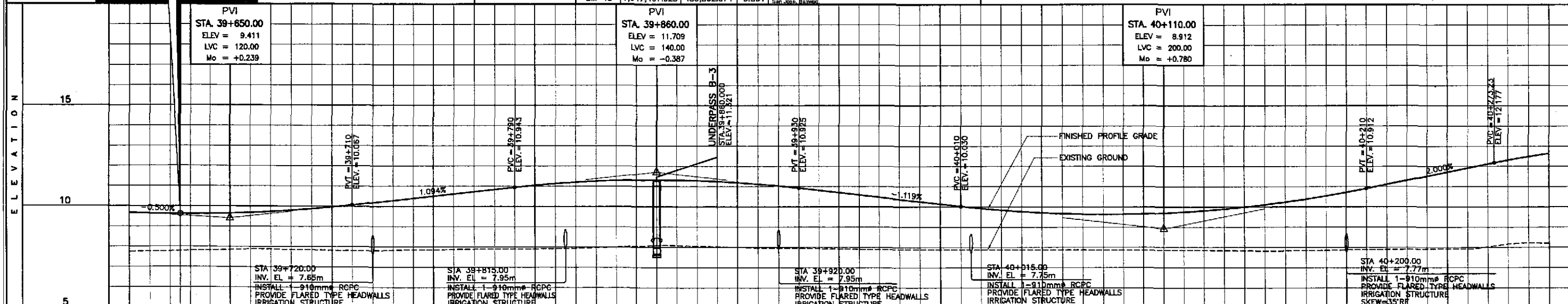


ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-02	40+170.351	1,647,028.564	489,587.713	20°27'17"R	3,500.000	631.471	1,249.501	56.506	-	-	80

**PLARIDEL BYPASS  
BEG. OF PACKAGE II  
END OF PACKAGE I**  
 STA. 39+625.00  
 ELEV. = 9.617  
 N = 1,646,581.893  
 E = 489,274.817

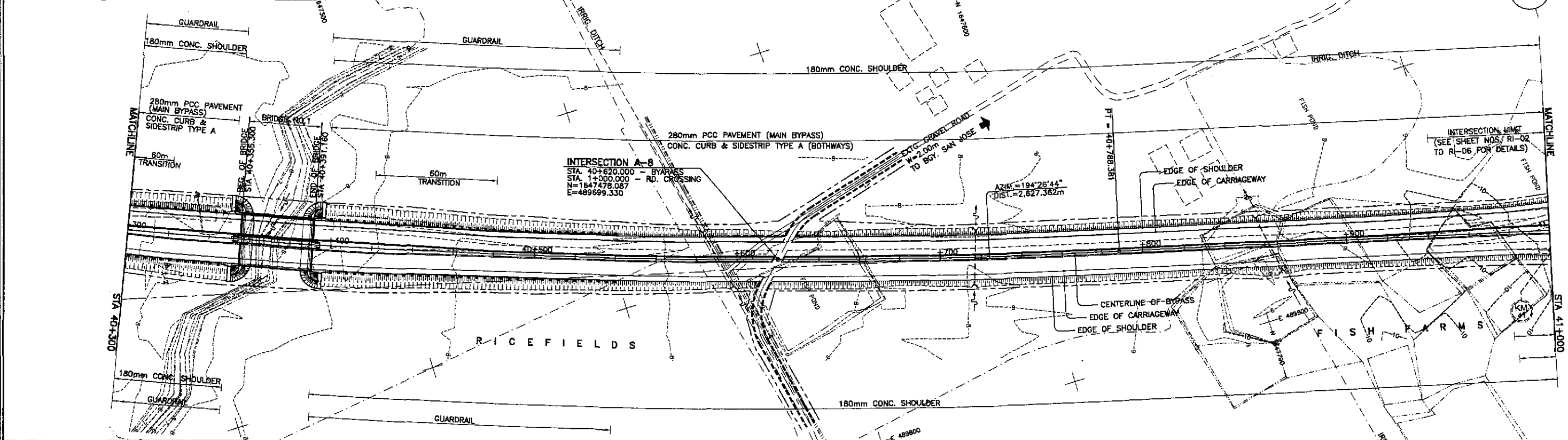
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-13	1,646,415.622	489,145.127	7.659	It is located on the back of a college on the left side of the alignment in Bgy. Bulhan, Plaridel.
BM-14	1,646,892.978	489,377.904	8.484	It is located on a rice paddy field on the left side of the alignment surrounded by banana in Bgy. Bulhan, Plaridel.
BM-15	1,647,467.925	489,802.574	8.801	It is located on the center of a dirt road on the right side of the alignment in Bgy. San Jose, Plaridel.



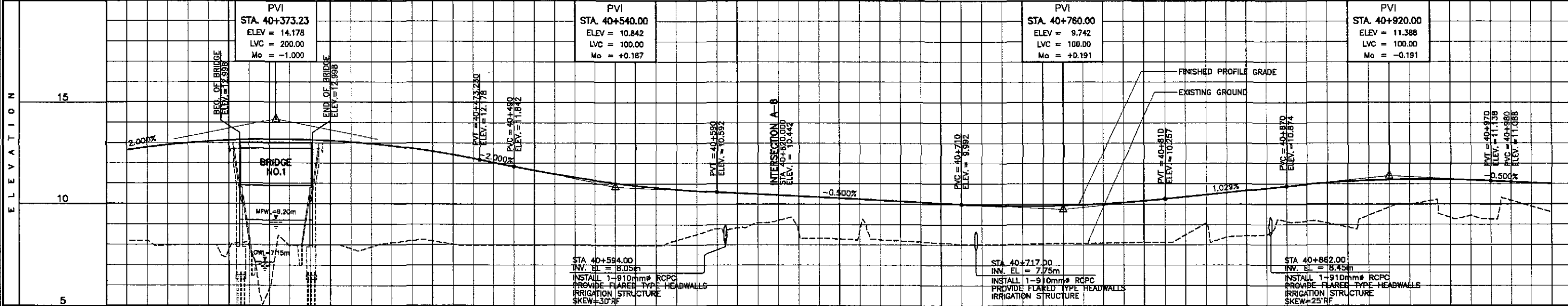
STATION	+600	+700	+800	+900	40+000	+100	+200	+300
FINISHED PROFILE GRADE BYPASS	9.668	9.621	9.617	9.627	9.686	9.799	9.965	10.177
EXISTING GROUND BYPASS	7.746	7.775	7.788	7.823	7.871	7.884	7.872	7.810
HORIZONTAL CURVATURE	R = 3500							
VERTICAL CURVATURE	L=120 Mo=+0.239		q=1.094%		L=140 Mo=-0.387		L=200 Mo=+0.780	
SUPERELEVATION	NC							

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	SHEET CONTENTS : PLAN AND PROFILE ALONG BYPASS (ULTIMATE STAGE) STA. 39+625 - STA. 40+300	SHEET NO. : <b>RP-01</b>	
	CHECKED	9/25/12	<i>S. G. G. G.</i>		Submitted By:	Reviewed By:	Recommended By:	Recommended By:					
	SUBMITTED	9/27/12	<i>M. R. R. R.</i>		DANLO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES DC, Director IV	MANUEL M. BONOAN Undersecretary					SIMEDON A. DATUMANONG Secretary
	JICA JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YEO YACHYO ENGINEERING CO., LTD.												

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-02	40+170.351	1,647,028.564	489,587.713	20°27'17"R	3,500.000	631.471	1,249.501	56.509	-	-	80

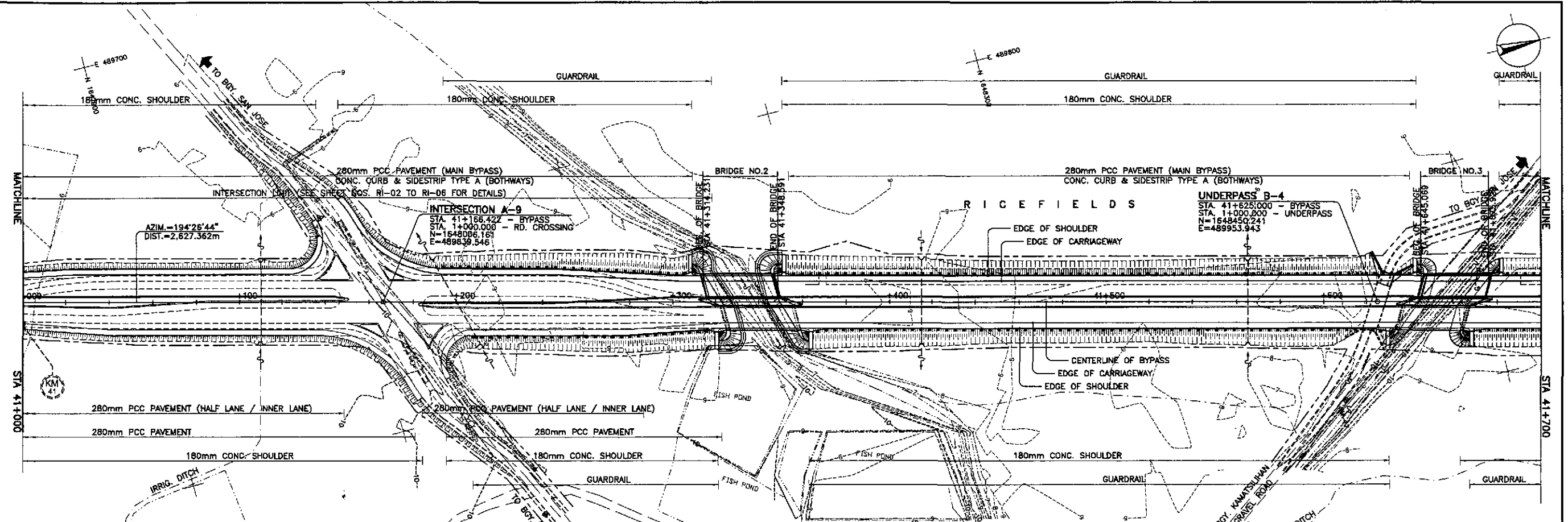


REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-14	1,646,892.978	489,577.904	8.484	It is located on a rice paddy site on the left side of the alignment surrounded by banana in Bgy. Buhay, Plaridel.
BM-15	1,647,467.925	489,802.574	8.801	It is located on the center of a dirt road on the right side of the alignment in Bgy. San Jose, Balingasay.
BM-16	1,648,054.174	489,953.321	10.601	It is located on the intersection of the bgy. road & the provincial road on the side of the alignment in Bgy. San Jose, Balingasay.

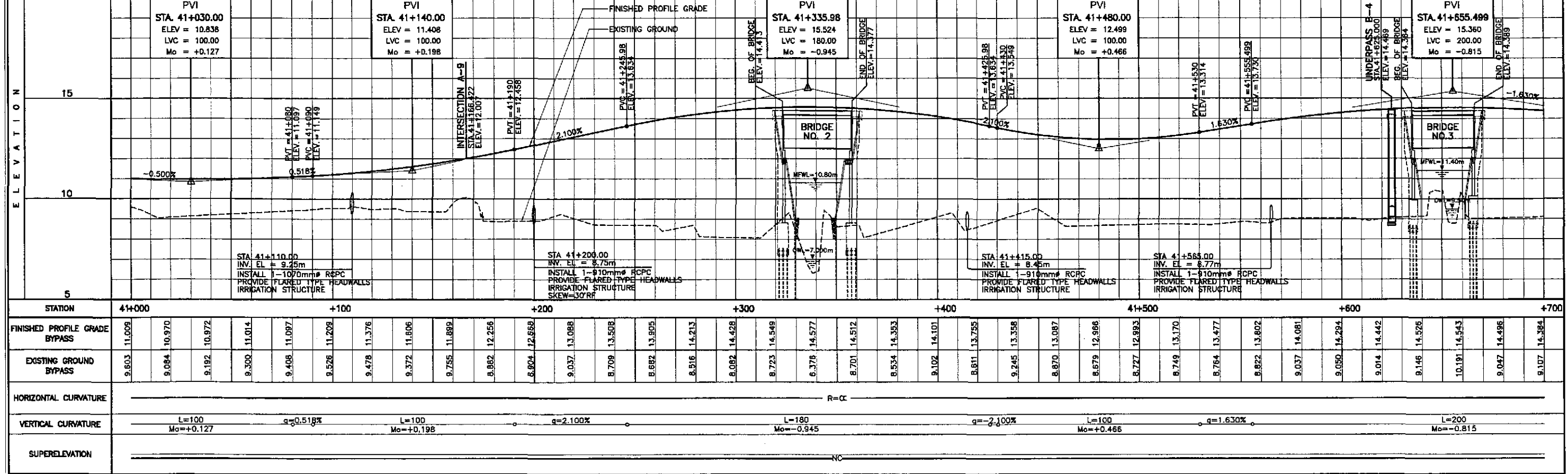


STATION	+300	+400	40+500	+600	+700	+800	+900	41+000																												
FINISHED PROFILE GRADE BYPASS	8.185	7.957	7.975	7.891	7.944	7.993	7.885	8.199	8.026	7.976	7.984	7.988	7.975	7.963	8.513	8.832	9.197	8.310	8.709	8.194	8.068	8.018	8.042	8.065	8.090	8.114	8.489	8.375	8.490	9.159	8.868	9.851	10.160	9.447	10.177	9.803
EXISTING GROUND BYPASS	12.641	12.894	13.067	13.160	13.173	13.106	12.959	12.732	12.425	12.042	11.850	11.310	11.030	10.810	10.650	10.542	10.442	10.342	10.242	10.142	10.042	9.950	9.911	9.833	10.017	10.161	10.359	10.565	10.771	10.969	11.114	11.197	11.219	11.181	11.088	11.009
HORIZONTAL CURVATURE	R = 3500																																			
VERTICAL CURVATURE	L=200, Mo=-1.000; L=100, Mo=+0.187; L=100, Mo=+0.191; L=100, Mo=-0.191																																			
SUPERELEVATION	NC																																			

	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/15/02	<i>S. Acacio</i>	BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	HORIZONTAL 1:1000	<b>PLAN AND PROFILE</b> ALONG BYPASS (ULTIMATE STAGE) STA. 40+300 - STA. 41+000	<b>RP-02</b>
	SUBMITTED	9/12/02	<i>M. R. ...</i>	Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:	VERTICAL 1:100		
				DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES DIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary	FULL SIZE A1		



REFERENCE POINTS			
REF. PT.	NORTHING	EASTING	ELEV.
BM-15	1,647,467.925	489,802.574	8.801
BM-16	1,648,054.174	489,953.321	10.601
BM-17	1,648,424.838	489,994.453	10.582



STATION	41+000	+100	+200	+300	+400	41+500	+600	+700
FINISHED PROFILE GRADE BYPASS	11.009	10.970	10.972	11.014	11.097	11.208	11.376	11.496
EXISTING GROUND BYPASS	9.603	9.084	9.192	9.300	9.408	9.526	9.478	9.372
HORIZONTAL CURVATURE	R=∞							
VERTICAL CURVATURE	L=100 Mo=+0.127		q=0.518% L=100 Mo=+0.198		q=2.100% L=180 Mo=-0.945		q=-2.100% L=100 Mo=+0.466	
SUPERELEVATION	NC							

**JICA**  
JAPAN INTERNATIONAL COOPERATION AGENCY

**KAIHARA & ENGINEERS**  
YACHIO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

DESIGNED: [Signature] DATE: 9/21/02  
CHECKED: [Signature] DATE: 9/25/02  
SUBMITTED: [Signature] DATE: 9/25/02

Submitted By: DANILLO C. TRAJANO, Project Director  
Reviewed By: JOSEFINA M. ALAGAR, Chief, Highways Division  
Recommended By: GILBERTO S. REYES, Dir. Director IV  
Approved By: MANUEL M. BONDAN, Undersecretary

PROJECT AND LOCATION :  
THE DETAILED DESIGN STUDY ON  
UPGRADING INTER-URBAN HIGHWAY SYSTEM  
ALONG THE PAN-PHILIPPINE HIGHWAY  
(Plaridel, Cabanatuan and San Jose Bypasses)

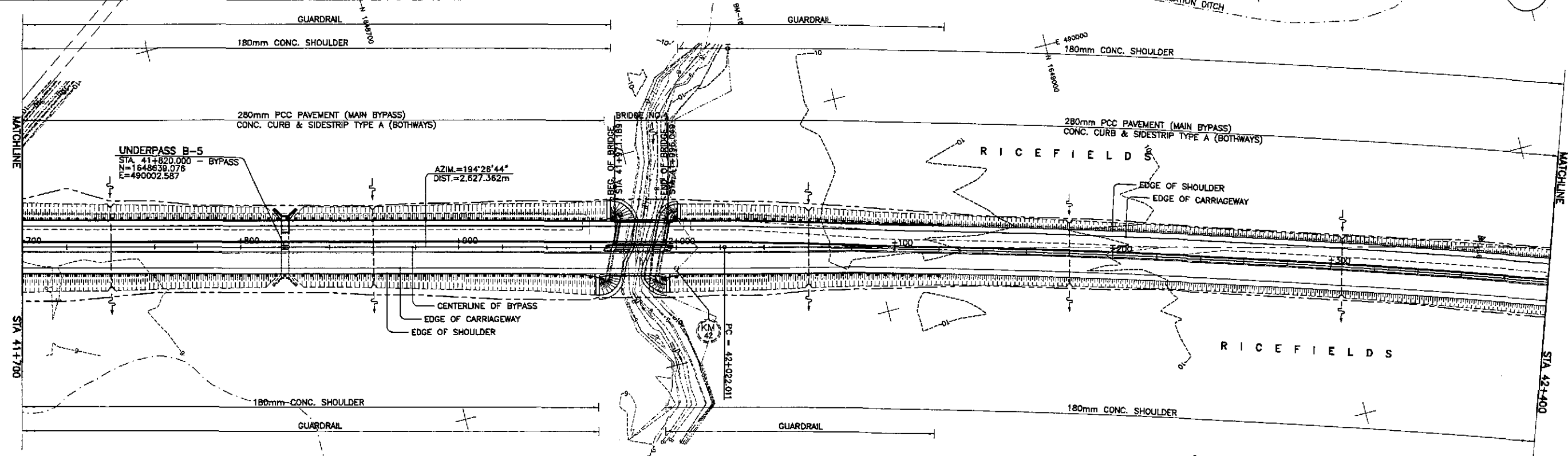
PLARIDEL BYPASS - CONTRACT PACKAGE II

SCALE :  
HORIZONTAL 1:1000  
VERTICAL 1:100  
FULL SIZE A1

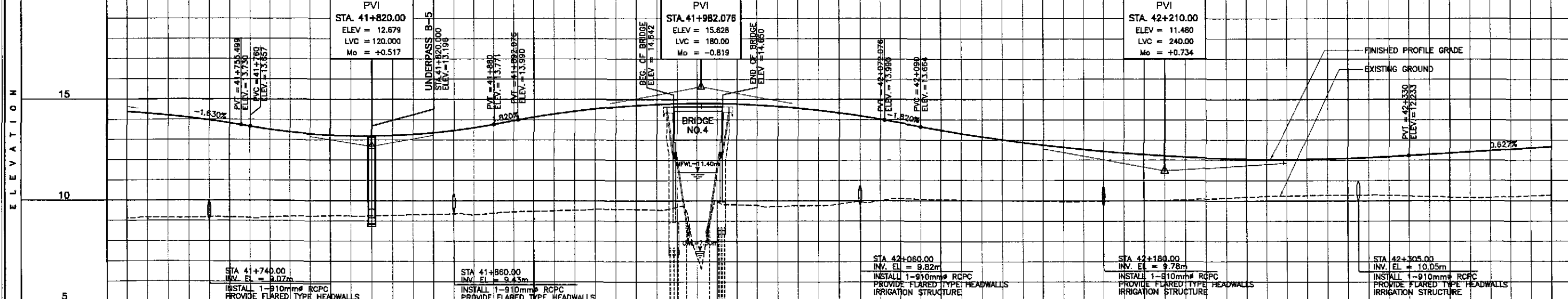
SHEET CONTENTS :  
PLAN AND PROFILE  
ALONG BYPASS (ULTIMATE STAGE)  
STA. 41+000 - STA. 41+700

SHEET NO. :  
RP-03

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		A	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-03	42+784.272	1,649,572.862	490,243.134	19°13'42"R	4,500.000	782.261	1,510.187	64.104	-	-	80



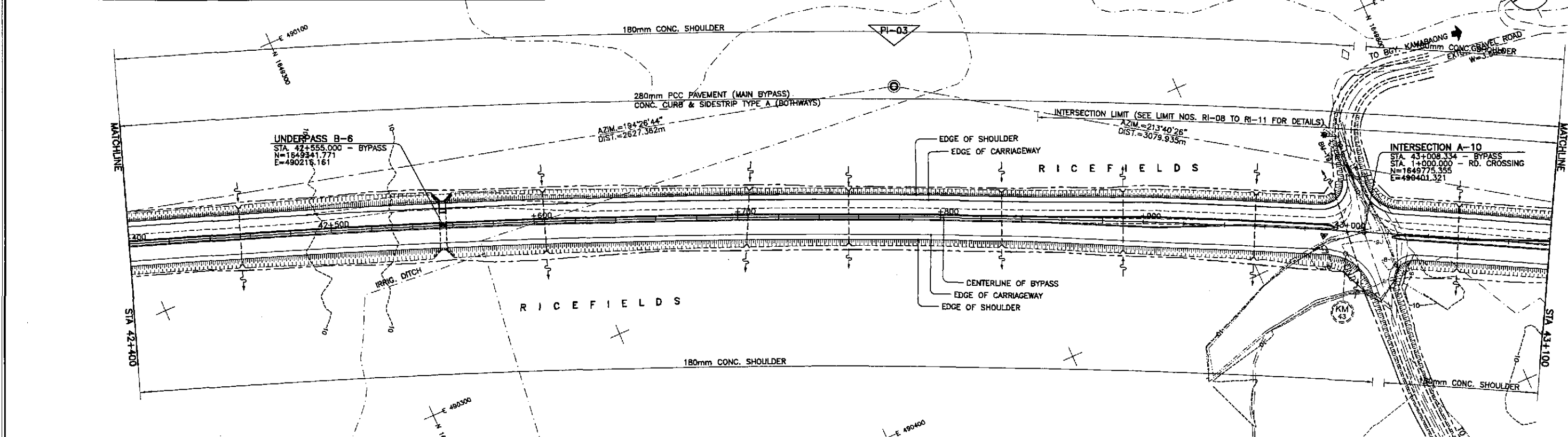
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-17	1,648,424.838	489,994.453	10.582	It is located on the side of the dirt road where an irrigation canal is on the right side of the alignment in Bay, San Jose, Bohol.
BM-18	1,648,870.652	489,943.559	10.265	It is located under a tree on the side of a creek on the left side of the alignment in Bay, San Jose, Bohol.
BM-19	1,649,757.184	490,350.187	11.391	It is located under a tree on the side of the road where an irrigation canal is on the left side of alignment in Bay, Malibian, Bohol.



