	123.724	123.612	123.455
5+560	123.388	123.858	123.846	123.742	123.561
5+580	122.675	124.150	125.245	124.145	123.868
5+600	123.688	124.385	125.409	124.023	123.774
5+620	123.036	124.560	125.573	124.455	124.033
5+640	123.936	124.752	125.737	124.523	124.142
5+660	123.130	124.925	125.901	124.581	124.246
5+680	124.131	124.986	126.057	124.639	124.349
5+700	123.180	125.192	126.200	124.697	124.452
5+720	124.274	125.115	126.329	124.756	124.555
5+740	123.288	125.412	126.451	124.814	124.768
5+760	124.382	125.200	126.451	124.880	124.982
5+780	123.478	125.498	126.572	125.158	125.196
5+800	124.489	125.341	125.230	125.436	125.410
5+820	123.592	125.373	125.280	125.713	125.624
5+840	124.597	125.274	126.694	125.543	125.741
5+860	123.740	125.660	125.661	125.638	125.799
5+880	124.704	125.825	125.721	125.732	125.857
5+900	123.758	125.837	126.936	125.827	125.915
5+920	124.814	126.004	127.042	125.921	125.973
5+940	123.848	126.233	127.129	126.016	126.031
5+960	124.939	126.404	127.199	125.976	126.059
5+980	124.051	126.530	127.265	125.915	126.012
6+000	125.084	126.295	127.332	126.004	126.081
		126.033	127.398	126.712	126.279
		125.977	127.464	126.704	127.905
		126.291	127.540	126.766	
		126.600	127.641		
		126.488	127.768		
		126.507	127.805		
		126.687			
		126.712			

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: DPPBD_05-06

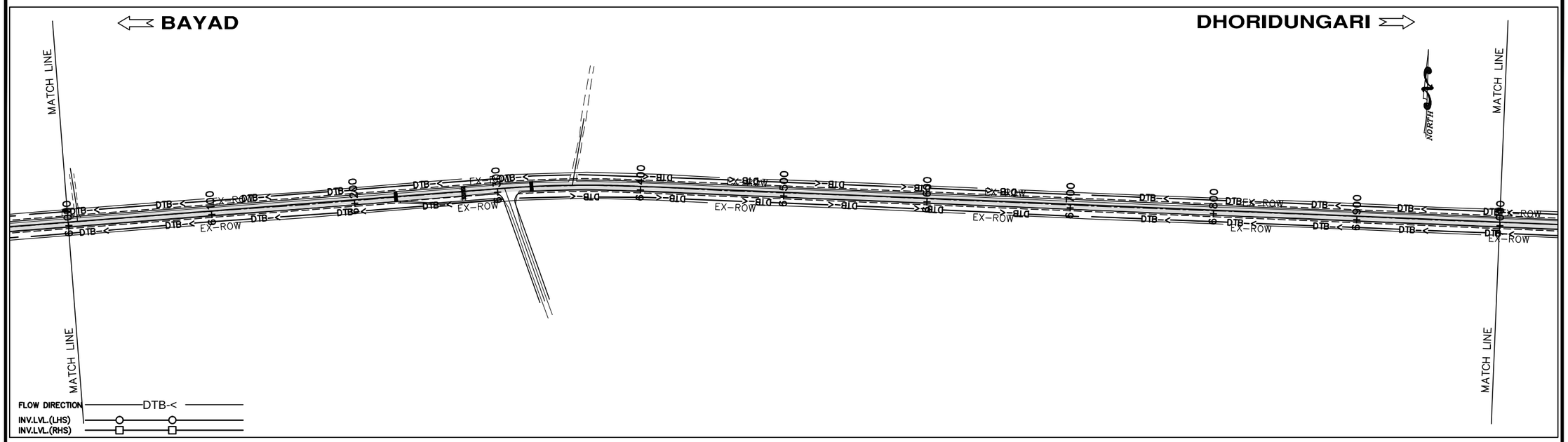
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

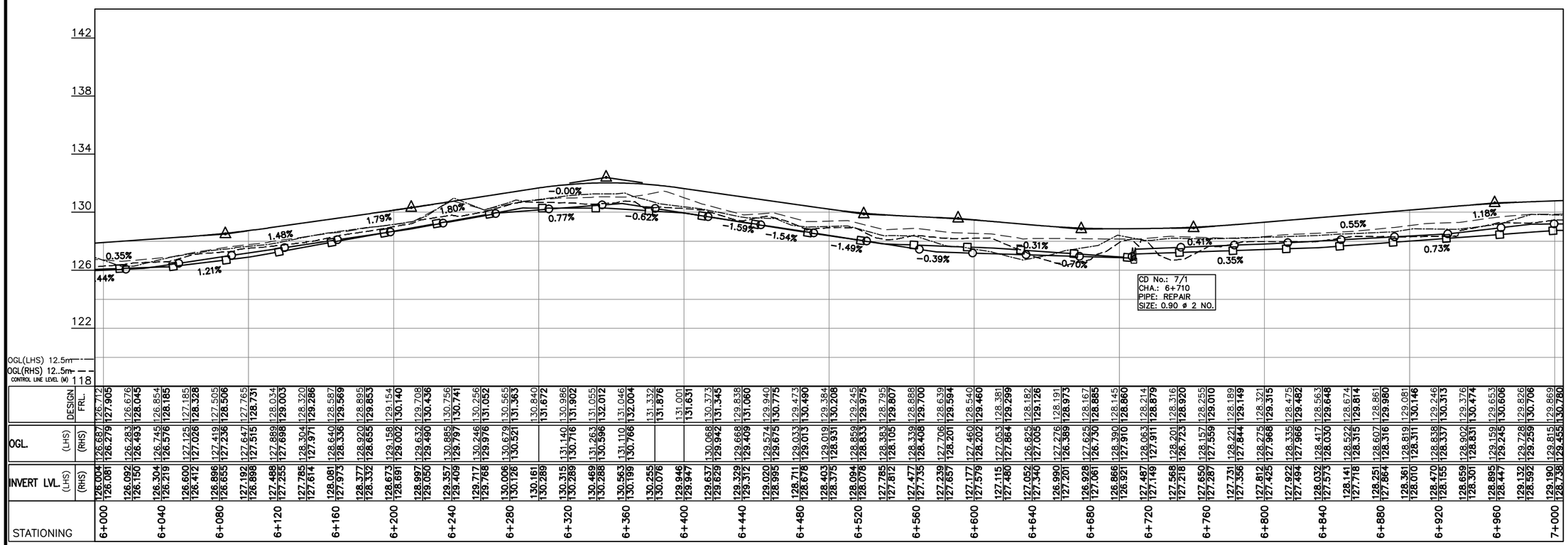
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 05+000 TO STA. 06+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/06	0





STATIONING		6+000	6+040	6+080	6+120	6+160	6+200	6+240	6+280	6+320	6+360	6+400	6+440	6+480	6+520	6+560	6+600	6+640	6+680	6+720	6+760	6+800	6+840	6+880	6+920	6+960	7+000
DESIGN FRL.		126.712	126.676	126.854	127.185	127.505	127.765	128.034	128.320	128.587	128.895	129.154	129.708	130.256	130.756	130.565	130.840	130.986	131.055	131.046	131.332	131.001	130.373	129.838	129.940	129.473	129.245
		127.905	128.045	128.185	128.328	128.506	128.731	129.003	129.286	129.569	129.853	130.140	130.436	130.741	131.052	131.363	131.672	131.902	132.012	132.004	131.876	131.631	131.345	131.060	130.775	130.490	130.208
OGL. (LHS)		126.687	126.283	126.745	127.125	127.419	127.647	127.889	128.304	128.640	128.920	129.158	129.632	130.085	130.885	130.679		131.140	131.263	131.110			130.068	129.668	129.574	129.033	129.019	128.859
	(RHS)	126.279	126.493	126.576	127.026	127.236	127.515	127.698	127.971	128.336	128.855	129.002	129.490	129.797	129.675	130.521		130.716	130.596	130.766			129.942	129.409	129.675	129.013	128.931	128.833
INVERT LVL. (LHS)		126.004	126.092	126.304	126.600	126.896	127.192	127.488	127.785	128.081	128.377	128.673	128.997	129.357	129.717	130.006	130.161	130.315	130.563	130.255	129.946	129.637	129.329	129.020	128.711	128.403	128.094
	(RHS)	126.081	126.150	126.219	126.412	126.655	126.898	127.255	127.614	127.973	128.332	128.691	129.050	129.409	129.768	130.126	130.289	130.289	130.199	130.076	129.947	129.629	129.312	128.995	128.678	128.375	128.078

DESIGN FRL.		128.167	128.145	128.214	128.316	128.475	128.563	128.674	128.861	129.081	129.376	129.653	129.826	130.006	129.869												
		128.885	128.860	128.879	128.920	129.315	129.482	129.648	129.814	129.980	130.146	130.313	130.474	130.606	130.780												
OGL. (LHS)		127.625	128.390	128.063	128.201	128.335	127.966	128.417	128.030	128.522	128.315	128.607	128.316	128.819	128.311	128.838	128.337	128.902	128.831	129.159	129.245	129.728	129.259	129.815	129.455		
	(RHS)	126.730	127.910	127.911	128.723	127.968	127.494	127.573	127.718	127.864	128.010	128.155	128.301	128.447	128.592	128.738											
INVERT LVL. (LHS)		126.928	126.866	127.487	127.568	127.650	127.731	127.812	127.922	128.032	128.141	128.251	128.361	128.470	128.659	128.895	129.132	129.190									
	(RHS)	127.061	126.921	127.149	127.218	127.287	127.356	127.425	127.494	127.573	127.718	127.864	128.010	128.155	128.301	128.447	128.592	128.738									

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: DPPBD_06-07

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

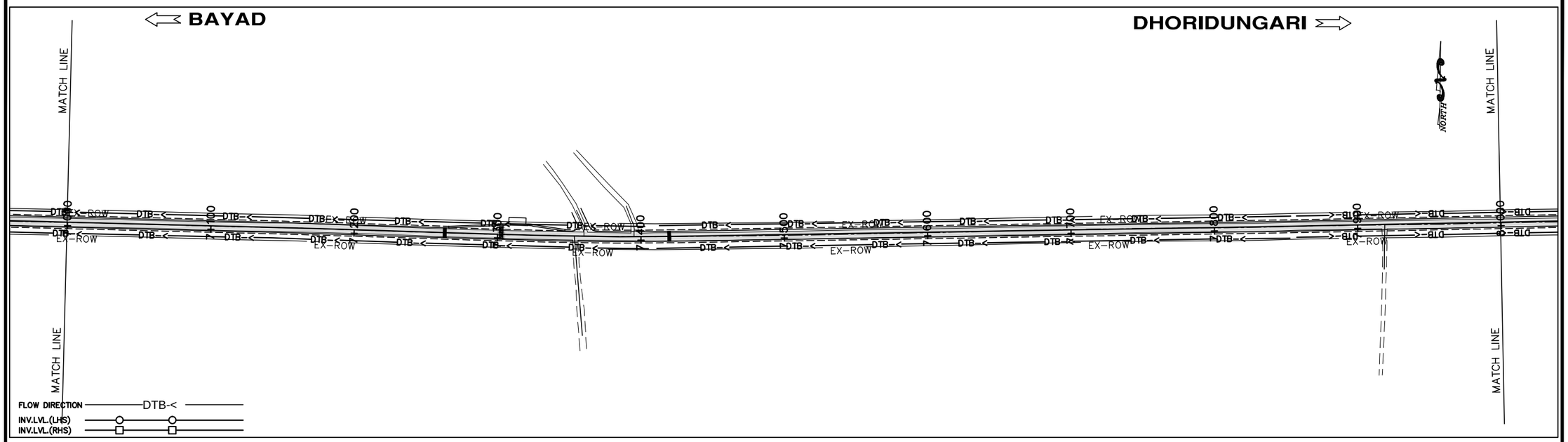
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

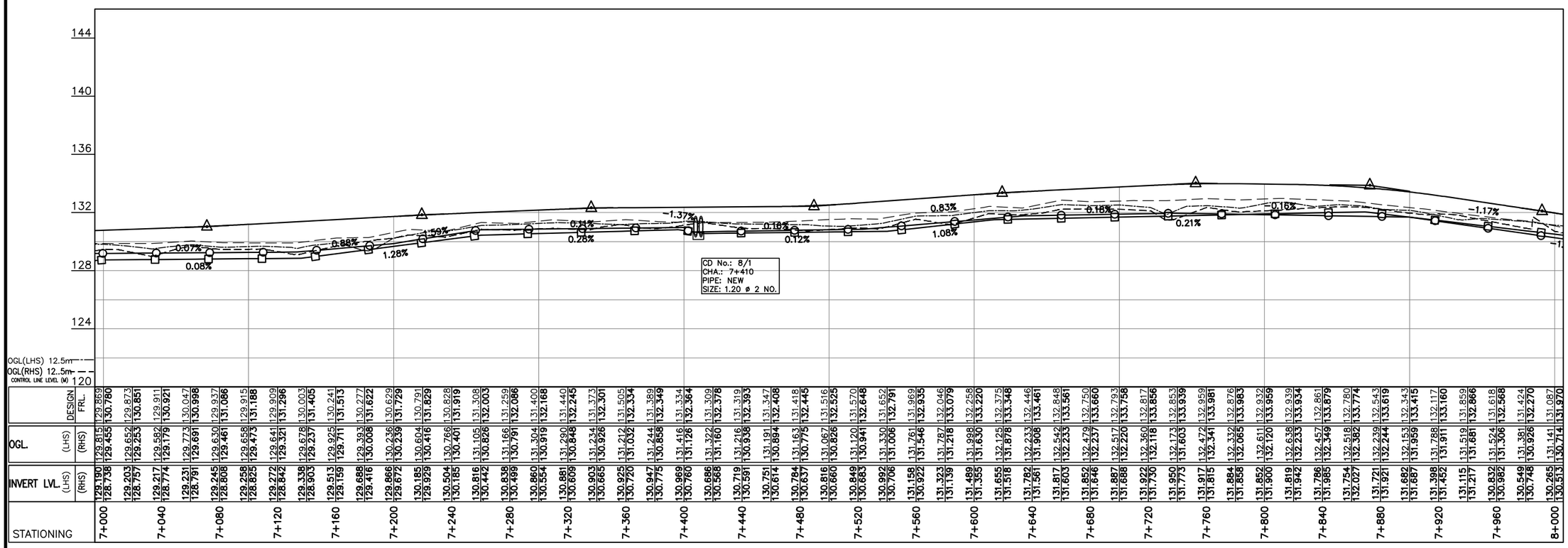
CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)

DRAINAGE PLAN PROFILE

STA. 06+000 TO STA. 07+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/07	0





STATIONING	DESIGN FRL.	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
7+000	129.869	129.815	129.455	129.190	128.738
7+020	129.873	129.652	129.253	129.203	128.757
7+040	129.851	129.582	129.179	129.217	128.774
7+060	129.911	129.773	129.691	129.231	128.791
7+080	130.047	129.630	129.461	129.245	128.808
7+100	130.998	129.658	129.473	129.258	128.825
7+120	129.937	129.641	129.321	129.272	128.842
7+140	131.086	129.678	129.237	129.336	128.903
7+160	129.915	129.925	129.711	129.513	129.159
7+180	131.188	129.393	130.008	129.688	129.416
7+200	129.909	130.236	130.239	129.866	129.672
7+220	131.296	129.641	129.321	129.272	128.842
7+240	130.003	129.678	129.237	129.336	128.903
7+260	131.405	129.925	129.711	129.513	129.159
7+280	130.241	129.393	130.008	129.688	129.416
7+300	131.513	130.236	130.239	129.866	129.672
7+320	130.277	130.604	130.416	130.185	129.929
7+340	131.622	130.766	130.401	130.504	130.185
7+360	130.629	131.105	130.826	130.816	130.442
7+380	131.729	131.166	130.791	130.838	130.499
7+400	130.791	131.216	130.938	130.719	130.591
7+420	131.829	131.416	131.126	130.969	130.760
7+440	130.828	131.322	131.160	130.686	130.568
7+460	131.919	131.191	130.894	130.751	130.614
7+480	131.308	131.163	130.775	130.784	130.637
7+500	132.003	131.319	130.938	130.719	130.591
7+520	131.259	131.347	132.393	130.751	130.614
7+540	132.086	131.418	132.408	130.784	130.637
7+560	131.400	131.516	132.445	130.816	130.660
7+580	132.168	131.570	132.525	130.849	130.683
7+600	131.440	131.652	132.648	130.992	130.706
7+620	132.245	131.969	132.791	131.158	130.922
7+640	131.373	132.046	132.935	131.323	131.139
7+660	132.301	131.787	133.079	131.489	131.355
7+680	131.505	131.998	132.258	131.655	131.518
7+700	132.334	132.125	133.220	131.782	131.561
7+720	131.389	132.233	132.375	131.817	131.603
7+740	132.349	132.446	133.348	131.852	131.646
7+760	131.334	132.479	132.446	131.887	131.688
7+780	132.364	132.517	133.461	131.922	131.730
7+800	131.309	132.542	132.848	131.950	131.773
7+820	132.378	132.360	133.561	131.917	131.815
7+840	131.319	132.173	132.750	131.884	131.858
7+860	132.393	132.853	133.660	131.852	131.900
7+880	131.347	132.959	132.793	131.819	131.942
7+900	132.408	132.472	133.758	131.786	131.985
7+920	131.418	132.876	132.817	131.754	132.027
7+940	132.445	132.332	133.856	131.721	131.921
7+960	131.516	132.884	132.932	131.882	131.887
7+980	132.525	132.611	133.959	131.398	131.452
8+000	131.570	132.638	132.939	131.115	131.217
8+020	132.648	132.786	133.934	130.832	130.982
8+040	131.652	132.457	132.861	130.549	130.748
8+060	132.791	132.518	133.879	130.265	130.513
8+080	131.969	132.780	132.780	131.141	130.714
8+100	132.935	132.239	133.774	131.087	131.970

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : HORIZONTAL 1 : 2000
VERTICAL 1 : 200

CAD FILE: DPPBD_07-08

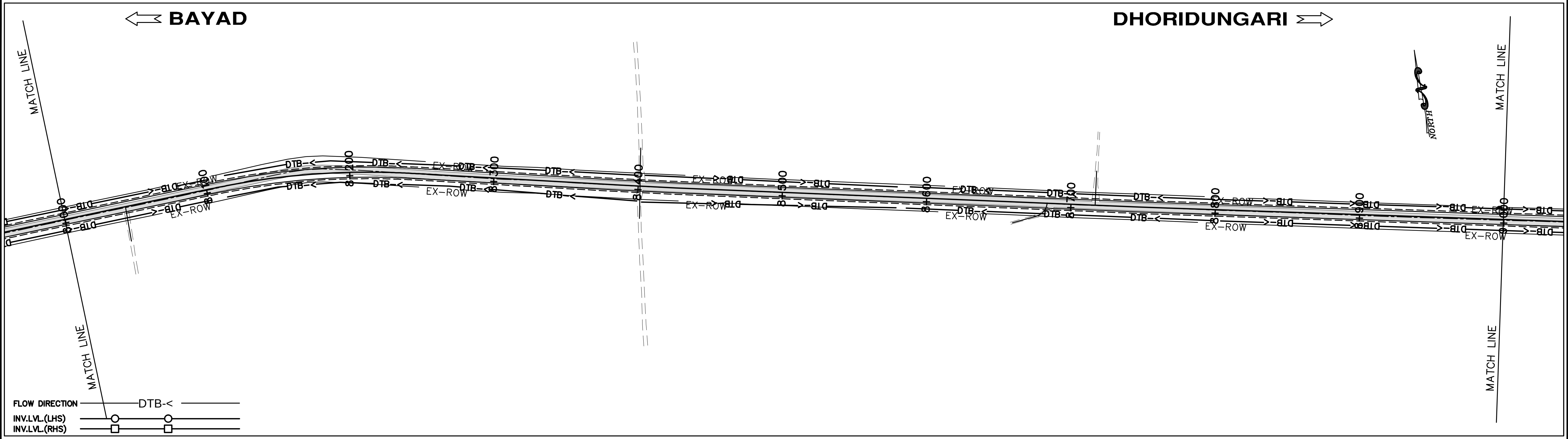
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

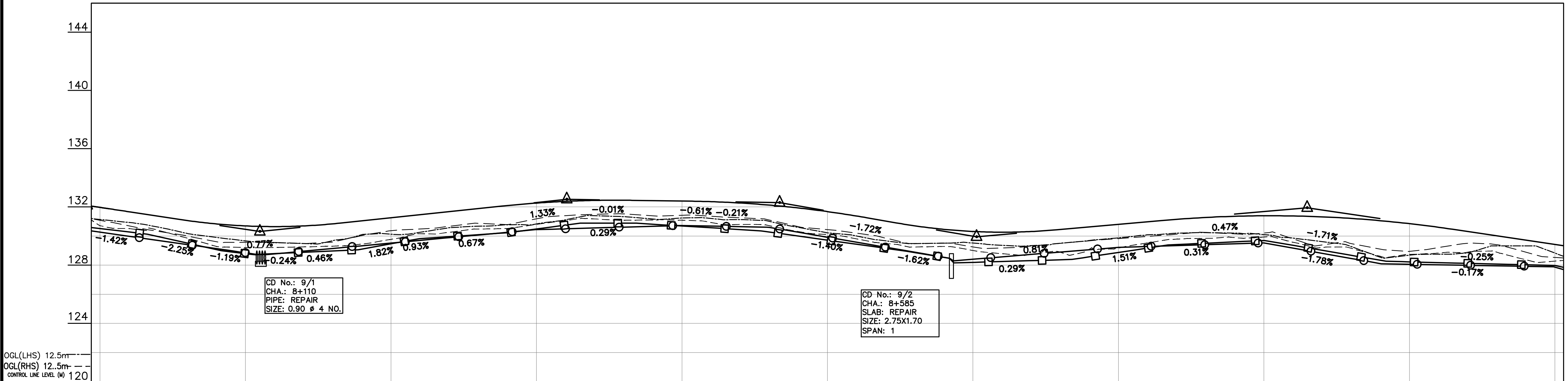
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 07+000 TO STA. 08+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/08	0





STATIONING	DESIGN FRL.	DESIGN FRL.	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
8+000	131.087	131.970	131.141	130.714	130.265	130.513
	130.700	131.668	130.931	130.511	129.982	130.278
8+040	130.329	131.366	130.613	130.402	129.699	129.965
	130.009	131.066	130.175	129.857	129.416	129.516
8+080	129.614	130.834	129.910	129.290	129.132	129.067
	129.573	130.695			128.849	128.792
8+120	129.559	130.650			128.775	128.793
	129.482	130.697	129.489	129.253	128.960	128.886
8+160	129.595	130.837	129.728	129.308	129.146	128.978
	130.034	131.044	130.106	129.449	129.331	129.103
8+200	130.361	131.254	130.129	129.773	129.517	129.467
	130.485	131.464			129.702	129.827
8+240	130.670	131.673	130.573		129.888	129.961
	130.876	131.883			130.073	130.094
8+280	130.781	132.092	130.777	130.520	130.258	130.227
	131.181	132.264	130.830	130.802	130.439	130.484
8+320	131.401	132.382	131.118	131.073	130.496	130.750
	131.488	132.447	131.397	131.173	130.554	130.883
8+360	131.518	132.459	131.332	131.085	130.611	130.882
	131.394	132.432	131.170	131.105	130.669	130.811
8+400	131.425	132.401	131.245	131.086	130.725	130.689
	131.363	132.360	131.194	130.933	130.683	130.567
8+440	131.254	132.269	131.125	130.793	130.642	130.444
	131.104	132.126	131.012	130.717	130.601	130.276
8+480	130.645	131.929	130.593	130.309	130.260	129.997
	130.441	131.679	130.222	130.109	129.916	129.717
8+520	130.198	131.376	130.005	129.808	129.573	129.437
	129.858	131.031	129.671	129.488	129.230	129.157
8+560	129.489	130.701	129.481	129.248	128.886	128.865
	129.510	130.460	129.516	129.281	128.543	128.540
8+600	129.255	130.315	129.519	129.012	128.410	128.191
	129.185	130.265	129.367	128.790	128.573	128.250
8+640	129.309	130.310	129.338	128.736	128.735	128.309
	129.497	130.450	129.506	128.884	128.898	128.368
8+680	129.673	130.626	129.692	129.096	129.061	128.571
	129.825	130.803	129.879	129.174	129.224	128.874
8+720	129.974	130.979	130.084	129.531	129.286	129.176
	130.131	131.149	130.196	129.785	129.347	129.416
8+760	130.250	131.277	130.234	129.823	129.409	129.510
	130.147	131.358	130.204	129.889	129.470	129.603
8+800	130.210	131.392	130.100	129.929	129.531	129.697
	129.810	131.378	129.862	129.578	129.175	129.363
8+840	129.389	131.318	129.619	129.217	128.818	129.020
	129.480	131.210	129.281	129.155	128.462	128.678
8+880	129.101	131.055	128.544	128.610	128.106	128.335
	128.947	130.852	128.684	128.735	128.062	128.226
8+920	129.208	130.603	128.750	128.836	128.027	128.176
	129.509	130.312	128.840	128.891	127.992	128.125
8+960	129.402	130.016	129.320	128.893	127.957	128.074
	128.896	129.720	129.325	128.370	127.923	128.024
9+000	128.531	129.424	128.831	128.277	127.864	127.973

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: DPPBD_08-09

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

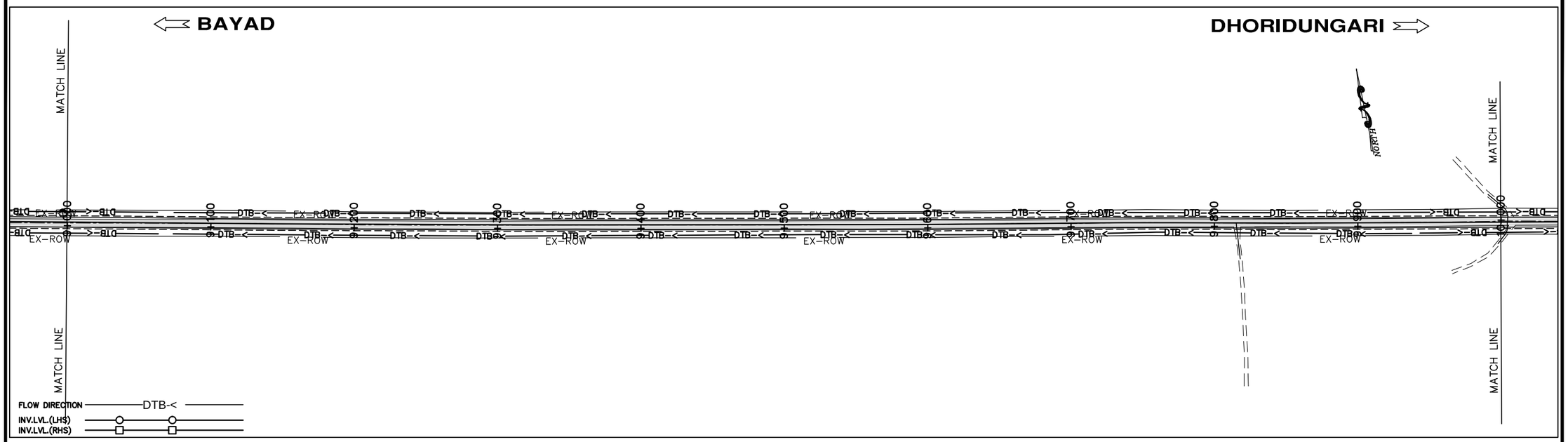
LASA INDIA

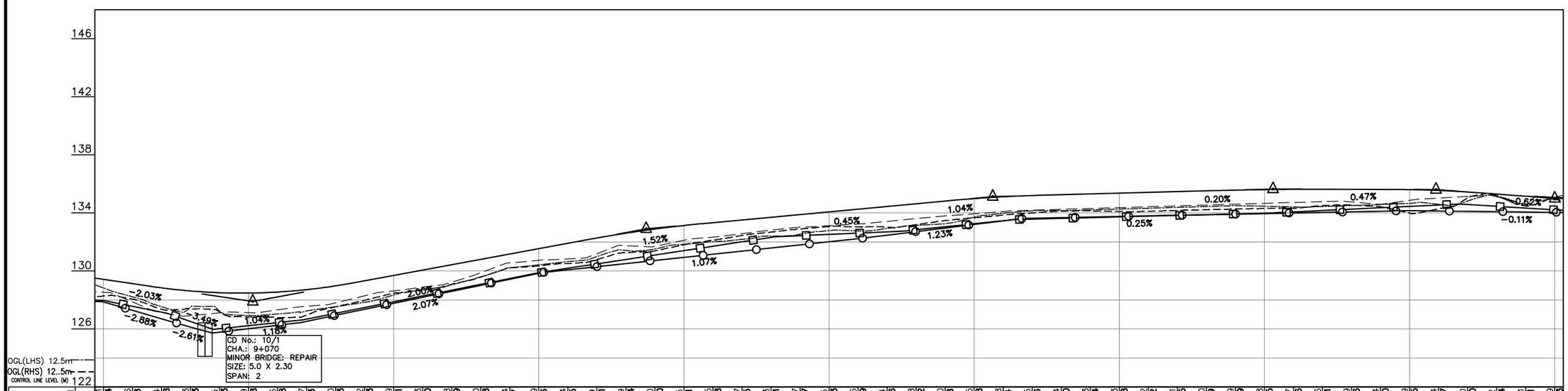
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 08+000 TO STA. 09+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/09	0





STATIONING	INVERT LVL. (LHS)	INVERT LVL. (RHS)	OGL. (LHS)	OGL. (RHS)	DESIGN FRL.
9+000	127.864	127.973	128.831	128.277	129.424
	127.287	127.566	128.219	128.063	127.866
	126.710	127.159	127.544	127.367	127.144
	126.133	126.523	127.504	127.400	126.923
9+040	125.784	126.027	127.221	127.161	127.115
	126.021	126.235	126.934	126.836	127.129
	126.257	126.443	127.035	126.786	127.316
9+080	126.532	126.678	127.252	126.952	127.567
	126.946	127.078	127.577	127.569	127.800
	127.359	127.478	127.839	127.981	128.292
9+120	127.772	127.879	128.345	128.470	128.629
	128.186	128.279	128.707	128.885	128.883
	128.599	128.679	129.045	129.088	129.228
9+160	129.013	129.079	129.584	129.578	129.880
	129.426	129.480	130.215	130.214	130.554
	129.840	129.880	130.425	130.358	130.729
9+200	130.078	130.185	130.702	130.574	130.834
	130.292	130.489	131.103	130.864	131.189
	130.507	130.793	131.417	131.262	131.739
9+240	130.721	131.097	131.515	131.387	131.700
	130.936	131.401	131.838	131.803	132.115
	131.150	131.705	132.019	132.121	132.335
9+280	131.365	132.009	132.172	132.442	132.567
	131.579	132.313	132.400	132.673	132.813
	131.794	132.431	132.630	132.899	133.007
9+320	132.008	132.520	132.778	133.058	133.115
	132.223	132.609	132.759	133.036	133.236
	132.466	132.698	132.925	133.010	133.414
9+360	132.713	132.839	133.145	133.189	133.608
	132.959	133.046	133.257	133.472	133.790
	133.206	133.254	133.714	133.666	133.935
9+400	133.453	133.462	133.974	133.854	134.098
	133.631	133.576	134.143	134.001	134.185
	133.671	133.626	134.160	134.117	134.244
9+440	133.711	133.676	134.206	134.140	134.303
	133.751	133.726	134.264	134.098	134.363
	133.791	133.775	134.321	134.115	134.422
9+480	133.831	133.825	134.379	134.169	134.481
	133.871	133.875	134.439	134.220	134.540
	133.911	133.925	134.500	134.265	134.599
9+520	133.951	133.975	134.457	134.310	134.658
	133.991	134.070	134.410	134.330	134.717
	134.031	134.165	134.437	134.498	134.776
9+560	134.071	134.260	134.507	134.538	134.759
	134.111	134.355	134.579	134.428	134.594
	134.151	134.450	134.652	133.987	134.869
9+600	134.128	134.545	134.593	134.279	135.024
	134.105	134.582	134.819	135.025	135.130
	134.082	134.458	135.159	135.197	135.112
9+640	134.059	134.335	134.492	134.475	134.601
	134.036	134.211	135.030	134.914	135.079
9+680					
9+720					
9+760					
9+800					
9+840					
9+880					
9+920					
9+960					
10+000					

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : HORIZONTAL 1 : 2000
VERTICAL 1 : 200

CAD FILE: DPPBD_09-10

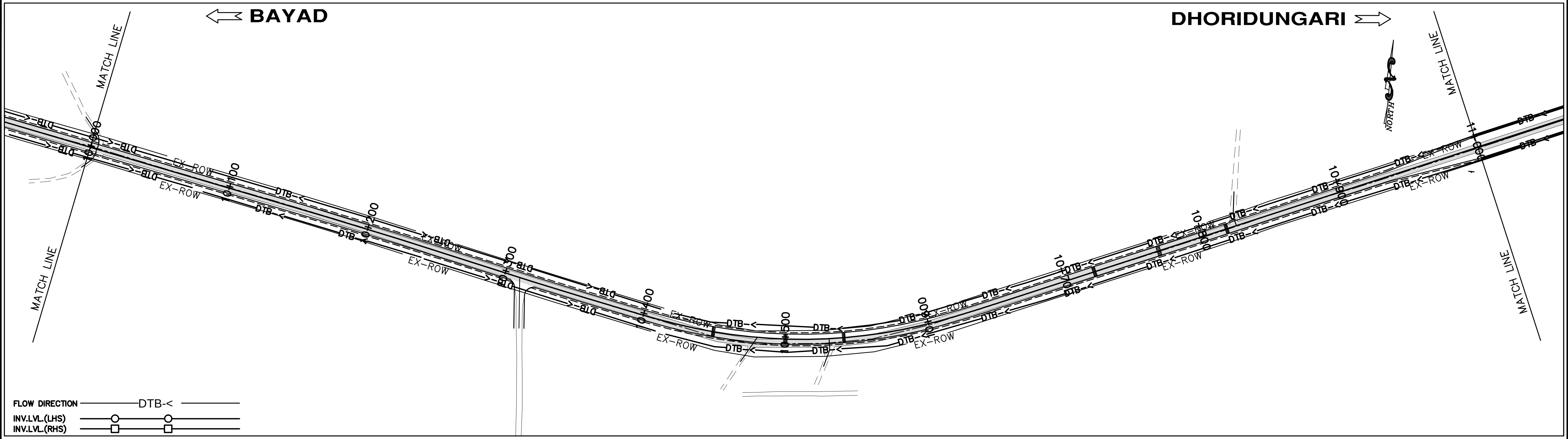
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

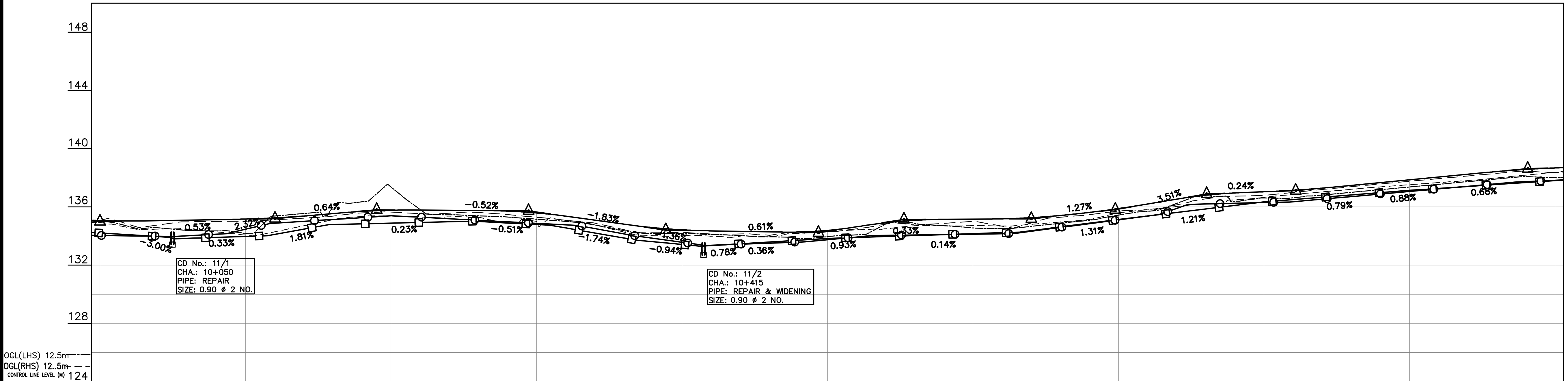
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 09+000 TO STA. 10+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/10	0





STATIONING	DESIGN	FRL.	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
10+000	135.079	135.063	135.030	134.914	134.036	134.211
	134.790	135.035	134.662	134.569	134.014	134.088
10+040	134.759	135.061	134.566	134.479	133.991	133.964
	134.979	135.095	134.382	134.455	134.024	133.840
10+080	135.000	135.128	134.350	134.290	134.131	133.907
	135.024	135.168	134.180	134.063	134.470	133.973
10+120	135.113	135.247	135.375	134.289	134.880	134.112
	135.228	135.373	135.546	134.704	135.009	134.473
10+160	135.372	135.540	135.870	135.119	135.137	134.793
	135.584	135.693	136.077	135.381	135.266	134.840
10+200	135.650	135.773	137.375	135.373	135.395	134.887
	135.537	135.781	135.530	135.309	135.292	134.934
10+240	135.572	135.767	135.460	135.315	135.188	134.981
	135.614	135.754	135.390	135.304	135.084	135.000
10+280	135.475	135.714	135.303	134.962	134.979	134.899
	135.285	135.587	135.158	135.018	134.875	134.798
10+320	135.087	135.372	134.978	135.003	134.770	134.562
	134.888	135.094	134.717	134.765	134.520	134.214
10+360	134.442	134.814	134.371	134.274	134.155	133.866
	134.261	134.580		134.028	133.846	133.611
10+400	134.247	134.427			133.574	133.423
	134.141	134.356			133.370	133.346
10+440	134.145	134.321	134.033	134.027	133.441	133.468
	134.056	134.287	133.950	133.993	133.513	133.590
10+480	134.304	134.274	133.802	134.204	133.585	133.712
	134.321	134.385	133.956	134.284	133.745	133.834
10+520	134.499	134.635	134.081	134.421	133.931	133.901
	134.823	134.908	134.829	134.500	134.044	133.967
10+560	134.754	135.081	134.817	134.719	134.072	134.033
	134.872	135.154	134.692	134.702	134.100	134.099
10+600	135.001	135.165	134.556	134.710	134.128	134.165
	134.678	135.183	134.504	134.746	134.156	134.231
10+640	134.896	135.262			134.329	134.373
	135.292	135.411	134.873	134.984	134.590	134.627
10+680	135.466	135.623	135.082	135.143	134.851	134.881
	135.717	135.885	135.438	135.592	135.113	135.136
10+720	135.801	136.197	135.700	135.822	135.374	135.377
	136.140	136.538	136.239	136.027	135.897	135.619
10+760	136.552	136.804	136.676	136.197	136.200	135.861
	136.735	136.961	136.390	136.486	136.248	136.102
10+800	136.781	137.038	136.614	136.658	136.297	136.344
	136.994	137.142	136.622	136.854	136.359	136.502
10+840	137.195	137.292	136.817	137.031	136.535	136.660
	137.390	137.480	137.001	137.209	136.711	136.819
10+880	137.576	137.670	137.185	137.377	136.887	136.977
	137.758	137.860	137.369	137.524	137.063	137.135
10+920	137.939	138.050	137.553	137.671	137.239	137.271
	138.121	138.240	137.737	137.810	137.415	137.406
10+960	138.302	138.428	137.921	137.991	137.591	137.541
	138.459	138.577	138.087	138.188	137.736	137.677
11+000	138.368	138.676	137.999	138.365	137.828	137.812

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: DPPBD_10-11

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

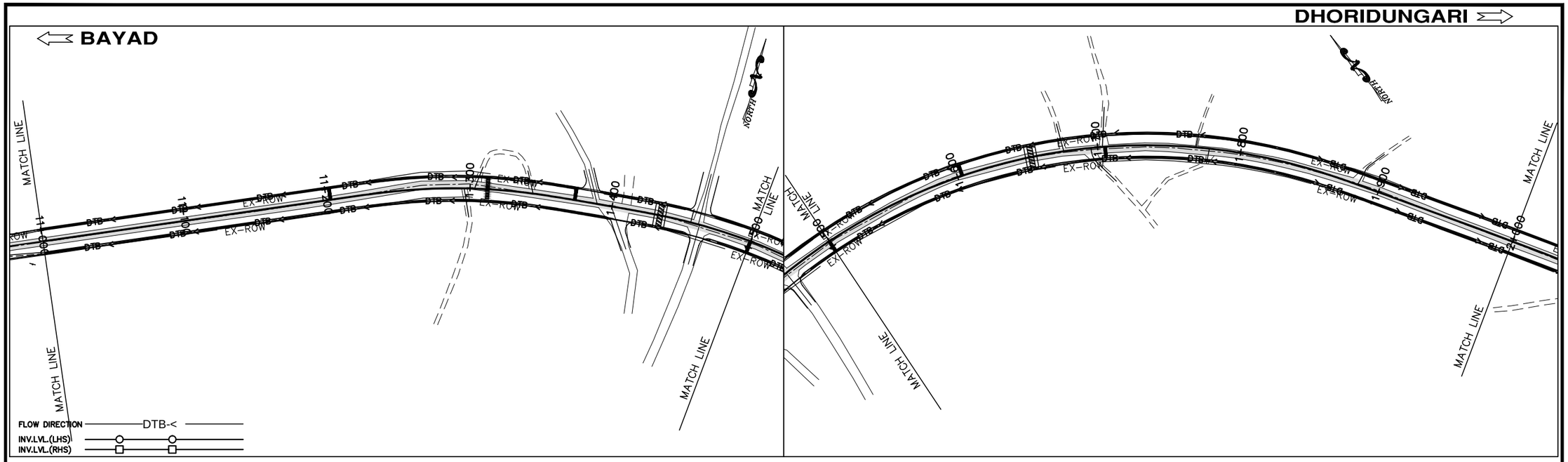
LASA INDIA

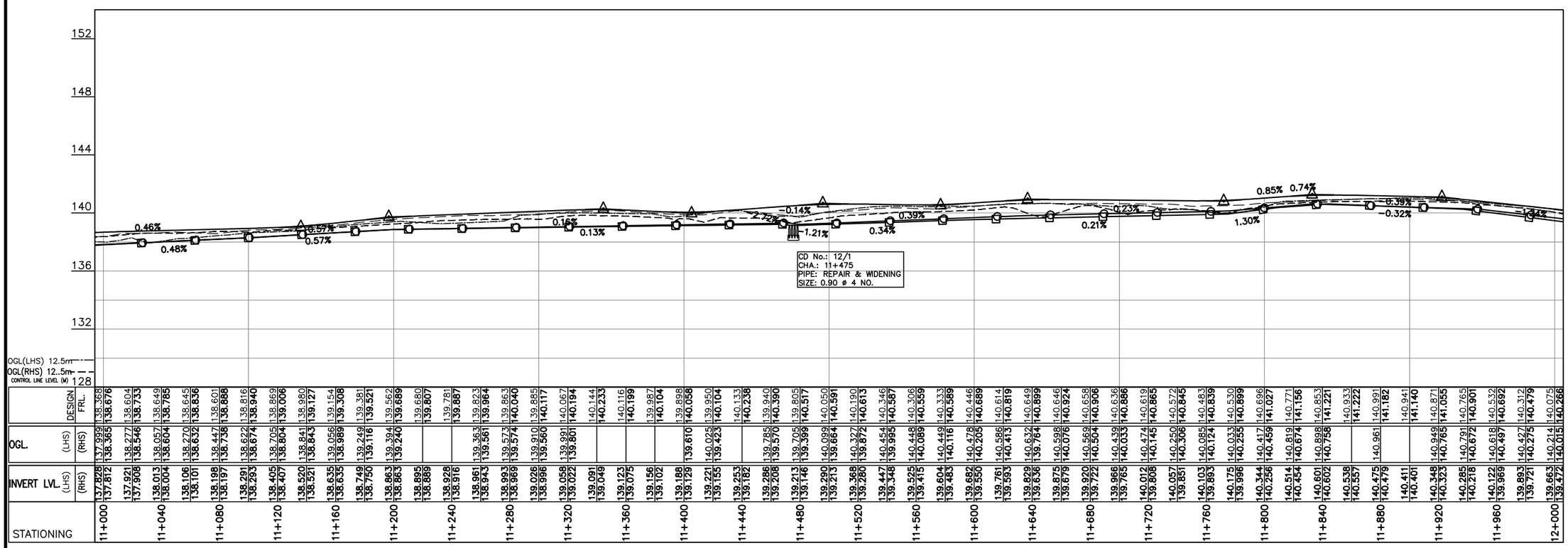
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 10+000 TO STA. 11+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/11	0





STATIONING	DESIGN FRL.	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
11+000	138.676	138.365	137.999	137.828	137.812
11+020	138.604	138.546	138.277	137.921	137.908
11+040	138.649	138.604	138.057	138.013	138.004
11+060	138.645	138.632	138.270	138.106	138.101
11+080	138.601	138.738	138.447	138.198	138.197
11+100	138.816	138.674	138.622	138.291	138.293
11+120	138.869	138.804	138.705	138.405	138.407
11+140	138.980	138.843	138.841	138.520	138.521
11+160	139.154	138.989	139.056	138.635	138.635
11+180	139.381	139.249	139.116	138.749	138.750
11+200	139.562	139.240	139.394	138.863	138.863
11+220	139.689	138.889	139.807	138.895	138.889
11+240	139.781	138.916	139.887	138.928	138.916
11+260	139.823	139.561	139.964	138.961	138.943
11+280	139.863	139.574	140.040	138.993	138.969
11+300	139.885	139.560	140.117	139.026	138.996
11+320	140.067	139.801	140.194	139.058	139.022
11+340	140.144	140.233	140.116	139.091	139.049
11+360	140.199	139.987	140.104	139.123	139.075
11+380	139.898	140.058	139.950	139.156	139.102
11+400	140.025	139.423	140.104	139.188	139.129
11+420	140.133	140.238	139.785	139.221	139.155
11+440	139.940	139.570	140.390	139.253	139.182
11+460	139.805	139.399	140.517	139.286	139.208
11+480	140.050	140.099	140.591	139.213	139.146
11+500	140.190	139.864	140.613	139.290	139.213
11+520	140.327	139.872	140.454	139.368	139.280
11+540	140.346	139.995	140.587	139.447	139.348
11+560	140.306	140.069	140.559	139.525	139.415
11+580	140.449	140.116	140.589	139.604	139.483
11+600	140.446	140.205	140.689	139.682	139.550
11+620	140.614	140.413	140.819	139.761	139.593
11+640	140.649	139.764	140.899	139.829	139.636
11+660	140.646	140.076	140.924	139.875	139.679
11+680	140.658	140.504	140.906	139.920	139.722
11+700	140.636	140.033	140.886	139.966	139.765
11+720	140.619	140.145	140.865	140.012	139.808
11+740	140.572	140.306	140.845	140.057	139.851
11+760	140.483	140.124	140.839	140.103	139.893
11+780	140.530	140.255	140.899	140.175	139.996
11+800	140.696	140.459	141.027	140.344	140.256
11+820	140.771	140.674	141.156	140.514	140.454
11+840	140.853	140.758	141.221	140.601	140.602
11+860	140.933	141.222	140.538	140.557	
11+880	140.991	140.961	141.182	140.475	140.479
11+900	140.941	141.140	140.411	140.401	
11+920	140.871	140.765	141.055	140.348	140.323
11+940	140.791	140.672	140.901	140.285	140.218
11+960	140.618	140.497	140.692	140.122	139.969
11+980	140.427	140.275	140.479	139.893	139.721
12+000	140.214	140.015	140.266	139.663	139.472

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: DPPBD_11-12

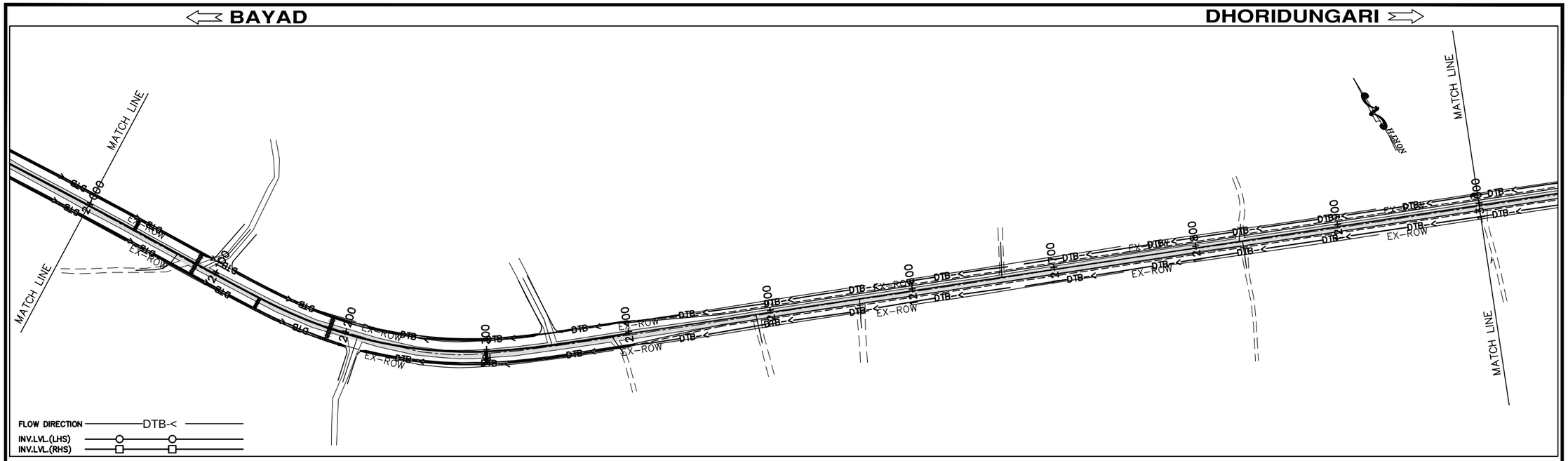
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

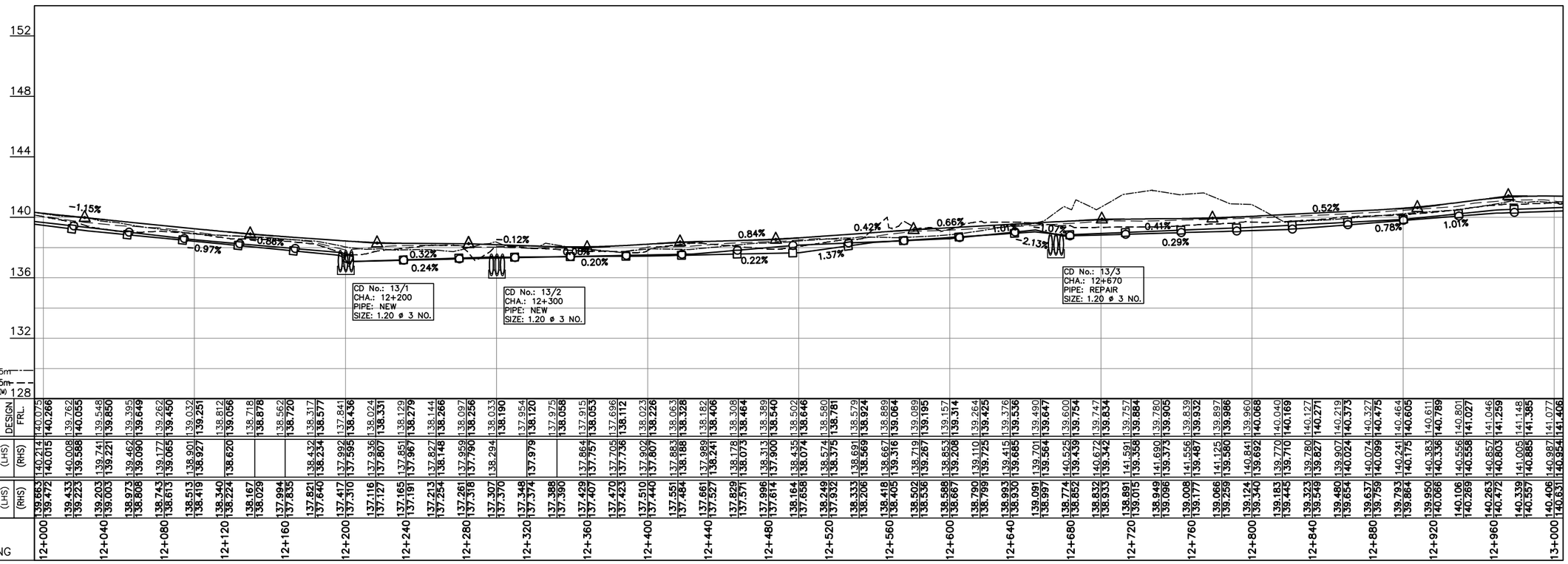
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 11+000 TO STA. 12+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/12	0





STATIONING		12+000	12+040	12+080	12+120	12+160	12+200	12+240	12+280	12+320	12+360	12+400	12+440	12+480	12+520	12+560	12+600	12+640	12+680	12+720	12+760	12+800	12+840	12+880	12+920	12+960	13+000
INVERT LVL.	(LHS)	139.663	139.203	138.973	138.743	138.513	138.340	138.167	137.994	137.821	137.417	137.116	137.165	137.213	137.261	137.307	137.348	137.388	137.429	137.470	137.510	137.551	137.661	137.829	137.996	138.164	138.249	138.333	138.418	138.502	138.588	138.790	138.993	139.091	138.774	138.832	138.891	138.948	139.008	139.066	139.124	139.183	139.323	139.480	139.637	139.793	139.950	140.106	140.263	140.339	140.406
	(RHS)	139.472	139.003	138.808	138.613	138.419	138.224	138.029	137.835	137.640	137.310	137.127	137.191	137.254	137.318	137.370	137.374	137.390	137.407	137.423	137.440	137.484	137.527	137.571	137.614	137.658	137.832	138.206	138.405	138.536	138.667	138.799	138.930	138.997	138.852	138.933	139.015	139.096	139.177	139.259	139.340	139.445	139.549	139.654	139.759	139.864	140.066	140.269	140.472	140.557	140.631
OGL.	(LHS)	140.214	139.741	139.462	139.177	138.901	138.620		137.992	138.432	137.936	137.851	137.827	137.959	137.864	138.294	137.979		137.705	137.736	137.902	137.883	137.989	138.178	138.313	138.435	138.574	138.691	138.569	138.667	139.316	139.719	139.267	139.208	139.110	139.415	139.701	140.525	139.439	140.672	139.342	141.591	139.358	141.690	139.373	141.556	139.487	141.125	139.580	140.841	139.692	139.770	139.710	139.780	139.827	139.907	140.024	140.074	140.099	140.241	140.175	140.383	140.336	140.556	140.558	140.857	140.803	141.005	140.885	140.987	140.954
	(RHS)	140.015	139.588	139.090	139.065	138.927	138.620		137.995	138.234	137.807	137.967	138.148	137.790	137.757	138.294	137.979		137.705	137.736	137.807	137.883	137.989	138.178	138.313	138.435	138.574	138.691	138.569	138.667	139.316	139.719	139.267	139.208	139.110	139.415	139.701	140.525	139.439	140.672	139.342	141.591	139.358	141.690	139.373	141.556	139.487	141.125	139.580	140.841	139.692	139.770	139.710	139.780	139.827	139.907	140.024	140.074	140.099	140.241	140.175	140.383	140.336	140.556	140.558	140.857	140.803	141.005	140.885	140.987	140.954
DESIGN FRL.		140.076	139.762	139.395	139.262	139.032	138.812	138.718	138.562	138.317	137.841	138.436	138.024	138.129	138.279	138.144	138.266	138.097	138.256	138.033	138.190	137.954	138.120	137.975	138.058	137.915	138.053	137.696	138.112	138.023	138.226	138.063	138.328	138.182	138.406	138.308	138.464	138.389	138.540	138.502	138.646	138.580	138.781	138.579	138.924	138.889	139.064	139.089	139.195	139.157	139.314	139.264	139.425	139.376	139.536	139.490	139.647	139.600	139.754	139.747	139.834	139.757	139.884	139.780	139.905	139.839	139.932	139.897	139.986	139.960	140.068	140.040	140.169	140.127	140.271	140.219	140.373	140.327	140.475	140.464	140.605	140.611	140.789	140.801	141.027	141.046	141.259	141.148	141.385	141.077	141.406

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: DPPBD_12-13

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

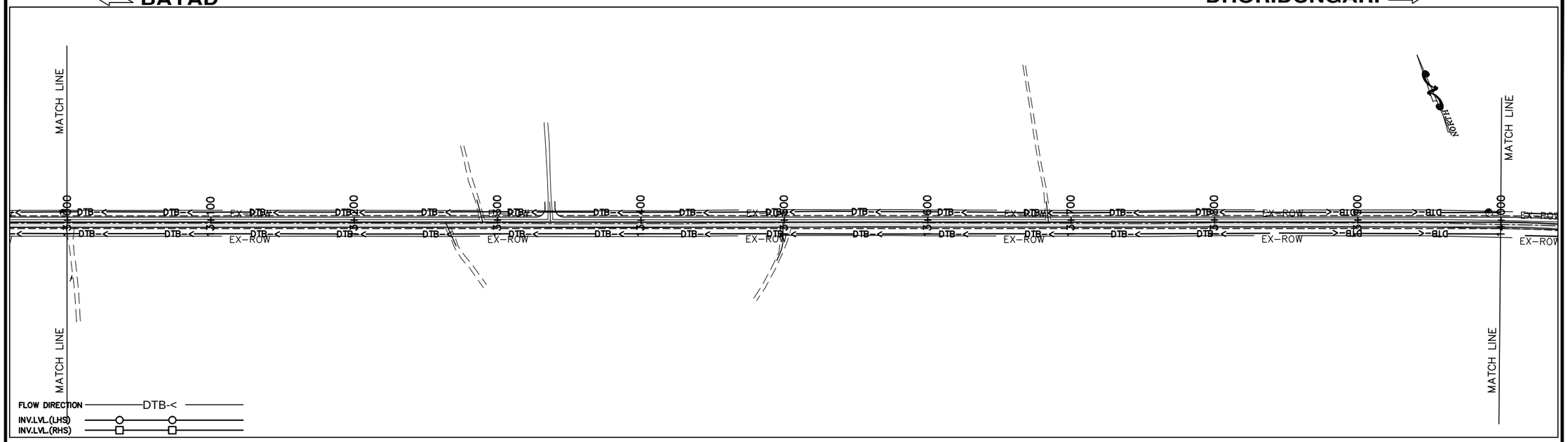
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

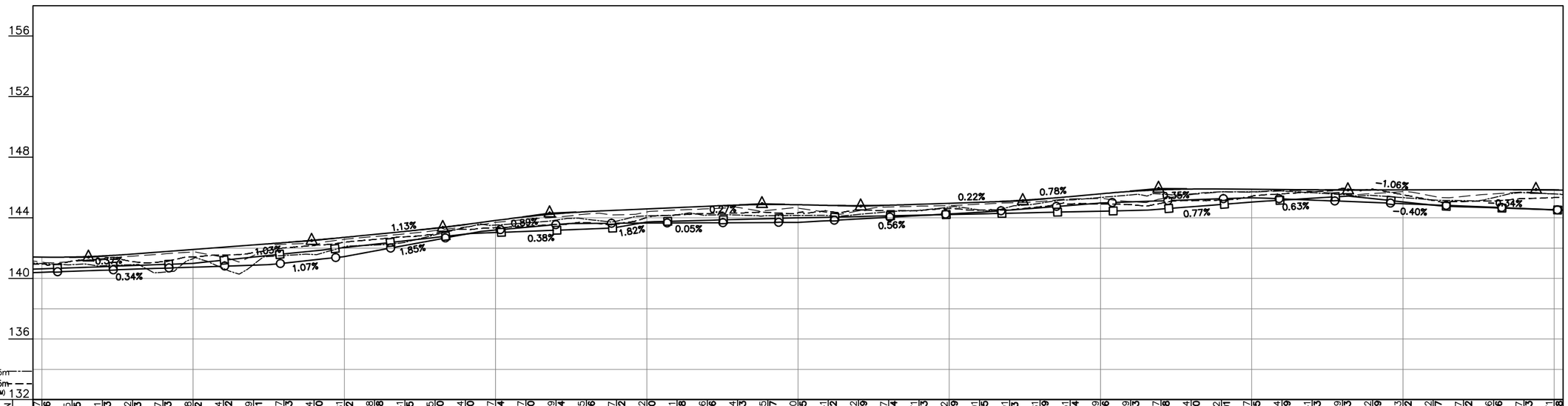
CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)

DRAINAGE PLAN PROFILE
STA. 12+000 TO STA. 13+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/13	0

BAYAD ⟸ ⟹ DHORIDUNGARI





STATIONING	DESIGN FRL.	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
13+000	141.077	140.987	140.987	140.406	140.406
13+020	141.406	140.954	140.954	140.631	140.631
13+040	141.115	140.911	140.911	140.474	140.474
	141.415	141.148	141.148	140.704	140.704
	141.311	140.840	140.840	140.541	140.541
	141.483	141.239	141.239	140.778	140.778
13+060	141.472	140.913	140.913	140.608	140.608
	141.613	141.108	141.108	140.852	140.852
13+080	141.617	140.410	140.410	140.675	140.675
	141.763	141.105	141.105	140.925	140.925
	141.738	141.309	141.309	140.743	140.743
	141.912	141.416	141.416	140.999	140.999
13+100	141.404	140.659	140.659	140.810	140.810
13+120	142.062	141.548	141.548	141.205	141.205
13+140	141.509	140.924	140.924	140.877	140.877
	142.211	141.703	141.703	141.412	141.412
	142.257	141.510	141.510	141.011	141.011
13+160	142.363	142.015	142.015	141.618	141.618
	142.194	141.577	141.577	141.224	141.224
	142.530	142.191	142.191	141.824	141.824
13+180	142.581	142.081	142.081	141.439	141.439
13+200	142.712	142.387	142.387	142.030	142.030
	142.768	142.204	142.204	141.809	141.809
	142.908	142.572	142.572	142.256	142.256
13+220	142.941	142.385	142.385	142.179	142.179
13+240	143.105	142.748	142.748	142.482	142.482
	143.165	142.879	142.879	142.548	142.548
	143.320	142.956	142.956	142.708	142.708
13+260	143.394	143.371	143.371	142.918	142.918
13+280	143.560	143.241	143.241	142.934	142.934
	143.697	143.522	143.522	143.194	143.194
13+300	143.824	143.349	143.349	143.033	143.033
	143.897	143.661	143.661	143.373	143.373
13+320	144.070	143.440	143.440	143.108	143.108
	144.049	143.849	143.849	143.552	143.552
13+340	144.264	143.572	143.572	143.184	143.184
	144.245	143.912	143.912	143.633	143.633
13+360	144.406	143.675	143.675	143.260	143.260
	144.197	143.782	143.782	143.643	143.643
13+380	144.502	143.593	143.593	143.366	143.366
	144.382	144.125	144.125	143.652	143.652
13+400	144.590	144.023	144.023	143.730	143.730
	144.511	144.200	144.200	143.862	143.862
13+420	144.678	144.195	144.195	143.784	143.784
	144.596	144.178	144.178	143.671	143.671
	144.766	144.289	144.289	143.838	143.838
13+440	144.694	144.187	144.187	143.680	143.680
13+460	144.843	144.315	144.315	143.891	143.891
	144.495	144.139	144.139	143.690	143.690
	144.877	144.357	144.357	143.945	143.945
13+480	144.640	144.156	144.156	143.699	143.699
13+500	144.865	144.336	144.336	143.999	143.999
	144.341	144.147	144.147	143.811	143.811
13+520	144.822	144.432	144.432	144.043	144.043
	144.462	144.225	144.225	143.923	143.923
13+540	144.809	144.508	144.508	144.087	144.087
	144.717	144.402	144.402	144.036	144.036
13+560	144.834	144.473	144.473	144.131	144.131
	144.771	144.494	144.494	144.148	144.148
13+580	144.893	144.477	144.477	144.175	144.175
	144.812	144.712	144.712	144.260	144.260
13+600	144.959	144.614	144.614	144.219	144.219
	144.901	144.527	144.527	144.372	144.372
13+620	145.025	144.500	144.500	144.263	144.263
	144.991	144.724	144.724	144.510	144.510
13+640	145.113	144.526	144.526	144.307	144.307
	145.081	144.965	144.965	144.666	144.666
13+660	145.239	144.726	144.726	144.351	144.351
	145.251	145.182	145.182	144.822	144.822
13+680	145.404	144.911	144.911	144.395	144.395
	145.269	145.342	145.342	144.977	144.977
13+700	145.586	144.917	144.917	144.439	144.439
	145.079	145.512	145.512	145.048	145.048
13+720	145.743	144.867	144.867	144.483	144.483
	145.247	145.569	145.569	145.118	145.118
13+740	145.848	144.961	144.961	144.575	144.575
	145.534	145.576	145.576	145.189	145.189
13+760	145.900	145.133	145.133	144.730	144.730
	145.712	145.718	145.718	145.259	145.259
13+780	145.901	145.187	145.187	144.885	144.885
	145.697	145.719	145.719	145.329	145.329
13+800	145.885	145.428	145.428	145.040	145.040
	145.774	145.772	145.772	145.250	145.250
13+820	145.869	145.585	145.585	145.166	145.166
	145.741	145.655	145.655	145.171	145.171
13+840	145.853	145.710	145.710	145.292	145.292
	145.589	145.538	145.538	145.092	145.092
13+860	145.843	145.948	145.948	145.417	145.417
	145.602	145.480	145.480	145.013	145.013
13+880	145.839	145.886	145.886	145.269	145.269
	145.733	145.333	145.333	144.934	144.934
13+900	145.842	145.523	145.523	145.057	145.057
	145.432	145.186	145.186	144.855	144.855
13+920	145.847	145.145	145.145	144.844	144.844
	145.417	145.133	145.133	144.775	144.775
13+940	145.852	145.080	145.080	144.728	144.728
	145.586	145.335	145.335	144.696	144.696
13+960	145.856	145.118	145.118	144.661	144.661
	145.717	145.295	145.295	144.617	144.617
13+980	145.653	145.335	145.335	144.594	144.594
	145.571	145.838	145.838	144.538	144.538
14+000				144.527	144.527

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: DPPBD_13-14

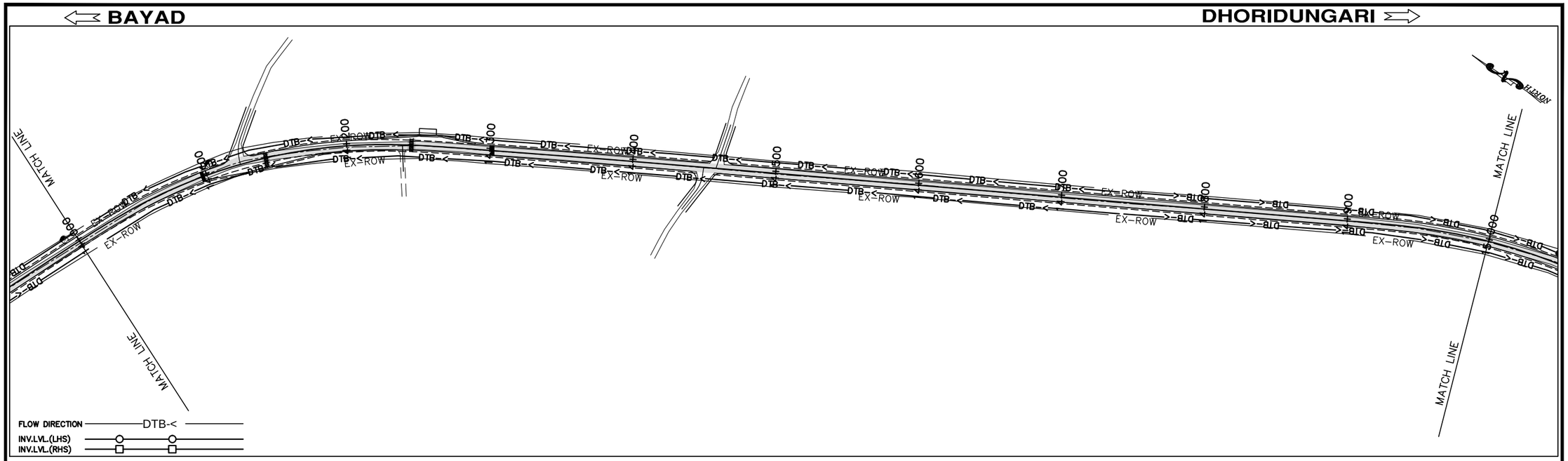
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

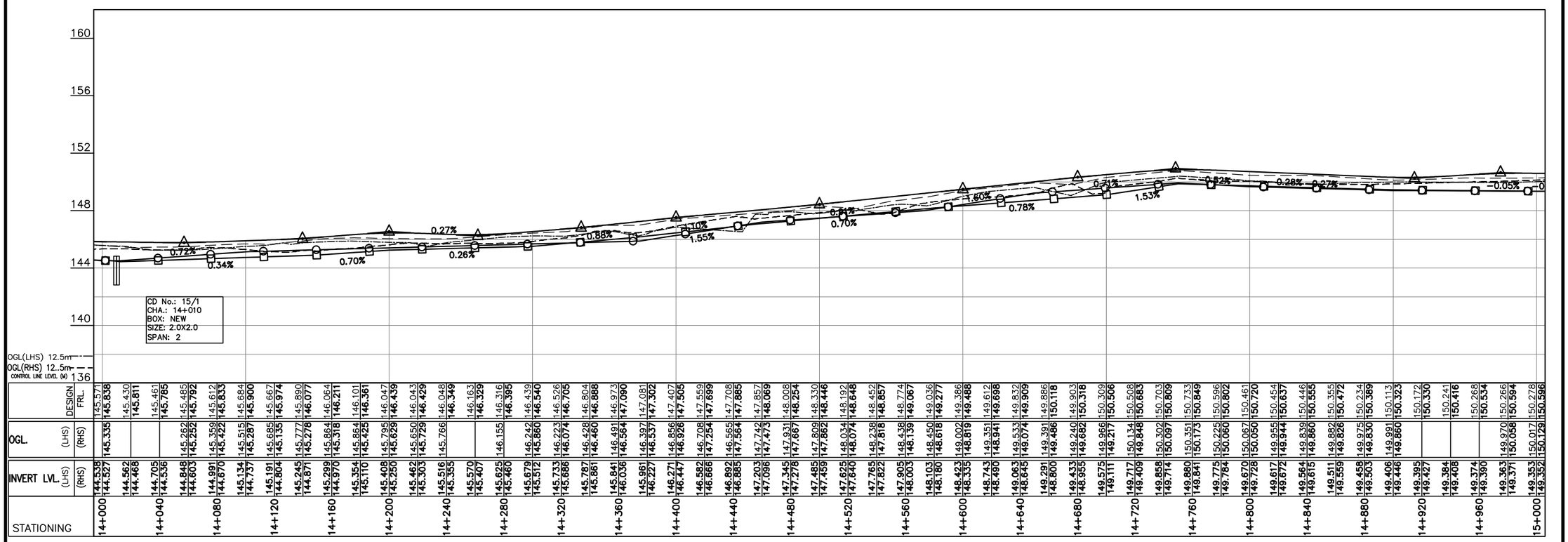
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 13+000 TO STA. 14+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/14	0





STATIONING	DESIGN FRL.	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
14+000	145.574	145.838	145.335	144.538	144.327
14+040	145.430	145.811	145.262	144.705	144.536
14+080	145.461	145.785	145.252	144.848	144.603
14+120	145.485	145.792	145.422	144.991	144.670
14+160	145.612	145.833	145.287	145.134	144.737
14+200	145.684	145.900	145.135	145.191	144.804
14+240	145.667	145.974	145.278	145.245	144.871
14+280	145.890	146.077	145.318	145.299	144.970
14+320	146.064	146.211	145.425	145.354	145.110
14+360	146.101	146.361	145.629	145.408	145.250
14+400	146.047	146.439	145.729	145.462	145.303
14+440	146.043	146.429	145.792	145.516	145.355
14+480	146.048	146.349	145.766	145.570	145.407
14+520	146.163	146.329	146.155	145.625	145.460
14+560	146.316	146.395	146.242	145.679	145.512
14+600	146.439	146.540	146.860	145.733	145.686
14+640	146.526	146.705	146.074	145.787	145.861
14+680	146.804	146.888	146.460	145.841	146.036
14+720	146.973	147.090	146.564	145.961	146.227
14+760	147.081	147.302	146.537	146.271	146.447
14+800	147.407	147.505	146.926	146.582	146.666
14+840	147.559	147.699	147.254	146.892	146.885
14+880	147.708	147.885	147.564	147.203	147.096
14+920	147.857	148.069	147.473	147.345	147.278
14+960	148.008	148.254	147.887	147.485	147.459
15+000	148.330	148.446	147.862	147.625	147.640
	148.192	148.034	148.074	147.765	147.822
	148.452	148.238	147.818	147.905	148.003
	148.774	148.438	148.139	148.103	148.180
	149.036	148.450	148.618	148.423	148.335
	149.386	149.002	148.819	148.743	148.490
	149.612	149.351	148.941	149.063	148.645
	149.832	149.533	149.074	149.291	148.800
	149.886	149.391	149.486	149.433	148.955
	149.903	149.240	149.882	149.575	149.111
	150.309	149.966	149.217	149.717	149.409
	150.508	150.134	149.848	149.858	149.714
	150.703	150.302	150.097	149.880	149.841
	150.596	150.225	150.060	149.775	149.784
	150.461	150.067	150.050	149.670	149.728
	150.454	149.955	149.944	149.617	149.672
	150.446	149.839	149.860	149.564	149.615
	150.355	149.882	149.826	149.511	149.559
	150.234	149.975	149.830	149.458	149.503
	150.113	149.991	149.860	149.406	149.446
	150.172	150.323	150.330	149.395	149.427
	150.241	150.416	150.534	149.384	149.408
	150.268	150.266	150.594	149.374	149.390
	150.278	150.596	150.129	149.363	149.371
				149.353	149.352

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: DPPBD_14-15

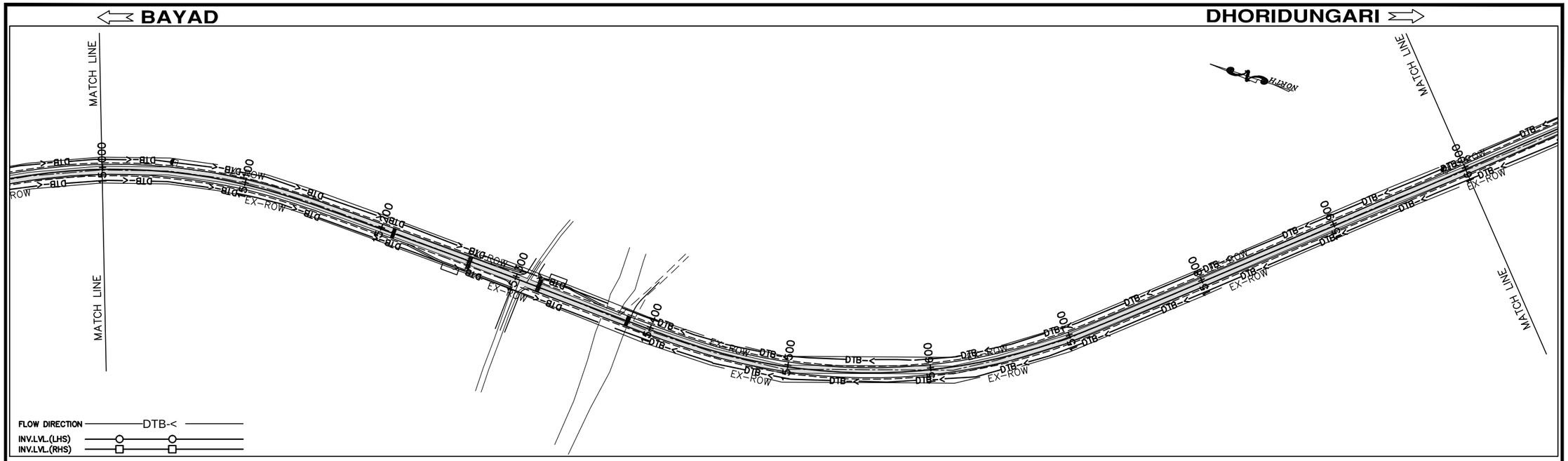
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