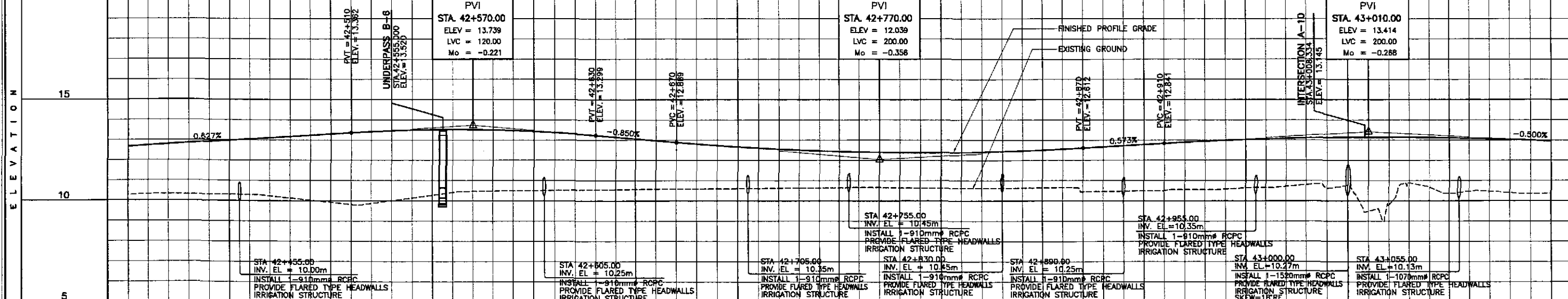
STATION	+700	+800	+900	42+000	+100	+200	+300	+400																												
FINISHED PROFILE GRADE BYPASS	9.107	9.147	9.186	9.143	9.206	9.250	9.246	9.288	9.350	9.385	9.473	9.529	9.594	9.548	7.275	9.798	9.718	9.751	9.958	10.118	10.061	10.012	9.988	9.964	9.980	10.003	10.047	10.136	10.223	10.255	10.276	10.271	10.211	10.150	10.202	10.278
EXISTING GROUND BYPASS	14.384	14.206	13.963	13.657	13.388	13.235	13.196	13.273	13.464	13.771	14.128	14.420	14.630	14.760	14.809	14.777	14.664	14.470	14.195	13.846	13.487	13.164	12.861	12.640	12.439	12.278	12.159	12.081	12.043	12.046	12.090	12.175	12.295	12.421	12.546	12.672
HORIZONTAL CURVATURE	R=∞										R = 4500 42 + 022.011																									
VERTICAL CURVATURE	g = -1.630%		L = 120 Mo = +0.517		g = 0.820%		L = 180 Mo = -0.819		g = -1.820%		L = 240 Mo = +0.734		g = 0.627%																							
SUPERELEVATION	NC																																			

	DESIGNED	DATE	SIGNATURE		PROJECT AND LOCATION :					SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/25/02	<i>[Signature]</i>		THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)					HORIZONTAL 1:1000	PLAN AND PROFILE ALONG BYPASS (ULTIMATE STAGE) STA. 41+700 - STA. 42+400	RP-04
	SUBMITTED	9/25/02	<i>[Signature]</i>		PLARIDEL BYPASS - CONTRACT PACKAGE II					VERTICAL 1:100		
Submitted By: DANILLO C. TRAJANO, Project Director Reviewed By: JOSEFINA M. ALAGAR, Chief, Highways Division Recommended By: GILBERTO S. REYES, OIC, Director IV Recommended By: MANUEL M. BONDAN, Undersecretary Approved By: SIMCON A. DATUMANONG, Secretary		FULL SIZE A1										

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-03	42+784.272	1,649,572.862	490,243.134	19°13'42"R	4,500.000	762.261	1,510.187	64.104	-	-	80



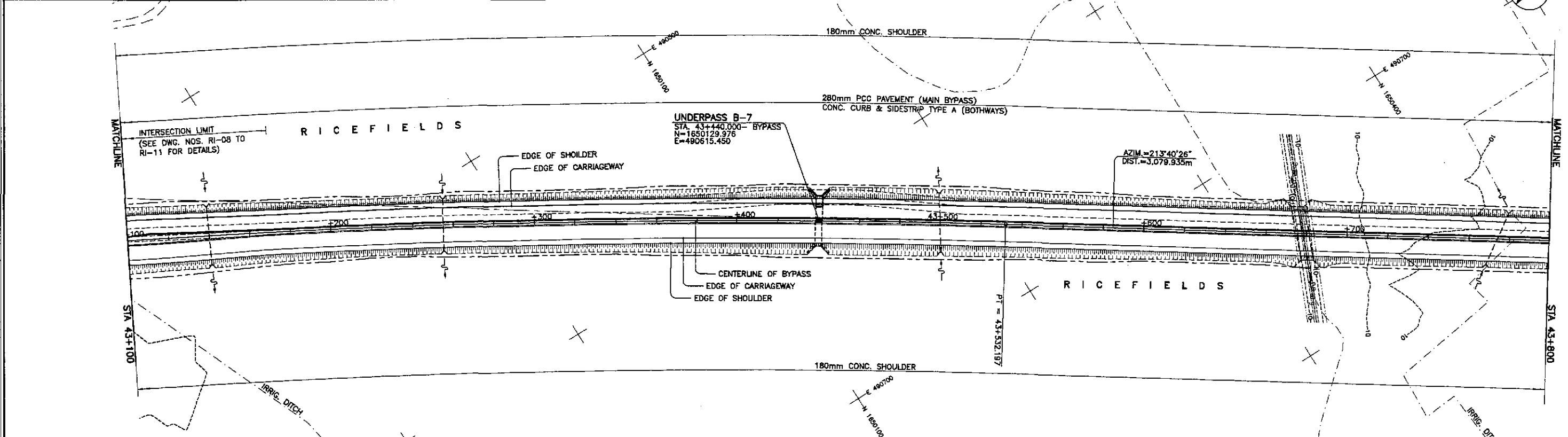
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-18	1,648,870.652	489,943.559	10.265	It is located under a tree on the side of a creek on the left side of the alignment in Bay San Jose, Bataan.
BM-19	1,649,757.184	490,350.187	11.391	It is located under a tree on the side of the road where an irrigation canal is on the left side of align. in Bay Malabon, Bataan.
BM-20	1,650,493.060	490,591.189	11.615	It is located under a tree near an unfinished house on the left side of the alignment in Bay Malabon, Bataan.



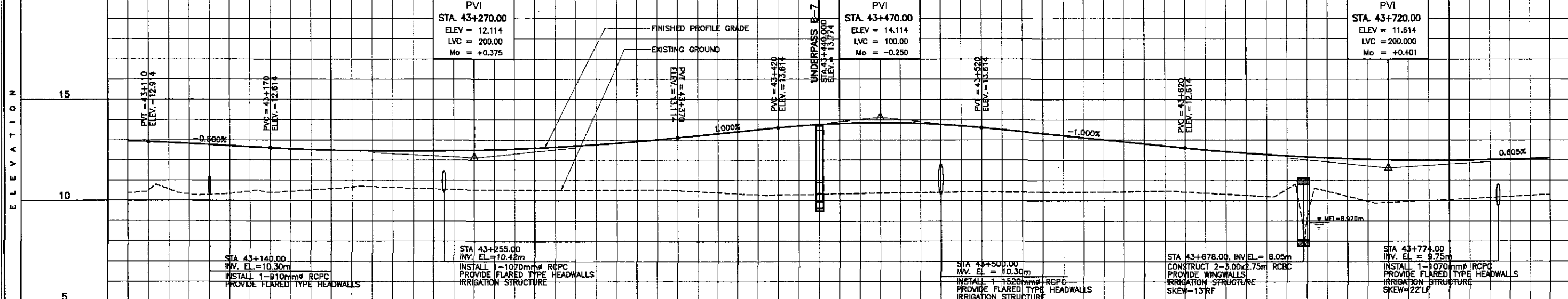
STATION	+400	42+500	+600	+700	+800	+900	43+000	+100
FINISHED PROFILE GRADE BYPASS	12.672	12.797	12.923	13.048	13.174	13.299	13.414	13.539
EXISTING GROUND BYPASS	10.278	10.326	10.374	10.422	10.470	10.518	10.566	10.614
HORIZONTAL CURVATURE	R = 4500							
VERTICAL CURVATURE	g=0.627%		L=120 Mo=-0.221		g=-0.850%		L=200 Mo=-0.356	
SUPERELEVATION	NC							

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	SHEET CONTENTS : PLAN AND PROFILE ALONG BYPASS (ULTIMATE STAGE) STA. 42+400 - STA. 43+100	SHEET NO. : <b>RP-05</b>
	CHECKED				BUREAU OF DESIGN							
	SUBMITTED				OFFICE OF THE SECRETARY							
			Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:					
			DANILO C. TRAJANO Project Director	JOSEFINA M. ALACAR Chief, Highways Division	GILBERTO S. REYES Dir. Director IV	MANUEL M. BONGCAN Undersecretary	SIMEON A. DATUMANGING Secretary					

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-03	42+784.272	1,649,572.862	490,243.134	19°13'42"R	4,500.000	762.261	1,510.187	64.104	-	-	80



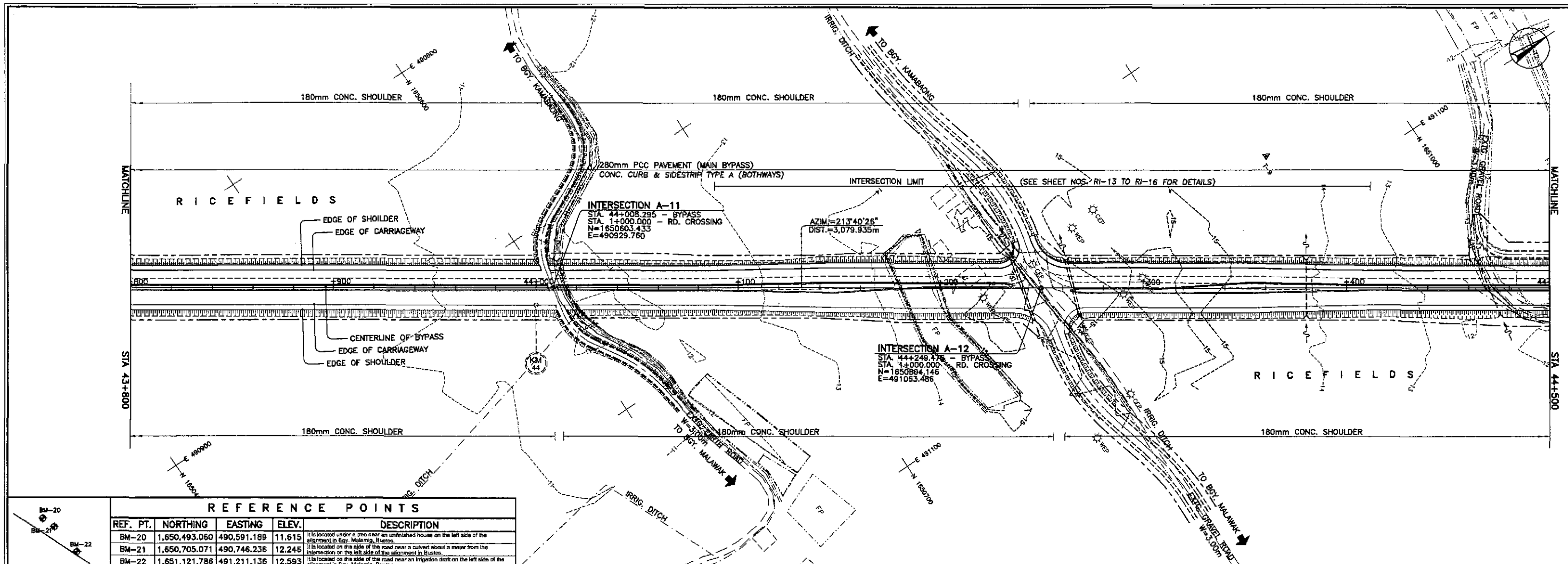
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-19	1,649,757.184	490,350.187	11.391	It is located under a tree on the side of the road where an irrigation canal is on the left side of alignment in Bay, Malabon, Bataan.
BM-20	1,650,493.060	490,581.189	11.615	It is located under a tree near an unfinished house on the left side of the alignment in Bay, Malabon, Bataan.
BM-21	1,650,705.071	490,746.236	12.246	It is located on the side of the road near a culvert about a meter from the intersection on the left side of the alignment in Bataan.



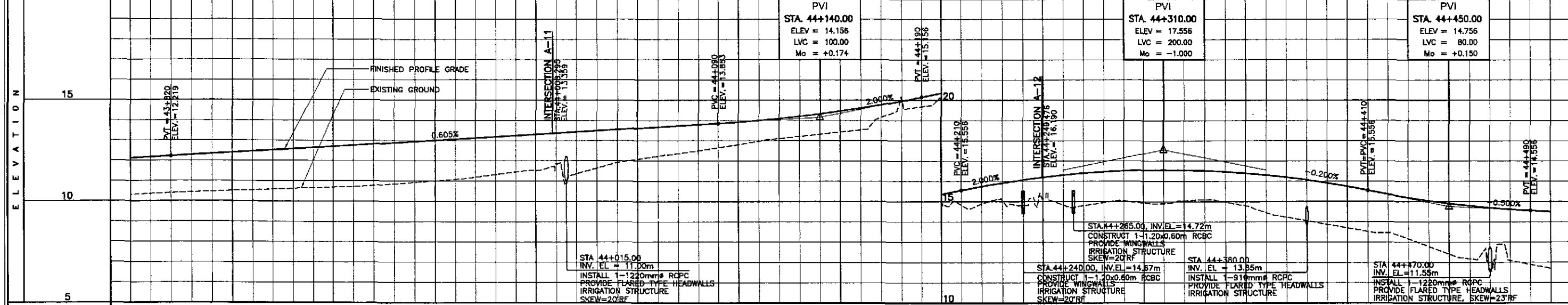
STATION	+100	+200	+300	+400	43+500	+600	+700	+800
FINISHED PROFILE GRADE BYPASS	12.961	12.864	12.764	12.664	12.568	12.468	12.374	12.274
EXISTING GROUND BYPASS	10.392	10.554	10.294	10.467	10.462	10.594	10.688	10.620
HORIZONTAL CURVATURE	R = 4500 43 + 532.197 R = ∞							
VERTICAL CURVATURE	g = -0.500%		L = 200 Mo = +0.375		g = 1.000%		L = 100 Mo = -0.250	
SUPERELEVATION	NC							

	DESIGNED	DATE	SIGNATURE	 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	SHEET CONTENTS : PLAN AND PROFILE ALONG BYPASS (ULTIMATE STAGE) STA. 43+100 - STA. 43+800	SHEET NO. : <b>RP-06</b>
	CHECKED			BUREAU OF DESIGN							
	SUBMITTED			OFFICE OF THE SECRETARY							
			Submitted By: DANLO C. TRAJANO Project Director	Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division	Recommended By: GILBERTO S. REYES D.C., Director IV	Recommended By: MANUEL M. BONGAON Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary				





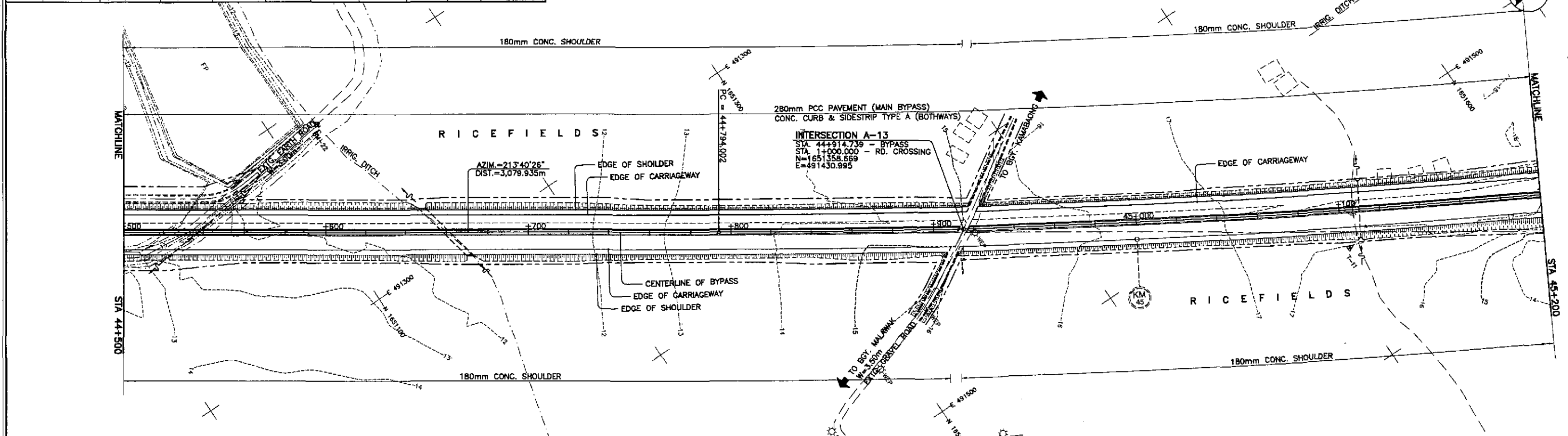
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-20	1,650,493.060	490,591.189	11.615	It is located under a tree near an unfinished house on the left side of the alignment in Bay. Malimig, Buntis.
BM-21	1,650,705.071	490,746.235	12.246	It is located on the side of the road near a culvert about a meter from the intersection on the left side of the alignment in Buntis.
BM-22	1,651,121.786	491,211.136	12.593	It is located on the side of the road near an irrigation ditch on the left side of the alignment in Bay. Malimig, Buntis.



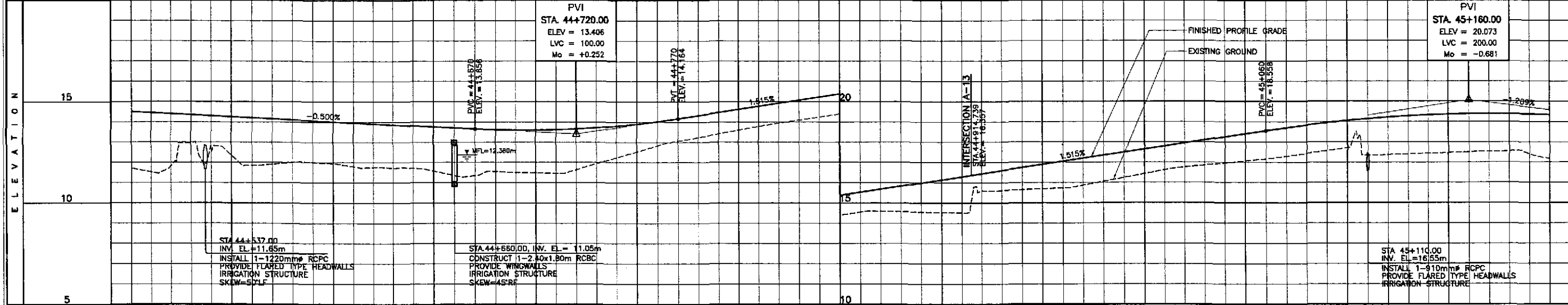
STATION	+800	+900	44+000	+100	+200	+300	+400	44+500
FINISHED PROFILE GRADE BYPASS	12.114	12.219	12.340	12.461	12.582	12.703	12.824	12.946
EXISTING GROUND BYPASS	10.308	10.403	10.475	10.547	10.618	10.684	10.728	10.824
HORIZONTAL CURVATURE	R=∞							
VERTICAL CURVATURE	g=0.605%      L=100      Mo=+0.174      g=2.000%      L=200      Mo=-1.000      g=-0.200%      L=80      Mo=+0.150							
SUPERELEVATION	NC							

	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) <b>PLARIDEL BYPASS - CONTRACT PACKAGE II</b>	SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	SHEET CONTENTS : <b>PLAN AND PROFILE</b> ALONG BYPASS (ULTIMATE STAGE) STA. 43+800 - STA. 44+500	SHEET NO. : <b>RP-07</b>			
	CHECKED	DATE	SIGNATURE								P.M.H. - PMO Submitted By:	BUREAU OF DESIGN Reviewed By:	OFFICE OF THE SECRETARY Recommended By:
	SUBMITTED	DATE	SIGNATURE								DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highway Division	GILBERTO S. REYES DC, Director IV

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-04	45+849.871	1,652,136.007	491,950.849	26°24'35"R	4,500.000	1,055.870	2,074.218	122.214	-	-	80



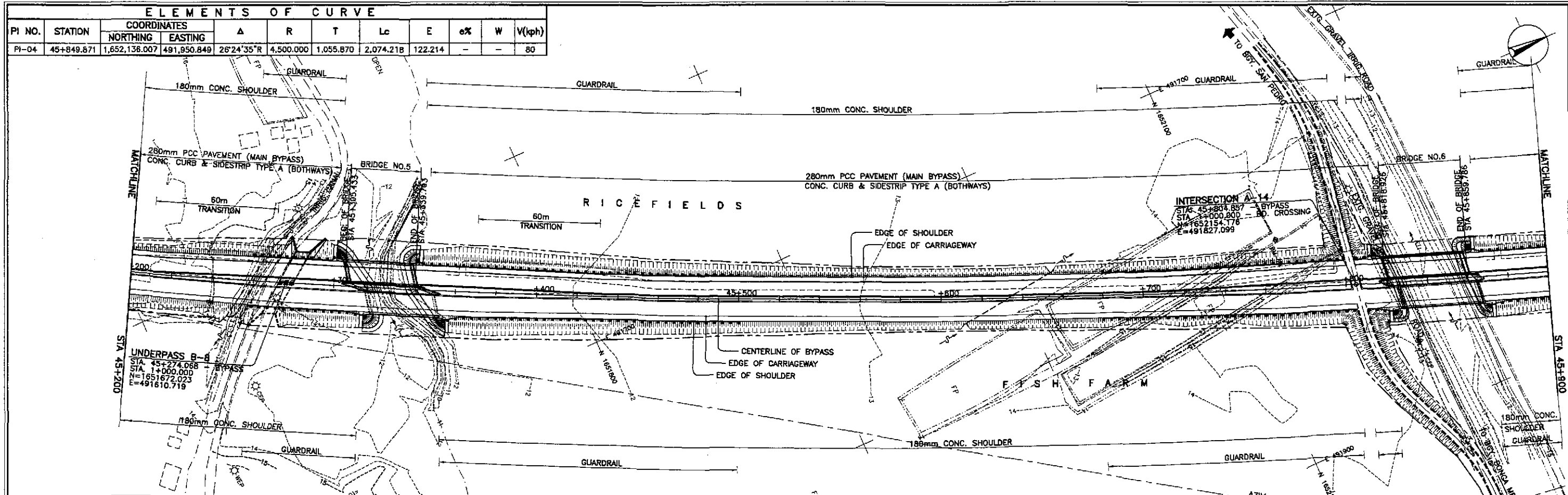
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-21	1,650,705.071	490,746.236	12.246	It is located on the side of the road near a culvert about a meter from the intersection on the left side of the alignment in Bustos.
BM-22	1,651,121.786	491,211.136	12.593	It is located on the side of the road near an irrigation ditch on the left side of the alignment in Bay Malinak, Bustos.
BM-23	1,651,339.258	491,553.289	18.706	It is located on the side of the road near a electric post on the right side of the alignment in Bay Malinak, Bustos.