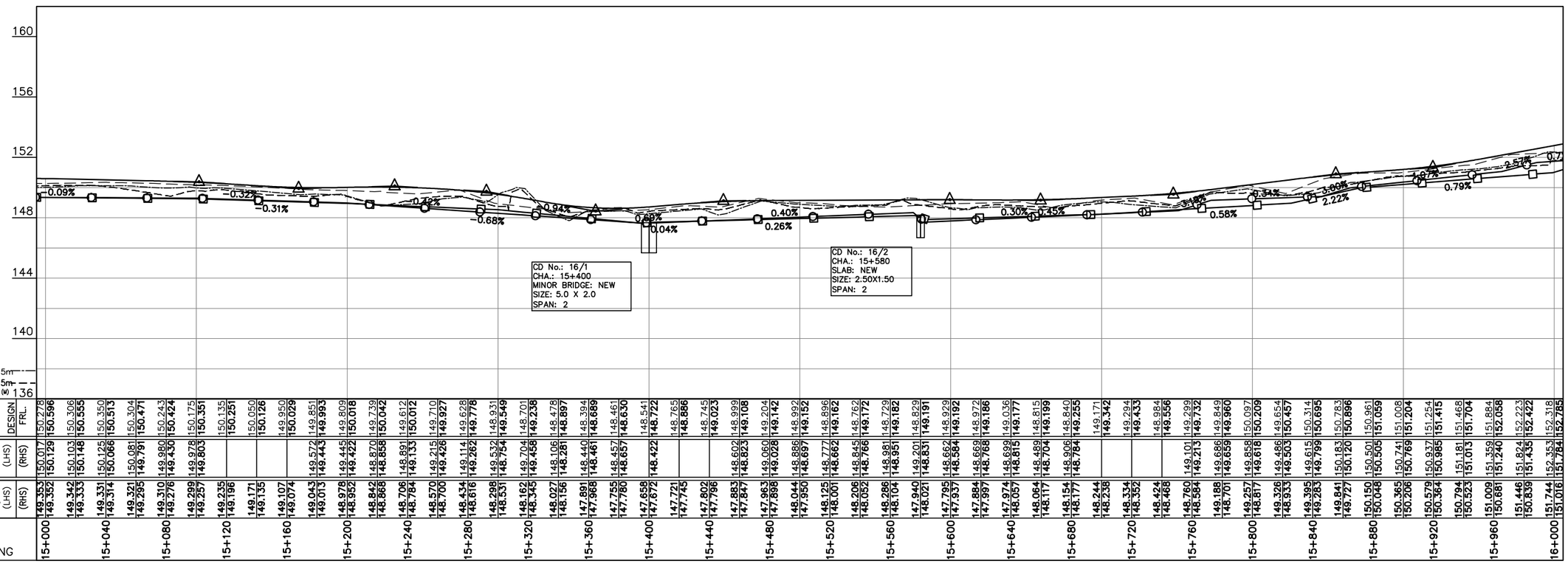
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 14+000 TO STA. 15+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/15	0





		15+000	15+040	15+080	15+120	15+160	15+200	15+240	15+280	15+320	15+360	15+400	15+440	15+480	15+520	15+560	15+600	15+640	15+680	15+720	15+760	15+800	15+840	15+880	15+920	15+960	16+000
STATIONING																											
INVERT LVL.	(LHS)	149.353	149.331	149.321	149.310	149.299	149.235	149.171	149.107	149.043	148.978	148.842	148.706	148.570	148.434	148.298	148.162	148.027	147.891	147.755	147.658	147.721	147.802	147.883	147.963	148.044	148.125	148.206	148.286	147.940	147.795	147.884	147.974	148.064	148.154	148.244	148.334	148.424	148.760	149.188	149.257	149.326	149.395	149.841	150.150	150.365	150.579	150.794	151.009	151.446	151.744
	(RHS)	149.352	149.314	149.295	149.276	149.257	149.196	149.135	149.074	149.013	148.952	148.888	148.784	148.700	148.616	148.531	148.345	148.156	147.968	147.780	147.672	147.745	147.796	147.847	147.898	147.950	148.001	148.052	148.104	148.021	147.937	147.997	148.057	148.117	148.177	148.238	148.352	148.468	148.584	148.701	148.817	148.933	149.283	149.727	150.048	150.206	150.364	150.523	150.681	150.839	151.016
OGL.	(LHS)	150.017	150.103	150.081	149.980	149.978	149.572	149.445	149.215	149.114	148.891	148.870	148.891	149.215	149.114	149.532	149.704	148.106	148.440	148.457	148.422	148.765	148.745	148.602	149.060	148.886	148.777	148.845	148.981	149.201	148.662	148.669	148.699	148.489	148.906	149.171	149.294	149.984	149.101	149.686	149.858	149.486	149.615	150.183	150.501	150.741	150.937	151.181	151.359	151.824	152.353
	(RHS)	150.129	150.148	150.066	149.791	149.430	149.803	149.422	149.133	149.426	149.262	149.754	149.458	149.281	148.461	148.657	148.886	149.023	149.108	149.142	149.152	149.162	149.172	149.182	149.028	148.897	148.662	148.766	148.951	148.831	148.584	148.768	148.815	149.199	148.784	149.342	149.433	149.556	149.213	149.659	149.618	149.503	149.799	150.120	150.505	150.769	150.985	151.013	151.240	151.435	151.784
DESIGN FRL.		150.596	150.555	150.513	150.471	150.424	150.351	150.251	150.126	150.029	149.993	150.018	150.042	150.012	149.927	149.778	149.549	149.238	148.897	148.689	148.630	148.722	148.886	149.023	149.142	149.162	149.152	149.162	149.172	149.182	149.192	149.186	149.177	149.199	149.255	149.342	149.433	149.556	149.732	149.960	150.209	150.457	150.695	150.896	151.059	151.204	151.415	151.704	151.884	152.058	152.422	152.785
		150.278	150.306	150.350	150.304	150.243	150.175	150.135	150.050	149.950	149.851	149.809	149.739	149.612	149.710	149.628	148.931	148.701	148.478	148.394	148.461	148.541	148.765	148.745	148.999	149.204	148.992	148.896	148.762	148.729	148.829	148.929	148.972	149.036	148.815	148.840	149.171	149.294	149.984	149.299	149.849	150.097	149.654	150.314	150.783	150.961	151.008	151.468	151.884	152.223	152.318	152.777

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: DPPBD_15-16

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

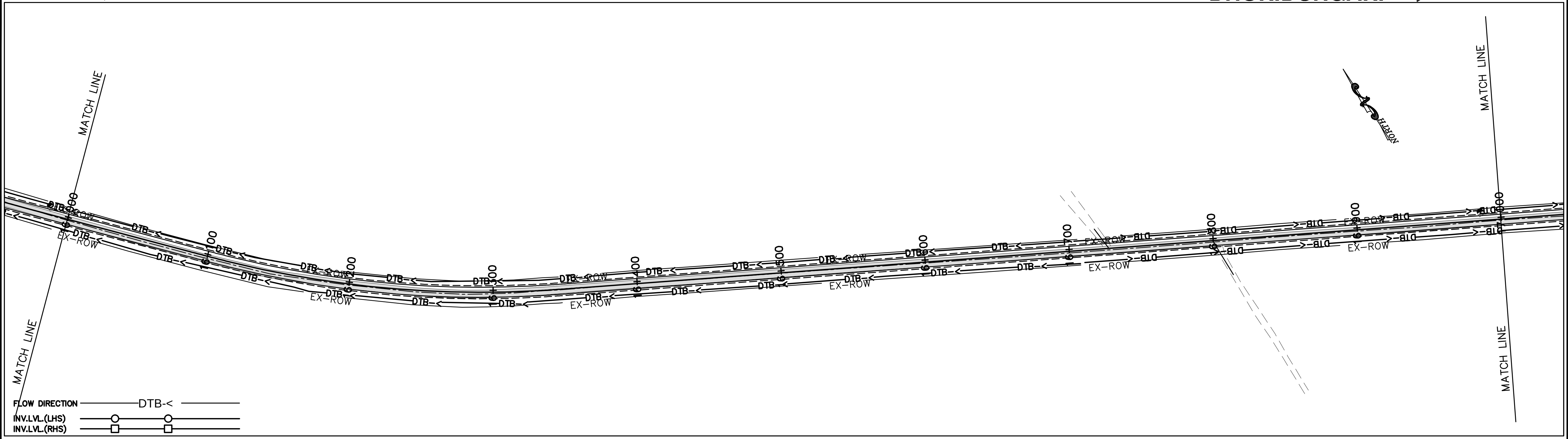
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

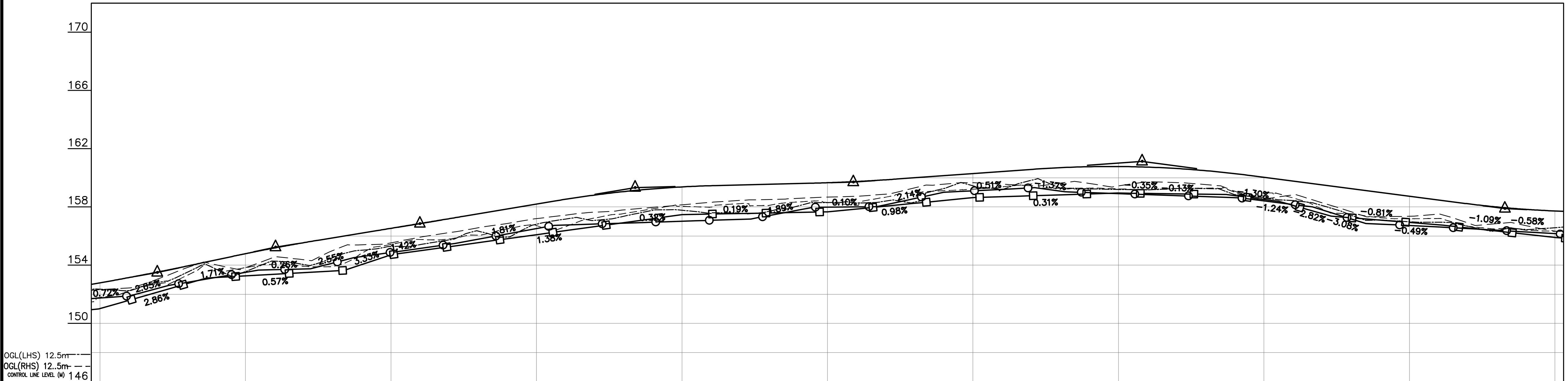
CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)

DRAINAGE PLAN PROFILE

STA. 15+000 TO STA. 16+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/16	0





STATIONING	DESIGN FRL.	DESIGN FRL. (bold)	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
16+000	152.318	152.785	152.353	151.784	151.744	151.016
	152.432	153.151	152.256	152.245	151.888	151.588
16+040	153.061	153.536	152.821	152.721	152.414	152.161
	153.835	153.942	153.516	153.305	152.823	152.734
16+080	154.019	154.366	153.719	153.715	153.165	153.149
	153.831	154.789			153.507	153.262
16+120	154.553	155.183			153.688	153.375
	154.373	155.544	154.044	153.914	153.739	153.488
16+160	155.001	155.876	154.519	153.928	154.143	153.601
	155.399	156.203	155.030	154.830	154.588	154.047
16+200	155.526	156.530	155.296	155.428	154.871	154.713
	155.921	156.859	155.412	155.761	155.154	154.993
16+240	156.236	157.191	155.739	155.875	155.438	155.269
	156.575	157.526	156.381	156.059	155.784	155.544
16+280	156.867	157.860	155.891	156.552	156.146	155.819
	157.193	158.195	156.856	156.726	156.509	156.094
16+320	157.437	158.526	157.171	156.650	156.758	156.369
	157.637	158.816			156.823	156.644
16+360	157.793	159.054			156.887	156.920
	157.969	159.240	157.764	157.868	156.952	157.195
16+400	158.145	159.375	157.770	158.039	157.017	157.470
	158.321	159.457	157.543	157.985	157.081	157.509
16+440	158.446	159.507	157.567	158.226	157.146	157.547
	158.512	159.557	157.702	158.113	157.409	157.585
16+480	158.590	159.606	158.073	158.343	157.787	157.623
	158.672	159.662	158.299	158.305	157.982	157.661
16+520	158.728	159.746	158.269	158.109	158.002	157.857
	158.876	159.862	158.400	158.672	158.150	158.053
16+560	159.310	160.003	158.329	158.970	158.577	158.249
	159.561	160.146	159.261	159.111	159.003	158.445
16+600	159.661	160.289	159.450	159.218	159.106	158.640
	159.570	160.433	159.179	159.383	159.208	158.703
16+640	159.459	160.576	159.825	159.569	159.311	158.765
	159.633	160.696	159.310	159.289	159.083	158.827
16+680	159.613	160.762	159.239	159.292	158.983	158.890
	159.440	160.774	159.202	159.238	158.914	158.951
16+720	159.731	160.733	159.167	159.193	158.845	158.924
	159.675	160.638	159.259	159.272	158.776	158.897
16+760	159.531	160.489	159.260	159.289	158.707	158.871
	159.074	160.286	158.844	159.009	158.638	158.775
16+800	158.559	160.035	158.610	158.760	158.413	158.515
	158.830	159.775	158.433	158.615	158.164	158.107
16+840	158.287	159.515	158.094	157.850	157.793	157.542
	157.663	159.256	157.430	157.530	157.176	157.255
16+880	157.330	158.996	157.103	157.258	156.818	157.094
	157.359	158.736	156.982	157.190	156.721	156.932
16+920	157.506	158.477	156.944	157.202	156.623	156.771
	156.905	158.218	156.679	156.680	156.517	156.561
16+960	156.852	157.998	156.384	156.494	156.400	156.343
	156.713	157.833	156.450	156.398	156.284	156.124
17+000	156.332	157.721	156.574	156.326	156.168	155.906

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m VERTICAL 1 : 200

CAD FILE: DPPBD_16-17

DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

LASA INDIA

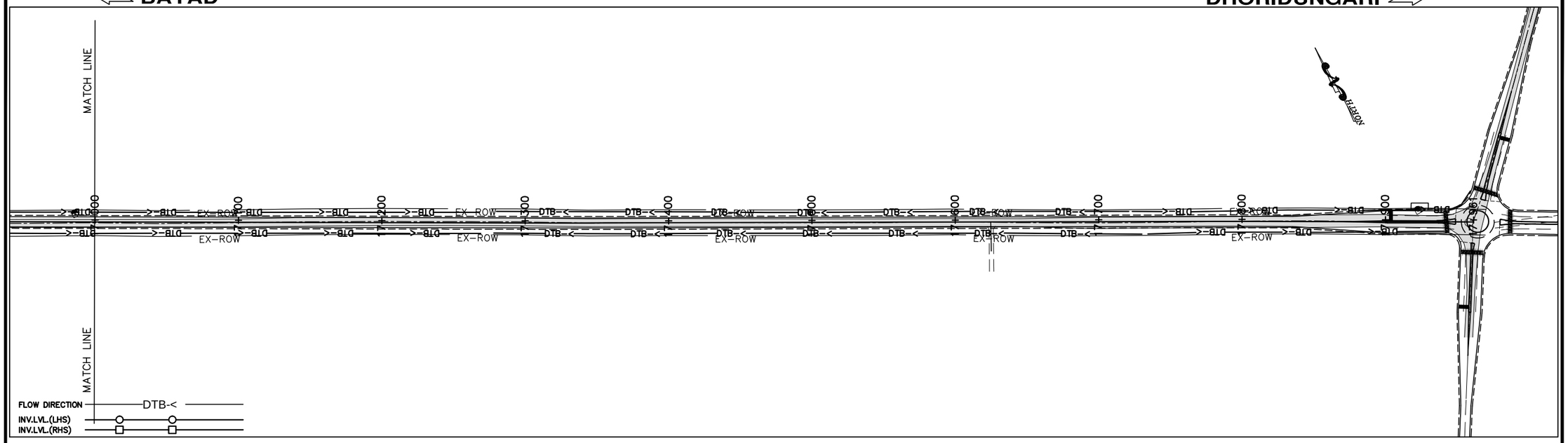
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

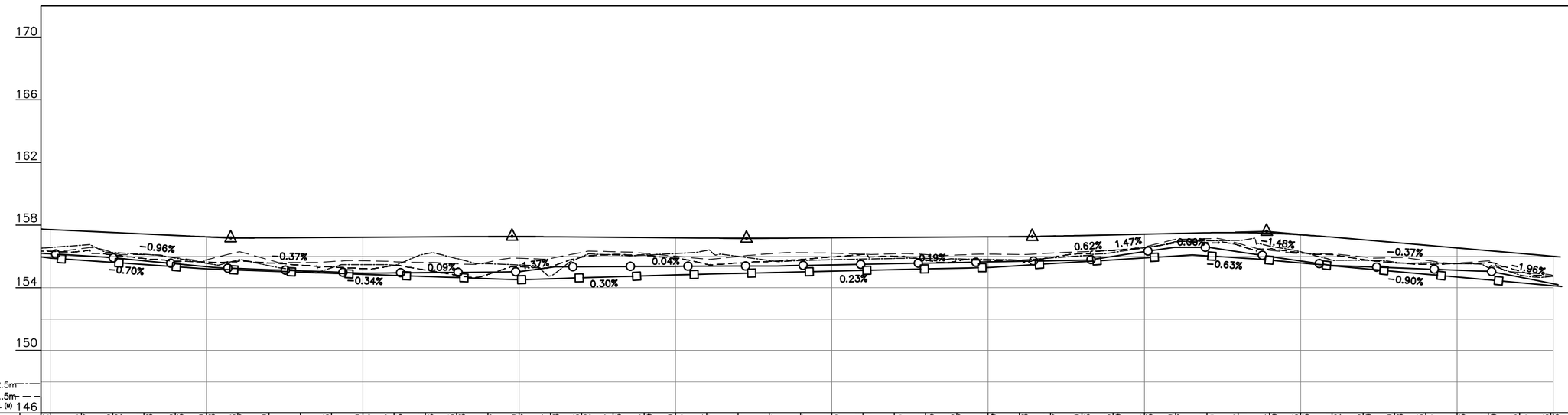
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 16+000 TO STA. 17+000

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/17	0

BAYAD ⟸ ⟹ DHORIDUNGARI





OGL(LHS) 12.5m
OGL(RHS) 12.5m
CONTROL LINE LEVEL (M) 146

		STATIONING	DESIGN FRL.	OGL. (LHS)	OGL. (RHS)	INVERT LVL. (LHS)	INVERT LVL. (RHS)
17+000			156.332 157.721	156.574 156.326	156.574 156.326	155.168 155.906	155.168 155.906
17+020			156.418 157.624	156.504 156.427	156.504 156.427	155.254 155.992	155.254 155.992
17+040			156.255 157.532	156.253 156.103	156.253 156.103	155.917 155.625	155.917 155.625
17+060			156.109 157.438	156.140 155.871	156.140 155.871	155.726 155.485	155.726 155.485
17+080			155.935 157.343	155.904 155.707	155.904 155.707	155.534 155.345	155.534 155.345
17+100			155.790 157.258	155.565 155.643	155.565 155.643	155.343 155.207	155.343 155.207
17+120			156.278 157.207	155.770 155.688	155.770 155.688	155.231 155.138	155.231 155.138
17+140			155.780 157.191	155.413 155.586	155.413 155.586	155.158 155.069	155.158 155.069
17+160			155.611 157.201	155.092 155.443	155.092 155.443	155.084 155.000	155.084 155.000
17+180			155.673 157.212	155.273 155.328	155.273 155.328	155.011 154.931	155.011 154.931
17+200			155.729 157.224	155.476 155.228	155.476 155.228	154.937 154.862	154.937 154.862
17+220			155.667 157.235	155.440 155.417	155.440 155.417	154.949 154.793	154.949 154.793
17+240			155.612 157.246	156.160 155.136	156.160 155.136	154.966 154.725	154.966 154.725
17+260			155.533 157.258	155.869 154.805	155.869 154.805	154.984 154.656	154.984 154.656
17+280			155.631 157.267	155.533 154.854	155.533 154.854	155.001 154.587	155.001 154.587
17+300			155.889 157.267	155.453 155.338	155.453 155.338	155.025 154.518	155.025 154.518
17+320			155.877 157.258	154.759 155.326	154.759 155.326	155.299 154.576	155.299 154.576
17+340			156.263 157.242	156.178 156.048	156.178 156.048	155.344 154.636	155.344 154.636
17+360			156.307 157.225	156.101 156.124	156.101 156.124	155.352 154.695	155.352 154.695
17+380			156.204 157.209	156.085 156.101	156.085 156.101	155.360 154.755	155.360 154.755
17+400			156.020 157.193	156.188 155.887	156.188 155.887	155.368 154.815	155.368 154.815
17+420			155.834 157.177	156.387 155.500	156.387 155.500	155.376 154.874	155.376 154.874
17+440			156.004 157.167	156.009 155.582	156.009 155.582	155.384 154.922	155.384 154.922
17+460			156.169 157.167	155.743 155.680	155.743 155.680	155.392 154.969	155.392 154.969
17+480			156.241 157.177	155.738 155.809	155.738 155.809	155.422 155.015	155.422 155.015
17+500			156.216 157.189	155.792 155.970	155.792 155.970	155.460 155.062	155.460 155.062
17+520			156.148 157.201	155.834 156.132	155.834 156.132	155.498 155.109	155.498 155.109
17+540			156.171 157.213	155.876 156.026	155.876 156.026	155.536 155.155	155.536 155.155
17+560			156.122 157.225	155.879 155.775	155.879 155.775	155.574 155.202	155.574 155.202
17+580			156.095 157.237	155.847 155.705	155.847 155.705	155.612 155.249	155.612 155.249
17+600			156.150 157.249	155.815 155.753	155.815 155.753	155.650 155.295	155.650 155.295
17+620			156.118 157.268	155.755 155.715	155.755 155.715	155.689 155.414	155.689 155.414
17+640			156.212 157.297	155.903 155.933	155.903 155.933	155.727 155.538	155.727 155.538
17+660			156.300 157.336	156.054 156.183	156.054 156.183	155.765 155.662	155.765 155.662
17+680			156.405 157.379	156.255 156.382	156.255 156.382	156.010 155.786	156.010 155.786
17+700			156.604 157.423	156.561 156.383	156.561 156.383	156.305 155.910	156.305 155.910
17+720			157.099 157.467	156.935 156.872	156.935 156.872	156.587 156.034	156.587 156.034
17+740			157.139 157.510	156.985 156.882	156.985 156.882	156.587 156.040	156.587 156.040
17+760			156.834 157.521	157.028 156.721	157.028 156.721	156.301 155.913	156.301 155.913
17+780			156.404 157.479	156.662 156.473	156.662 156.473	156.006 155.771	156.006 155.771
17+800			156.203 157.383	156.295 156.141	156.295 156.141	155.710 155.591	155.710 155.591
17+820			156.175 157.232	155.763 156.118	155.763 156.118	155.422 155.410	155.422 155.410
17+840			155.975 157.060	155.753 155.809	155.753 155.809	155.348 155.229	155.348 155.229
17+860			155.920 157.060	155.643 155.601	155.643 155.601	155.274 155.048	155.274 155.048
17+880			155.753 156.715	155.593 155.504	155.593 155.504	155.199 154.867	155.199 154.867
17+900			155.581 156.543	155.543 155.536	155.543 155.536	155.125 154.686	155.125 154.686
17+920			155.712 156.370	155.278 155.608	155.278 155.608	155.051 154.505	155.051 154.505
17+940			154.986 156.198	154.816 155.069	154.816 155.069	154.681 154.324	154.681 154.324
17+960			154.828 156.026	154.715 154.759	154.715 154.759	154.290 154.143	154.290 154.143
17+961							

No.	REVISION	DATE	BY

A2 SCALE 1:2000
A3 SCALE 1:3000

SCALE : 20 10 0 20 40 60 80 100 m
HORIZONTAL 1 : 2000
2 1 0 2 4 6 8 10 m
VERTICAL 1 : 200

CAD FILE: DPPBD_17-18

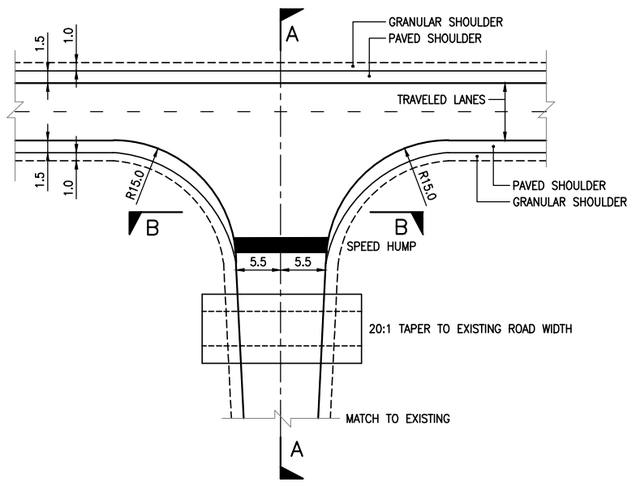
DRAWN:	DIV'S
CHECKED:	SAGAR
DESIGNED:	KARTIK
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR : BAYAD-DHORIDUNGARI (SH-69)
DRAINAGE PLAN PROFILE
STA. 17+000 TO STA. 17+961

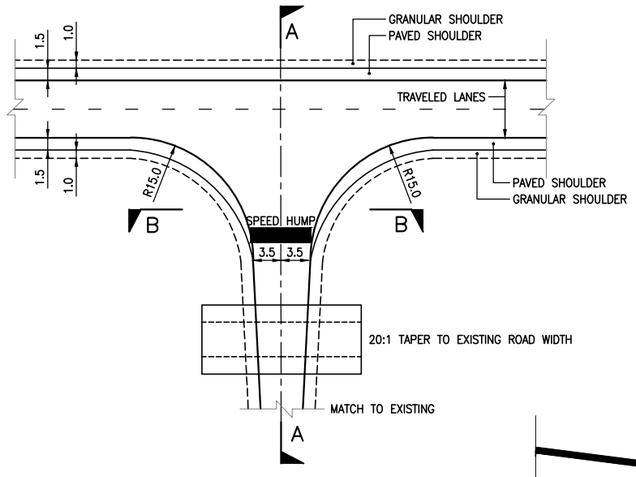
DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/BD/DPP/18	0



TYPE–1

(EXISTING WIDTH>5M)

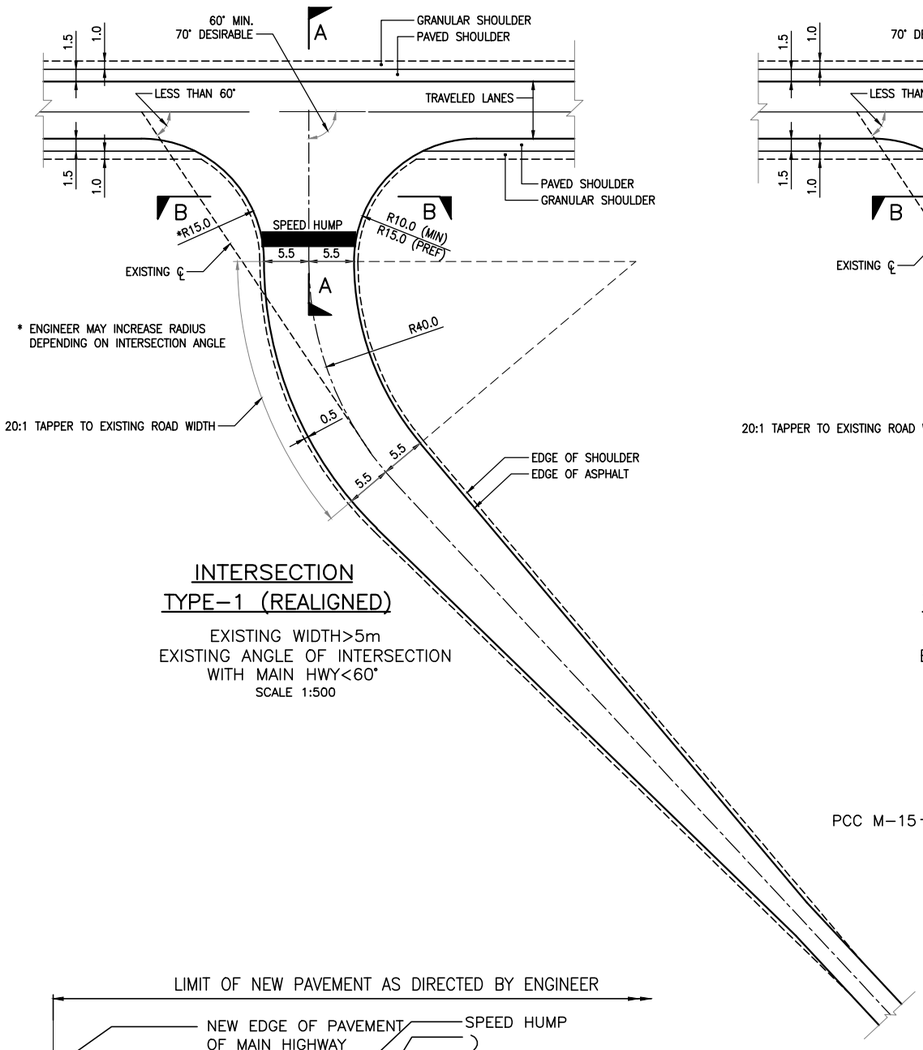
SCALE 1:500



TYPE–2

(EXISTING WIDTH<5M)

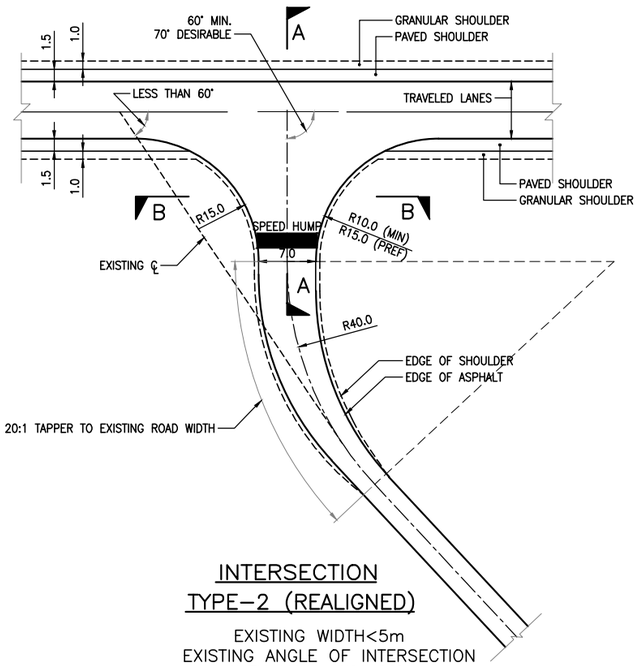
SCALE 1:500



INTERSECTION TYPE–1 (REALIGNED)

EXISTING WIDTH>5m
EXISTING ANGLE OF INTERSECTION WITH MAIN HWY<60°

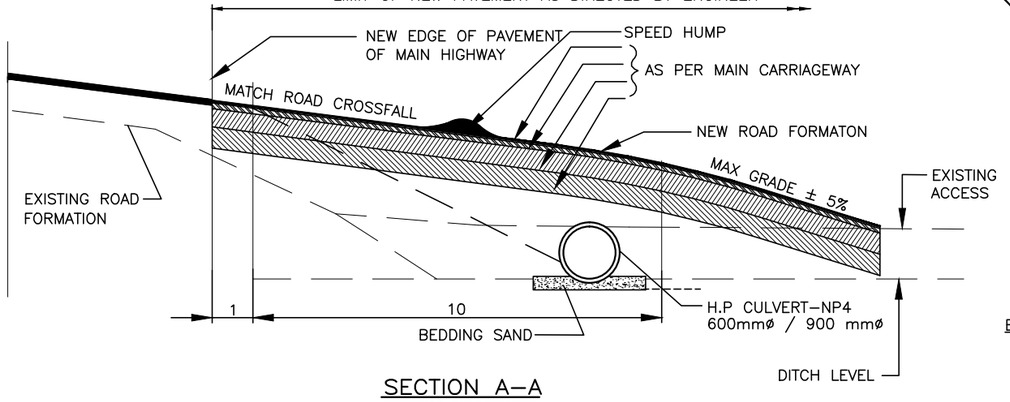
SCALE 1:500



INTERSECTION TYPE–2 (REALIGNED)

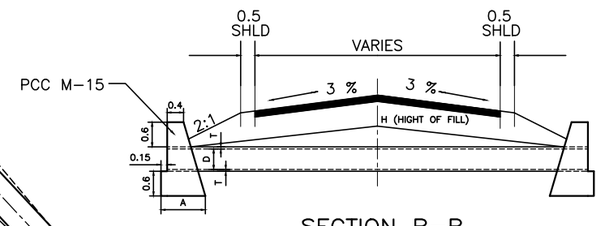
EXISTING WIDTH<5m
EXISTING ANGLE OF INTERSECTION WITH MAIN HWY<60°

SCALE 1:500



SECTION A–A

(NOT TO SCALE)



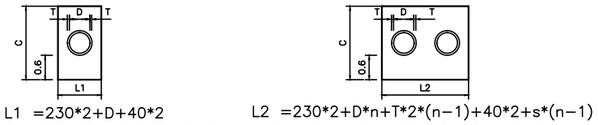
SECTION B–B

NOT TO SCALE

C= D+60+2*T+60
A= 40+(D+2*T+65+60)*0.5+15

Where,
D= DIAMETER OF PIPE IN mm
T=THICKNESS OF PIPE in cm.
n= Number of Pipes
s= Spacing between pipes (50 cm)

TYPICAL DETAIL FOR STRAIGHT HEAD WALL



L1 =230*2+D+40*2
END ELEVATION FOR SINGLE PIPE

L2 =230*2+D*n+T*2*(n–1)+40*2+s*(n–1)
END ELEVATION FOR DOUBLE PIPE

(NOT TO SCALE)

NOTE:–
1. ALL DIMENSIONS ARE IN METER. UNLESS OTHERWISE SPECIFIED.
2. MINIMUM CUSHION FOR CULVERT–300mm. ON ACCESS ROAD.

No.	REVISION	DATE	BY

SCALE :
A2 AS SHOWN
A3 1:750, NTS

CAD FILE: MD–01

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

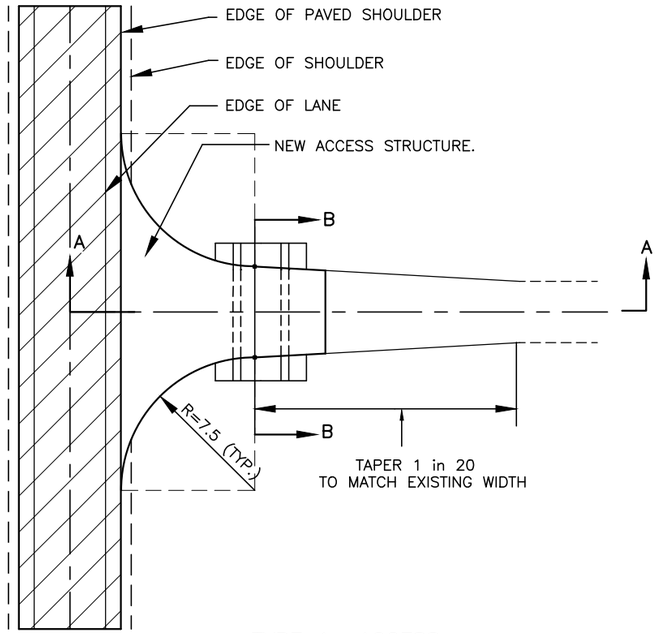
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

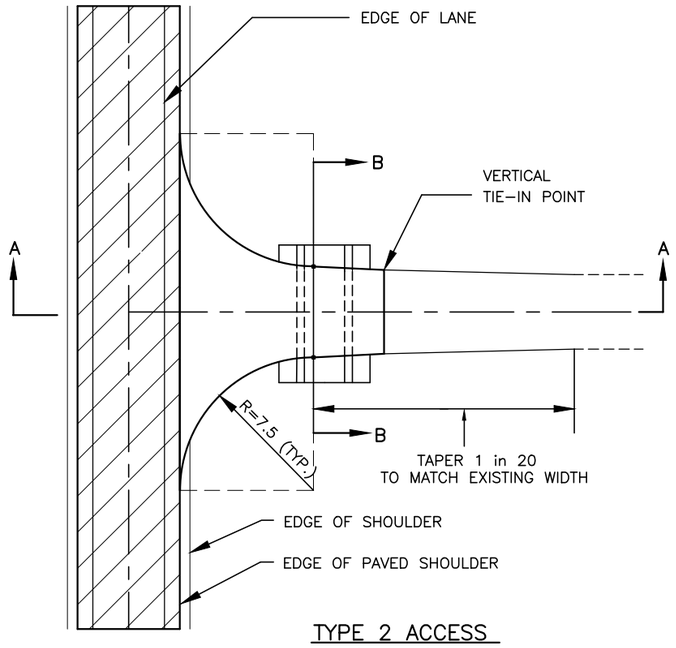
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
INTERSECTION LAYOUT (TYPICAL)

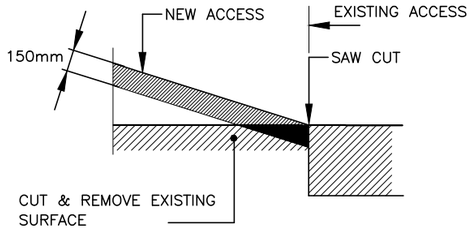
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/01	0



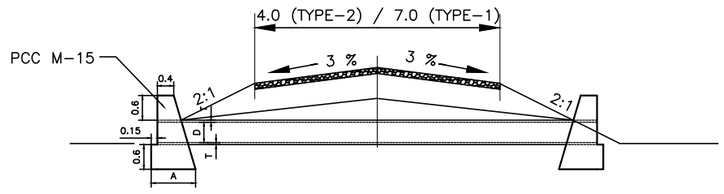
TYPE 1 ACCESS
(INDUSTRIAL/COMMERCIAL ACCESS)



TYPE 2 ACCESS
(LOCAL)

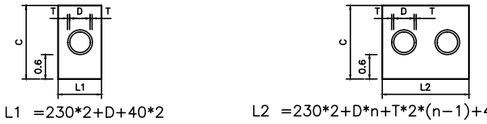


DETAIL 1
TIE–IN



SECTION B–B

TYPICAL DETAIL FOR STRAIGHT HEAD WALL

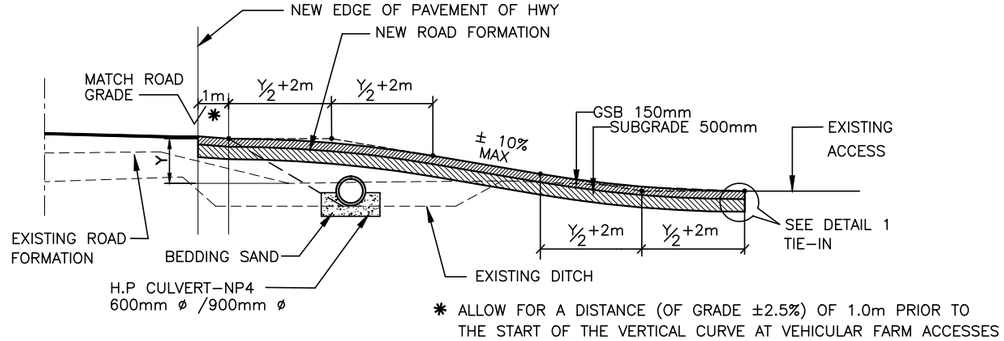


L1 =230*2+D+40*2
END ELEVATION FOR SINGLE PIPE

L2 =230*2+D*n+T*2*(n–1)+40*2+s*(n–1)
END ELEVATION FOR DOUBLE PIPE

C= D+60+2*T+60
A= 40+(D+2*T+65+60)*0.5+15

Where,
D= DIAMETER OF PIPE IN cm
T=THICKNESS OF PIPE in cm.
n= Number of Pipes
s= Spacing between pipes (50 cm)



✱ ALLOW FOR A DISTANCE (OF GRADE ±2.5%) OF 1.0m PRIOR TO THE START OF THE VERTICAL CURVE AT VEHICULAR FARM ACCESSES

SECTION A–A ACCESS PROFILE

NOTE:–
1. ALL DIMENSIONS ARE IN METER. UNLESS OTHERWISE SPECIFIED.
2. MINIMUM CUSHION FOR CULVERT–300mm. ON ACCESS ROAD.
3. TEMPORARY ACCESS CULVERT TO BE LAID IN DITCH WITHOUT HEADWALL AND WITHOUT BEDDING.
4. ACCESS LOCATION ARE APPROXIMATE, STATION MAY BE NECESSARY TO ADJUST THE LOCATION TO SUIT FIELD CONDITIONS.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE
CAD FILE: MD–02

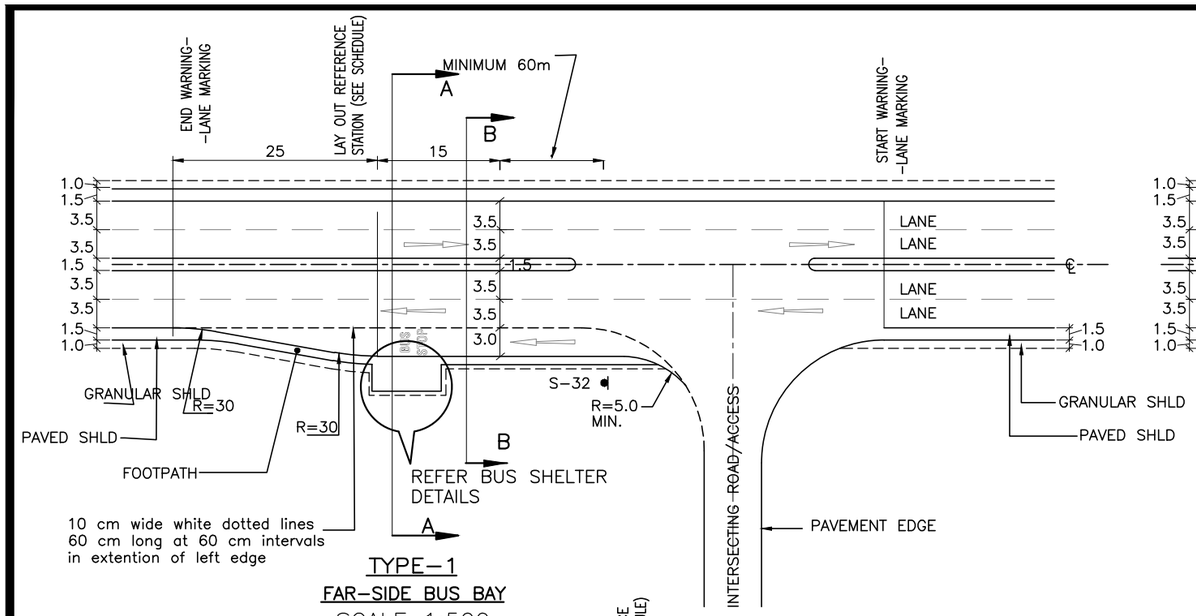
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

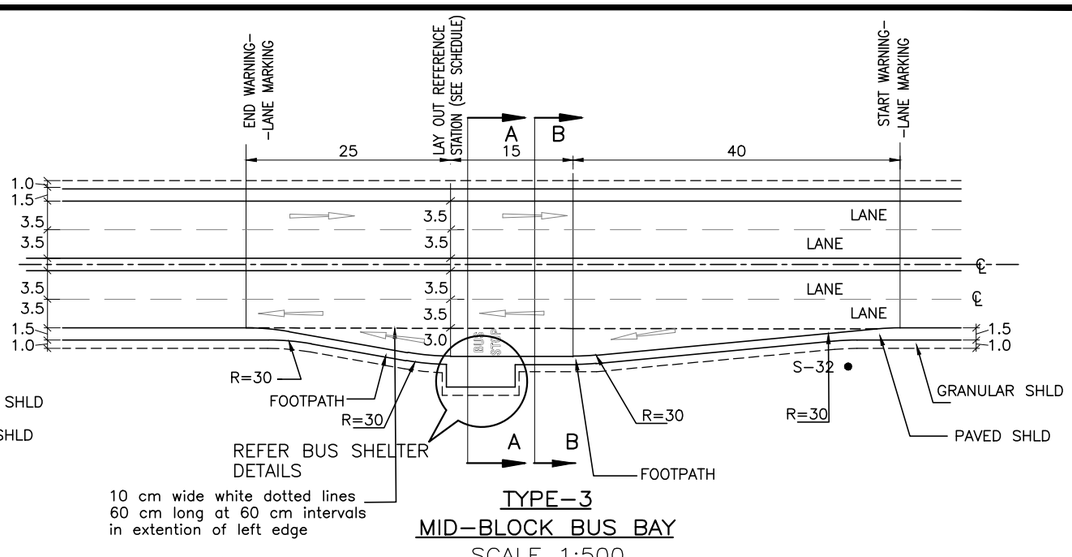
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
ACCESS LAYOUT (TYPICAL)

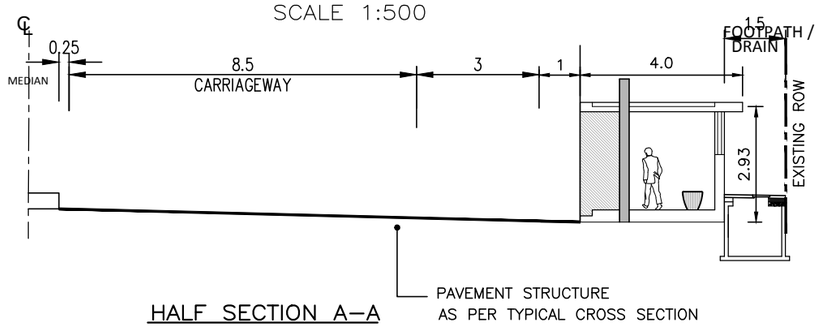
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/02	0



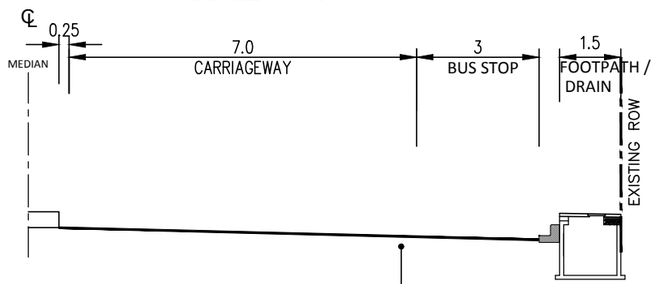
TYPE–1
FAR–SIDE BUS BAY
SCALE 1:500



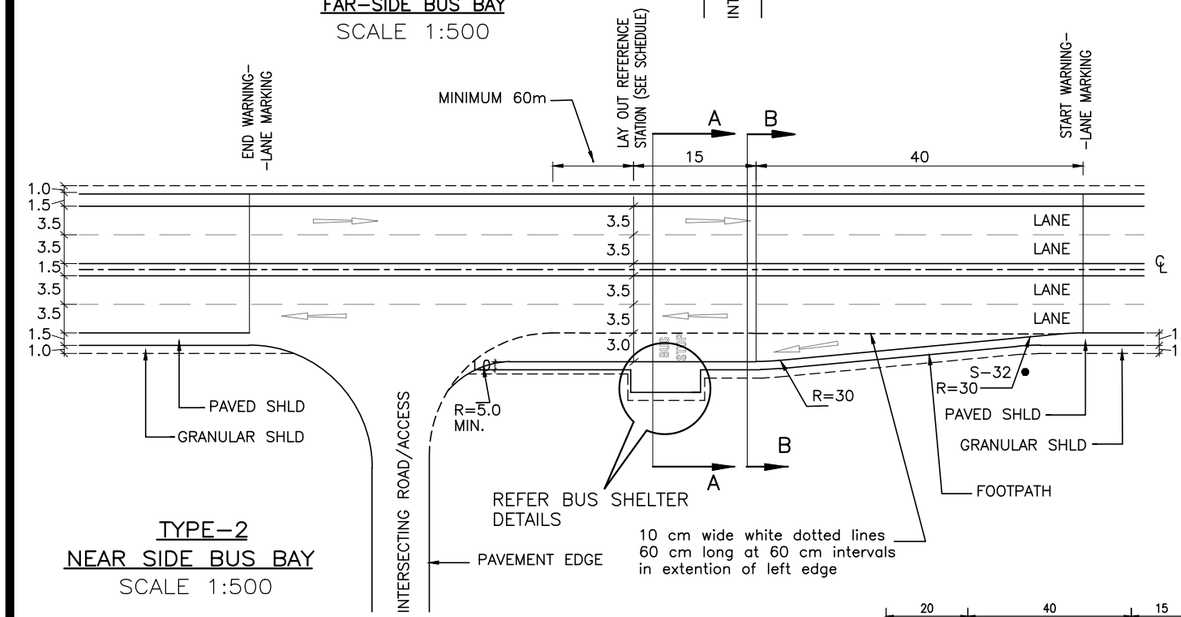
TYPE–3
MID–BLOCK BUS BAY
SCALE 1:500



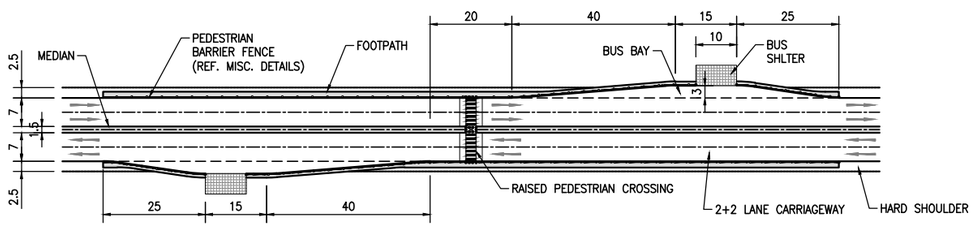
HALF SECTION A–A
SCALE 1:100



HALF SECTION B–B
SCALE 1:100



TYPE–2
NEAR SIDE BUS BAY
SCALE 1:500



BOTH SIDE BUS BAY (STAGGERED) LAYOUT PLAN FOR 4 LANE ROAD

NOTES:
1. ALL DIMENSIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. BUS SHELTERS TO BE LOCATED TO SUIT FIELD CONDITIONS.
3. IF DRAIN/DITCH CONTINUITY IS NOT POSSIBLE PROVIDE 900MM DIA. NP–3 CULVERT.

No.	REVISION	DATE	BY

SCALE :
A2 AS SHOWN
A3 1:750, 1:150

CAD FILE: MD–03A

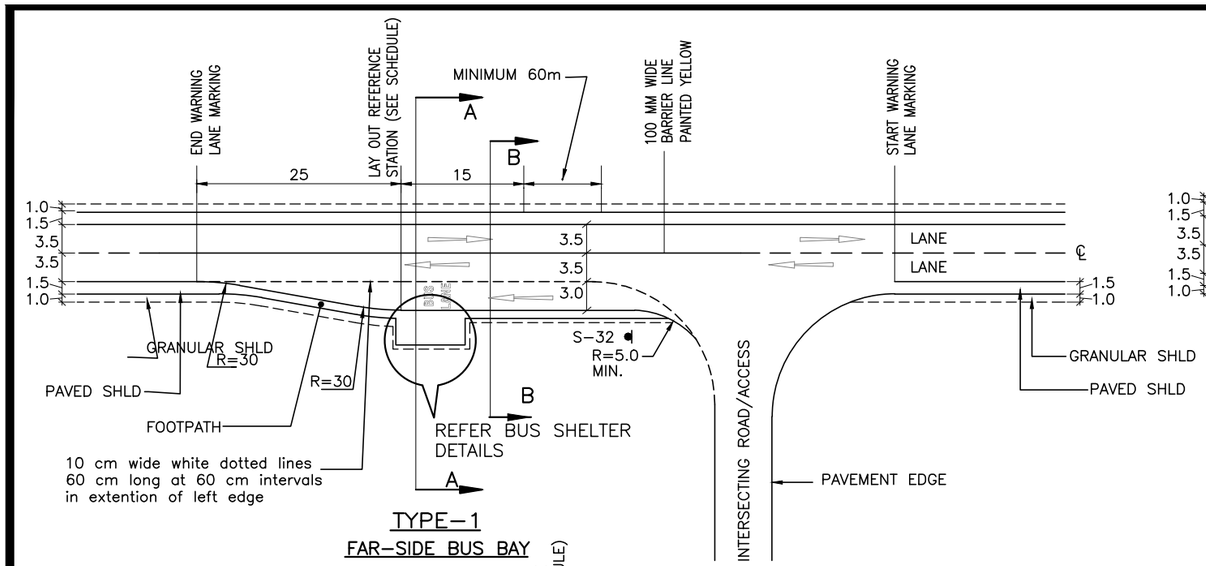
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

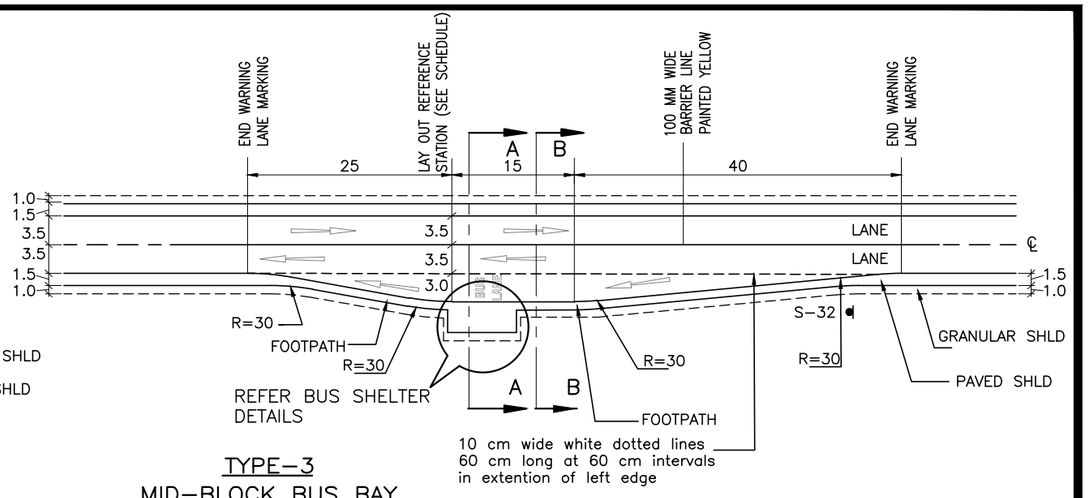
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
BUS BAYS (4LANE)

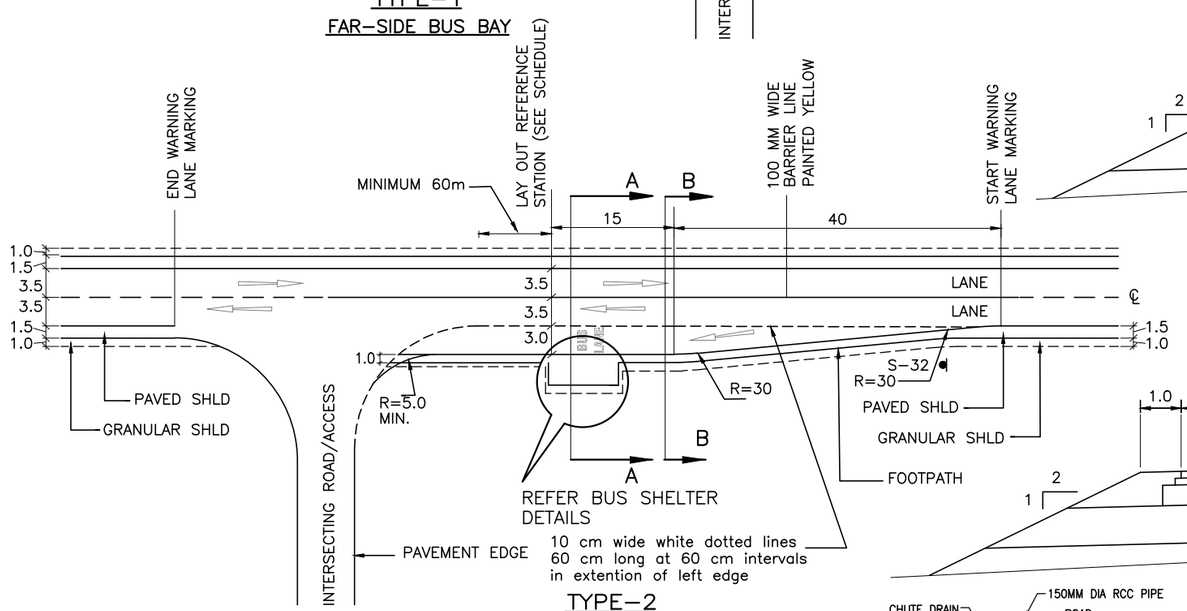
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/03A	0



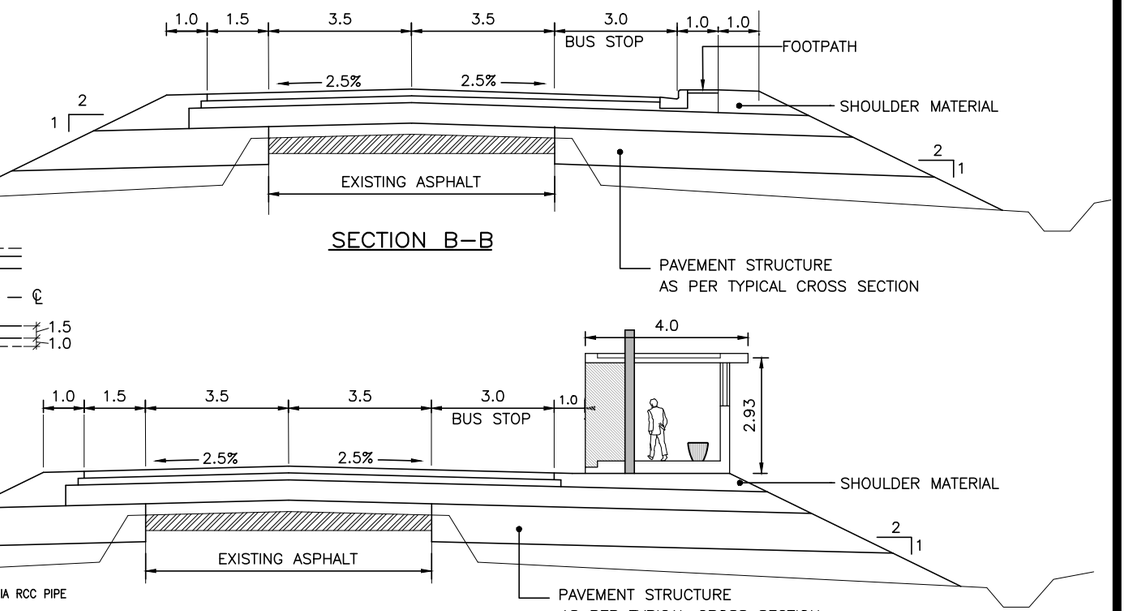
TYPE–1
FAR–SIDE BUS BAY



TYPE–3
MID–BLOCK BUS BAY

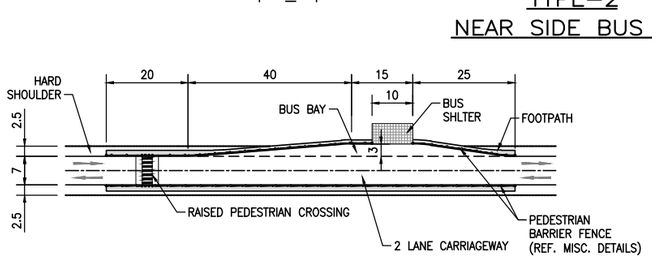


TYPE–2
NEAR SIDE BUS BAY

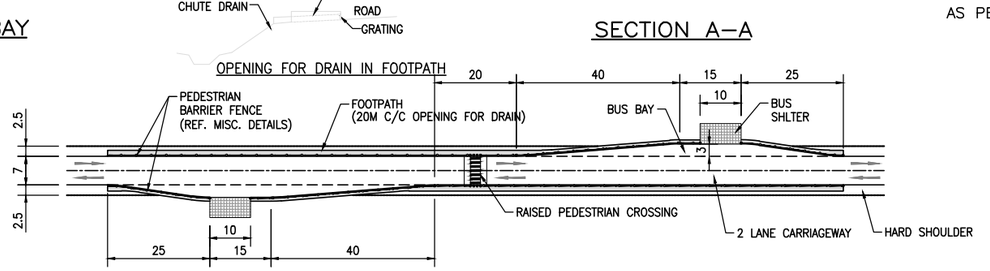


SECTION B–B

SECTION A–A



ONE SIDE BUS BAY LAYOUT PLAN FOR 2 LANE ROAD



BOTH SIDE BUS BAY (STAGGERED) LAYOUT PLAN FOR 2 LANE ROAD

NOTES:
1. ALL DIMENSIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. BUS SHELTERS TO BE LOCATED TO SUIT FIELD CONDITIONS.
3. IF DRAIN/DITCH CONTINUITY IS NOT POSSIBLE PROVIDE 900MM DIA. NP–3 CULVERT.

No.	REVISION	DATE	BY

SCALE :
A2 AS SHOWN
A3 1:750, 1:150

CAD FILE: MD–03

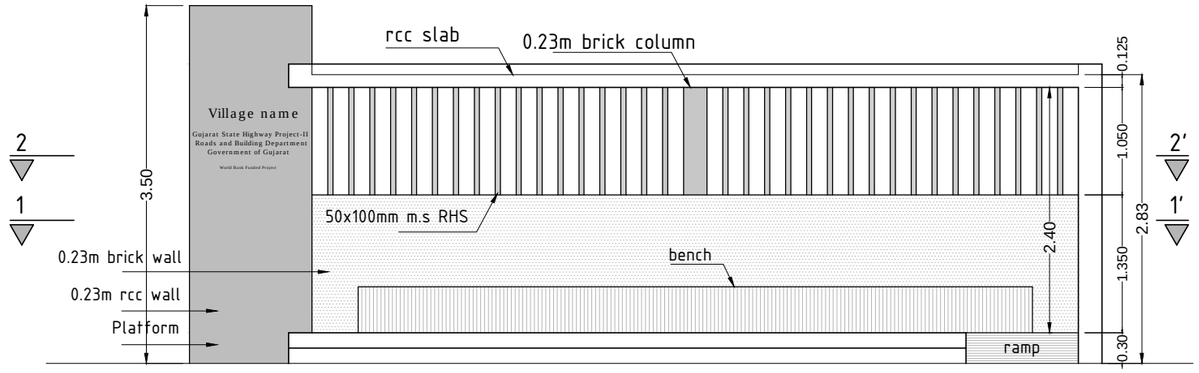
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

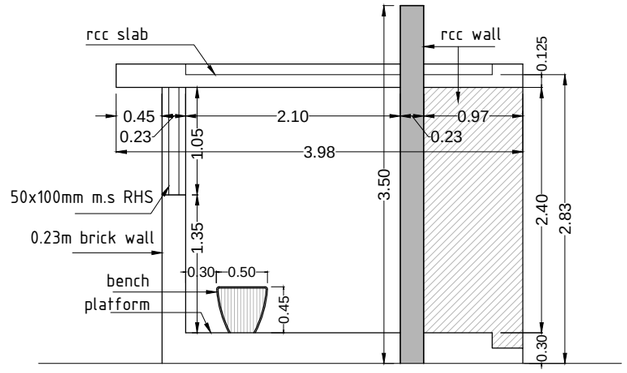
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS BUS BAYS (2LANE)

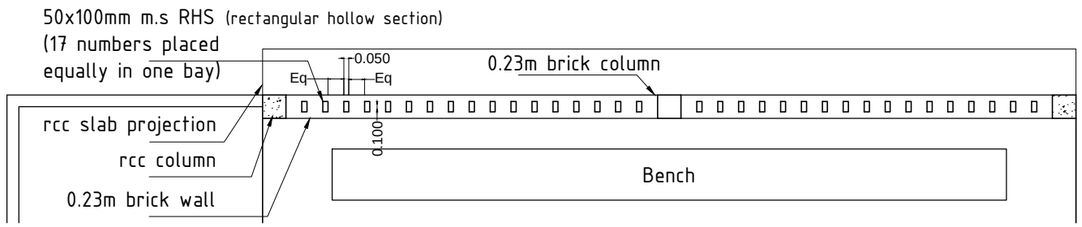
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/03	0



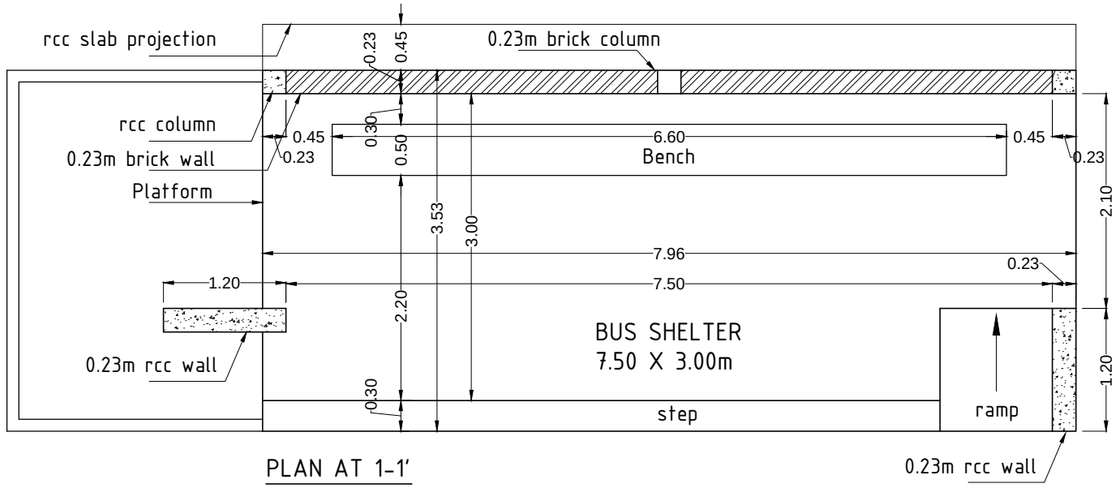
FRONT ELEVATION



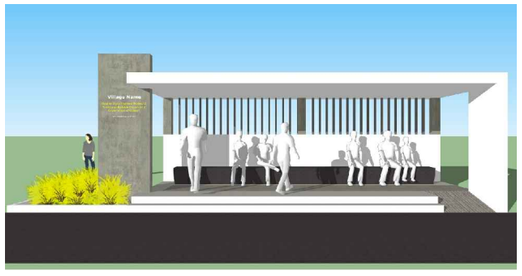
SIDE ELEVATION

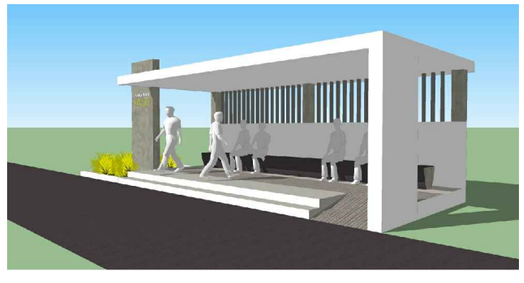


PLAN AT 2-2'



PLAN AT 1-1'





No.	REVISION	DATE	BY

SCALE :
A2 SCALE:– 1 : 40
A3 SCALE:– 1 : 60

CAD FILE: MD–04

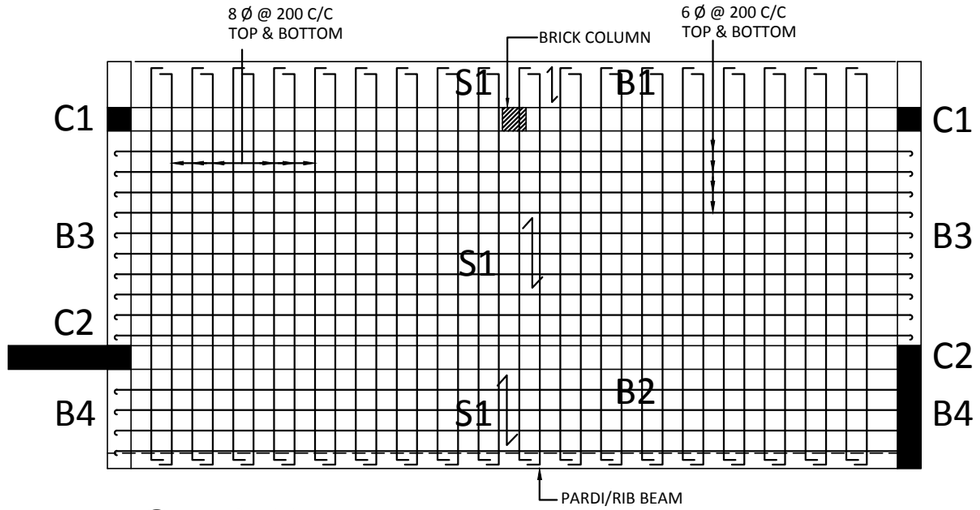
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

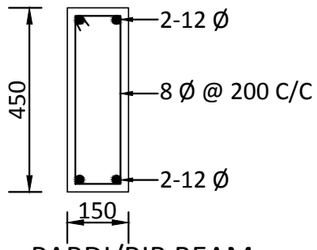
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
BUS SHELTER

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/04	0



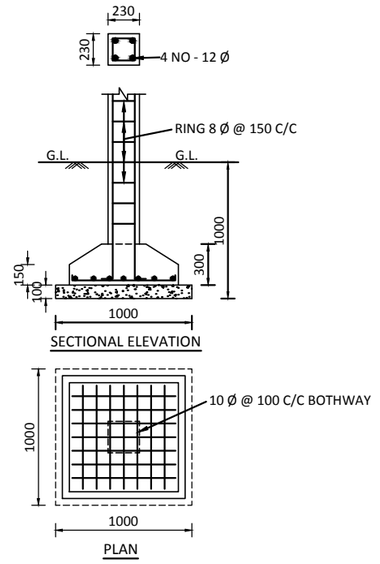
LAYOUT PLAN
SCALE: 1:40



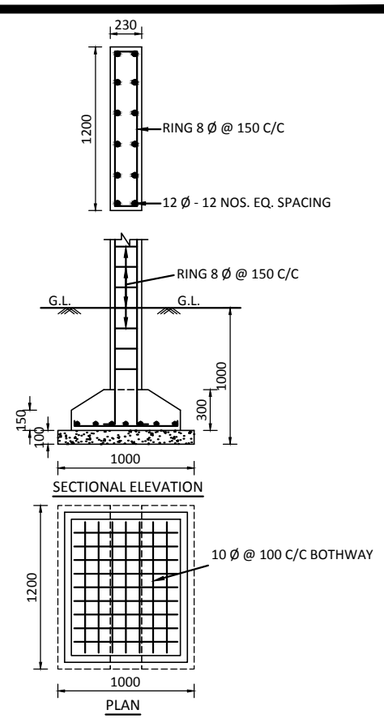
PARDI/RIB BEAM
SCALE: 1:10

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER.
2. CONCRETE MIX SHALL BE M-20.
3. TMT BAR FE-415 SHALL BE USED.
4. ALL DIMENSIONS ARE IN MM EXCEPT UNLESS STATED
5. S.B.C. SHALL NOT LESS THAN_____
6. COVER 40 mm BEAM, COLUMN AND FOOTING SLAB : 12 mm
7. SLAB THICKNESS 80mm
8. Ø SHOWS DIA OF BAR



DETAIL OF CALUMN & FOOTING -C1
SCALE: 1:30

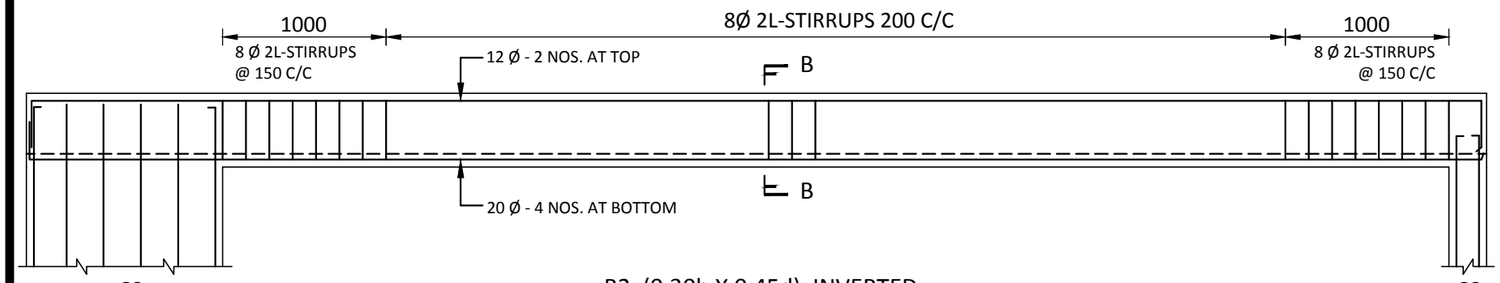


DETAIL OF CALUMN & FOOTING -C2

SECTION-AA

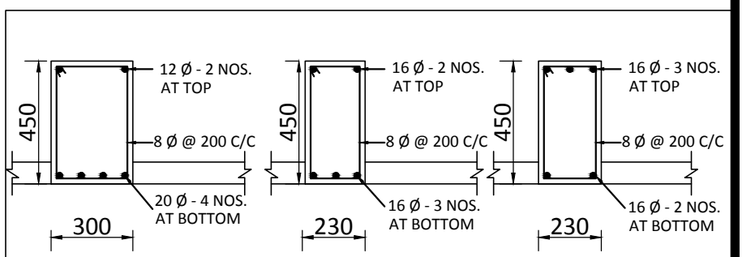
B1 (0.23b X 0.45d) INVERTED

B3-B4 (0.23b X 0.45d) INVERTED



B2 (0.30b X 0.45d) INVERTED

BEAM DETAIL
SCALE: 1:25



SCALE: 1:15

No.	REVISION	DATE	BY

SCALE :
A2 SCALE:– 1 : 10,25,30,40
A3 SCALE:– 1 : 15,37.5,45,60

CAD FILE: MD–05

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

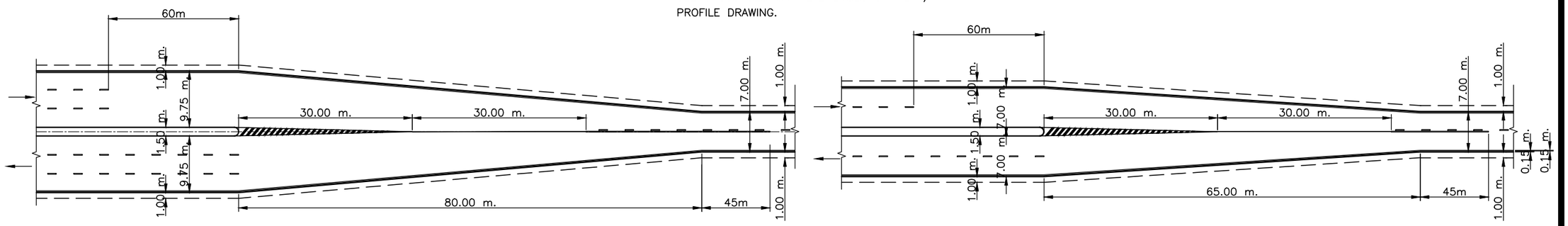
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

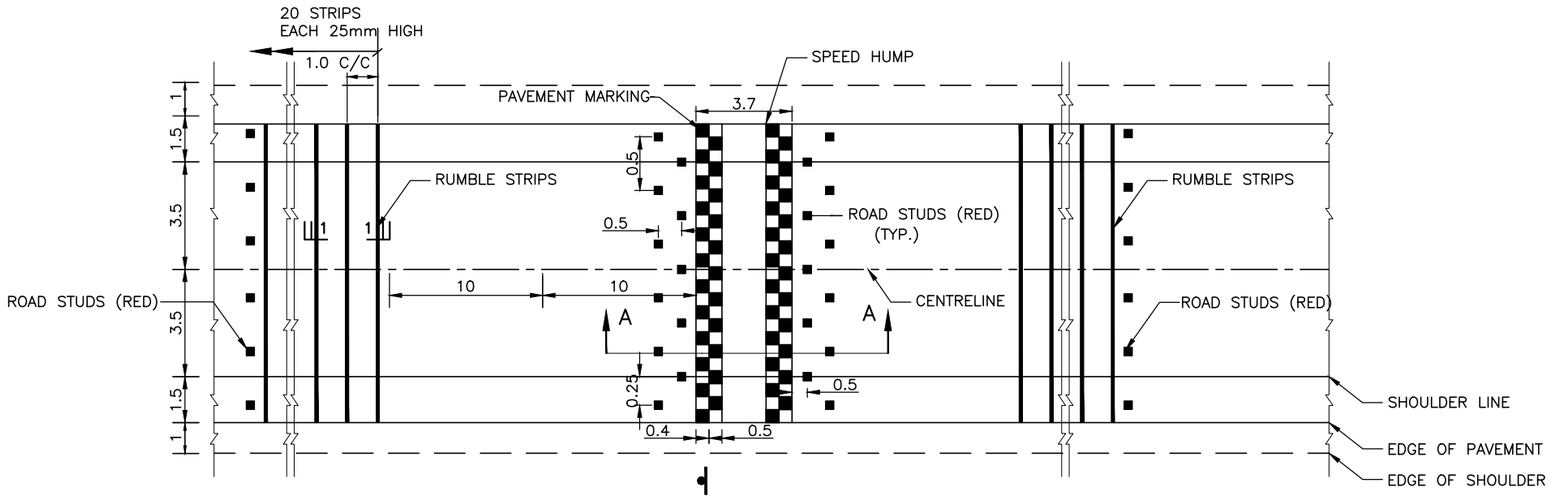
MISCELLANEOUS DETAILS
REINFORCEMENT DETAILS OF BUS SHELTER

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/05	0

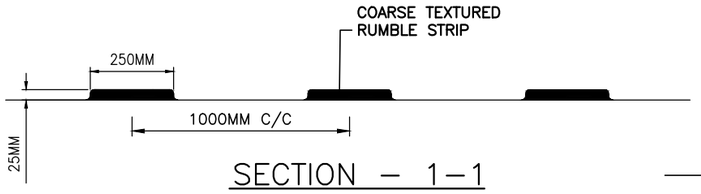
NOTES:– MEDIAN AND SHOULDER WIDTHS MAY VARY.
SEE CROSS SECTION REFERENCES ON PLAN/
PROFILE DRAWING.