STATION	44+500	+600	+700	+800	+900	45+000	+100	+200		
FINISHED PROFILE GRADE BYPASS	11.709	14.406	14.306	14.206	14.106	14.006	13.906	13.806		
EXISTING GROUND BYPASS	11.709	11.821	12.888	14.306	11.845	12.002	14.106	11.940		
HORIZONTAL CURVATURE	R = ∞									
VERTICAL CURVATURE	g = -0.500%				L = 100 Mo = +0.252		g = 1.515%		L = 200 Mo = -0.681	
SUPERELEVATION	NC									

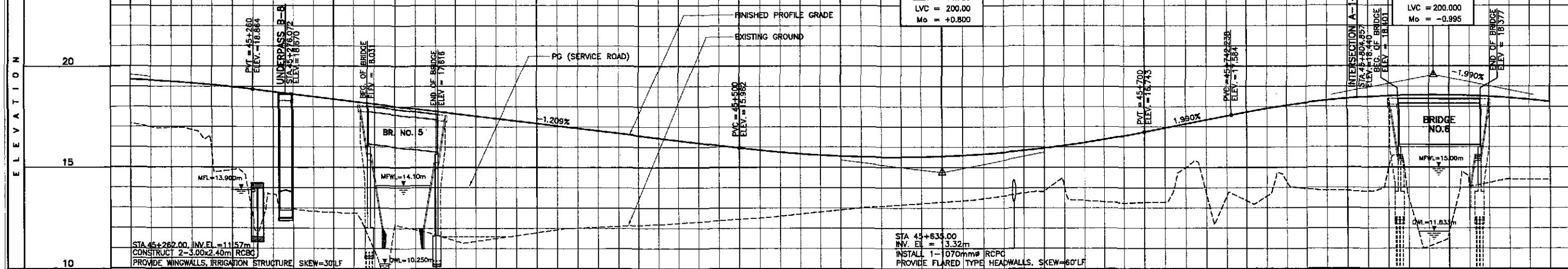
	<table border="1"> <tr> <th>DESIGNED</th> <th>DATE</th> <th>SIGNATURE</th> </tr> <tr> <td>9/21/02</td> <td></td> <td><i>[Signature]</i></td> </tr> <tr> <th>CHECKED</th> <th>DATE</th> <th>SIGNATURE</th> </tr> <tr> <td>9/25/02</td> <td></td> <td><i>[Signature]</i></td> </tr> <tr> <th>SUBMITTED</th> <th>DATE</th> <th>SIGNATURE</th> </tr> <tr> <td>9/27/02</td> <td></td> <td><i>[Signature]</i></td> </tr> </table>	DESIGNED	DATE	SIGNATURE	9/21/02		<i>[Signature]</i>	CHECKED	DATE	SIGNATURE	9/25/02		<i>[Signature]</i>	SUBMITTED	DATE	SIGNATURE	9/27/02		<i>[Signature]</i>	<p style="text-align: center;">REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p> <p style="text-align: center;">BUREAU OF DESIGN</p> <p>Submitted By: <b>DANILO C. TRAJANO</b> (Project Director)</p> <p>Reviewed By: <b>JOSEFINA M. ALAGAR</b> (Chief, Highways Division)</p> <p>Recommended By: <b>GILBERTO S. REYES</b> (OC, Director IV)</p> <p>Recommended By: <b>MANUEL M. BONJAN</b> (Undersecretary)</p> <p>Approved By: <b>SIMEDON A. DATUMANONG</b> (Secretary)</p>	<p>PROJECT AND LOCATION :</p> <p style="text-align: center;">THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)</p> <p style="text-align: center;"><b>PLARIDEL BYPASS - CONTRACT PACKAGE II</b></p>	<p>SCALE :</p> <p>HORIZONTAL 1:1000</p> <p>VERTICAL 1:100</p> <p>FULL SIZE A1</p>	<p>SHEET CONTENTS :</p> <p style="text-align: center;"><b>PLAN AND PROFILE ALONG BYPASS (ULTIMATE STAGE) STA. 44+500 - STA. 45+200</b></p>	<p>SHEET NO. :</p> <p style="text-align: center;"><b>RP-08</b></p>
DESIGNED	DATE	SIGNATURE																						
9/21/02		<i>[Signature]</i>																						
CHECKED	DATE	SIGNATURE																						
9/25/02		<i>[Signature]</i>																						
SUBMITTED	DATE	SIGNATURE																						
9/27/02		<i>[Signature]</i>																						





ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-04	45+849.871	1,652,136.007	491,950.849	26°24'35"R	4,500.000	1,055.870	2,074.218	122.214	-	-	80

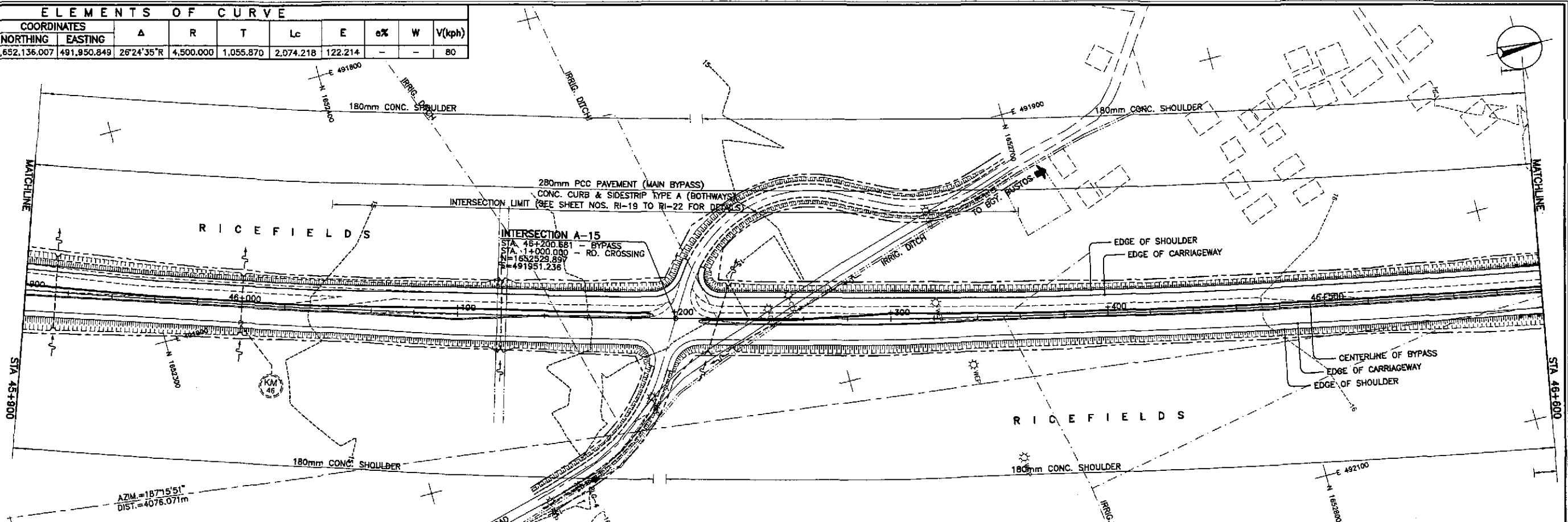
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-23	1,651,339.258	491,553.289	18.706	It is located on the side of the road near an electric post on the right side of the alignment in Bay, Malabon, Bataan.
BM-24	1,652,126.811	491,780.544	14.480	It is located on the side on a well on a farmstead about 40m. from the road on the left side of the alignment in Bataan.



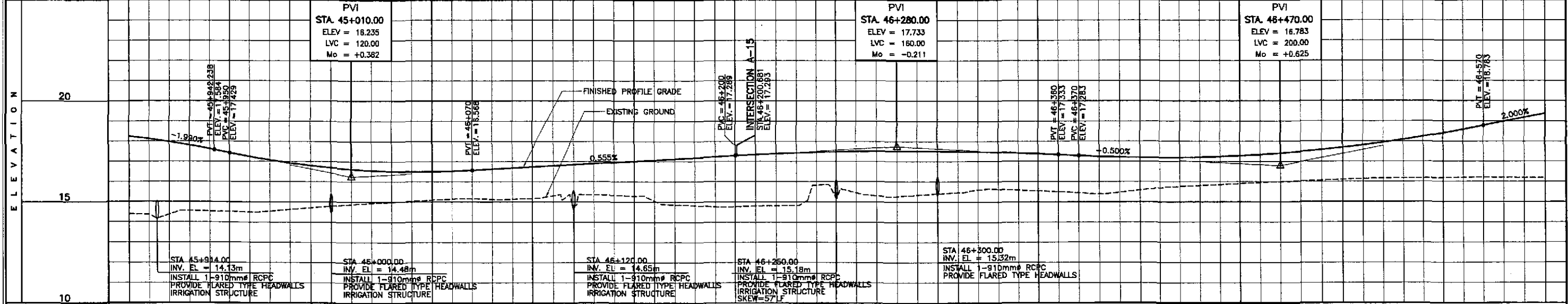
STATION	+200	+300	+400	45+500	+600	+700	+800	+900
FINISHED PROFILE GRADE BYPASS	17.172	16.943	15.704	12.501	12.982	12.774	10.882	11.927
EXISTING GROUND BYPASS	19.344	19.239	19.079	18.864	18.622	18.380	18.139	17.897
HORIZONTAL CURVATURE	R = 4500							
VERTICAL CURVATURE	q = 1.209%			L = 200 Mc = +0.800			q = 1.990%	
SUPERELEVATION	NC							

	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/25/02	<i>[Signature]</i>	BUREAU OF DESIGN OFFICE OF THE SECRETARY				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	HORIZONTAL 1:1000	PLAN AND PROFILE ALONG BYPASS (ULTIMATE STAGE) STA. 45+200 - STA. 45+900	RP-09
	SUBMITTED	9/27/02	<i>[Signature]</i>	Submitted By:	Reviewed By:	Recommended By:	Approved By:	VERTICAL 1:100			
		DANILO C. TRAJANO Project Director		JOSEFINA M. ALAGAR Chief, Highways Division		GILBERTO S. REYES OIC, Director IV		MANUEL M. BONDAN Undersecretary			

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-04	45+849.871	1,652,136.007	491,950.849	26°24'35"R	4,500.000	1,055.870	2,074.218	122.214	-	-	80

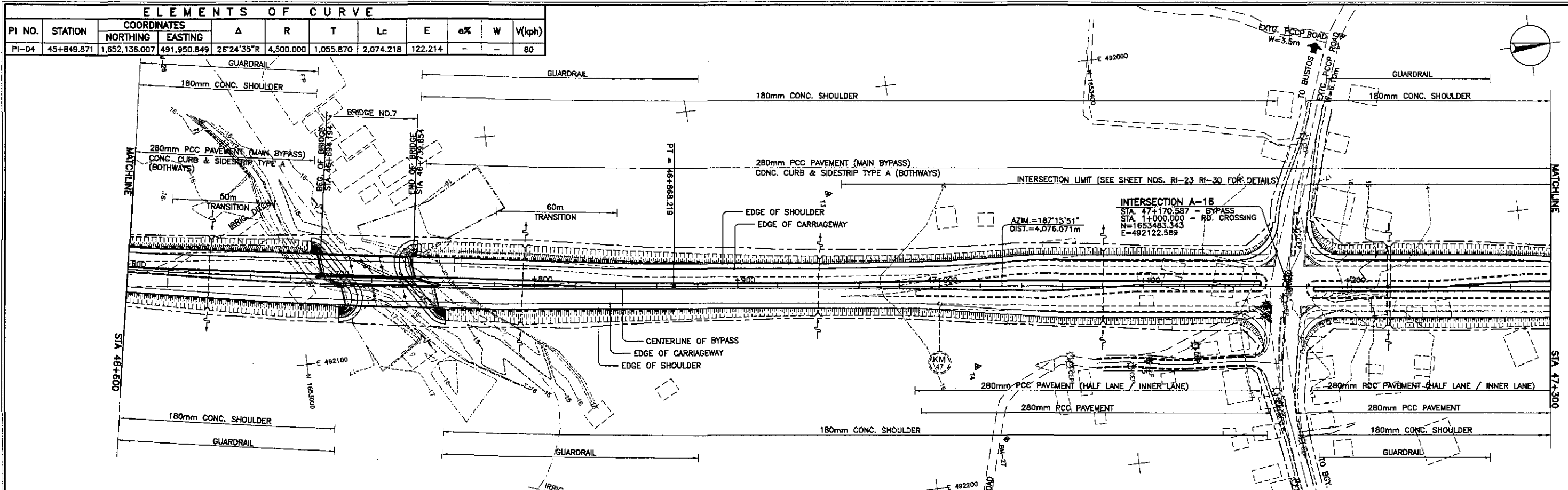


REFERENCE POINTS			
REF. PT.	NORTHING	EASTING	ELEV.
BM-24	1,652,126.811	491,790.544	14.480
BM-26	1,652,951.730	491,935.264	17.018



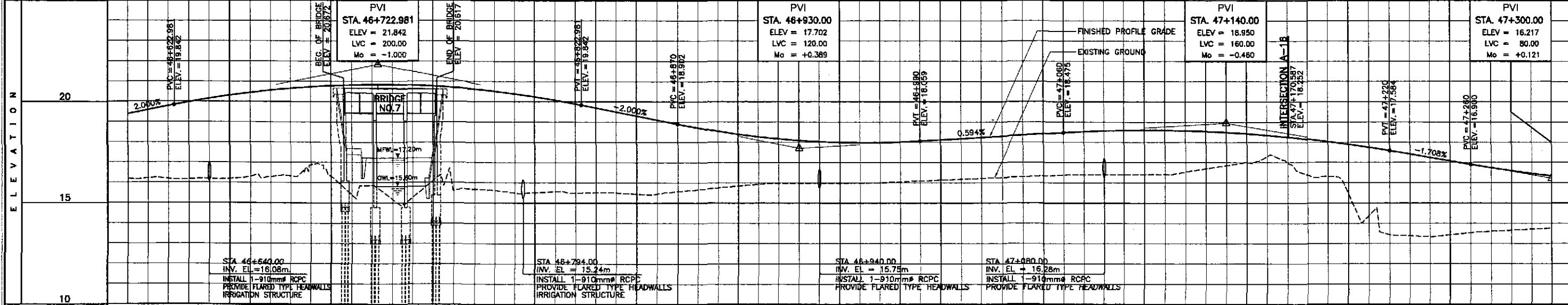
STATION	+900	48+000										+100	+200										+300	+400										46+500	+600																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
FINISHED PROFILE GRADE BYPASS	18.247	17.977	17.628	17.241	16.926	16.598	16.256	15.942	15.642	15.354	15.078	14.814	14.562	14.322	14.094	13.878	13.674	13.482	13.302	13.134	12.978	12.834	12.702	12.582	12.474	12.378	12.294	12.222	12.162	12.114	12.078	12.054	12.042	12.042	12.054	12.078	12.114	12.162	12.222	12.294	12.378	12.474	12.582	12.702	12.834	12.978	13.134	13.302	13.482	13.674	13.878	14.094	14.322	14.562	14.814	15.078	15.354	15.642	15.942	16.256	16.598	16.926	17.241	17.628	17.977	18.247																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
EXISTING GROUND BYPASS	14.390	14.370	14.340	14.298	14.246	14.184	14.112	14.030	13.938	13.836	13.724	13.602	13.470	13.328	13.176	13.014	12.842	12.660	12.468	12.266	12.054	11.832	11.600	11.358	11.106	10.844	10.572	10.290	10.008	9.716	9.414	9.102	8.780	8.448	8.106	7.754	7.392	7.020	6.638	6.246	5.844	5.432	5.010	4.578	4.136	3.684	3.222	2.750	2.268	1.776	1.274	0.762	0.240	-0.282	-0.794	-1.296	-1.788	-2.270	-2.742	-3.194	-3.636	-4.068	-4.490	-4.902	-5.304	-5.696	-6.078	-6.450	-6.812	-7.164	-7.506	-7.838	-8.160	-8.472	-8.774	-9.066	-9.348	-9.620	-9.882	-10.134	-10.376	-10.608	-10.830	-11.042	-11.244	-11.436	-11.618	-11.790	-11.952	-12.104	-12.246	-12.378	-12.500	-12.612	-12.714	-12.806	-12.888	-12.960	-13.022	-13.074	-13.116	-13.148	-13.170	-13.182	-13.184	-13.176	-13.158	-13.130	-13.092	-13.044	-12.986	-12.918	-12.840	-12.752	-12.654	-12.546	-12.428	-12.300	-12.162	-12.014	-11.856	-11.688	-11.510	-11.322	-11.124	-10.916	-10.698	-10.470	-10.232	-9.984	-9.726	-9.458	-9.180	-8.892	-8.594	-8.286	-7.968	-7.640	-7.302	-6.954	-6.596	-6.228	-5.850	-5.462	-5.064	-4.656	-4.238	-3.810	-3.372	-2.924	-2.466	-2.008	-1.540	-1.062	-0.574	-0.076	0.422	0.914	1.396	1.868	2.330	2.782	3.224	3.656	4.078	4.490	4.892	5.284	5.666	6.038	6.400	6.752	7.094	7.426	7.748	8.060	8.362	8.654	8.936	9.208	9.470	9.722	9.964	10.196	10.418	10.630	10.832	11.024	11.206	11.378	11.540	11.692	11.834	11.966	12.088	12.200	12.302	12.394	12.476	12.548	12.610	12.662	12.704	12.736	12.758	12.770	12.772	12.764	12.746	12.718	12.680	12.632	12.574	12.506	12.428	12.340	12.242	12.134	12.016	11.888	11.750	11.602	11.444	11.276	11.108	10.930	10.742	10.544	10.336	10.118	9.890	9.652	9.404	9.146	8.878	8.600	8.312	8.014	7.706	7.388	7.060	6.722	6.374	6.016	5.648	5.270	4.882	4.484	4.076	3.658	3.230	2.792	2.344	1.886	1.418	0.940	0.452	-0.046	-0.534	-1.016	-1.492	-1.954	-2.402	-2.836	-3.256	-3.662	-4.054	-4.432	-4.796	-5.146	-5.482	-5.804	-6.112	-6.406	-6.686	-6.952	-7.204	-7.442	-7.666	-7.876	-8.072	-8.254	-8.422	-8.576	-8.716	-8.842	-8.954	-9.052	-9.136	-9.206	-9.262	-9.304	-9.332	-9.346	-9.346	-9.332	-9.304	-9.262	-9.206	-9.136	-9.052	-8.954	-8.842	-8.716	-8.576	-8.422	-8.254	-8.072	-7.876	-7.666	-7.442	-7.204	-6.952	-6.686	-6.406	-6.112	-5.804	-5.482	-5.146	-4.796	-4.432	-4.054	-3.656	-3.236	-2.794	-2.332	-1.850	-1.348	-0.826	-0.284	0.168	0.602	1.016	1.410	1.784	2.138	2.472	2.786	3.080	3.354	3.608	3.842	4.056	4.250	4.424	4.578	4.712	4.826	4.920	4.994	5.048	5.082	5.096	5.090	5.064	5.018	4.962	4.896	4.820	4.734	4.638	4.532	4.416	4.290	4.154	4.008	3.852	3.686	3.510	3.324	3.128	2.922	2.706	2.480	2.244	2.008	1.772	1.526	1.270	1.014	0.748	0.472	0.186	-0.110	-0.396	-0.674	-0.942	-1.190	-1.418	-1.626	-1.814	-1.982	-2.130	-2.258	-2.366	-2.454	-2.522	-2.570	-2.598	-2.606	-2.594	-2.562	-2.510	-2.438	-2.346	-2.234	-2.102	-1.950	-1.778	-1.586	-1.374	-1.142	-0.890	-0.618	-0.326	-0.024	0.288	0.586	0.870	1.140	1.386	1.608	1.806	1.980	2.130	2.256	2.358	2.436	2.490	2.522	2.534	2.526	2.498	2.450	2.382	2.294	2.186	2.058	1.910	1.742	1.554	1.346	1.118	0.870	0.602	0.314	0.006	-0.302	-0.594	-0.872	-1.136	-1.376	-1.592	-1.784	-1.952	-2.096	-2.216	-2.312	-2.384	-2.432	-2.456	-2.456	-2.432	-2.384	-2.312	-2.216	-2.096	-1.952	-1.784	-1.592	-1.376	-1.136	-0.872	-0.594	-0.302	-0.006	0.294	0.576	0.840	1.086	1.314	1.524	1.716	1.890	2.046	2.184	2.304	2.406	2.490	2.556	2.604	2.634	2.646	2.638	2.610	2.562	2.494	2.406	2.298	2.170	2.022	1.854	1.666	1.458	1.230	0.982	0.714	0.426	0.118	-0.180	-0.462	-0.726	-0.972	-1.190	-1.378	-1.536	-1.674	-1.792	-1.890	-1.968	-2.026	-2.064	-2.082	-2.080	-2.058	-2.010	-1.942	-1.854	-1.746	-1.618	-1.470	-1.302	-1.114	-0.906	-0.678	-0.430	-0.162	0.126	0.402	0.654	0.882	1.086	1.266	1.422	1.554	1.662	1.746	1.806	1.842	1.854	1.846	1.818	1.770	1.702	1.614	1.506	1.378	1.230	1.062	0.874	0.666	0.438	0.190	-0.078	-0.326	-0.554	-0.762	-0.940	-1.088	-1.206	-1.294	-1.362	-1.410	-1.438	-1.446	-1.434	-1.402	-1.354	-1.286	-1.198	-1.090	-0.962	-0.814	-0.646	-0.458	-0.260	-0.042	0.186	0.438	0.714	1.014	1.336	1.680	2.046	2.434	2.842	3.270	3.718	4.186	4.674	5.182	5.710	6.258	6.826	7.414	8.022	8.650	9.298	9.966	10.654	11.362	12.090	12.838	13.606	14.394	15.202	16.030	16.878	17.746	18.634	19.542	20.470	21.418	22.386	23.374	24.382	25.410	26.458	27.526	28.614	29.722	30.850	32.000
HORIZONTAL CURVATURE	R = 4500																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
VERTICAL CURVATURE	q = -1.990%, L = 120, Mo = +0.382												q = 0.555%, L = 160, Mo = -0.211												q = -0.500%, L = 200, Mo = +0.625												q = 2.000%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
SUPERELEVATION	NC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) <b>PLARIDEL BYPASS - CONTRACT PACKAGE II</b>	SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	SHEET CONTENTS : <b>PLAN AND PROFILE</b> ALONG BYPASS (ULTIMATE STAGE) STA. 45+900 - STA. 46+600	SHEET NO. : <b>RP-10</b>
	CHECKED	DATE	SIGNATURE		Submitted By:	Reviewed By:	Recommended By:	Approved By:				
	SUBMITTED	DATE	SIGNATURE		DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES D/C, Director IV	MANUEL M. BONDAN Undersecretary				