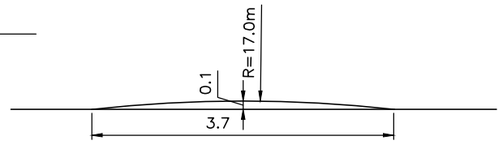
TRANSITION DETAIL



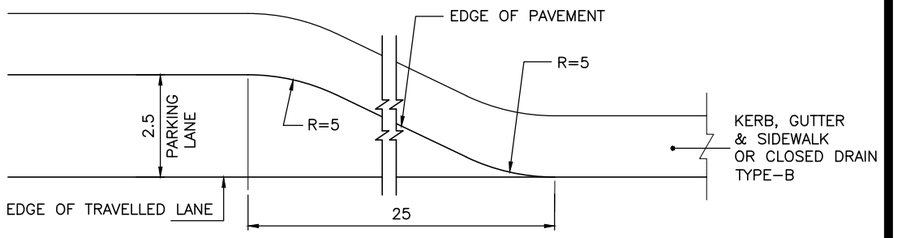
SPEED HUMP
RUMBLE STRIPS



SECTION – 1–1
RUMBLE STRIPS



SECTION A–A



PARKING LANE TERMINATION

NOTES:
1. ALL DIMENSIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. SHOULDER WITH VARIES AS PER TYPICAL SECTIONS.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD–06–R1

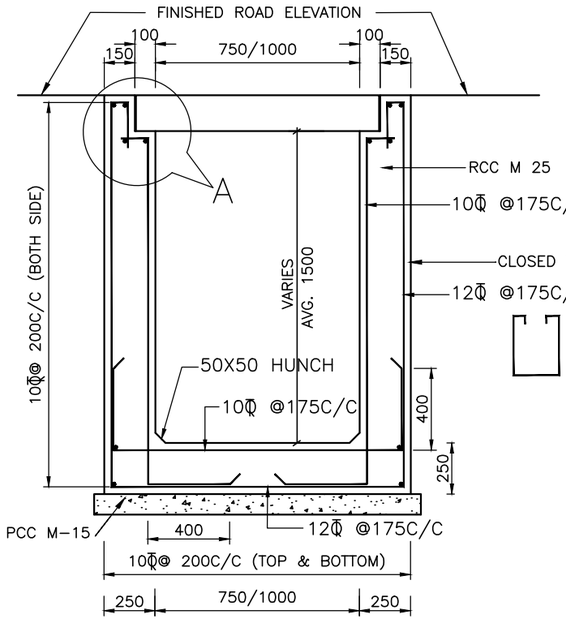
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

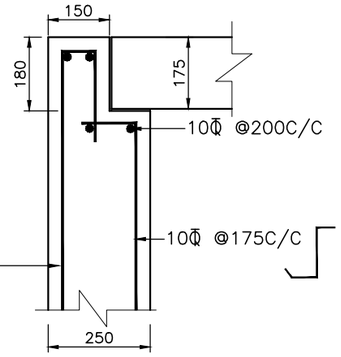
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
TRANSITION/SPEED BUMP/PARKING LANE/RUMBLE STRIPS

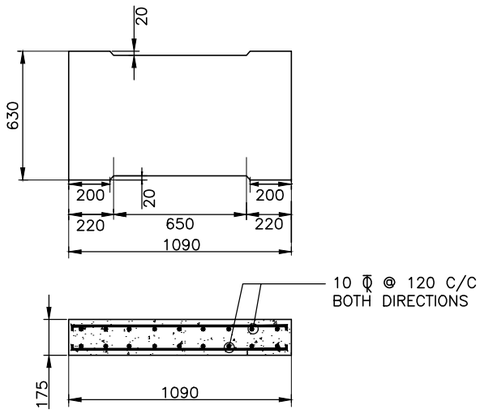
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/06	0



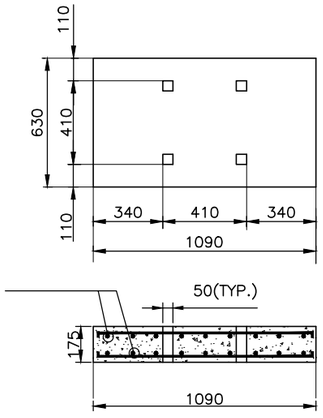
CLOSED DRAIN
DRAIN TYPE–A
SCALE – 1:20



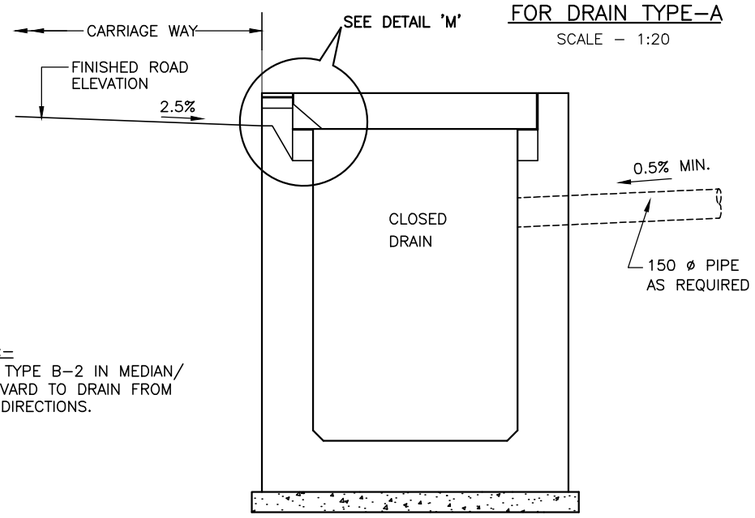
DETAIL 'A'
SCALE – 1:10



GRATE COVER
FOR DRAIN TYPE–A
SCALE – 1:20

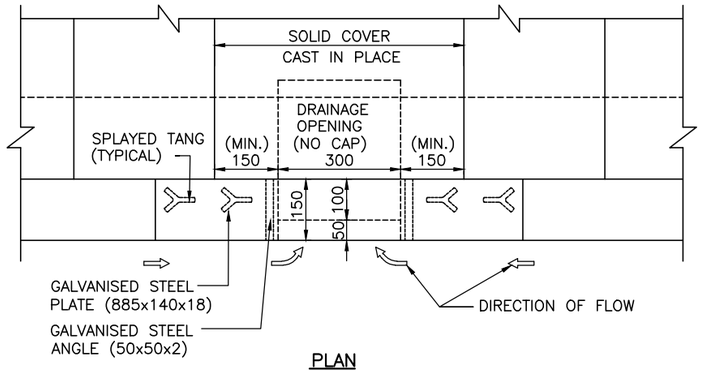


SOLID COVER
FOR DRAIN TYPE–B
SCALE – 1:20



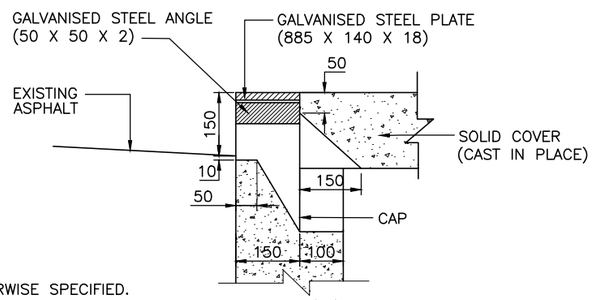
NOTES:–
DRAIN TYPE B–2 IN MEDIAN/ BOULEVARD TO DRAIN FROM BOTH DIRECTIONS.

DRAIN TYPE–B
SCALE – 1:20

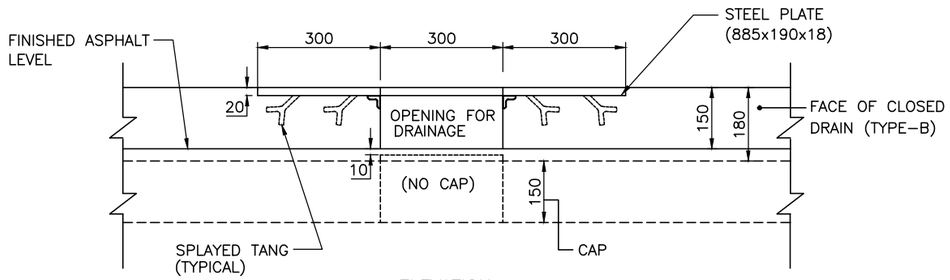


PLAN

DRAINAGE OPENING DETAIL FOR CLOSED DRAIN TYPE–B
SCALE – 1:10



DETAIL 'M'
SCALE – 1:10



ELEVATION

DRAINAGE OPENING DETAIL FOR CLOSED DRAIN TYPE–B
SCALE – 1:10

NOTES:–
(1) GRADE OF CONCRETE IS M25.
(2) ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
(3) GRATE COVER FOR DRAIN TYPE 'A' LOCATON IN ROADS:
4 @ LOW POINTS OF PROFILE
2 @ 10m C/C

No.	REVISION	DATE	BY

SCALE :
A2 AS SHOWN
A3 1:30, 1:15

CAD FILE: MD–07

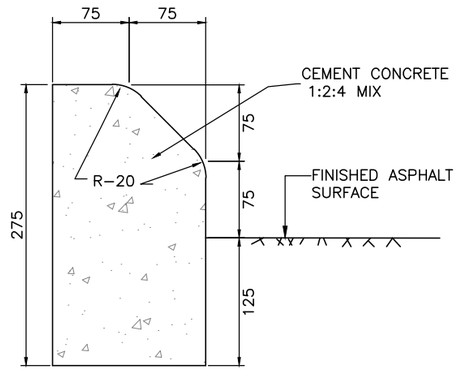
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
CLOSED DRAIN

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/07	0

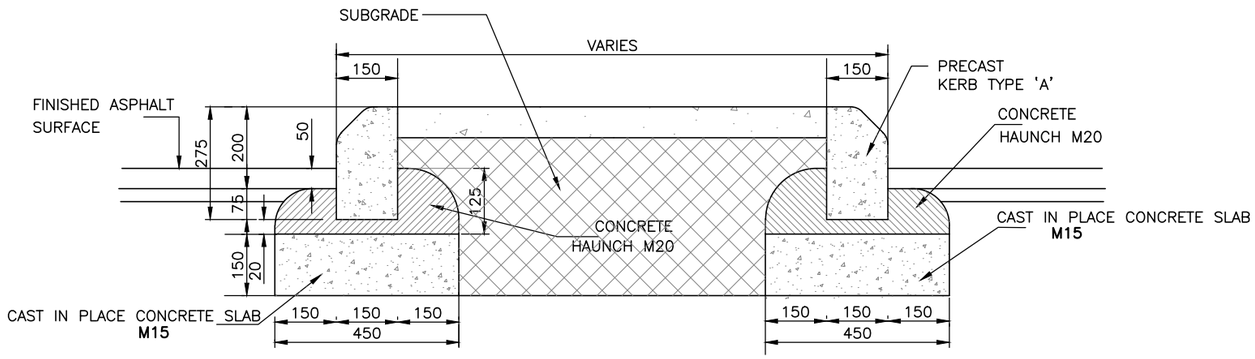


PRECAST KERB "TYPE A"

SACLE – 1:4

NOTE:–

1. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.

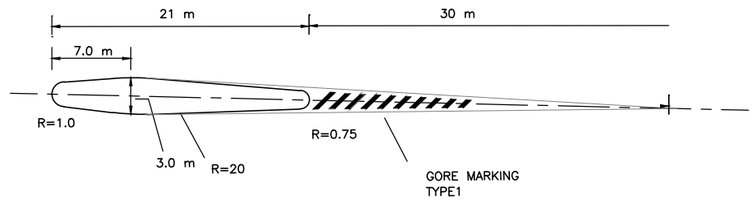


MEDIAN WITH KERB TYPE 'A' SECTION (MEDIAN LESS THAN 1.5 m)

SACLE – 1:10

NOTE:–

1. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.



NOTES
STANDARD PRECAST KERB
STANDARD END TREATMENTS
ISLAND SHAPE TO CONFORM TO ALIGNMENT OF APPROACH ROAD

TYPICAL ISLAND ON APPROACH ROAD

SACLE – NTS

No.	REVISION	DATE	BY

SCALE :
A2 AS SHOWN
A3 1:6, 1:15, NTS

CAD FILE: MD–08

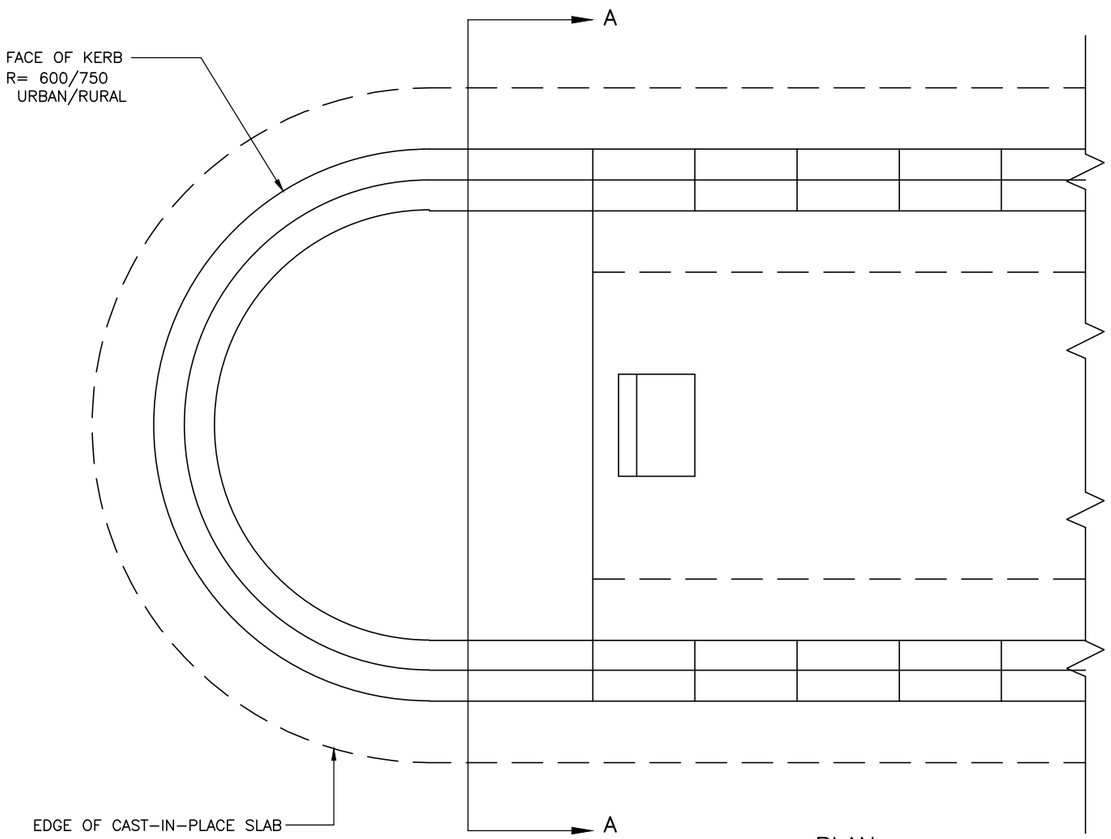
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS
CONSULTANCY SERVICES FOR GSHP–II

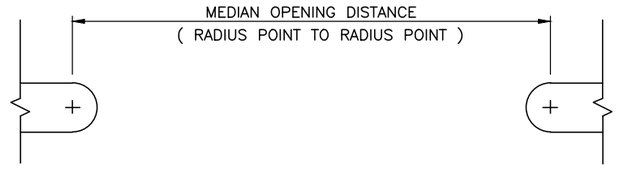
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
KERB/MEDIAN DETAILS

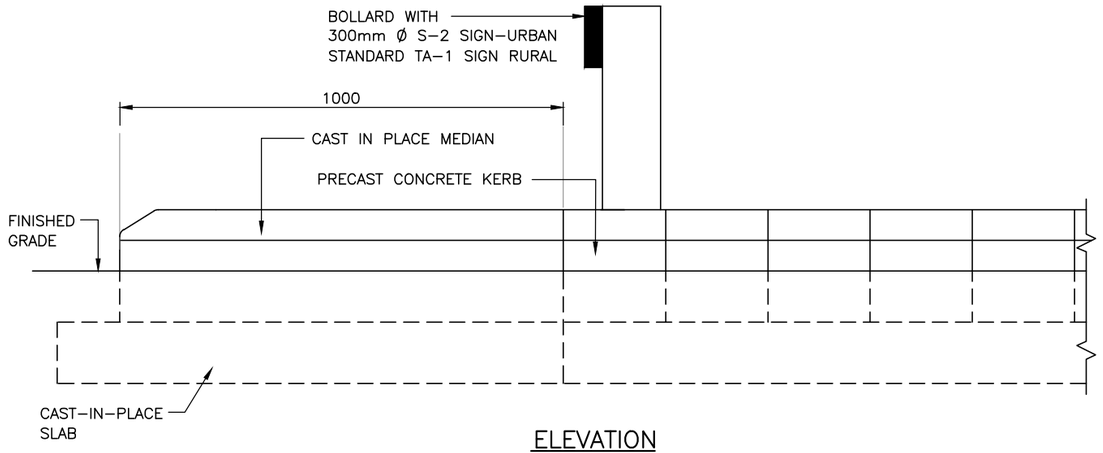
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/08	0



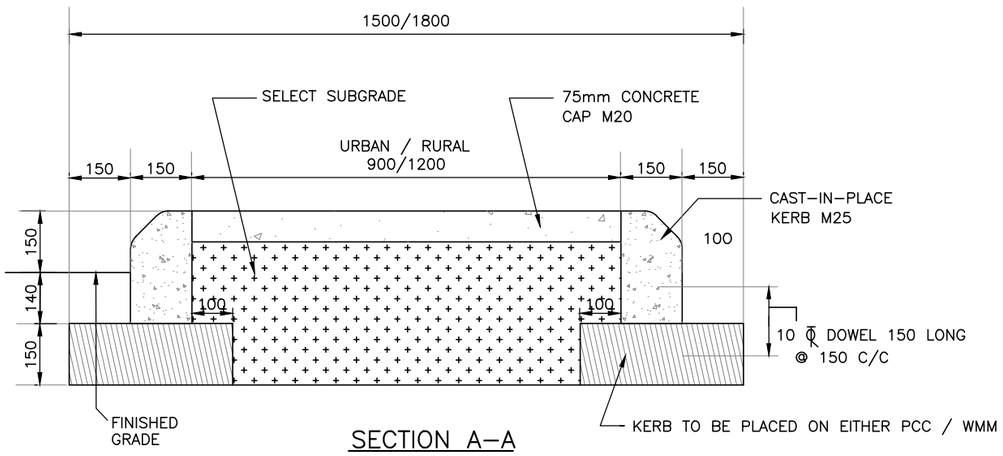
PLAN



URBAN MEDIAN OPENING DETAIL



ELEVATION



SECTION A-A

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD-09

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

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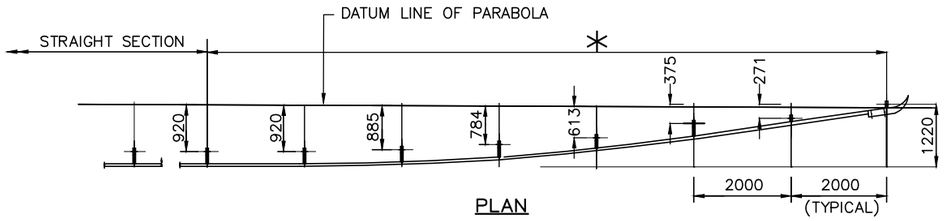
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

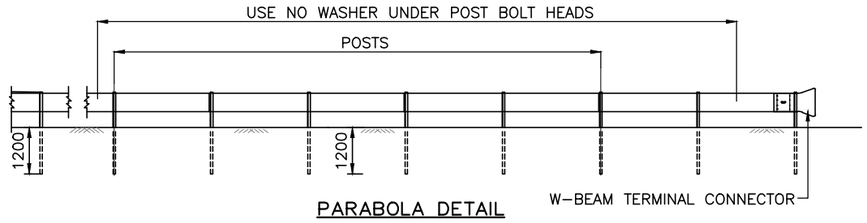
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
MEDIAN & ISLAND END TREATMENT

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/09	0



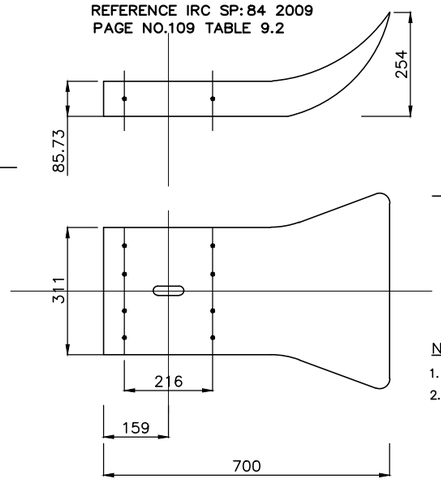
PLAN



PARABOLA DETAIL

SUGGESTED FLARE RATES FOR END TREATMENTS	
DESIGN SPEED (km/hr)	SEMI RIGID
100	13:1
80	11:1
65	9:1
50	7:1

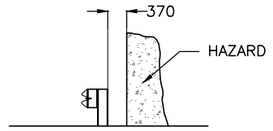
REFERENCE IRC SP:84 2009
PAGE NO.109 TABLE 9.2



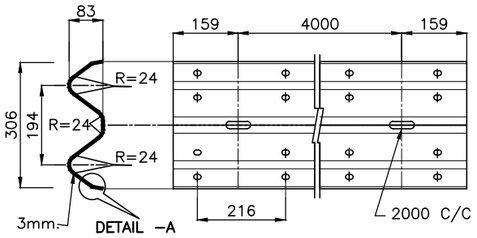
DETAILS OF 'W' BEAM END CONNECTOR

RAIL

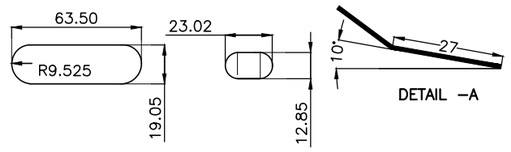
Ixx =1311.0 cm^4
Zxx =86.0cm^3
A =14.1 cm^2
Iyy =105.0 cm^4
Zyy =min.25.0 cm^3
W =11.0kg/m



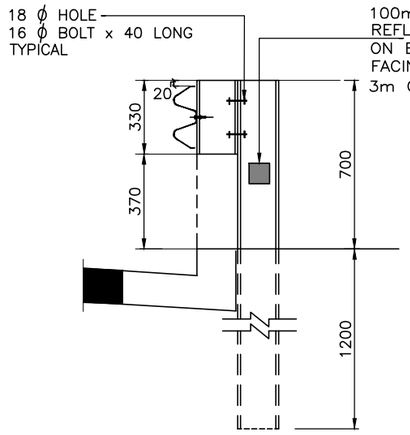
MIN. OFFSET



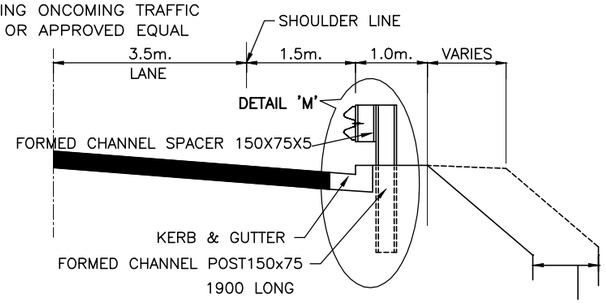
GUIDERAIL



HOLE DETAILS

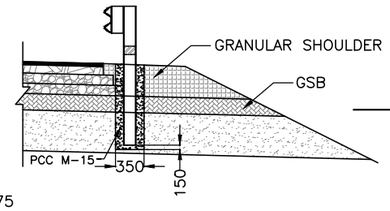


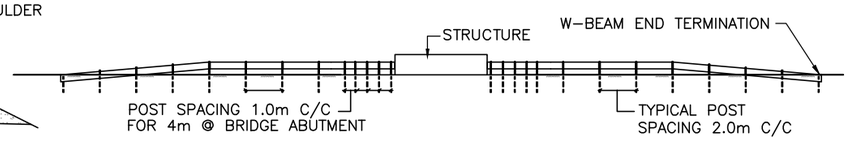
DETAIL AT 'M'



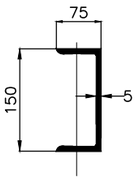
SECTION A-A

WIDENING FOR PARABOLA END TREATMENT MAXIMUM OF 0.820m. @ SECTION B/B



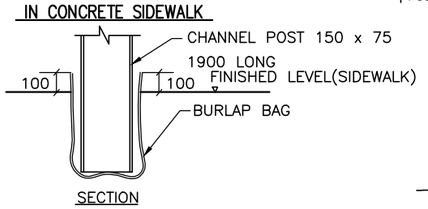


ELEVATION

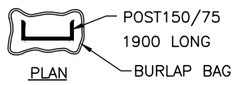


POST

DETAIL INSTALLING GUIDERAIL POST IN CONCRETE SIDEWALK

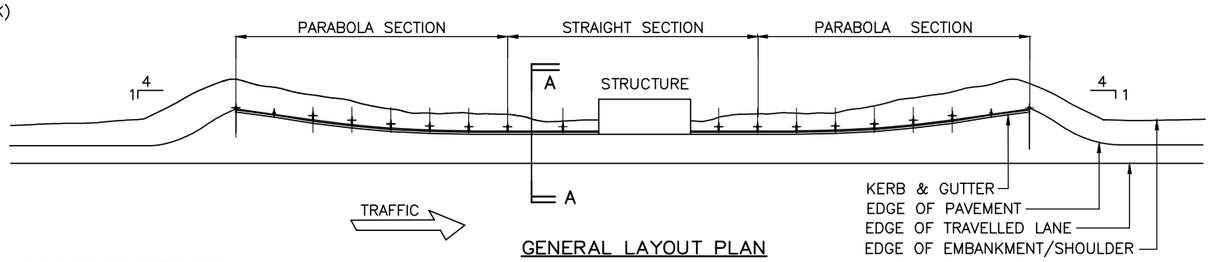


SECTION



PLAN

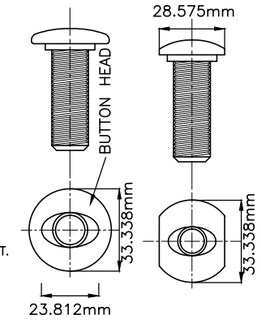
NOTES: WRAP POSTS IN BURLAP BAG TO MINIMUM 100 PAST CONCRETE TOP WHEN INSTALLING IN CONCRETE SIDEWALK



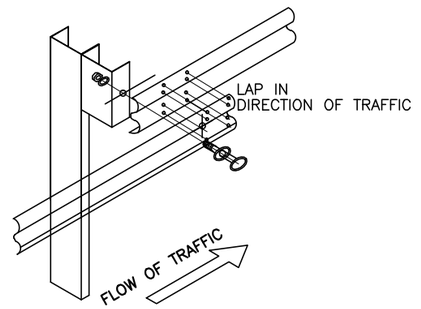
GENERAL LAYOUT PLAN

NOTES FOR THE DRAWING: -

1. ALL DIMENSIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. MECHANICAL PROPERTIES OF THE BASE METAL SHALL CONFIRM THE FOLLOWING:
   (A) TENSILE STRENGTH (MIN) , 483 MPa
   (B) YIELD POINT (MIN) , 345 MPa
   (C) ELONGATION IN INCH (MIN) , 12%
3. BEAM ELEMENTS TO BE FORMED FROM SHEET HAVING NOMINAL WIDTH OF 483mm.
4. BEAM TO BE ERECTED ON RADIUS OF 45m OR LESS SHALL BE SHOP CURVED TO THE APPROPRIATE CURVATURE.
5. ALL MEMBERS SHALL BE HOT DIPPED GALVANIZED TO MIN 550 gms/m2 SINGLE SPOT.
6. BOLTS SHALL BE :
   (A) SPLICE BOLTS : 8 NOS. BUTTON HEAD, M16 * 30mm.
   (B) CONNECTION BOLTS : 3NOS. BUTTON HEAD, M16 * 40 mm.



HIGH TENSILE BOLTS & NUTS
IS-4.6 GRADE



EXPLODED VIEW OF
W BEAM SPLICE / ASSEMBLY

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD-10

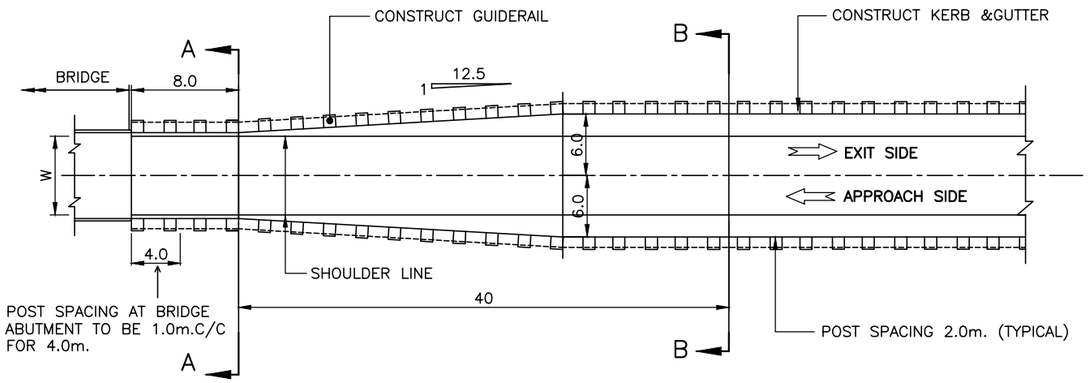
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

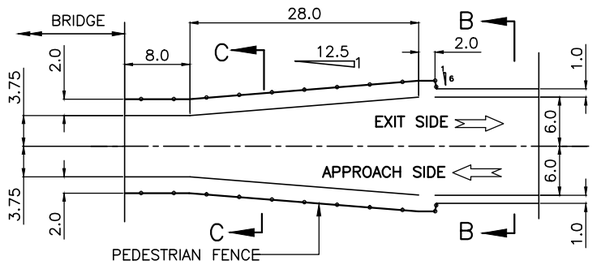
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
GUIDERAIL (SINGLE-BEAM CRASH BARRIER)

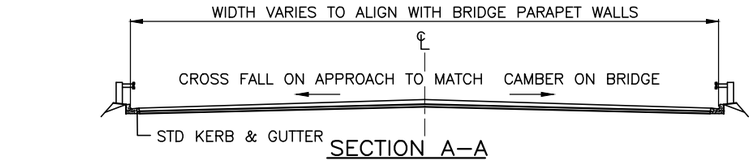
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/10	0



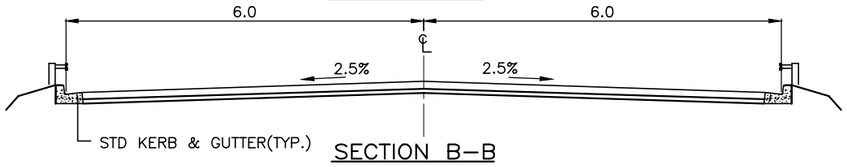
(1) STRUCTURE APPROACH DETAIL WITH NO SW PLAN



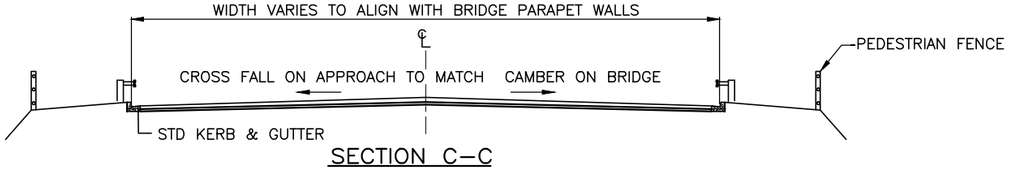
(2) STRUCTURE APPROACH DETAIL WITH SW PLAN



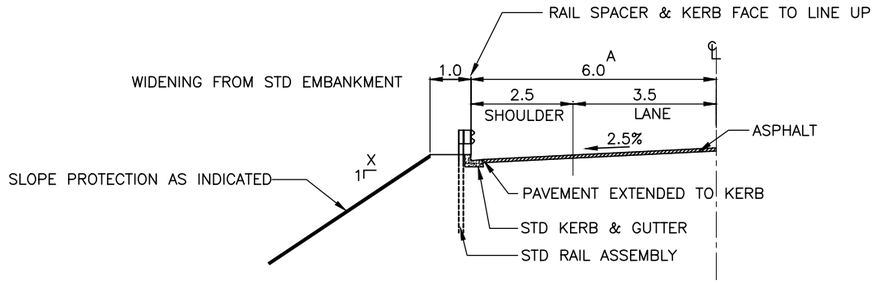
SECTION A–A



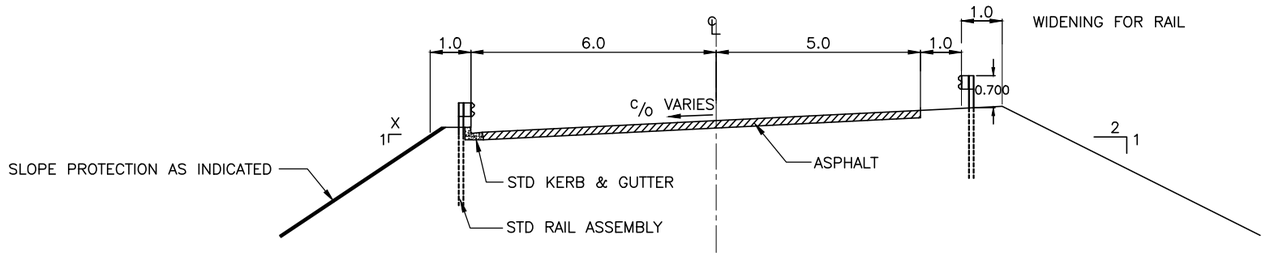
SECTION B–B



SECTION C–C

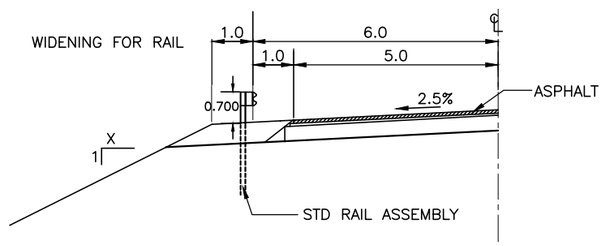


STANDARD RAIL TREATMENT (TYPE 1)



SUPER ELEVATION TREATMENT

SEE NOTE – F



RAIL TREATMENT IN AREAS OF EROSION RESISTANT SOILS(TYPE 2)

NOTES:

A SHORT STRUCTURE ℄ TO KERB FACE =6.0
LONG STRUCTURE ℄ TO KERB FACE TO MATCH BRIDGE(± 3.75m.)

B. SEE PLAN/PROFILE AND SCHEDULE DRAWINGS FOR LIMITS OF KERB & GUIDERAIL

C. MIN. LENGTH OF RAILS (BRIDGE APPROACH) : 60m. ON APPROACH SIDE OF STRUCTURE.
: 32m. ON EXIT SIDE OF STRUCTURE.

D. ROAD TO STRUCTURE CROSS FALL TO BE TRANSITIONED @ 1.0 %/10m.

E. OUTLET CHUTES AND STILLING BASINS TO BE CONSTRUCTED EVERY 25m. ALONG LENGTH OF KERB & GUTTER PLUS AT KERB & GUTTER TERMINALS

F. KERB & GUTTER ONLY TO BE CONSTRUCTED ON LOW SIDE OF ROAD FROM BEGINNING OF CROSS FALL TRANSITION TO THE BRIDGE ABUTMENT.

G. SIDESLOPE (X) TO BE AS PER CROSS SECTION WHERE EMBANKMENTS ARE CONTAINED WITHIN THE RIGHT–OF–WAY
SIDESLOPE (X) TO BE AS PER CROSS SECTION WHERE EMBANKMENTS IMPACT RIGHT–OF–WAY

H. ALL DIMENSIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD–11

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

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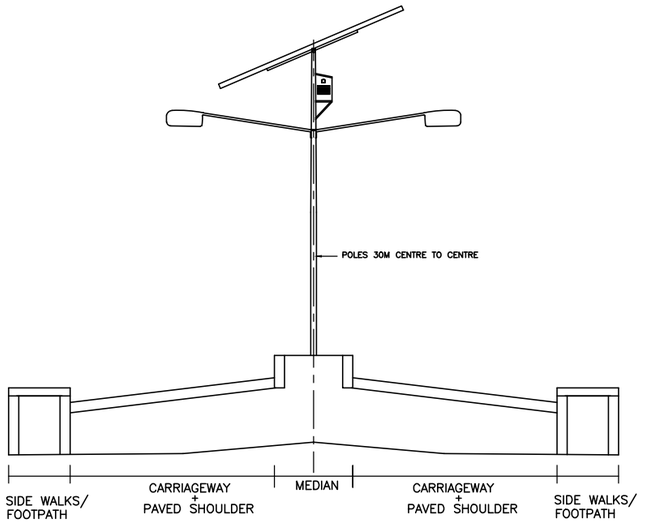
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

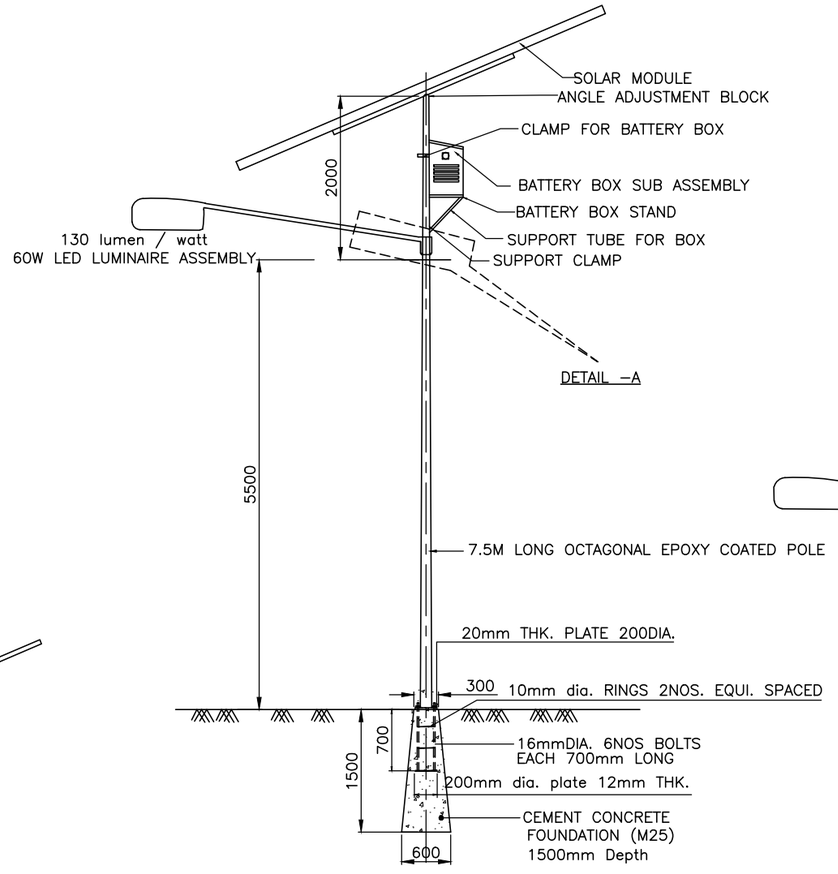
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
GUIDERAIL AND STRUCTURE APPROACH TREATMENT

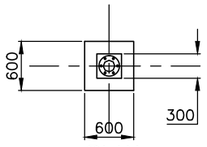
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/11	0



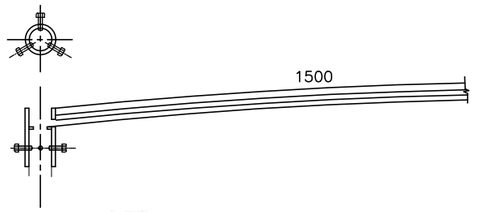
LOCATION OF POLES IN URBAN AREAS IN MEDIAN
SINGLE ARMS



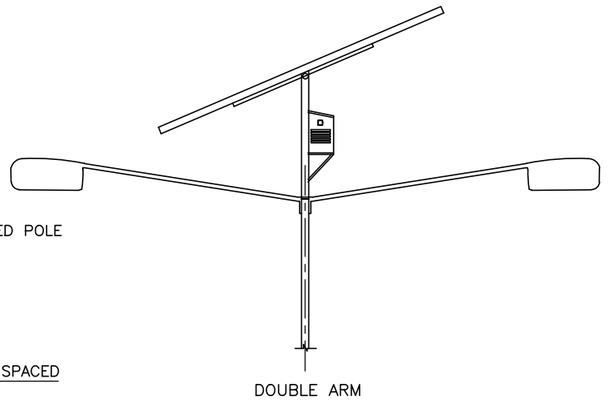
ELEVATION



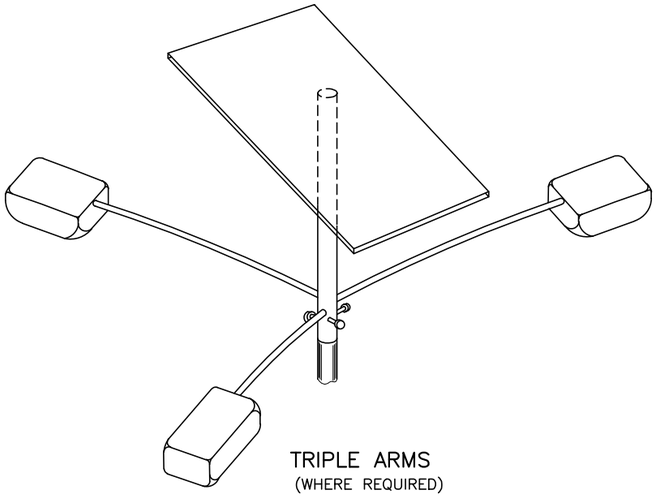
PLAN
SCALE:– 1:50



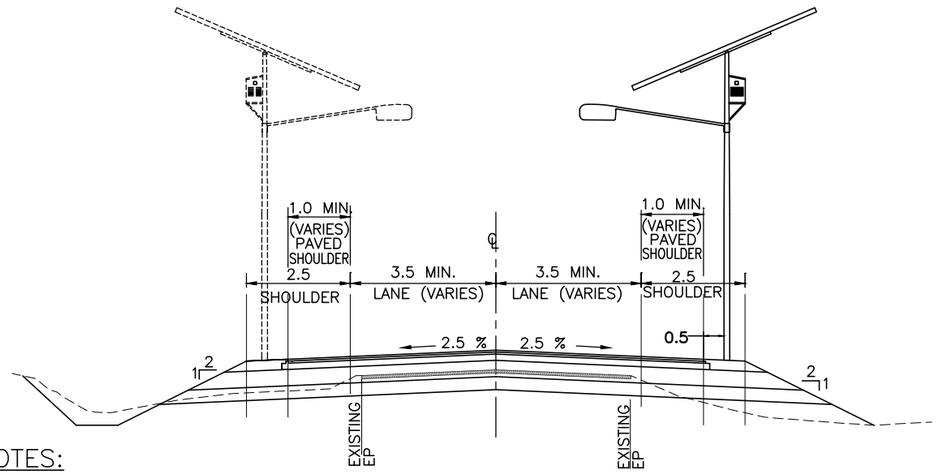
DETAIL –A



DOUBLE ARM



TRIPLE ARMS
(WHERE REQUIRED)



NOTES:

1. TYPICAL ARRANGEMENT OF SOLAR POLE, MAY VARY DEPENDING ON PRODUCTS AVAILABLE IN MARKET.
2. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
3. REMOVE SHARP EDGES & CORNERS BY SCALE.
4. SUITABILITY OF PLACING OF SINGLE DOUBLE AND TRIPLE ARMS IS AS DIRECTED BY THE ENGINEER.

No.	REVISION	DATE	BY

SCALE :
A2 1:50, NTS
A3 1:75, NTS

CAD FILE: MD–12–R1.dwg

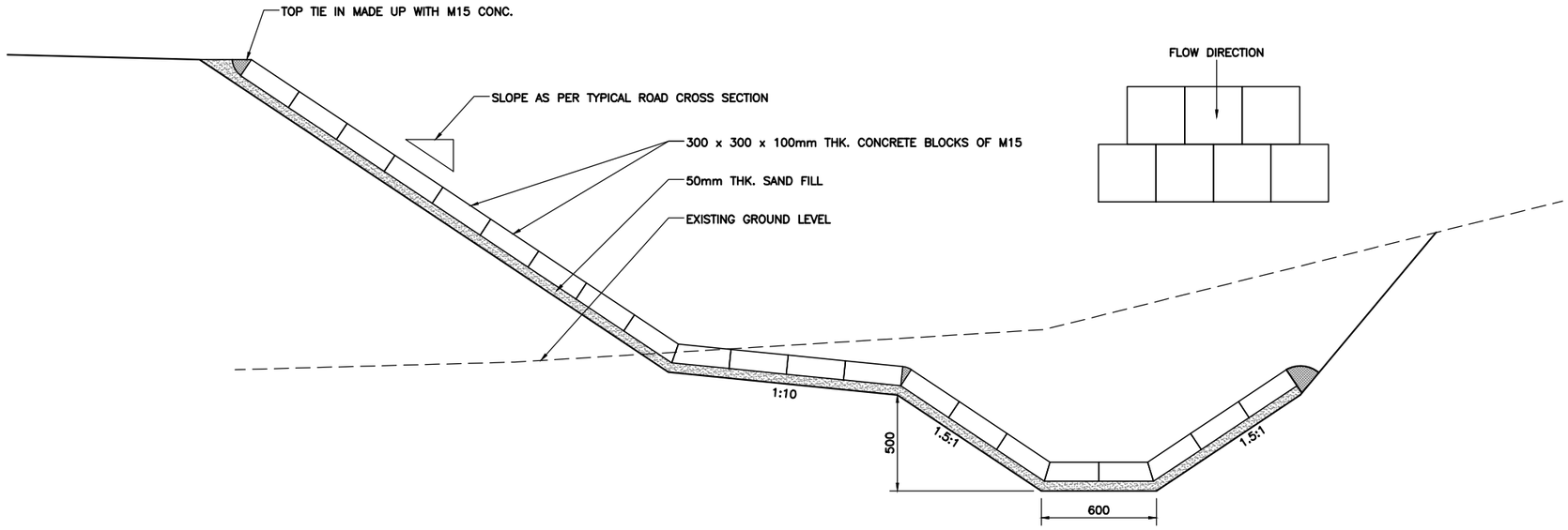
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

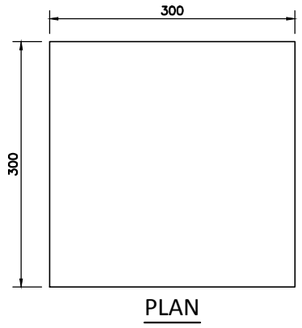
MISCELLANEOUS DETAILS
SOLAR STREET LIGHTING

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/12	0

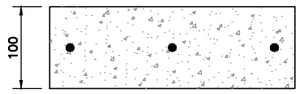


INSTALLATION OF TYPICAL CONCRETE BLOCKS ON SLOPE SURFACE

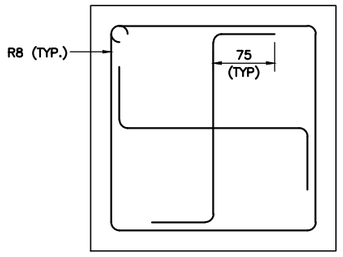
SCALE– 1:20



PLAN



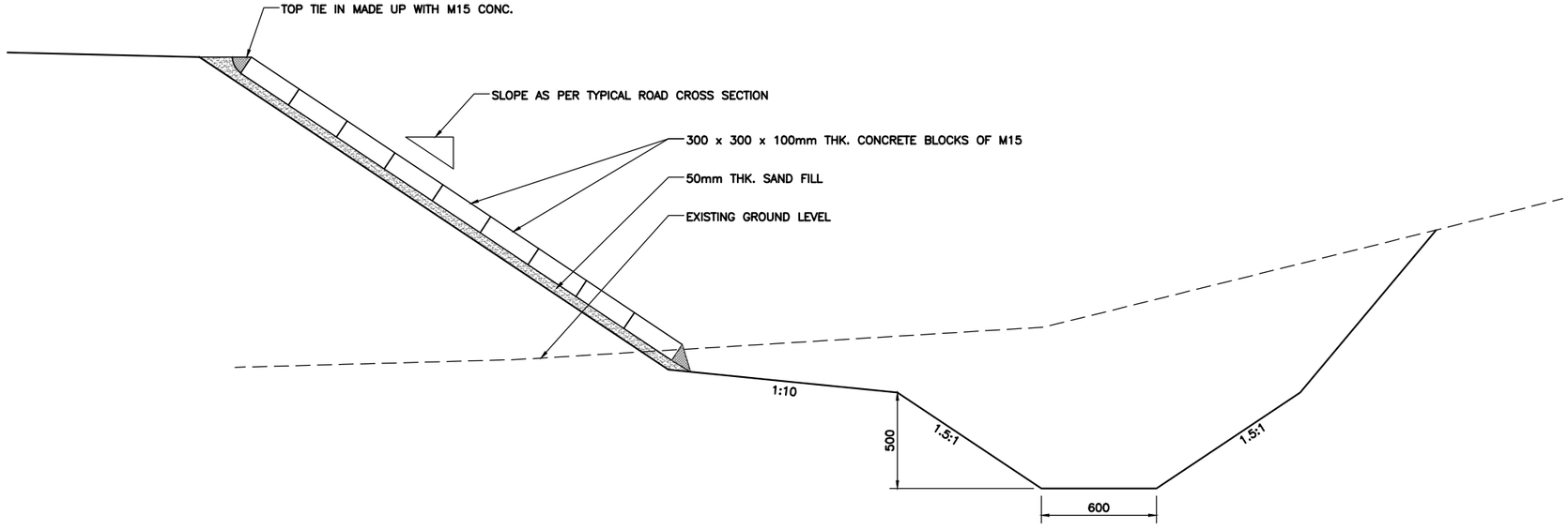
SECTIONAL ELAVATION



REBAR DETAILS

DETAILS OF CONCRETE BLOCKS OF M15 FOR SLOPE PROTECTION

SCALE– 1:5



INSTALLATION OF TYPICAL CONCRETE BLOCKS ON SLOPE SURFACE

SCALE– 1:20

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.

No.	REVISION	DATE	BY

SCALE :
A2 AS SHOWN
A3 1:30, 1:7.5

CAD FILE: MD–13

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

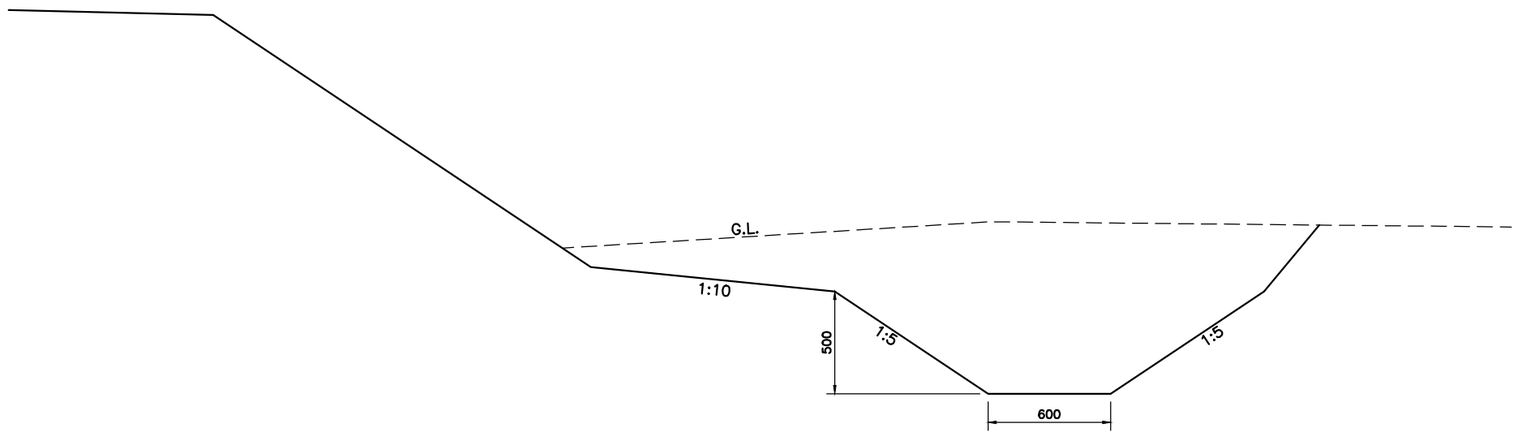
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

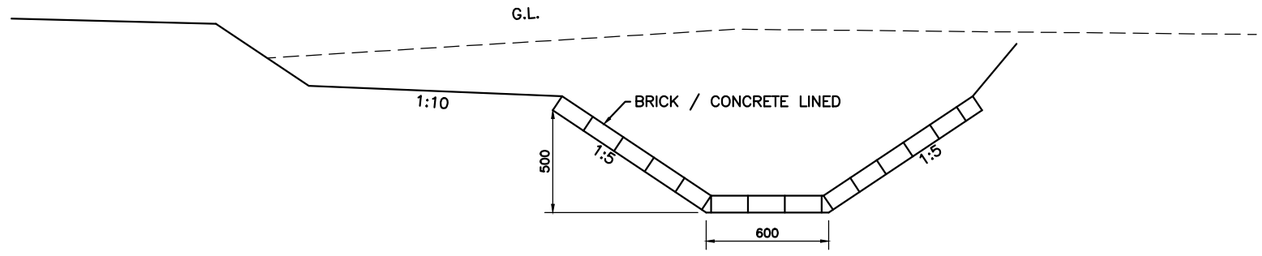
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
SLOPE PROTECTION AND DRAIN

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/13	0



TYPICAL UNLINED SIDE DRAIN



TYPICAL BRICK / CONCRETE BLOCK SIDE DRAIN

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD–13

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

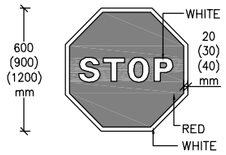
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

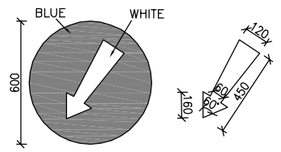
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
TYPICAL LINED & UNLINED DRAIN

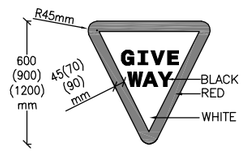
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/14	0



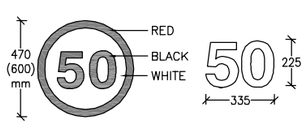
S-1 STOP SIGN



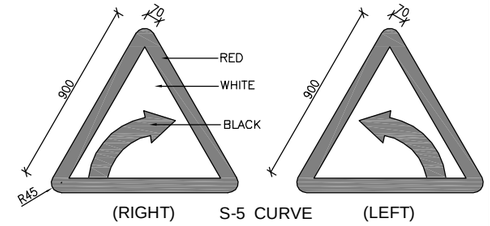
S-2 COMPULSORY KEEP LEFT



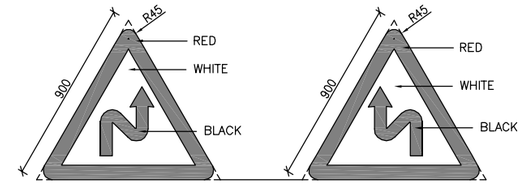
S-3 GIVE WAY



S-4 SPEED LIMIT

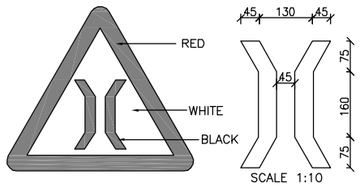


(RIGHT) S-5 CURVE (LEFT)

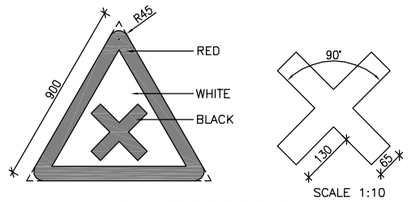


(RIGHT) (LEFT)

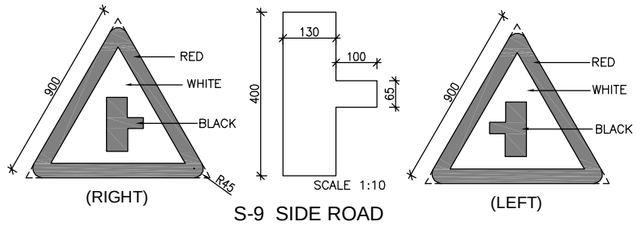
S-6 REVERSE BEND



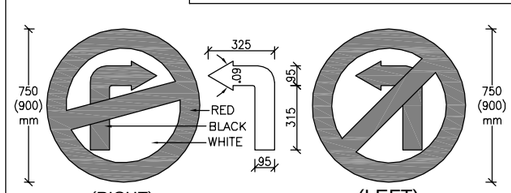
S-7 NARROW BRIDGE AHEAD



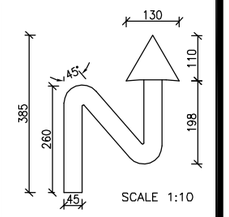
S-8 CROSS ROAD

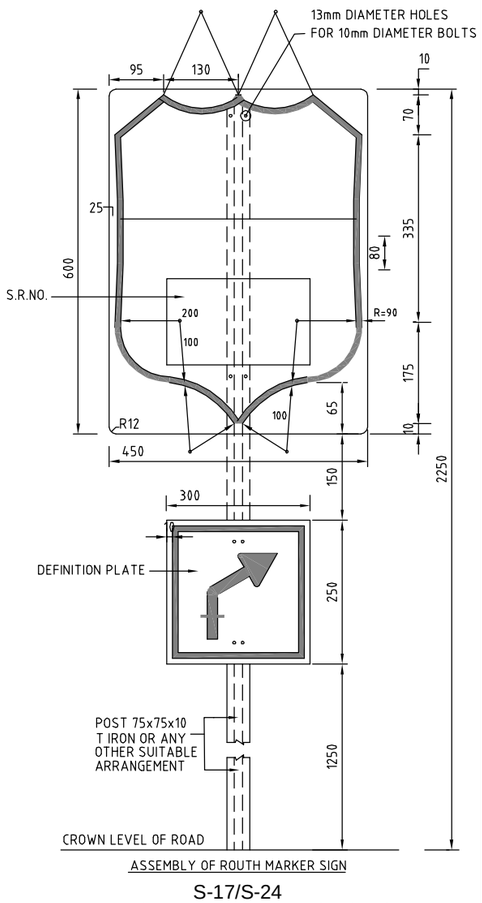


S-9 SIDE ROAD



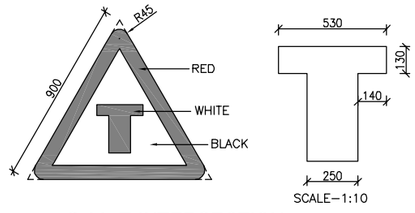
S-10 TURN PROHIBITED



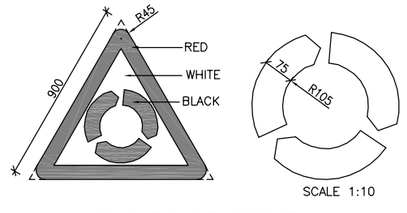


ASSEMBLY OF ROUTH MARKER SIGN

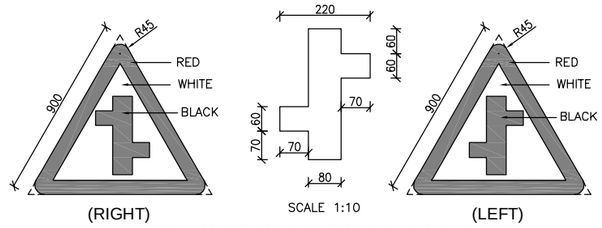
S-17/S-24
ARRANGEMENT FOR ERECTION OF STATE ROUTE MARKER SIGN



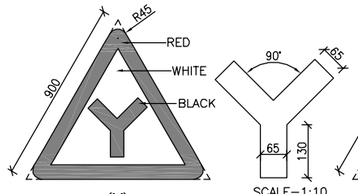
S-11 T-INTERSECTION



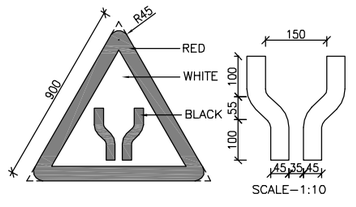
S-12 ROUND ABOUT



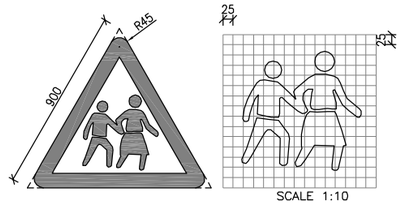
S-13 STAGGERED INTERSECTION



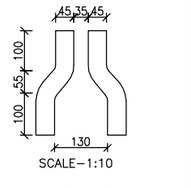
S-14 Y-INTERSECTIONS

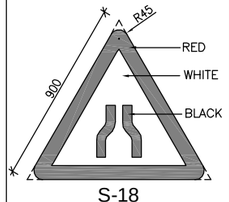


S-15 ROAD WIDENS

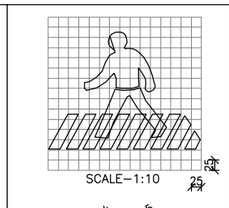


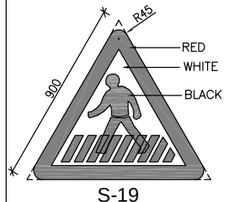
S-16 SCHOOL AHEAD



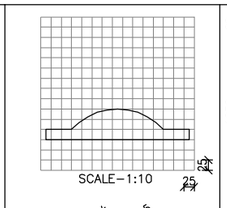


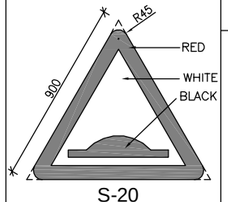
S-18
NARROW ROAD AHEAD



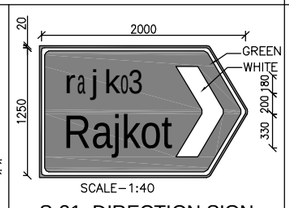


S-19
PEDESTRIAN CROSSING

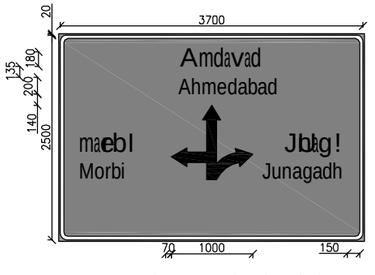




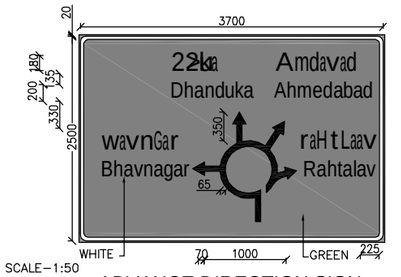
S-20
SPEED BREAKER



S-21 DIRECTION SIGN



ADVANCE DIRECTION SIGN



ADVANCE DIRECTION SIGN FOR ROTARY

S-25

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. THE DETAILS OF TRAFFIC SIGNS SHOWN HERE CONFORM TO IRC–67:2010.

No.	REVISION	DATE	BY

SCALE :
A2 1:20 & AS SHOWN
A2 1:30, 1:15, 1:60, 1:75, NTS

CAD FILE: MD–15

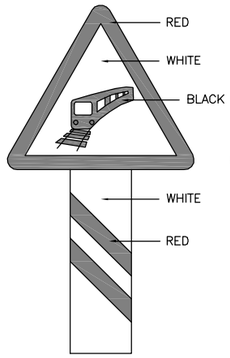
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

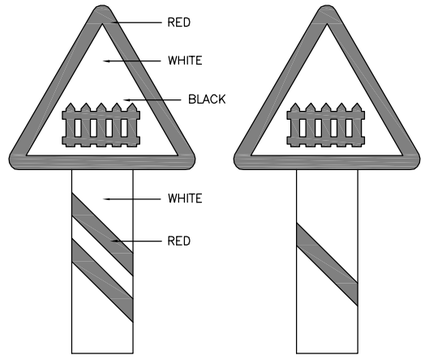
MISCELLANEOUS DETAILS
ROAD SIGNS–1

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/15	0



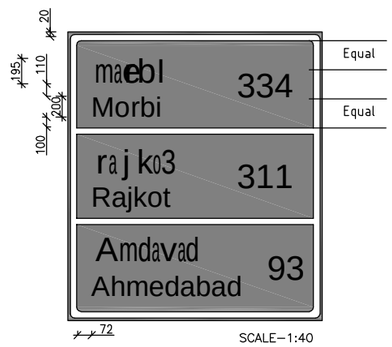
200 METRES 50-100 METRES

S-26 UNGUARDED RAILWAY CROSSING

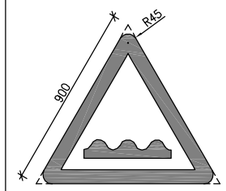


200 METRES 50-100 METRES

S-27 GUARDED RAILWAY CROSSING

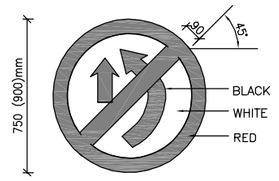


S-28 LAYOUT OF REASSURANCE SIGNS

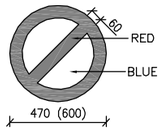


S-29 RUMBLE STRIP

S-30 MEN AT WORK

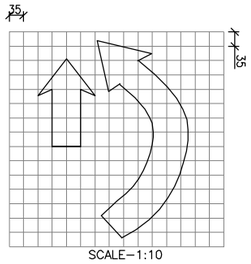


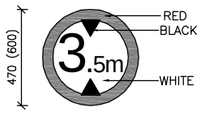
S-31 OVERTAKING PROHIBITED



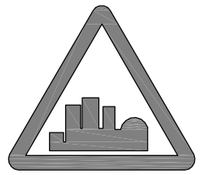
S-32 NO PARKING

S-33 NO PARKING & NO STOPPING

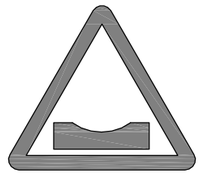




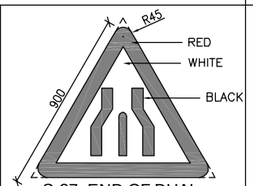
S-34 HEIGHT LIMIT



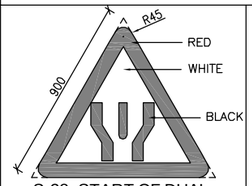
S-35 BUILT-UP AREA



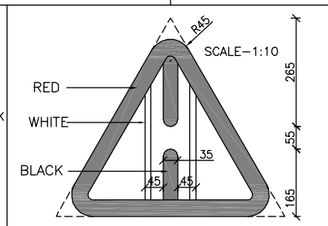
S-36 DANGEROUS DEEP



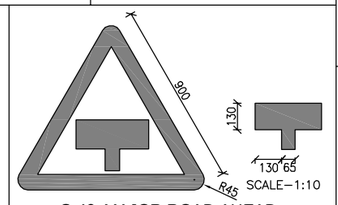
S-37 END OF DUAL CARRIAGEWAY



S-38 START OF DUAL CARRIAGEWAY



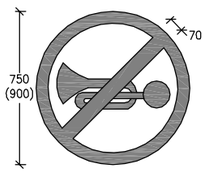
S-39 GAP IN MEDIAN



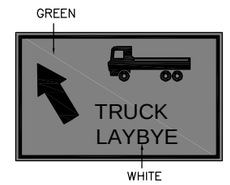
S-40 MAJOR ROAD AHEAD

S-41 STEEP ASCENT

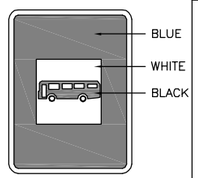
S-42 STEEP DESCENT



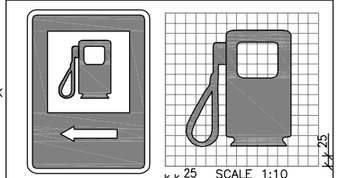
S-43 HORN PROHIBITED



S-44 TRUCK LAYBYE

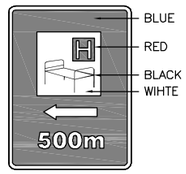


S-45 BUS STOP

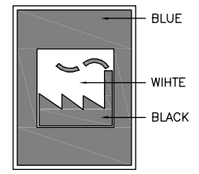


S-46 FILLING STATION (FUEL PUMP)

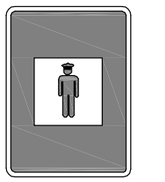
S-47 EATING PLACE



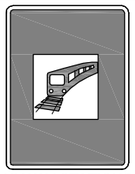
S-48 HOSPITAL



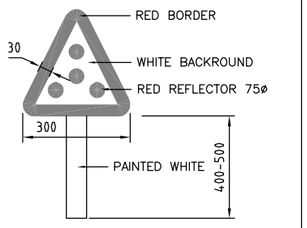
S-49 INDUSTRIAL AREA



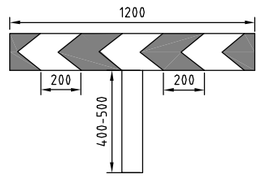
S-50 POLICE STATION



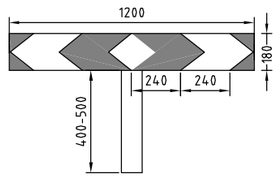
S-51 RAILWAY STATION/METRO STATION/MONORAIL STATION



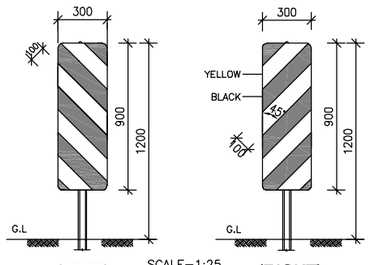
TA-1 CLUSTER OF RED REFLECTOR



TA-2 ONE-WAY HAZARD MARKER

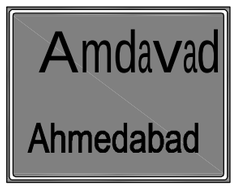


TA-3 TWO-WAY HAZARD MARKER

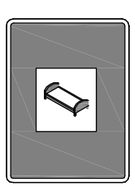


TA-4 HAZARD MARKERS

S-52 CATTLE CROSSING

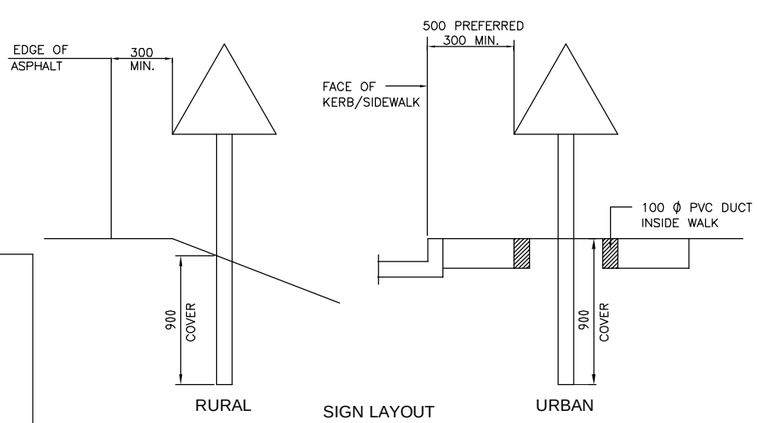


S-53 PLACE IDENTIFICATION



S-54 RESTING PLACE

S-55 WILD ANIMALS



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. THE DETAILS OF TRAFFIC SIGNS SHOWN HERE CONFORM TO IRC–67:2010.

No.	REVISION	DATE	BY

SCALE :
A2 1:20 & AS SHOWN
A2 1:30, 1:15, 1:60, 1:75, NTS

CAD FILE: MD–16

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

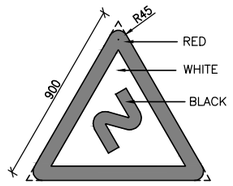
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

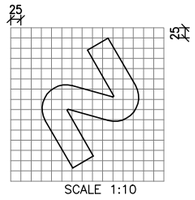
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

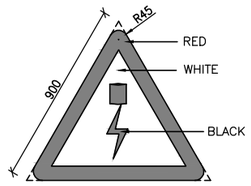
MISCELLANEOUS DETAILS
ROAD SIGNS–2

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/ MD/16	0

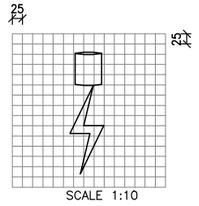


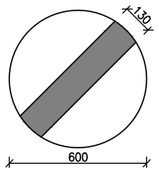
S-56
SERIES OF BENDS



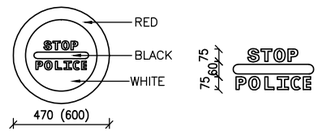


S-57
OVERHEAD CABLES

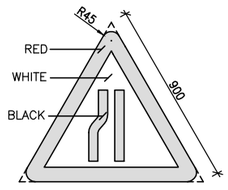




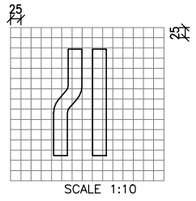
S-58
RESTRICTION ENDS

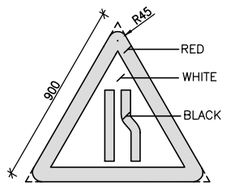


S-59
STOP FOR POLICE CHECK

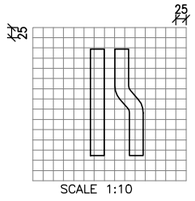


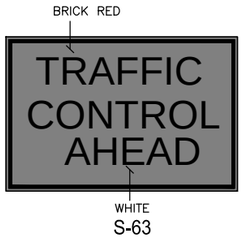
S-61
LEFT LANE DIVERTED



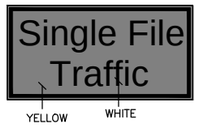


S-62
RIGHT LANE DIVERTED





S-63



S-64

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. THE DETAILS OF TRAFFIC SIGNS SHOWN HERE CONFORM TO IRC–67:2010.

No.	REVISION	DATE	BY

SCALE :
A2 1:20 & AS SHOWN
A2 1:30, 1:15, 1:60, 1:75, NTS

CAD FILE: MD–17–R1

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

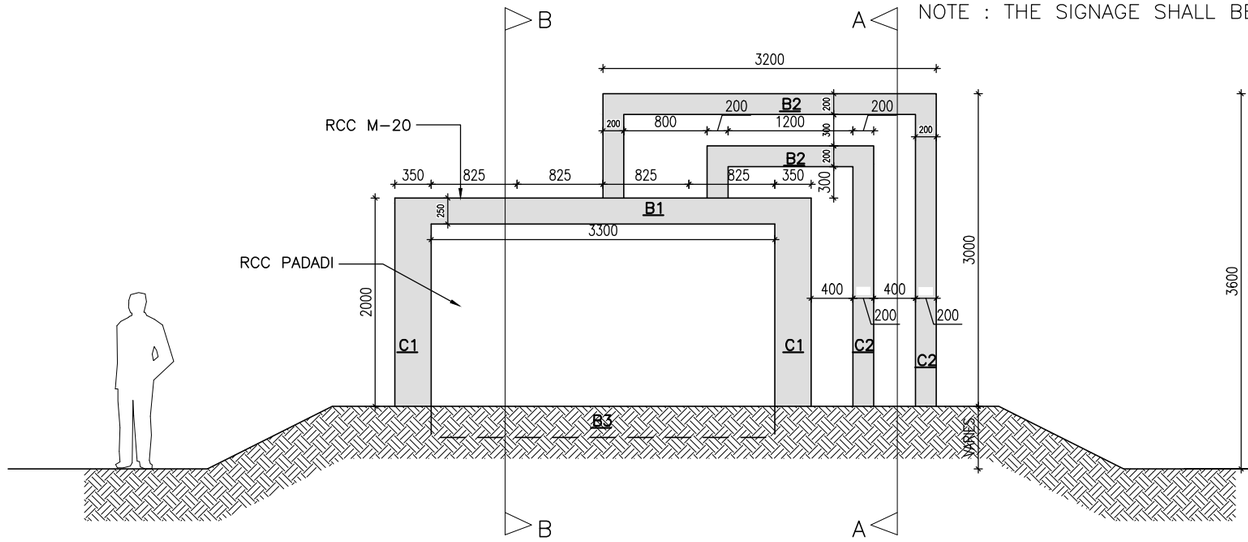
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

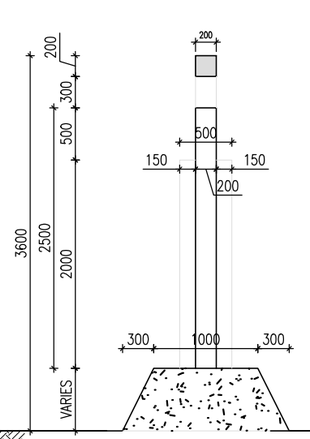
MISCELLANEOUS DETAILS
ROAD SIGNS–3

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/17	0

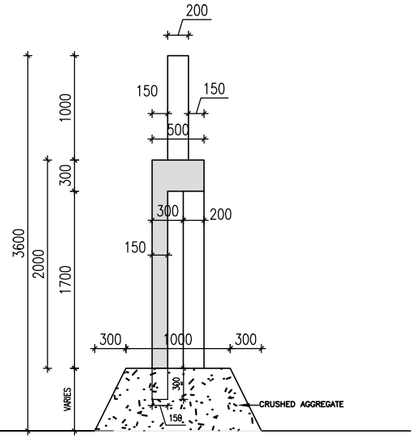
NOTE : THE SIGNAGE SHALL BE PROVIDED AT SUITABLE LOCATION, WHICH IS CLEARLY VISIBLE TO ROAD USERS.