### REFERENCE POINTS

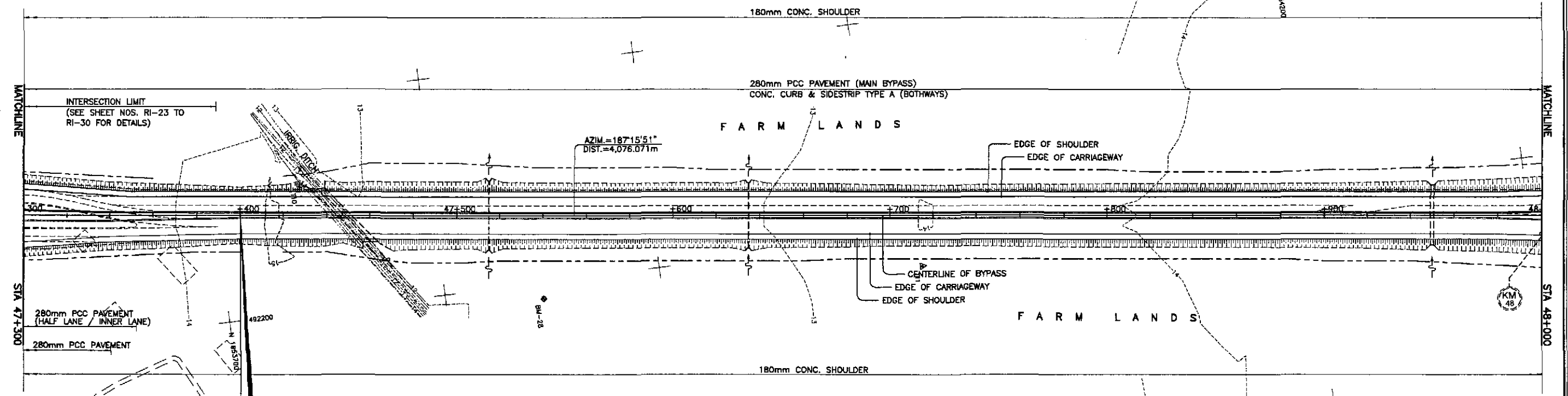
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-26	1,652,951.730	491,935.284	17.018	It is located on the side of the dirt road near a coconut tree on the left side of the alignment in Bay, Malajon, Bustos.
BM-27	1,653,336.791	492,180.066	16.372	It is located on the side of the road opposite the corner of a wall near an electric post on the left side of the alignment in Bustos.
BM-28	1,653,845.433	492,207.423	12.908	It is located on a rice paddy area on the right side of the alignment in Bay, Bonga Mayor, Bustos.



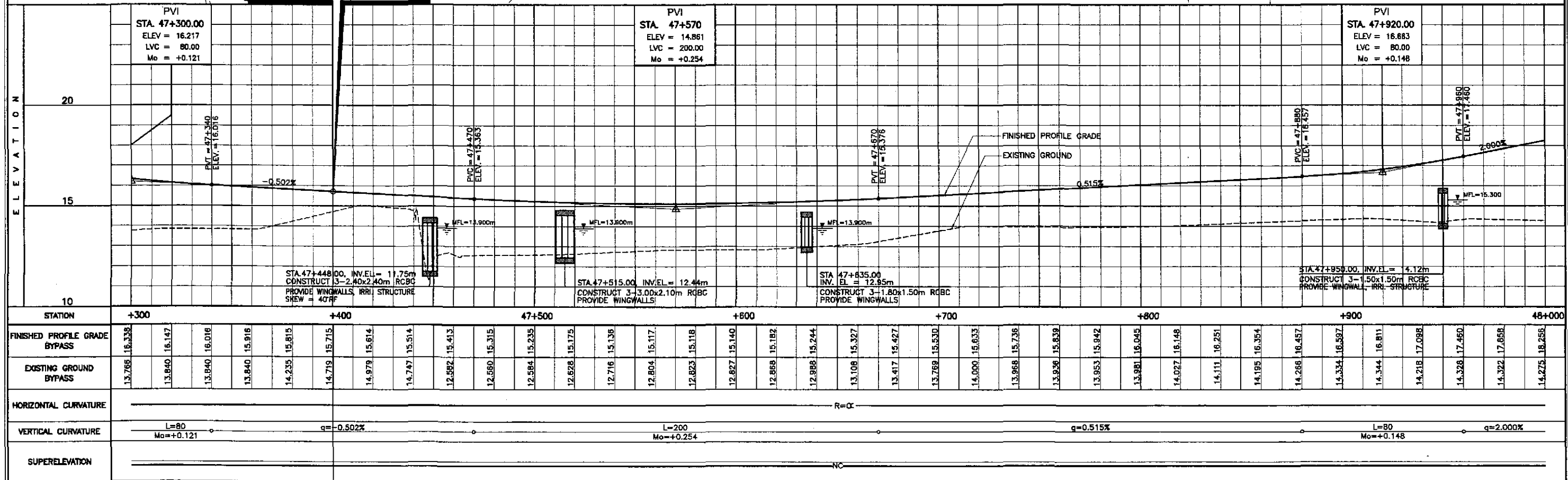
STATION	+600	+700	+800	+900	47+000	+100	+200	+300
FINISHED PROFILE GRADE BYPASS	18.189	19.383	16.191	19.783	16.190	20.154	16.292	20.446
EXISTING GROUND BYPASS	16.328	20.658	16.297	20.790	15.851	20.842	15.289	20.813
HORIZONTAL CURVATURE	R = 4500							
VERTICAL CURVATURE	q = -2.000%, L=200, Mo = -1.000		q = -2.000%, L=120, Mo = +0.389		q = 0.594%		q = -1.708%, L=80, Mo = +0.121	
SUPERELEVATION	NC							

	DESIGNED: <i>9/21/02</i> CHECKED: <i>9/25/02</i> SUBMITTED: <i>7/27/02</i>	DATE: <i>9/21/02</i> SIGNATURE: <i>[Signature]</i> NAME: <i>ADACIO</i> POSITION: <i>GOSE</i> NAME: <i>[Signature]</i> POSITION: <i>TEAM LEADER</i>		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION : <b>THE DETAILED DESIGN STUDY ON          UPGRADING INTER-URBAN HIGHWAY SYSTEM          ALONG THE PAN-PHILIPPINE HIGHWAY          (Plaridel, Cabanatuan and San Jose Bypasses)</b> <b>PLARIDEL BYPASS - CONTRACT PACKAGE II</b>	SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	SHEET CONTENTS : <b>PLAN AND PROFILE          ALONG BYPASS (ULTIMATE STAGE)          STA. 46+600 - STA. 47+300</b>	SHEET NO. : <b>RP-11</b>
	BUREAU OF DESIGN Submitted By: <i>DANILO C. TRAJANO</i> (Project Director) Reviewed By: <i>JOSEFINA M. ALAGAR</i> (Chief, Highways Division) Recommended By: <i>GILBERTO S. REYES</i> (Dir., Director IV) Recommended By: <i>MANUEL M. BONQAN</i> (Undersecretary) Approved By: <i>SIMEON A. DATUMANONG</i> (Secretary)							

REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-27	1,353,336.791	492,180.066	16.372	It is located on the side of the road opposite the corner of a wall near an electric post on the left side of the alignment in Buzos.
BM-28	1,653,845.433	492,207.423	12.908	It is located on a rice paddy field on the right side of the alignment in Bgy. Bonga Mayor, Buzos.
BM-31	1,655,556.301	492,461.715	17.903	It is located on the side of the provincial road under an acacia tree on the left side of the alignment in Bgy. Tarapobaga.



**PLARIDEL BYPASS  
END OF  
CONTRACT PACKAGE II  
BEG. OF CONTRACT PACKAGE III**  
 STA. 47+400.00  
 ELEV. = 15.715  
 N = 1,653,710.915  
 E = 492,151.596



STATION	+300	+400	47+500	+600	+700	+800	+900	48+000																													
FINISHED PROFILE GRADE BYPASS	13.766	16.338	16.147	16.016	15.916	15.815	15.715	15.614	15.514	15.413	15.315	15.235	15.175	15.135	15.117	15.118	15.140	15.182	15.244	15.327	15.427	15.530	15.633	15.736	15.839	15.942	16.045	16.148	16.251	16.354	16.457	16.557	16.658	16.758	16.858		
EXISTING GROUND BYPASS	13.766	13.840	13.840	13.840	14.235	14.719	14.979	14.747	12.582	12.560	12.584	12.628	12.716	12.804	12.823	12.827	12.868	12.968	13.108	13.417	13.789	14.000	13.968	13.936	13.953	13.981	14.027	14.111	14.195	14.268	14.334	14.344	14.218	14.328	14.322	14.275	14.255
HORIZONTAL CURVATURE	R=∞																																				
VERTICAL CURVATURE	L=80, Mo=+0.121		q=-0.502%										L=200, Mo=+0.254										q=0.515%						L=80, Mo=+0.148		q=2.000%						
SUPERELEVATION	NC																																				

**JICA**  
 JAPAN INTERNATIONAL COOPERATION AGENCY

**KATAHIRA & ENGINEERS**  
 INTERNATIONAL

**YEC**  
 YACHIYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES  
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

DESIGNED: 9/21/02  
 CHECKED: 7/25/02  
 SUBMITTED: 9/27/02

DATE: 9/27/02  
 SIGNATURE: [Signature]

PUBL - PMO  
 Submitted By: [Signature]  
 Project Director: **DANILO C. TRAJANO**

BUREAU OF DESIGN  
 Reviewed By: [Signature]  
 Chief, Highways Division: **JOSEFINA M. ALAGAR**

OFFICE OF THE SECRETARY  
 Recommended By: [Signature]  
 Director IV: **GILBERTO S. REYES**

Recommended By: [Signature]  
 Undersecretary: **MANUEL M. BONGAN**

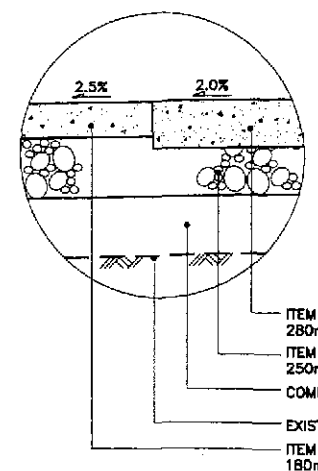
Approved By: [Signature]  
 Secretary: **SIMEDN A. DATUMANONG**

PROJECT AND LOCATION :  
 THE DETAILED DESIGN STUDY ON  
 UPGRADING INTER-URBAN HIGHWAY SYSTEM  
 ALONG THE PAN-PHILIPPINE HIGHWAY  
 (Plaridel, Cabanatuan and San Jose Bypasses)  
 PLARIDEL BYPASS - CONTRACT PACKAGE II

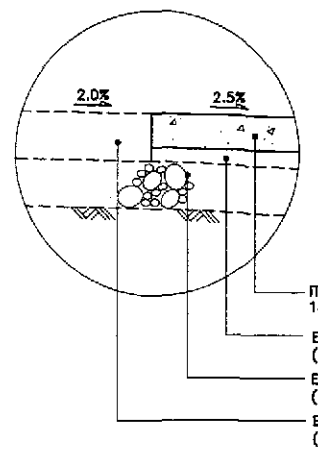
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 HORIZONTAL 1:1000  
 VERTICAL 1:100  
 FULL SIZE A1

SHEET CONTENTS :  
 PLAN AND PROFILE  
 ALONG BYPASS (ULTIMATE STAGE)  
 STA. 47+300 - STA. 47+400

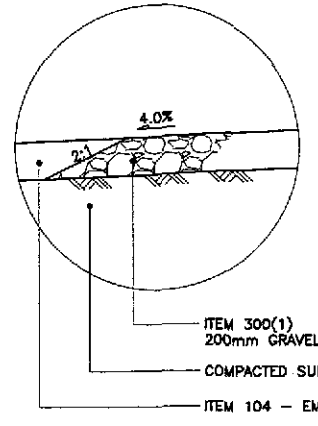
SHEET NO. :  
**RP-12**



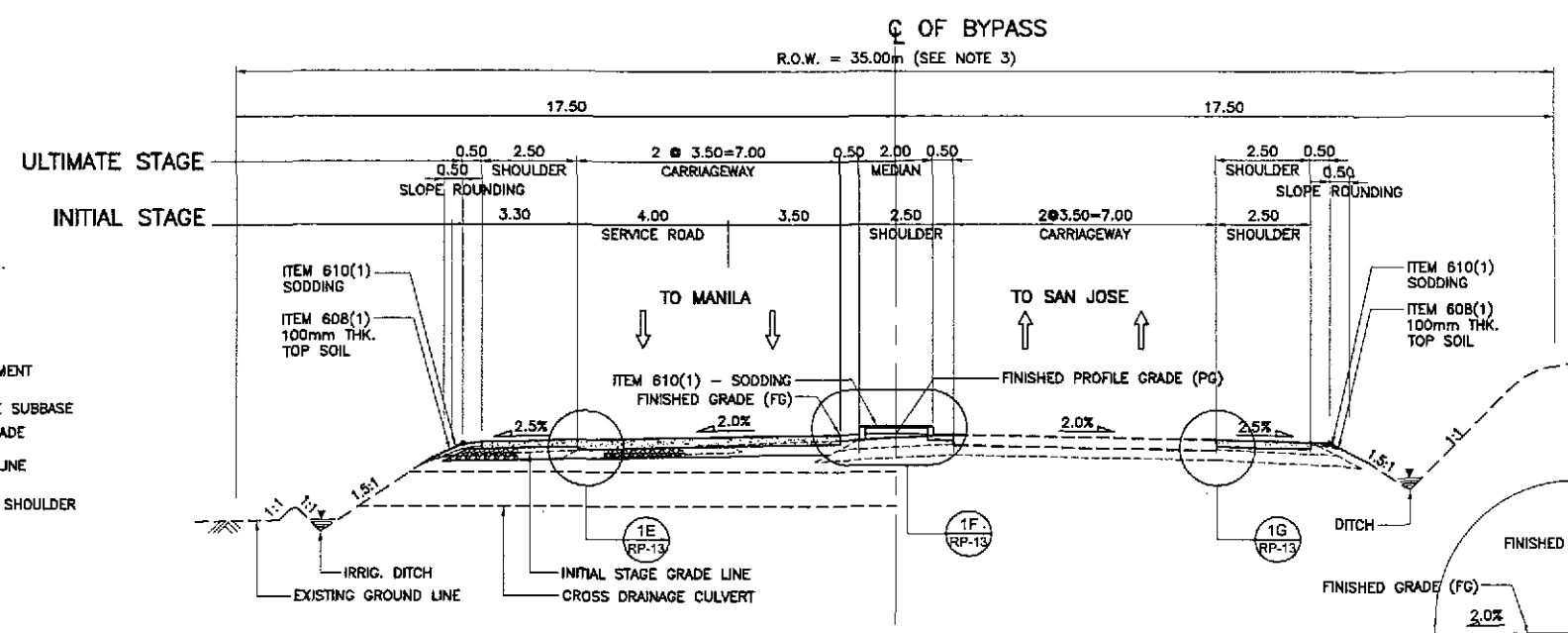
1E DETAIL  
RP-13 SCALE 1:20



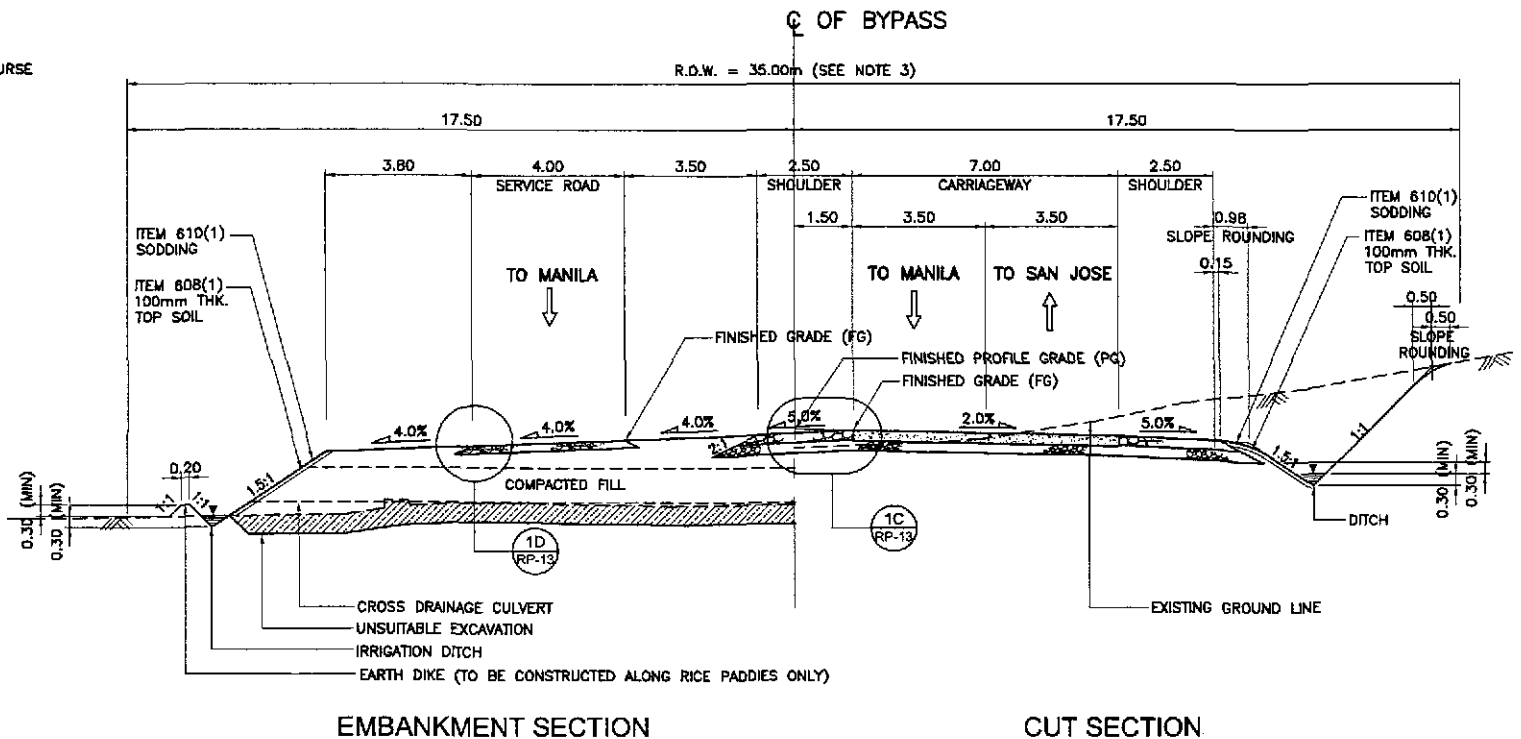
1G DETAIL  
RP-13 SCALE 1:20



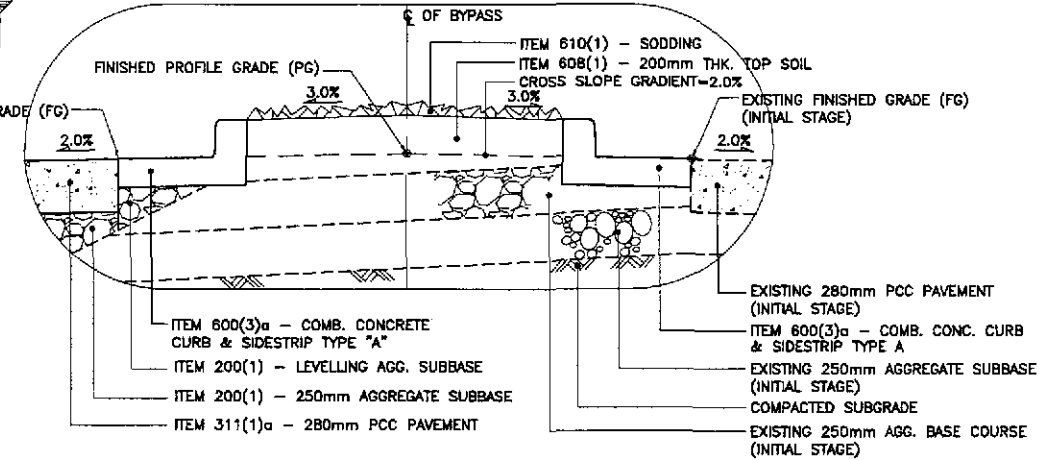
1D DETAIL  
RP-13 SCALE 1:20



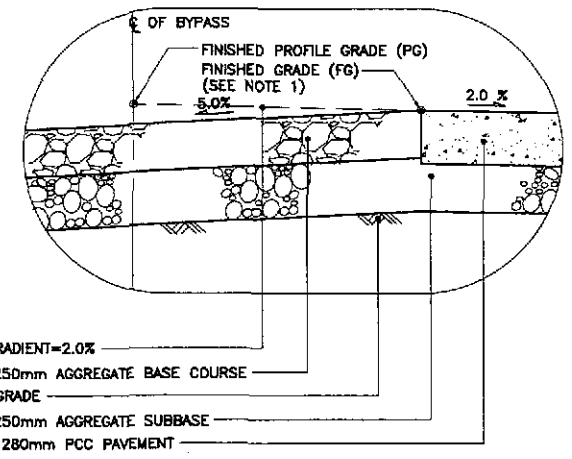
1B NORMAL SECTION - ULTIMATE STAGE  
RP-13 SCALE 1:100



1A NORMAL SECTION - INITIAL STAGE  
RP-13 SCALE 1:100



1F DETAIL  
RP-13 SCALE 1:20

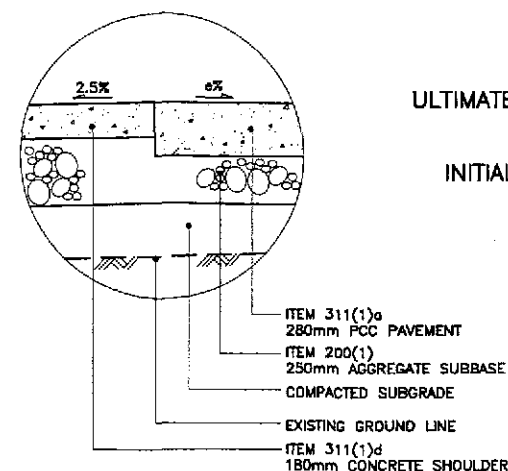


1C DETAIL  
RP-13 SCALE 1:20

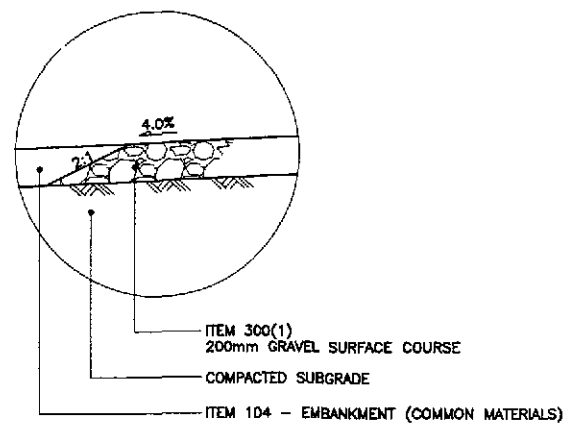
1 TYPICAL ROADWAY SECTIONS - WITHOUT FRONTAGE ROAD  
RP-13 SCALE 1:100

- NOTES:
1. FINISHED PROFILE GRADE (PG) ALONG BYPASS IS TAKEN FROM THE CENTERLINE WHEREAS FINISHED GRADE (FG) IS RECKONED FROM THE PROFILE GRADE RELATIVE TO THE PAVEMENT CROSS SLOPE.
  2. FOR SCHEDULE OF QUANTITIES, SEE SHEET NOS. RG-04 TO RG-07.
  3. ROAD RIGHT-OF-WAY (R.O.W.) WIDTH SHALL BE VARIED DUE TO HORIZONTAL TRANSITION OF SERVICE ROAD, MEDIAN, DIVISIONAL ISLANDS, OUTER SEPARATIONS AND DUE TO HEIGHT OF EMBANKMENT. SEE SCHEDULE OF R.O.W. SHTS. NOS. RB-06 TO RG-07.
  4. SIDESLOPES OF 1:5:1 OR FLATTER SHALL BE PROTECTED BY SODDING. SIDESLOPES ALONG AREAS PRONE TO FLOODING SHALL BE PROTECTED BY GROUNTED RIPRAP AT 300mm MINIMUM THICKNESS. SIDESLOPES ALONG BUILT-UP AREAS SHALL BE PROTECTED BY STONE MASONRY AND/OR RETAINING WALLS OR AS DIRECTED BY THE ENGINEER.
  5. SEE SHEET NO. RG-04 FOR UNSUITABLE EXCAVATION SCHEDULE.

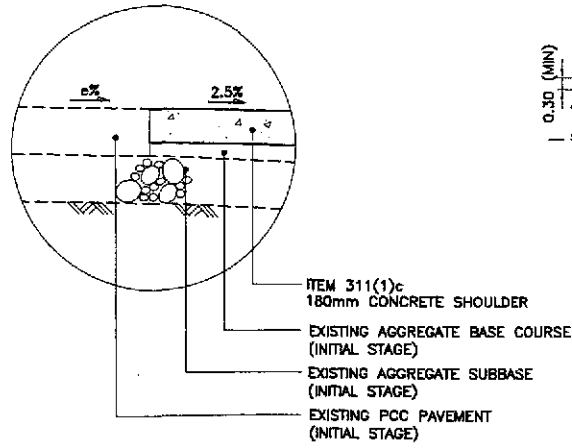
				REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : TYPICAL ROADWAY SECTIONS NORMAL SECTIONS WITHOUT FRONTAGE ROAD (INITIAL AND ULTIMATE STAGE) (1 of 2)	SHEET NO. : RP-13
DESIGNED	DATE	SIGNATURE	P.M.L. - P.M.D.	Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:		
CHECKED	9/15/02	[Signature]	DANILO C. TRAJANO	Project Director	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONGAN	SIMEON A. DATUMANONG		
SUBMITTED	9/27/02	[Signature]								



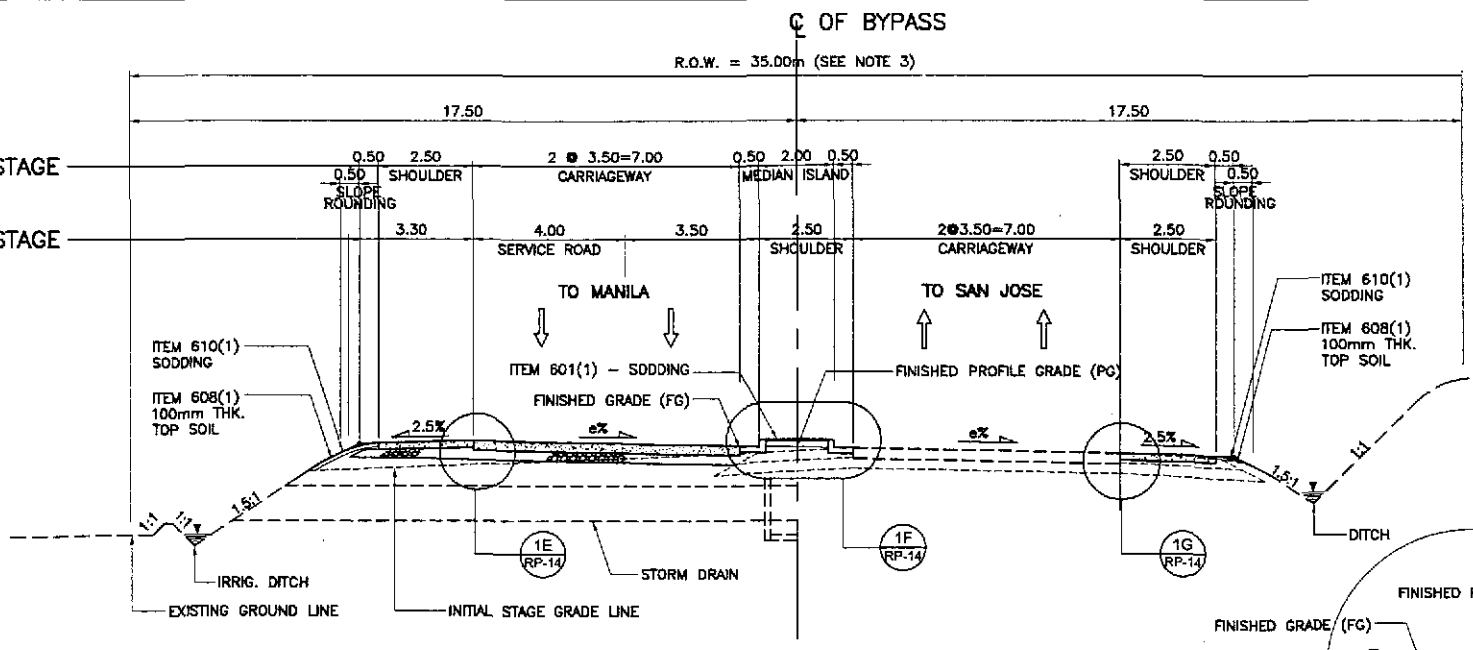
1E DETAIL  
RP-14 SCALE 1:20



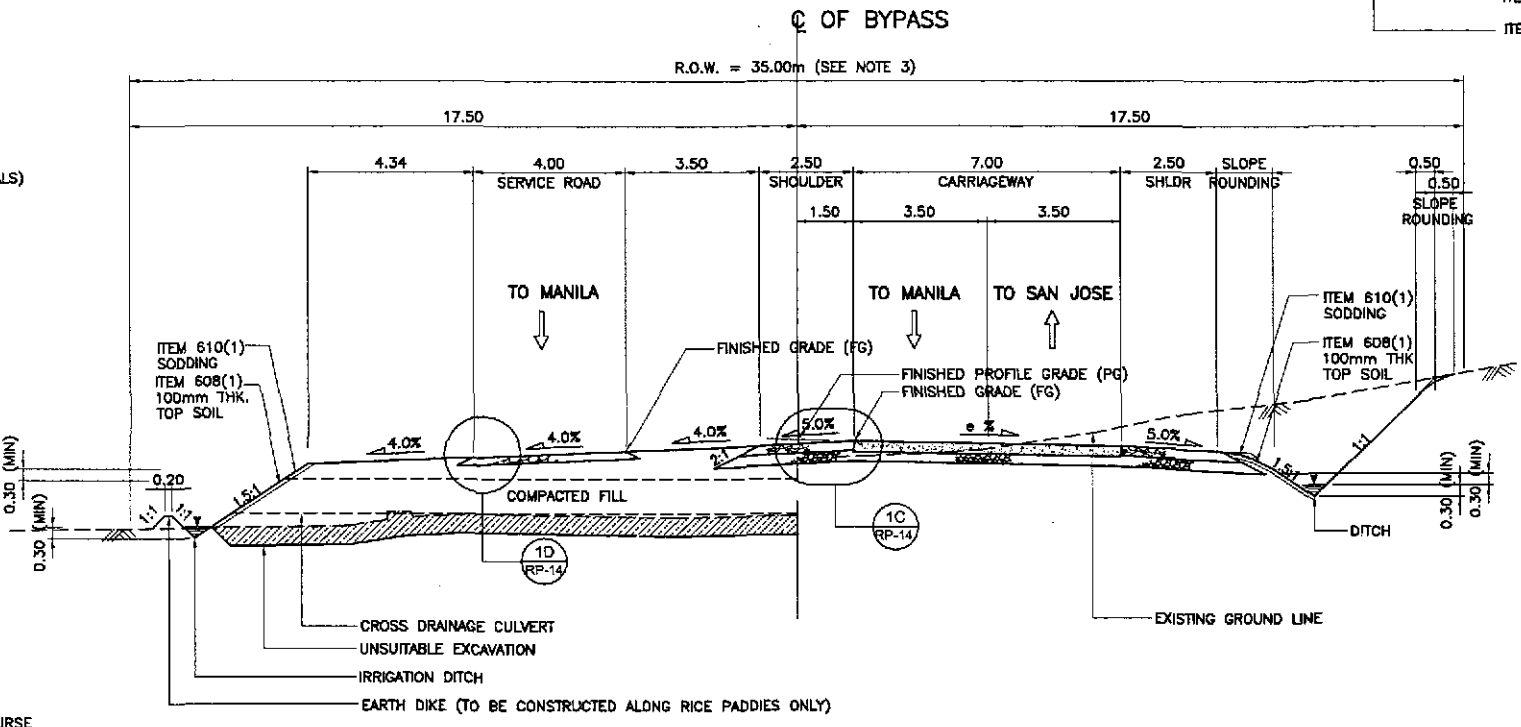
1D DETAIL  
RP-14 SCALE 1:20



1G DETAIL  
RP-14 SCALE 1:20



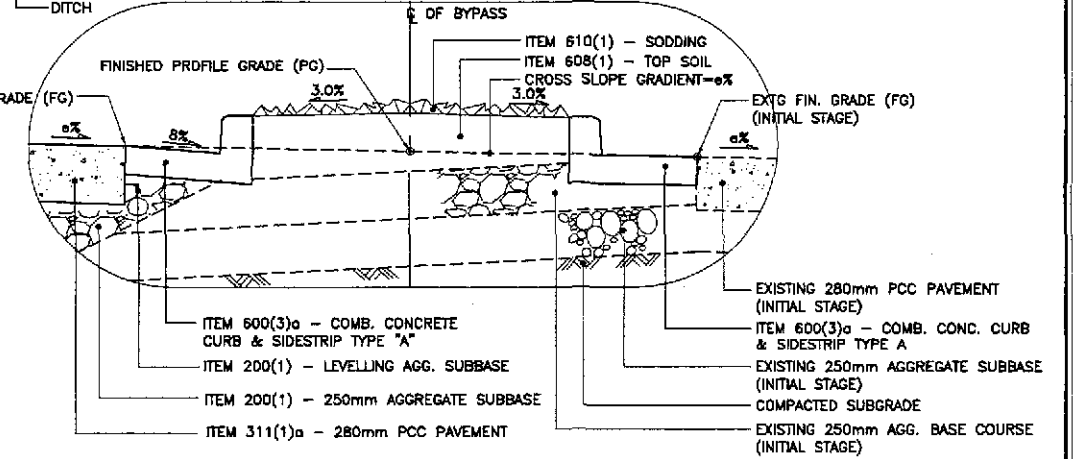
1B SUPERELEVATED SECTION - ULTIMATE STAGE  
RP-14 SCALE 1:100



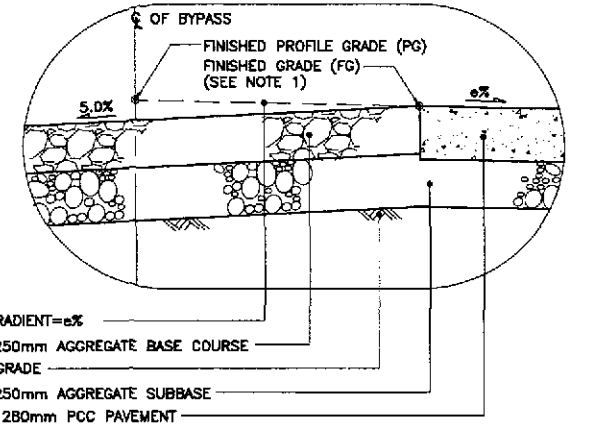
1A SUPERELEVATED SECTION - INITIAL STAGE  
RP-14 SCALE 1:100

1 TYPICAL ROADWAY SECTIONS - WITHOUT FRONTAGE ROAD  
RP-14 SCALE

PAVEMENT DESIGN PARAMETERS	
	BEFORE ANGAT BRIDGE
1. TRAFFIC ( FOR 25 YEARS DESIGN LIFE ) DESIGN ESAL	4.40 x 10 <sup>6</sup>
2. DESIGN CBR SUBGRADE CBR	5.00 %
3. ROADBED RESILIENT MODULUS M <sub>R</sub> E <sub>SB</sub>	5,500 psi = 37.92 MPa 13,000 psi = 89.64 MPa 23,000 psi = 158.58 MPa
4. PERFORMANCE CRITERIA Δ PSI	2
5. DESIGN RELIABILITY Z <sub>R</sub> S <sub>o</sub>	50 % 0.35
6. DRAINAGE COEFFICIENT RIGID	1
7. LAYER COEFFICIENT a <sub>1</sub> ( FOR AC ) a <sub>2</sub> ( FOR BASE ) a <sub>3</sub> ( FOR SUBBASE )	0.39 0.105 0.095
8. PAVEMENT CONSTRUCTION THICKNESS PCCP SUBBASE	280mm THK 250mm THK



1F DETAIL  
RP-14 SCALE 1:20



1C DETAIL  
RP-14 SCALE 1:20

- NOTES:
- FINISHED PROFILE GRADE (PG) ALONG BYPASS IS TAKEN FROM THE CENTERLINE WHEREAS FINISHED GRADE (FG) IS RECKONED FROM THE PROFILE GRADE RELATIVE TO THE PAVEMENT CROSS SLOPE.
  - FOR SCHEDULE OF QUANTITIES, SEE SHEET NOS. RG-04 TO RG-07.
  - ROAD RIGHT-OF-WAY (R.O.W.) WIDTH SHALL BE VARIED DUE TO HORIZONTAL TRANSITION OF SERVICE ROAD, MEDIAN/DIVISIONAL ISLANDS, OUTER SEPARATIONS AND DUE TO HEIGHT OF EMBANKMENT. SEE SCHEDULE OF R.O.W. SHTS. NOS. RG-06 TO RG-07.
  - SIDESLOPES OF 1:5:1 OR FLATTER SHALL BE PROTECTED BY SODDING. SIDESLOPES ALONG AREAS PRONE TO FLOODING SHALL BE PROTECTED BY GROUTED RIPRAP AT 300mm MINIMUM THICKNESS. SIDESLOPES ALONG BUILT-UP AREAS SHALL BE PROTECTED BY STONE MASONRY AND/OR RETAINING WALLS OR AS DIRECTED BY THE ENGINEER.
  - SEE SHEET NO. RG-04 FOR UNSUITABLE EXCAVATION SCHEDULE.

**JICA**  
JAPAN INTERNATIONAL COOPERATION AGENCY

**KATAHIRA & ENGINEERS**  
INTERNATIONAL

**yec** YACHIYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN  
OFFICE OF THE SECRETARY

Submitted By: **DANILO C. TRAJANO** Project Director  
Reviewed By: **JOSEFINA M. ALAGAR** Chief, Highways Division  
Recommended By: **CILBERTO S. REYES** OIC, Director IV  
Recommended By: **MANUEL M. BONGUAN** Undersecretary  
Approved By: **SIMEDN A. DATUMANDONG** Secretary

PROJECT AND LOCATION :  
THE DETAILED DESIGN STUDY ON  
UPGRADING INTER-URBAN HIGHWAY SYSTEM  
ALONG THE PAN-PHILIPPINE HIGHWAY  
(Plaridel, Cabanatuan and San Jose Bypasses)

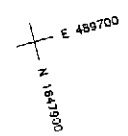
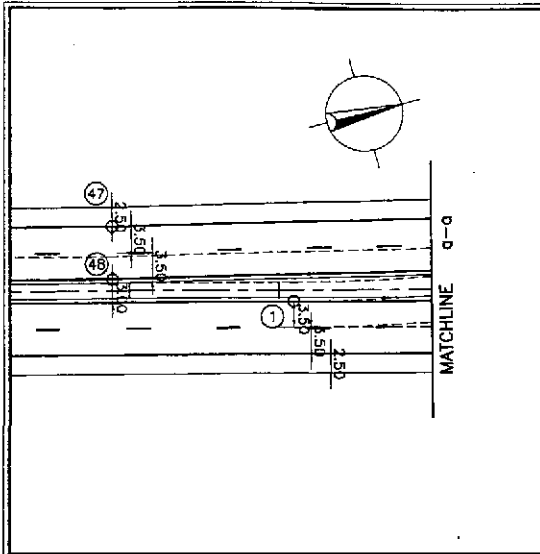
PLARIDEL BYPASS - CONTRACT PACKAGE II

SCALE :  
AS SHOWN  
FULL SIZE A1

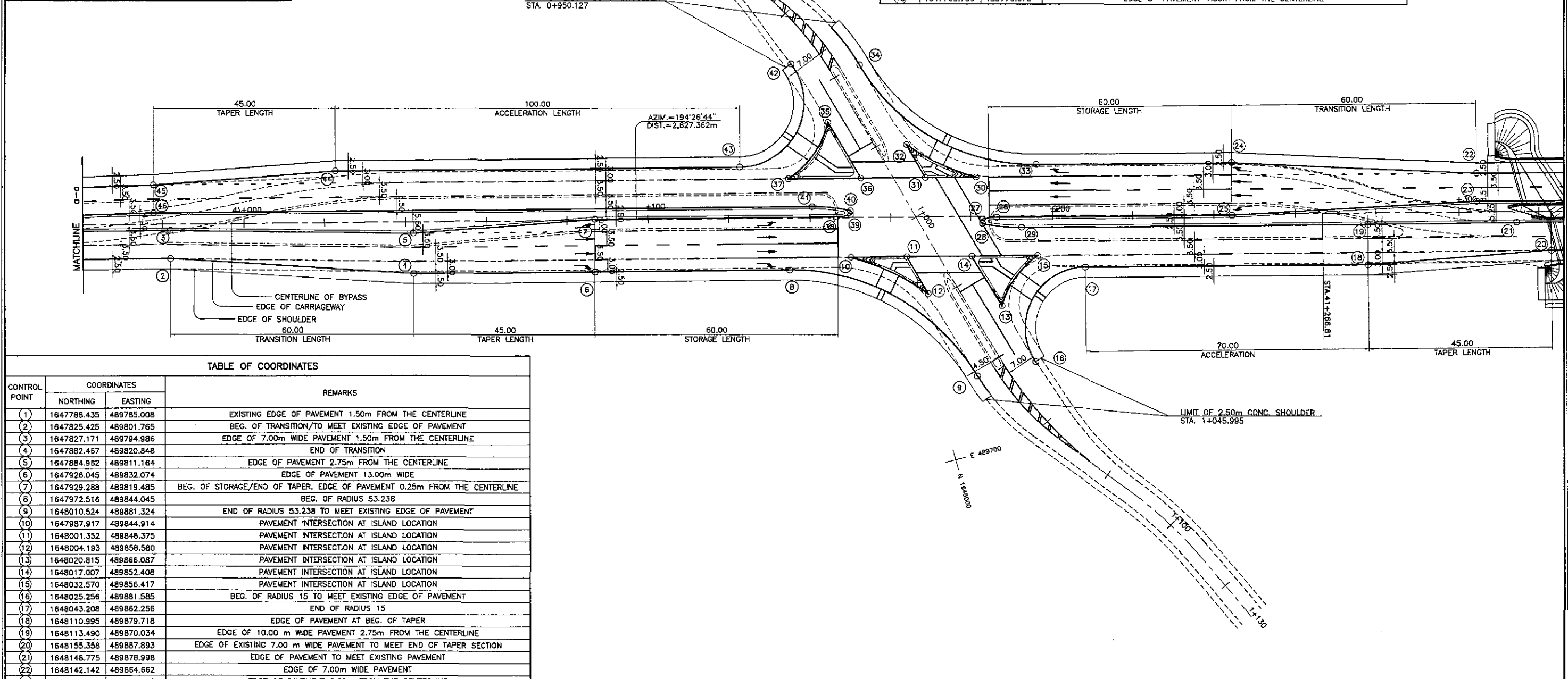
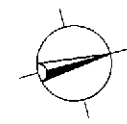
SHEET CONTENTS :  
TYPICAL ROADWAY SECTIONS  
SUPERELEVATED SECTIONS  
WITHOUT FRONTAGE ROAD  
(INITIAL AND ULTIMATE STAGE)  
(2 of 2)