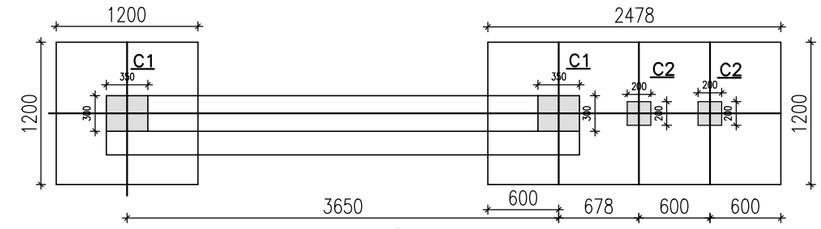
ELEVATION



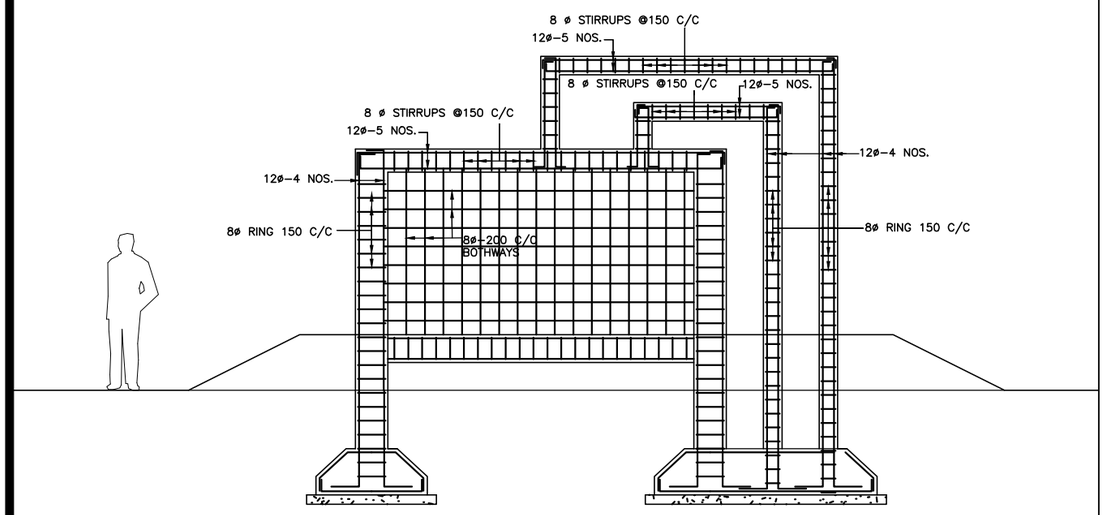
SECTION A–A



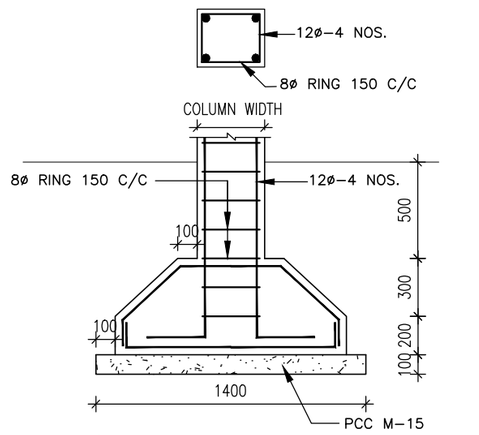
SECTION B–B



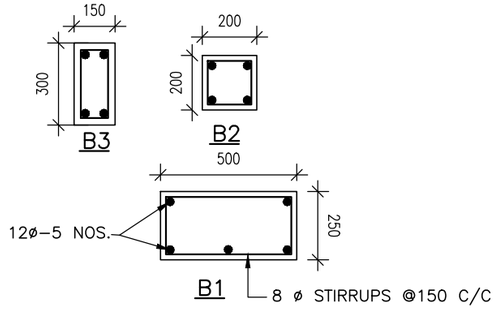
PLAN



REINFORCEMENT DETAIL



TYPICAL FOOTING DETAIL



BEAM DETAIL

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. GRADE OF CONCRETE IS M–20
4. ALL REINFORCEMENT STEEL SHALL BE HYSD, GRADE DESIGNATION Fe–415 CONFORMING TO IS:1786.
5. CLEAR COVER TO THE MAIN REINFORCEMENT SHALL BE AS FOLLOWS:
   i) COLUMN, BEAM & PADADI : 25 mm
6. SAFE BEARING CAPACITY AT THE FOUNDING LEVEL SHALL BE 10 t/m² .
7. LAP LENGTH SHOULD BE AS PER IRC 21–2000

No.	REVISION	DATE	BY

SCALE : NTS

CAD FILE: MD–17A

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

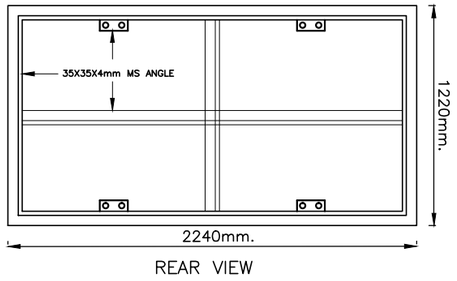
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

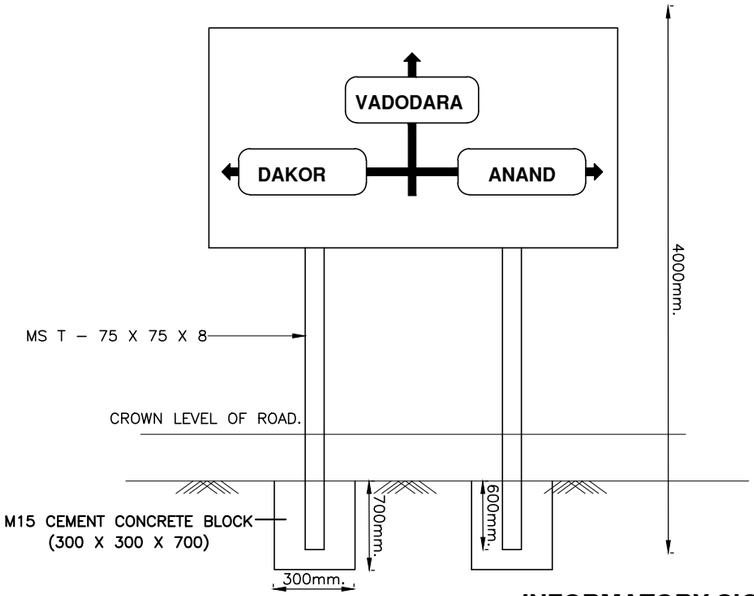
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

STRUCTURAL DETAILS OF WELCOME BOARD

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/MD/17A	0

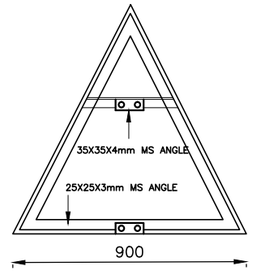


REAR VIEW

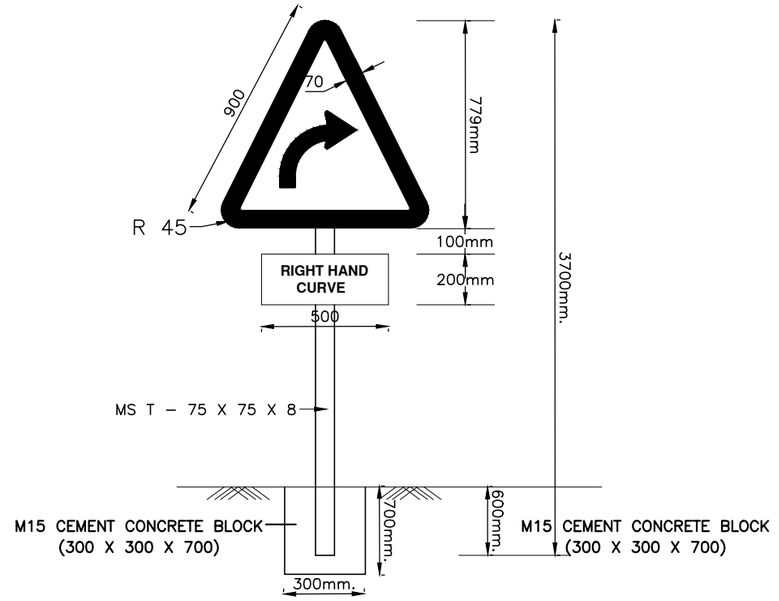


LOCATION AND INSTALLATION SHALL BE IN ACCORDACE WITH IRC –67–1977.
MESSAGES AND INSCRIPTIONS SHOULD BE IN ENGLISH & GUJARATI.
DEFINATION PLATE SHOULD BE PROVIDED WITH EACH SIGN POST

INFORMATORY SIGN
(ADVANCE DIRECTION)



REAR VIEW



CAUTIONNARY / WARNING SIGN

No.	REVISION	DATE	BY

SCALE :
A2 1:20
A3 1:30

CAD FILE: MD–18–R1

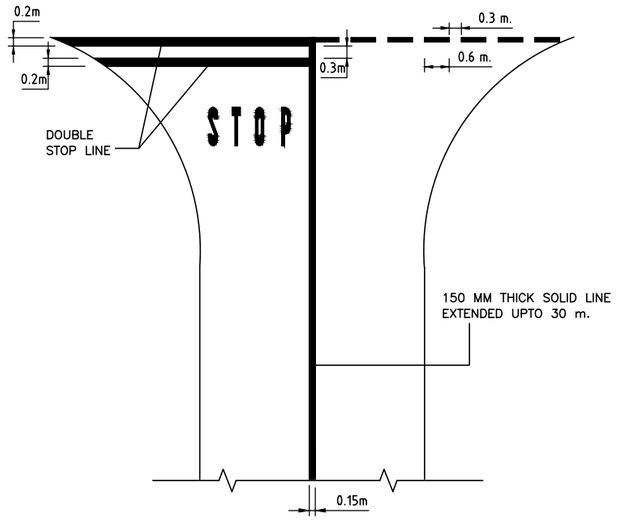
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

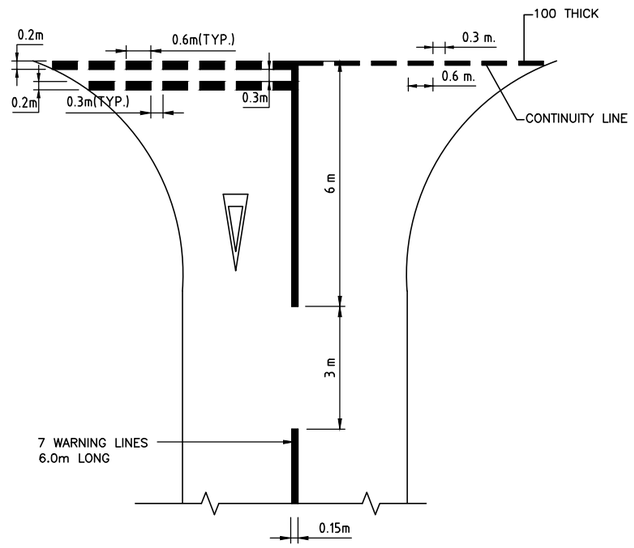
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
DETAILS OF ROAD SIGNS

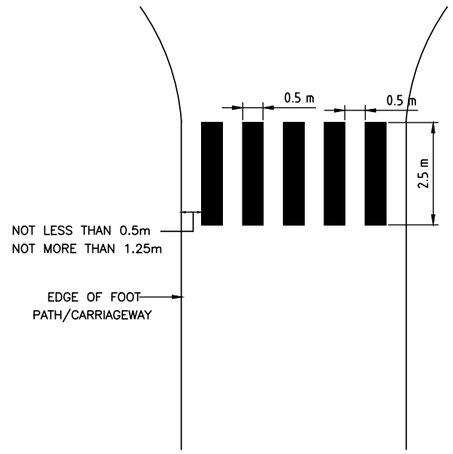
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/18	0



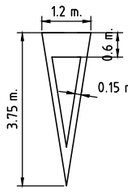
STOP LINE

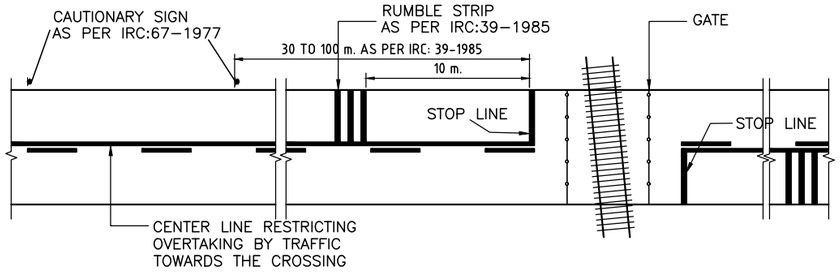


YIELD LINE

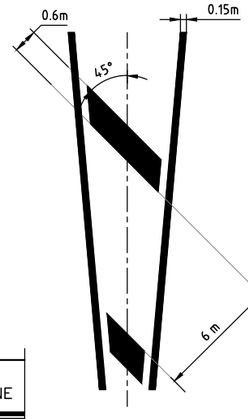


PEDESTRIAN CROSSING MARKING

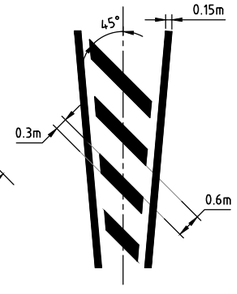




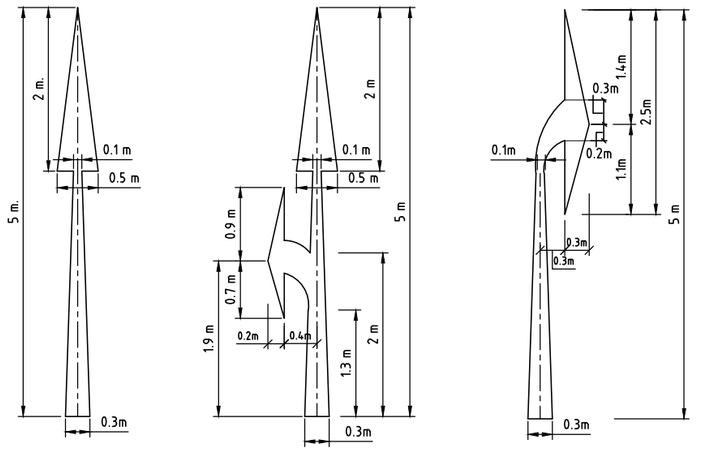
PAVEMENT MARKING AT RAILWAY CROSSING



TYPE 1
GORE MARKING
OVER 20m.



TYPE 2
GORE MARKING
UNDER 20m.



ARROW MARKING FOR ROUTE DIRECTION

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. THIS DRAWING IS INTENDED TO SHOW TRAFFIC CONTROL AND SAFETY DEVICES TO ENHANCE NIGHTTIME VISIBILITY AND TO SUPPLEMENT THE STANDARD ROAD SIGNS AND PAVEMENT MARKINGS.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD-19

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

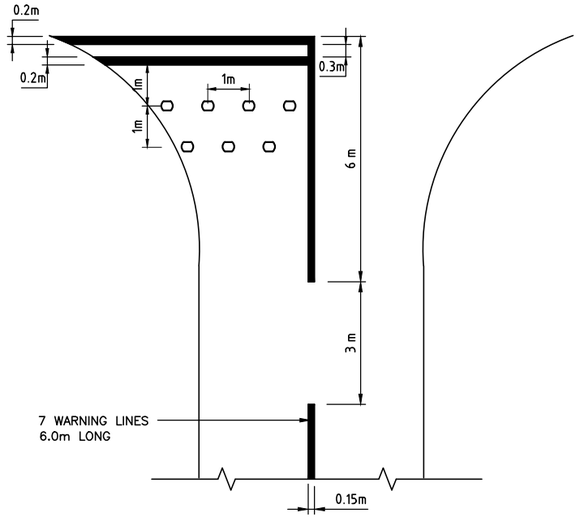
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
LANE MARKINGS

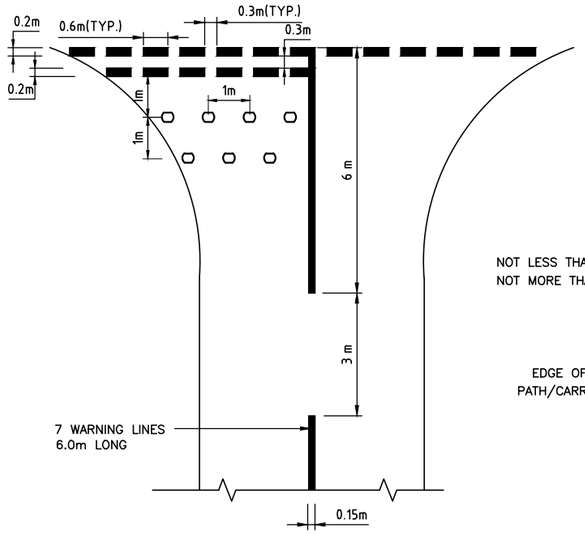
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/19	0



STOP LINE

RETRO – REFLECTIVE ROAD STUDS (RED)

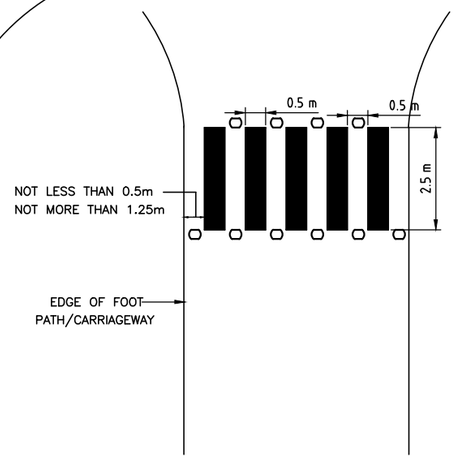
SCALE– 1:100



YIELD LINE

RETRO – REFLECTIVE ROAD STUDS (RED)

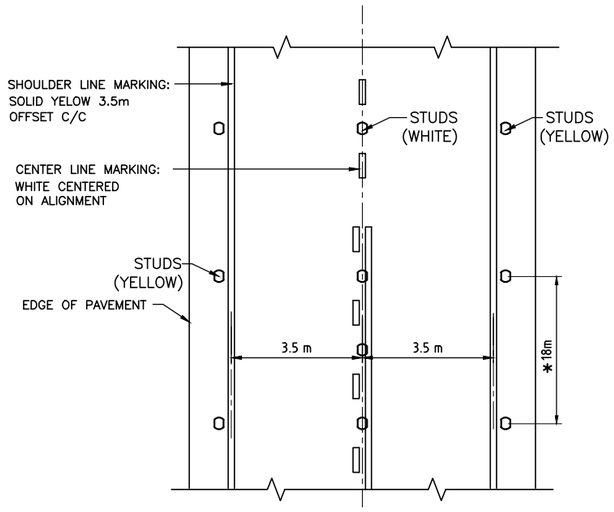
SCALE– 1:100



PEDESTRIAN CROSSING MARKING

RETRO – REFLECTIVE ROAD STUDS (RED)

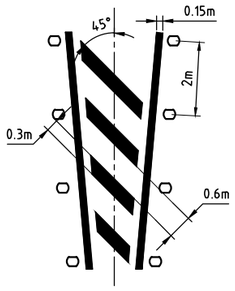
SCALE– 1:100



* NOTE: NEAR CURVE RADIUS <700m AND INTERSECTION C/C DISTANCE IS 5.0m

GENERAL LAYOUT

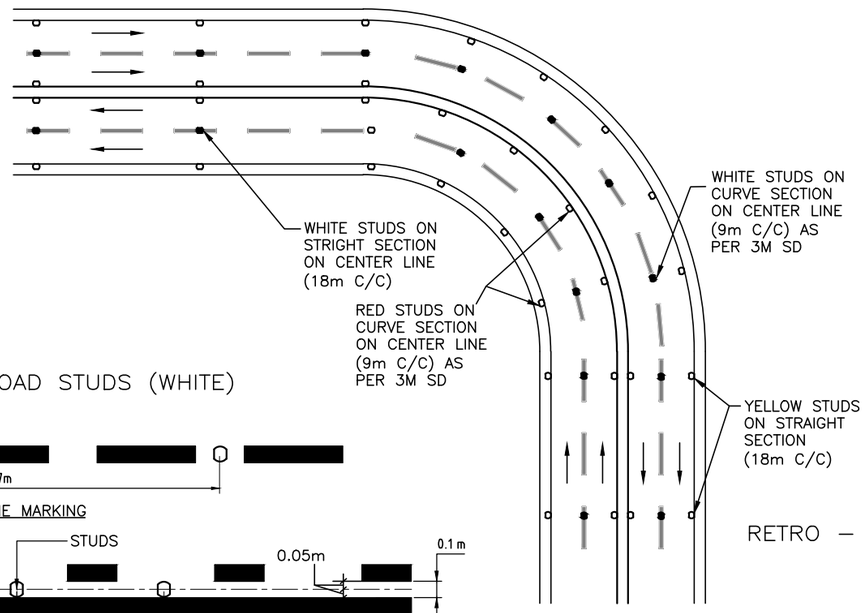
SCALE– NTS

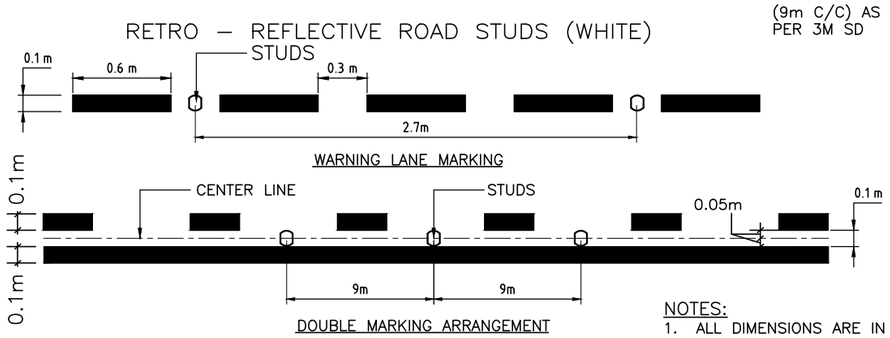


TYPE 2

GORE MARKING

UNDER 20m.



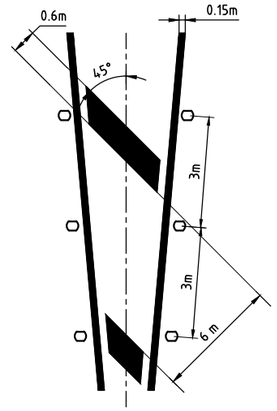


SCALE– 1:25

LANE MARKINGS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. THIS DRAWING IS INTENDED TO SHOW TRAFFIC CONTROL AND SAFETY DEVICES TO ENHANCE NIGHTTIME VISIBILITY AND TO SUPPLEMENT THE STANDARD ROAD SIGNS AND PAVEMENT MARKINGS.

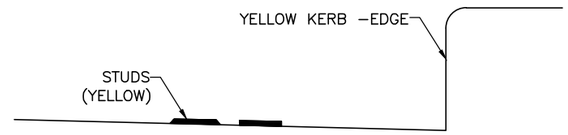


TYPE 1

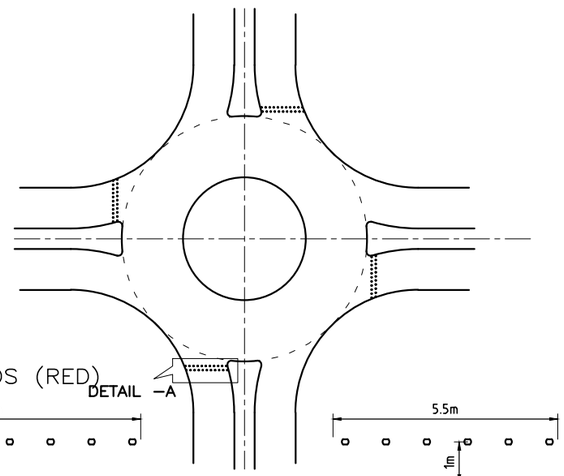
GORE MARKING

OVER 20m.

RETRO – REFLECTIVE ROAD STUDS (RED)



YELLOW KERB –EDGE ROAD STUDS



DETAIL –A

FOR 7.50m WIDTH (15NOS.)

RETRO – REFLECTIVE ROAD STUDS (RED)

SCALE– 1:100

DETAIL –A

FOR 5.50m WIDTH (11NOS.)

RETRO – REFLECTIVE ROAD STUDS (RED)

No.	REVISION	DATE	BY

SCALE :

A2 AS SHOWN

A3 1:150, 1:37.5

CAD FILE: MD–20

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT

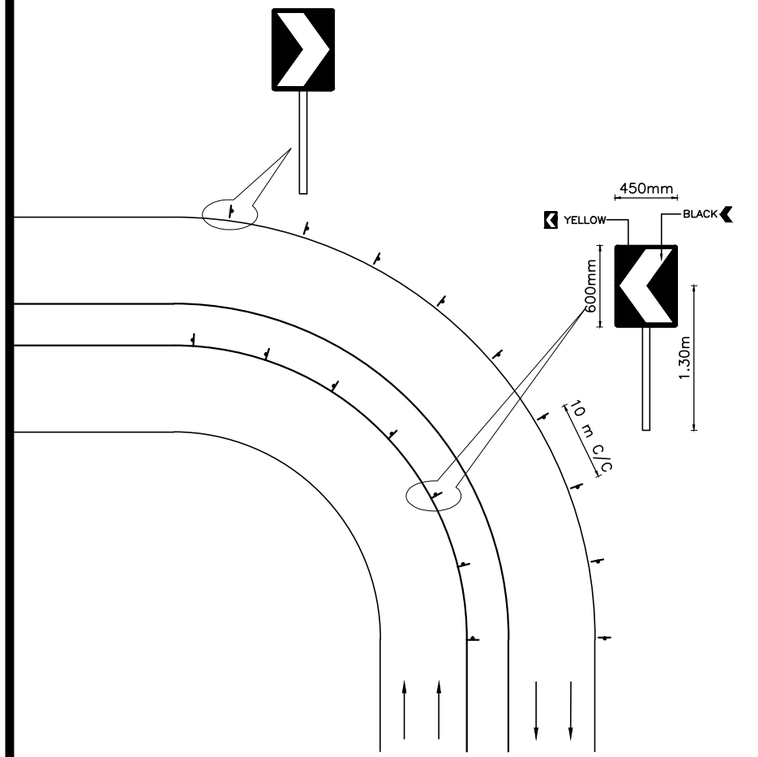
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS

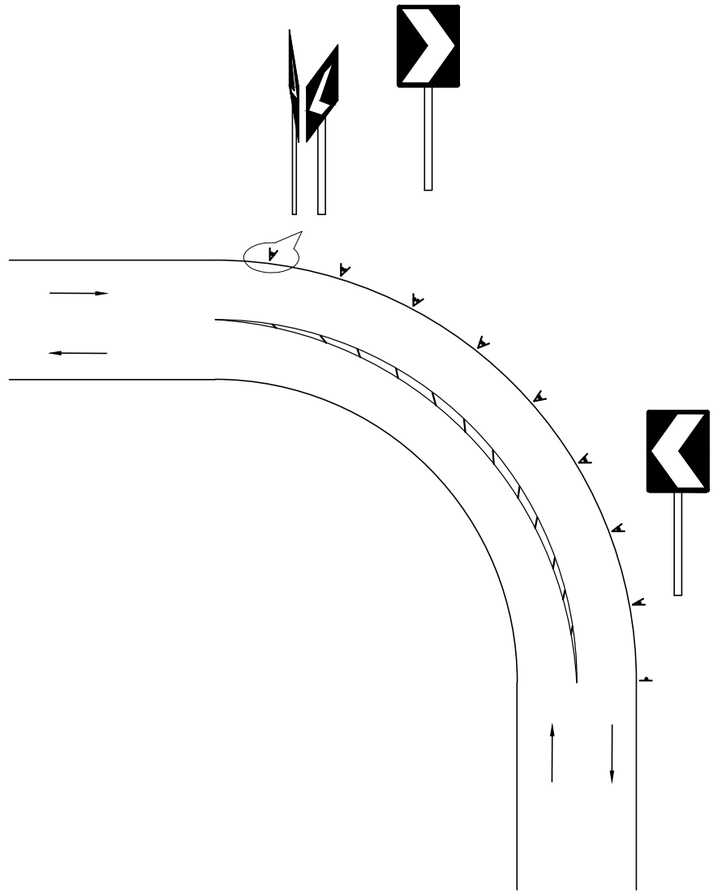
NIGHT TIME SAFETY

(POSITION OF ROAD STUDS)

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/20	0



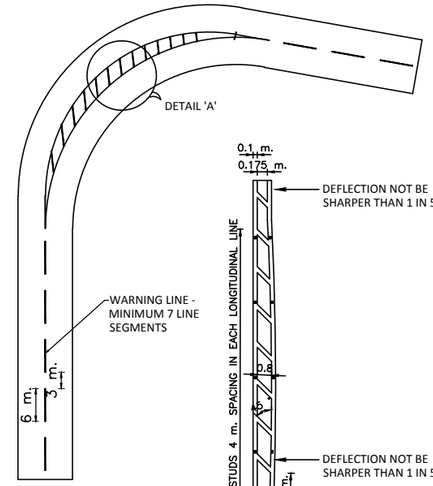
DUAL CARRIAGEWAY



SINGLE CARRIAGEWAY

NOTE:

1. SIGN PANELS TO BE MADE OF ALUMINUM COMPOSITE MATERIAL (IE NO. RE–SALE VALUE)
2. REFLECTIVE SHEETING – 3M OR APPROVED EQUAL
3. THE CHEVRON ALIGNMENT SIGN MAY BE USED TO PROVIDE ADDITIONAL EMPHASIS AND GUIDANCE FOR A CHANGE IN HORIZONTAL ALIGNMENT A CHEVRON ALIGNMENT SIGN MAY BE USED AS AN ALTERNATE OR SUPPLEMENT TO STANDARD DELINEATORS ON CURVES.
4. IF USED CHEVRON ALIGNMENT SIGNS SHALL BE INSTALLED ON THE OUTSIDE OF A TURN OR CURVE, IN LINE WITH AND AT APPROXIMATELY A RIGHT ANGLE TO APPROACHING TRAFFIC.
5. THIS DRAWING IS INTENDED TO SHOW TRAFFIC CONTROL AND SAFETY DEVICES TO ENHANCE NIGHTTIME VISIBILITY AND TO SUPPLEMENT THE STANDARD ROAD SIGNS AND PAVEMENT MARKINGS.

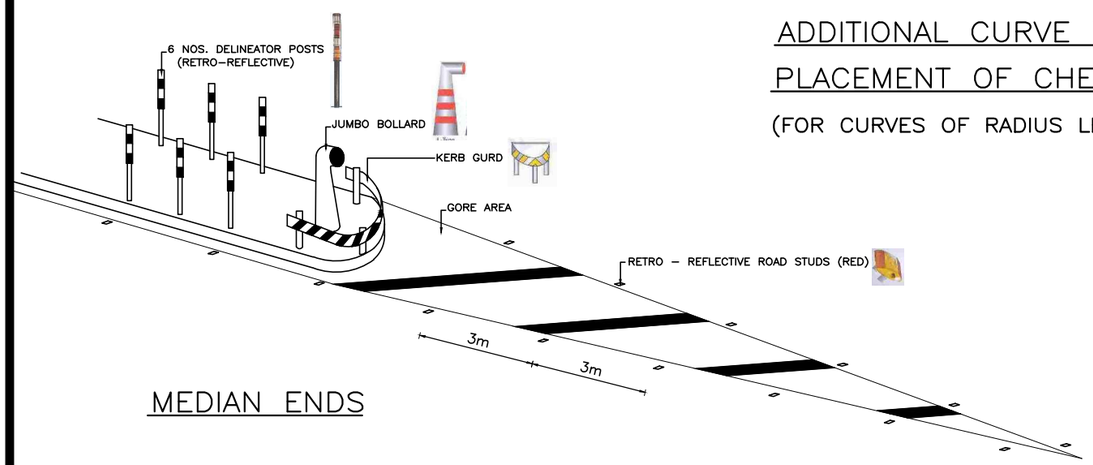


SHARP CURVE

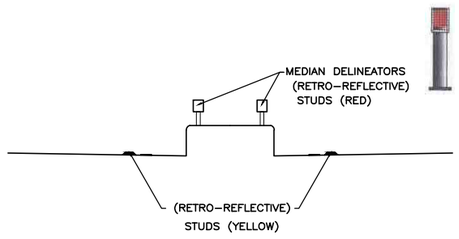
DETAIL – A

ADDITIONAL CURVE DELINEATION PLACEMENT OF CHEVRON SIGNS

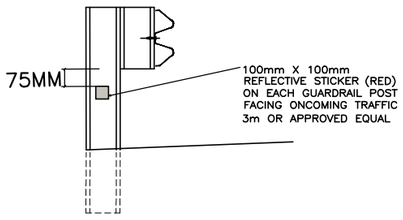
(FOR CURVES OF RADIUS LESS THAN 300M)



MEDIAN ENDS



MEDIAN DELINEATION



GUARDRAIL POST FACING ON–COMING TRAFFIC

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD–21

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

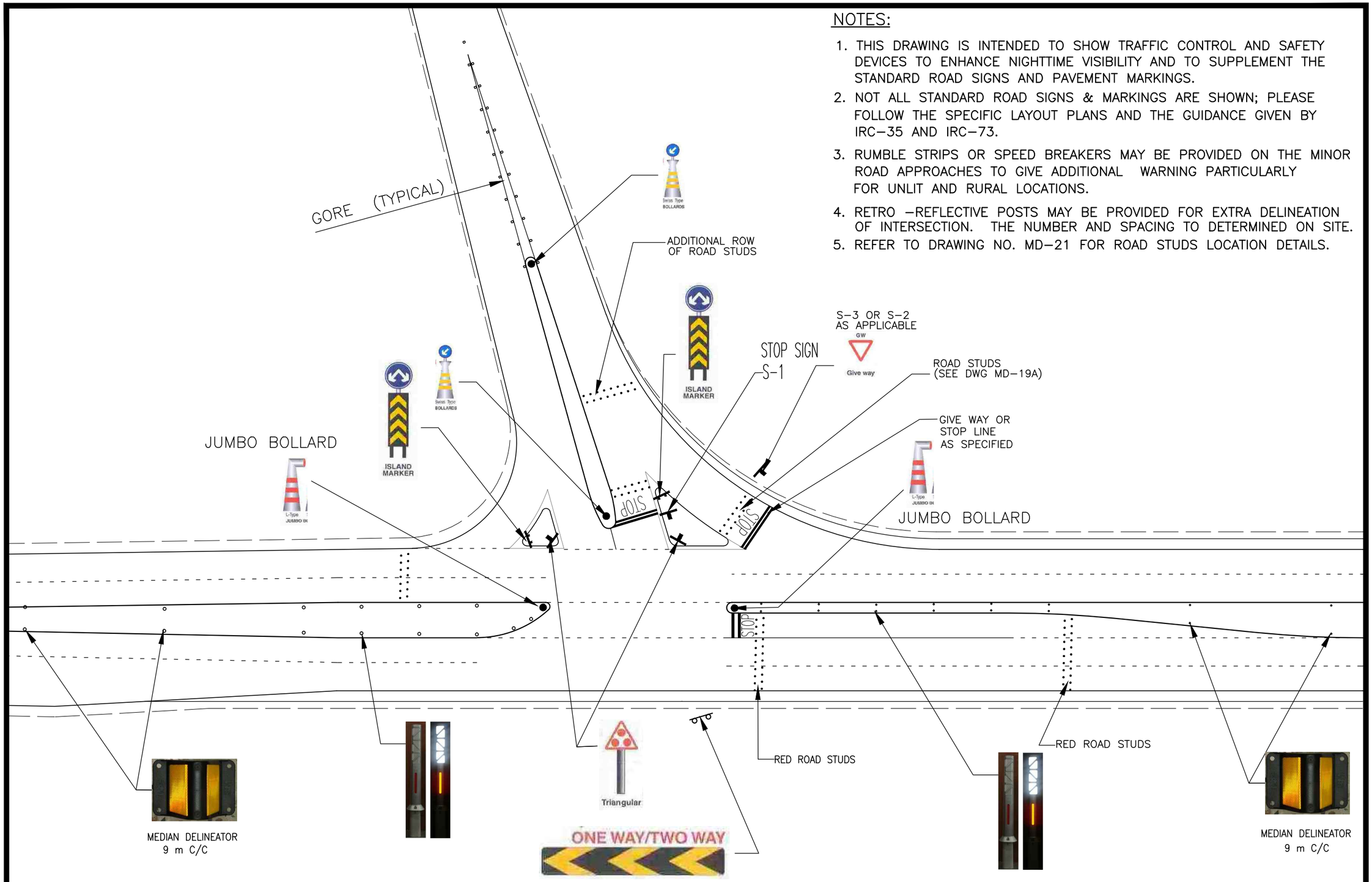
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
TRAFFIC CONTROL AND SAFETY DEVICES

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/21	0

NOTES:

1. THIS DRAWING IS INTENDED TO SHOW TRAFFIC CONTROL AND SAFETY DEVICES TO ENHANCE NIGHTTIME VISIBILITY AND TO SUPPLEMENT THE STANDARD ROAD SIGNS AND PAVEMENT MARKINGS.
2. NOT ALL STANDARD ROAD SIGNS & MARKINGS ARE SHOWN; PLEASE FOLLOW THE SPECIFIC LAYOUT PLANS AND THE GUIDANCE GIVEN BY IRC–35 AND IRC–73.
3. RUMBLE STRIPS OR SPEED BREAKERS MAY BE PROVIDED ON THE MINOR ROAD APPROACHES TO GIVE ADDITIONAL WARNING PARTICULARLY FOR UNLIT AND RURAL LOCATIONS.
4. RETRO –REFLECTIVE POSTS MAY BE PROVIDED FOR EXTRA DELINEATION OF INTERSECTION. THE NUMBER AND SPACING TO DETERMINED ON SITE.
5. REFER TO DRAWING NO. MD–21 FOR ROAD STUDS LOCATION DETAILS.



No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD–22

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

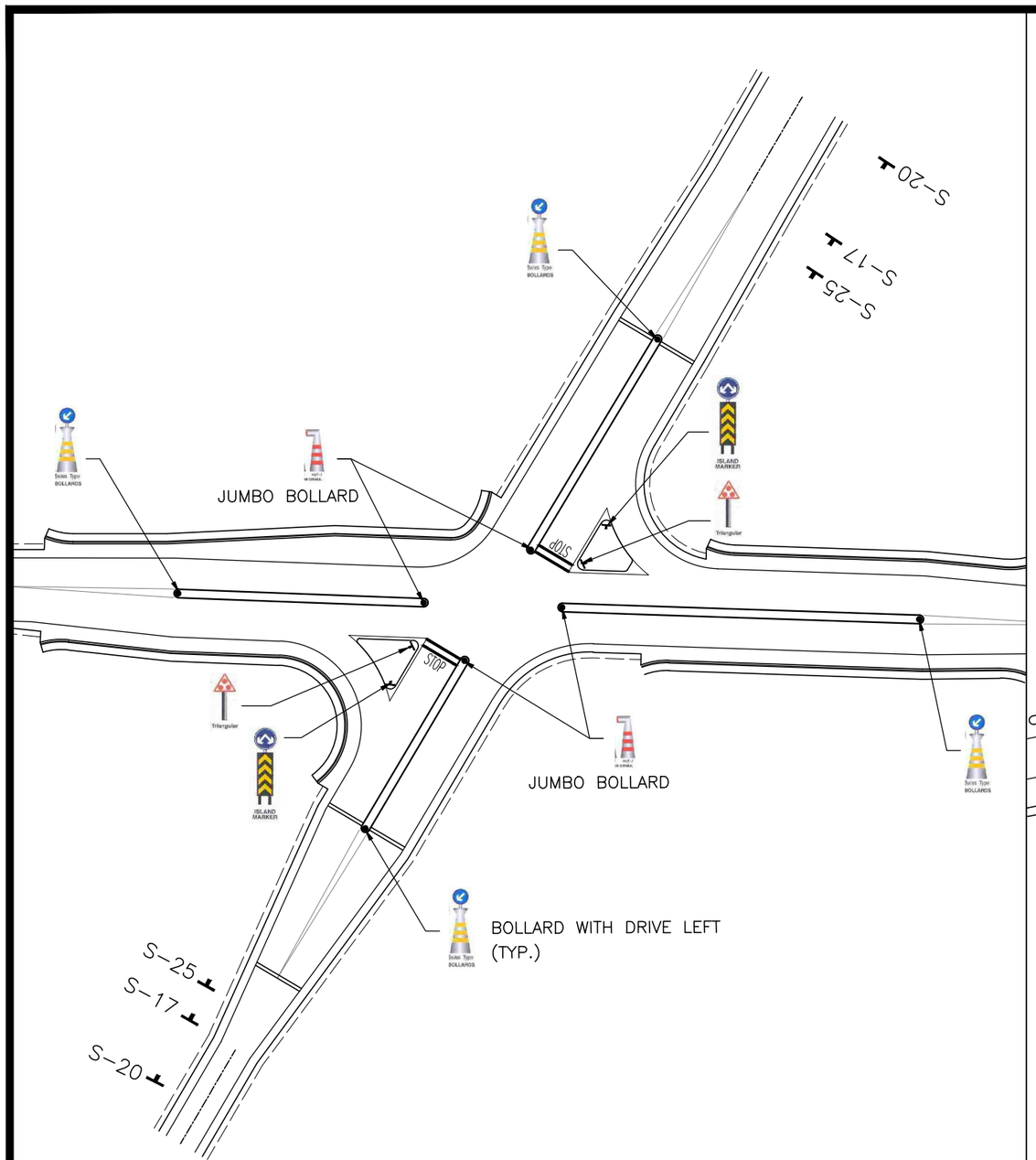
LASA INDIA

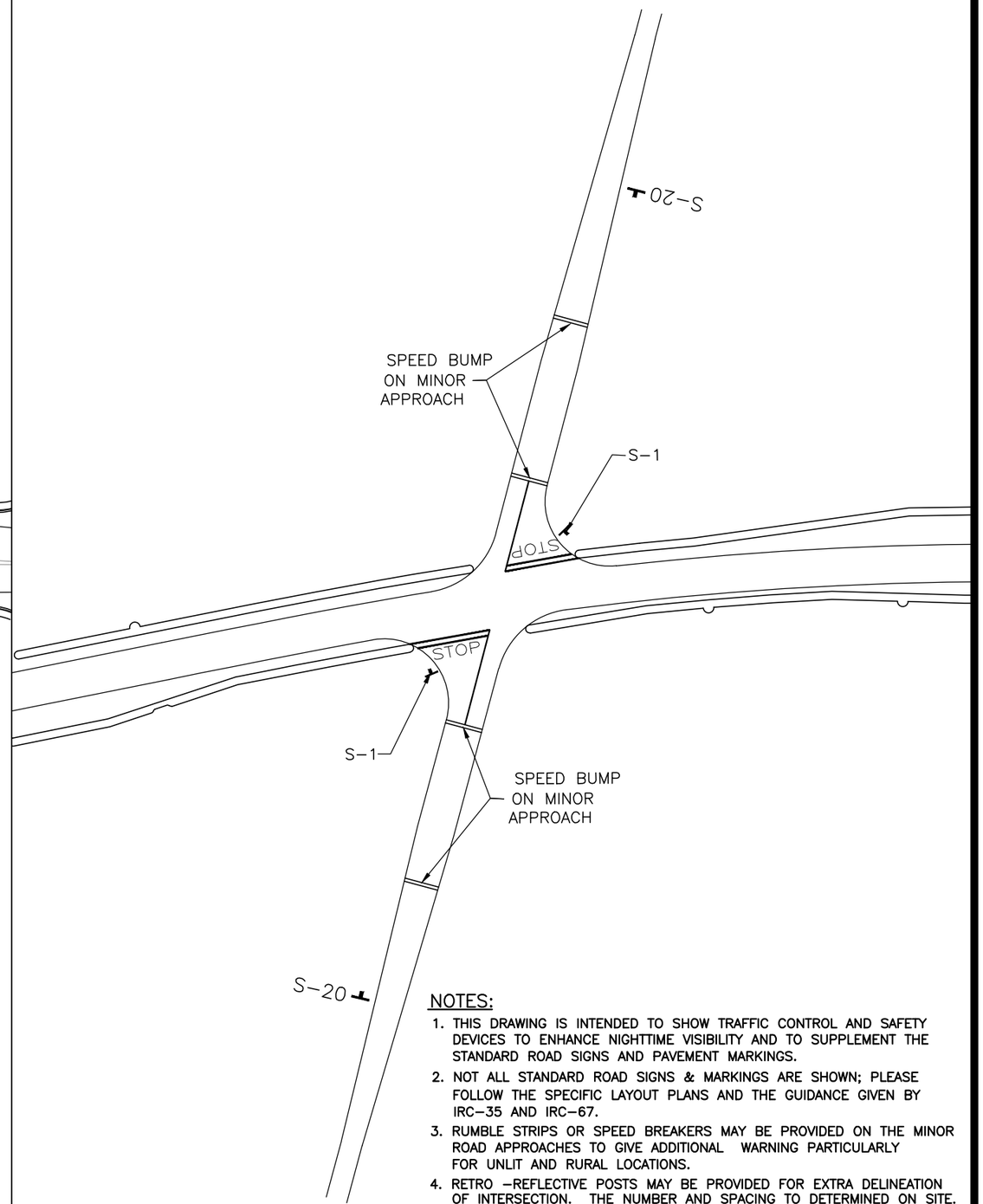
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
TRAFFIC CONTROL AND SAFETY DEVICES
PROVISIONS FOR T– INTERSECTION (TYPICAL)

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/22	0





NOTES:

1. THIS DRAWING IS INTENDED TO SHOW TRAFFIC CONTROL AND SAFETY DEVICES TO ENHANCE NIGHTTIME VISIBILITY AND TO SUPPLEMENT THE STANDARD ROAD SIGNS AND PAVEMENT MARKINGS.
2. NOT ALL STANDARD ROAD SIGNS & MARKINGS ARE SHOWN; PLEASE FOLLOW THE SPECIFIC LAYOUT PLANS AND THE GUIDANCE GIVEN BY IRC–35 AND IRC–67.
3. RUMBLE STRIPS OR SPEED BREAKERS MAY BE PROVIDED ON THE MINOR ROAD APPROACHES TO GIVE ADDITIONAL WARNING PARTICULARLY FOR UNLIT AND RURAL LOCATIONS.
4. RETRO –REFLECTIVE POSTS MAY BE PROVIDED FOR EXTRA DELINEATION OF INTERSECTION. THE NUMBER AND SPACING TO DETERMINED ON SITE.
5. REFER TO DRAWING NO. MD–21 FOR ROAD STUDS LOCATION DETAILS.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD–23

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

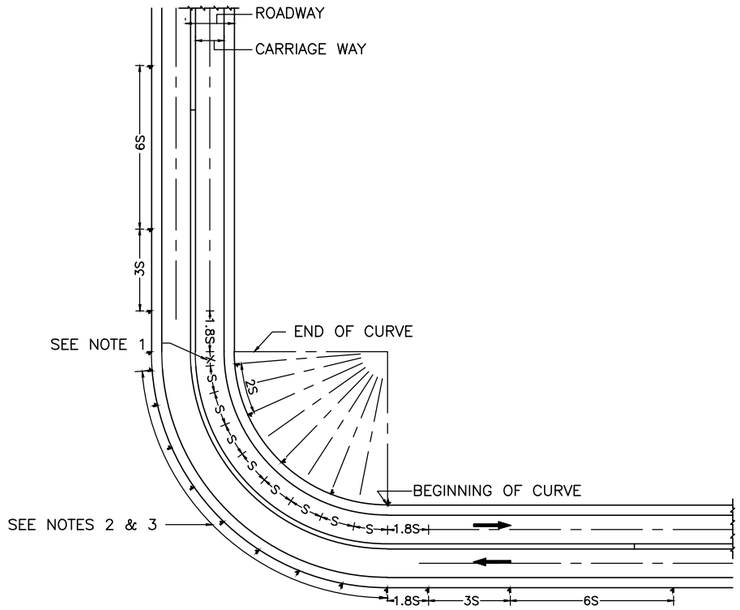
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
TRAFFIC CONTROL AND SAFETY DEVICES
PROVISIONS FOR CROSS INTERSECTION (TYPICAL)

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/23	0



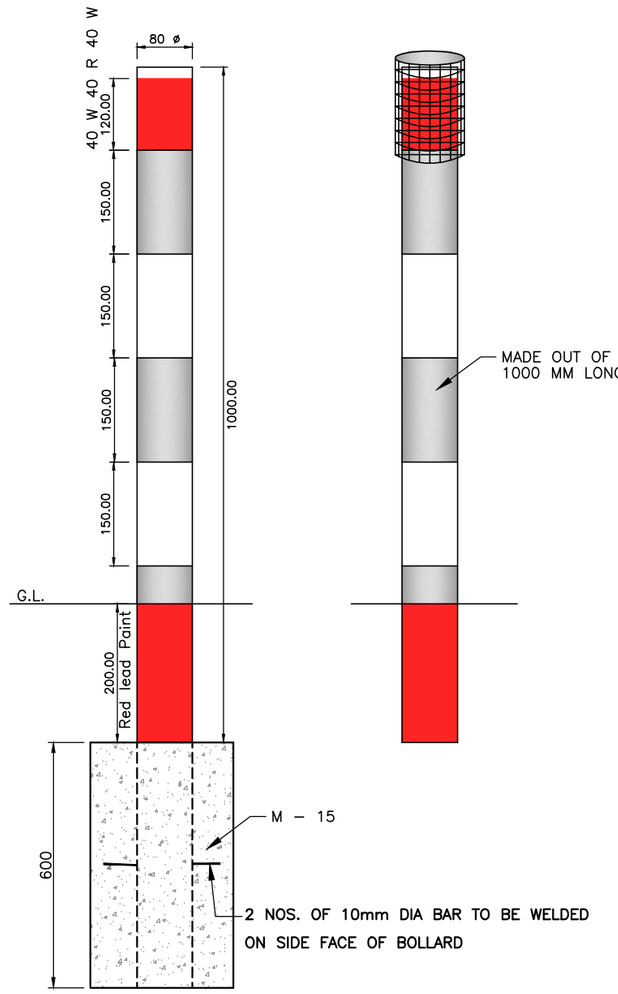
ROADWAY DELINEATOR SPACING ON CURVES

SCALE– NTS

TABLE 1. RECOMMENDED SPACING FOR DELINEATORS ON HORIZONTAL CURVES

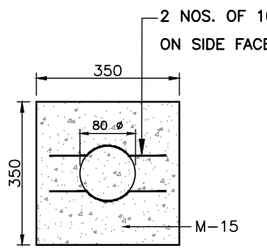
RADIUS OF CURVE (METERS)	SPACING ON CURVE, S (METERS)
30	6
50	8
100	12
200	20
300	25
400	30
500	35
600	38
700	42
800	45
900	48
1000	50

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.



SECTION

DELINEATOR WITH CIRCULAR REFLECTOR



PLAN

NOTES:–

1. ADJUST DISTANCE 'X' SUITABLY SO THAT THE LAST ROADWAY DELINEATOR IS AT THE END OF THE CURVE.
2. INSTALL ALL DELINEATORS AT EDGE OF THE ROADWAY PERPENDICULAR TO THE ONCOMING TRAFFIC.
3. SEE TABLE1 FOR VALUE OF 'S' i.e. SPACING OF DELINEATORS ON THE CURVE.
4. ON TANGENT SECTION OF ROADWAY DELINEATORS TO BE PLACED UNIFORMLY AT INTERVALS OF 50M. AT PROBLEM LOCATIONS SUCH AS CAUSEWAYS DELINEATOR SPACING TO BE REDUCED TO 10M.

No.	REVISION	DATE	BY

SCALE : NTS

CAD FILE: MD–24–R1

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

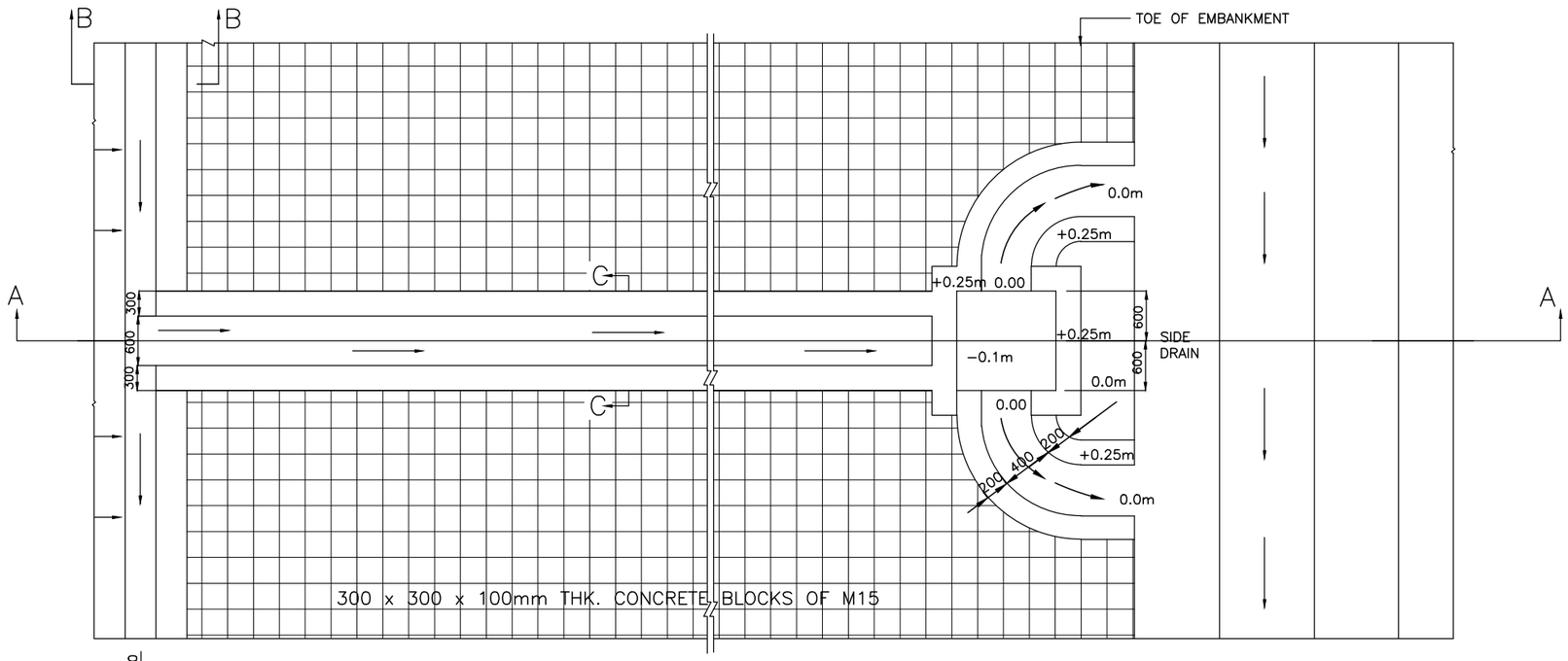
LASA INDIA

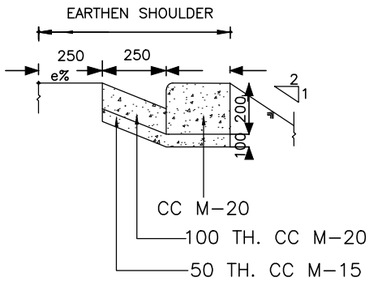
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
DELINEATOR LAYOUT

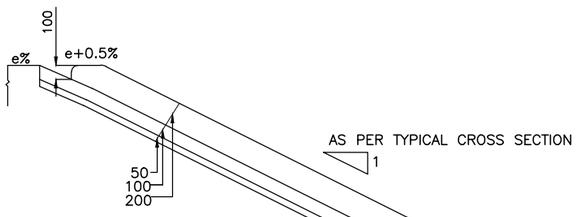
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/24	0

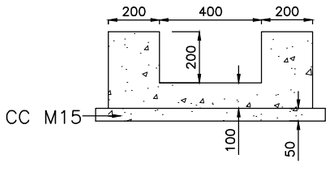




SECTION B−B

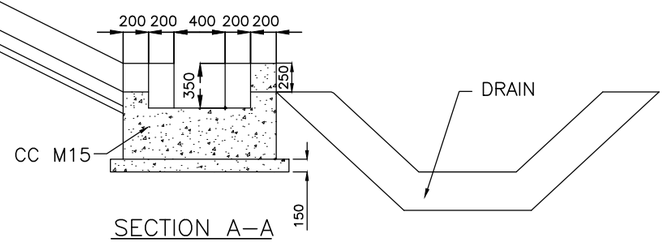
(WATER COLLECTION ARRANGEMENT ALONG SHOULDER)





SECTION C−C

CROSS SECTION OF CHUTE



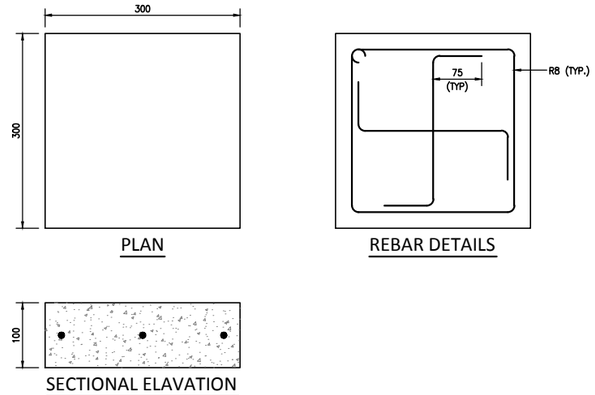
SECTION A−A

NOTE

1. ALL DIMENSION ARE IN MM & LEVELS ARE IN METRE.

NOTES:

1. TYPE OF MASONARY −BRICK WORK
2. RATIO OF CEMENT MORTAR 1:6 (1 CEMENT: 6 SAND)
3. MESH −8MMø RODS @ 200MM. C/C BOTH WAYS.
4. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.



DETAILS OF CONCRETE BLOCKS OF M15 FOR SLOPE PROTECTION

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD−25

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

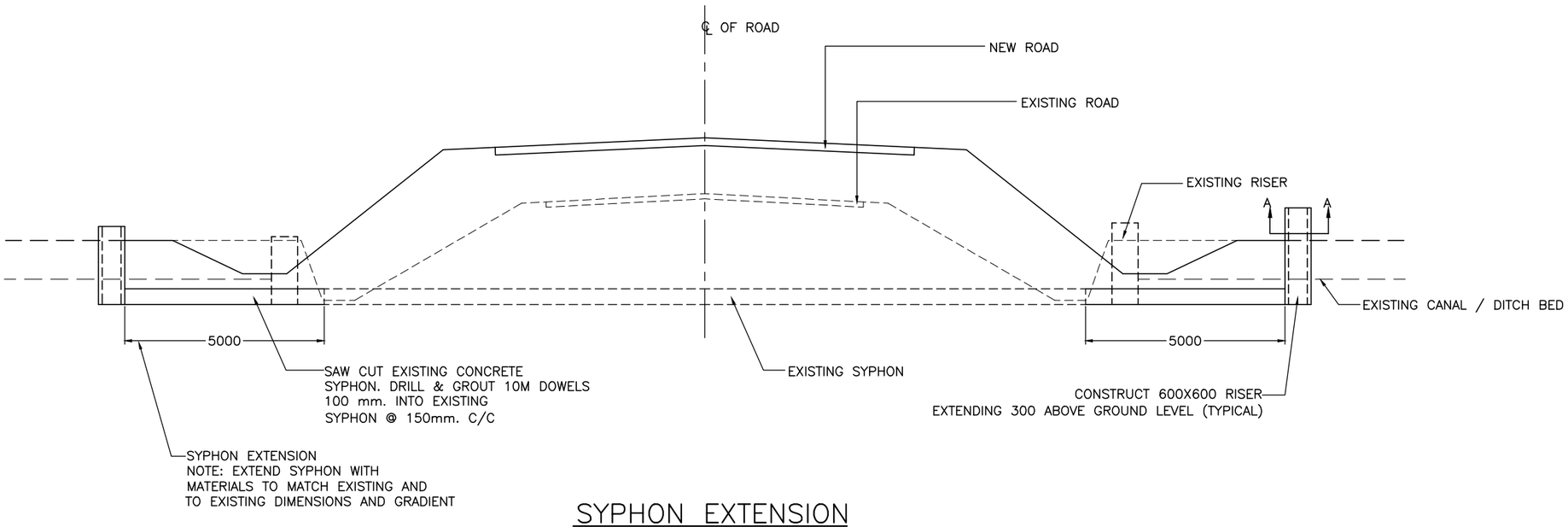
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP−II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

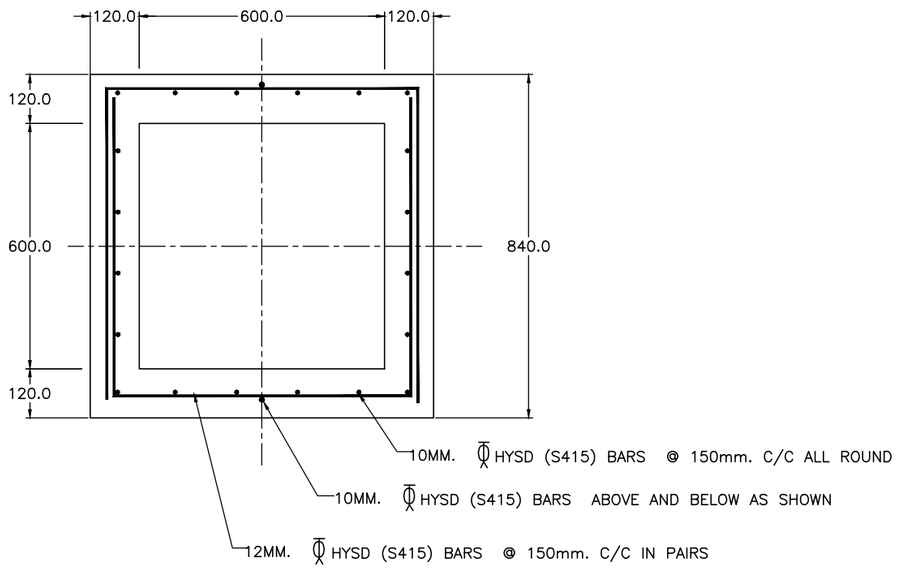
MISCELLANEOUS DETAILS
DRAINAGE CHUTE/OPEN DRAINS/DITCH PROTECTION

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/25	0



SYPHON EXTENSION

SCALE:– N.T.S.



SECTION – A A

SCALE:– 1:10

NOTES:

1. 50MM. CONCRETE COVER ALL AROUND THE BOX ON THE INNER SIDE .
2. M30 GRADE OF CONCRETE.
3. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.

No.	REVISION	DATE	BY

SCALE :
A2 AS SHOWN
A3 1:15, NTS

CAD FILE: MD–26

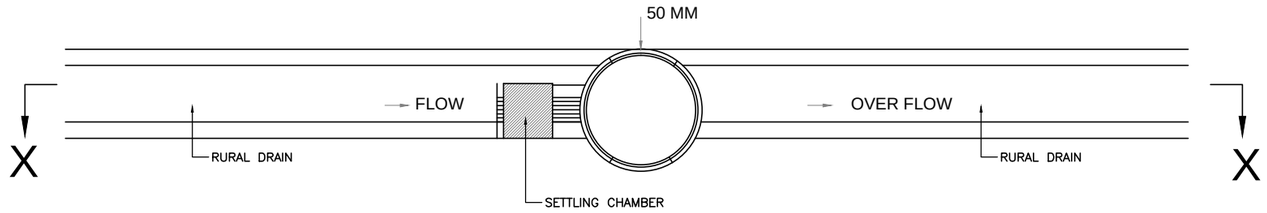
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

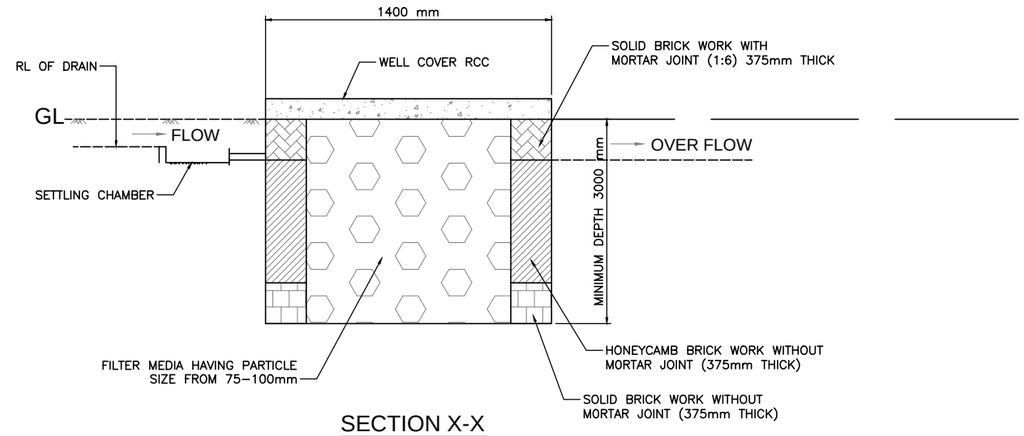
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
SYPHON EXTENSION

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/26	0



PLAN



SECTION X-X

DETAIL OF RECHARGE DUGWELL FOR WATER HARVESTING

WATER HARVESTING STRUCTURE / DUGWELL

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. SHOULD BE PROVIDED IN EVERY KM IN STAGGERED FASHION.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD–27

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

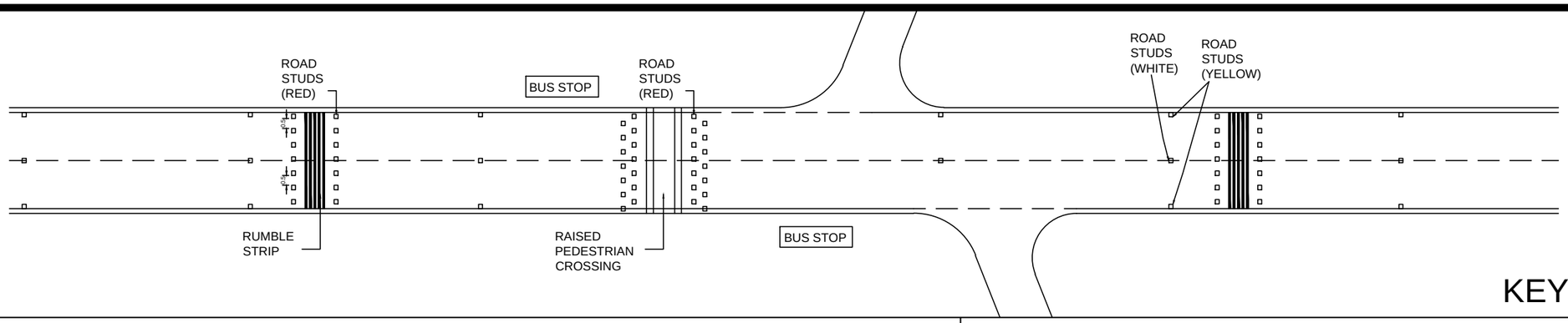
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

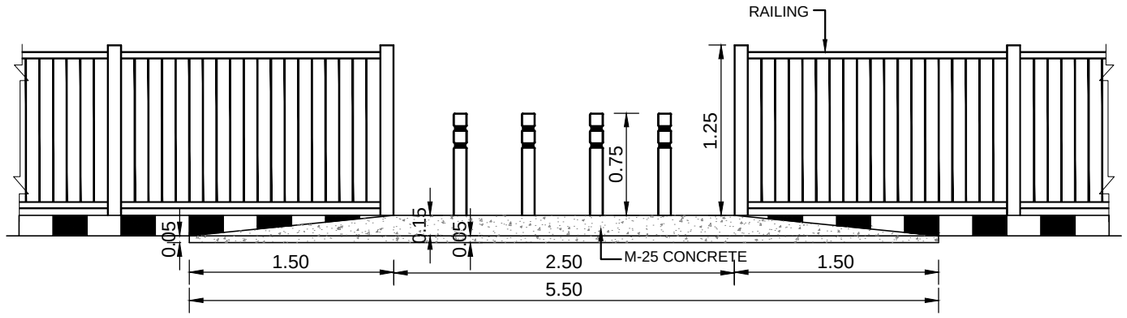
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

WATER HARVESTING STRUCTURE / DUGWELL

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/27	0



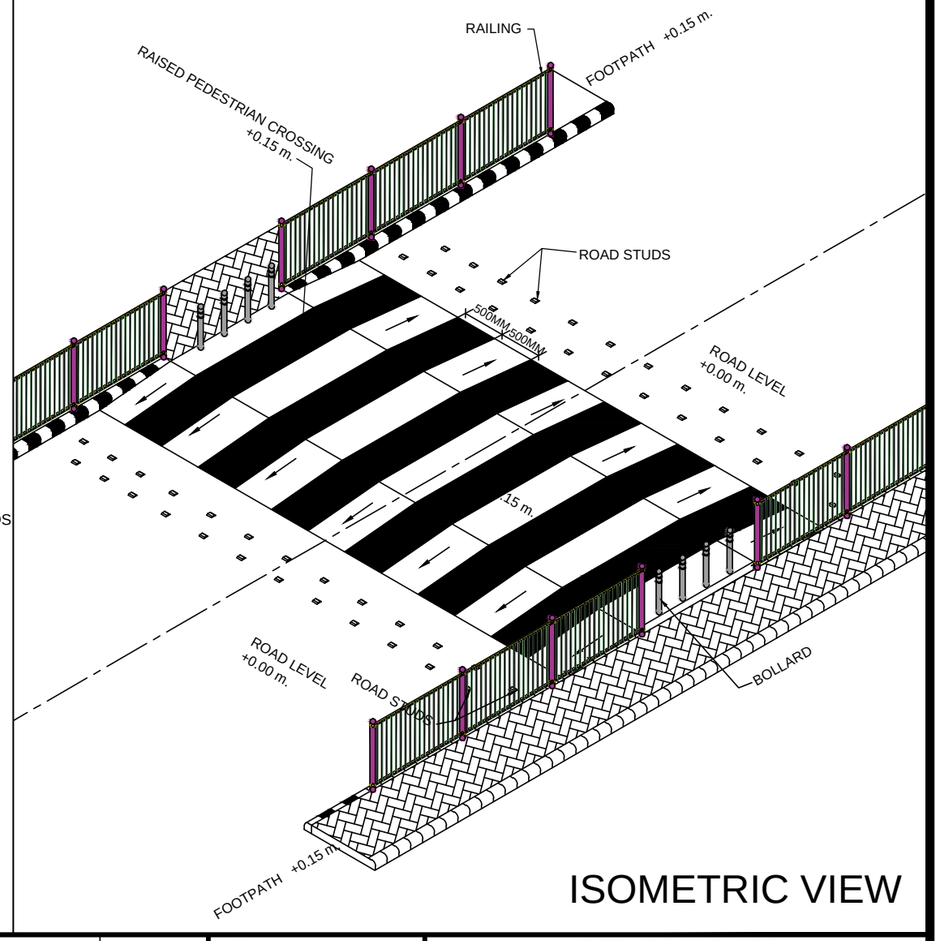
KEY PLAN



SECTION

PLAN

SCALE : 1 : 30



ISOMETRIC VIEW

No.	REVISION	DATE	BY

SCALE : AS SHOWN

CAD FILE: MD-28

DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	NAGA
CHECKED:	SAGAR

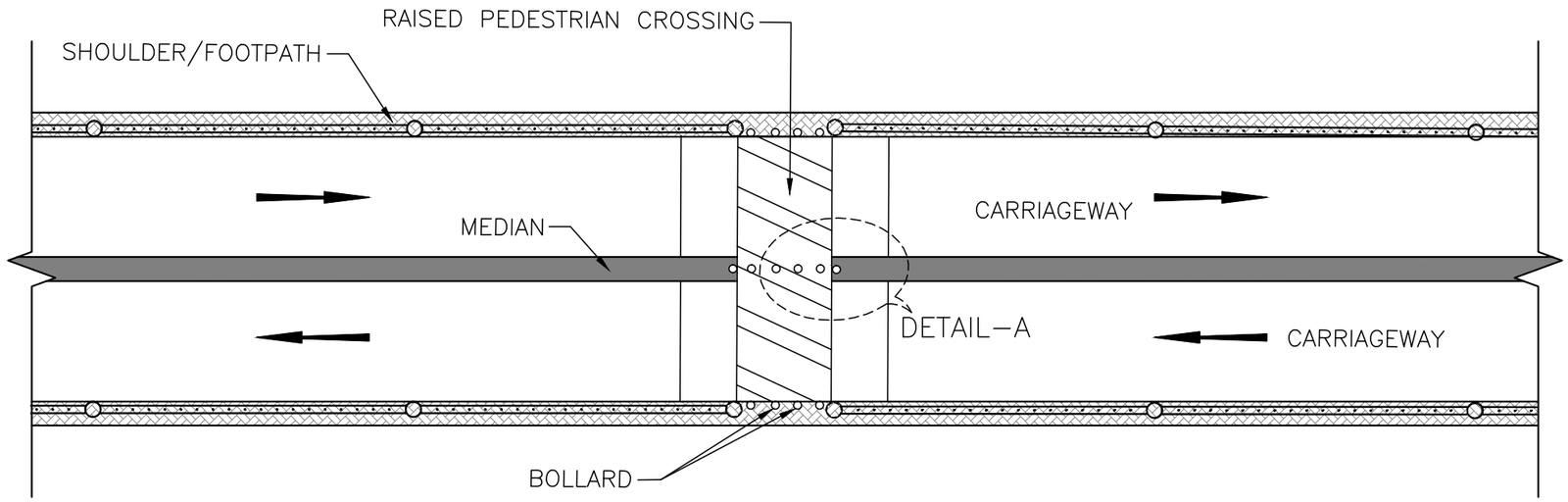
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

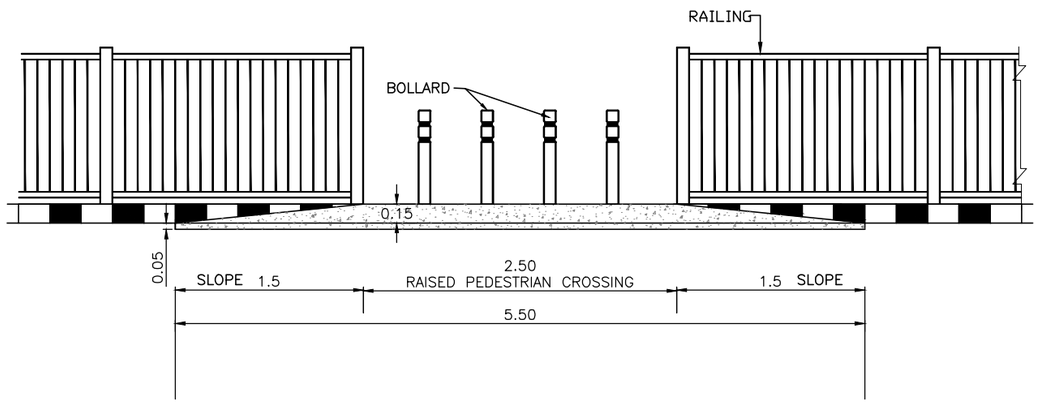
TYPICAL DETAILS OF RAISED PEDESTRIAN CROSSING