SHEET NO. :  
RP-14





CONTROL POINT	COORDINATES		REMARKS
	NORTHING	EASTING	
29	1648030.495	489848.654	END OF MEDIAN RADIUS 42
30	1648023.015	489833.819	PAVEMENT INTERSECTION AT ISLAND LOCATION
31	1648010.969	489830.716	PAVEMENT INTERSECTION AT ISLAND LOCATION
32	1648008.444	489821.642	PAVEMENT INTERSECTION AT ISLAND LOCATION
33	1648037.995	489834.580	BEG. OF RADIUS 50
34	1648002.300	489799.570	END OF RADIUS 50
35	1647991.031	489811.294	PAVEMENT INTERSECTION AT ISLAND LOCATION
36	1647995.315	489826.683	PAVEMENT INTERSECTION AT ISLAND LOCATION
37	1647978.044	489822.235	PAVEMENT INTERSECTION AT ISLAND LOCATION
38	1647987.074	489834.371	BEG. OF MEDIAN RADIUS 13
39	1647990.484	489834.781	INTERSECTION OF MEDIAN RADIUS 13 & 0.50
40	1647990.708	489833.837	INTERSECTION OF MEDIAN RADIUS 0.50 & 42
41	1647981.827	489830.438	END OF MEDIAN RADIUS 42
42	1647985.982	489794.919	BEG. OF RADIUS 16 TO MEET EXISTING EDGE OF PAVEMENT
43	1647967.122	489816.323	END OF RADIUS 16
44	1647870.283	489791.377	BEG. OF TAPER, PAVEMENT 10.00m WIDE
45	1647825.958	489783.056	END OF TAPER, PAVEMENT 7.00m WIDE
46	1647824.211	489789.835	EDGE OF PAVEMENT 2.75m FROM THE CENTERLINE
47	1647767.543	489769.299	END OF TRANSITION, PAVEMENT 7.00m WIDE
48	1647765.796	489776.078	EDGE OF PAVEMENT 1.50m FROM THE CENTERLINE

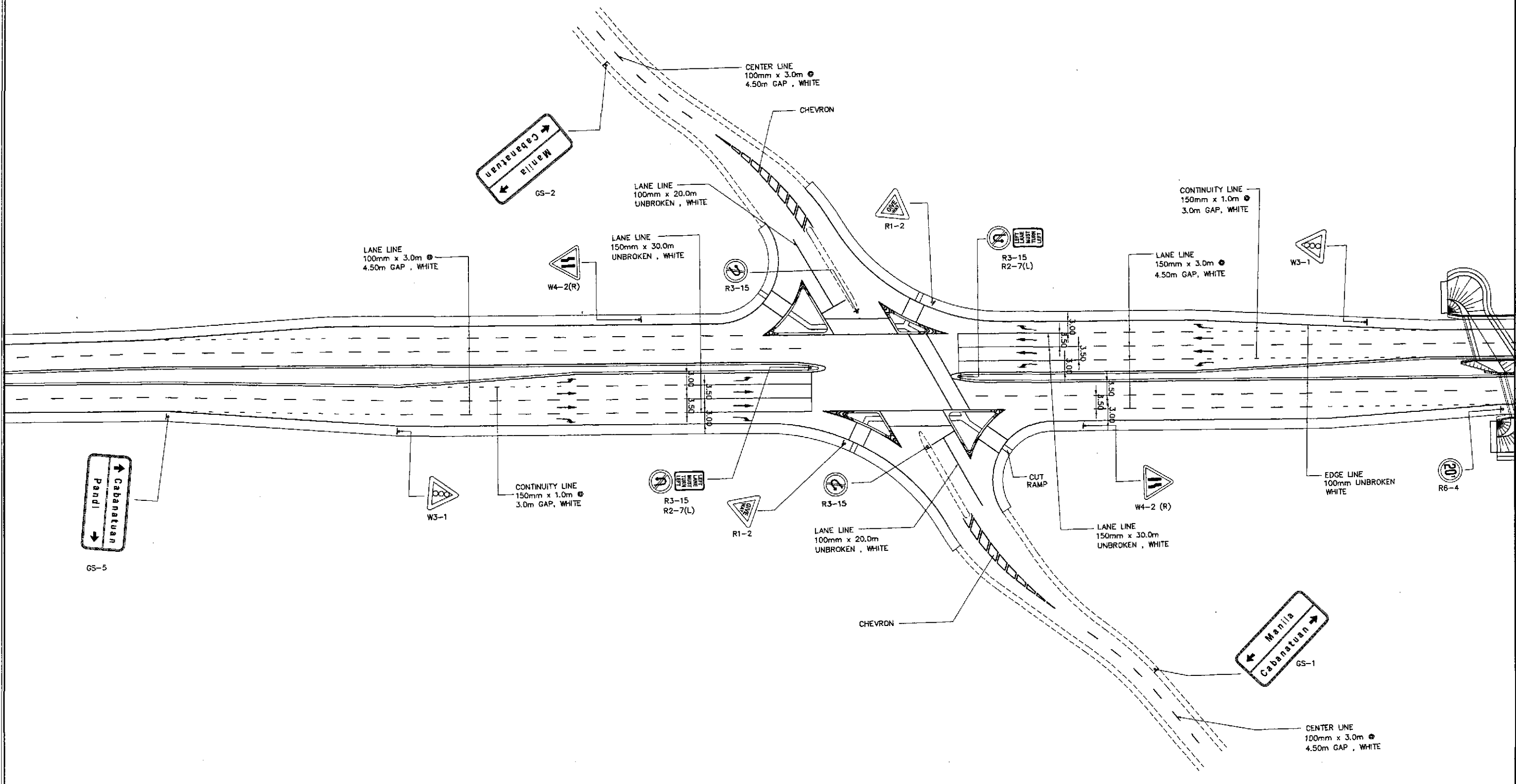
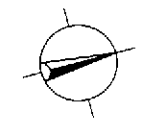


CONTROL POINT	COORDINATES		REMARKS
	NORTHING	EASTING	
1	1647788.435	489785.008	EXISTING EDGE OF PAVEMENT 1.50m FROM THE CENTERLINE
2	1647825.425	489801.765	BEG. OF TRANSITION/TO MEET EXISTING EDGE OF PAVEMENT
3	1647827.171	489794.986	EDGE OF 7.00m WIDE PAVEMENT 1.50m FROM THE CENTERLINE
4	1647882.457	489820.848	END OF TRANSITION
5	1647884.962	489811.164	EDGE OF PAVEMENT 2.75m FROM THE CENTERLINE
6	1647926.045	489832.074	EDGE OF PAVEMENT 13.00m WIDE
7	1647929.288	489819.485	BEG. OF STORAGE/END OF TAPER, EDGE OF PAVEMENT 0.25m FROM THE CENTERLINE
8	1647972.516	489844.045	BEG. OF RADIUS 53.238
9	1648010.524	489881.324	END OF RADIUS 53.238 TO MEET EXISTING EDGE OF PAVEMENT
10	1647987.917	489844.914	PAVEMENT INTERSECTION AT ISLAND LOCATION
11	1648001.352	489848.375	PAVEMENT INTERSECTION AT ISLAND LOCATION
12	1648004.193	489858.580	PAVEMENT INTERSECTION AT ISLAND LOCATION
13	1648020.815	489866.087	PAVEMENT INTERSECTION AT ISLAND LOCATION
14	1648017.007	489852.408	PAVEMENT INTERSECTION AT ISLAND LOCATION
15	1648032.570	489856.417	PAVEMENT INTERSECTION AT ISLAND LOCATION
16	1648025.256	489881.585	BEG. OF RADIUS 15 TO MEET EXISTING EDGE OF PAVEMENT
17	1648043.208	489862.256	END OF RADIUS 15
18	1648110.995	489879.718	EDGE OF PAVEMENT AT BEG. OF TAPER
19	1648113.490	489870.034	EDGE OF 10.00 m WIDE PAVEMENT 2.75m FROM THE CENTERLINE
20	1648155.358	489887.893	EDGE OF EXISTING 7.00 m WIDE PAVEMENT TO MEET END OF TAPER SECTION
21	1648148.775	489878.998	EDGE OF PAVEMENT TO MEET EXISTING PAVEMENT
22	1648142.142	489884.862	EDGE OF 7.00m WIDE PAVEMENT
23	1648140.395	489871.440	EDGE OF PAVEMENT 2.60m FROM THE CENTERLINE
24	1648084.824	489846.644	END OF TAPER, PAVEMENT 13.00m WIDE
25	1648081.581	489839.233	BEG. OF STORAGE/EDGE OF PAVEMENT 0.25m FROM THE CENTERLINE
26	1648025.247	489844.721	BEG. OF MEDIAN RADIUS 13
27	1648021.837	489844.311	INTERSECTION OF MEDIAN RADIUS 13 & 0.50
28	1648021.613	489845.255	INTERSECTION OF MEDIAN RADIUS 0.50 & 42

**GEOMETRIC DESIGN LAYOUT**  
**INTERSECTION A-9 (STA. 41+166.422) - ULTIMATE STAGE**  
 SCALE 1:500

	DESIGNED	DATE	SIGNATURE		PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	7/15/02	A. ORONCE		BUREAU OF DESIGN OFFICE OF THE SECRETARY	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses)	1:500	INTERSECTION DETAIL GEOMETRIC DESIGN LAYOUT INTERSECTION A-9 (ULTIMATE STAGE)	RI-01
	SUBMITTED	7/27/02	M. M. RIVERA		DANILLO C. TRAJANO Project Director JOSEFINA M. ALAGAR Chief, Highways Division GILBERTO S. REYES OIC, Director IV MANUEL M. BONOAN Undersecretary SIMEON A. DATUMANONG Secretary	PLARIDEL BYPASS - CONTRACT PACKAGE II	FULL SIZE A1		





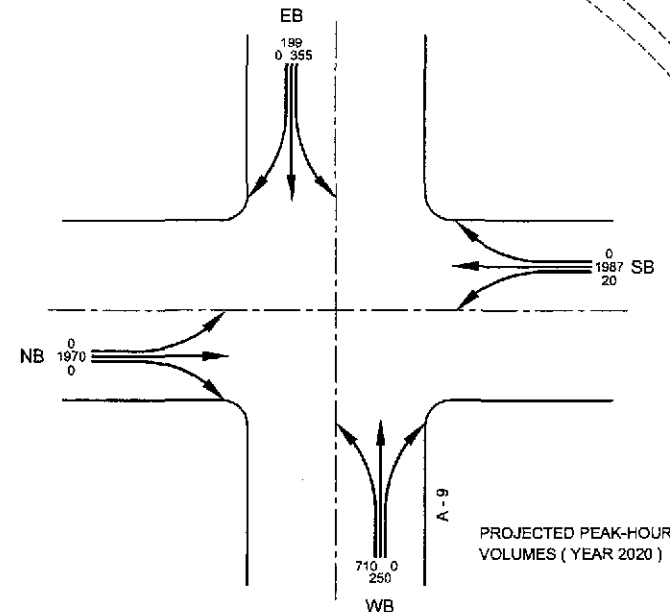
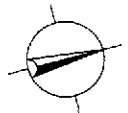
**TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT PLAN**  
**INTERSECTION A-9, (STA. 41+166.422) ULTIMATE STAGE**

1  
RI-03

SCALE

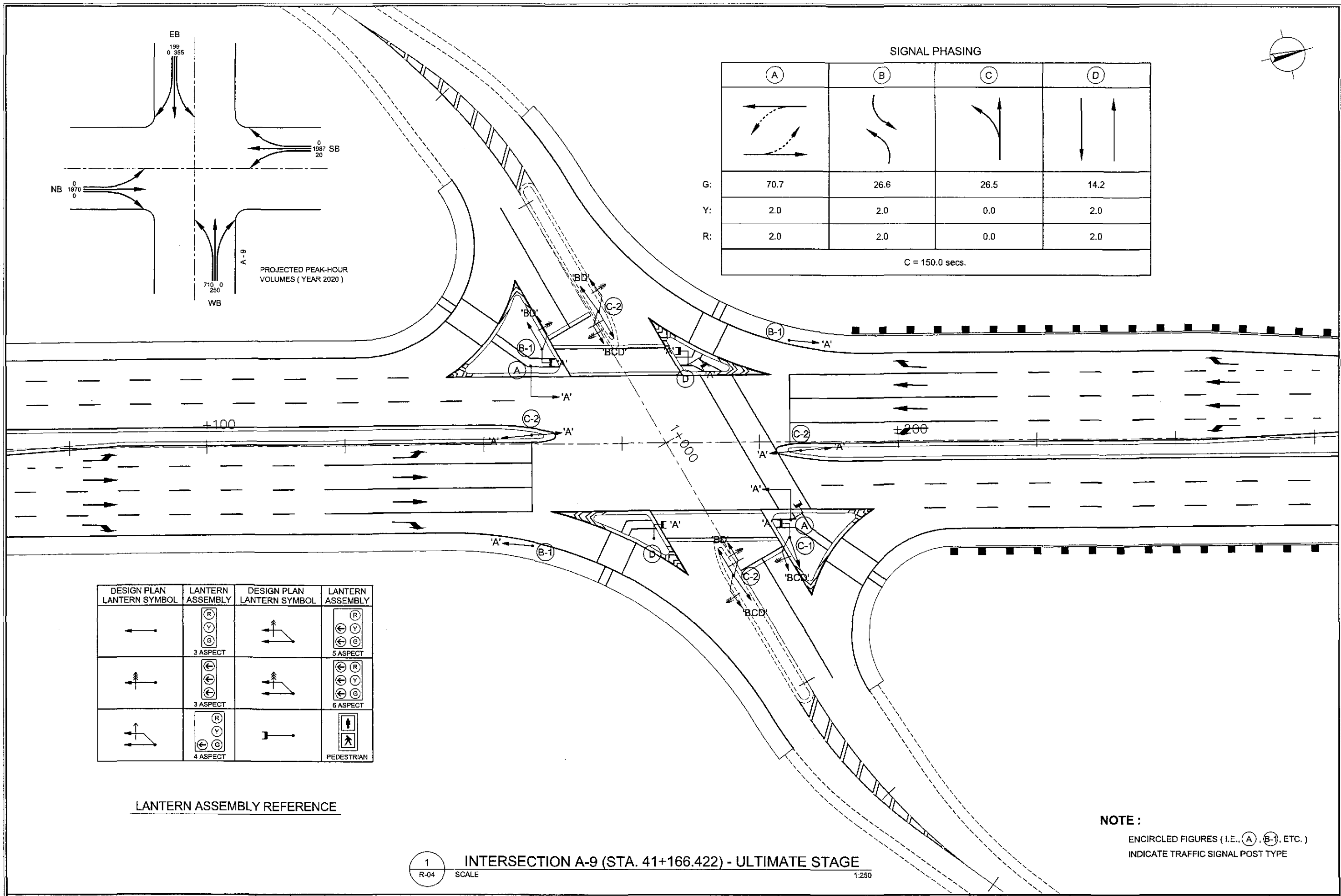
1:500

	DESIGNED	DATE	SIGNATURE	<p align="center">REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	PROJECT AND LOCATION :			SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/25/02	LUNA		THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)			1:500	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT PLAN INTERSECTION A-9 (ULTIMATE STAGE)	RI-03
	SUBMITTED	9/27/02	GOSE		PLARIDEL BYPASS - CONTRACT PACKAGE II			FULL SIZE A1		
Submitted By: DANILLO C. TRAJANO, Project Director Reviewed By: JOSEFINA M. ALAGAR, Chief, Highway Division Recommended By: GILBERTO S. REYES, DIC, Director IV Recommended By: MANUEL M. BONDAN, Undersecretary Approved By: SIMEON A. DATUMANONG, Secretary										



PROJECTED PEAK-HOUR VOLUMES (YEAR 2020)

SIGNAL PHASING				
	(A)	(B)	(C)	(D)
G:	70.7	26.6	26.5	14.2
Y:	2.0	2.0	0.0	2.0
R:	2.0	2.0	0.0	2.0
C = 150.0 secs.				



DESIGN PLAN LANTERN SYMBOL	LANTERN ASSEMBLY	DESIGN PLAN LANTERN SYMBOL	LANTERN ASSEMBLY
	 3 ASPECT		 5 ASPECT
	 3 ASPECT		 6 ASPECT
	 4 ASPECT		 PEDESTRIAN

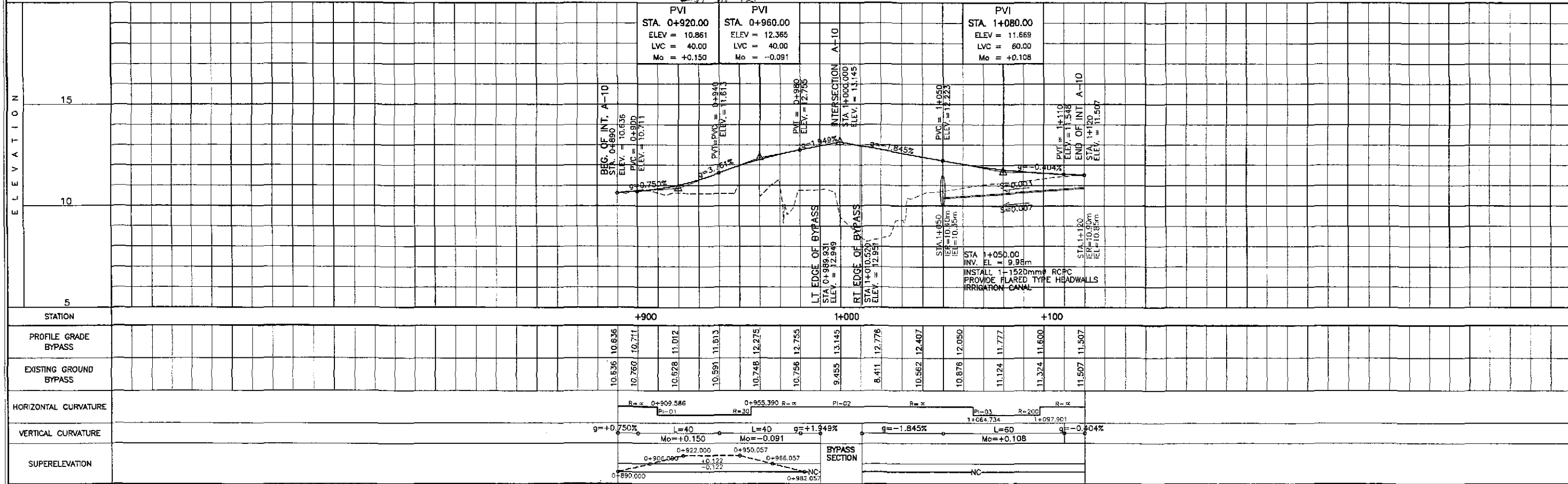
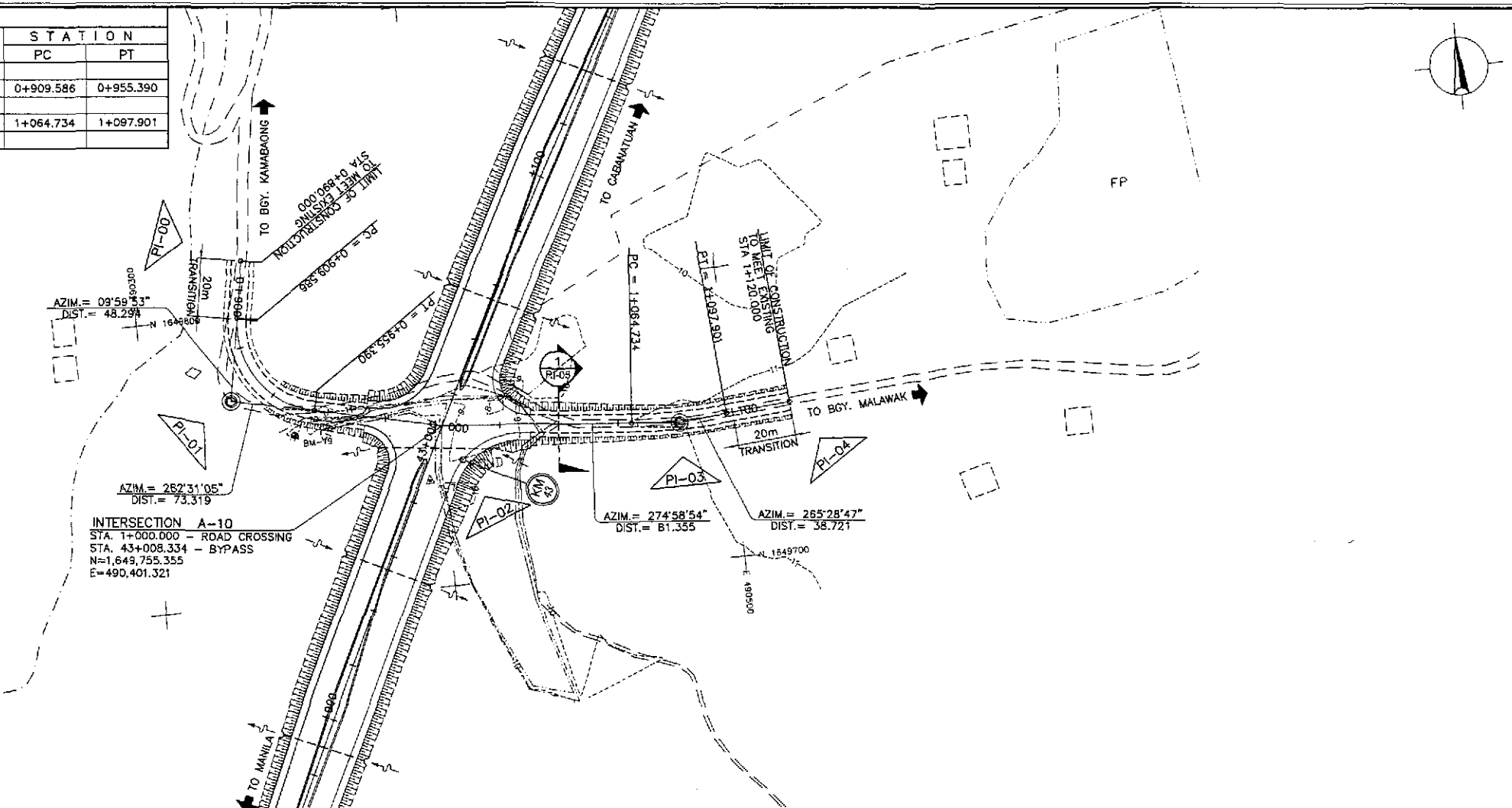
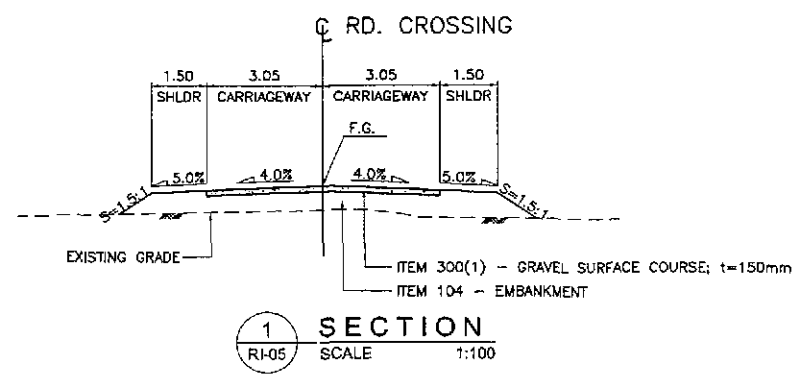
LANTERN ASSEMBLY REFERENCE