DATE:	PROJECT:	DWG No:	REV.
JUNE'2012	PPWCS	PPWCS/MD/28	0

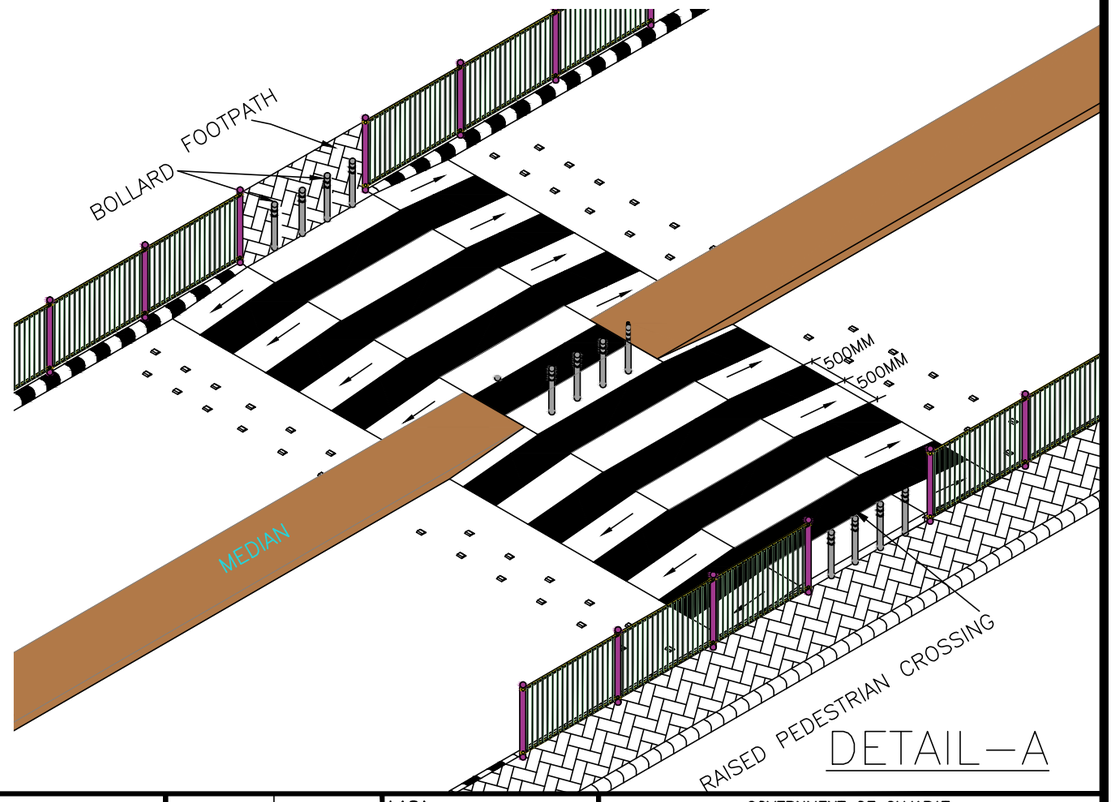


KEY PLAN

TYPICAL LAYOUT FOR RAISED PEDESTRIAN CROSSING



ELEVATION



DETAIL–A

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD–29

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

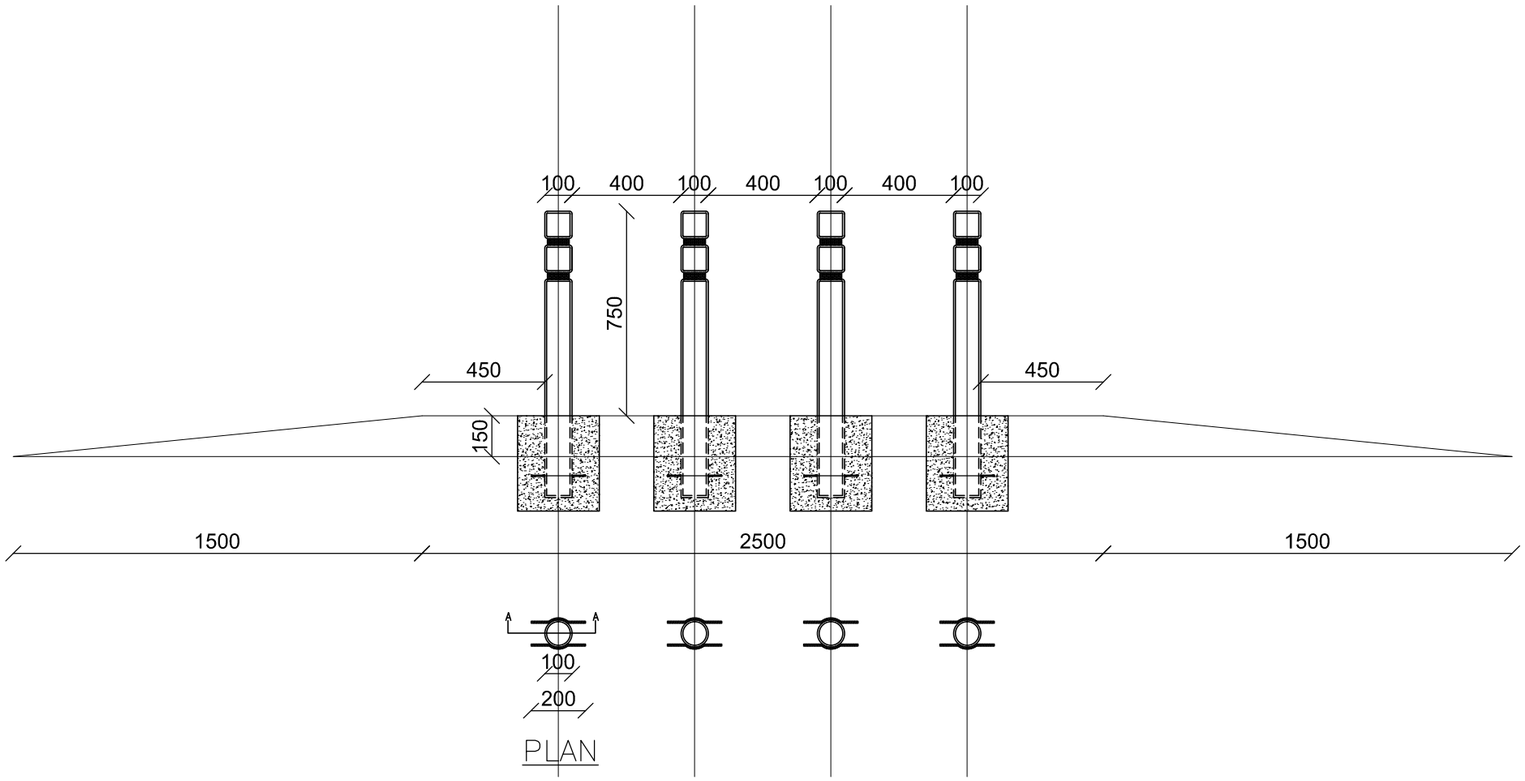
LASA INDIA

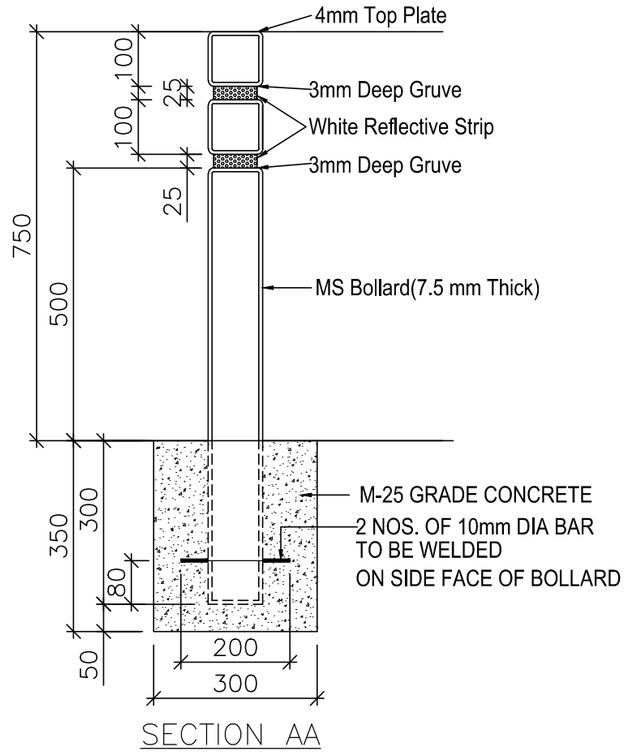
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

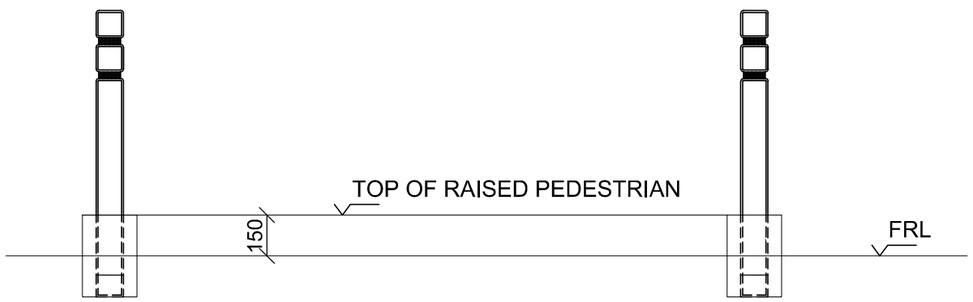
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

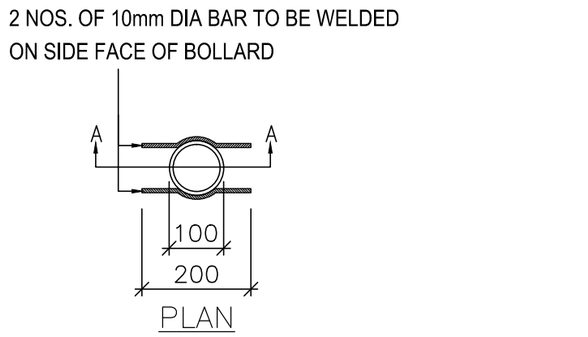
MISCELLANEOUS DETAILS
RAISED PEDESTRIAN CROSSING AT MEDIAN

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/29	0









No.	REVISION	DATE	BY

SCALE :
A2 1:15
A3 1:22.5

CAD FILE: MD-30

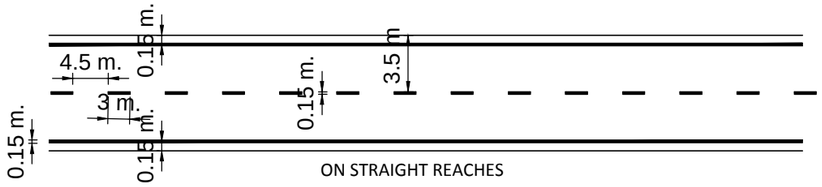
DRAWN:	KIRAN
CHECKED:	DIV'S
DESIGNED:	NAGA
CHECKED:	SAGAR

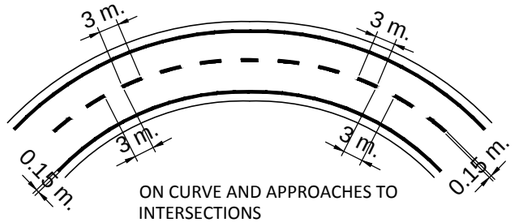
LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

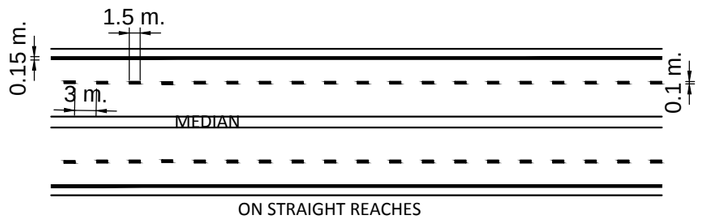
TYPICAL BOLLARD DETAILS

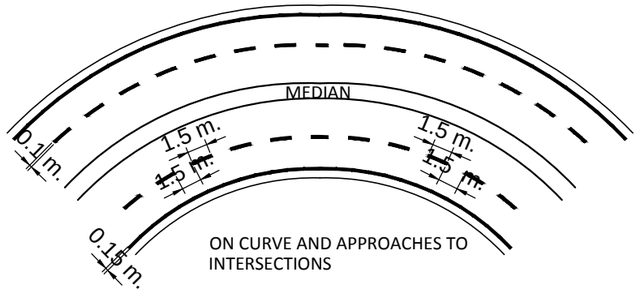
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/MD/30	0

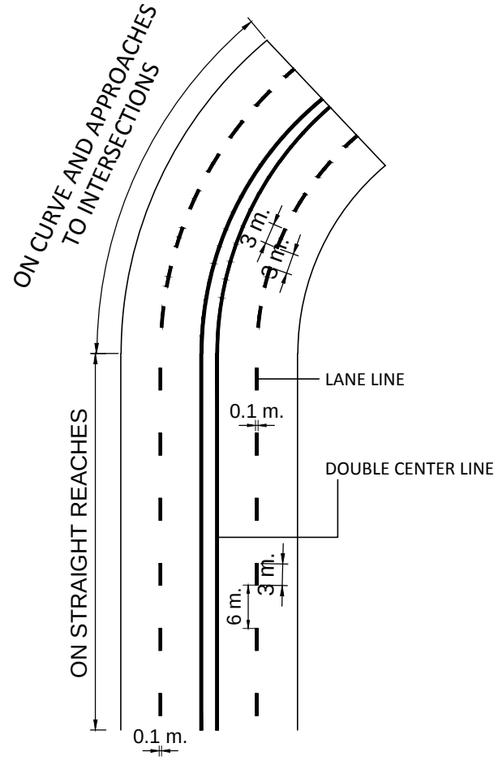




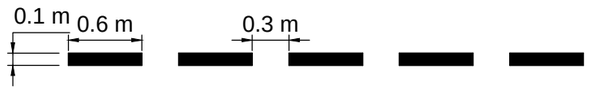
URBAN CENTER LINE MARKINGS







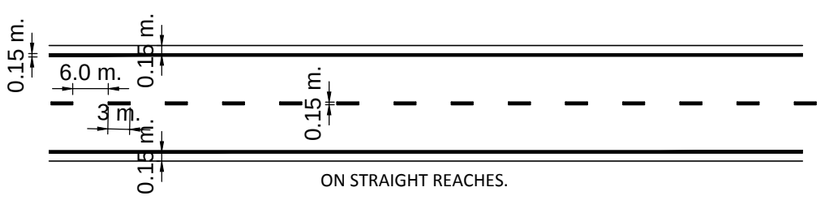
URBAN TRAFFIC LANE MARKINGS



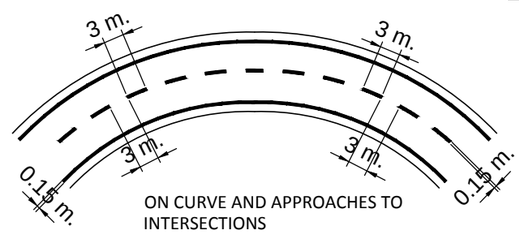
WARNING LANE MARKING

DOUBLE MARKING ARRANGEMENT

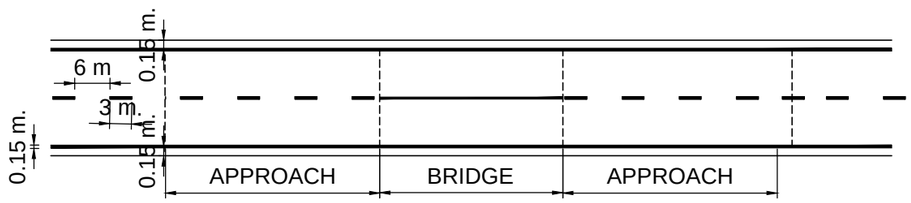
LANE MARKINGS



RURAL CENTER LINE MARKINGS



RURAL TRAFFIC LANE MARKINGS



ROAD MARKING AT BRIDGE

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD–31

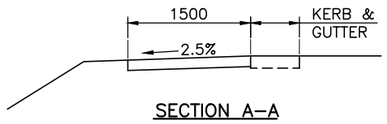
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

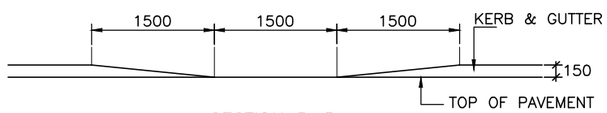
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
LANE MARKINGS URBAN AND RURAL AREA

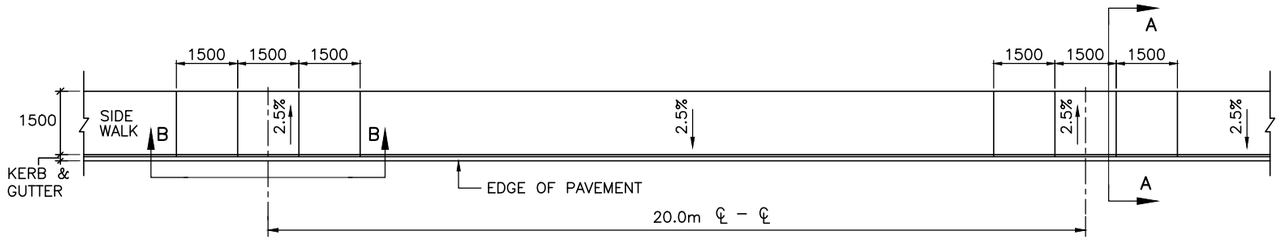
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/31	0



SECTION A–A

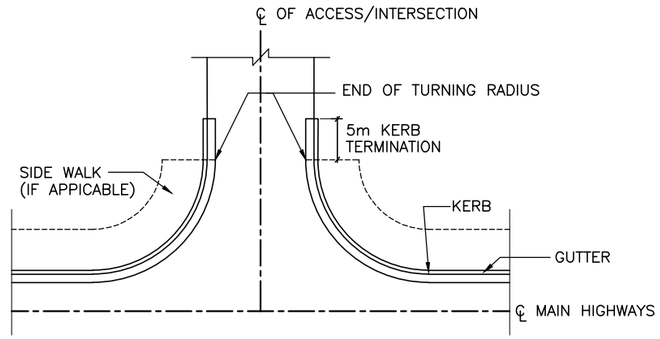


SECTION B–B

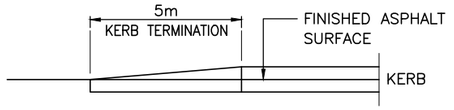


PLAN

DROP KERB & SIDE WALK FOR DRAINAGE OUTLET

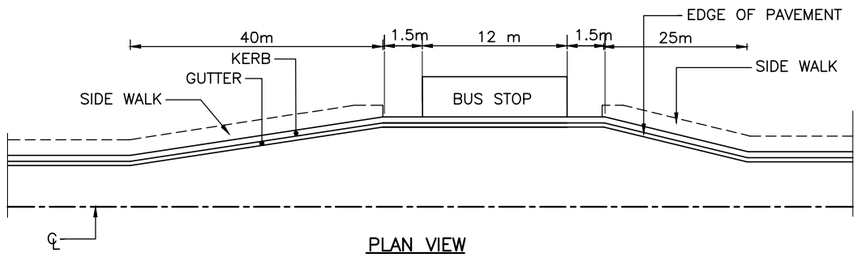


KERB TERMINATION AT ACCESS/INTERSECTION



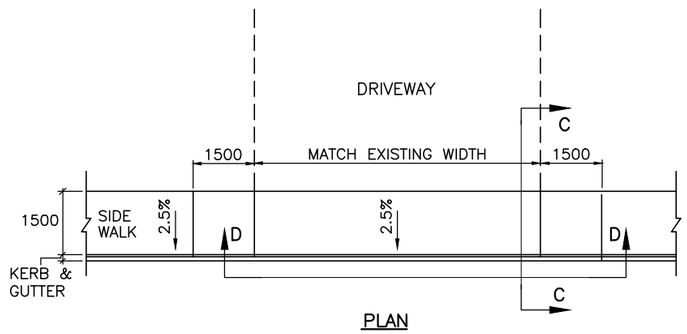
ELEVATION

KERB TERMINATION



PLAN VIEW

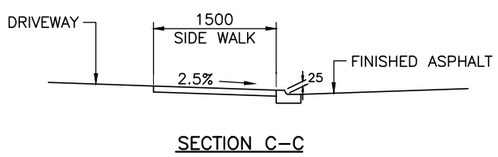
KERB TERMINATION



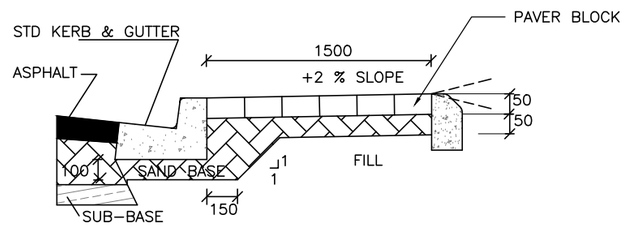
PLAN

DROP KERB & SIDE WALK AT DRIVEWAY

SECTION D–D



SECTION C–C



SIDEWALK DETAIL

NOTE:–

1. EXPANSION/CONTRACTION JOINTS @ 1200 C/C.

No.	REVISION	DATE	BY

SCALE :

CAD FILE: MD–32–R1

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA

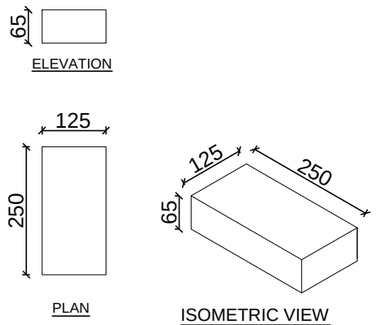
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
SIDEWALK/KERB TERMINATION DETAILS

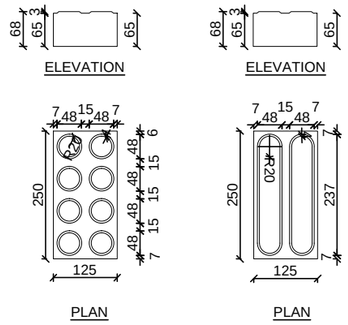
DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/32	0

PAVER BLOCKS



USE : FOOTPATH
COLOUR: GRAY
MATERIAL : M-25 CEMENT CONCRETE
- ALL DIMENSION ARE IN MM

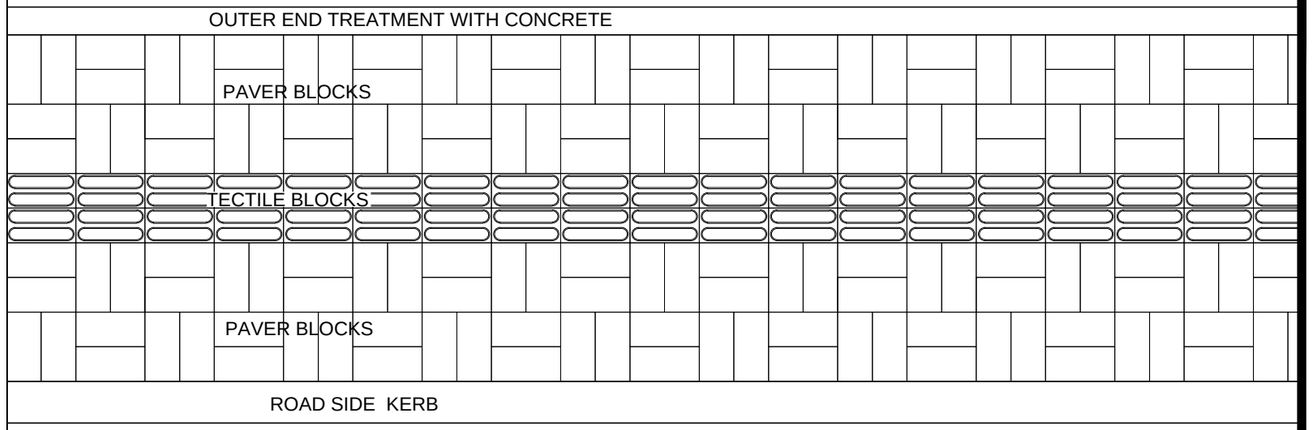
TACTILE BLOCKS



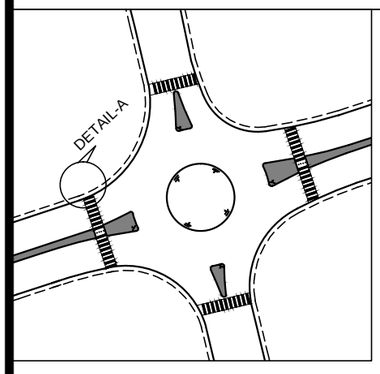
TACTILE DOTED
(125 X 250 X 65)

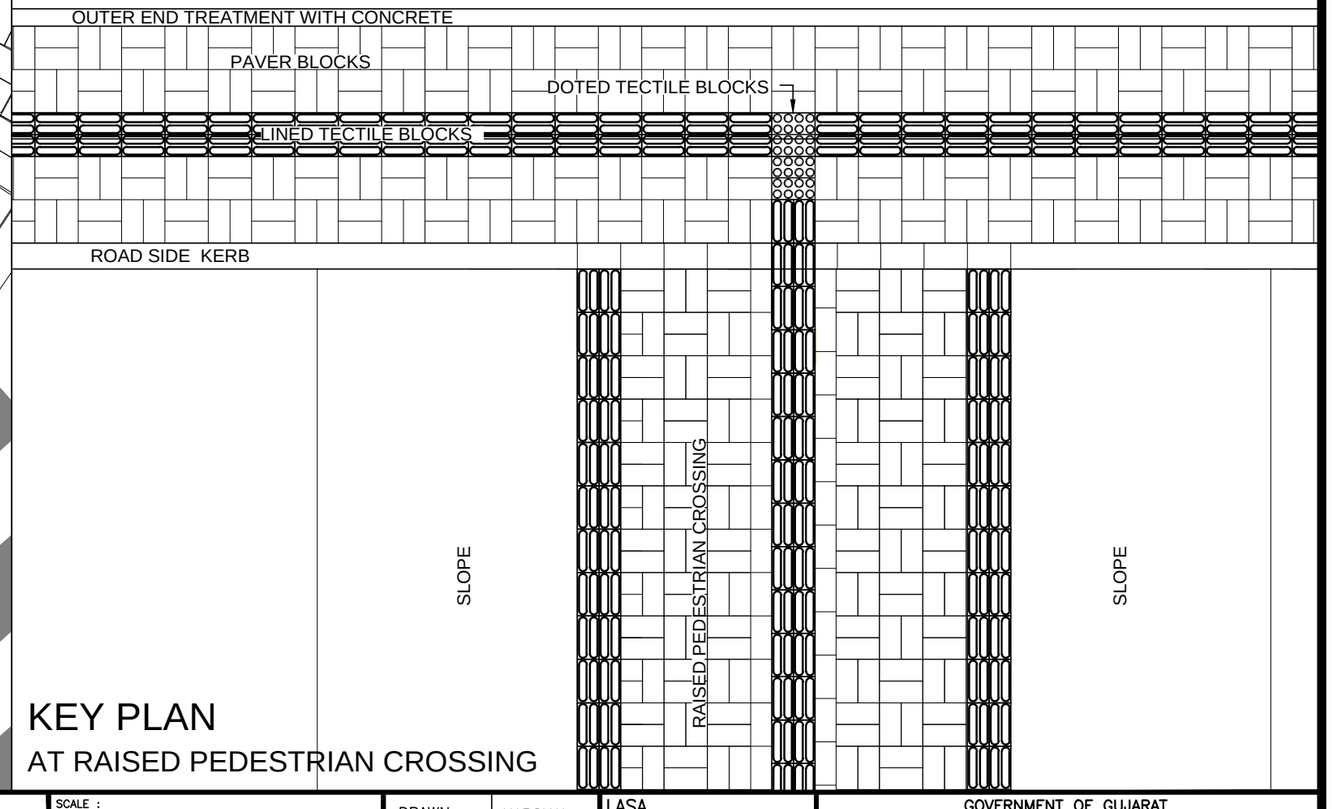
TACTILE LINED
(125 X 250 X 65)

NOTES:-
USE : FOOTPATH
COLOUR : YELLOW
- ALL DIMENSION ARE IN MM
- CONFORMING TO IS13801:1993 (REAFFIRMED 1998)
- THE TILE SHOULD BE SUBJECTED TO A PRESSURE OF NOT LESS THAN 14N/SQMM.



KEY PLAN
FOOTPATH AT MIDBLOCK





KEY PLAN
AT RAISED PEDESTRIAN CROSSING

No.	REVISION	DATE	BY

SCALE :

CAD FILE: MD–32A

DRAWN:	HARSHAL
CHECKED:	SAGAR
DESIGNED:	DIV'S
CHECKED:	SAGAR

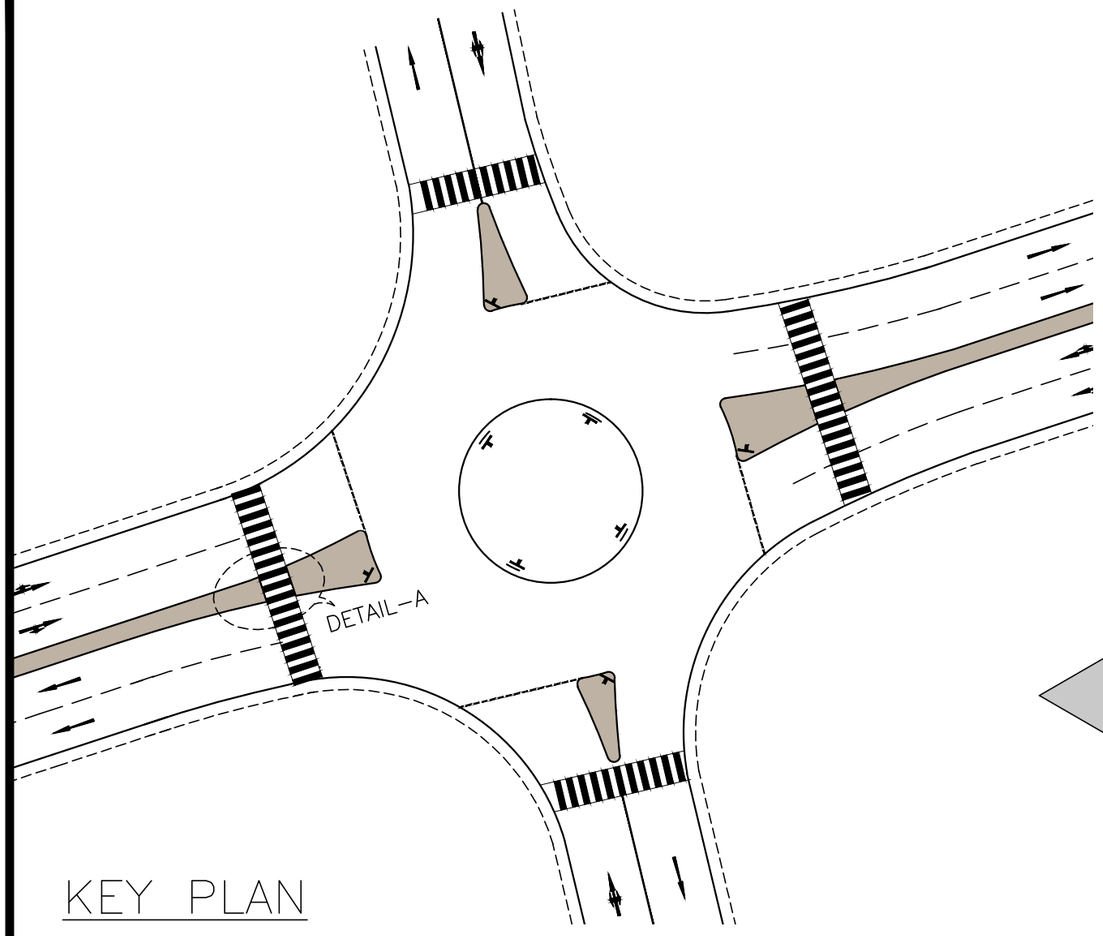
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

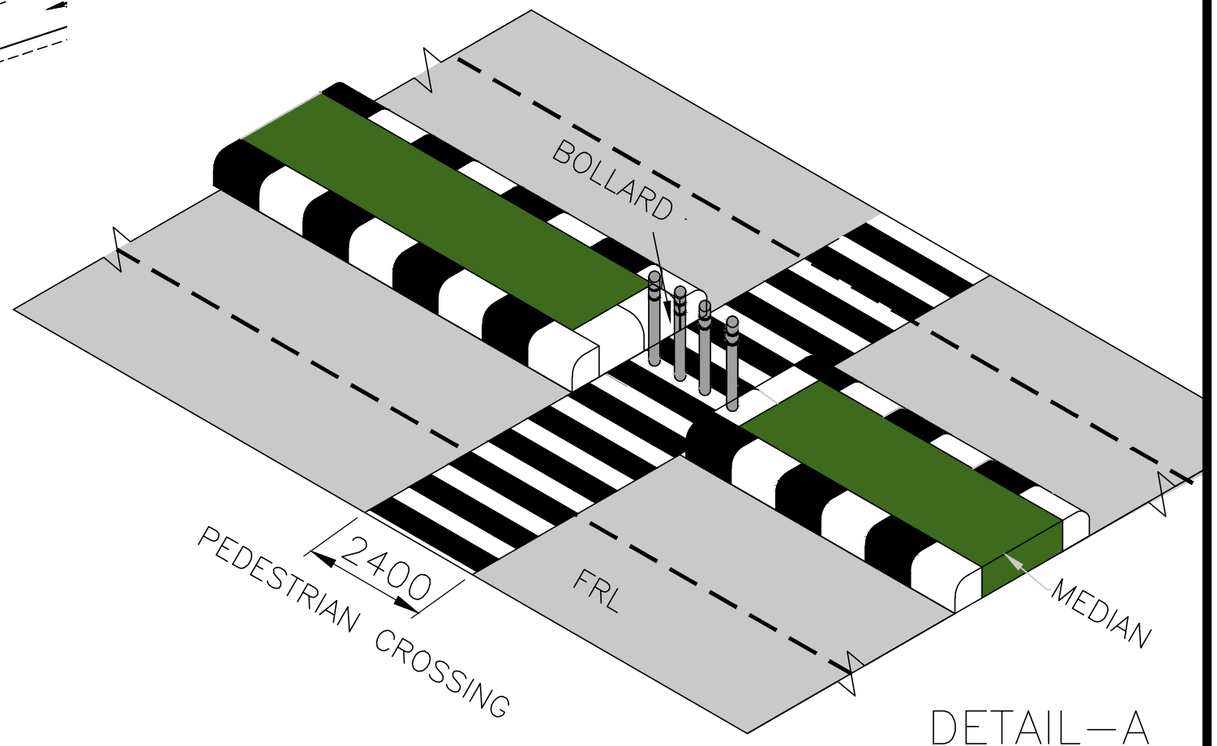
DETAILS OF PAVER BLOCK AND TACTILE BLOCK

DATE:	PROJECT:	DWG No:	REV.
FEB'2013	PPWCS	PPWCS/MD–32A	0

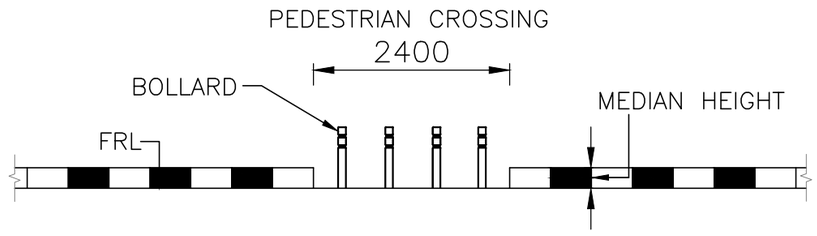


KEY PLAN

TYPICAL LAYOUT FOR PEDESTRIAN CROSSING



DETAIL–A



ELEVATION

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD–33

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

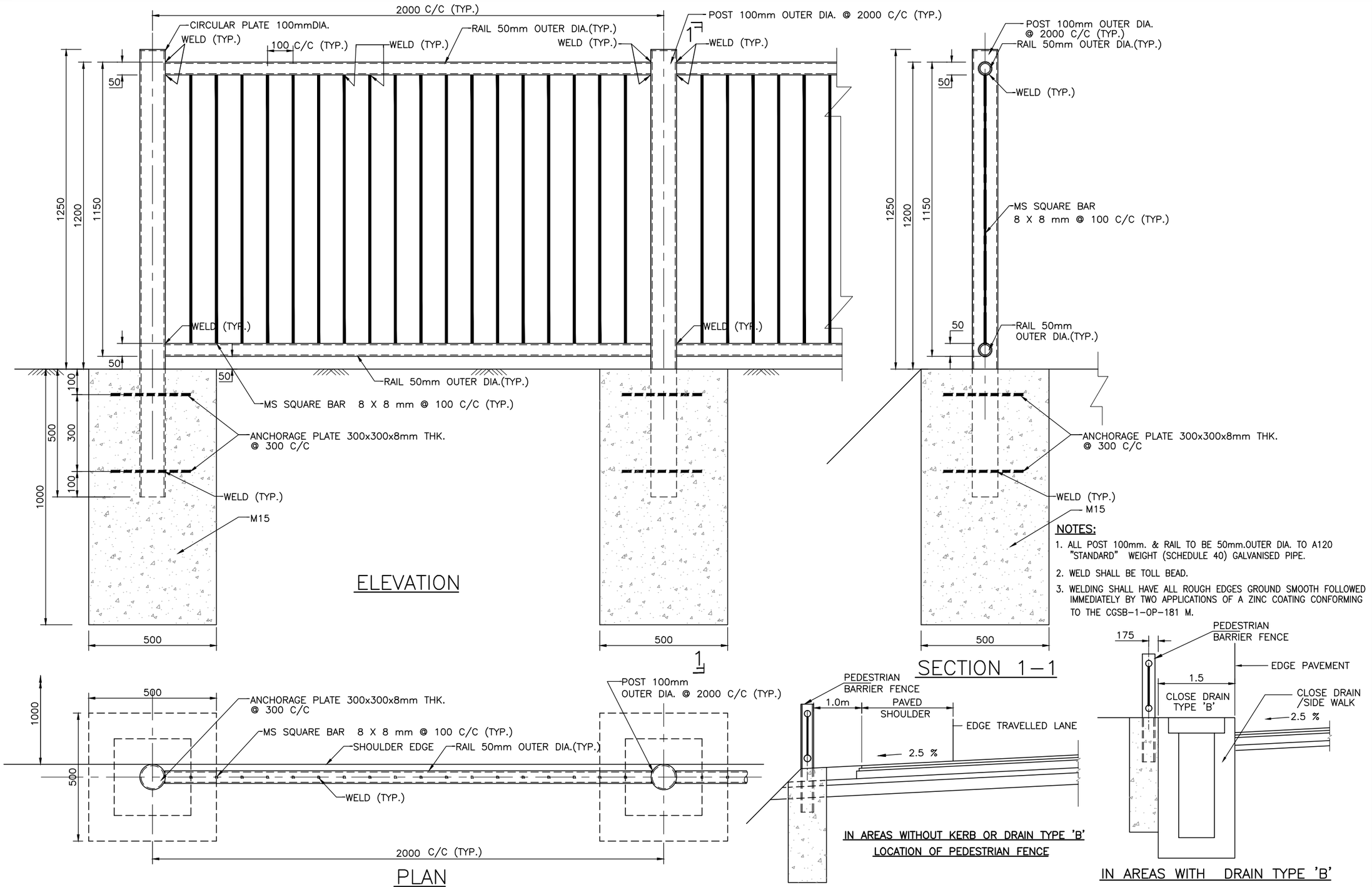
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
DETAILS OF PEDESTRIAN CROSSING AT MEDIAN

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/33	0



NOTES:

1. ALL POST 100mm. & RAIL TO BE 50mm.OUTER DIA. TO A120 "STANDARD" WEIGHT (SCHEDULE 40) GALVANISED PIPE.
2. WELD SHALL BE TOLL BEAD.
3. WELDING SHALL HAVE ALL ROUGH EDGES GROUND SMOOTH FOLLOWED IMMEDIATELY BY TWO APPLICATIONS OF A ZINC COATING CONFORMING TO THE CGSB–1–OP–181 M.

No.	REVISION	DATE	BY

SCALE :

CAD FILE: MD–34

DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

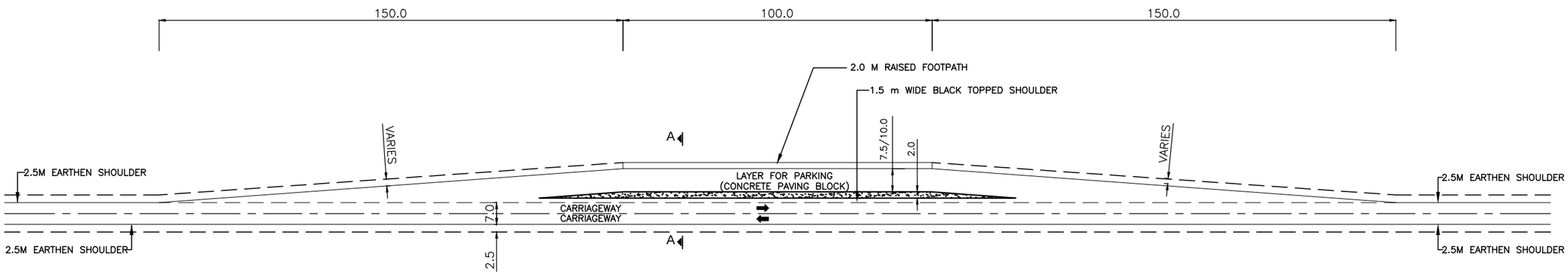
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

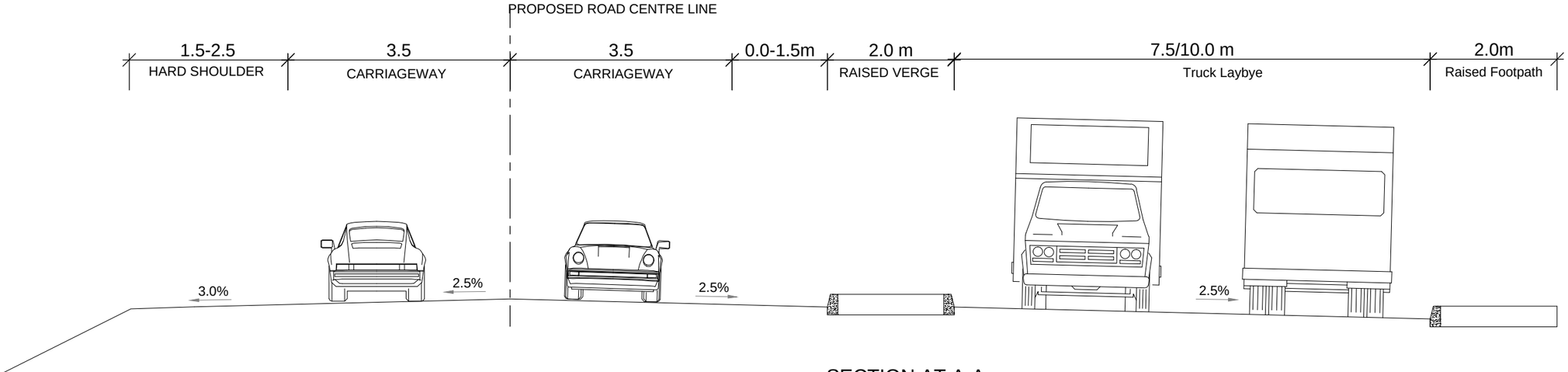
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
PEDESTRIAN BARRIER FENCE

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/34	0



SINGLE LAYBYE ON ONE SIDE FOR TRUCK PARKING



SECTION AT A-A

NOTES:

1. ALL DIMENSIONS ARE IN METRE UNLESS OTHERWISE SPECIFIED.

No.	REVISION	DATE	BY

SCALE :
A2 1:1000, 1:50
A3 1:1500, 1:75

CAD FILE: MD–35

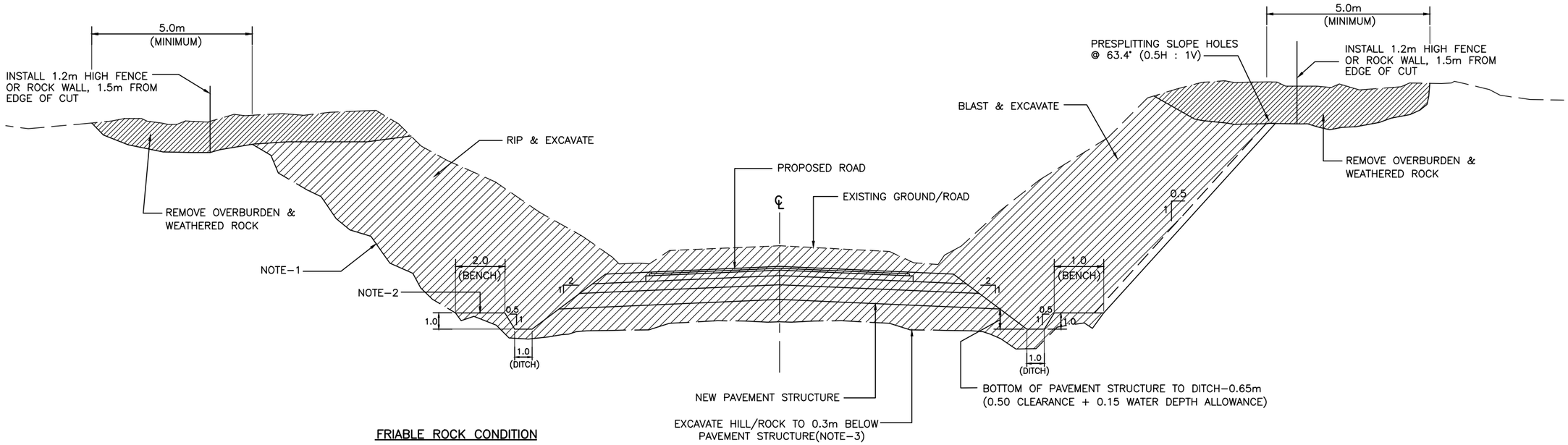
DRAWN:	KIRAN
CHECKED:	SAGAR
DESIGNED:	NAGA
CHECKED:	SAGAR

LASA INDIA
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
TRUCK LAYBY

DATE:	PROJECT:	DWG No:	REV.
DEC'2012	PPWCS	PPWCS/MD/35	0



HILL/ROCK CUT DETAIL

NOTES:-

(1) CUT SLOPE TO BE DETERMINED BY STABLE SLOPE CONDITIONS, MAXIMUM SLOPE 0.5H : 1V.

(2) INCREASE BENCH WIDTH TO 3.0m WHERE EXCAVATION HEIGHT OF FRIABLE ROCK EXCEEDS,6.0m.

(3) MAXIMUM OVER EXCAVATION OF FLOOR 1.0m.

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: MD-36.dwg

DRAWN:	DIV'S
CHECKED:	H.M.MAHESH
DESIGNED:	SAGAR
CHECKED:	SAGAR

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
HILL/ROCK CUT DETAIL

DATE:	PROJECT:	DWG No:	REV.
DEC'2012		MD-36	

REPLACE PREVIOUS DRAWING WITH NEW REVISION

BRIDGES AND

CROSS DRAINAGE STRUCTURES DRAWINGS

BAYAD TO DHORIDUNGRI SH-69

Table 1 : Structures of Length Up to 6 m.

Sr.No	SH No	Designed Chainage	CD No	Type of Structure	Span Arrangement	Item of Repair / Reconstruction Work															New Size of Pipe (Nos.x Dia.)	Size of Box (Nos.x WidthxHt.)	Four Lane	Widening Side	F.R.L. (m)
						A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
1	069	0+010	1/1	P.C.	2 X 0.75												X					2 X 1.20				113.218
2	069	0+700	1/2	P.C.	2 X 0.90	X													X							116.508
3	069	1+155	2/1	P.C.	2 X 0.75												X					2 X 1.20				116.665
4	069	2+980	3/1	P.C.	4 X 0.90	X																				116.753
5	069	4+560	5/2	P.C.	4 X 0.90	X					X															117.509
6	069	4+630	5/3	P.C.	4 X 0.90												X					3 X 1.20				117.403
7	069	5+160	6/1	P.C.	4 X 0.90	X													X							121.309
8	069	5+600	6/2	P.C.	1 X 0.90	X													X							125.737
9	069	5+830	6/3	P.C.	1 X 0.45												X					1 X 1.20				127.165
10	069	5+965	6/4	P.C.	4 X 0.75												X					3 X 1.20				127.672
11	069	6+710	7/1	P.C.	2 X 0.90	X					X															128.868
12	069	7+410	8/1	P.C.	1 X 0.90												X					2 X 1.20				132.371
13	069	8+110	9/1	P.C.	4 X 0.90	X					X															130.661
14	069	8+585	9/2	S.C.	1 X 2.75	X					X								X							130.415
15	069	10+050	11/1	P.C.	2 X 0.90	X													X							135.077
16	069	10+415	11/2	P.C.	2 X 0.90	X																			Concentric	134.365
17	069	11+475	12/1	P.C.	4 X 0.90	X								X										X	Concentric	140.490
18	069	12+200	13/1	P.C.	2 X 0.75												X					3 X 1.20		X		138.436
19	069	12+300	13/2	P.C.	4 X 0.90												X					3 X 1.20		X		138.190
20	069	12+670	13/3	P.C.	3 X 1.20	X													X							139.702
21	069	14+010	15/1	S.C.	2 X 2.50							X											2 X 2.0 X 2.0			145.825
22	069	15+580	16/2	S.C.	1 X 5.50							X											2 X 2.5 X 1.5			149.191

LEGEND

A –Cleaning of Vegetation and blockage in pipe, culvert and bridges.

B –Providing and fixing expansion joints (Refer dwg. No. PPWCS/BR/DD/02)

C –Casting of parapets /railings (Refer dwg. No. PPWCS/BR/DD/03 OR 04)

D– Remedial measures for embankment protection by stone pitching and scoured river–bed protection (Ref. dwg. no. PPWCD/BOX/DD/15) if required and as directed by Engineer.

E– Reconstruction in same or new alignment (As per relevant drawings)

F– Repair of cracks, honeycombs, spalling, leaching, exposed reinf. Etc. (Refer dwg. no. PPWCS/MJBR/RH/01 & 02)

G– Reconstruction with box–culvert
Refer drg. no. PPWCS/BOX/GA/1,5,38,40 and PPWCS/BOX/DD/2,3,6,7,29,39,41,15,16,17,18 and 19 respectively.

H– Widening of Structure:

– Pipe Culverts (Refer dwg. no. PPWCS/CULV/GA/60)

I– Reconstruction of Headwall (Refer dwg. no. PPWCS/CULV/RH/03)

J– Removing the existing wearing course and laying new layer including 6mm mastic asphalt and 50mm of asphaltic concrete.

K– Minor works consisting of desilting, repair of wing wall, repair / reconstruction of parapet or steel railing, repair of headwall, repair of pier/abut etc.

L– Reconstruction with pipe culvert for single and multiple pipe (Refer drg. no. PPWCS/CULV/GA/53,58,60,62 & 63) respectively.

M– Superstructure reconstruction including pier cap, abutment cap and replacement of existing bearing.

N– Plastering and Pointing as required.

O– Replaced damage NP–4 Pipe

P– Concrete Jacketing of Pier Or Abutment (Refer drg. no. PPWCS/MJBR/RH/04)

Note 1) Old pipes to be used for drainage ditch crossing if instructed by the resident engineer

2) Reference drawings should be read in conjunction with PPWCS/BR/SD/101 TO 104 and other related drawings.

Table 2 : Structures of Greater than 6 m. but Less than 60 m.

Sr.No	SH No	Designed Chainage	CD No	Type of Structure	Span Arrangement	Item of Repair / Reconstruction Work																Span Arrangement (NosxSpan)	Size of Box (Nos.x WidthxHt.)	Four Lane	Widening Side	F.R.L. (m)
						A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P					
1	069	1+550	2/2	Canal Minor	2 X 17.80	X									X											117.466
2	069	4+150	5/1	Canal Minor	2 X 7.00	X									X											116.855
3	069	9+070	10/1	Minor	2 X 5.00	X	X	X	X		X				X				X							128.55
4	069	15+400	16/1	Minor	2 X 5.00							X											2 X 5.0 X 2.0			148.722

No.	REVISION	DATE	BY

SCALE :

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LASA INDIA

PROJECT CO–ORDINATING CONSULTING SERVICES

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CORRIDOR: BAYAD TO LUNAWADA
SCHEDULE OF STRUCTURES

DATE:	PROJECT:	DWG No:	REV.
SEP'2012	PPWCS	PPWCS/STR–SCHLS/01	

(A) GENERAL

I. The design is according to the following codes :–

a.	IRC:5	–	1998
b.	IRC:6	–	2010
c.	IRC:18	–	2000
d.	IRC:21	–	2000
e.	IRC:22	–	2000
f.	IRC:78	–	2000
g.	IRC:83(PART I)	–	1999
h.	IRC:83(PART II)	–	1987
i.	IRC:SP:33	–	1989

j. Specifications for ''Roads & Bridges'' (4th revision) by MORTH.

II. All dimensions are in mm (unless otherwise specified) & chainages are in metre. Only written dimensions shall be followed. No dimensions shall be scaled.

III. The following loads have been considered in the design:–

a. One lane of IRC class 70R or two lanes of IRC class, A, on carriageway, whichever governs.

b. Footpath load of 5kN/sqm for superstructure having footpaths.

c. Wearing coat load of 2.2kN/sqm.

IV. The designs are applicable for "moderate and "severe" conditions of exposure.In case of "severe" conditions suitable anti–corrosion treatment as approved by the Engineer may be provided to reinforcement bars and exposed concrete surface.

(B) MATERIALS SPECIFICATIONS

Concrete

I. Concrete shall be design mix and have a minimum 28 days characteristic strength As given below on 150mm cubes.

STRUCTURAL ELEMENT		CONCRETE CHARACTERISTIC STRENGTH
Prestressed girders including deck slab	–	45/50 Mpa
Rcc girders including deck slab	–	35 Mpa
Piers, Pier cap, Well, Well cap, Abutments, Wing wall, Rcc railing	–	35 Mpa
Pile, Pile cap	–	40 Mpa
Crash barrier	–	40 Mpa

II. Ordinary Portland cement conforming to IS:269 or High Strength Ordinary Portland Cement conforming to IS:8112 capable of achieving the required design concrete strength shall only be used.

III. To improve workability of concrete and cement grout, admixtures conforming to IS:6925 and IS:9103 could be permitted subject to satisfactory proven use. Admixtures generating hydrogen, nitrogen, chlorides etc. should not be used.

IV. Cement content in RCC members shall neither be less than 400 kg/cum nor more than 540 kg/cum of concrete.

V. Maximum water cement ratio shall be restricted to 0.40.

VI. The nominal maximum size of aggregate to be used in RCC and PSC work shall be 20mm.

VII. Minimum clear cover to reinforcement shall be 70mm at surfaces in direct contact With soil and/or water, and 50mm at the remainder, unless otherwise noted.

VIII. 12mm thick plaster in cement mortar 1:3 to be applied on the top surface of the Deck slab before filling.

Sheathing

I. Sheathing shall be of "Drossbach" type 75mm ID manufactured from minimum o.4mm thick Corrugated HDPE strip. It shall be tested as per IRC:18–1985, Appendix 1.

II. The joints of all sheathing shall be water tight and conform to provisions contained in appendix–2 of IRC:SP:33–1989.

Water

I. Water to be used in concreting, grouting and curing shall conform to clause 5.1(ii) of IRC:SP:33–1989.

Reinforcement

I. All reinforcing steel shall be of High Yield Strength TMT–PC Bars (Grade designation Fe 415/Fe 500) conforming to IS : 1786.Mild Steel bars Grade designation S 240 shall confirm to IS : 432 part–I

II. Notation of bar reinforcement shall be as follows:–

Example:– Ϭ 8 @ 200 C/C

Ϭ represent Grade – S : 415 Grade Bar

ø represent Grade – S : 230 Grade Bar

Bar spacing indicated on the drawings shall be perpendicular to bars unless indicated in the drawing.

III. Steel spacer bars shall be provided between adjacent layers of parallel reinforcement and spaced at not more than 60 x smaller bar dia. The diameter of the spacer bar shall be at least 25mm but not less than the dia of the parallel reinforcements.

IV. Binding wires should be annealed 16 gauge mild steel wires free from any deleterious matters, dust etc.

V. At the locations where reinforcing bars are congested (like girder bulbs), Mechanical splices shall be used instead of over lapping to provide sufficient clearance Between adjacent bars.

Expansion Joints

I. The expansion joints must be robust, durable, water tight and replaceable. it must be provided over the full width of superstructure including kerb and footpath following the profile of the same (where relevant). expansion joints shall be obtained only from approved manufacturers and be of proven type. Details of expansion joints must be approved before commencement of construction. Site fabricated expansion joints shall be prohibited.

II. Expansion joints shall have the following additional essential features:–

a. For R.C.C.T–beam bridges, It shall cater for a total movement of 20mm with original gap of 40mm between concrete faces.

b. For PSC Girder Bridges, It shall cater for a total movement of ± 40mm

III. Fabricated steel parts shall be positioned accurately before concreting the portion of deck slab beyond the end faces of webs of box girder.

IV. Presence of manufacturer's representative at the time of positioning of embedded parts and installation of expansion joints is mandatory.

Weep holes

I. Weep holes 100mmø @ 1.0m c/c staggered to be provided in

a. Abutment for Major and Minor bridges

b. Wing wall / Return wall for Major, Minor bridge and Box structure.

c. End walls of Box structure

d. RCC or PCC Earth Retaining Wall.

(C) CONSTRUCTION

Sequence of prestressing

DAY (After casting of main girders)	ACTIVITY
14	Stressing of 1st stage cables
21	Casting of deck slab and cross girders
After 56	Installation of expansions joint and casting/laying of footpath (where applicable), kerb,wearing coat and railing.

Stressing of 1st stage cables can be done earlier on achieving a strength of 35 MPa. Susbsequent activities can also be advanced keeping the same time intervals.

Launching Truss

The design is based on cast–in–situ construction.However launching of girders may be permitted for which the load from leg of launching truss should not exceed the value given in relevant drawing.

No.	REVISION	DATE	BY

SCALE :

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LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

STANDARD GENERAL NOTES (SHEET 1 OF 4)

DATE:	PROJECT:	DWG No:	REV.
APRIL.'2012	PPWCS	PPWCS/BR/SD/101	0

(D) PRESTRESSING

I. The jacking force in each cable is 1543 kN to be imparted at both end simultaneously by using multi– strand jack.

II. The following basic properties of Prestress tendons have been considered in the design:–

a.	Area of 1 strand	=	98.7 sqmm
b.	Wobble coefficient k	=	0.002 per metre
c.	Friction coefficient u	=	0.17
d.	Modulus of Elasticity of strand	=	$1.95*10^5$ MPa
e.	Anchorage slip	=	6mm

III. Minimum strength of concrete at the time of tensioning of cables shall not be less than 35 MPa.

IV. Grouting shall be carried out as per Appendix 2 of IRC:18–2000. After the prestressing operations are completed and strands have been cut by acceptable tools, reusable metal cap with a central hole shall be fixed by four bolts to the guide plate of anchor to prevent leakage during grouting under pressure. Suitable rubber gasket shall be provided at the interface of metal cap and guide. External threaded pipe of O.D=19mm shall be used as nipple for grouting and shall protude from metal cap. All standard accessories and their details much as vent pipes, fixation details of vent pipe with sheathing, location of vent pipes and methodology of grouting shall be submitted by contractor in consultation with specialised agency for approval of the Engineer.

V. For future prestressing in case of bridge distress,single 12.7 mm dia. 7–ply class 2 strands as per IS:6006–1983 shall be used.The tensioning force per strand shall be 128.6 KN. Mono strand jacks shall be used for tensioning of strands utilising approved prestressing system only. The externally placed strands shall be protected by polyethelene sheathing and grouted.

VI. Anchorage recesses to be sealed with epoxy coating and filled with prepackaged non–shrink mortar. End face of girder, at the locations of anchorages, shall be coated with two coats of epoxy.

VII. Wherever necessary, reinforcement bars may be bent or shifted locally to avoid clashing with prestress tendons and anchorages, holes and recesses.

VIII. All anchorages plates are to be set at right angles to the tendon.

IX. Ducts for prestressing steel shall be securely fastened in place to prevent movement Until concrete is placed and hardened. Ducts shall be supported at intervals not exceeding 500mm or as shown on the drawings.

X. Welding is not permitted within 3000mm of any tendon or tendon duct.

XI. Prestressing steel shall be accurately located and maintained in position as per drawing, within a maximum tolerance of ± 5mm. The sheathing being supported and fixed at interval not exceeding 0.75m by fixing steel chairs on spacer bars to secondary reinforcement in such a manner that the profiles of the cables is in no way disturbed by heavy vibration and / or by the pressure of wet concrete.

XII. During concreting and uptill final setting of concrete it shall be ensured that the cable moves freely in the sheath by moving the cables forward and backward.

(E) WORKMANSHIP/DETAILING

I. Minimum clear cover to reinforcement shall be 70mm at surfaces in direct contact With soil and/or water, and 50mm at the remainder, unless shown otherwise in the drawing.

II. For ensuring proper cover of concrete to reinforcement bars, the mortar blocks of same grade as of parent concrete shall be provided & shouid be able to withstand the crushing during construction.

III. Welding of reinforcement bars shall not be permitted.

IV. Bending of reinforcement bars to be as per IS:2502–1963.

V. Minimum lap length shall be kept as 60xd where "d" is the diameter of bar.Lap shall be staggered at such a way that more than 50 bars are lapped at one location.

VI. Supporting chairs of 12mm dia shall be provided at suitable intervals as per IS:2502.

VII. Sharp edges of concrete shall be chamfered (25mmx25mm).

VIII. Formwork details shall be submitted by the contractor for the approval and that shall be load tested before use.

IX. Proper compaction of concrete shall be ensured by use of form and/or needle vibrators.Use of full width screed vibrators for compaction of concrete in deck slab shall be ensured.

X. Shuttering plates shall suitably be stiffened to enable the compaction by form vibrators.

XI. All setting out dimensions, reduced levels, concrete dimensions & cable profiles to be verified on site before construction commences. Any discrepancy to be brought to the notice of the Engineer immediately.

XII. The location of jacks for lifting up the superstructure to replace bearing etc. is shown thus ↑ This shall be distinctly etched on soffit of superstructure and pier/abutment caps.

XIII. During jacking operation all jacks placed under one end cross girder shall be operated simultaneously using stress control system so as to ensure that the reaction on both the jacks is equal at all times.

Construction joints

I. Construction joints shall be provided only at locations shown on the drawings. Concreting operation shall be carried out continuously up to the construction joints.

II. The concrete surface at the joint shall be brushed with a stiff brush after casting while the concrete is still fresh and it has only slightly hardened.

III. Before new concrete is poured, the surface of old concrete shall be prepared as under :–

(a) For hardened concrete, the surface shall be thoroughly cleaned to remove debris and laitance and made rough so that 1/4 of the size of aggregate is exposed but without dislodging the aggregate or structurally damaging the concrete.

(b) For partially hardened concrete, the surface shall be treated by wire brush followed by an air jet. The old surface shall be soaked with water, without leaving puddies, immediately before starting oncreting to prevant absorption of water from new concrete.

IV. New concrete shall be thoroughly compacted in the region of the joint.

(F) SPECIAL NOTE FOR PRESTRESSING

If the calculated elongation is reached before the calculated gauge pressure is obtained, continue tensioning till the calculated gauge pressure is attained, provided the elongation does not exceed 1.05 times the calculated elongation. If this elongation is achieved before the calculated gauge pressure is attained, stop stressing and inform the Engineer.

If the calculated elongation has not been reached continue tensioning by intervals of 5kg/ sqcm till the calculated elongation is attained, provided the gauge pressure does not exceed 1.05 times the calculated gauge pressure.

If the elongation at 1.05 times the calculated gauge pressure is less than 0.95 times the calculated elongation, the following measures must be taken, in succession, to define the cause of this lack of elongation.

- Recalibrate the pressure gauge
- Check the functioning of the jack, pump and leads
- De–tension the cable. Slide it in its duct to check that it is not blocked by mortar which has entered through the holes in the sheath. Re–tension the cable, if free.

If the required elongation is not obtained, further finishing operations such as cutting or sealing should not be undertaken without the approval of the Engineer.

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

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DESIGNED:	DIPAK SONI
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PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

STANDARD GENERAL NOTES
(SHEET 2 OF 4)

DATE:	PROJECT:	DWG No:	REV.
APRIL.'2012	PPWCS	PPWCS/BR/SD/102	0

NOTES FOR REPAIR AND REHABILITATION

1. OBJECTIVE OF REPAIR TO RCC STRUCTURAL ELEMENTS:–
   - REMOVE CAREFULLY AND WITHOUT DAMAGE TO ADJACENT STRUCTURES TO BE LEFT IN PLACE, ALL SUB–STANDARD MATERIALS.
   - EXPOSE AND PROTECT CORRODED REINFORCEMENT.
   - REPLACE SUB–STANDARD MATERIALS BY NEW SPECIFIED MATERIALS.
2. METHOD STATEMENT OF ALL WORKS SHALL BE GIVEN BY THE CONTRACTOR GIVING WORKING DETAILS & DRAWINGS OF METHODOLOGY PREPARED FOR EACH ACTIVITY OF THE REPAIR & REHABILITATION WORKS FOR EACH AFFECTED STRUCTURE.
3. REPRESENTATIVE OF MANUFACTURER OF PROPREITARY MATERIALS AND EQUIPMENT TO BE AVAILABLE AT SITE FOR TRAINING CONTRACTOR'S PERSONNEL AND CERTIFYING WORK AS PER THEIR SPECIFICATIONS.
4. USE OF SPECIAL PROPRIETARY MATERIALS IS ENVISAGED. THIS IS BASED ON "FOSROC" PRODUCTS. APPROVED EQUIVALENT CAN BE USED.
5. USE OF SPECIAL PROPRIETARY MECHANICAL EQUIPMENTS FOR DRILLING, BREAKING, CHIPPING ETC IS ENVISAGED. THE EQUIPMENTS FOR THIS PURPOSE SHALL BE OF SPECIALISED PORTABLE TYPE "HILTI" MANUFACTURE. FOR DEMOLITIONS & BREAKING HILTI EQUIPMENT NO.TE804 & FOR DRILLING HOLES IN CONCRETE & STEEL HILTI EQUIPMENT NO.TE–75 IS RECOMMENDED. MOBILISATION AND USE OF SUCH EQUIPMENTS SHALL BE CONSIDERED INCIDENTAL TO THE WORKS. NO SEPARATE PAYMENT SHALL MADE ON THIS ACCOUNT. APPROVED EQUIVALENT CAN BE USED.
6. PRE–REPAIR TESTS:
   TO UNDERSTAND THE GENERAL EXTENT/DEPTH OF DISTRESS, CONTRACTOR'S REPAIR EXPERT MAY CONDUCT SOME PRE–REPAIR TESTS (AT THE DISCRETION OF ENGINEER) ON SAMPLES OF SLABS AND/OR OTHER PARTS OF STRUCTURE CONFORMING IRC:SP–35,AS BELOW:
   - CARBONATION TEST: 2% PHENOLPHTHALEIN SOLUTION ON EXPOSED CONCRETE SURFACE
   - CHLORIDE TEST: TESTING PIECES OF CONCRETE (FROM GIVEN DEPTH) FOR CHLORIDE CONTENT.
   - CORING: FOR ANALYSING IN LABORATORY FOR VARIOUS PROPERTIES INCLUDING CONCRETE STRENGTH.
   - PROFOMETER TEST: BEFORE TAKING UP CERTAIN TYPE OF REPAIR ACTIVITIES EG. MAKING HOLES IN REINFORCED CONCRETE ELEMENTS, IT MAY BE ESSENTIAL TO PRE–DETERMINE THE LOCATION OF EXISTING REINFORCEMENT BARS IN THE CONCRETE VICINITY. THIS SHALL BE DONE BY EMPLOYING INSTRUMENT "PROFOMETER–4" AVAILABLE FROM AIMIL LTD.,(OR APPROVED EQUIVALENT). THIS INSTRUMENT IS CAPABLE OF DETERMINING THE COVER AND DIA OF THE EXISTING REINFORCEMENT. OTHER METHODS LIKE CHISELING, DRILLING ETC FOR LOCATING EXISTING REINFORCEMENT BARS WOULD NOT BE PERMITTED.
   - HALF CELL POTENTIOMETER TEST: FOR DETERMINING EXTENT OF CORROSION OVER EMBEDDED LENGTH OF REBAR FROM EXPOSED END TEST PANELS SIMULATING ACTUAL FIELD CONDITION AS PER 2807.7 OF MOST SPECIFICATION. THUS THE REPAIR TEAM SHOULD COMPLETELY QUANTIFY THE EXTENT OF CORROSION.
   - SCHMIDT HAMMER & OTHER TESTS:
     THESE ARE USED TO MEASURE HARDNESS OF CONCRETE SURFACE WHICH CAN BE RELATED TO ITS STRENGTH. THE INSTRUMENT USED IS VERY HANDY. THE PULLOUT METHODS AND PENETRATION RESISTANCE TECHNIQUES ARE ALSO ADOPTED FOR ESTIMATION OF STRENGTH OF CONCRETE AND ASSESSMENT OF ITS OVERALL QUALITY.
   - Ultrasonic pulse velocity measurement:
     The quality of concrete can be assessed by passing through concrete the ultrasonic pulse and measuring the velocity, measured value may be affected by surface texture, moisture content, temperature, specimen size, reinforcement and stress. Co–relations with strength are difficult to make and will be influenced by types and proportions of mix constituent and maturity. Calibration on test cores is essential.
7. BOQ IS APPROXIMATE AND SUBJECT TO CHANGE
   INSPECTIONS ARE TO BE CARRIED OUT JOINTLY & APPROVED BY THE ENGINEER.
8. ACCESS FOR INSPECTION & CARRYING OUT ALL REPAIR WORK TO BE ARRANGED BY CONTRACTOR. WORKING PLATFORMS TO BE PROVIDED BY CONTRACTOR SHALL BE SPACIOUS, STABLE AND STRUCTURALLY SOUND. THESE SHALL BE CONSIDERED INCIDENTAL TO THE WORKS. NO SEPARATE PAYMENT SHALL MADE ON THIS ACCOUNT.
9. IN CASE DIRT WALL / ABUTMENT CAP REQUIRE REPAIRS / DISMANTLING OR REPLACEMENT OF BEARING ON ABUTMENT, ONLY PART OF DIRT WALL SHALL BE DISMANTLED AT A TIME TO ENSURE THAT THE APPROACH IS SERVICEABLE AND PERMITS TRAFFIC MOVEMENT ON BRIDGE DURING RECTIFICATIONS.
10. IN CASE EXPANSION JOINTS ARE BLOCKED OR DAMAGED THE SAME INCLUDING ANY DEBRIS OF ETC. SHALL BE REMOVED CAREFULLY. THIS SHALL BE CONSIDERED INCIDENTAL TO THE WORK PROVISION OF NEW EXPANSION JOINTS AND NO SEPARATE PAYMENT SHALL BE MADE FOR REMOVAL OF EXISTING JOINT, DEBRIS ETC.
11. THE SERVICE LINES, IF ANY SHALL BE CAREFULLY DIVERTED AS DIRECTED BY THE ENGINEER BEFORE DISMANTLING WORK STARTS. THEY SHALL BE RE–INSTATED TO ORIGINAL LOCATION OR AS DIRECTED BY THE ENGINEER IN CHARGE . THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ALL DEMOLITION WORKS AND NO SEPARATE PAYMENT SHALL BE MADE ON THIS ACCOUNT.
12. STRUCTURAL CONCRETE SHALL CONFORM TO "SEVERE" CONDITIONS OF EXPOSURE AS PER MOST SPECIFICATIONS CLAUSE 1703.2. PARTICULAR ATTENTION IS DRAWN TO CLAUSE 1704.1 OF MOST SPECIFICATION INDICATING MINIMUM SLUMPS REQUIREMENTS FOR WHICH SUPERPLASTICISER CONPLAST SP337 OF FOSROC OR APPROVED EQUIVALENT SHALL BE ADDED AS PER MANUFACTURER'S SPECIFICATION.
13. ARRANGEMENT OF PASSAGE OF TRAFFIC ALONG A PART OF EXISTING CARRIAGE WAY OR ALONG DIVERSIONS DURING
    CONSTRUCTION SHALL REMAIN THE RESPONSIBLITY OF THE CONTRACTOR . ADDITIONAL STEEL TRESTLES AND PROVISION OF STEEL RAMPS REQUIRED TO FACILITATE PASSAGE OF TRAFFIC ALONG PART OR FULL EXISTING CARRIAGEWAY SHALL BE CONSIDERED INCIDENTAL TO THE WORKS. NO SEPARATE PAYMENT SHALL MADE ON THIS ACCOUNT. METHOD STATEMENT TO BE SUBMITTED BY CONTRACTOR SHALL BE BASED ON THIS PREMISE AND SUBJECT TO APPROVAL OF THE ENGINEER. IN SOME BRIDGES IT MAY BE ESSENTIAL TO DIVERT
    THE TRAFFIC ALONG A TEMPORARY DIVERSION. THE PAYMENT FOR TEMPORARY TRAFFIC DIVERSION WHERE IMPLEMENTED SHALL BE MADE AS PER MODIFIED CLAUSE NO 112.6 OF THE SUPPLIMENTRY SPECIFICATIONS OF THE TENDER DOCUMENT.
14. FLAT JACKS WHEN USED FOR LIFTING OF SUPERSTRUCTURE OR PORTION THEREOF SHALL BE MANUFACTURE OF OR APPROVED EQUIVALENT.

    HYDRAULIC JACKS USED SHALL BE OF APPROVED MAKE & HAVE THE FACILITIES LIKE HYDRAULIC COUPLING, MECHANICAL LOCKING ETC THESE SHALL INVARIABLY BE CALIBERATED FREQUENTLY AS DESIRED BY THE ENGINEER.

    STEEL TRESTLE USED FOR LIFTING SUPERSTRUCTURE SHALL BE DESIGNED IN ACCORDANCE WITH IRC:24–1967.

    JACKS ARE TO BE USED ONLY FOR LIFTING PURPOSES AND SHOULD BE MECHANICALLY LOCKED THEREAFTER. THE LOAD SHOULD BE TRANSFERRED AS SOON AS PRACTICABLE ON TO SEPARATE STEEL / WOODEN PACKINGS AND WEDGES FOR SAFETY.
15. FOR BONDING NEW CONCRETE TO OLD CONCRETE, ALL DEFECTIVE OR WEAK CONCRETE SHALL BE REMOVED AS PER SPECIFICATIONS & EQUIPMENTS WITHOUT DAMAGING EXISTING REINFORCEMENT OR OTHER EMBEDMENT ITEMS. ALL LOOSE MATERIAL ARROUND EXISTING EXPOSED CONCRETE & REINFORCEMENT SHALL BE REMOVED BY USING SAND BLASTING OR ANY OTHER APPROVED SCHEME. AFTER CLEANING EXPOSED CONCRETE SURFACE, CONCRETE PRIMER SHALL BE APPLIED ON PREPARED CONCRETE SURFACE & REINFORCEMENT PRIMER ON EXPOSED REINFORCEMENT AS PER ADDITIONAL SPECIFICATIONS TO FACILITATE PROPER BONDING BETWEEN NEW & OLD CONCRETE.
16. FORMWORK SHALL BE LEAK TIGHT TAILOR MADE FOR EACH APPLICATION.
17. BEFORE TAKING UP CERTAIN TYPE OF REPAIR ACTIVITIES EG, MAKING HOLES IN REINFORCED CONCRETE ELEMENTS, IT MAY BE ESSENTIAL TO PRE–DETERMINE THE LOCATION OF EXISTING REINFORCEMENT BARS IN THE CONCRETE VICINITY. THIS SHALL BE DONE BY EMPLOYING NON DESTRUCTIVE METHODS WITH THE INSTRUMENT "PROFOMETER–4" AVAILABLE FROM AIMIL LTD.,
    OR APPROVED EQUIVALENT. THIS INSTRUMENT IS CAPABLE OF DETERMINING THE COVER AND DIA OF THE EXISTING REINFORCEMENT. OTHER METHODS LIKE CHISELLING, DRILLING ETC FOR LOCATING EXISTING REINFORCEMENT BARS WOULD NOT BE PERMITTED.
18. BARS SHOWN THUS ø ARE MILD STEEL BARS AND SHALL CONFIRM TO IS–432/1982.
19. BARS SHOWN THUS Ⓣ ARE COLD WORKED STEEL HIGH STRENGTH TMT–PC BARS AND SHALL CONFIRM TO IS:1786–1979.
20. BENDING AND FIXING OF REINFORCEMENT BARS SHALL BE CARRIED OUT AS PER IS 2502–1963.
21. RIVER TRAINING WORKS/PROTECTION WORKS:– LOCATION ALIGNMENT AND SIZE SHALL BE AS DIRECTED BY THE ENGINEER.
22. NOT MORE THAN 50% BARS SHALL BE LAPPED AT A LOCATION.
23. LAP LENGTH FOR BARS SHALL BE 60xDIA OF BARS (UOS).
24. IN CASE OF WIDENING OF SLAB TYPE SUPER STRUCTURE FOR THICKNESS AND REINFORCEMENT DETAIL REFER MOST STANDARD DRAWING. IF THE MOST SPECIFIED SLAB THICKNESS IS LESS THAN THE EXISTING SALB THICKNESS PROVIDE THE EXISTING SLAB THICKNESS IN CONCRETE GRADE M–30 AND REINFORCEMENT DETAIL AS/MOST.
25. IN RAPAIR BRIDGES WHERE STEEL RAILING OR ONLY GUARD STONE IS PROVIDED IN EXISTING BRIDGE IN PART OR FULL LENGTH, RCC RAILING (DETAIL DRG. NO:– (PPWCS/BR/DD/04) TO BE PROVIDED INSTEAD OF STEEL CRASH BARRIER AS SHOWN IN DETAIL DRAWINGS OF REPAIR.
26. IN BRIDGES RESTING ON OPEN FOUNDATION AND IDENTIFIED TO BE REHABILITATION / WIDENED SHALL BE REMOVED FROM TOP OF THE FOOTING AFTER REPAIR / WIDENING TOP OF THE FOUNDATION SHALL BE BACK FILLED WITH M–20 PCC TO MATCH THE ORIGINAL BED RIVER LEVEL, AS DIRECTED BY THE ENGINEER.

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	DIPAK SONI
CHECKED:	SAGAR

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

STANDARD GENERAL NOTES
(SHEET 3 OF 4)

DATE:	PROJECT:	DWG No:	REV.
APRIL.'2012	PPWCS	PPWCS/BR/SD/103	0

GENERAL STANDARD NOTES

STANDARD NOTES FOR STRUCTURAL STEEL

— ALL BOLTS SPECIFIED IN DRGs. ARE HIGH STRENGTH FRICTION GRIP TYPE (HSFG) OF PROPERTY CLASS 8.8 CONFORMING TO IS: 3757–1985.

— ALL WASHERS SHALL CONFORM TO IS: 6649 – 1985. AND NUTS SHALL CONFORM TO IS: 6623 – 1985.

— EACH NUT AND BOLT SHALL BE ASSEMBLED WITH AT LEAST ONE WASHER.

— ALL THE HSFG BOLTS SHALL CONFORM TO SP 6 (4)1969, IS 4000 – 1967

— ALL HOLES IN MEMBERS SHOULD PREFERABLY BE DRILLED BURRS SHOULD BE REMOVED AND THE NOMINAL HOLE DIAMETER SHALL BE 13mm.

— ALL OIL, DIRT, LOOSE RUST, BURRS PAINT APPLIED FINISHES, ANY FORGIN MATERIAL AND ANY OTHER DEFECT ON THE CONTACT SURFACES SHOULD BE REMOVED BY SAND BLASTING. A CLEAN AS ROLLED SURFACE WITH TIGHT MILL SCALE IS ACCEPTABLE.

— PACKING SHALL BE PROVIDED WHEREVER NECESSARY TO ENSURE THAT THE LOAD IS TRANSMITTED EFFECTIVELY. ALL PACKINGS SHALL BE OF STEEL WITH A SURFACE CONDITION SIMILAR TO THAT OF ADJACENT MEMBERS.

— PAINTING OF THE STRUCTURE SHOULD BE CARRIED OUT AT AN EARLY STAGE AFTER TIGHTENING AND INSPECTION OF THE JOINTS TO PREVENT RUSTING IN CORROSIVE ATMOSPHERE. PAINTING SHALL BE CARRIED OUT AS PER MOST STANDARDS AND AS DIRECTED BY ENGINEER.

— METHODS OF TIGHTENING OF ALL HSFG BOLTS SHALL BE ONE OF THE FOLLOWING.

(i) CALIBRATED WRENCH TIGHTENING.

(ii) TURN OF NUT OR PART TURN TIGHTENING.

(iii) TIGHTENING BY USE OF DIRECT TENSION INDICATOR.

— "REUSE OF ANY HSFG BOLT AND NUT" SHOULD NOT BE DONE ONCE IT IS FULLY TIGHTENED.

— IT IS ADVISED TO MARK ALL TIGHTENED CONNECTIONS SO THAT THERE IS NO CONFUSION BETWEEN TIGHTENED BOLT AND YET TO BE TIGHTENED BOLTS.

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

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DESIGNED:	DIPAK SONI
CHECKED:	SAGAR

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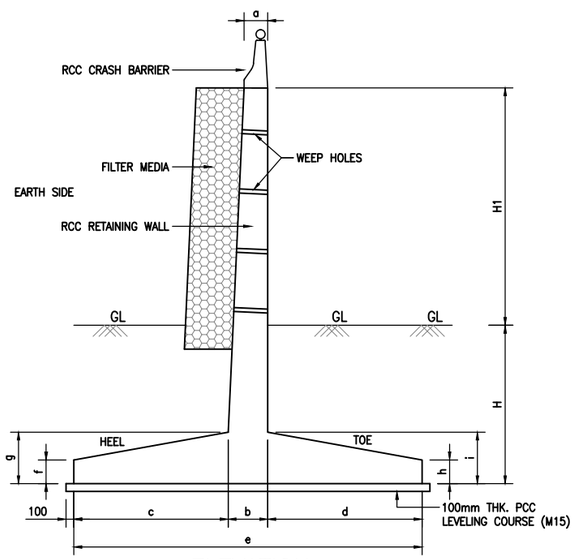
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

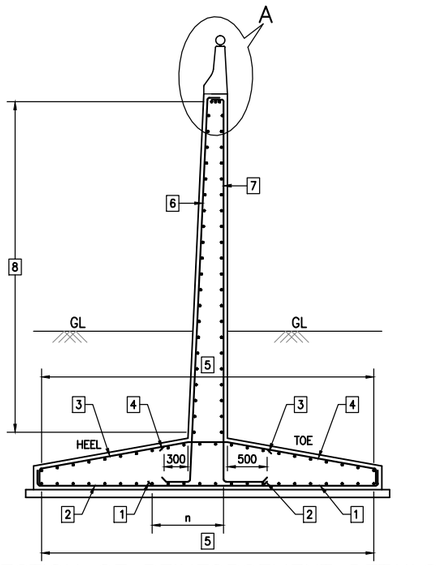
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

STANDARD GENERAL NOTES
(SHEET 4 OF 4)

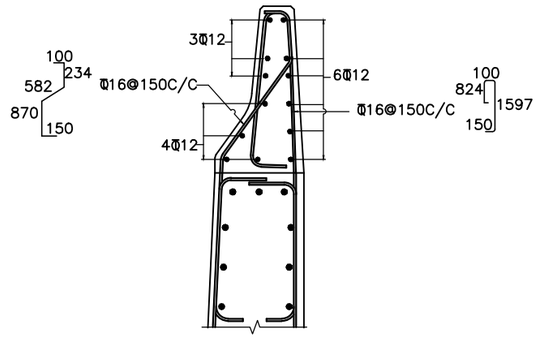
DATE:	PROJECT:	DWG No:	REV.
APRIL.'2012	PPWCS	PPWCS/BR/SD/104	0



ELEVATION



SECTION OF REINFORCEMENT DETAILS



DETAIL 'A'
(REINFORCEMENT ONLY)

DIMENSION DETAILS OF RETAINING WALL												
Sr.No.	H	H1	a	b	c	d	e	f	g	h	i	SBC(t/m^2)
1	2000	1500	450	450	1400	1400	3250	400	400	400	400	15
2	2000	2500	450	600	1700	1700	4000	400	550	400	550	15
3	2000	3500	450	800	1900	1900	4600	400	700	400	700	15
4	2000	4500	450	900	2300	2300	5500	400	850	400	850	15
5	2000	5500	450	1000	2700	2700	6400	400	1000	400	1000	15
6	2000	6500	450	1100	3100	3100	7300	400	1150	400	1150	16
7	2000	7500	450	1400	3300	3300	8000	400	1300	400	1300	17.5
8	2000	8500	450	1600	3500	3500	8600	400	1500	400	1500	20

Height (H1) / Bar Mark	Shape of Bar	1500	2500	3500	4500	5500	6500	7500	8500
		Bar Dia & Spacing	Bar Dia & Spacing	Bar Dia & Spacing	Bar Dia & Spacing	Bar Dia & Spacing	Bar Dia & Spacing	Bar Dia & Spacing	Bar Dia & Spacing
1		12 Ø 130 c/c	12 Ø 100 c/c	16 Ø 150 c/c	16 Ø 110 c/c	20 Ø 140 c/c	20 Ø 120 c/c	20 Ø 100 c/c	25 Ø 140 c/c
2		10 Ø 130 c/c	10 Ø 100 c/c	12 Ø 150 c/c	12 Ø 110 c/c	12 Ø 140 c/c	12 Ø 120 c/c	12 Ø 100 c/c	16 Ø 140 c/c
3		12 Ø 130 c/c	12 Ø 100 c/c	16 Ø 150 c/c	16 Ø 110 c/c	20 Ø 140 c/c	20 Ø 120 c/c	20 Ø 100 c/c	25 Ø 140 c/c
4		10 Ø 130 c/c	10 Ø 100 c/c	12 Ø 150 c/c	12 Ø 110 c/c	12 Ø 140 c/c	12 Ø 120 c/c	12 Ø 100 c/c	16 Ø 140 c/c
5		10 Ø 150 c/c	10 Ø 150 c/c	12 Ø 150 c/c	12 Ø 150 c/c	12 Ø 140 c/c	12 Ø 120 c/c	12 Ø 100 c/c	16 Ø 140 c/c
6		12 Ø 100 c/c	16 Ø 140 c/c	16 Ø 110 c/c	20 Ø 130 c/c	20 Ø 100 c/c	25 Ø 130 c/c	25 Ø 120 c/c	25 Ø 110 c/c
7		8 Ø 100 c/c	10 Ø 140 c/c	10 Ø 110 c/c	12 Ø 130 c/c	12 Ø 120 c/c	16 Ø 150 c/c	16 Ø 150 c/c	16 Ø 150 c/c
8		8 Ø 100 c/c	10 Ø 140 c/c	10 Ø 110 c/c	12 Ø 130 c/c	12 Ø 120 c/c	16 Ø 150 c/c	16 Ø 150 c/c	16 Ø 150 c/c
n		600	600	800	800	950	950	950	1200

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
2. CONCRETE SHALL BE DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AL FOLLOWS.
   . RCC RETAINING WALL – M25
   . RCC CRASH BARRIER – M40
3. ALL UNTENSIONED REINFORCEMENT SHALL BE TMT BARS WITH GRADE DESIGNATION Fe–415 CONFORMING TO IS:1786 STANDARD.
4. BACK FILLING BEHIND WALLS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX–6 OF IRC:78–2000 HAVING PROPERTIES C=0, ø=30 AND d = 21 KN/m3
5. NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY LOCATION. LAP LENGTH SHALL BE 83 x DIA OF BAR.
6. WEEP HOLES DIAMETER 100mm. SHALL BE PROVIDED AT SUITABLY STAGGERED SPACING NOT EXCEEDING 1m. IN BOTH DIRECTIONS.
7. THE COVER TO OUTERMOST REINFORCEMENT IN RETAINING WALL AND FOOTING SHALL BE 40mm AND 75mm RESPECTIVELY.
8. REINFORCEMENT OF RCC CRASH BARRIER SHALL BE ANCHORED IN RETAINING WALL BEFORE CASTING THE SAME.
9. 600mm THICK FILTER MATERIAL BEHIND RETAINING WALL SHALL BE LAID AS PER APPENDIX 6 OF IRC:78–2000
10. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE ALL GENERAL ARRANGEMENT DRAWINGS OF RESPECTIVE STRUCTURE.
11. THE FOUNDING STRATA IS CONSIDERED AS WEATHERED/SOFT ROCK AND SBC IS CONSIDERED IN THE DESIGN AT THE FOUNDING LEVEL IS MENTIONED IN THE TABLE. THE SAME SHALL BE ENSURED AT SITE BEFORE LAYING THE FOUNDATION CONCRETE, ANY VERIFICATION SHALL BE BROUGHT TO THE NOTICE OF SUPERVISION ENGINEER.
12. FOR INTERMEDIATE HEIGHTS, THE DETAILS OF NEXT HIGHER HEIGHT SHALL BE USED.
13. FOR DIMENSION DETAILS OF CRASH BARRIER REFER DRAWING NO. PPWCS/BR/DD/03.

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

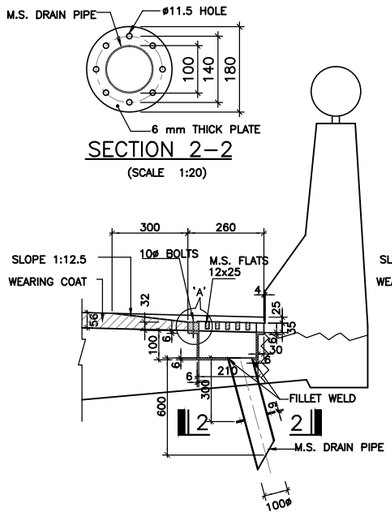
LASA INDIA

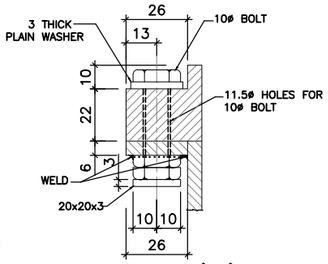
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

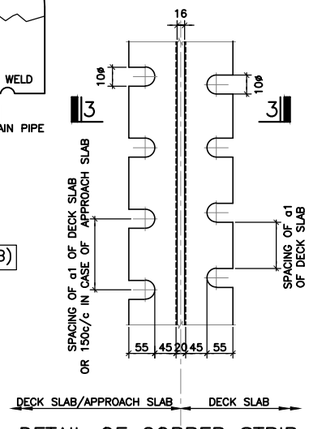
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

DIMENSIONS AND REINFORCEMENT DETAILS OF RETAINING WALL

DATE:	PROJECT:	DWG No:	REV.
APRIL'2012	PPWCS	PPWCS/BR/DD/01	0

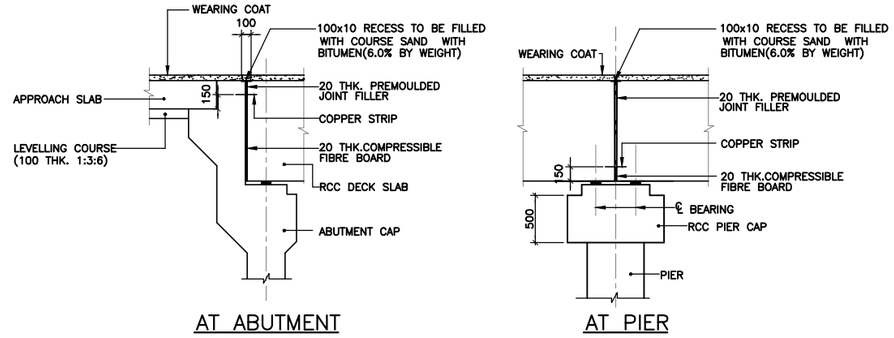




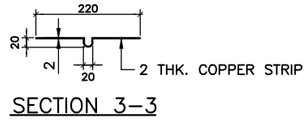


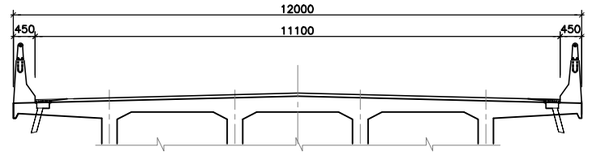
NOTES ON EXPANSION JOINT (STRIP SEAL TYPE)

THE DETAIL OF EXPANSION JOINT WILL BE SUPPLIED BY THE MANUFACTURER AND IT WILL INSTALLED IN THE PRESENCE OF MANUFACTURER'S REPRESENTATIVE AS/MOST SPECIFICATION.

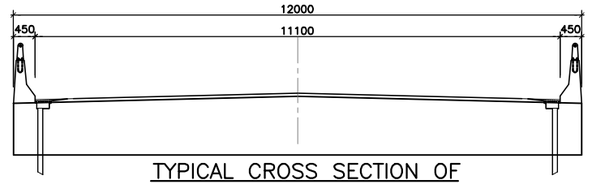


DETAILS OF JOINT FILLER & COPPER TYPE EXPANSION JOINT FOR SOLID SLAB SUPER–STRUCTURE

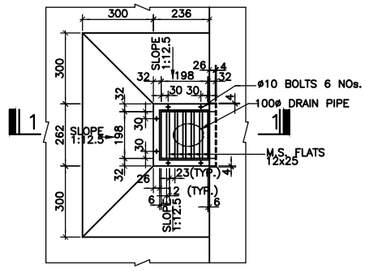




TYPICAL CROSS SECTION OF RCC T–BEAM TYPE SUPERSTRUCTURE

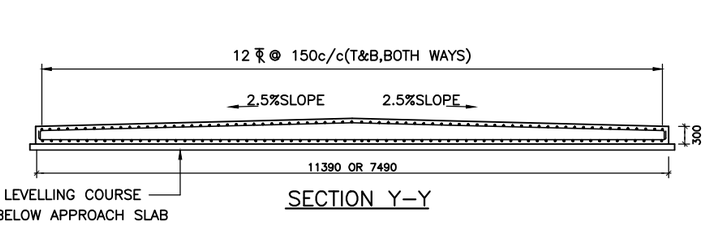


TYPICAL CROSS SECTION OF RCC SOLID SLAB TYPE SUPERSTRUCTURE

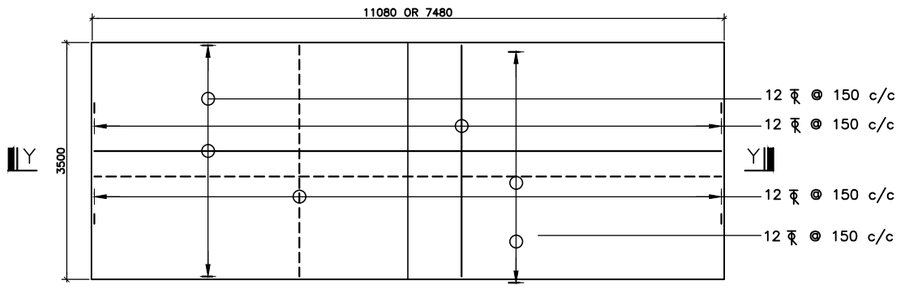


PLAN

DETAILS OF DRAINAGE SPOUT AND COLLECTION PIT



SECTION Y–Y



PLAN

(SHOWING R.C.DETAILS OF APPROACH SLAB)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHER WISE MENSIONED.
2. THIS DRG.SHALL BE READ ALONG WITH THE DRAWING FOR GENERAL NOTES FOR NEW CONSTRUCTION DRG. NO. PPWCS/BR/SD/01 & 02.
3. FOR RCC SOLID SLAB TYPE SUPERSTRUCTURE,JOINT FILLER & COPPER STRIP TYPE BURIED EXPANSION JOINT SHALL BE PROVIDED. JOINT FILLER SHALL CONFIRM TO I S 1838. PRODUCT WITH I S I CERTIFICATION MARK SHALL ONLY BE USED.
4. STRIP SEAL TYPE EXPANSION JOINT AS MENTIONED ABOVE SHALL BE USED FOR RCC/PSC GIRDER SUPERSTRUCTURE SHALL BE EITHER OF TECH OR APPROVED EQUIVALANT.
5. PROVISION OF EXPANSION JOINT SHALL BE MADE AS PER REVISED SPECIFICATION GIVEN IN MOST CIRCULAR NO. RW/NH–34059/1/96–S&R DATED 17–07–1997
7. FOR 12.0m OVERALL WIDTH OF SUPERSTRUCTURE APPROACH SLAB WILL BE 11.080m AND OVERALL WIDTH 8.4m OF SUPERSTRUCTURE APPROACH SLAB WILL BE 7.48m

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

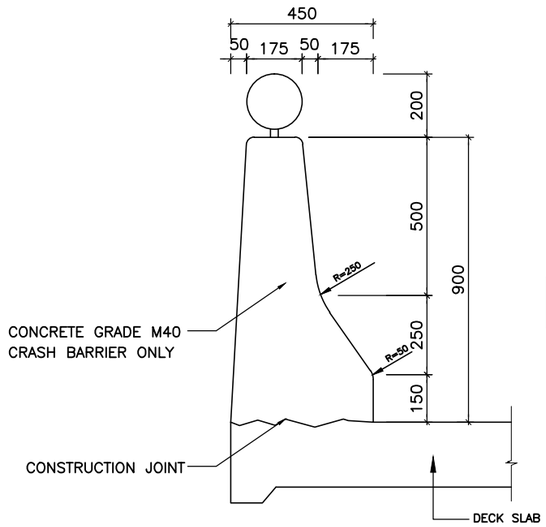
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

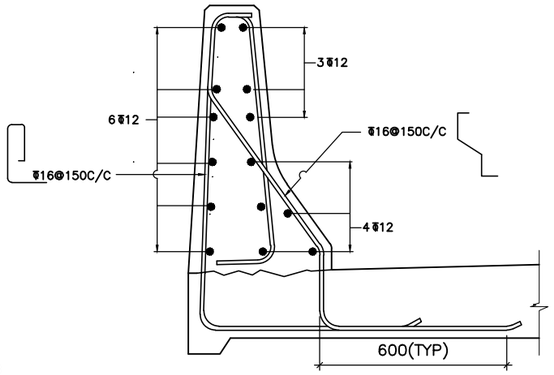
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
DETAILS OF EXPANSION JOINT, APPROACH SLAB & DRAINAGE SPOUT

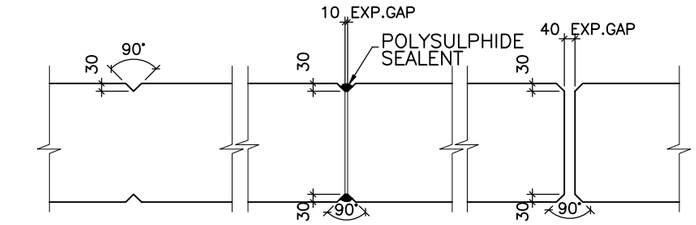
DATE:	PROJECT:	DWG No:	REV.
APRIL'2012	PPWCS	PPWCS/BR/DD/02	0



SECTION OF
CRASH BARRIER
(DIMENSIONS ONLY)



SECTION OF
CRASH BARRIER
(REINFORCEMENT ONLY)



PLAN AT EXPANSION JOINT FOR OUTER CRASH BARRIER

SCALE 1:20

DETAILS OF CRASH BARRIER FOR DECK SLAB

SECTION OF
CRASH BARRIER
(DIMENSIONS ONLY)

SECTION OF
CRASH BARRIER
(REINFORCEMENT ONLY)

DETAILS OF CRASH BARRIER FOR SOLID SLAB

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
2. CONCRETE SHALL BE DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AL FOLLOWS.
   . RCC CRASH BARRIER – M40
3. ALL UNTENSIONED REINFORCEMENT SHALL BE TMT BARS WITH GRADE DESIGNATION Fe–415 CONFORMING TO IS:1786 STANDARD.

No.	REVISION	DATE	BY

SCALE :

CAD FILE: BR–01.DWG

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

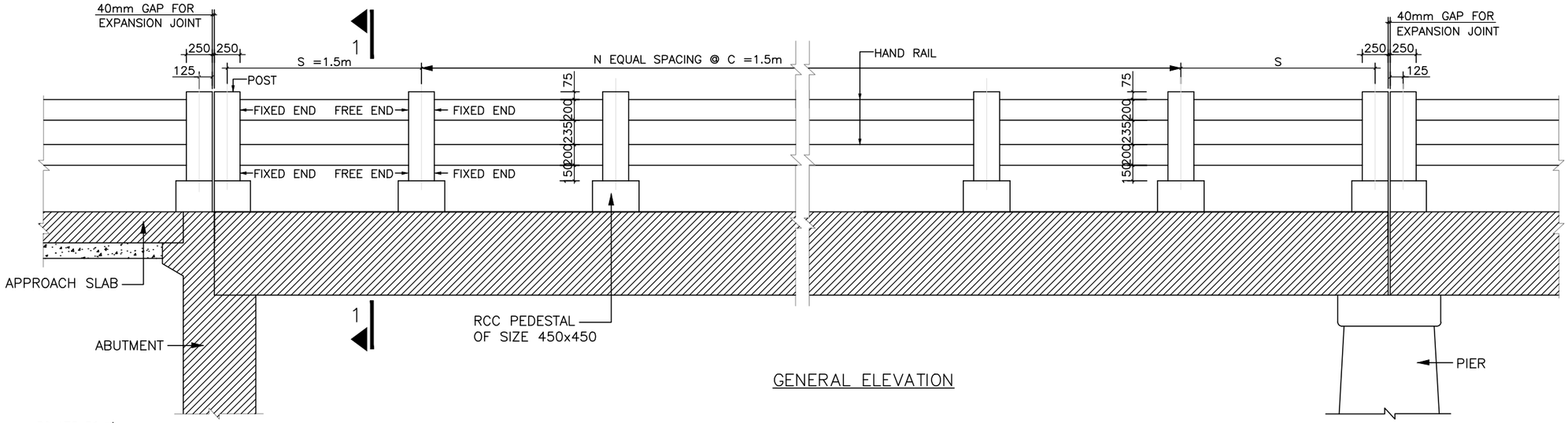
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

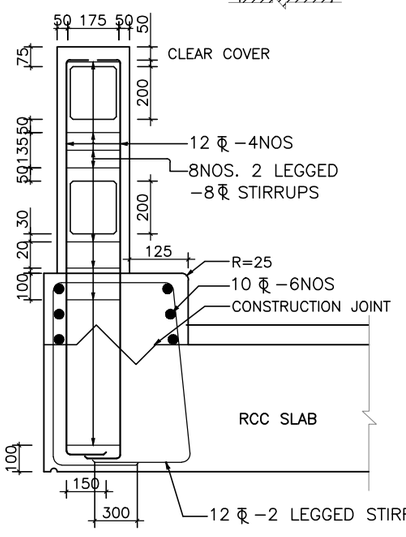
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
DIMENSIONS & REINFORCEMENT
DETAILS OF RCC CRASH BARRIER

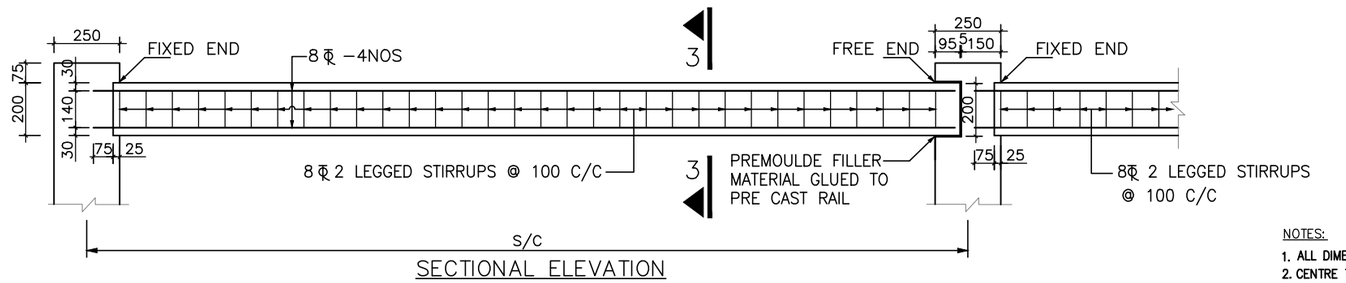
DATE:	PROJECT:	DWG No:	REV.
APRIL'2012	PPWCS	PPWCS/BR/DD/03	0



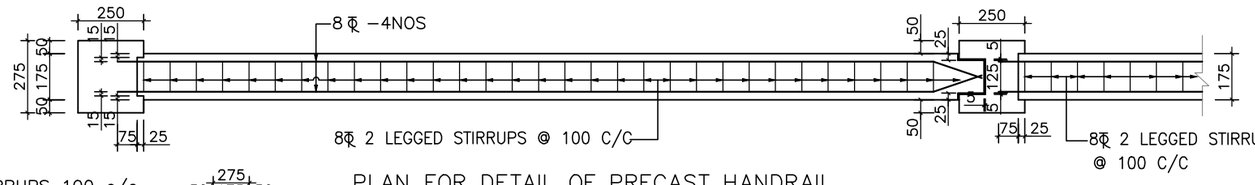
GENERAL ELEVATION



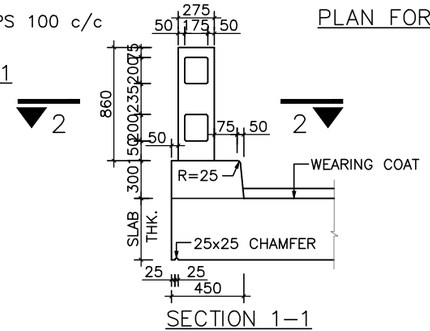
REINFORCEMENT DETAIL FOR SECTION 1–1



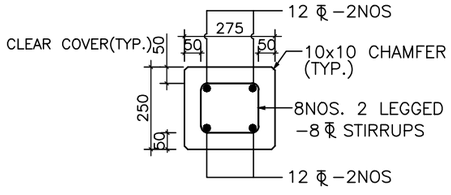
SECTIONAL ELEVATION



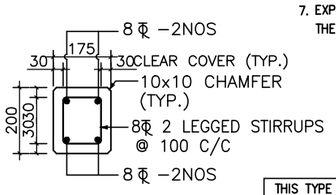
PLAN FOR DETAIL OF PRECAST HANDRAIL



SECTION 1–1



SECTION 2–2



SECTION 3–3

NOTES:

1. ALL DIMENSIONS ARE IN MM
2. CENTRE TO CENTR SPACING BETWEEN SUCCESSIVE VERTICAL POSTS SHOWN IN THE ELEVATION SHALL BE ADJUSTED TO SUIT THE LENGTH OF BRIDGE SPAN FOR WHICH THE RALING IS USED BUT IN NO CASE IT SHALL EXCEED 1870 mm.
3. REINFORCEMENT OF RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
4. CASTING OF POST SHALL BE DONE IN SINGLE POUR AFTER ACCURATELY POSITIONING THE PRECAST HANDRAIL.
5. RAILING SHALL BE CONSTRUCTED ONLY AFTER THE STRUCTURAL CONCRETE OF SUPERSTRUCTURE HAS HARDENED AND SHUTTERING IS RELEASED.
6. IN CASE OTHER TYPE OF RAILING IS USED THE WEIGHT OF SAME ON EACH SIDE SHALL NOT EXCEED 3KN PER METRE
7. EXPANSION GAPS IN RAILING SHALL BE PROVIDED AT THE SAME LOCATIONS AS IN THE DECK SLAB.

THIS TYPE OF RAILING WILL BE USED AT BRIDGES IDENTIFIED TO BE REPAIRED WHERE THE METAL RAILING OR GUARD STONES HAVE ORIGINALLY BEEN PROVIDED IN FULL OR PARTIAL LENGTH OF BRIDGE. REFER NOTE 27 OF GENERAL NOTES

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

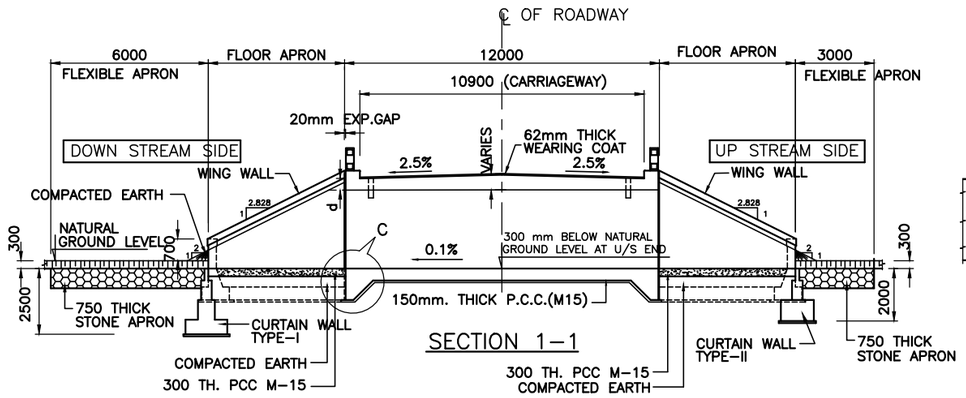
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

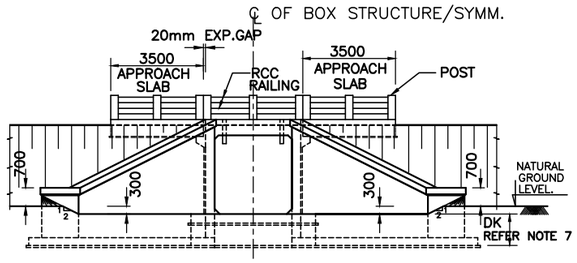
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
DIMENSIONS & REINFORCEMENT DETAILS OF RCC RAILING

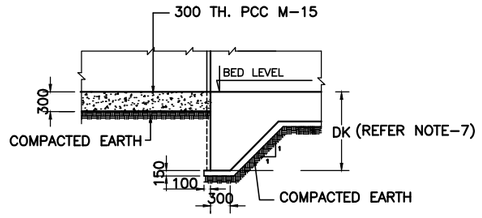
DATE:	PROJECT:	DWG No:	REV.
APRIL'2012	PPWCS	PPWCS/BR/DD/04	0



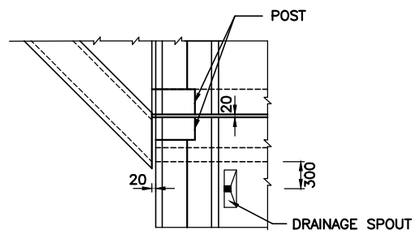
SECTION 1–1



VIEW 3–3



DETAIL – C



DETAIL – B

TABLE SHOWING SALIENT DIMENSIONS

BOX CELL DESIGNATION Nc/ab/Ec	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	REQUIRED BEARING CAPACITY CATEGORY (T/M²)	ACTUAL MAXIMUM BEARING PRESSURE (T/M²)	ALLOWABLE DRAWDOWN AT A TIME (M)
1/22/0	2000	2000	500	350	380	300	15	11.62	0.00
1/23/0	2000	3000	1300	370	420	350	15	11.01	2.98
1/33/0	3000	3000	900	420	420	420	15	10.50	2.15
1/34/0	3000	4000	1700	450	480	460	15	11.37	4.81
1/43/0	4000	3000	400	450	500	500	15	10.53	1.29
1/44/0	4000	4000	1200	480	550	550	15	11.07	3.99
1/45/0	4000	5000	1900	520	620	630	15	12.48	6.14
1/53/0	5000	3000	300	500	570	570	10	9.83	1.73
1/54/0	5000	4000	800	520	600	620	15	10.66	3.40
1/55/0	5000	5000	1500	580	680	700	15	12.40	5.81
1/63/0	6000	3000	300	680	720	720	10	9.88	2.96
1/64/0	6000	4000	300	680	720	750	15	10.93	3.18
1/65/0	6000	5000	1100	680	750	750	15	11.77	5.35
1/66/0	6000	6000	1800	700	800	850	15	13.21	7.50
1/75/0	7000	5000	600	750	850	850	15	11.59	4.86
1/76/0	7000	6000	1200	780	920	950	15	13.00	6.93
1/77/0	7000	7000	1300	780	950	950	15	13.10	7.18
1/85/0	8000	5000	300	800	950	950	15	11.37	4.83
1/86/0	8000	6000	900	820	970	1000	15	12.52	6.56
1/87/0	8000	7000	1300	850	1100	1200	15	14.36	8.62

NOTE:

(1) ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.

(2) THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. PPWCS/GEN/101

(3) SPT TEST SHOULD BE CARRIED OUT BY CONTRACTOR BEFORE COMENCEMENT OF WORK AT EACH LOCATION TO CHECK BEARING CAPACITY OF SOIL.

(4) COMPACTED EARTH SHOULD COMPLY WITH TO CLAUSE 305.201.5 OF MOST SPECIFICATIONS.

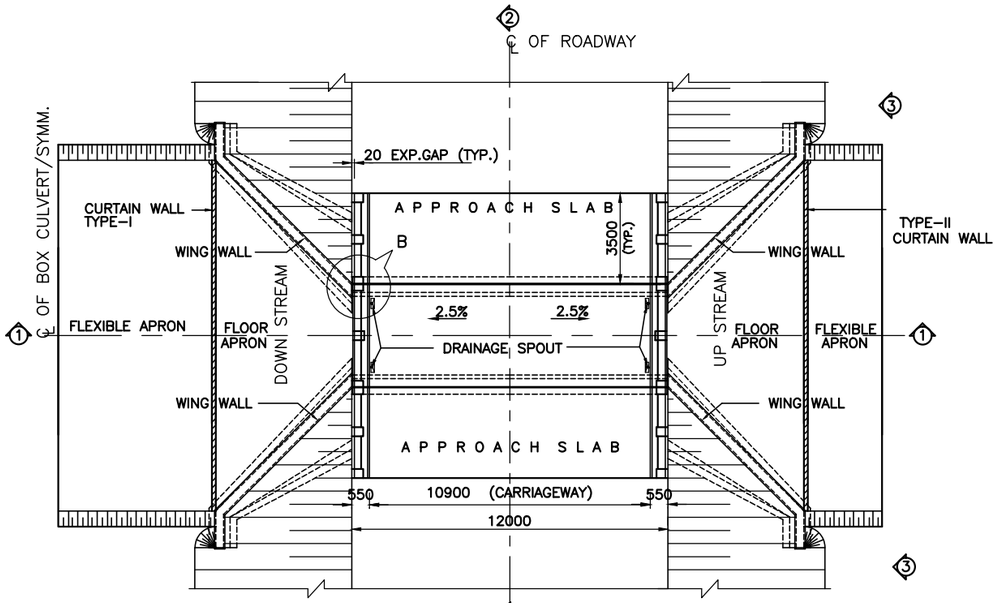
(5) SOFT AND LOOSE PATCHES IN THE BEARING AREA TO BE REPLACED BY COMPACTED GRANULAR FILL WITH LAYERS NOT EXCEDDING 300mm.

(6) THE INVERT LEVEL OF NEW BOX CULVERT SHALL NOT BE HIGHER THAN THE EXISTING INVERT LEVEL, AND SHALL ALSO BE AT LEAST 300mm BELOW THE NATURAL GROUND LEVEL.

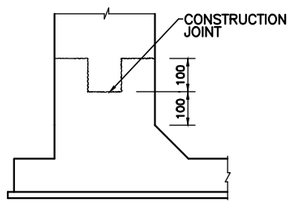
(7) 'DK' IS DEPTH OF KEY AT BASE SLAB.

FOR BASE SLAB THICKNESS	VALUE OF 'DK'
UPTO 900mm	1200mm.
GREATER THAN 900mm	e+300mm

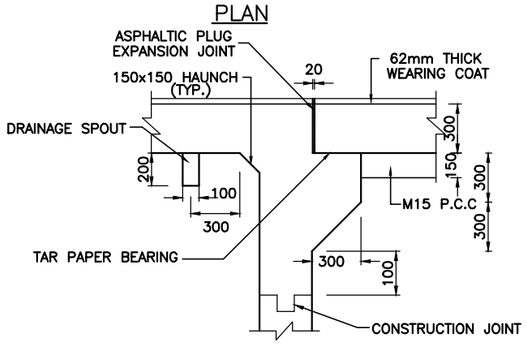
e = BASE SLAB THICKNESS



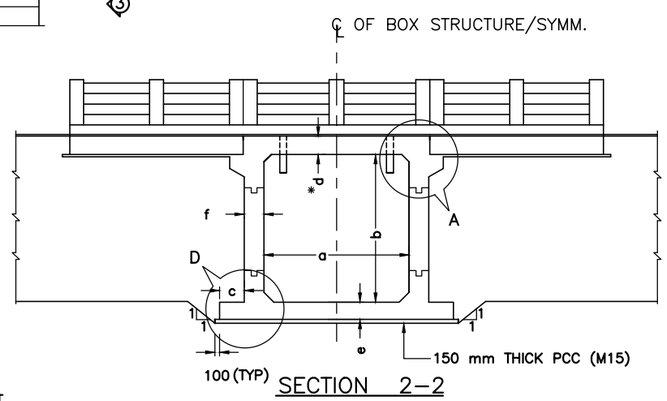
PLAN



DETAIL D



DETAIL – A



SECTION 2–2

*d DECK SLAB THICKNESS AT INNER EDGE OF KERB AS SHOWN IN SECTION 1–1

REFERENCE DRAWINGS :

TITLE	DRAWING NO.
SINGLE CELL RCC BOX CULVERTS (WITHOUT EARTH CUSHION) TYPICAL REINFORCEMENT DETAILS	PPWCS/BOX/DD/02
BAR BENDING SCHEDULE	PPWCS/BOX/DD/03
DETAILS OF PCC WING WALL G.A. DRAWING	PPWCS/BOX/DD/16
DIMENSION SCHEDULE FOR PCC WING WALL	PPWCS/BOX/DD/17
TYPICAL DETAILS OF FLOOR PROTECTION WORKS	PPWCS/BOX/DD/15
MISCELLANEOUS DETAILS RCC RAILING AND APPROACH SLAB	PPWCS/BOX/DD/18
MISCELLANEOUS DETAILS DRAINAGE SPOUT	PPWCS/BOX/DD/19

No.	REVISION	DATE	BY

SCALE :

CAD FILE: BOX–01.DWG

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

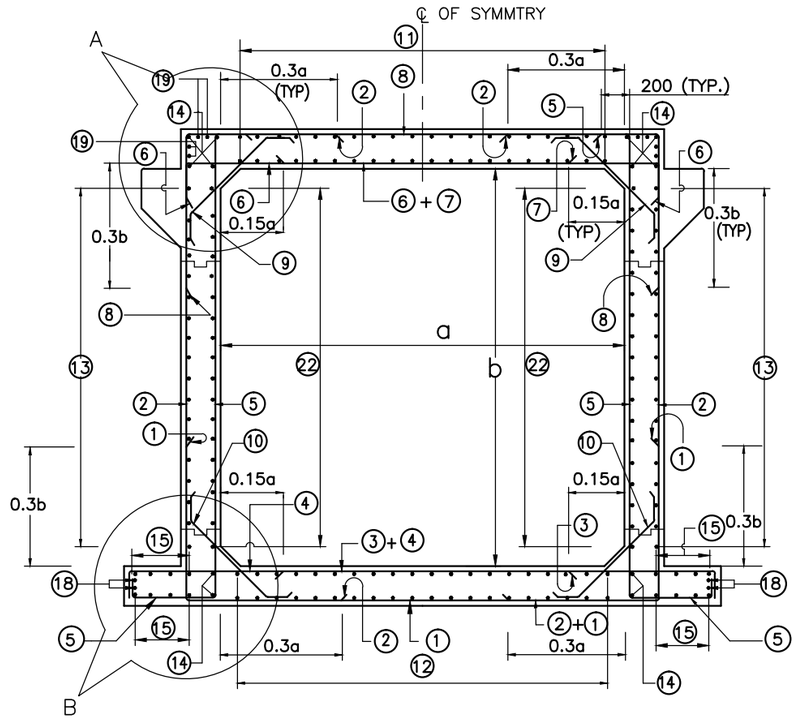
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

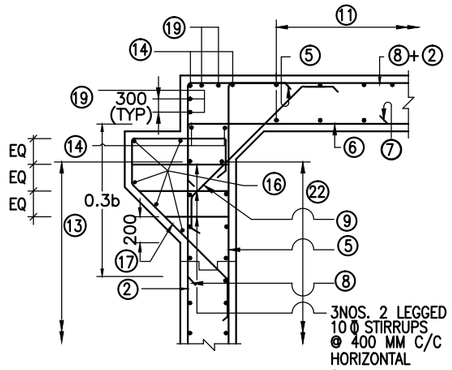
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

SINGLE CELL R.C.C BOX CULVERTS
(WITHOUT EARTH CUSHION)
GENERAL ARRANGEMENT

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BOX/GA/01	0

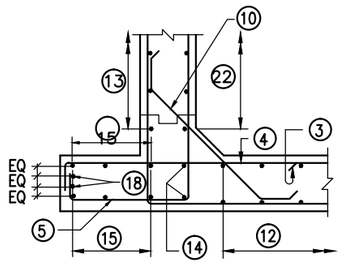


REINFORCEMENT DETAILS OF SINGLE CELL BOX CULVERT

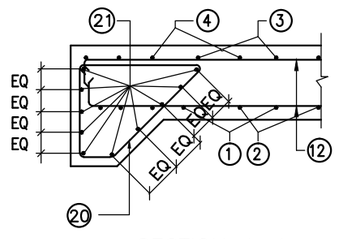


DETAIL– A

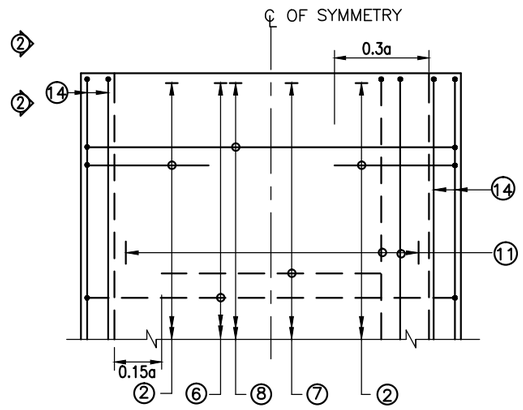
3NOS. 2 LEGGED 10ϕ STIRRUPS @ 400 MM C/C HORIZONTAL (NOT INCLUDED IN BAR BENDING SCHEDULE)



DETAIL–B

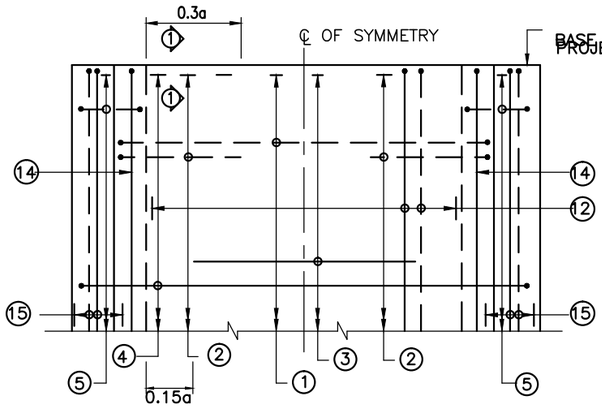


SECTION 1–1



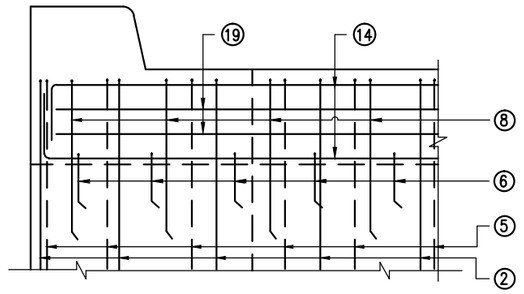
TOP SLAB R/F PLAN

(BAR MARK ⑤ ,⑲ KERB, BRACKET & HAUNCH LINES NOT SHOWN IN PLAN)



BOTTOM SLAB R/F PLAN

(HAUNCH LINES NOT SHOWN IN PLAN)



VIEW 2–2

(HAUNCH LINES NOT SHOWN)

NOTES:–

1. FOR GENERAL NOTES REFER DRG. NO. PPWCS/GEN/101.
2. FOR LAP ZONES REFER DRAWING NO. PPWCS/BOX/DD/04

LEGEND :–

——— : TOP FACE BARS/ OUTER FACE BARS

— — — — : BOTTOM FACE BARS/ INNER FACE BARS

No.	REVISION	DATE	BY

SCALE :

CAD FILE: BOX–02.DWG

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

SINGLE CELL R.C.C BOX CULVERTS (WITHOUT EARTH CUSHION) TYPICAL REINFORCEMENT DETAILS

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BOX/DD/02	0

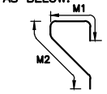
SCHEDULE OF REINFORCEMENT

BAR MARK	SHAPE OF BARS (NOT TO SCALE) / BOX – CELL DESIGNATION Nc/ab/Ec	1/77/0								1/85/0							
		BAR DIA. in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.	BAR DIA. in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.
①	M1 M2 M1	16	200	3000	8800	14745	61	899.4	1419.6	16	200	2400	9800	14545	61	887.2	1400.4
②	M1 M2 M1	25	200	3000	8630	14544	124	1803.5	6949.5	25	200	3300	6650	13164	124	1632.4	6290.1
③	M1	25	200	4900	–	4900	61	298.9	1151.8	25	200	5600	–	5600	61	341.6	1316.3
④	M2 M1 M1	16	200	850	11400	13045	61	795.7	1256.0	16	200	850	10400	12045	61	734.7	1159.7
⑤	M1 0.2m. 0.2m. M2	12	150	8630	2150	11118	162	1801.1	1599.1	12	150	6650	1150	8138	162	1318.4	1170.5
⑥	M2 M1 M1	20	200	320	8800	9371	61	571.7	1409.8	20	200	320	9800	10371	61	632.7	1560.2
⑦	M1	16	200	4900	–	4900	60	294.0	464.0	16	200	5600	–	5600	60	336.0	530.3
⑧	M2 M1 M1	16	200	2830	8800	14405	61	878.7	1386.9	16	200	2250	9800	14245	61	868.9	1371.5
⑨	M1 M2 M1	10	200	200	2417	2770	122	337.9	208.3	10	200	200	2445	2798	122	341.4	210.5
⑩	M1 M2 M1	10	200	200	2657	3023	122	368.8	227.4	10	200	200	2657	3023	122	368.8	227.4
⑪	M2 M1 M1	12	150	440	11900	12739	92	1172.0	1040.5	12	150	450	11900	12759	106	1352.4	1200.7
⑫	M2 M1 M1	12	125	475	11900	12809	110	1409.0	1250.9	12	125	475	11900	12809	126	1613.9	1432.9
⑬	M2 M1 M1	12	125	475	11900	12809	110	1409.0	1250.9	12	125	475	11900	12809	78	999.1	887.0
⑭	M2 M1 M1	10	–	160	11900	12186	12	146.2	90.2	10	–	160	11900	12186	12	146.2	90.2
⑮	M2 M1 M1	12	150	475	11900	12809	40	512.4	454.9	12	150	475	11900	12809	12	153.7	136.5
⑯	M1	12	–	11900	–	11900	10	119.0	105.7	12	–	11900	–	11900	10	119.0	105.7
⑰	M1 M2	12	200	1371	1985	3355	122	409.3	363.4	12	200	1371	1985	3355	122	409.3	363.4
⑱	M1 M1 M2	10	–	160	11900	12186	4	48.7	30.1	10	–	160	11900	12186	4	48.7	30.1
⑲	M1 M1 M2	10	–	160	11900	12186	8	97.5	60.1	10	–	160	11900	12186	8	97.5	60.1
⑳	M1+0.2m M1 135° M2 0.2m.	10	150	1150	1626	4378	154	674.2	415.6	10	150	1150	1626	4378	142	621.6	383.3
㉑	M1 M1 M2	10	–	160	11400	11686	20	233.7	144.1	10	–	160	10400	10686	20	213.7	131.8
㉒	M2 M1 M1	12	190	475	11900	12809	74	947.9	841.5	12	190	475	11900	12809	52	666.1	591.3
TOTAL STEEL (Kgs)		22120								20650							
TOTAL CONCRETE (cum)		394								350							

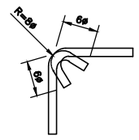
BAR MARK	SHAPE OF BARS (NOT TO SCALE) / BOX – CELL DESIGNATION Nc/ab/Ec	1/86/0								1/87/0							
		BAR DIA. in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.	BAR DIA. in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.
①	M1 M2 M1	20	200	2720	9900	15271	61	931.6	2297.4	25	200	3150	10300	16514	61	1007.4	3881.7
②	M1 M2 M1	25	200	3350	7690	14304	124	1773.7	6834.8	25	200	3550	8850	15864	124	1967.2	7580.2
③	M1	25	200	5600	–	5600	61	341.6	1316.3	25	200	5600	–	5600	61	341.6	1316.3
④	M2 M1 M1	16	200	870	11700	13385	61	816.5	1288.7	16	200	1000	12900	14845	61	905.5	1429.3
⑤	M1 0.2m. 0.2m. M2	12	150	7690	1800	9828	162	1592.2	1413.6	12	150	8850	2400	11588	162	1877.3	1666.7
⑥	M2 M1 M1	20	200	320	9900	10471	61	638.8	1575.3	20	200	320	10300	10871	61	663.2	1635.4
⑦	M1	12	200	5600	–	5600	60	336.0	298.3	12	200	5600	–	5600	60	336.0	298.3
⑧	M2 M1 M1	16	200	2570	9900	14985	61	914.1	1442.7	16	200	2900	10300	16045	61	978.7	1544.8
⑨	M1 M2 M1	10	200	200	2544	2897	122	353.4	217.9	10	200	200	2869	3222	122	393.1	242.4
⑩	M1 M2 M1	10	200	200	2756	3122	122	380.9	234.8	10	200	200	3223	3589	122	437.8	269.9
⑪	M2 M1 M1	12	150	460	11900	12779	106	1354.6	1202.6	12	150	475	11900	12809	106	1357.7	1205.4
⑫	M2 M1 M1	12	100	485	11900	12829	156	2001.3	1776.8	12	100	550	11900	12959	156	2021.6	1794.8
⑬	M2 M1 M1	12	100	1131.0	11900	12859	116	1491.6	1324.3	12	100	600	11900	13059	136	1776.0	1576.8
⑭	M2 M1 M1	10	–	160	11900	12186	12	146.2	90.2	10	–	160	11900	12186	12	146.2	90.2
⑮	M2 M1 M1	12	150	485	11900	12829	28	359.2	318.9	12	150	550	11900	12959	40	518.4	460.2
⑯	M1	12	–	11900	–	11900	10	119.0	105.7	12	–	11900	–	11900	10	119.0	105.7
⑰	M1 M2	12	200	1421	2055	3476	122	424.1	376.5	12	200	1621	2338	3959	122	483.0	428.8
⑱	M1 M1 M2	10	–	160	11900	12186	4	48.7	30.1	10	–	160	11900	12186	4	48.7	30.1
⑲	M1 M1 M2	10	–	160	11900	12186	8	97.5	60.1	10	–	160	11900	12186	8	97.5	60.1
⑳	M1+0.2m M1 135° M2 0.2m.	10	150	1170	1655	4446	158	702.5	433.1	10	150	1300	1838	4890	174	850.8	524.6
㉑	M1 M1 M2	10	–	160	11700	11986	20	239.7	147.8	10	–	160	12900	13186	20	263.7	162.6
㉒	M2 M1 M1	12	180	500	11900	12859	66	848.7	753.5	12	150	600	11900	13059	92	1201.4	1066.6
TOTAL STEEL (Kgs)		23539								27371							
TOTAL CONCRETE (cum)		478								502							

NOTES:

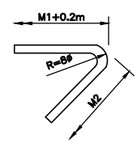
1. JOINT OR LAPPING OF BARS SHALL BE SUITABLY STAGGERED AS PER CLAUSE 304.6 OF IRC:21–1987.
2. FULL SCALE ELEVATION FOR THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING No. PPWCS/BOX/GA/01.
4. QUANTITY OF CONCRETE DOES NOT INCLUDE GUARD STONES.
5. QUANTITY OF STEEL DOES NOT INCLUDE 5% EXTRA FOR WASTAGE AND LAPS.
6. BAR No.17 IS DETAILED AS BELOW:



BENDING OF BARS

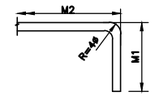


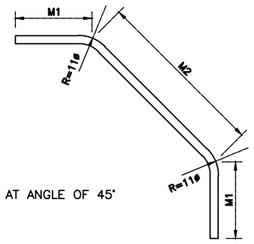
BEND WITH CLOSE HOOKS



BEND AT ANGLE OF 135°

BEND AT RIGHT ANGLE





BEND AT ANGLE OF 45°

LEGEND : ø SHOWS DIA. OF BAR

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

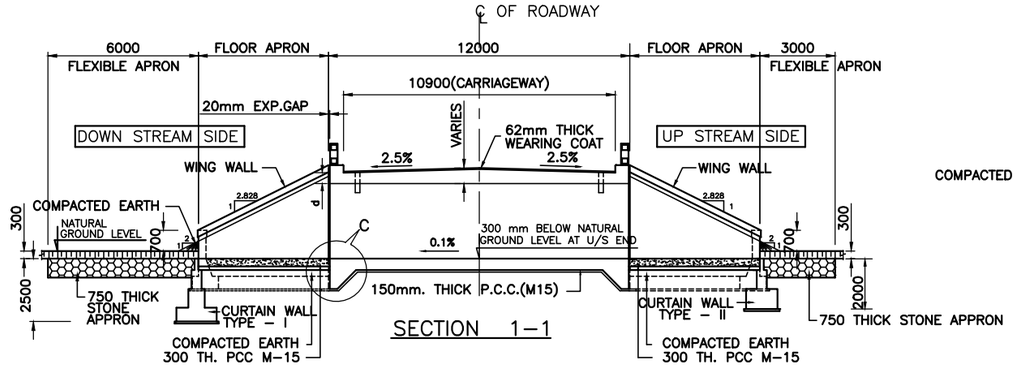
LASA INDIA

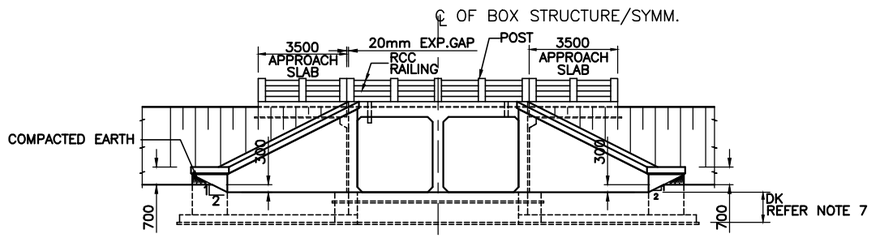
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

SINGLE CELL R.C.C BOX CULVERTS
2m x 2m TO 8m x 7m
(WITHOUT EARTH CUSHION)
BAR BENDING SCHEDULE (SHEET 5 OF 5)

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BOX/DD/03	0

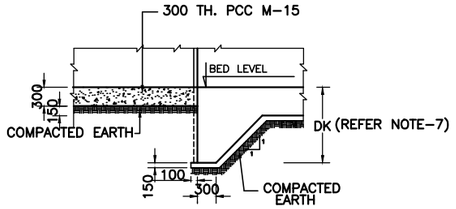




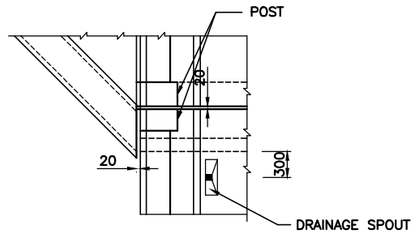
VIEW 3–3

TABLE SHOWING SALIENT DIMENSIONS

BOX CELL DESIGNATION Nc/ab/Ec	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	g (mm)	REQUIRED BEARING CAPACITY (T/M²)	ACTUAL MAXIMUM BEARING PRESSURE (T/M²)	ALLOWABLE DRAWDOWN AT A TIME (M)
2/22/0	2000	2000	300	400	400	370	300	10	8.97	0.76
2/23/0	2000	3000	300	400	420	400	300	15	10.35	0.91
2/32/0	3000	2000	300	450	450	400	300	10	7.58	1.47
2/33/0	3000	3000	300	470	450	420	350	10	8.52	1.75



DETAIL – C



DETAIL – B

NOTE:

(1) ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.

(2) THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. PPWCS/GEN/101

(3) SPT TEST SHOULD BE CARRIED OUT BY CONTRACTOR BEFORE COMENCEMENT OF WORK AT EACH LOCATION TO CHECK BEARING CAPACITY OF SOIL.

(4) COMPACTED EARTH SHOULD COMPLY WITH TO CLAUSE 305.201.5 OF MOST SPECIFICATIONS.

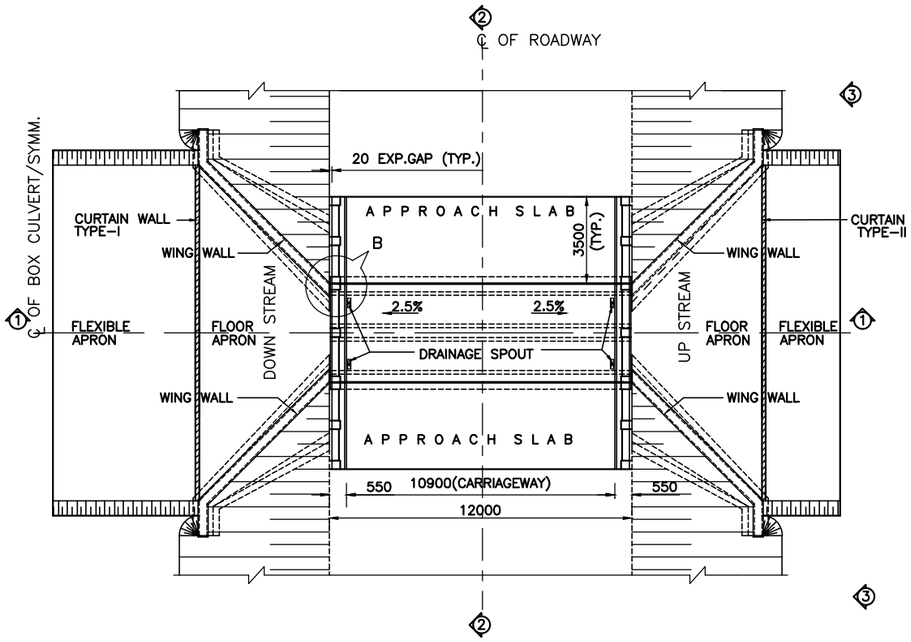
(5) SOFT AND LOOSE PATCHES IN THE BEARING AREA TO BE REPLACED BY COMPACTED GRANULAR FILL WITH LAYERS NOT EXCEDDING 300mm.

(6) THE INVERT LEVEL OF NEW BOX CULVERT SHALL NOT BE HIGHER THAN THE EXISTING INVERT LEVEL, AND SHALL ALSO BE AT LEAST 300mm BELOW THE NATURAL GROUND LEVEL.

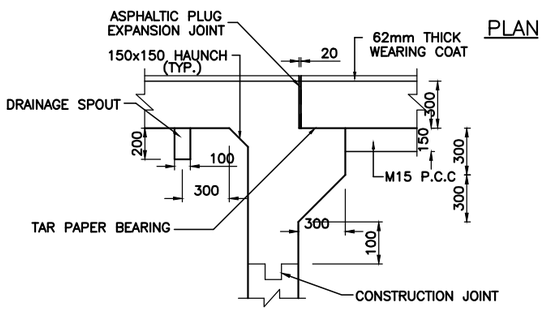
(7) 'DK' IS DEPTH OF KEY AT BASE SLAB.

FOR BASE SLAB THICKNESS	VALUE OF 'DK'
UPTO 900mm	1200mm.
GREATER THAN 900mm	e+300mm

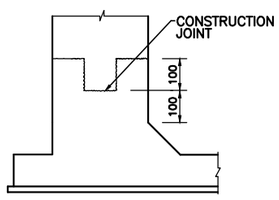
e = BASE SLAB THICKNESS



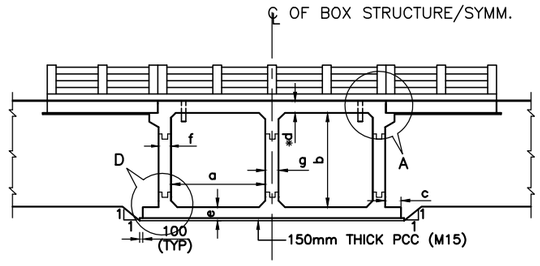
PLAN



DETAIL – A



DETAIL D



SECTION 2–2

*d DECK SLAB THICKNESS AT INNER EDGE OF KERB AS SHOWN IN SECTION 1–1

REFERENCE DRAWINGS :

TITLE	DRAWING NO.
DOUBLE CELL RCC BOX CULVERTS (WITHOUT EARTH CUSHION) TYPICAL REINFORCEMENT DETAILS	PPWCS/BOX/DD/06
BAR BENDING SCHEDULE	PPWCS/BOX/DD/07
DETAILS OF PCC WING WALL G.A. DRAWING	PPWCS/BOX/DD/16
DIMENSION SCHEDULE FOR PCC WING WALL	PPWCS/BOX/DD/17
TYPICAL DETAILS OF FLOOR PROTECTION WORKS	PPWCS/BOX/DD/15
MISCELLANEOUS DETAILS RCC RAILING AND APPROACH SLAB	PPWCS/BOX/DD/18
MISCELLANEOUS DETAILS DRAINAGE SPOUT	PPWCS/BOX/DD/19

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

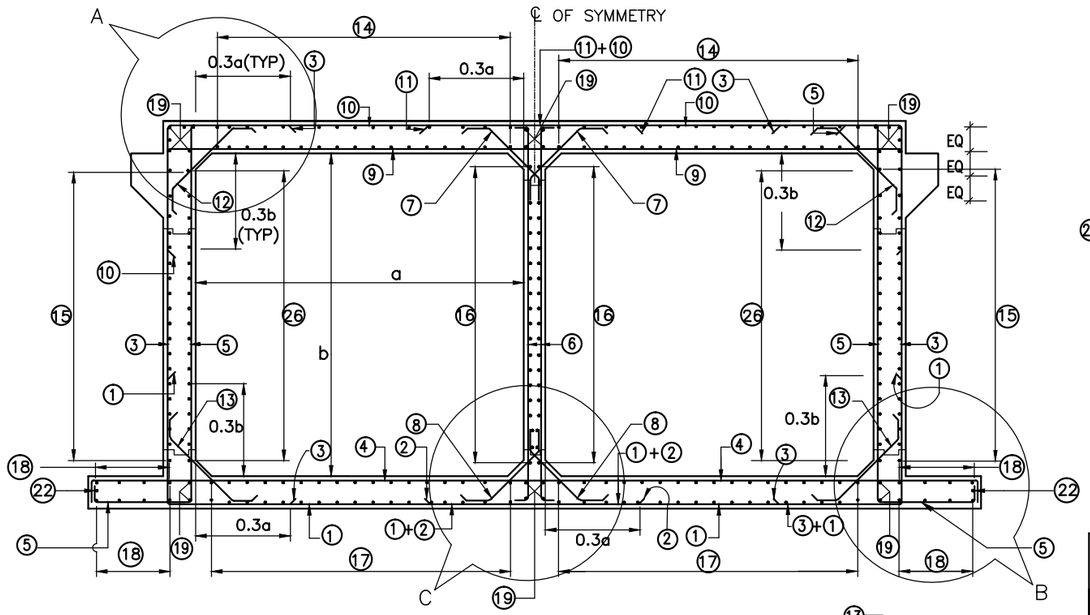
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

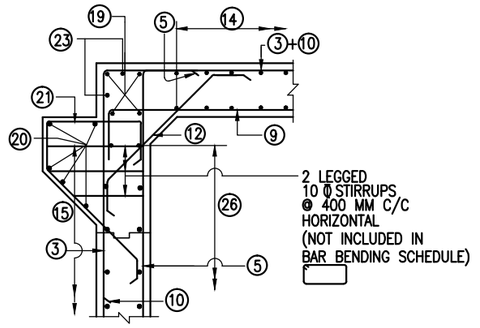
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

DOUBLE CELL R.C.C BOX CULVERTS
2m x 2m TO 3m x3m
(WITHOUT EARTH CUSHION)
GENERAL ARRANGEMENT

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BOX/GA/05	0



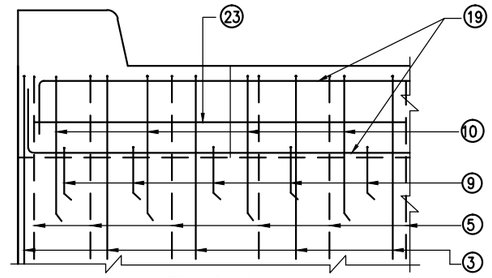
REINFORCEMENT DETAILS OF DOUBLE CELL BOX CULVERT



DETAIL–A

NOTES:–

1. FOR GENERAL NOTES REFER DRG. NO. PPWCS/GEN/101.
2. FOR LAP ZONES REFER DRAWING NO PPWCS/BOX/DD/04

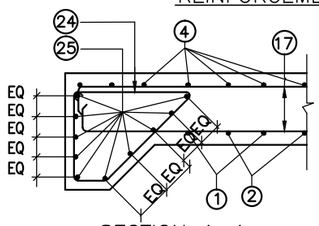


VIEW 2–2
(HAUNCH LINES NOT SHOWN)

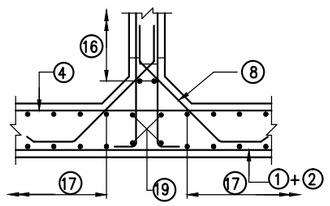
LEGEND :–

——— : TOP FACE BARS/ OUTER FACE BARS

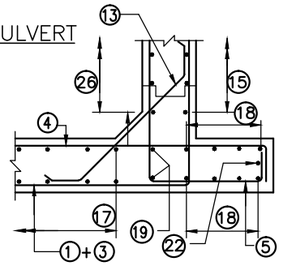
— — — — : BOTTOM FACE BARS/ INNER FACE BARS



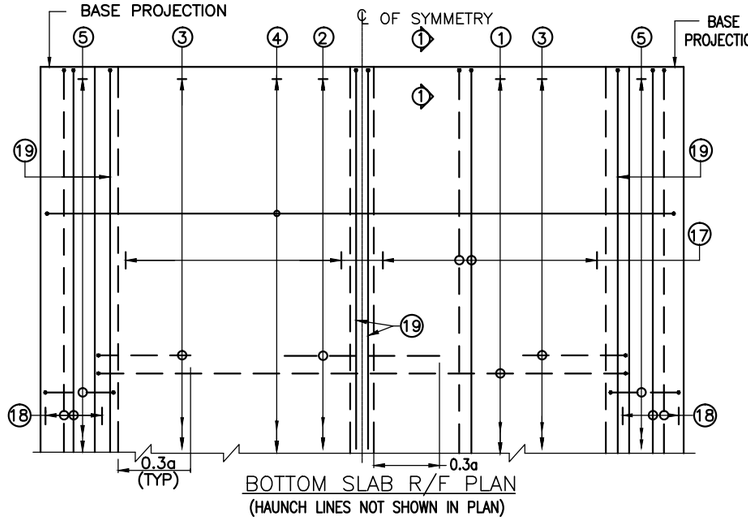
SECTION 1–1



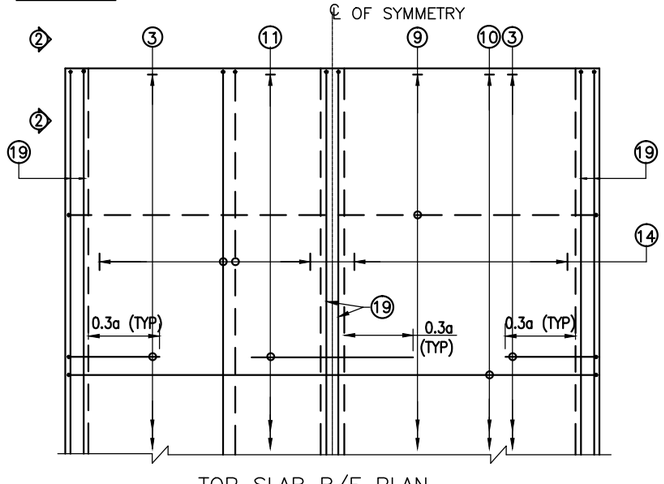
DETAIL– C



DETAIL–B



BOTTOM SLAB R/F PLAN
(HAUNCH LINES NOT SHOWN IN PLAN)



TOP SLAB R/F PLAN
(BAR MARK ⑤, ㉓, KERB LINES & HAUNCH LINES NOT SHOWN IN PLAN)

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

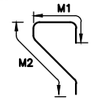
LASA INDIA

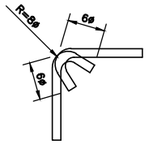
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

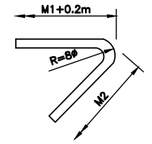
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

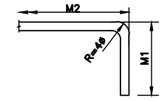
DOUBLE CELL R.C.C BOX CULVERTS
(WITHOUT EARTH CUSHION)
TYPICAL REINFORCEMENT DETAILS

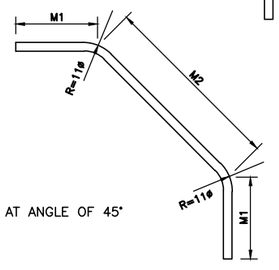
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BOX/DD/06	0











SCHEDULE OF REINFORCEMENT

BAR MARK	BOX – CELL DESIGNATION Nc/ab/Ec / SHAPE OF BARS (NOT TO SCALE)	2/22/0								2/23/0								2/32/0								2/33/0							
		BAR DIA. in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.	BAR DIA. in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.	BAR DIA. in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.	BAR DIA. in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.
①		10	200	950	4940	6806	61	415.1	256.0	10	200	1270	5000	7506	61	457.8	282.3	10	200	1000	7000	8966	61	546.9	337.2	10	200	1300	7090	9656	61	589.0	363.1
②		10	200	1500	–	1500	60	90.0	55.5	10	200	1500	–	1500	60	90.0	55.5	10	200	2100	–	2100	60	126.0	77.7	10	200	2150	–	2150	60	129.0	79.5
③		12	200	920	2700	4499	122	548.9	487.3	16	200	950	3720	5565	122	678.9	1071.6	16	200	1250	2800	5245	122	639.9	1010.0	16	200	1270	3820	6305	122	769.2	1214.1
④		12	150	300	5540	6099	81	494.0	438.6	12	125	320	5600	6199	97	601.3	533.8	16	200	350	7600	8245	61	502.9	793.8	16	200	350	7690	8335	61	508.4	802.5
⑤		12	125	2700	570	3608	194	700.0	621.5	12	175	3720	600	4658	138	642.8	570.7	12	125	2800	600	3738	194	725.2	643.9	20	200	3820	620	4737	122	577.9	1425.2
⑥		16	200	260	2700	3165	122	386.1	609.5	16	200	260	3720	4185	122	510.6	805.9	12	125	200	2800	3159	194	612.8	544.1	16	200	260	3820	4285	122	522.8	825.1
⑦		12	200	200	961	1304	122	159.1	141.2	12	200	200	961	1304	122	159.1	141.2	12	200	200	1031	1375	122	167.7	148.9	12	200	200	1130	1474	122	179.8	159.6
⑧		12	200	200	961	1304	122	159.1	141.2	12	200	200	989	1332	122	162.5	144.3	12	200	200	1031	1375	122	167.7	148.9	12	200	200	1102	1445	122	176.3	156.6
⑨		12	125	200	4940	5299	97	514.0	456.3	12	125	200	5000	5359	97	519.8	461.5	16	200	260	7000	7465	61	455.4	718.7	16	200	260	7090	7555	61	460.9	727.4
⑩		10	200	950	4940	6806	61	415.1	256.0	12	200	1250	5000	7459	61	455.0	403.9	12	200	1000	7000	8959	61	546.5	485.2	12	200	1320	7090	9689	61	591.0	524.7
⑪		16	200	1500	–	1500	60	90.0	142.1	16	200	1500	–	1500	60	90.0	142.1	16	200	2100	–	2100	60	126.0	198.9	20	200	2150	–	2150	60	129.0	318.1
⑫		12	200	200	1060	1403	122	171.2	152.0	12	200	200	1102	1445	122	176.3	156.6	12	200	200	1173	1516	122	185.0	164.2	12	200	200	1229	1573	122	191.9	170.3
⑬		12	200	200	1060	1403	122	171.2	152.0	12	200	200	1130	1474	122	179.8	159.6	12	200	200	1173	1516	122	185.0	164.2	12	200	200	1201	1544	122	188.4	167.3
⑭		8	150	250	11900	12373	52	643.4	253.9	10	150	250	11900	12366	52	643.0	396.4	10	150	250	11900	12366	76	939.8	579.4	10	150	250	11900	12366	76	939.8	579.4
⑮		8	150	185	11900	12243	26	318.3	125.6	10	150	200	11900	12266	38	466.1	287.4	10	150	200	11900	12266	26	318.9	196.6	10	150	210	11900	12286	38	466.9	287.8
⑯		8	150	150	11900	12173	26	316.5	124.9	10	150	160	11900	12186	38	463.1	285.5	10	150	160	11900	12186	26	316.8	195.3	10	150	160	11900	12186	38	463.1	285.5
⑰		8	150	200	11900	12273	52	638.2	251.8	10	150	210	11900	12286	52	638.9	393.9	10	150	225	11900	12316	76	936.0	577.1	10	150	225	11900	12316	76	936.0	577.1
⑱		8	150	200	11900	12273	12	147.3	58.1	10	150	210	11900	12286	12	147.4	90.9	10	150	225	11900	12316	12	147.8	91.1	10	150	225	11900	12316	12	147.8	91.1
⑲		10	–	160	11900	12186	16	195.0	120.2	10	–	160	11900	12186	16	195.0	120.2	10	–	160	11900	12186	16	195.0	120.2	10	–	160	11900	12186	16	195.0	120.2
⑳		12	–	11900	–	11900	10	119.0	105.7	12	–	11900	–	11900	10	119.0	105.7	12	–	11900	–	11900	10	119.0	105.7	12	–	11900	_	11900	10	119.0	105.7
㉑		12	200	1006	1268	2274	122	277.4	266.3	12	200	1006	1268	2274	122	277.4	246.3	12	200	1006	1268	2274	122	277.4	266.3	12	200	1006	1268	2274	122	277.4	310.7
㉒		10	–	160	11900	12186	2	24.3	15.0	10	–	160	11900	12186	2	24.4	15.0	10	–	160	11900	12186	2	24.4	15.0	10	–	160	11900	12186	2	24.4	15.0
㉓		10	–	160	11900	12186	4	48.7	30.1	10	–	160	11900	12186	4	48.7	30.1	10	–	160	11900	12186	4	48.7	30.1	10	–	160	11900	12186	4	48.7	30.1
㉔		10	150	1100	1556	4207	76	319.7	197.1	10	150	1100	1556	4207	78	328.1	202.3	10	150	1100	1556	4207	104	437.5	269.8	10	150	1100	1556	4207	106	445.9	274.9
㉕		10	–	160	5540	5826	20	116.5	71.8	10	–	160	5600	5886	20	117.7	72.6	10	–	160	7600	7886	20	157.7	97.2	10	–	160	7690	7976	20	159.5	98.3
㉖		10	250	185	11900	12236	16	195.8	120.7	10	250	200	11900	12266	24	294.4	181.5	10	250	200	11900	12266	16	196.3	121.0	10	250	210	11900	12286	24	294.9	181.8
TOTAL STEEL (Kgs)		5650								7377								8103								9895							
TOTAL CONCRETE (cum)		91								108								125								144							

NOTES:

1. JOINT OR LAPPING OF BARS SHALL BE SUITABLY STAGGERED AS PER CLAUSE 304.6 OF IRC:21–1987.
2. FULL SCALE ELEVATION FOR THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING No. PPWCS/BOX/GA/05.
4. QUANTITY OF CONCRETE DOES NOT INCLUDE GUARD STONES.
5. QUANTITY OF STEEL DOES NOT INCLUDE 5% EXTRA FOR WASTAGE AND LAPS.
6. BAR No.21 IS DETAILED AS BELOW:

BENDING OF BARS

BEND WITH CLOSE HOOKS

BEND AT ANGLE OF 135°

BEND AT RIGHT ANGLE

BEND AT ANGLE OF 45°

LEGEND : ø SHOWS DIA. OF BAR

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

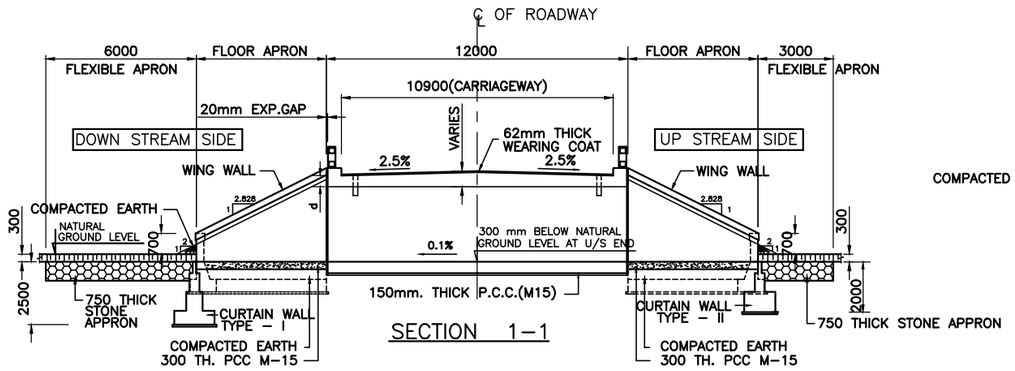
DRAWN: KIRAN
CHECKED: HM MODI
DESIGNED: NAMRATA
CHECKED: SAGAR

LASA
INDIA
PROJECT PREPARATORY WORKS
CONSULTANCY SERVICES FOR GSHP–II

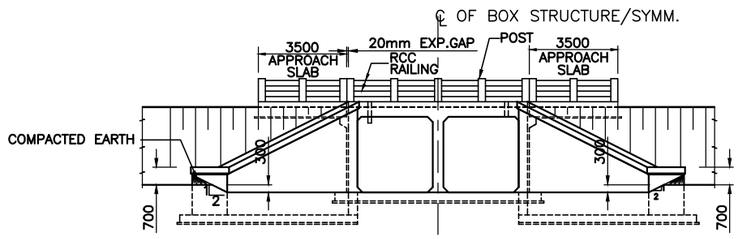
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

DOUBLE CELL R.C.C BOX CULVERTS
2m x 2m TO 3m x3m
(WITHOUT EARTH CUSHION)
BAR BENDING SCHEDULE

DATE: DEC.'2012
PROJECT: PPWCS
DWG No: PPWCS/BOX/DD/07
REV. 0



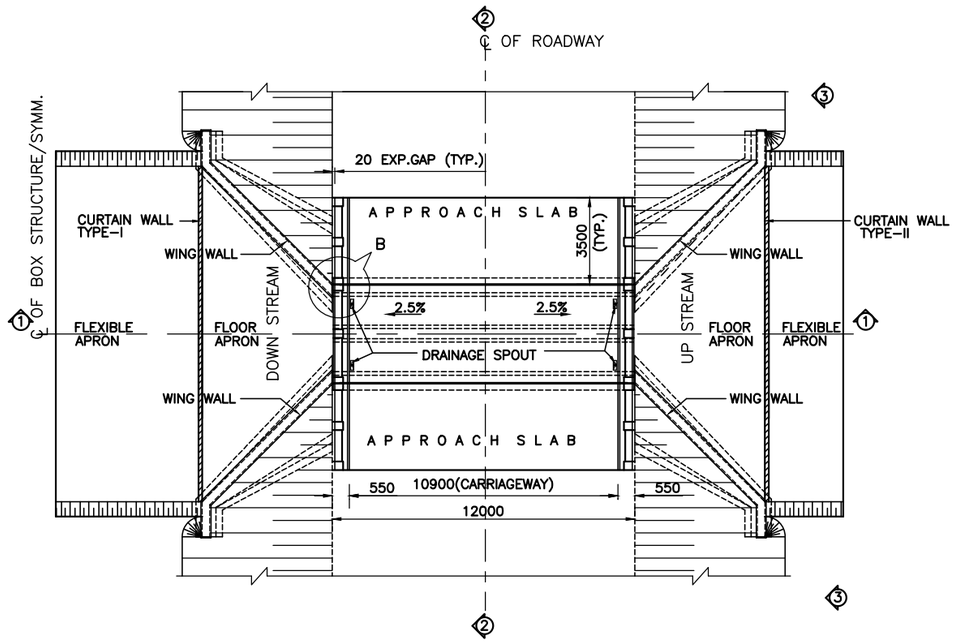
SECTION 1–1



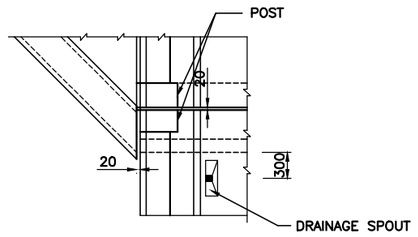
VIEW 3–3

TABLE SHOWING SALIENT DIMENSIONS

BOX CELL DESIGNATION Nc/a/b/Ec	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	g (mm)	REQUIRED BEARING CAPACITY (T/M²)	ACTUAL MAXIMUM BEARING PRESSURE (T/M²)
2/2.5/1.5/0	2500	1500	–	400	400	380	300	15	10.1



PLAN



DETAIL – B

NOTE:

(1) ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.