NOTE :  
ENCIRCLED FIGURES (I.E., (A), (B-1), ETC.)  
INDICATE TRAFFIC SIGNAL POST TYPE

1 INTERSECTION A-9 (STA. 41+166.422) - ULTIMATE STAGE  
R-04 SCALE 1:250

JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YACHYO ENGINEERING CO., LTD.	DESIGNED	DATE	SIGNATURE	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	9/25/02			Submitted By:	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:250	TRAFFIC SIGNAL LIGHT LAYOUT INTERSECTION A-9 (ULTIMATE STAGE)	RI-04
	SUBMITTED	9/27/02			DANILLO C. TRAJANO - Project Director JOSEFINA M. ALAGAR - Chief, Highways Division GILBERTO S. REYES - OIC, Director IV MANUEL M. BONGUAN - Undersecretary SIMEON A. DATUMANONG - Secretary	PLARIDEL BYPASS - CONTRACT PACKAGE II	FULL SIZE A1		

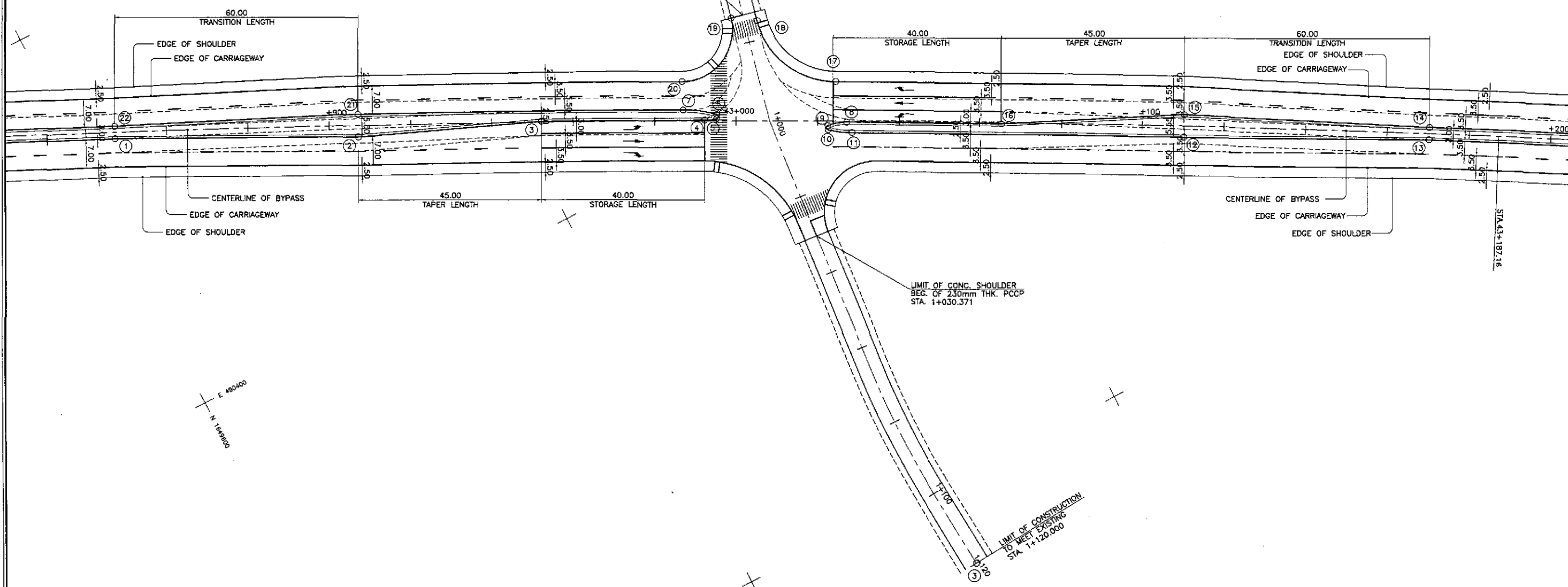
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	V(kph)	STATION	
		NORTHING	EASTING								PC	PT
PI-00	0+890.000	1,649,818.808	490,338.129								BEG. OF INTERSECTION A-10	
PI-01	0+936.294	1,649,771.247	490,329.744	87°28'48"	30	28.709	45.804	11.523	RC	30	0+909.586	0+955.390
PI-02	1+000.000	1,649,755.355	490,401.321	NO CURVE ELEMENTS/CENTERLINE OF BYPASS								
PI-03	1+081.356	1,649,748.290	490,482.368	09°30'06"	200	16.622	33.168	0.690		30	1+064.734	1+097.901
PI-04	1+120.000	1,649,751.342	490,520.969	END OF INTERSECTION A-10								



	DESIGNED	9/21/02	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses)		SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	9/25/02			SUBMITTED BY: DANILLO C. TRAJANO Project Director				OFFICE OF THE SECRETARY Recommended By: GILBERTO S. REYES Director IV (D/C)		HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1		PLAN, CROSS-SECTION AND PROFILE INTERSECTION A-10 STA. 0+890 - STA. 1+120 (ULTIMATE)	RI-05
	SUBMITTED	9/27/02			REVIEWED BY: JOSEFINA M. ALAGAR Chief, Highway Division				Approved By: SIMEON A. DATUMANONG Secretary		PLARIDEL BYPASS - CONTRACT PACKAGE II			

TABLE OF COORDINATES

CONTROL POINT	COORDINATES		REMARKS
	NORTHING	EASTING	
1	1649609.876	490332.103	BEG. OF TRANSITION 1.50m FROM THE CENTERLINE
2	1649663.545	490358.894	END OF TRANSITION 2.75m FROM THE CENTERLINE
3	1649705.295	490375.922	BEG. OF STORAGE LANE
4	1649741.078	490393.797	BEG. OF MEDIAN RADIUS 12.50
5	1649743.906	490394.816	INTERSECTION OF MEDIAN RADIUS 12.50 & 0.50
6	1649744.357	490393.962	INTERSECTION OF MEDIAN RADIUS 0.50 & 30
7	1649737.459	490389.171	END OF MEDIAN RADIUS 30
8	1649771.893	490410.073	BEG. OF MEDIAN RADIUS 12.50
9	1649767.425	490408.749	INTERSECTION OF MEDIAN RADIUS 12.50 & 0.50
10	1649767.05	490408.625	INTERSECTION OF MEDIAN RADIUS 0.50 & 25
11	1649771.882	490412.879	END OF MEDIAN RADIUS 25
12	1649844.34	490451.049	BEG. OF TRANSITION 2.75m FROM THE CENTERLINE
13	1649897.551	490478.737	END OF TRANSITION 1.50m FROM THE CENTERLINE
14	1649899.009	490478.115	BEG. OF TRANSITION 1.50m FROM THE CENTERLINE
15	1649846.947	490446.207	BEG. OF TAPER 2.75m FROM THE CENTERLINE
16	1649805.801	490427.713	BEG. OF STORAGE LANE 0.25m FROM THE CENTERLINE
17	1649774.075	490399.95	BEG. OF CORNER RADIUS 20
18	1649763.695	490377.828	END OF CORNER RADIUS 20 TO MEET EXISTING
19	1649758.217	490374.356	BEG. OF CORNER RADIUS 12.50 TO MEET EXISTING
20	1649740.393	490382.811	END OF CORNER RADIUS 12.50
21	1649665.931	490353.939	END OF TAPER 2.75m FROM THE CENTERLINE
22	1649611.141	490329.383	END OF TRANSITION 1.50m FROM THE CENTERLINE



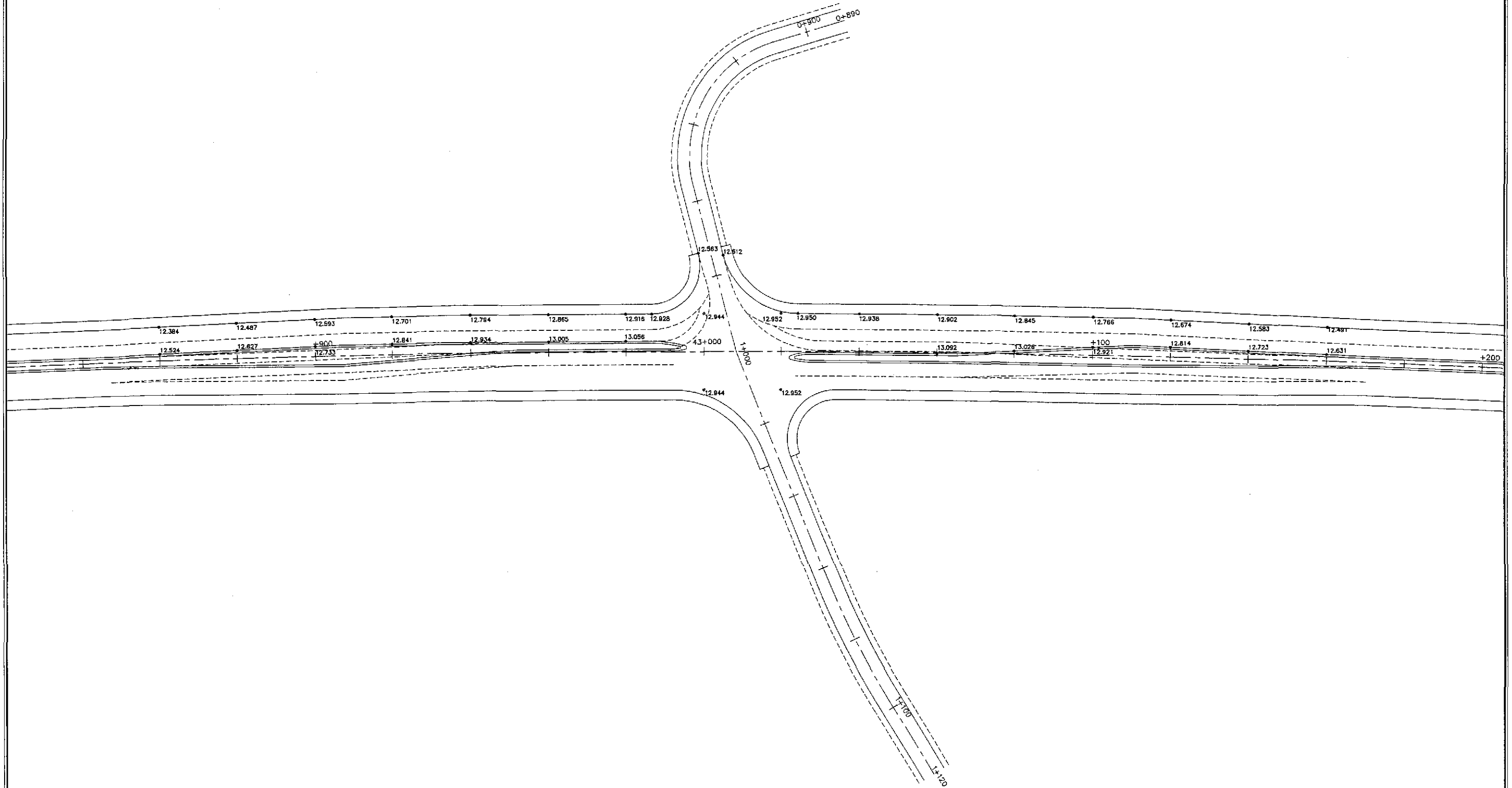
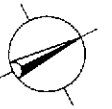
GEOMETRIC DESIGN LAYOUT  
INTERSECTION A-10 (STA. 43+008.334) - ULTIMATE STAGE

1  
RI-06 SCALE

1:500

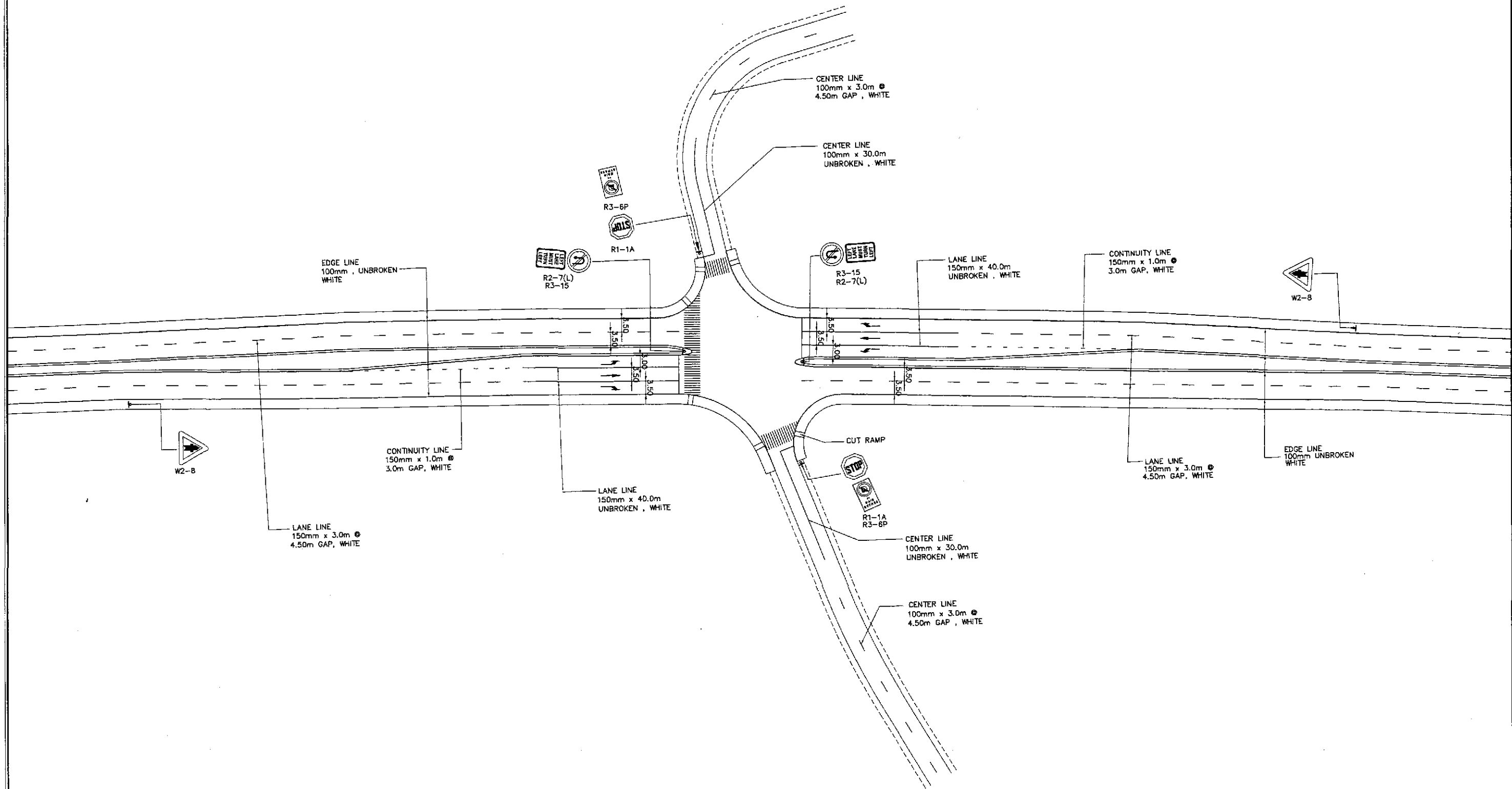
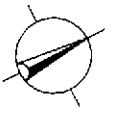
	DESIGNED	DATE	SIGNATURE	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE :	SHEET CONTENTS : INTERSECTION DETAIL GEOMETRIC DESIGN LAYOUT INTERSECTION A-10 (ULTIMATE STAGE)	SHEET NO. :		
	CHECKED	9/25/02	S. JOSE			Submitted By:		1:500	FULL SIZE A1	RI-06
	SUBMITTED	9/27/02	M. RIVERA			DANILLO C. TRAJANO Project Director JOSEFINA M. ALAGAR Chief, Highways Division GILBERTO S. REYES OIC, Director IV MANUEL M. BONOAN Undersecretary SIMEON A. DATUMANONG Secretary				





1 PAVING AND GRADING PLAN  
 INTERSECTION A-10 (STA. 43+008.334) - ULTIMATE STAGE  
 RI-07 SCALE 1:500

JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YACHIYO ENGINEERING CO., LTD.		DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	DESIGNED	9/21/02	<i>[Signature]</i>	BUREAU OF DESIGN Submitted By:	OFFICE OF THE SECRETARY Recommended By:	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:500	INTERSECTION DETAIL PAVING AND GRADING PLAN INTERSECTION A-10 (ULTIMATE STAGE)	RI-07
	CHECKED	9/25/02	<i>[Signature]</i>	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONGAN Undersecretary	SIMEDON A. DATUMANONG Secretary	FULL SIZE A1
SUBMITTED	7/27/02	<i>[Signature]</i>	TEAM LEADER	PLARIDEL BYPASS - CONTRACT PACKAGE II					



TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT PLAN  
 INTERSECTION A-10, (STA. 43+008.334) ULTIMATE STAGE

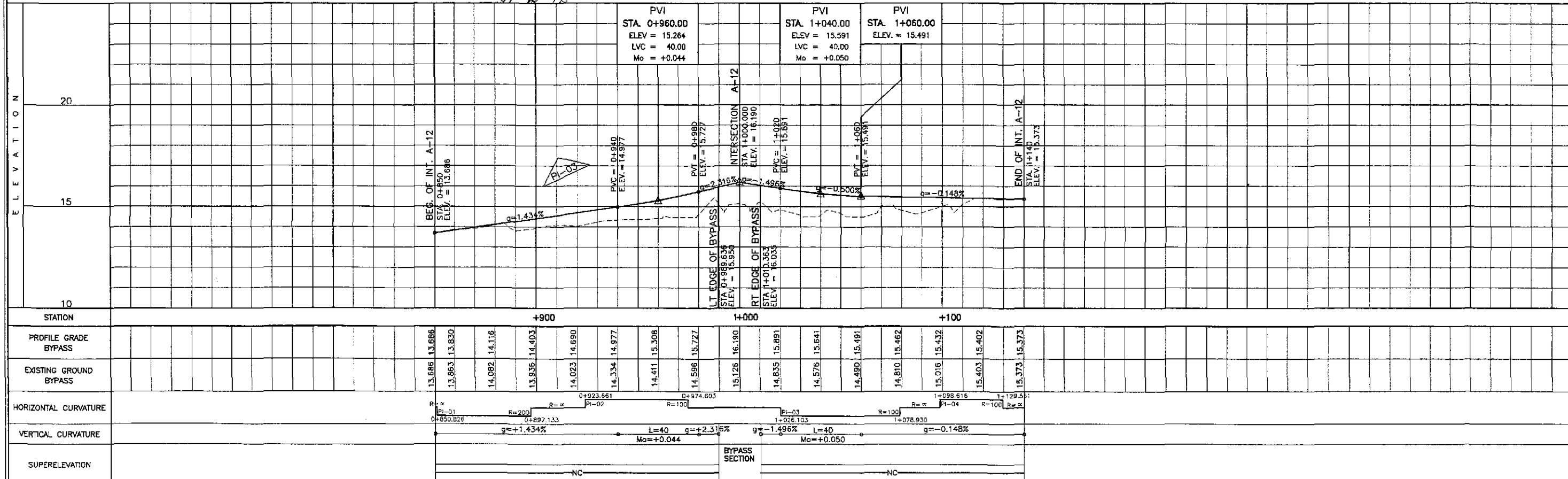
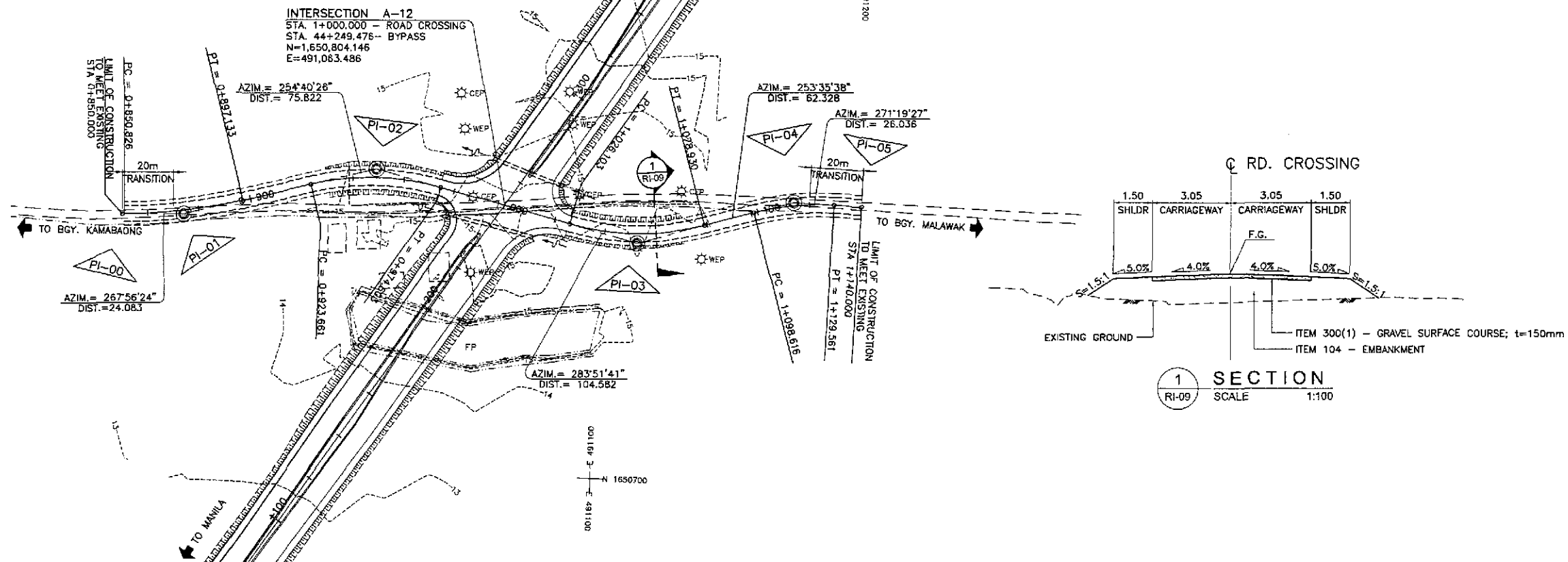
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 RI-08