(2) CONCRETE SHALL BE DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AS FOLLOWS.
. RCC BOX STRUCTURE – M25

(3) ALL UNTENSIONED REINFORCEMENT SHALL BE TMT BARS WITH GRADE DESIGNATION Fe–415 CONFORMING TO IS:1786 STANDARD.

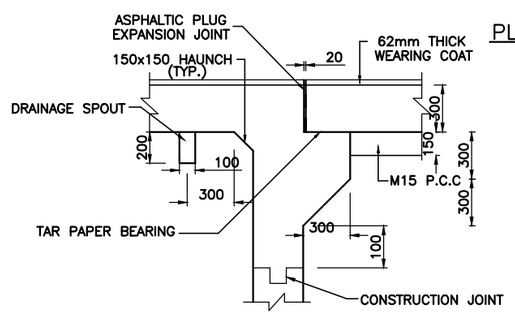
(4) THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. PPWCS/GEN/101

(5) SPT TEST SHOULD BE CARRIED OUT BY CONTRACTOR BEFORE COMENCEMENT OF WORK AT EACH LOCATION TO CHECK BEARING CAPACITY OF SOIL.

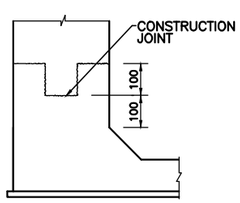
(6) COMPACTED EARTH SHOULD COMPLY WITH TO CLAUSE 305.201.5 OF MOST SPECIFICATIONS.

(7) SOFT AND LOOSE PATCHES IN THE BEARING AREA TO BE REPLACED BY COMPACTED GRANULAR FILL WITH LAYERS NOT EXCEDDING 300mm.

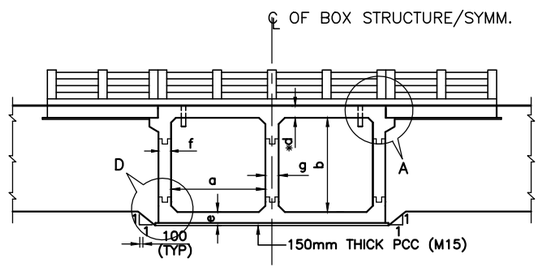
(8) THE INVERT LEVEL OF NEW BOX CULVERT SHALL NOT BE HIGHER THAN THE EXISTING INVERT LEVEL, AND SHALL ALSO BE AT LEAST 300mm BELOW THE NATURAL GROUND LEVEL.



DETAIL – A



DETAIL D



SECTION 2–2

REFERENCE DRAWINGS :

TITLE	DRAWING NO.
DOUBLE CELL RCC BOX CULVERTS (WITHOUT EARTH CUSHION) TYPICAL REINFORCEMENT DETAILS	PPWCS/BOX/DD/29
BAR BENDING SCHEDULE	PPWCS/BOX/DD/39
DETAILS OF PCC WING WALL G.A. DRAWING	PPWCS/BOX/DD/16
DIMENSION SCHEDULE FOR PCC WING WALL	PPWCS/BOX/DD/17
TYPICAL DETAILS OF FLOOR PROTECTION WORKS	PPWCS/BOX/DD/15
MISCELLANEOUS DETAILS RCC RAILING AND APPROACH SLAB	PPWCS/BOX/DD/18
MISCELLANEOUS DETAILS DRAINAGE SPOUT	PPWCS/BOX/DD/19

*d DECK SLAB THICKNESS AT INNER EDGE OF KERB AS SHOWN IN SECTION 1–1

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

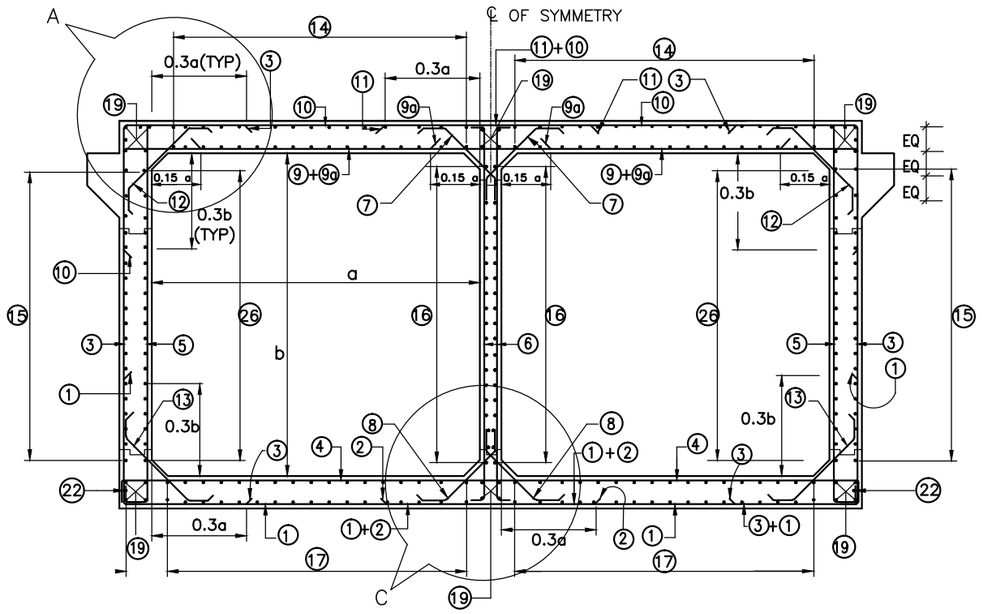
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

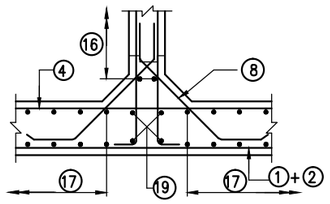
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

DOUBLE CELL R.C.C BOX CULVERTS
2.5m x 1.5m
(WITHOUT EARTH CUSHION)
GENERAL ARRANGEMENT

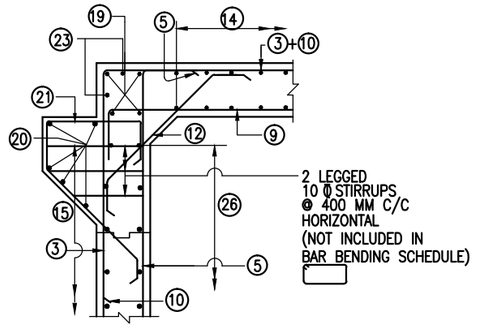
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BOX/GA/38	0



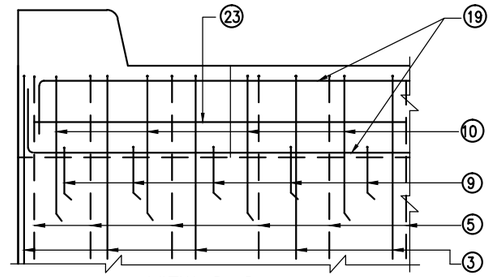
REINFORCEMENT DETAILS OF DOUBLE CELL BOX CULVERT



DETAIL– C



DETAIL–A



VIEW 2–2
(HAUNCH LINES NOT SHOWN)

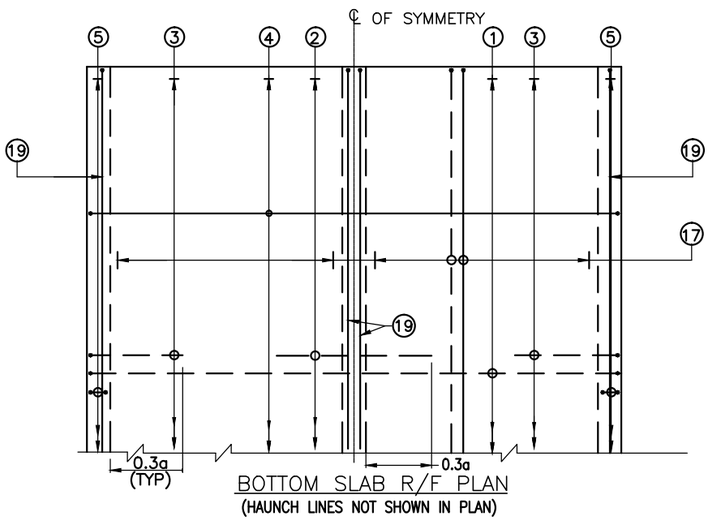
NOTES:–

1. FOR GENERAL NOTES REFER DRG. NO. PPWCS/GEN/101.
2. NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY LOCATION. LAP LENGTH SHALL BE 83 x DIA OF BAR.

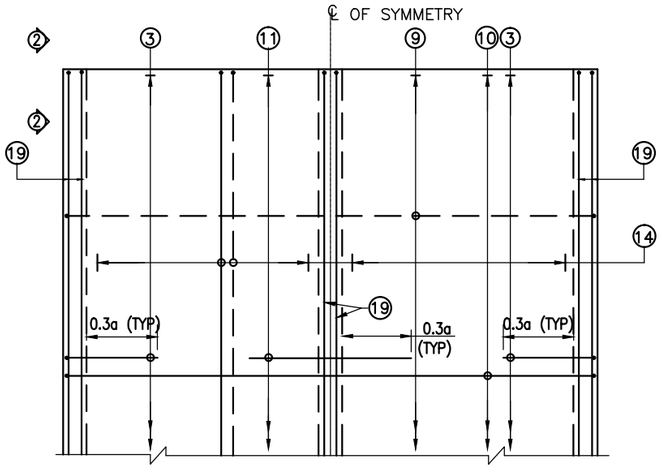
LEGEND :–

———— : TOP FACE BARS/ OUTER FACE BARS

— — — — : BOTTOM FACE BARS/ INNER FACE BARS



BOTTOM SLAB R/F PLAN
(HAUNCH LINES NOT SHOWN IN PLAN)



TOP SLAB R/F PLAN
(BAR MARK ⑤, ㉓, KERB LINES & HAUNCH LINES NOT SHOWN IN PLAN)

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: 29–BOX–29 DD

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

LASA INDIA

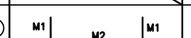
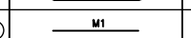
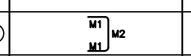
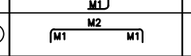
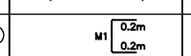
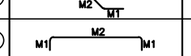
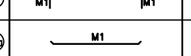
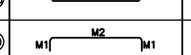
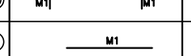
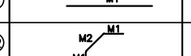
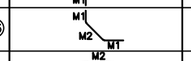
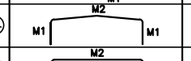
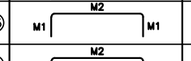
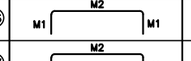
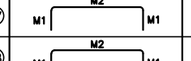
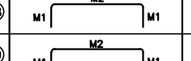
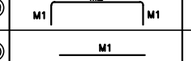
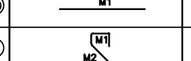
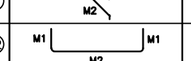
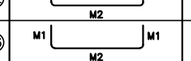
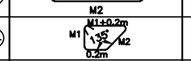
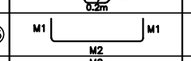
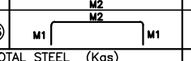
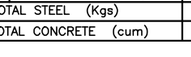
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

DOUBLE CELL R.C.C BOX CULVERTS
3.5m x 1.5m AND 5m x1.5m
(WITHOUT EARTH CUSHION)
TYPICAL REINFORCEMENT DETAILS

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BOX/DD/29	0

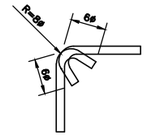
SCHEDULE OF REINFORCEMENT

BAR MARK	SHAPE OF BARS (NOT TO SCALE) / BOX – CELL DESIGNATION Nc/a/b/Ec	BAR DIA in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.
	2/2.5/1.5/0								
①		10	150	775	5910	7460	80	597	370.02
②		10	150	1800		1800	80	144	89.28
③		10	150	1055	2150	4260	160	682	422.6
④		12	150	300.0	5910	6510	80	521	463.5
⑤		10	150	2150	–	2550	160	408	253
⑥		10	150	260.0	2150	2670	160	427	264.9
⑦		10	150	200.0	931	1331	160	213	132
⑧		10	150	200.0	931	1331	160	213	132
⑨		12	150	200.0	5910	6310	80	505	449.27
⑨a				BAR IS NOT USED					
⑩		10	150	775	5910	7460	80	597	370.02
⑪		10	150	1800		1800	80	144	89.28
⑫		10	150	200.0	967	1367	160	219	136
⑬		10	150	200.0	967	1367	160	219	136
⑭		10	150	250.0	11850	12350	81	1000	620.22
⑮		10	150	250.0	11850	12350	31	383	237.4
⑯		10	150	250.0	11850	12350	31	383	237.4
⑰		10	150	250.0	11850	12350	81	1000	620.22
⑱				BAR IS NOT USED					
⑲		10	–	150.0	11850	12150	24	292	181.0
⑳		12	–	11850		11850	10	119.0	106.0
㉑		12	150	1006.0	1266.0	2272.0	160	364	324
㉒		10	–	160.0	11850	12170	2	24.3	15.0
㉓		10	–	160.0	11850	12170	4	49	30.38
㉔				BAR IS NOT USED					
㉕				BAR IS NOT USED					
㉖		10	150	250.0	11850	12350	31	383	237.4
TOTAL STEEL (Kgs)		5916.89							
TOTAL CONCRETE (cum)		81.58							

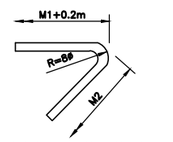
NOTES:

1. JOINT OR LAPPING OF BARS SHALL BE SUITABLY STAGGERED AS PER CLAUSE 304.6 OF IRC:21–1987.
2. FULL SCALE ELEVATION FOR THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING No. PPWCS/BOX/GA/38.
4. QUANTITY OF CONCRETE DOES NOT INCLUDE GUARD STONES.
5. QUANTITY OF STEEL DOES NOT INCLUDE 5% EXTRA FOR WASTAGE AND LAPS.
6. BAR No.21 IS DETAILED AS BELOW:

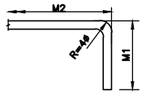
BENDING OF BARS



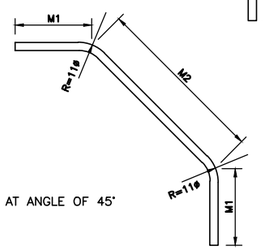
BEND WITH CLOSE HOOKS



BEND AT ANGLE OF 135°



BEND AT RIGHT ANGLE



BEND AT ANGLE OF 45°

LEGEND : ø SHOWS DIA. OF BAR

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

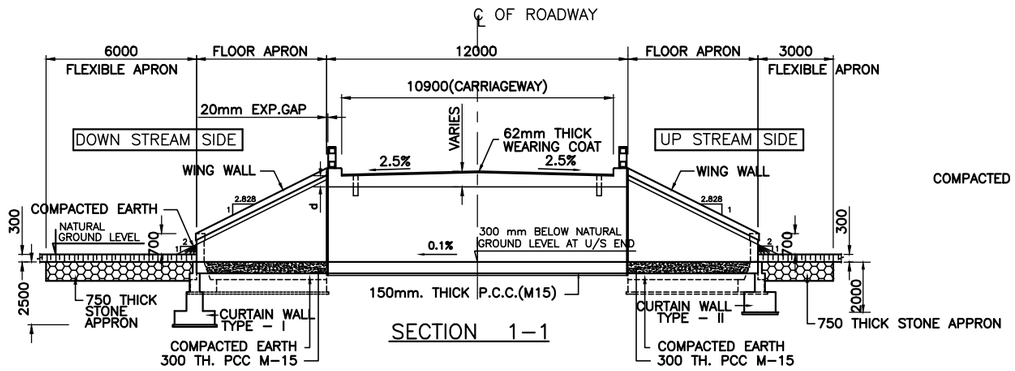
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

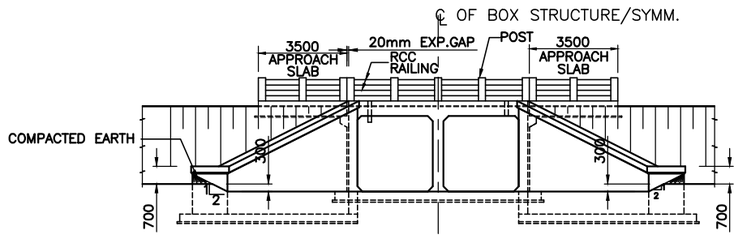
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

DOUBLE CELL R.C.C BOX CULVERTS
2.5m x 1.5m
(WITHOUT EARTH CUSHION)
BAR BENDING SCHEDULE

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BOX/DD/39	0



SECTION 1–1



VIEW 3–3

TABLE SHOWING SALIENT DIMENSIONS

BOX CELL DESIGNATION Nc/a/b/Ec	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	g (mm)	REQUIRED BEARING CAPACITY (T/M²)	ACTUAL MAXIMUM BEARING PRESSURE (T/M²)
2/4.0/3.0/0	4000	3000	–	450	450	420	300	15	9.02
2/4.0/4.0/0	4000	4000	–	480	480	480	300	15	9.58
2/4.5/2.5/0	4500	2500	–	450	450	420	300	15	8.41
2/5.0/2.0/0	5000	2000	–	480	480	450	300	15	7.95

NOTE:

(1) ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.

(2) CONCRETE SHALL BE DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AL FOLLOWS.
. RCC BOX – M25

(3) ALL UNTENSIONED REINFORCEMENT SHALL BE TMT BARS WITH GRADE DESIGNATION Fe–415 CONFORMING TO IS:1786 STANDARD.

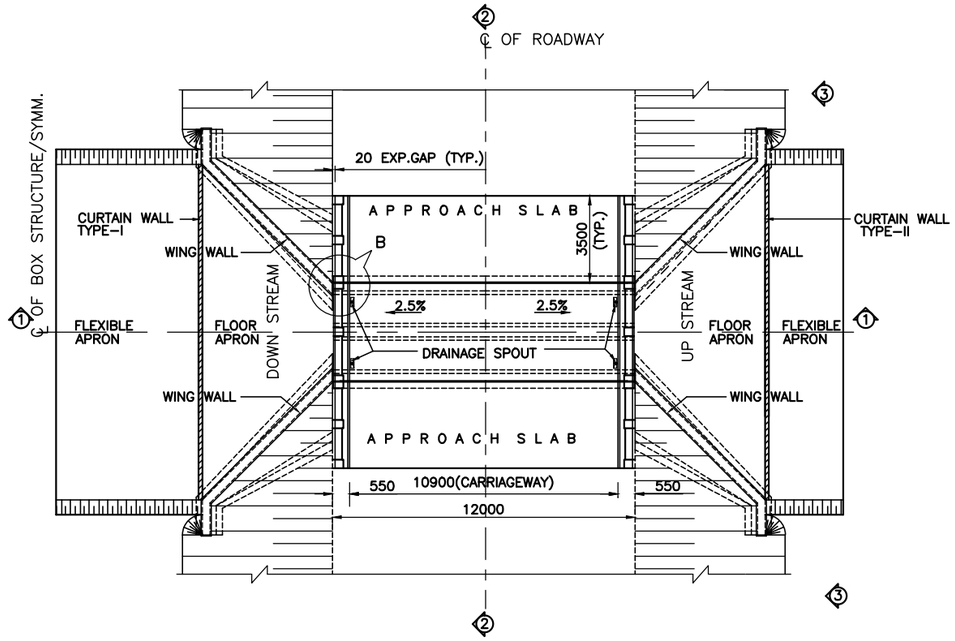
(4) THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. PPWCS/GEN/101

(5) SPT TEST SHOULD BE CARRIED OUT BY CONTRACTOR BEFORE COMENCEMENT OF WORK AT EACH LOCATION TO CHECK BEARING CAPACITY OF SOIL.

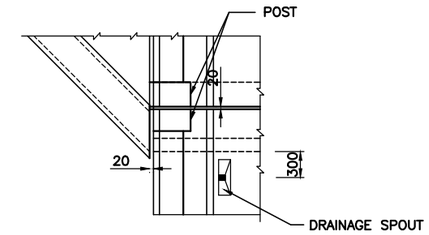
(6) COMPACTED EARTH SHOULD COMPLY WITH TO CLAUSE 305.201.5 OF MOST SPECIFICATIONS.

(7) SOFT AND LOOSE PATCHES IN THE BEARING AREA TO BE REPLACED BY COMPACTED GRANULAR FILL WITH LAYERS NOT EXCEDDING 300mm.

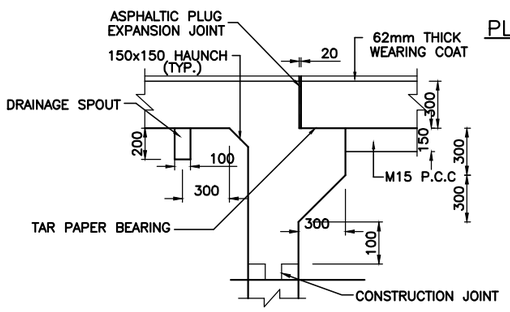
(8) THE INVERT LEVEL OF NEW BOX CULVERT SHALL NOT BE HIGHER THAN THE EXISTING INVERT LEVEL, AND SHALL ALSO BE AT LEAST 300mm BELOW THE NATURAL GROUND LEVEL.



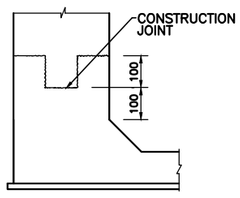
PLAN



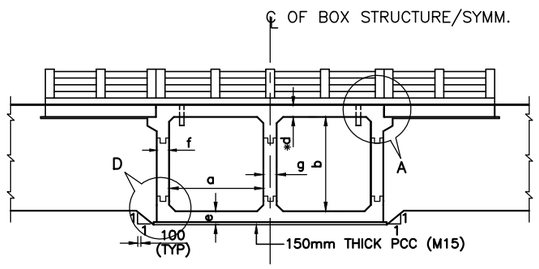
DETAIL – B



DETAIL – A



DETAIL D



SECTION 2–2

*d DECK SLAB THICKNESS AT INNER EDGE OF KERB AS SHOWN IN SECTION 1–1

REFERENCE DRAWINGS :

TITLE	DRAWING NO.
DOUBLE CELL RCC BOX CULVERTS (WITHOUT EARTH CUSHION) TYPICAL REINFORCEMENT DETAILS	PPWCS/BOX/DD/29
BAR BENDING SCHEDULE	PPWCS/BOX/DD/41
DETAILS OF PCC WING WALL G.A. DRAWING	PPWCS/BOX/DD/16
DIMENSION SCHEDULE FOR PCC WING WALL	PPWCS/BOX/DD/17
TYPICAL DETAILS OF FLOOR PROTECTION WORKS	PPWCS/BOX/DD/15
MISCELLANEOUS DETAILS RCC RAILING AND APPROACH SLAB	PPWCS/BOX/DD/18
MISCELLANEOUS DETAILS DRAINAGE SPOUT	PPWCS/BOX/DD/19

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: 40–BOX GA

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

LASA INDIA

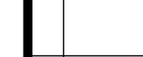
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

DOUBLE CELL R.C.C BOX CULVERTS
4.0m x 3.0m AND 5.0m x2.0m
(WITHOUT EARTH CUSHION)
GENERAL ARRANGEMENT

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BOX/GA/40	0

SCHEDULE OF REINFORCEMENT

BAR MARK	SHAPE OF BARS (NOT TO SCALE) / BOX – CELL DESIGNATION Nc/a/b/Ec	BAR DIA. in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.
		2/4.0/3.0/0							
①		10	150	1275	8990	11540	80	923	572.4
②		16	150	2700	–	2700	80	216	341.3
③		16	150	1890	3750	7530	160	1205	1903.6
④		16	150	300	8990	9590	80	767	1212.2
⑤		10	150	3750	–	4150	160	664	411.7
⑥		12	150	260	3750	4270	160	683	608.05
⑦		10	150	200	874	1274	160	204	126.4
⑧		10	150	200	874	1274	160	204	126.4
⑨		10	150	200	8990	9390	80	751	465.74
⑨a		16	150	2400	–	2400	160	384	606.72
⑩		10	150	1275	8990	11540	80	923	572.38
⑪		16	150	2700	–	2700	80	216	341.28
⑫		10	150	200	1007	1407	160	225	139.6
⑬		10	150	200	1007	1407	160	225	139.6
⑭		10	130	250	11850	12350	142	1754	1087.3
⑮		10	130	250	11850	12350	62	766	474.7
⑯		10	130	250	11850	12350	62	766	474.7
⑰		10	130	250	11850	12350	142	1754	1087.3
⑱		BAR IS NOT USED							
⑲		10	–	150	11850	12150	24	292	180.79
⑳		12	–	11850	–	11850	10	119.0	105.5
㉑		12	150	1006	1266	2272	160	364	323.5
㉒		10	–	160	11850	12170	2	24	15.1
㉓		10	–	160	11850	12170	4	49	30.2
㉔		BAR IS NOT USED							
㉕		BAR IS NOT USED							
㉖		10	130	250	11850	12350	62	766	474.7
TOTAL STEEL (Kgs)		11821.04							
TOTAL CONCRETE (cum)		144.07							

BAR MARK	SHAPE OF BARS (NOT TO SCALE) / BOX – CELL DESIGNATION Nc/a/b/Ec	BAR DIA. in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.
		2/4.0/4.0/0							
①		12	150	1605	9110	12320	80	986	877.2
②		16	150	2700	–	2700	80	216	341.3
③		16	150	2010	4810	8830	160	1413	2232.3
④		16	150	300	9110	9710	80	777	1227.3
⑤		12	150	4810	–	5210	160	834	741.9
⑥		12	150	260	4810	5330	160	853	759
⑦		10	150	200	916	1316	160	211	130.6
⑧		10	150	200	916	1316	160	211	130.6
⑨		10	150	200	9110	9510	80	761	471.7
⑨a		16	150	2400	–	2400	160	384	606.72
⑩		10	150	1605	9110	12320	80	986	611.07
⑪		16	150	2700	–	2700	80	216	341.28
⑫		10	150	200	1134	1534	160	245	152.2
⑬		10	150	200	1134	1534	160	245	152.2
⑭		10	120	250	11850	12350	156	1927	1194.5
⑮		10	120	250	11850	12350	84	1037	643.2
⑯		10	120	250	11850	12350	84	1037	643.2
⑰		10	120	250	11850	12350	156	1927	1194.5
⑱		BAR IS NOT USED							
⑲		10	–	150	11850	12150	24	292	180.79
⑳		12	–	11850	–	11850	10	119.0	105.5
㉑		12	150	1006	1266	2272	160	364	323.5
㉒		10	–	160	11850	12170	2	24	15.1
㉓		10	–	160	11850	12170	4	49	30.2
㉔		BAR IS NOT USED							
㉕		BAR IS NOT USED							
㉖		10	120	250	11850	12350	84	1037	643.2
TOTAL STEEL (Kgs)		13748.75							
TOTAL CONCRETE (cum)		171.48							

BAR MARK	SHAPE OF BARS (NOT TO SCALE) / BOX – CELL DESIGNATION Nc/a/b/Ec	BAR DIA. in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.
		2/4.5/2.5/0							
①		10	150	1125	9990	12240	80	979	607.1
②		20	150	3000	–	3000	80	240	592.8
③		16	150	2040	3250	7330	160	1173	1853.0
④		16	150	300	9990	10590	80	847	1338.6
⑤		10	150	3250	–	3650	160	584	362.08
⑥		12	150	260	3250	3770	160	603	536.85
⑦		10	150	200	874	1274	160	204	126.4
⑧		10	150	200	874	1274	160	204	126.4
⑨		10	150	200	9990	10390	80	831	505.3
⑨a		16	150	2700	–	2700	160	432	682.56
⑩		10	150	1125	9990	12240	80	979	607.1
⑪		20	150	3000	–	3000	80	240	592.8
⑫		10	150	200	1007	1407	160	225	139.6
⑬		10	150	200	1007	1407	160	225	139.6
⑭		10	120	250	11850	12350	172	2124	1317
⑮		10	120	250	11850	12350	58	716	444.11
⑯		10	120	250	11850	12350	58	716	444.11
⑰		10	120	250	11850	12350	172	2124	1317
⑱		BAR IS NOT USED							
⑲		10	–	150	11850	12150	24	292	180.79
⑳		12	–	11850	–	11850	10	119.0	105.5
㉑		12	150	1006	1266	2272	160	364	323.5
㉒		10	–	160	11850	12170	2	24	15.1
㉓		10	–	160	11850	12170	4	49	30.2
㉔		BAR IS NOT USED							
㉕		BAR IS NOT USED							
㉖		10	120	250	11850	12350	58	716	444.11
TOTAL STEEL (Kgs)		12481.54							
TOTAL CONCRETE (cum)		148.03							

BAR MARK	SHAPE OF BARS (NOT TO SCALE) / BOX – CELL DESIGNATION Nc/a/b/Ec	BAR DIA. in mm.	SPACING in mm.	M1 in mm.	M2 in mm.	LENGTH in mm.	NO. OF BARS	TOTAL LENGTH in meters	WEIGHT in kgs.
		2/5.0/2.0/0							
①		10	150	1005	11050	13060	80	1045	647.78
②		20	150	3300	–	3300	80	264	652.1
③		16	150	2250	2810	7310	160	1170	1848
④		16	150	300	11050	11650	80	932	1472.6
⑤		10	150	2810	–	3210	160	514	318.43
⑥		12	150	260	2810	3330	160	533	474.19
⑦		10	150	200	916	1316	160	211	130.6
⑧		10	150	200	916	1316	160	211	130.6
⑨		10	150	200	11050	11450	80	916	567.92
⑨a		16	150	3000	–	3000	160	480	758.40
⑩		10	150	1005	11050	13060	80	1045	647.8
⑪		20	150	3300	–	3300	80	264	652.08
⑫		10	150	200	1092	1492	160	239	148.01
⑬		10	150	200	1092	1492	160	239	148.01
⑭		10	110	250	11850	12350	206	2544	1577.3
⑮		10	110	250	11850	12350	56	692	428.8
⑯		10	110	250	11850	12350	56	692	428.8
⑰		10	110	250	11850	12350	206	2544	1577.3
⑱		BAR IS NOT USED							
⑲		10	–	150	11850	12150	24	292	180.79
⑳		12	–	11850	–	11850	10	119.0	105.5
㉑		12	150	1006	1266	2272	160	364	323.5
㉒		10	–	160	11850	12170	2	24	15.1
㉓		10	–	160	11850	12170	4	49	30.2
㉔		BAR IS NOT USED							
㉕		BAR IS NOT USED							
㉖		10	110	250	11850	12350	56	692	428.8
TOTAL STEEL (Kgs)		13692.41							
TOTAL CONCRETE (cum)		162.14							

NOTES:

1. JOINT OR LAPPING OF BARS SHALL BE SUITABLY STAGGERED AS PER CLAUSE 304.6 OF IRC:21–2000.
2. FULL SCALE ELEVATION FOR THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING No. PPWCS/BOX/GA/40.
4. QUANTITY OF CONCRETE DOES NOT INCLUDE GUARD STONES.
5. QUANTITY OF STEEL DOES NOT INCLUDE 5% EXTRA FOR WASTAGE AND LAPS.
6. BAR No.21 IS DETAILED AS BELOW:

BENDING OF BARS

BEND WITH CLOSE HOOKS

BEND AT ANGLE OF 135°

BEND AT RIGHT ANGLE

BEND AT ANGLE OF 45°

LEGEND : ø SHOWS DIA. OF BAR

No.	REVISION	DATE	BY

SCALE : NOT TO SCALE

CAD FILE: 41–BOX DD

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

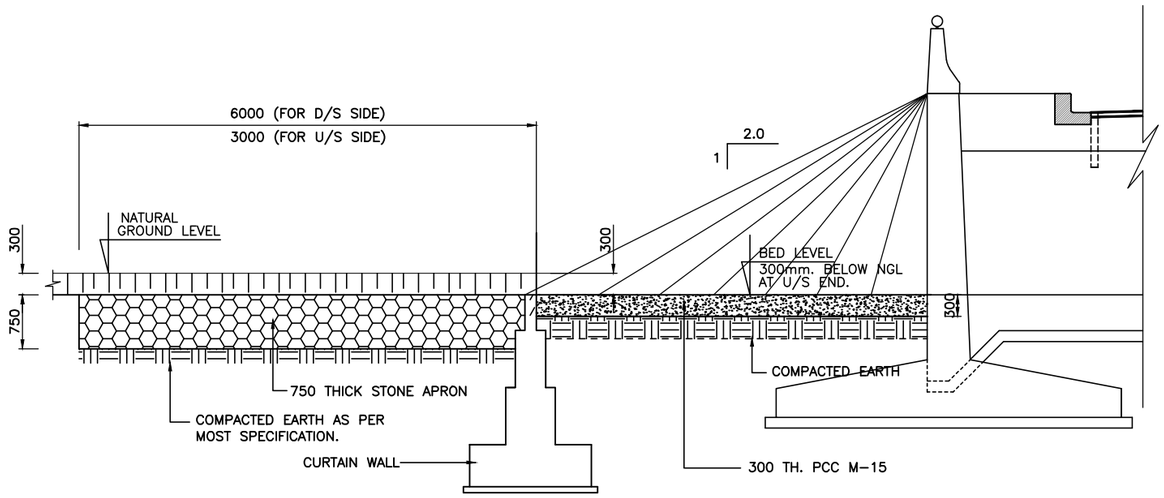
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

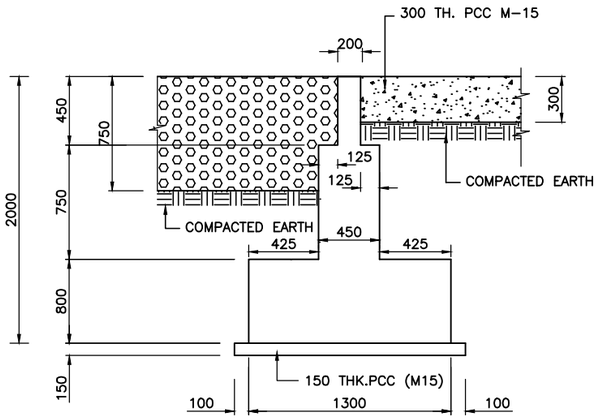
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

DOUBLE CELL R.C.C BOX CULVERTS
4.0m x 3.0m AND 5.0m x2.0m
(WITHOUT EARTH CUSHION)
BAR BENDING SCHEDULE

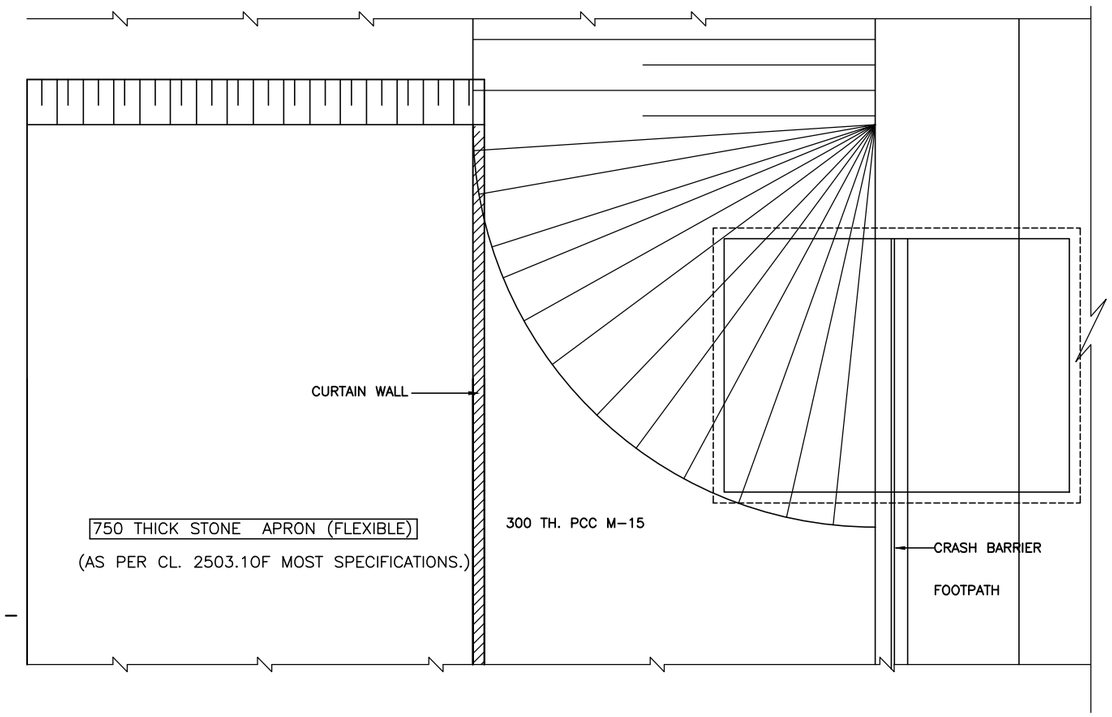
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/BOX/DD/41	0



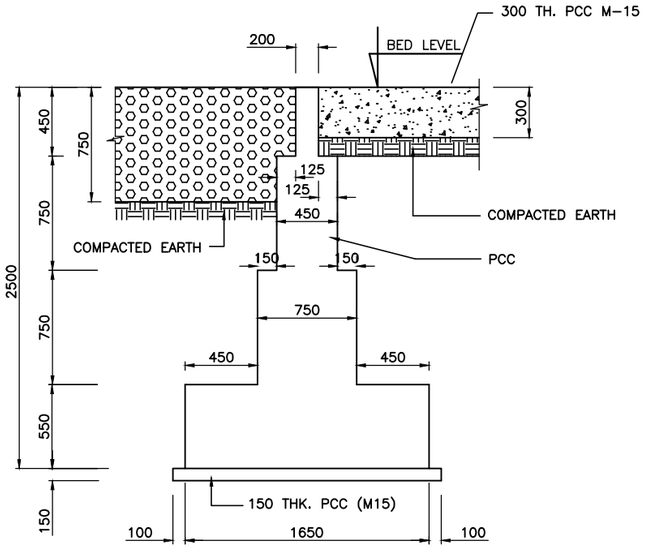
SECTION 1-1



TYPICAL CROSS SECTION OF
CURTAIN WALL TYPE-II
(UP STREAM SIDE)



PLAN



TYPICAL CROSS SECTION OF
CURTAIN WALL TYPE-I
(DOWN STREAM SIDE)

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. PPWCS/GEN/101
3. COMPACTED EARTH SHOULD CONFIRM TO CLAUSE. 305.2.1.5 OF MOST SPECIFICATIONS

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

LASA INDIA

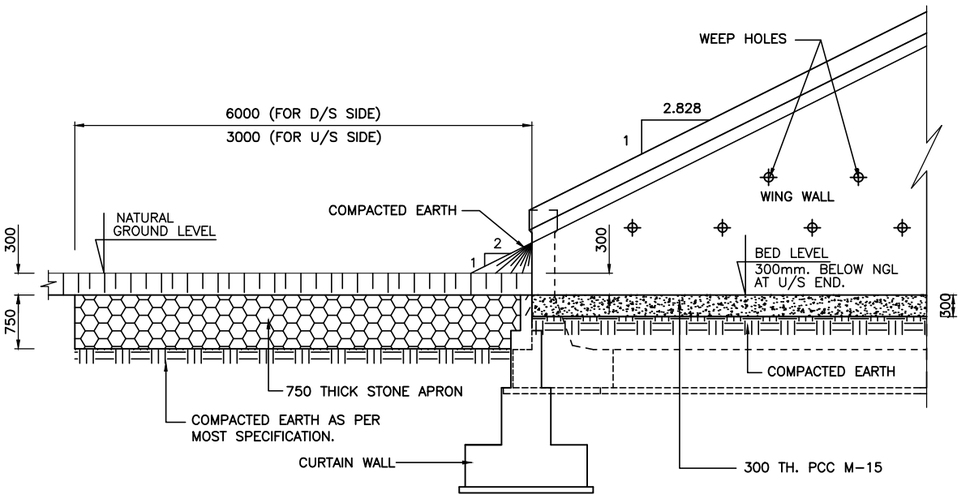
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

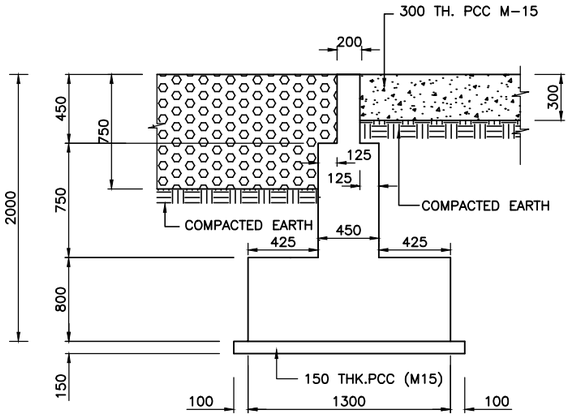
TYPICAL DETAILS OF
FLOOR PROTECTION WORKS
GENERAL ARRANGEMENT

(SHEET 1 OF 2)

DATE:	PROJECT:	DWG No:	REV.
APRIL'2012	PPWCS	PPWCS/BOX/DD/15	0



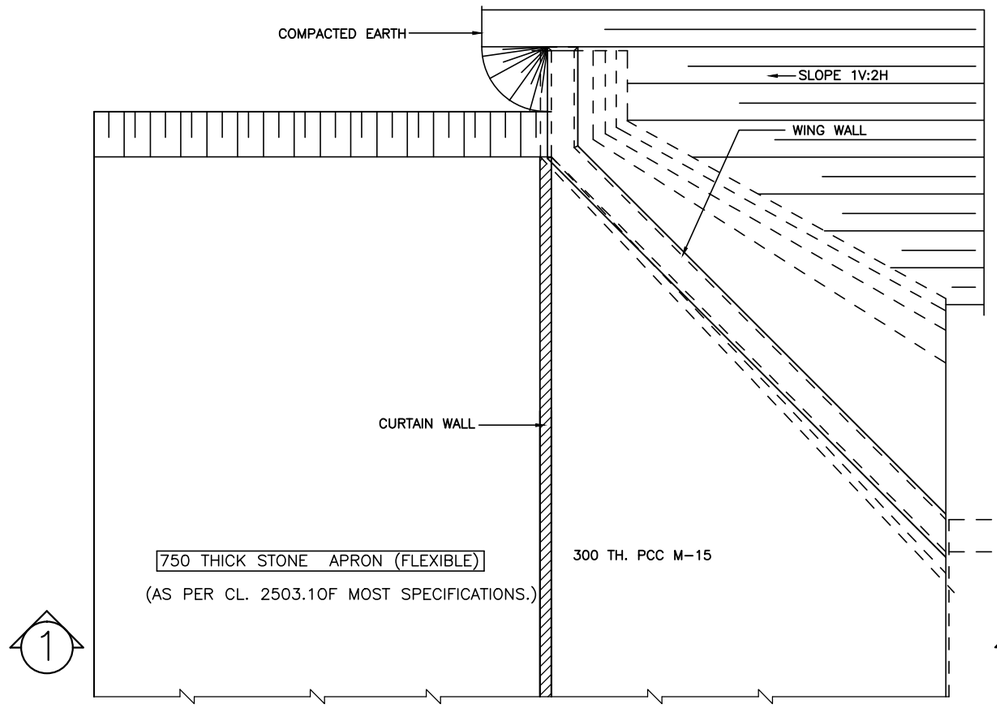
SECTION 1-1



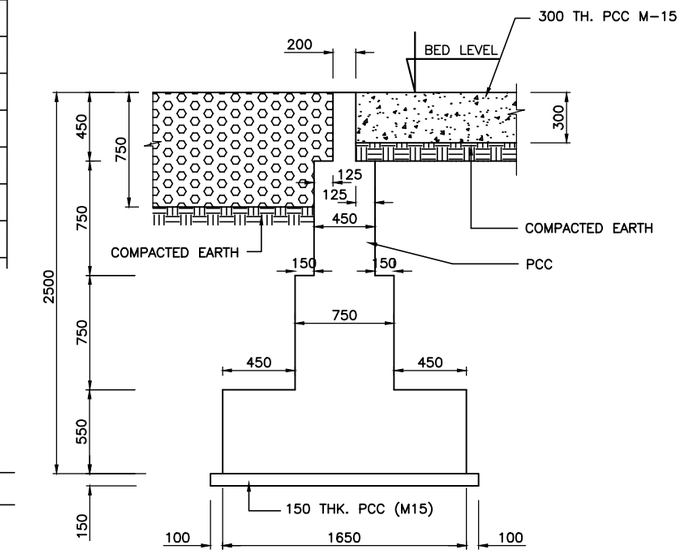
TYPICAL CROSS SECTION OF CURTAIN WALL TYPE-II
(UP STREAM SIDE)

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. PPWCS/GEN/101
3. COMPACTED EARTH SHOULD CONFIRM TO CLAUSE. 305.2.1.5 OF MOST SPECIFICATIONS



PLAN



TYPICAL CROSS SECTION OF CURTAIN WALL TYPE-I
(DOWN STREAM SIDE)

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

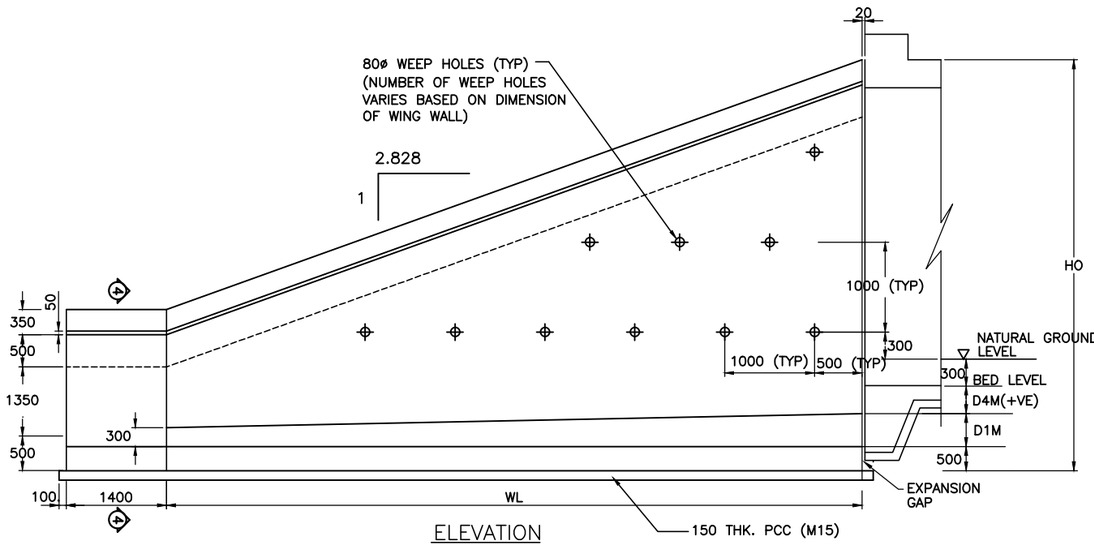
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

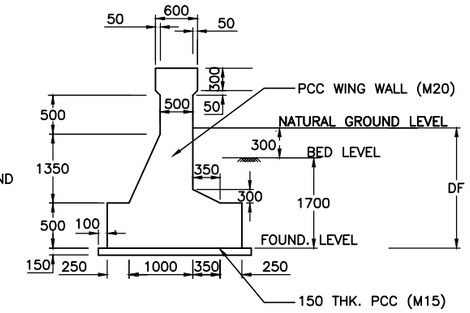
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL DETAILS OF FLOOR PROTECTION WORKS GENERAL ARRANGEMENT (SHEET 2 OF 2)

DATE:	PROJECT:	DWG No:	REV.
APRIL'2012	PPWCS	PPWCS/BOX/DD/15	0



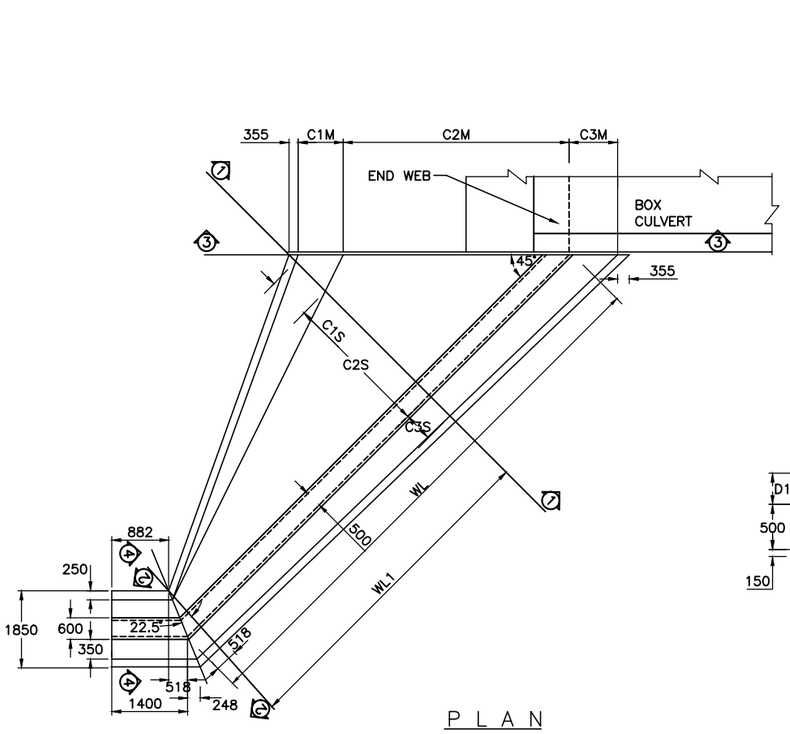
ELEVATION



SECTION 4 – 4 (MIN HEIGHT)

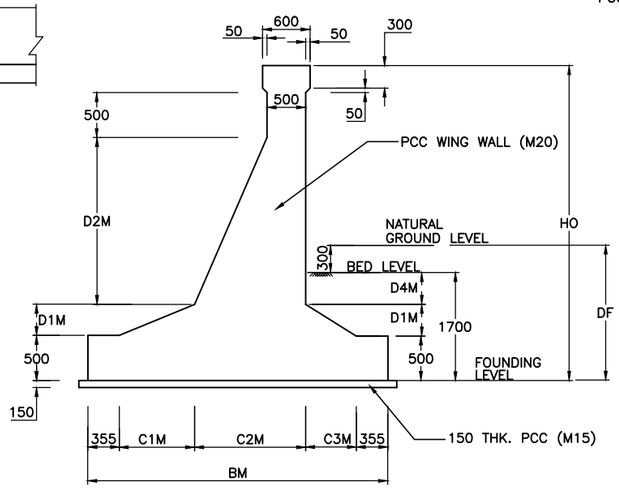
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED.
2. FOR GENERAL NOTES REFER DRG. NO. PPWCS/GEN/101.
3. FOR DIMENSIONS SCHEDULE REFER DRG. NO. PPWCS/BOX/DD/17
4. SOFT AND LOOSE PATCHES IN THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
5. IF THERE IS ANY LEVEL DIFFERENCE IN FOUNDING LEVEL OF WING WALL AND DOWNWARD PROJECTION AT THE ADJACENT EDGE OF BOX STRUCTURE, PROPER GRANULAR PROTECTION IS TO BE PROVIDED IN THIS AREA TO COMPENSATE THE LEVEL DIFFERENCE.
6. MARKED SECTION 2–2 NOT SHOWN IN DRG & IS GIVEN ONLY TO MENTION LENTGH WL1.
7. IF OVERALL HEIGHT IS ABOVE 6M, IT IS BETTER TO BE OPT FOR R.C.C TYPE WING WALL RATHER THAN P.C.C. WING WALL. FOR THIS SPECIFIC CASE INDEPENDENT DESIGN HAS TO BE DONE AS PER SITE CONDITION AND DIRECTION OF THE ENGINEER–IN–CHARGE.
8. THE FILTER MEDIA SHALL BE PROVIDED BEHIND THE SURFACE OF WING WALL AS PER IRC:78.

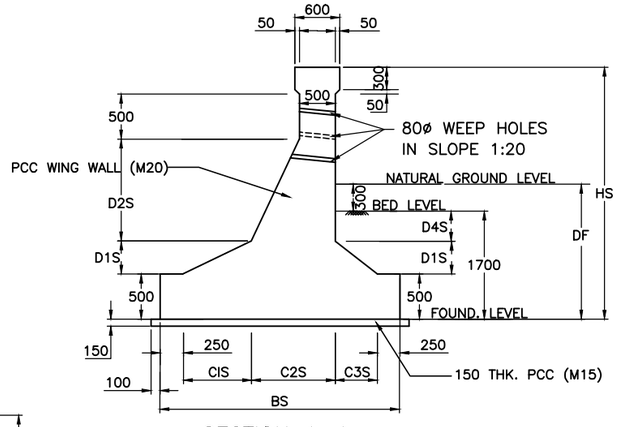


P L A N

(BLINDING LAYER LINE AND WEEP HOLES NOT SHOWN IN PLAN)



SECTION 3–3



SECTION 1–1

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

DETAILS OF PCC WING WALL
GENERAL ARRANGEMENT
(MAX HEIGHT OF WING WALL BELOW 6m.)

DATE:	PROJECT:	DWG No:	REV.
APRIL'2012	PPWCS	PPWCS/BOX/DD/16	0

TABLE No. – 1

SALIENT DIMENSIONS OF PCC WING WALL
CONSIDERING NET SBC= 5t/m2

PCC (M20)

				SECTION 1–1								SECTION 3–3						
S.NO.	MAX.HT. HO (mm)	DEPTH OF FOUND. DF(mm)	LENGTH BETWEEN SEC. 1–1 AND SEC. 2–2 (mm)	HT.AT SEC 1–1 HS (mm)	C1S (mm)	C2S (mm)	C3S (mm)	BS (mm)	D1S (mm)	D2S (mm)	D4S (mm)	C1M (mm)	C2M (mm)	C3M (mm)	BM (mm)	D1M (mm)	D2M (mm)	D4M (mm)
1.	3000	1500	707	2611	0	850	600	1950	320	941	380	0	1202	1157	2859	444	1206	256
2.	4000	1500	185	2427	3350	850	650	5350	264	813	436	4738	1202	7366	13806	840	1810	–140

TABLE No. – 2

SALIENT DIMENSIONS OF PCC WING WALL
CONSIDERING NET SBC= 10t/m2

PCC (M20)

				SECTION 1–1								SECTION 3–3						
S.NO.	MAX.HT. HO (mm)	DEPTH OF FOUND. DF(mm)	LENGTH BETWEEN SEC. 1–1 AND SEC. 2–2 (mm)	HT.AT SEC 1–1 HS (mm)	C1S (mm)	C2S (mm)	C3S (mm)	BS (mm)	D1S (mm)	D2S (mm)	D4S (mm)	C1M (mm)	C2M (mm)	C3M (mm)	BM (mm)	D1M (mm)	D2M (mm)	D4M (mm)
1.	3000	1500	707	2611	0	850	460	1810	280	981	420	0	1202	651	2353	342	1308	358
2.	4000	1500	2935	3399	500	950	600	2550	600	1449	100	707	1344	963	3514	808	1842	–108
3.	5000	1500	4064	3798	1900	1250	550	4200	570	1878	130	2687	1768	884	5839	846	2804	–146
4.	6000	1500	4242	3861	4100	1700	470	6770	480	2031	220	5798	2404	685	9387	822	3828	–122
5.	6000	2000	4316	4409	2700	1550	670	5420	750	2309	450	3818	2192	1419	8139	1219	3431	–19
6.	7000	2000	4664	4532	4700	2030	630	7860	700	2482	500	6647	2871	1484	11712	1299	4351	–99

TABLE No. – 3

SALIENT DIMENSIONS OF PCC WING WALL
CONSIDERING NET SBC= 15t/m2

PCC (M20)

				SECTION 1–1								SECTION 3–3						
S.NO.	MAX.HT. HO (mm)	DEPTH OF FOUND. DF(mm)	LENGTH BETWEEN SEC. 1–1 AND SEC. 2–2 (mm)	HT.AT SEC 1–1 HS (mm)	C1S (mm)	C2S (mm)	C3S (mm)	BS (mm)	D1S (mm)	D2S (mm)	D4S (mm)	C1M (mm)	C2M (mm)	C3M (mm)	BM (mm)	D1M (mm)	D2M (mm)	D4M (mm)
1.	3000	1500	707	2611	0	850	460	1810	280	981	420	0	1202	651	2353	342	1308	358
2.	4000	1500	2785	3346	600	1000	500	2600	500	1496	200	849	1414	745	3508	673	1977	27
3.	5000	1500	4814	4063	1100	1300	460	3360	620	2093	80	1556	1838	651	4545	829	2821	–129
4.	6000	1500	4442	3932	3800	1800	460	6560	500	2082	200	5374	2546	651	9071	842	3808	–142
5.	6000	2000	5566	4851	1450	1550	600	4100	910	2591	290	2051	2192	1055	6008	1266	3384	–66
6.	7000	2000	6244	5091	2800	2350	510	6160	750	2991	450	3960	3323	917	8910	1139	4511	61
7.	8000	2000	6633	5228	4700	2890	480	8570	700	3178	500	6647	4087	896	12340	1173	5477	27
8.	9000	2000	6351	5129	7300	3400	410	11610	580	3199	620	10324	4808	726	16568	1063	6587	137
9.	10000	2000	6000	5004	9800	4080	300	14680	420	3234	780	13859	5770	258	20597	703	7947	497

NOTES:

1. FOR GENERAL NOTES REFER. DRG. NO. PPWCS/GEN/101.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRG. No. PPWCS/BOX/DD/16
3. WING WALL IS DESIGNED FOR SEVERE CONDITION OF EXPOSURE AND SAME STRUCTURE CAN BE USED FOR MODERATE CONDITION OF EXPOSURE.
4. MIN. VALUE OF D4M ALLOWABLE : –150mm.
   IF D4M IS (–VE) , IT SHOULD BE MEASURED ABOVE BED LEVEL & FOR (+VE) VALUES, IT SHOULD BE TAKEN BELOW BED LEVEL.

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

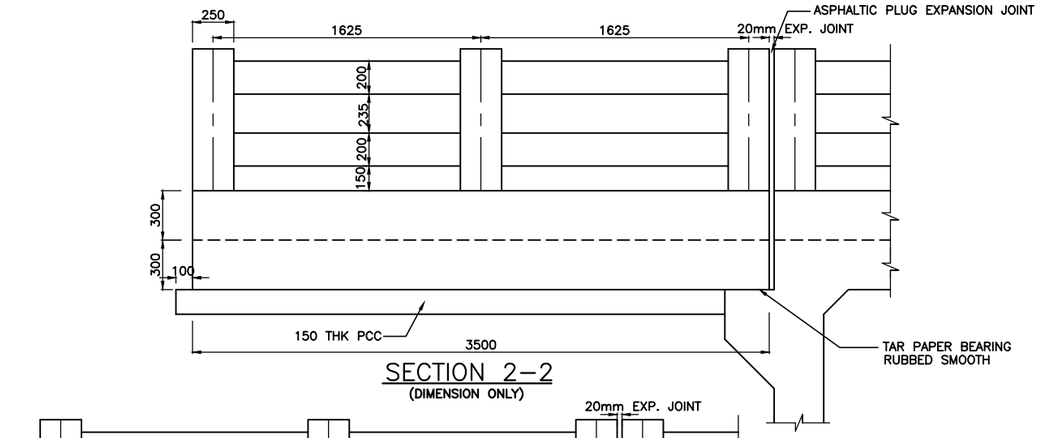
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

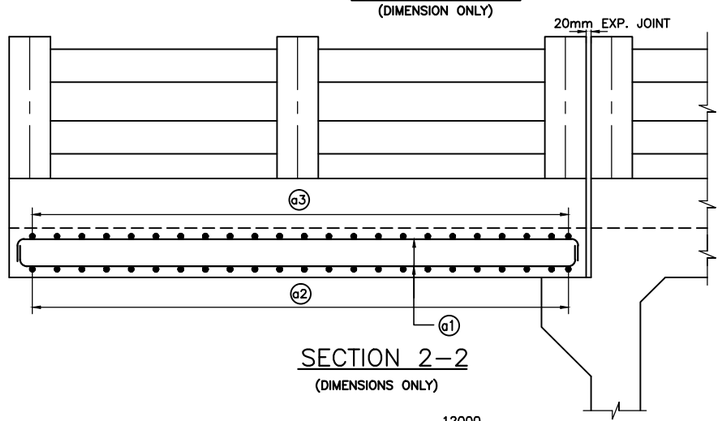
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

DIMENSION SCHEDULE FOR PCC WING WALL (GENERAL)

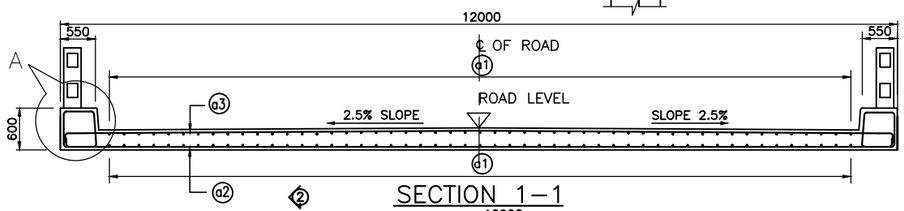
DATE:	PROJECT:	DWG No:	REV.
APRIL'2012	PPWCS	PPWCS/BOX/DD/17	0



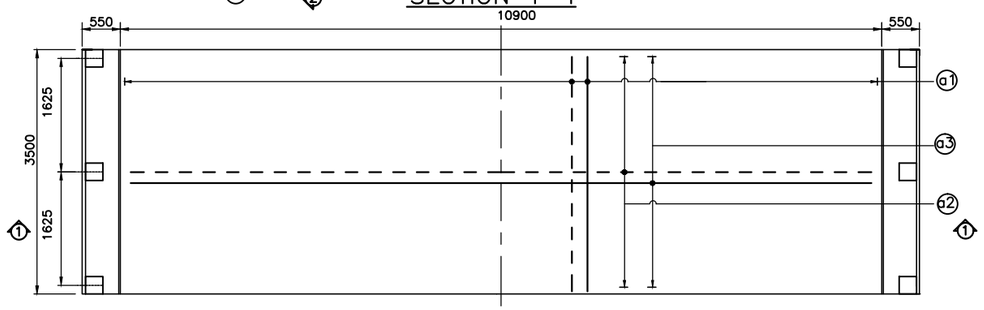
SECTION 2–2
(DIMENSION ONLY)



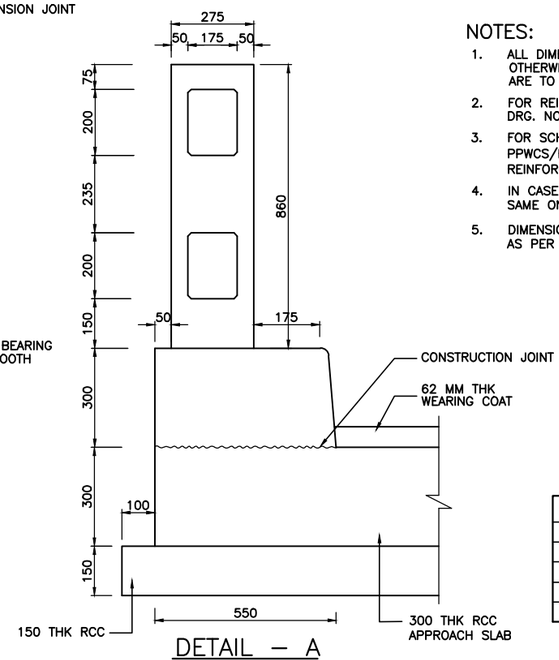
SECTION 2–2
(DIMENSIONS ONLY)



② SECTION 1–1



② PLAN OF APPROACH SLAB



DETAIL – A
(DIMENSIONS ONLY)

NOTES:

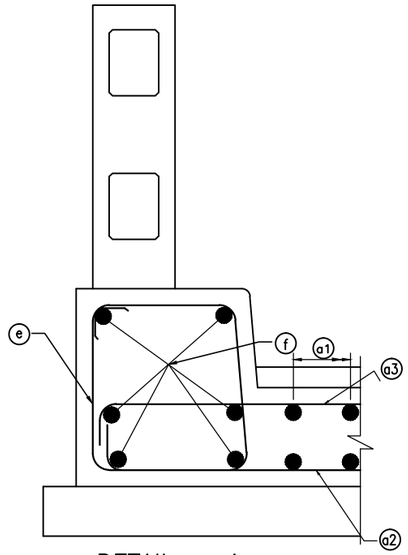
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
2. FOR REINFORCEMENT DETAIL OF RAILING REFER DRG. NO. PPWCS/BOX/DD/18 (SHEET 2 OF 3)
3. FOR SCHEDULE OF REINFORCEMENT, REFER DRG.NO. PPWCS/BOX/DD/18 (SHEET 3 OF 3)DOES NOT INCLUDE CHANGE IN REINFORCEMENT AROUND RAILING & DRAINAGE SPOUT.
4. IN CASE OTHER TYPE OF RAILING IS USED, THE WEIGHT OF SAME ON EACH SIDE SHALL NOT EXCEED 3MT. PER METRE.
5. DIMENSIONS IN SCHEDULE OF REINFORCEMENT ARE GIVEN AS PER IS 2502.

BAR MKD.	REINFORCEMENT
a1	12 ⌀ @ 150 c/c
a2	12 ⌀ @ 150 c/c
a3	12 ⌀ @ 150 c/c
e	10 ⌀ 2L stirrups @ 150 c/c
f	6Nos.10 ⌀

LEGEND :–

——————— : TOP FACE BARS/ OUTER FACE BARS

– – – – – – : BOTTOM FACE BARS/ INNER FACE BARS



DETAIL – A
(REINFORCEMENT ONLY)

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

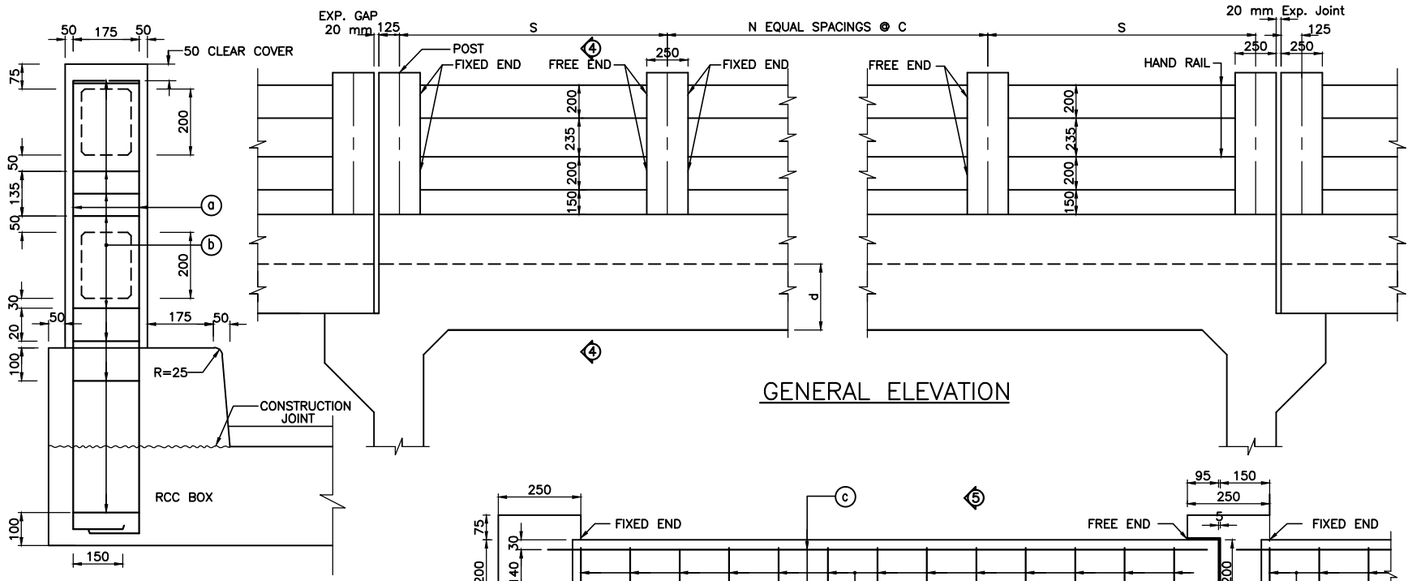
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
RCC RAILING AND APPROACH SLAB
(WITHOUT EARTH CUSHION)
(SHEET 1 OF 3)

DATE:	PROJECT:	DWG No:	REV.
APRIL'2012	PPWCS	PPWCS/BOX/DD/18	0



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
2. REINFORCEMENT OF RAILING POST SHOULD BE SUITABLE ANCHORED IN TOP SLAB OF BOX CULVERT.
3. CASTING OF POST SHALL BE DONE IN SINGLE POUR AFTER ACCURATELY POSITIONING THE PRECAST HANDRAIL.
4. FOR DETAILS & NUMBER OF POST & SPACING REFER DWG.NO. PPWCS/BOX/DD/18 (SHEET 3 OF 3)
5. FOR SCHEDULE OF REINFORCEMENT, REFER DRG.NO. PPWCS/BOX/DD/18 (SHEET 3 OF 3)

BAR MKD.	REINFORCEMENT
a	4Nos.12 ϕ
b	8Nos.2L–8 ϕ stirrups
c	4Nos.8 ϕ
d	8 ϕ 2L stirrups @ 100 c/c

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
RCC RAILING AND APPROACH SLAB
(WITHOUT EARTH CUSHION)
(SHEET 2 OF 3)

DATE:	PROJECT:	DWG No:	REV.
APRIL'2012	PPWCS	PPWCS/BOX/DD/18	0

TABLE: BAR BENDING SCHEDULE FOR RAILINGS AND POSTS

BOX – CELL DESIGNATION N/ab/EC	TOTAL TOP WIDTH TB (mm)	RAILING POST S (mm)	RAILING POST C (mm)	RAILING POST N (mm)	BAR MKD.– ⓐ 12 ϕ 4 NOS. PER POST — LENGTH l (mm)	NOS. n=2xnp	TOTAL LENGTH lxn (m)	WEIGHT w1 (kg)	BAR MKD.– ⓑ 8 ϕ RINGS 8 NOS. PER POST — LENGTH l (mm)	NOS. n=2xnp	TOTAL LENGTH lxn (m)	WEIGHT w1 (kg)	END RAILING BAR MKD.– ⓒ 8 ϕ 4 NOS. PER RAIL — LENGTH l (mm)	NOS. n=2xnp	TOTAL LENGTH lxn (m)	WEIGHT w1 (kg)	INTERMEDIATE RAILING BAR MKD.– ⓒ 8 ϕ 4 NOS. PER RAIL — LENGTH l (mm)	NOS. n=2xnp	TOTAL LENGTH lxn (m)	WEIGHT w1 (kg)	END RAILING BAR MKD.– ⓓ 8 ϕ RINGS @ 100c/c — LENGTH l (mm)	NOS. n=2xnp	TOTAL LENGTH lxn (m)	WEIGHT w1 (kg)	INTERMEDIATE RAILING BAR MKD.– ⓓ 8 ϕ RINGS @ 100c/c — LENGTH l (mm)	NOS. n=2xnp	TOTAL LENGTH lxn (m)	WEIGHT w1 (kg)
1/22/0	2600	1175	0	0	1593.80	24	38.25	33.96	677.33	48	32.51	12.83	1100.00	32	35.20	13.89	0.00	0	0.00	0.00	537.33	80	42.99	16.96	0.00	0	0.00	0.00
1/23/0	2700	1225	0	0	1613.80	24	38.73	34.39	677.33	48	32.51	12.83	1150.00	32	36.80	14.52	0.00	0	0.00	0.00	537.33	80	42.99	16.96	0.00	0	0.00	0.00
1/33/0	3840	1500	590	1	1663.80	32	53.24	47.27	677.33	64	43.35	17.10	1425.00	32	45.60	17.99	515.00	16	8.24	3.25	537.33	104	55.88	22.05	537.33	16	8.60	3.39
1/34/0	3920	1500	670	1	1693.80	32	54.20	48.12	677.33	64	43.35	17.10	1425.00	32	45.60	17.99	595.00	16	9.52	3.76	537.33	104	55.88	22.05	537.33	20	10.75	4.24
1/43/0	5000	1500	875	2	1693.80	40	67.75	60.15	677.33	80	54.19	21.38	1425.00	32	45.60	17.99	800.00	32	25.60	10.10	537.33	104	55.88	22.05	537.33	56	30.09	11.87
1/44/0	5100	1500	925	2	1723.80	40	68.95	61.22	677.33	80	54.19	21.38	1425.00	32	45.60	17.99	850.00	32	27.20	10.73	537.33	104	55.88	22.05	537.33	56	30.09	11.87
1/45/0	5260	1500	1005	2	1763.80	40	70.55	62.64	677.33	80	54.19	21.38	1425.00	32	45.60	17.99	930.00	32	29.76	11.74	537.33	104	55.88	22.05	537.33	64	34.39	13.57
1/53/0	6140	1500	1445	2	1743.80	40	69.75	61.93	677.33	80	54.19	21.38	1425.00	32	45.60	17.99	1370.00	32	43.84	17.30	537.33	104	55.88	22.05	537.33	96	51.58	20.35
1/54/0	6240	1500	1495	2	1763.80	40	70.55	62.64	677.33	80	54.19	21.38	1425.00	32	45.60	17.99	1420.00	32	45.44	17.93	537.33	104	55.88	22.05	537.33	104	55.88	22.05
1/55/0	6400	1500	1050	3	1823.80	48	87.54	77.72	677.33	96	65.02	25.66	1425.00	32	45.60	17.99	975.00	48	46.80	18.47	537.33	104	55.88	22.05	537.33	96	51.58	20.35
1/63/0	7440	1500	1397	3	1923.80	48	92.34	81.98	677.33	96	65.02	25.66	1425.00	32	45.60	17.99	1321.67	48	63.44	25.03	537.33	104	55.88	22.05	537.33	144	77.38	30.53
1/64/0	7500	1500	1417	3	1923.80	48	92.34	81.98	677.33	96	65.02	25.66	1425.00	32	45.60	17.99	1341.67	48	64.40	25.41	537.33	104	55.88	22.05	537.33	144	77.38	30.53
1/65/0	7500	1500	1417	3	1923.80	48	92.34	81.98	677.33	96	65.02	25.66	1425.00	32	45.60	17.99	1341.67	48	64.40	25.41	537.33	104	55.88	22.05	537.33	144	77.38	30.53
1/66/0	7700	1500	1483	3	1943.80	48	93.30	82.84	677.33	96	65.02	25.66	1425.00	32	45.60	17.99	1408.33	48	67.60	26.67	537.33	104	55.88	22.05	537.33	156	83.82	33.08
1/75/0	8700	1500	1363	4	1993.80	56	111.65	99.13	677.33	112	75.86	29.93	1425.00	32	45.60	17.99	1287.50	64	82.40	32.51	537.33	104	55.88	22.05	537.33	192	103.17	40.71
1/76/0	8900	1500	1413	4	2023.80	56	113.33	100.62	677.33	112	75.86	29.93	1425.00	32	45.60	17.99	1337.50	64	85.60	33.78	537.33	104	55.88	22.05	537.33	192	103.17	40.71
1/77/0	8900	1500	1413	4	2023.80	56	113.33	100.62	677.33	112	75.86	29.93	1425.00	32	45.60	17.99	1337.50	64	85.60	33.78	537.33	104	55.88	22.05	537.33	192	103.17	40.71
1/85/0	9900	1500	1330	5	2043.80	64	130.80	116.13	677.33	128	86.70	34.21	1425.00	32	45.60	17.99	1255.00	80	100.40	39.62	537.33	104	55.88	22.05	537.33	220	118.21	46.64
1/86/0	10000	1500	1350	5	2063.80	64	132.08	117.27	677.33	128	86.70	34.21	1425.00	32	45.60	17.99	1275.00	80	102.00	40.25	537.33	104	55.88	22.05	537.33	220	118.21	46.64
1/87/0	10400	1500	1430	5	2093.80	64	134.00	118.97	677.33	128	86.70	34.21	1425.00	32	45.60	17.99	1355.00	80	108.40	42.77	537.33	104	55.88	22.05	537.33	240	128.96	50.89
2/22/0	5040	1500	895	2	1643.80	40	65.75	58.38	677.33	80	54.19	21.38	1425.00	32	45.60	17.99	820.00	32	26.24	10.35	537.33	104	55.88	22.05	537.33	56	30.09	11.87
2/23/0	5100	1500	925	2	1643.80	40	65.75	58.38	677.33	80	54.19	21.38	1425.00	32	45.60	17.99	850.00	32	27.20	10.73	537.33	104	55.88	22.05	537.33	56	30.09	11.87
2/32/0	7100	1500	1283	3	1693.80	48	81.30	72.18	677.33	96	65.02	25.66	1425.00	32	45.60	17.99	1208.33	48	58.00	22.89	537.33	104	55.88	22.05	537.33	132	70.93	27.99
2/33/0	7190	1500	1313	3	1713.80	48	82.26	73.03	677.33	96	65.02	25.66	1425.00	32	45.60	17.99	1238.33	48	59.44	23.45	537.33	104	55.88	22.05	537.33	132	70.93	27.99
3/22/0	7340	1500	1363	3	1613.80	48	77.46	68.77	677.33	96	65.02	25.66	1425.00	32	45.60	17.99	1288.33	48	61.84	24.40	537.33	104	55.88	22.05	537.33	144	77.38	30.53
3/33/0	10740	1500	1498	5	1693.80	64	108.40	96.24	677.33	128	86.70	34.21	1425.00	32	45.60	17.99	1423.00	80	113.84	44.92	537.33	104	55.88	22.05	537.33	260	139.71	55.13
App Slab	3500	1625	0	0	1543.80	48	74.10	65.79	677.33	96	65.02	25.66	1550.00	64	99.20	39.14	0.00	0	0.00	0.00	537.33	224	120.36	47.49	0.00	0	0.00	0.00

BOX – CELL DESIGNATION N/ab/EC	BAR MKD.– ⓔ 10 ϕ RINGS @ 150 C/C IN KERB — LENGTH l (mm)	NOS. n=2xnp	TOTAL LENGTH lxn (m)	WEIGHT w1 (kg)	BAR MKD.– ⓕ 10 ϕ 6 NOS. PER KERB — LENGTH l (mm)	NOS. n=2xnp	TOTAL LENGTH lxn (m)	WEIGHT w1 (kg)	TOTAL WEIGHT (kg)
1/22/0	2040.58	34	69.38	42.78	2665.66	12	31.99	19.72	140.1
1/23/0	2082.31	36	74.96	46.22	2765.66	12	33.19	20.46	145.4
1/33/0	2186.65	50	109.33	67.41	3905.66	12	46.87	28.90	207.4
1/34/0	2249.26	52	116.96	72.11	3985.66	12	47.83	29.49	214.9
1/43/0	2249.26	66	148.45	91.53	5065.66	12	60.79	37.48	272.6
1/44/0	2311.86	68	157.21	96.92	5165.66	12	61.99	38.22	280.4
1/45/0	2395.33	70	167.67	103.38	5325.66	12	63.91	39.40	292.2
1/53/0	2353.60	82	192.99	118.99	6205.66	12	74.47	45.91	325.9
1/54/0	2395.33	82	196.42	121.10	6305.66	12	75.67	46.65	331.8
1/55/0	2520.54	84	211.73	130.54	6465.66	12	77.59	47.84	360.6
1/63/0	2729.22	98	267.46	164.90	7505.66	12	90.07	55.53	423.7
1/64/0	2729.22	100	272.92	168.27	7565.66	12	90.79	55.97	427.9
1/65/0	2729.22	100	272.92	168.27	7565.66	12	90.79	55.97	427.9
1/66/0	2770.96	102	282.64	174.26	7765.66	12	93.19	57.45	440.0
1/75/0	2875.30	116	333.53	205.64	8765.66	12	105.19	64.85	512.8
1/76/0	2937.90	118	346.67	213.74	8965.66	12	107.59	66.33	525.1
1/77/0	2937.90	118	346.67	213.74	8965.66	12	107.59	66.33	525.1
1/85/0	2979.64	132	393.31	242.49	9965.66	12	119.59	73.73	592.9
1/86/0	3021.37	132	398.82	245.89	10065.66	12	120.79	74.47	598.8
1/87/0	3083.98	138	425.59	262.39	10465.66	12	125.59	77.43	626.7
2/22/0	2144.92	66	141.56	87.28	5105.66	12	61.27	37.77	267.1
2/23/0	2144.92	68	145.85	89.92	5165.66	12	61.99	38.22	270.5
2/32/0	2249.26	94	211.43	130.35	7165.66	12	85.99	53.01	372.1
2/33/0	2290.99	96	219.94	135.60	7255.66	12	87.07	53.68	379.5
3/22/0	2082.31	98	204.07	125.82	7405.66	12	88.87	54.79	370.0
3/33/0	2249.26	142	319.39	196.92	10805.66	12	129.67	79.95	547.4
App Slab	1936.24	92	178.13	109.83	3565.66	24	85.58	52.76	340.7

TABLE: BAR BENDING SCHEDULE FOR APPROACH SLAB

BAR MKD.– ⓪1 12 ϕ @150c/c — LENGTH l (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (kg)	BAR MKD.– ⓪2 12 ϕ @150c/c — LENGTH (mm)	NOS. n=2xnp	TOTAL LENGTH lxn (m)	WEIGHT w1 (kg)	BAR MKD.– ⓪3 12 ϕ @150c/c — LENGTH l (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (kg)	TOTAL WEIGHT (kg)
3758.8	292	1097.57	974.44	11159	46	513.30	455.72	11162.8	46	513.49	455.88	1886.04

NOTES:–

1. FOR GENERAL NOTES REFER DWG. NO. PPWCS/GEN/101
2. THIS DRAWING SHALL BE READ IN CONJUNCTION TO DWG. NO. PPWCS/BOX/DD/18 (SHEET 1&2 OF 3)

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

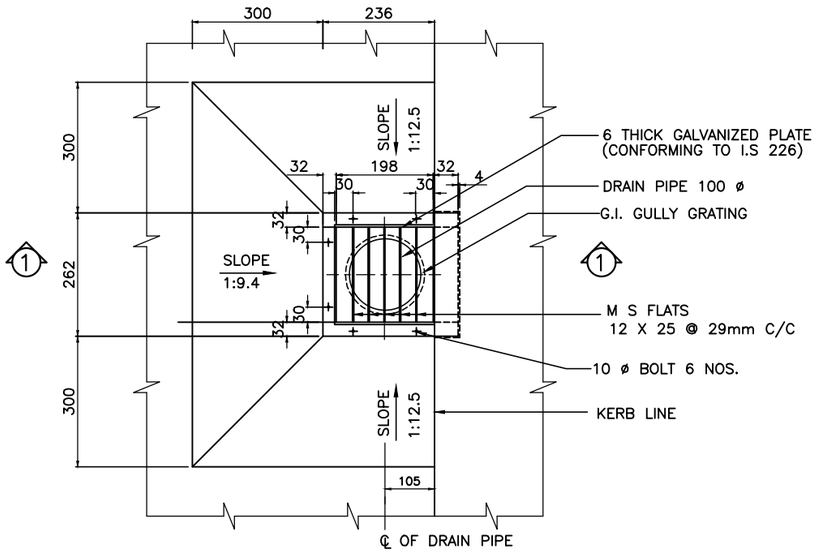
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

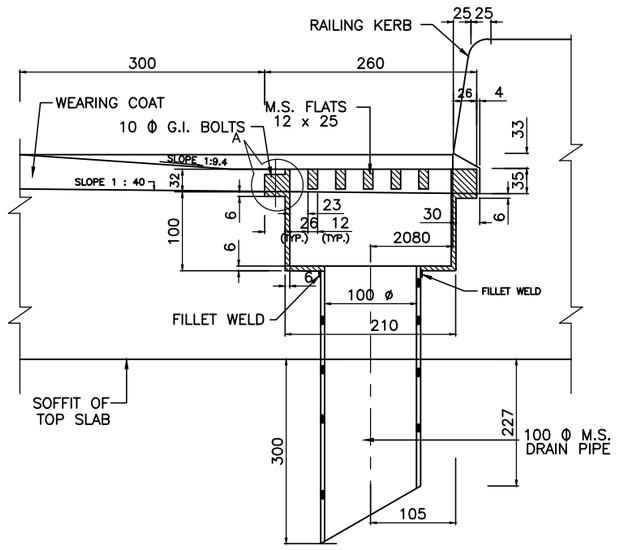
MISCELLANEOUS DETAILS
RCC RAILING AND APPROACH SLAB
(WITHOUT EARTH CUSHION)
(SHEET 3 OF 3)

DATE:	PROJECT:	DWG No:	REV.
APRIL'2012	PPWCS	PPWCS/BOX/DD/18	0



PLAN

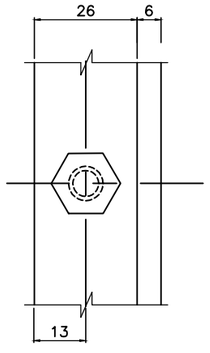
DETAILS OF DRAINAGE SPOUT AND COLLECTION PIT



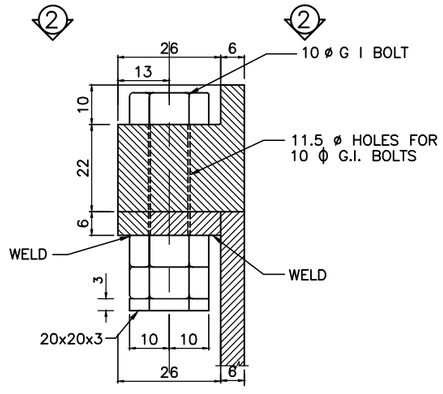
SECTION 1–1

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
2. THE REINFORCEMENT OF TOP SLAB OF BOX SHALL BE SUITABLY MODIFIED TO ACCOMMODATE THE DRAINAGE SPOUT.
3. THE DRAINAGE SPOUT SHALL BE GALVANIZED AFTER WELDING THE PLATES & FLATS.
4. FOR DRAINAGE SPOUT LOCATION REFER DETAIL–B CORRESPONDING G A DRAWING.



PLAN AT 2–2



DETAIL –A

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	NAMRATA
CHECKED:	SAGAR

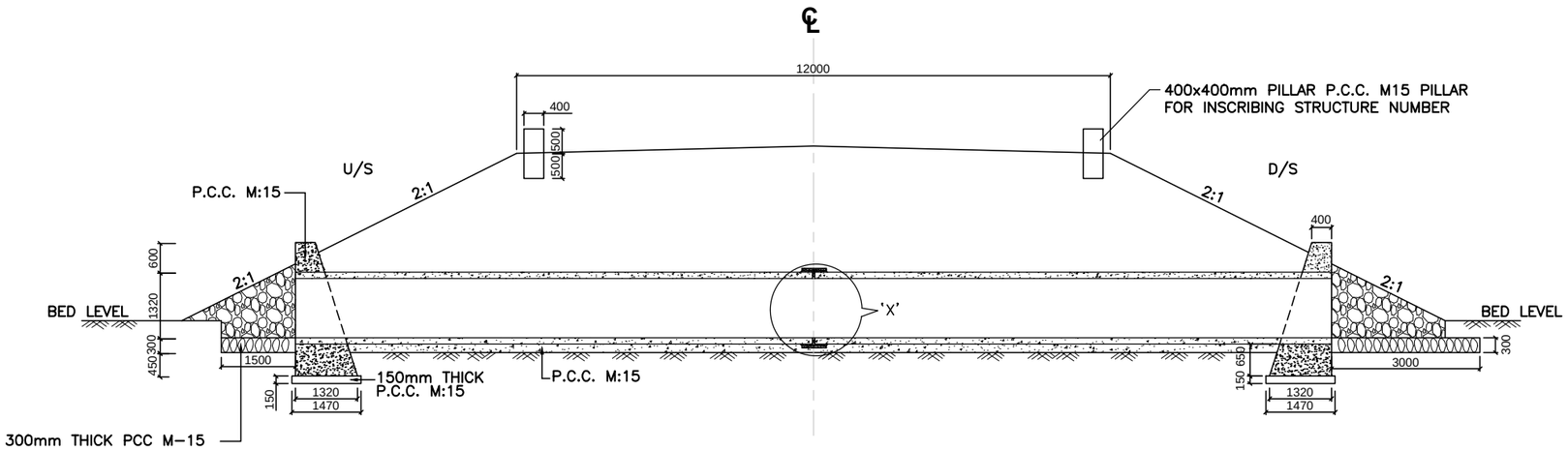
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

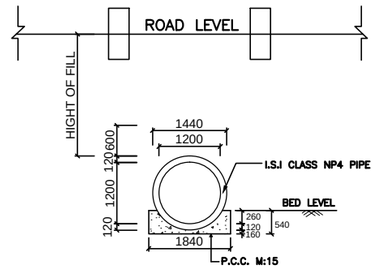
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

MISCELLANEOUS DETAILS
DRAINAGE SPOUT
(WITHOUT EARTH CUSHION)

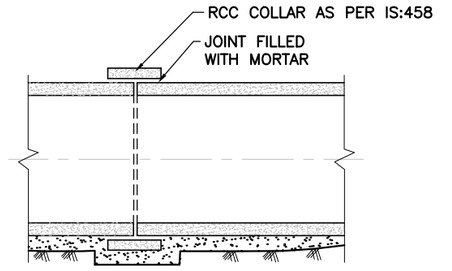
DATE:	PROJECT:	DWG No:	REV.
APRIL'2012	PPWCS	PPWCS/BOX/DD/19	0



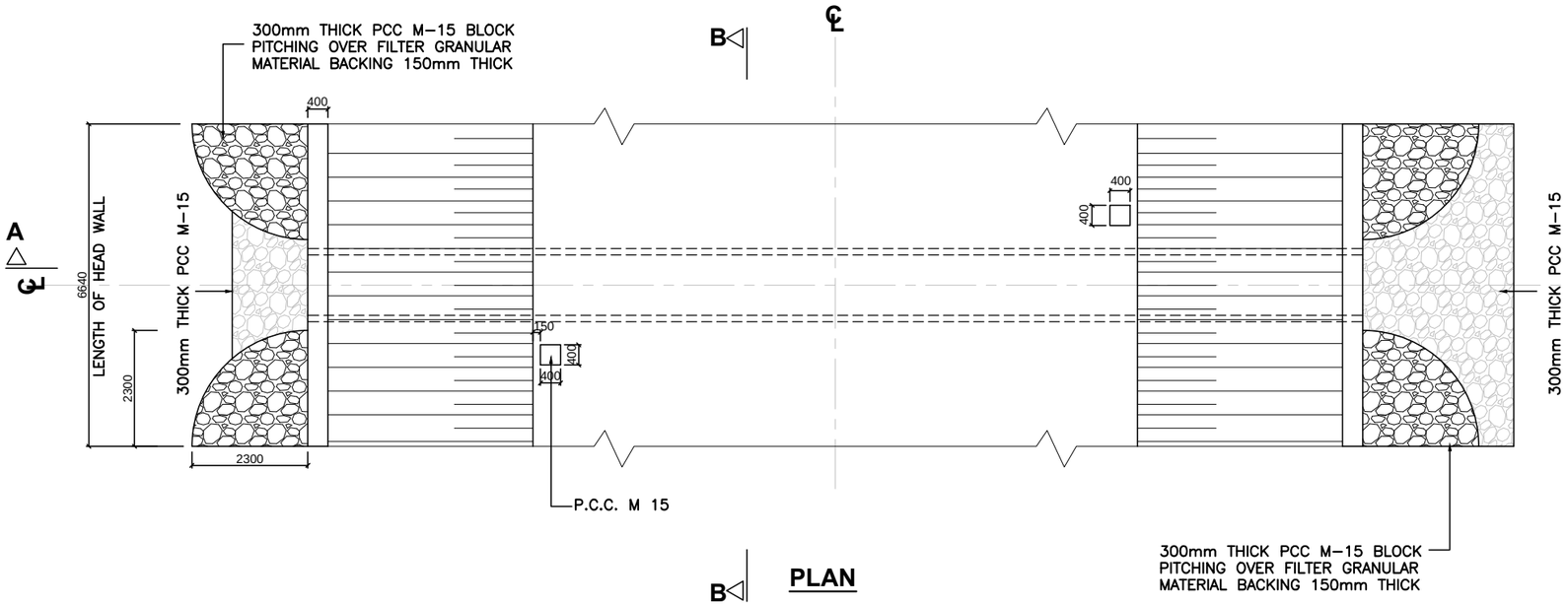
SECTION A-A



SECTION B-B



DETAILS OF 'X'



PLAN

TYPICAL GAD FOR SINGLE PIPE CULVERT FOR HEIGHT OF FILL VARYING FROM 0.6m-4.0m

NOTES:

1. THIS DRAWING HAS TO BE READ IN CONJUNCTION WITH PPWCS/BR/SD/101 TO 103
2. THIS DRAWING IS VALID ONLY FOR FIRST CLASS BEDDING CAN BE USED FOR MAX. HEIGHT OF FILLING 4m.
3. PIPES SHOULD CONFORM TO IS :–458.
4. LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1:1000
5. ALL DIMENSIONS IN MILLIMETERS EXCEPT WHERE OTHERWISE MENTIONED.
6. FORMATION LEVEL FOLLOW AS PER THE HIGHWAY ALIGNMENT.
7. THE INVERT LEVEL OF NEW PIPE CULVERT SHELL NOT BE HIGHER THAN THE EXISTING INVERT LEVEL
8. IF CONSTRUCTION OF HEAD WALL FALLS OUT SIDE ROW, SIDE SLOPE MUST BE ADJUSTED ACCORDINGLY TO ACCOMMODATE THE STRUCTURE INSIDE ROW.
9. THE PIPE SHALL BE JOINTED AS PER MORTH SPECIFICATION CLOSE–2906.

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	MANISH
CHECKED:	SAGAR

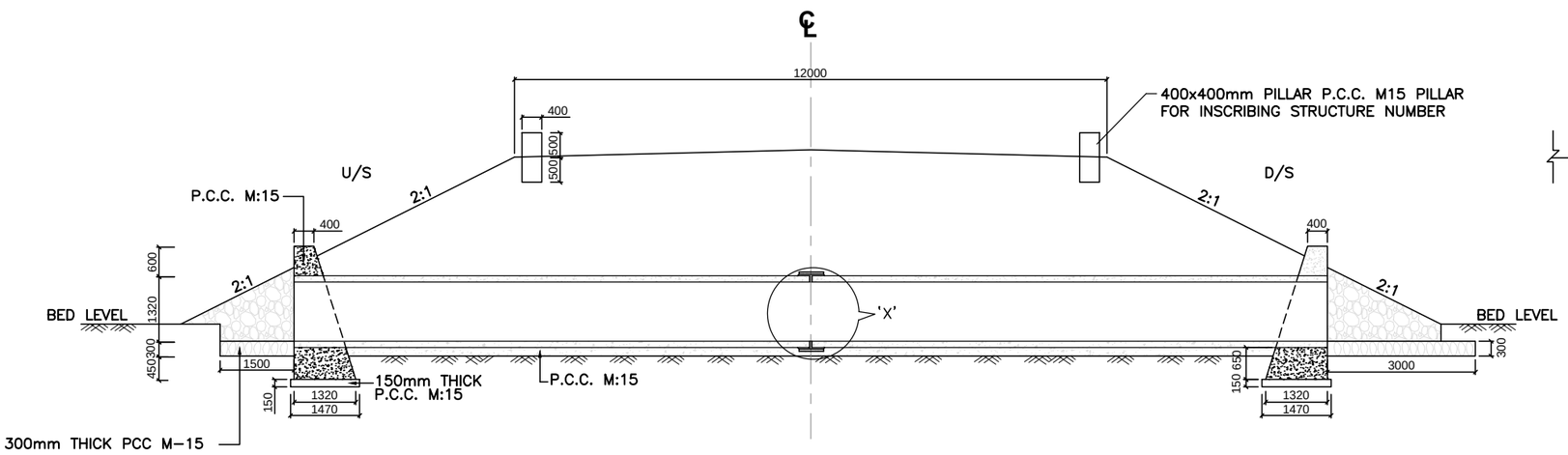
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

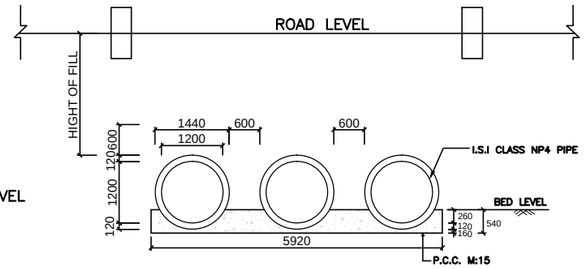
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL GAD FOR SINGLE PIPE CULVERT FOR 1.20m ø HEIGHT OF FILL VARYING FROM 0.6m–4.0m (FOR 2 LANE)

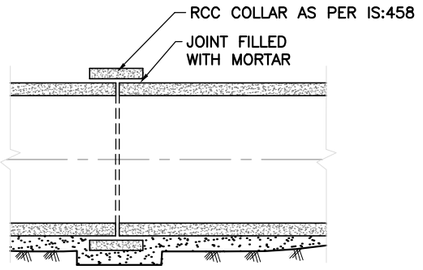
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/CULV/GA/53	0



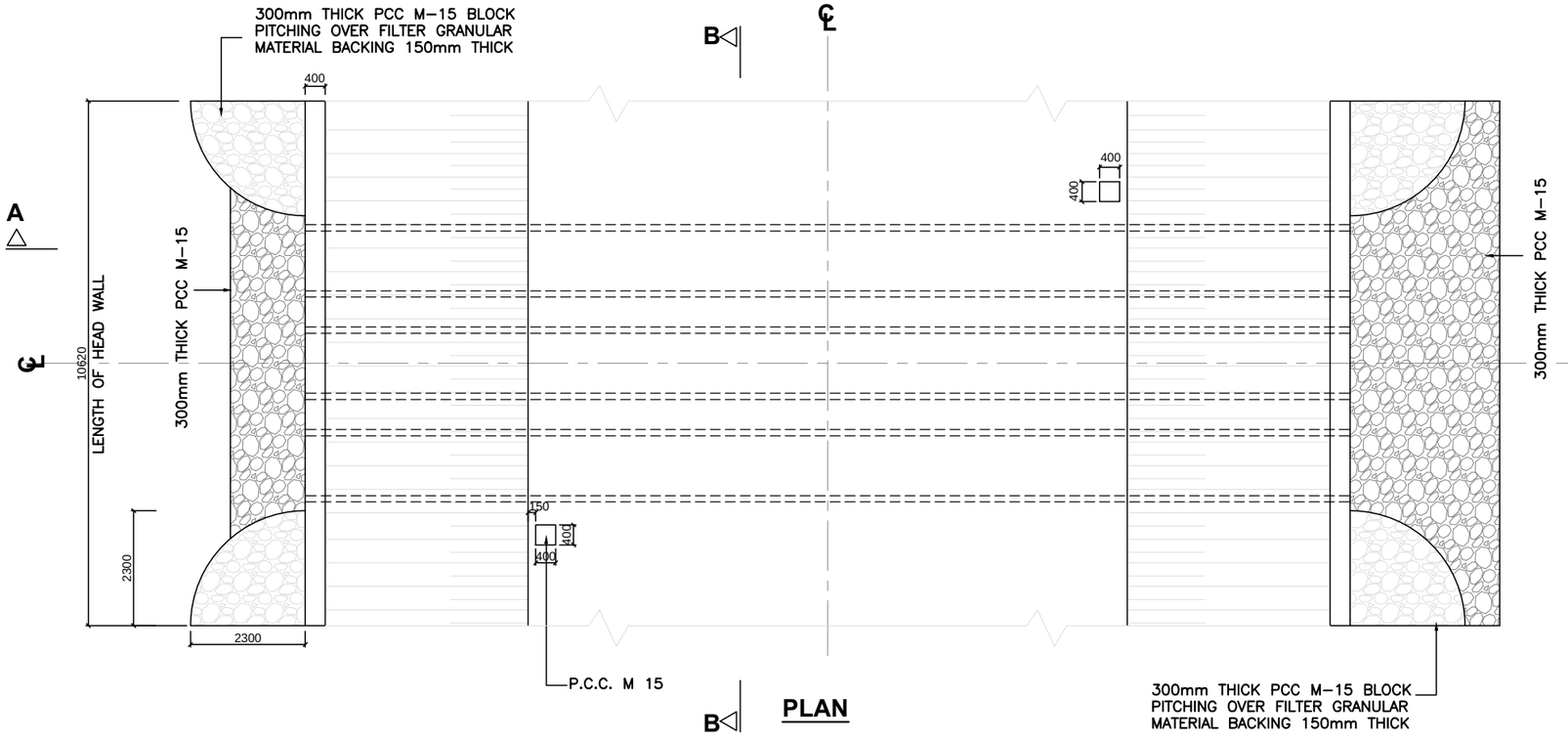
SECTION A-A



SECTION B-B



DETAILS OF 'X'



PLAN

TYPICAL GAD FOR TRIPLE PIPE CULVERT FOR HEIGHT OF FILL VARYING FROM 0.6m-4.0m

NOTES:

1. THIS DRAWING HAS TO BE READ IN CONJUNCTION WITH PPWCS/BR/SD/101 TO 103
2. THIS DRAWING IS VALID ONLY FOR FIRST CLASS BEDDING CAN BE USED FOR MAX. HEIGHT OF FILLING 4m.
3. PIPES SHOULD CONFORM TO IS :-458.
4. LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1:1000
5. ALL DIMENSIONS IN MILLIMETERS EXCEPT WHERE OTHERWISE MENTIONED.
6. FORMATION LEVEL FOLLOW AS PER THE HIGHWAY ALIGNMENT.
7. THE INVERT LEVEL OF NEW PIPE CULVERT SHELL NOT BE HIGHER THAN THE EXISTING INVERT LEVEL
8. IF CONSTRUCTION OF HEAD WALL FALLS OUT SIDE ROW, SIDE SLOPE MUST BE ADJUSTED ACCORDINGLY TO ACCOMMODATE THE STRUCTURE INSIDE ROW.
9. THE PIPE SHALL BE JOINTED AS PER MORTH SPECIFICATION CLOSE-2906.

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	MANISH
CHECKED:	SAGAR

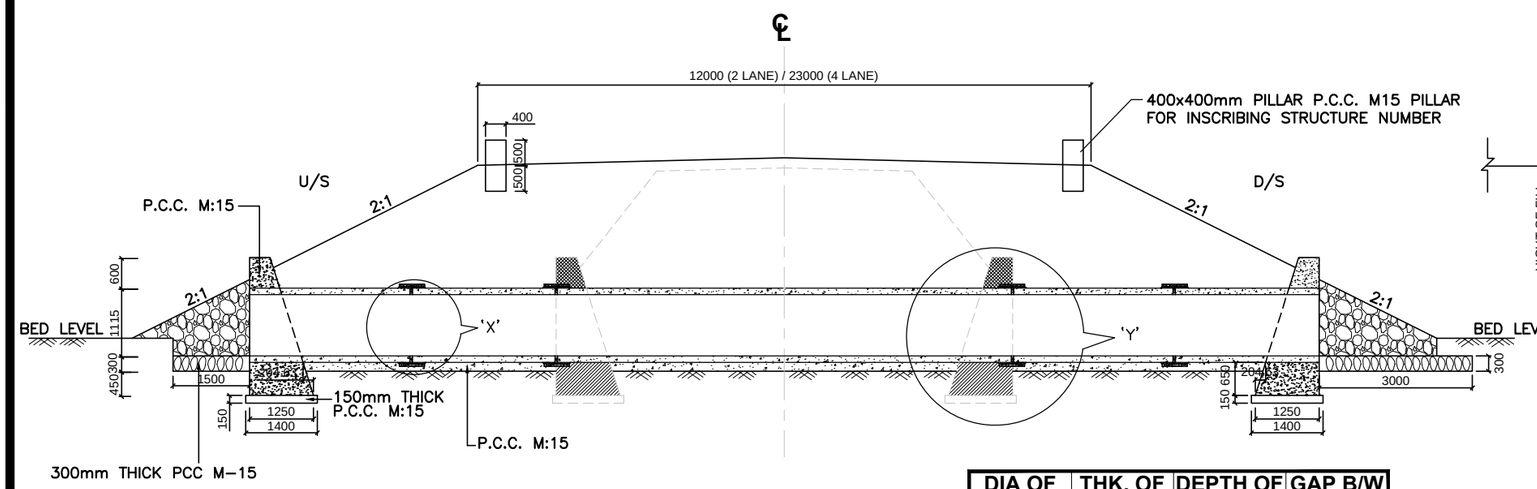
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

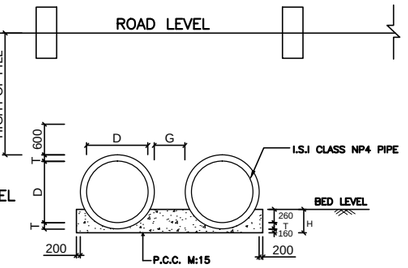
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL GAD FOR TRIPLE PIPE CULVERT FOR 1.2mø HEIGHT OF FILL VARYING FROM 0.6m-4.0m (FOR 2 LANE)

DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/CULV/GA/58	0

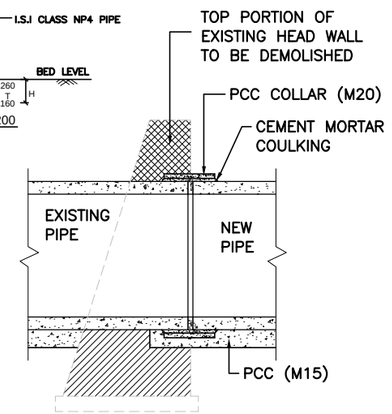


SECTION A-A

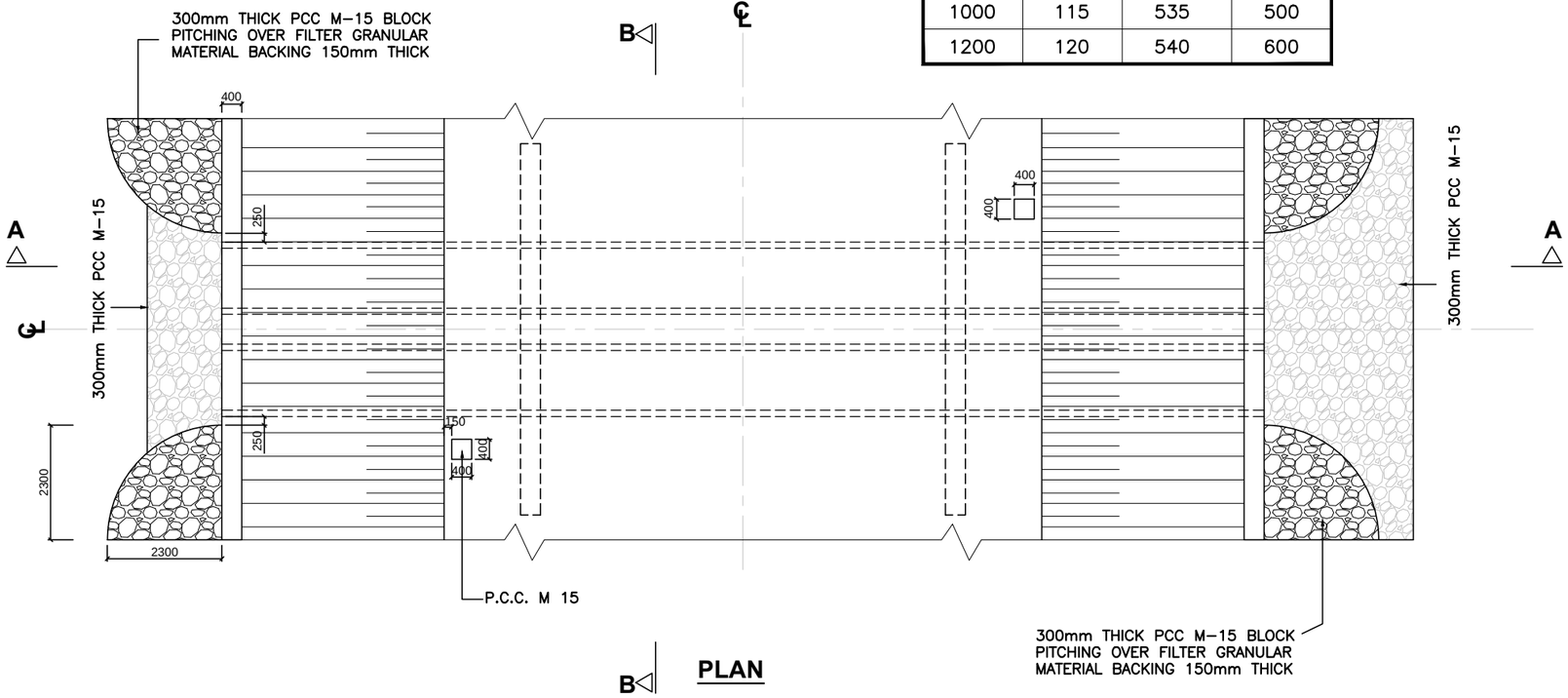


SECTION B-B

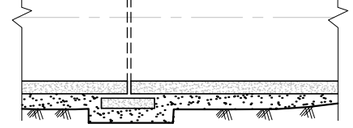
DIA OF PIPE `D'	THK. OF PIPE `T'	DEPTH OF BASE `H'	GAP B/W PIPE `G'
900	100	520	450
1000	115	535	500
1200	120	540	600



DETAILS OF 'Y'



PLAN



DETAILS OF 'X'

NOTES:

1. THIS DRAWING HAS TO BE READ IN CONJUNCTION WITH PPWCS/BR/SD/101 TO 103
2. THIS DRAWING IS VALID ONLY FOR FIRST CLASS BEDDING CAN BE USED FOR MAX. HEIGHT OF FILLING 4m.
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6. FORMATION LEVEL FOLLOW AS PER THE HIGHWAY ALIGNMENT.
7. THE INVERT LEVEL OF NEW PIPE CULVERT SHELL NOT BE HIGHER THAN THE EXISTING INVERT LEVEL
8. IF CONSTRUCTION OF HEAD WALL FALLS OUT SIDE ROW, SIDE SLOPE MUST BE ADJUSTED ACCORDINGLY TO ACCOMMODATE THE STRUCTURE INSIDE ROW.
9. THE PIPE SHALL BE JOINTED AS PER MORTH SPECIFICATION CLOSE-2906.

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	MANISH
CHECKED:	SAGAR

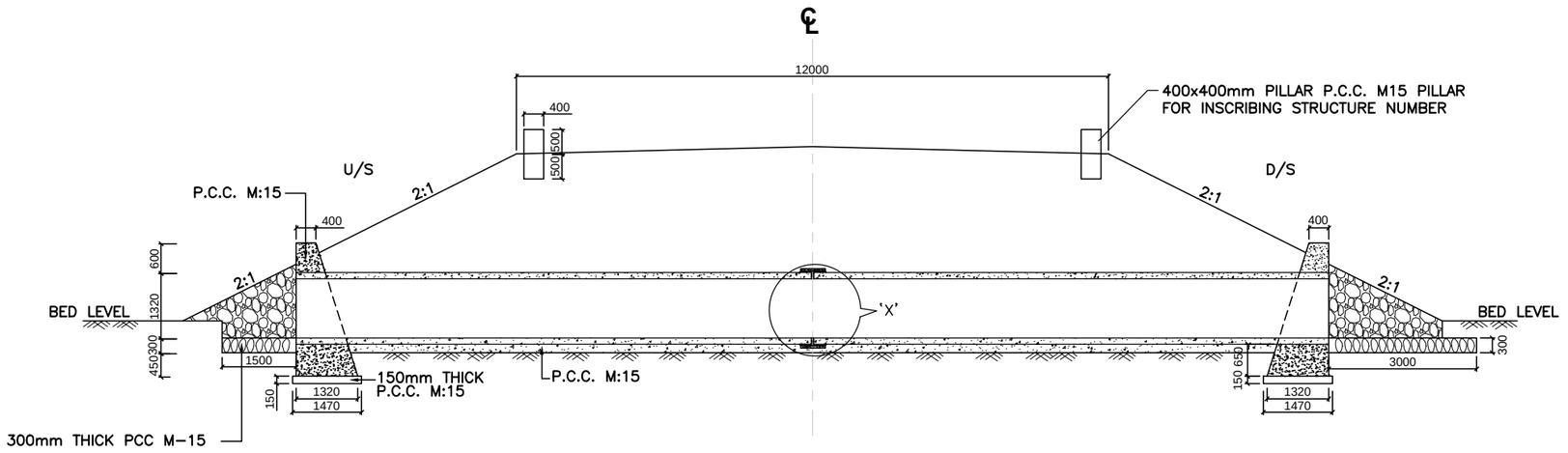
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

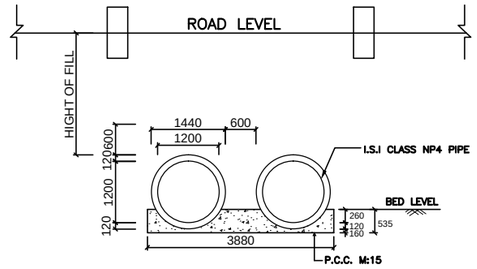
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

WIDENING OF PIPE CULVERT
GENERAL ARRANGEMENT

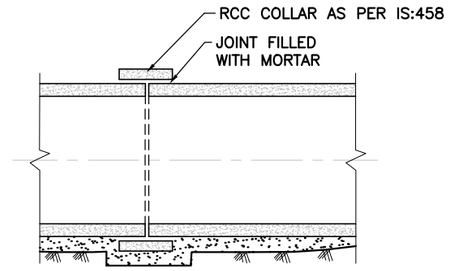
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/CULV/GA/60	0



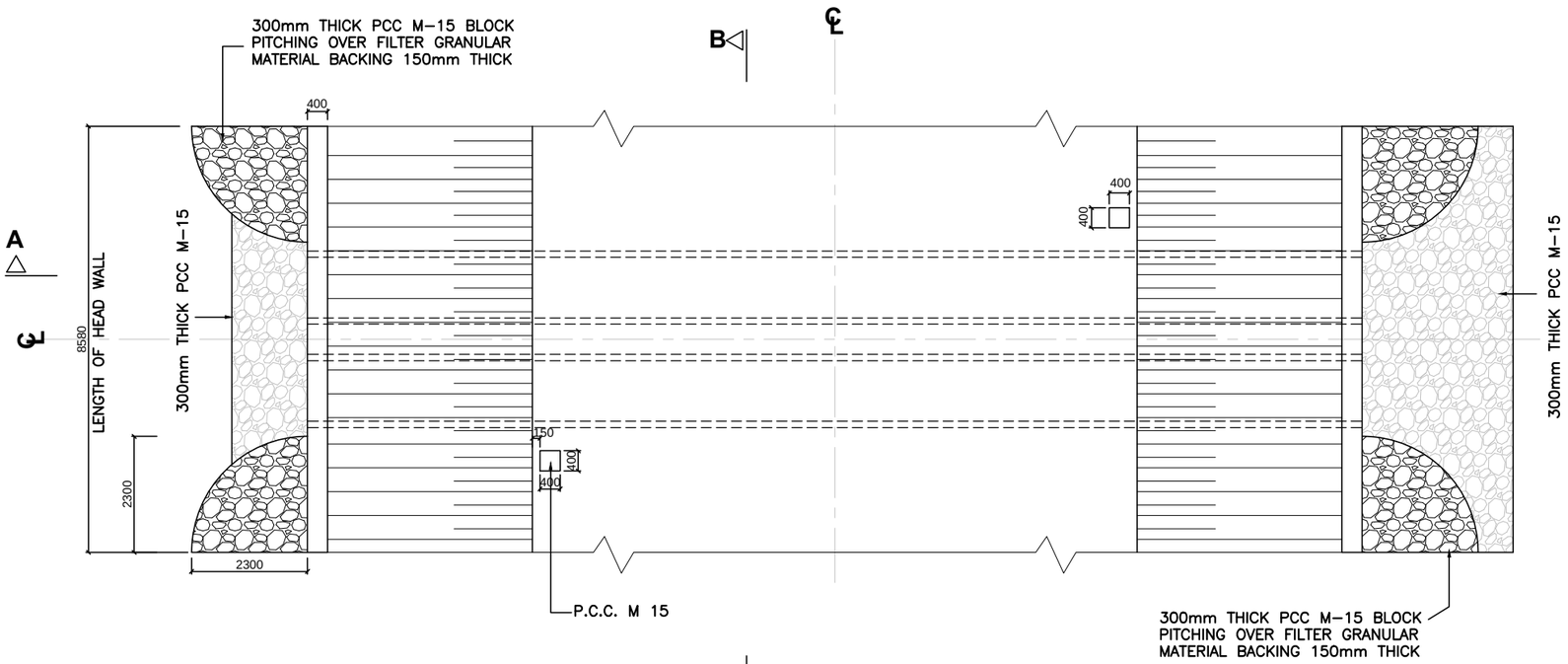
SECTION A-A



SECTION B-B



DETAILS OF 'X'



TYPICAL GAD FOR DOUBLE PIPE CULVERT FOR HEIGHT OF FILL VARYING FROM 0.6m-4.0m

NOTES:

1. THIS DRAWING HAS TO BE READ IN CONJUNCTION WITH PPWCS/BR/SD/101 TO 103
2. THIS DRAWING IS VALID ONLY FOR FIRST CLASS BEDDING CAN BE USED FOR MAX. HEIGHT OF FILLING 4m.
3. PIPES SHOULD CONFORM TO IS :–458.
4. LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1:1000
5. ALL DIMENSIONS IN MILLIMETERS EXCEPT WHERE OTHERWISE MENTIONED.
6. FORMATION LEVEL FOLLOW AS PER THE HIGHWAY ALIGNMENT.
7. THE INVERT LEVEL OF NEW PIPE CULVERT SHELL NOT BE HIGHER THAN THE EXISTING INVERT LEVEL
8. IF CONSTRUCTION OF HEAD WALL FALLS OUT SIDE ROW, SIDE SLOPE MUST BE ADJUSTED ACCORDINGLY TO ACCOMMODATE THE STRUCTURE INSIDE ROW.
9. THE PIPE SHALL BE JOINTED AS PER MORTH SPECIFICATION CLOSE–2906.

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	MANISH
CHECKED:	SAGAR

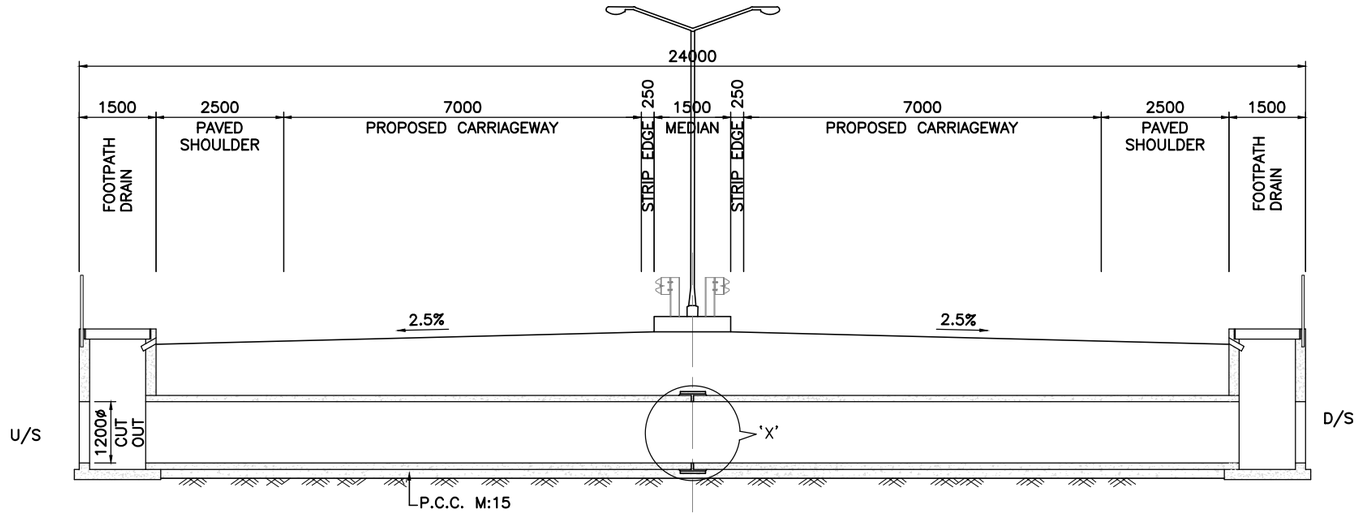
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

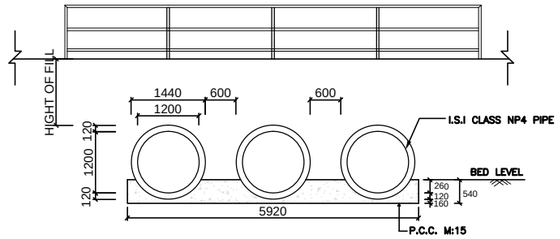
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL GAD FOR DOUBLE PIPE CULVERT FOR 1.2mø HEIGHT OF FILL VARYING FROM 0.6m–4.0m (FOR 2 LANE)

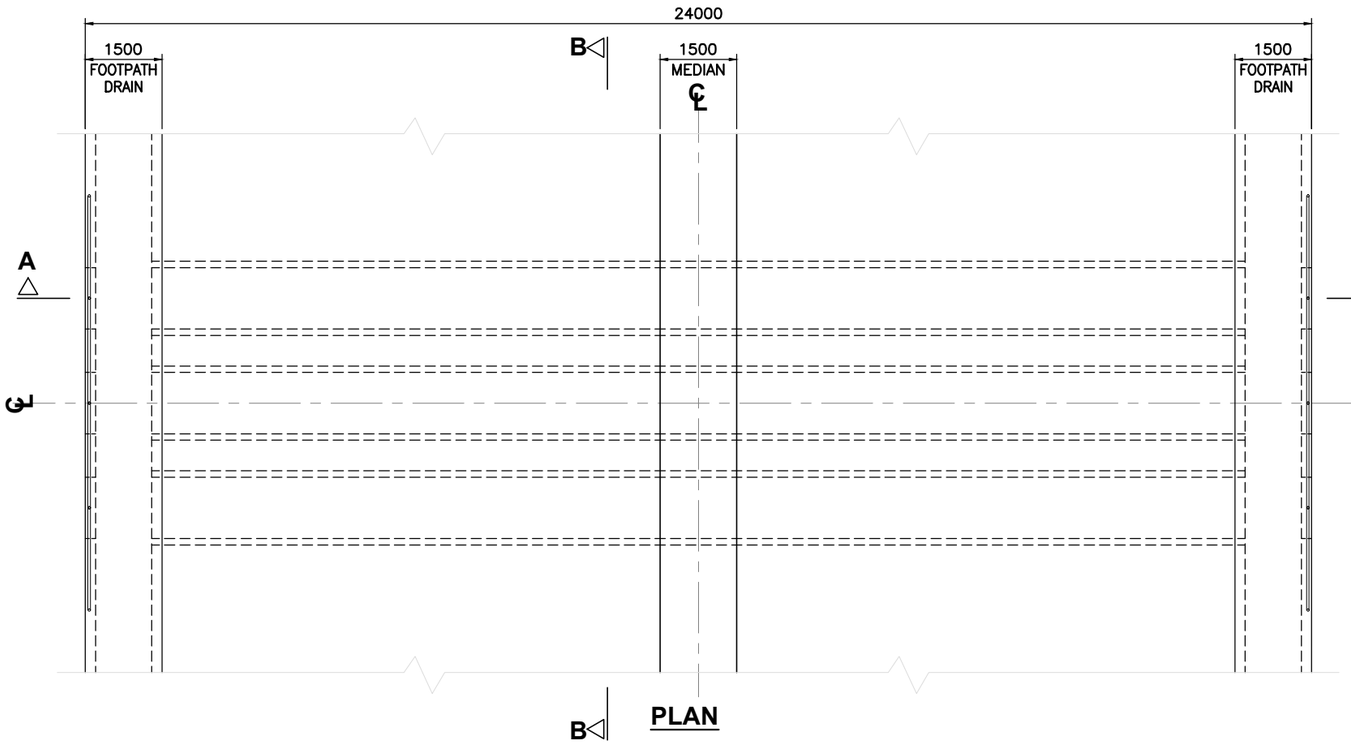
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/CULV/GA/62	0

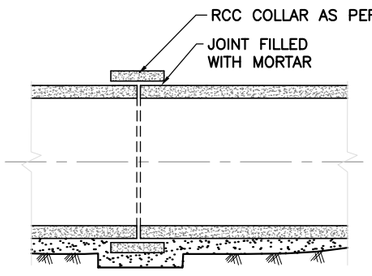


SECTION A-A



SECTION B-B





DETAILS OF 'X'

TYPICAL GAD FOR TRIPLE PIPE CULVERT FOR HEIGHT OF FILL VARYING FROM 0.6m-4.0m

NOTES:

1. THIS DRAWING HAS TO BE READ IN CONJUNCTION WITH PPWCS/BR/SD/101 TO 103
2. THIS DRAWING IS VALID ONLY FOR FIRST CLASS BEDDING CAN BE USED FOR MAX. HEIGHT OF FILLING 4m.
3. PIPES SHOULD CONFORM TO IS :-458.
4. LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1:1000
5. ALL DIMENSIONS IN MILLIMETERS EXCEPT WHERE OTHERWISE MENTIONED.
6. FORMATION LEVEL FOLLOW AS PER THE HIGHWAY ALIGNMENT.
7. THE INVERT LEVEL OF NEW PIPE CULVERT SHELL NOT BE HIGHER THAN THE EXISTING INVERT LEVEL
8. IF CONSTRUCTION OF HEAD WALL FALLS OUT SIDE ROW, SIDE SLOPE MUST BE ADJUSTED ACCORDINGLY TO ACCOMMODATE THE STRUCTURE INSIDE ROW.
9. THE PIPE SHALL BE JOINTED AS PER MORTH SPECIFICATION CLOSE-2906.

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	MANISH
CHECKED:	SAGAR

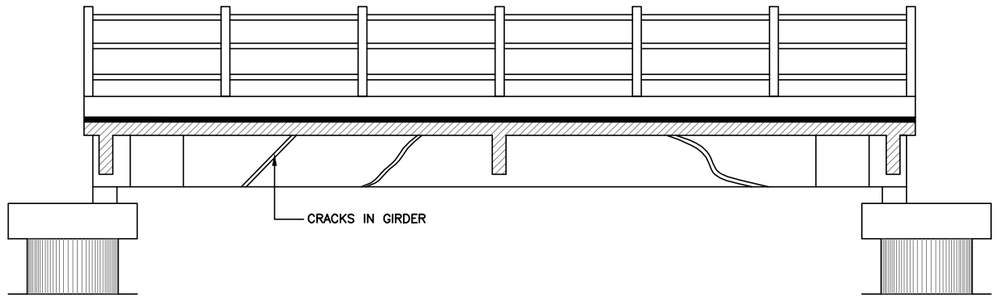
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

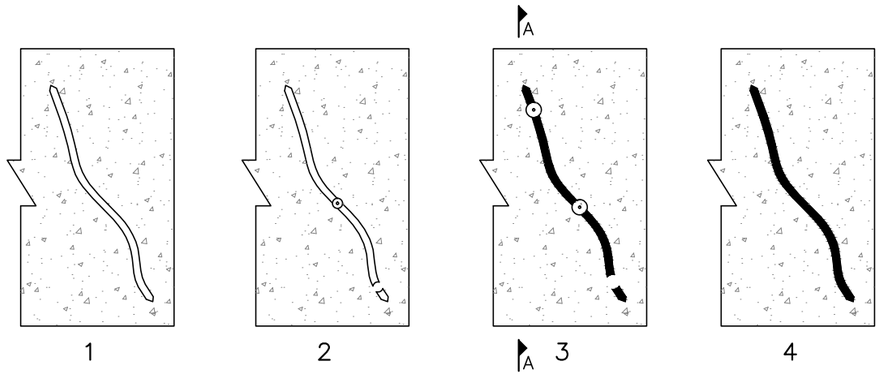
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL GAD FOR TRIPPLE PIPE CULVERT FOR 1.2mø HEIGHT OF FILL VARYING FROM 0.6m-4.0m FOR 24m 4 LANE IN URBAN AREA

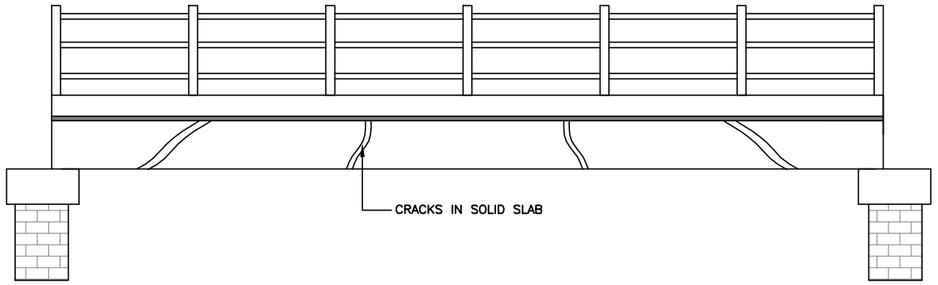
DATE:	PROJECT:	DWG No:	REV.
DEC.'2012	PPWCS	PPWCS/CULV/GA/63	0



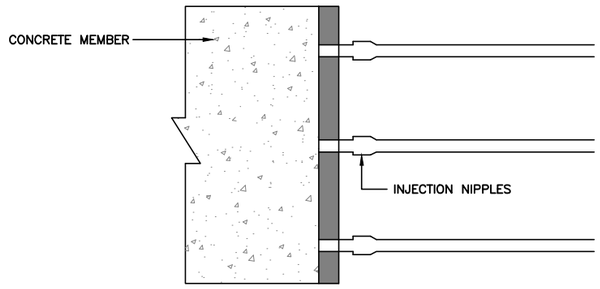
CRACKS IN GIRDER OF T–BEAM DECK SLAB



SEQUENCE OF OPERATION FOR SEALING OF CONCRETE CRACKS



CRACKS IN R.C.C. SOLID SLAB



CROSS SECTION A–A OF CRACK MEMBER

TYPICAL METHODOLOGY

(DETAILS AS PROVIDED IN TECHNICAL SPECIFICATIONS)

1. SURFACE ADJACENT TO CRACK AND AREA OF APPLICATION SHALL BE CLEANED OF DUST. DIRT. BREASE OIL, EFFLORESANCE AND OTHER FOREIGN MATERIAL BY BRUSHING/WATER JETTING OR SAND BLASTING.
2. PROVIDE ENTRY PORTS ALONG CRACK AT 300 MM C/C OR THICKNESS OF MEMBER WHICHEVER IS DRILLED HOLE 13 mm DIA AND 200 mm DEEP DEPTH SHALL NOT BE MORE THAN 60 % OF DEPTH OF MEMBER.
3. SEAL THE CRACKS WITH SURFACE SEAL MATERIAL BETWEEN ENTRY PORTS.
4. INJECT EPOXY ADHESIVE FROM LOWEST ENTRY PORT INJECT TILL ADHESIVE APPEAR AT THE NEXT ENTRY PORT.
5. REPEAT THE PROCESS OF INJECTING EPOXY FROM NEXT ENTRY PORT UNTIL THE CRACK ARE COMPLETELY FILLED.
6. IF PORT TO PORT TRAVEL OF EPOXY IS NOTICED OR THE VOLUME OF THE INJECTED MATERIAL EXCEED 2 LITER AT A PARTICULAR ENTRY PORT WORK SHALL BE STOPPED AND THE ENGINEER SHALL BE CONSULT.
7. SEALING OF CRACK BY INJECTION OF EPOXY SHALL BE CARRIED OUT AS PER MORTH SPECIFICATION 2803

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	DIPAK SONI
CHECKED:	SAGAR

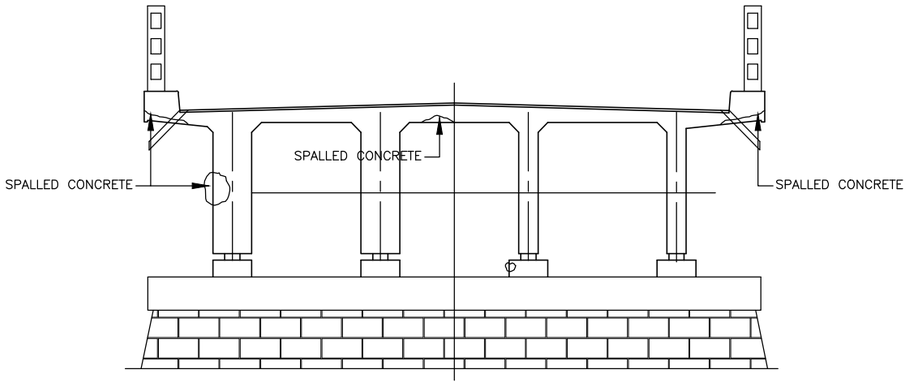
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

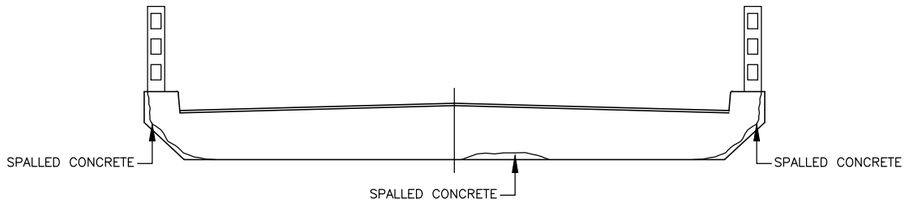
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL DETAILS FOR REPAIRS OF CRACKS BY EPOXY INJECTION IN SUPERSTRUCTURE

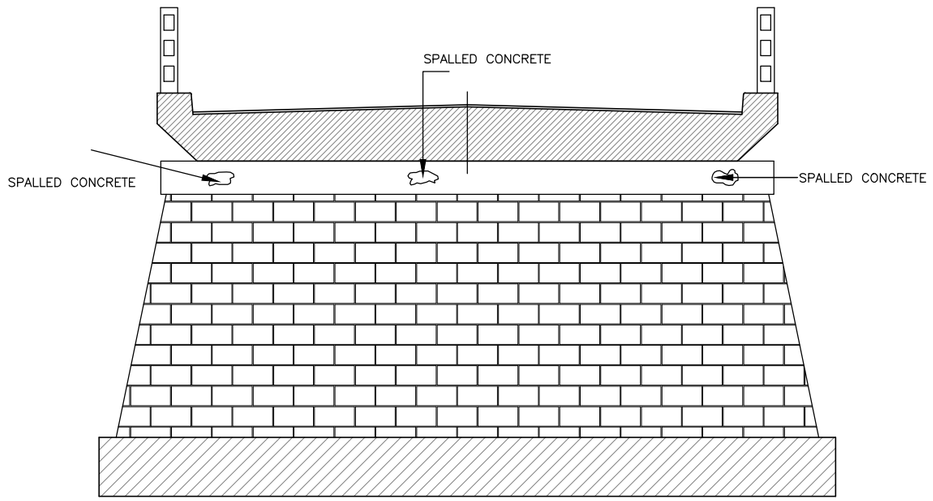
DATE:	PROJECT:	DWG No:	REV.
APR'2012	PPWCS	PPWCS/MJBR/RH/01	0



TYPICAL SECTION SHOWING SPALLED OUT COCRETE IN RCC T-BEAM DECK SLAB

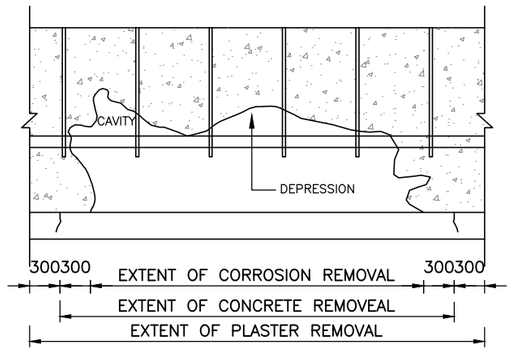


TYPICAL SECTION SHOWING SPALLED OUT CONC IN RCC SOLID SLAB

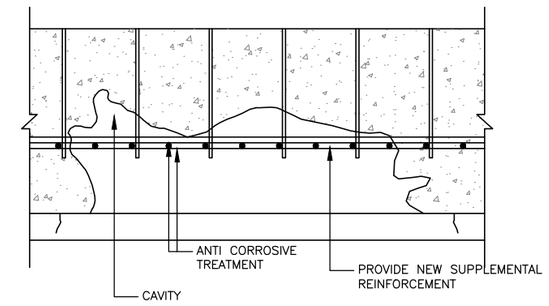


TYPICAL SECTION SHOWING OUT CONC. IN RCC PIER CAP

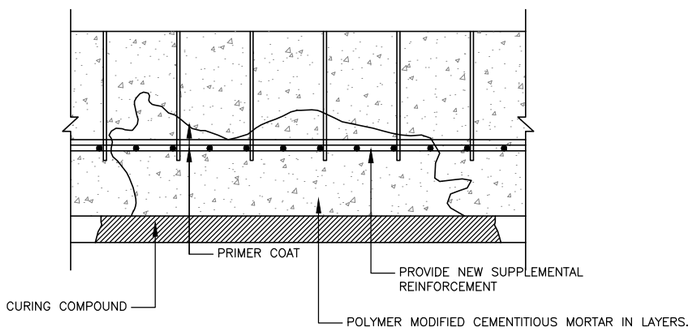
STEP 1 PREPARATION OF BASE



STEP 2 PROVIDING REINFORCEMENT



STEP 3 APPLYING PLOYMER MODIFIED CEMENTITIOUS MORTAR



Step-1

1. Demarcate the damaged area
2. Remove plaster cover or coating. If any
3. Remove all loose concrete and expose rusted reinforcement
4. Identify extent of corrosion of reinforcement and remove concrete 300mm beyond rusted length and remove plaster 600mm beyond rusted length.
5. Cut edges of concrete base neat and square and in rectilinear pattern.
6. Hack back to sound concrete and roughen exposed concrete.
7. Clean spalled concrete with filtered compressed air.

Step-2

1. Cut and remove any severely corroded and detached reinforcement.
2. Clean remaining reinforcement with the help of specified anticorrosive treatment.
3. Provide and anchor new supplemental reinforcement and/or wire mesh as required.

Step-3

1. Primer slurry coat shall be applied with the help of stiff nylon bristle brush on spalled out surface.
2. Before the primer coat is fully cured. Polymer modified cementations mortar shall be applied by means of trowels and floats.
3. The interval between the application of primer coat and pmc mortar shall be 15 to 30 minutes depending upon the ambiet temperature.
4. The total thickness of PMC mortor shall be applied in multiple layers of thickness 25mm or manufacture's recommendations by trowel.
5. Repaired surface shall be matched with original existing surface and curing be carried out by curing compound.

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

DRAWN:	KIRAN
CHECKED:	HM MODI
DESIGNED:	DIPAK SONI
CHECKED:	SAGAR

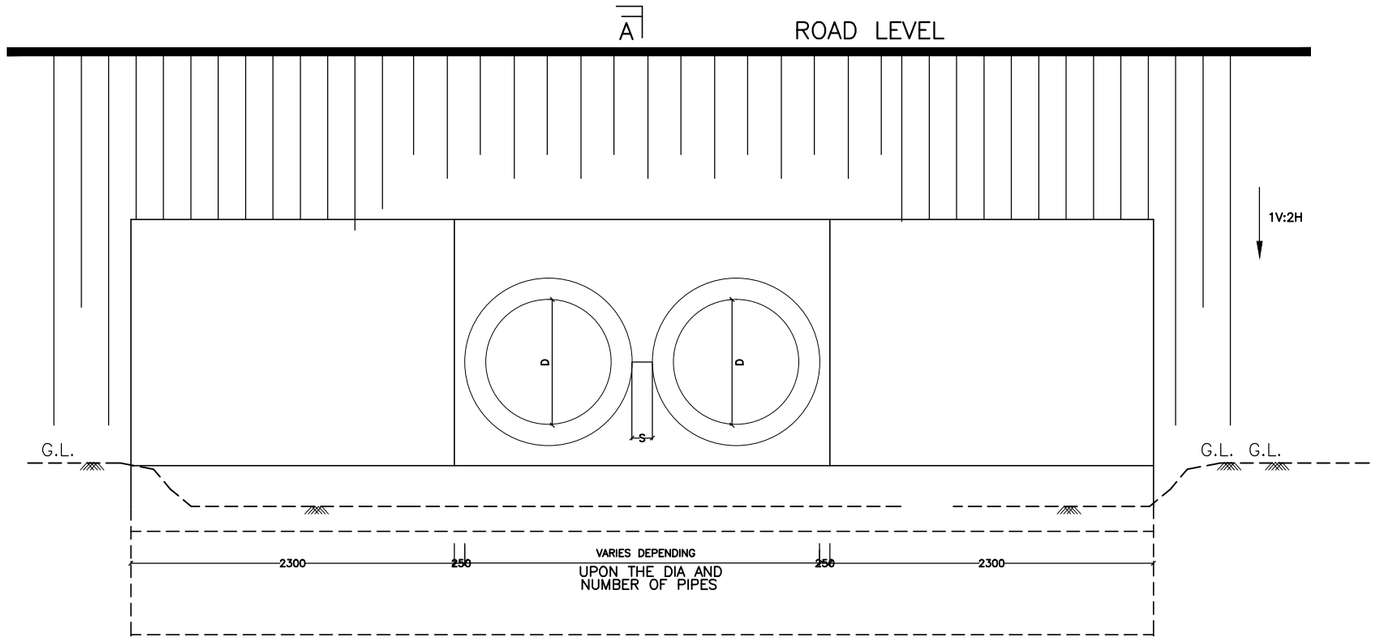
LASA INDIA

PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

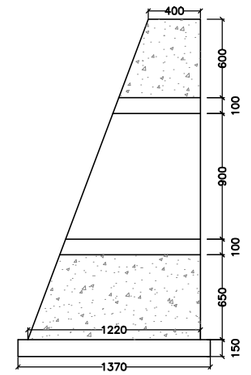
GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

TYPICAL DETAILS FOR REPAIRS OF SPELLED OUT CONCRETE BY POLYMER MODIFIED CEMENTATION MORTAR FOR SUPERSTRUCTURE AND PIER CAP

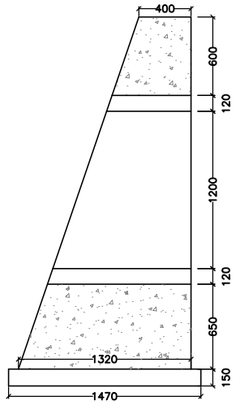
DATE:	PROJECT:	DWG No:	REV.
APR'2012	PPWCS	PPWCS/MJBR/RH/02	0



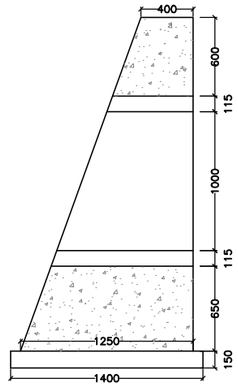
HEADWALL ELEVATION



HEAD WALL SECTION
FOR 900 MM DIA



HEAD WALL SECTION
FOR 1200 MM DIA



HEAD WALL SECTION
FOR 1000 MM DIA

LEGEND:

D = DIAMETER OF PIPE.

s = SPACING OF PIPES = 1/2 x D

NOTE:
THE SIMILAR HEADWALL DETAILS IS APPLICABLE TO SINGLE AND MULTIPLE PIPE CULVERTS.

No.	REVISION	DATE	BY

SCALE :

CAD FILE:

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DESIGNED:	DIPAK SONI
CHECKED:	SAGAR

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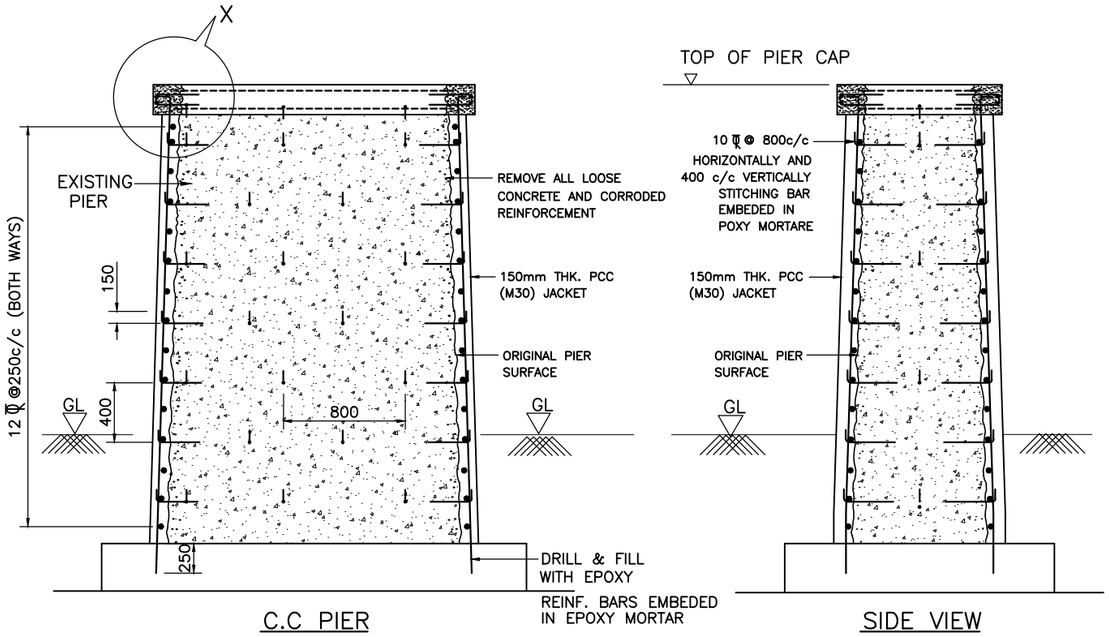
PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP-II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

GENERAL ARRANGEMENT FOR HEADWALL RECONSTRUCTION

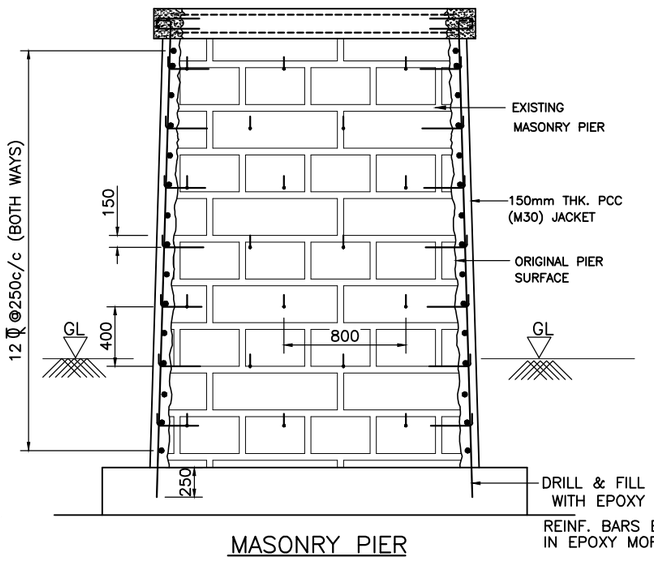
DATE:	PROJECT:	DWG No:	REV.
APR'2012	PPWCS	PPWCS/MJBR/RH/03	0



C.C PIER ELEVATION

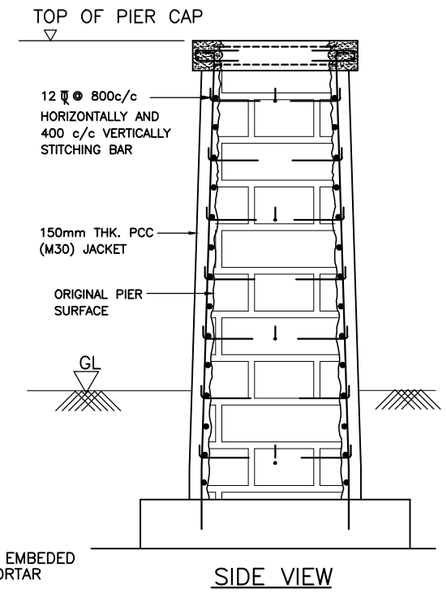
SIDE VIEW

NOTE : THE THICKNESS OF CONCRETE REMOVED SHALL NOT BE LESS THAN 150mm IN ANY CASE.



MASONRY PIER ELEVATION

NOTE: EXISTING REINFORCEMENT NOT SHOWN FOR CLARITY

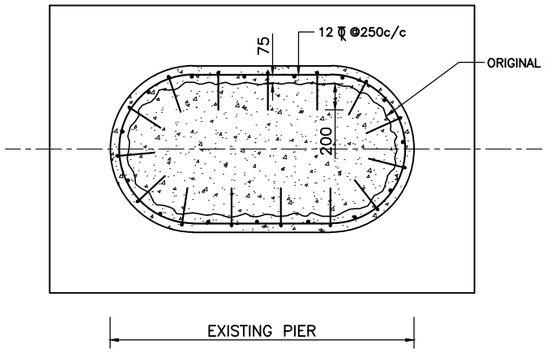


SIDE VIEW

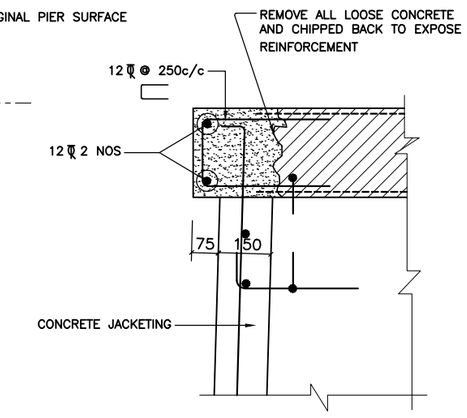
JACKETING NOTES :

PRIOR TO POURING THE CONCRETE OF THE CC/MASONRY PIER AND ABUTMENT JACKETS AND ALL THE CAPS:

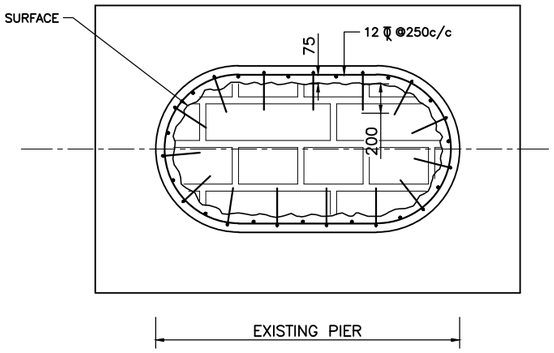
1. REMOVE FREE EXPOSED REINFORCEMENT OF CAP.
   * REMOVE LOOSE MATERIAL/DUST BY SAND BLASTING FOR EXPOSED CONCRETE SURFACE AND REINFORCEMENT AS PER SPECIFICATION.
2. REPLACE IF CAP REINFORCEMENT CORRODED BADLY OR MISSING AFTER CERTIFYING WITH ENGINEER.
   * INSTALL APPROPRIATE DOWELS EMBEDDED WITH EPOXY MORTAR TO LAP WITH THE NEW BARS WHERE REQUIRED AS DIRECTED BY ENGINEER AND AS PER ADDITIONAL SPECIFICATION.
   * THE SIZE AND SPACING OF DOWELS SHALL MATCH THE ORIGINAL DESIGN.
3. APPLY CONCRETE PRIMER AS PER SPECIFICATION TO PREPARE CONCRETE SURFACE.
   * APPLY NITOZINC PRIMER OF FOSROC (OR APPROVED EQUIVALENT)
4. PROVIDE WATER–TIGHT FORM WORK ALL AROUND THE PIER/ABUTMENT AND CAP.
5. POUR M30 CONCRETE IN PIER/ABUTMENT & CAP AND COMPACT IT AS PER SPECIFICATION.



PLAN



DETAIL – X



PLAN

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. CONCRETE SHALL BE OF GRADE M30.
4. SIMILAR JACKETING METHODOLOGY TO BE ADOPTED FOR ABUTMENT, WHERE ONLY THE EXPOSED FACE OF MEMBER WOULD BE JACKETED.

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DESIGNED:	DIPAK SONI
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PROJECT PREPARATORY WORKS CONSULTANCY SERVICES FOR GSHP–II

GOVERNMENT OF GUJARAT
ROADS AND BUILDINGS DEPARTMENT

CONCRETE JACKETING OF PIER & ABUTMENT

DATE:	PROJECT:	DWG No:	REV.
APR'2012	PPWCS	PPWCS/ MJBR/RH/04	0