SCALE

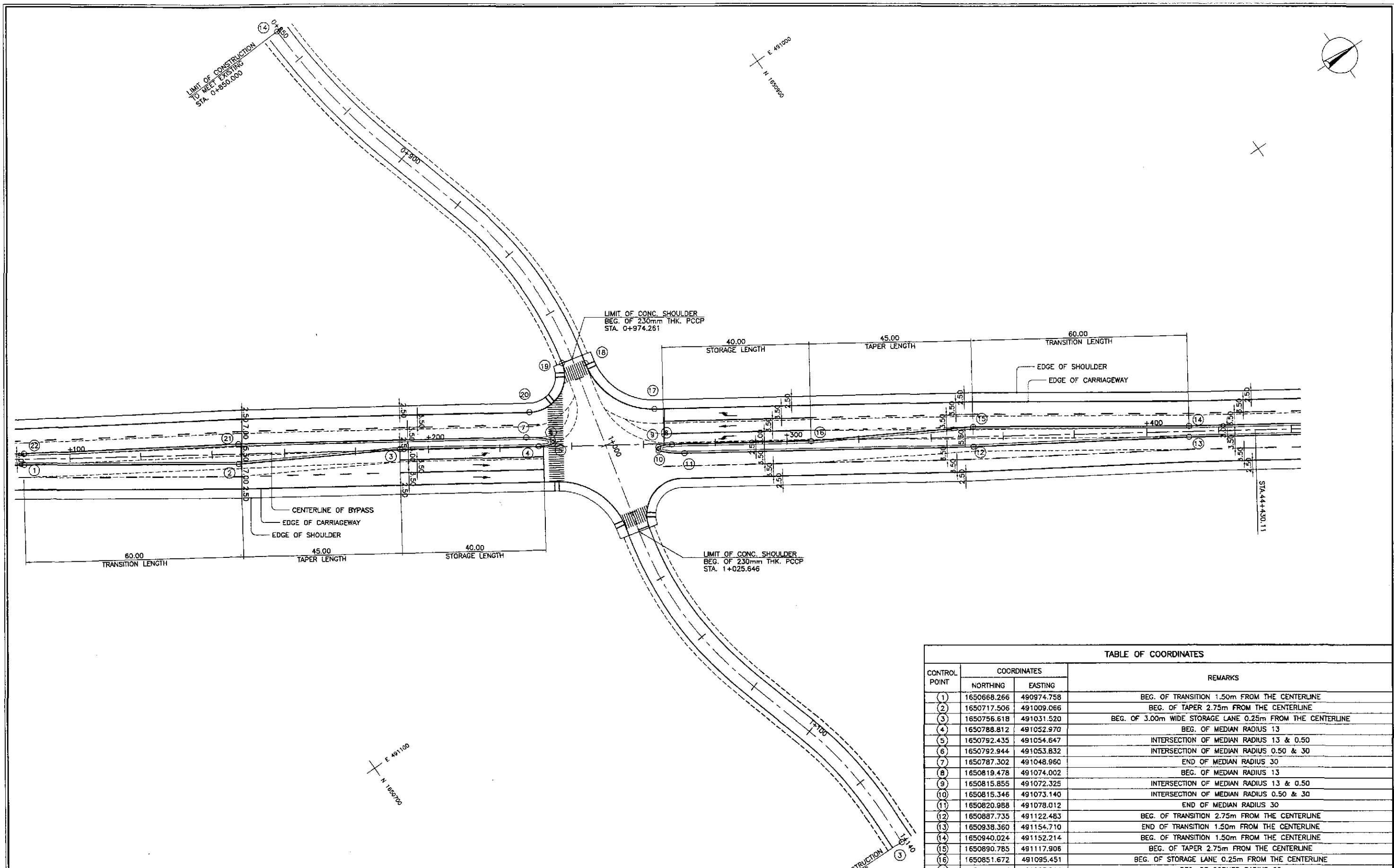
1:500

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE :	SHEET CONTENTS : TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT PLAN INTERSECTION A-10 (ULTIMATE STAGE)	SHEET NO. :	
	CHECKED	9/25/02	<i>[Signature]</i>		Submitted By:	Reviewed By:	Recommended By:		Approved By:		1:500	RI-08
	SUBMITTED	9/27/02	<i>[Signature]</i>		DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES DIC, Director IV		MANUEL M. BONGAN Undersecretary		SIMEON A. DATUMANONG Secretary	FULL SIZE A1

PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	V(kph)	STATION	
		NORTHING	EASTING								PC	PT
PI-00	0+850.000	1,650,795.561	490,915.358								BEG. OF INTERSECTION A-12	
PI-01	0+874.083	1,650,796.427	490,940.425	13°15'58"	200	23.258	46.308	1.348	-	-	0+850.826	0+897.133
PI-02	0+949.698	1,650,816.468	491,013.551	29°11'16"	100	26.037	50.942	3.334	-	-	0+923.661	0+974.603
PI-03	1+053.149	1,650,791.413	491,115.088	30°16'03"	100	27.045	52.827	3.593	-	-	1+026.103	1+078.930
PI-04	1+114.213	1,650,809.017	491,174.878	17°43'49"	100	15.597	30.945	1.209	-	-	1+098.616	1+129.561
PI-05	1+140.000	1,650,808.415	491,200.907								END OF INTERSECTION A-12	



	DESIGNED	9/21/02	 DANILO C. TRAJANO Project Director	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	SHEET CONTENTS : PLAN, CROSS-SECTION AND PROFILE INTERSECTION A-12 STA. 0+850 - STA. 1+140 (ULTIMATE)	SHEET NO. : RI-09
	CHECKED	9/25/02		P.J.H. - PMO Submitted By: [Signature] Reviewed By: [Signature] Recommended By: [Signature]							
	SUBMITTED	9/27/02		Office of the Secretary Recommended By: [Signature] Approved By: [Signature]							
				(See cover sheet for Signatures/Approvals)							

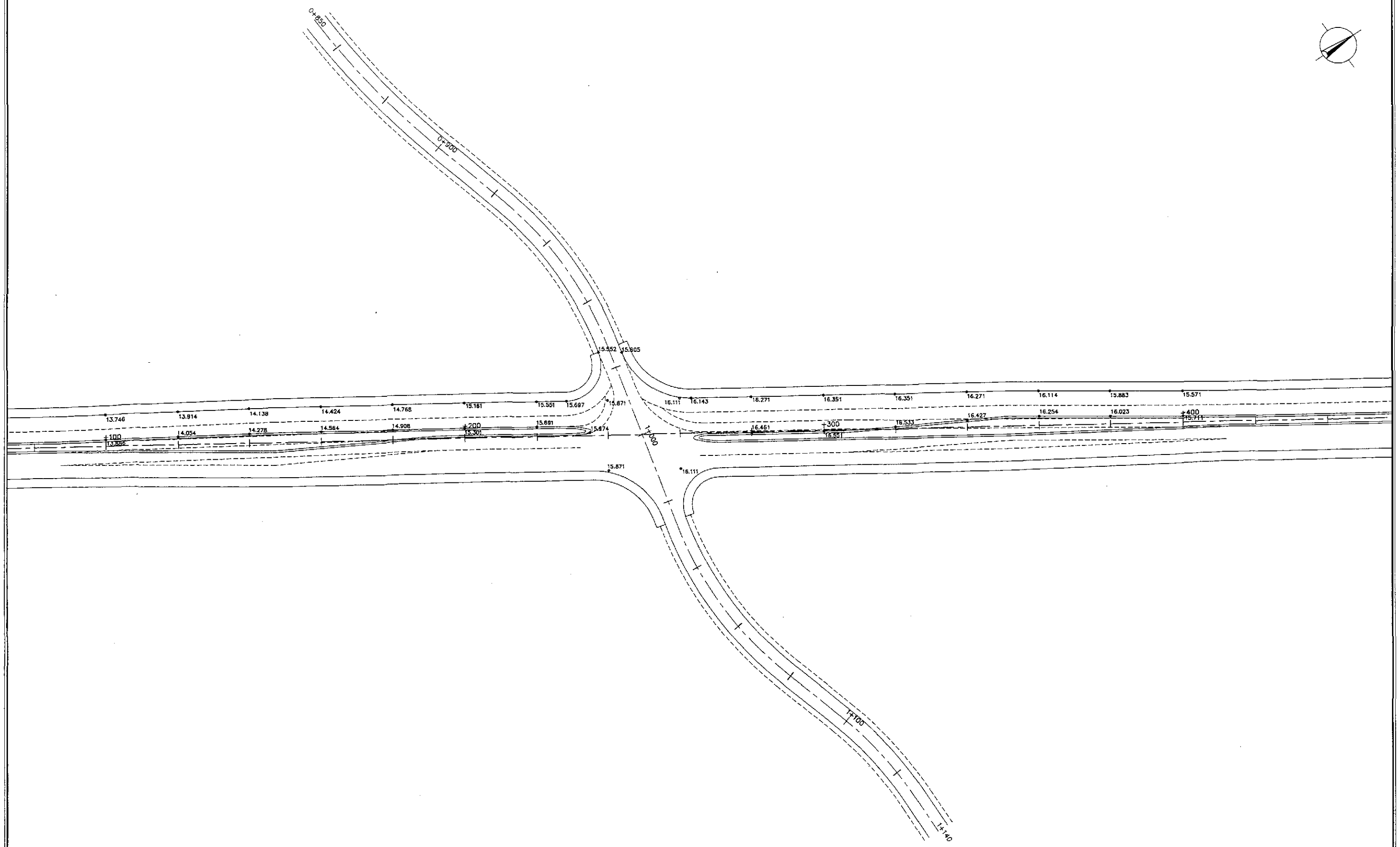
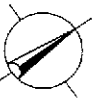


**GEOMETRIC DESIGN LAYOUT  
INTERSECTION A-12 (STA. 44+249.476) - ULTIMATE STAGE**

1  
RI-10 SCALE

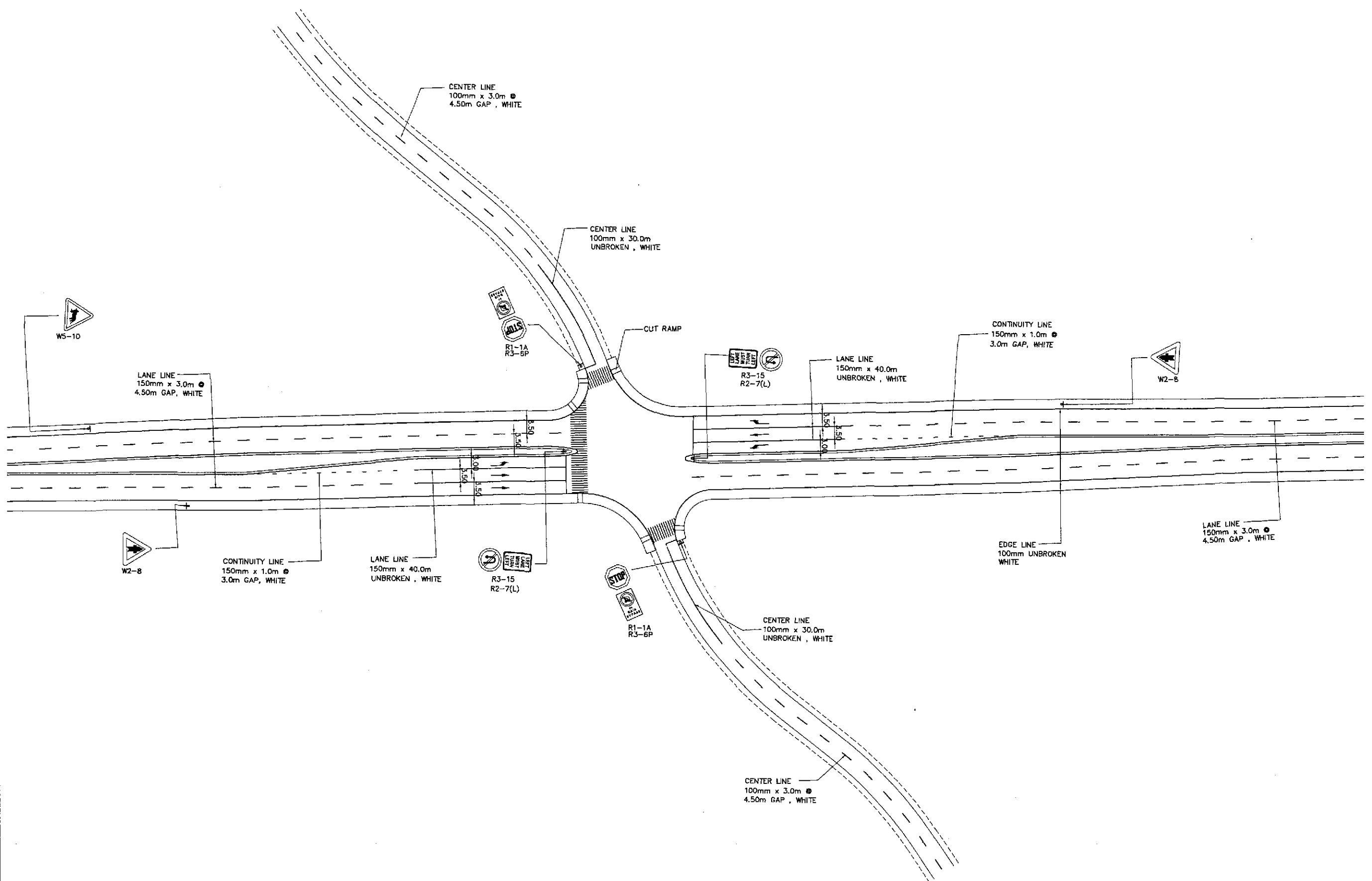
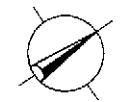
TABLE OF COORDINATES			
CONTROL POINT	COORDINATES		REMARKS
	NORTHING	EASTING	
(1)	1650668.266	490974.758	BEG. OF TRANSITION 1.50m FROM THE CENTERLINE
(2)	1650717.506	491009.066	BEG. OF TAPER 2.75m FROM THE CENTERLINE
(3)	1650756.618	491031.520	BEG. OF 3.00m WIDE STORAGE LANE 0.25m FROM THE CENTERLINE
(4)	1650788.812	491052.970	BEG. OF MEDIAN RADIUS 13
(5)	1650792.435	491054.647	INTERSECTION OF MEDIAN RADIUS 13 & 0.50
(6)	1650792.944	491053.832	INTERSECTION OF MEDIAN RADIUS 0.50 & 30
(7)	1650787.302	491048.960	END OF MEDIAN RADIUS 30
(8)	1650819.478	491074.002	BEG. OF MEDIAN RADIUS 13
(9)	1650815.855	491072.325	INTERSECTION OF MEDIAN RADIUS 13 & 0.50
(10)	1650815.346	491073.140	INTERSECTION OF MEDIAN RADIUS 0.50 & 30
(11)	1650820.988	491078.012	END OF MEDIAN RADIUS 30
(12)	1650887.735	491122.483	BEG. OF TRANSITION 2.75m FROM THE CENTERLINE
(13)	1650938.360	491154.710	END OF TRANSITION 1.50m FROM THE CENTERLINE
(14)	1650940.024	491152.214	BEG. OF TRANSITION 1.50m FROM THE CENTERLINE
(15)	1650890.785	491117.906	BEG. OF TAPER 2.75m FROM THE CENTERLINE
(16)	1650851.672	491085.451	BEG. OF STORAGE LANE 0.25m FROM THE CENTERLINE
(17)	1650821.021	491063.014	BEG. OF CORNER RADIUS 20
(18)	1650812.693	491041.578	END OF CORNER RADIUS 20 TO MEET EXISTING
(19)	1650807.353	491037.756	BEG. OF CORNER RADIUS 10 TO MEET EXISTING
(20)	1650792.086	491043.736	END OF CORNER RADIUS 10
(21)	1650720.555	491004.489	BEG. OF TRANSITION 2.75m FROM THE CENTERLINE
(22)	1650669.930	490972.261	END OF TRANSITION 1.50m FROM THE CENTERLINE

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : <b>THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)</b> <b>PLARIDEL BYPASS - CONTRACT PACKAGE II</b>	SCALE : 1:500 FULL SIZE A1	SHEET CONTENTS : <b>INTERSECTION DETAIL GEOMETRIC DESIGN LAYOUT INTERSECTION A-12 (ULTIMATE STAGE)</b>	SHEET NO. : <b>RI-10</b>
	CHECKED	DATE	SIGNATURE		Submitted By:	Reviewed By:	Recommended By:	Recommended By:				
	SUBMITTED	DATE	SIGNATURE		DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary				



1
**PAVING AND GRADING PLAN**  
**INTERSECTION A-12 (STA. 44+249.476) - ULTIMATE STAGE**  
 RI-11 SCALE 1:500

		DATE	SIGNATURE	 REPUBLIC OF THE PHILIPPINES <b>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</b>	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :		
	DESIGNED	9/21/12	<i>[Signature]</i>			BUREAU OF DESIGN	OFFICE OF THE SECRETARY	1:500	<b>INTERSECTION DETAIL</b> PAVING AND GRADING PLAN INTERSECTION A-12 (ULTIMATE STAGE)	RI-11
	CHECKED	9/25/12	<i>[Signature]</i>			Submitted By:	Reviewed By:			
SUBMITTED	9/27/12	<i>[Signature]</i>	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary			



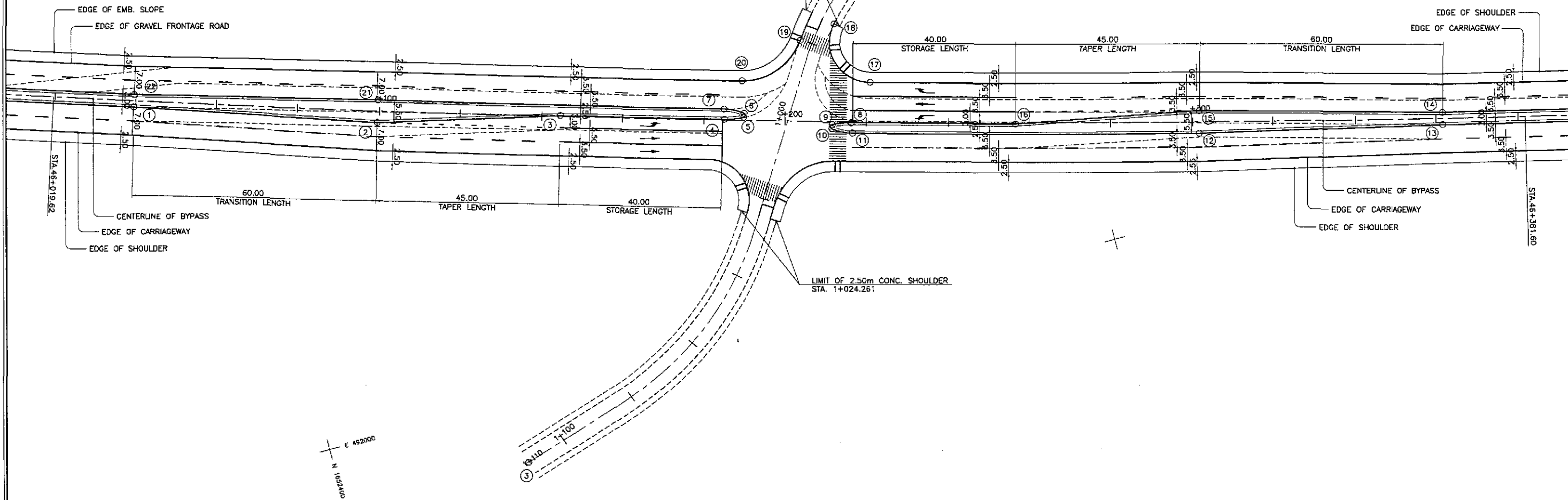
1
**TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT PLAN**  
**INTERSECTION A-12, (STA. 44+249.476) ULTIMATE STAGE**  
 RI-12 SCALE 1:500

 <b>JAPAN INTERNATIONAL COOPERATION AGENCY</b>  <b>KATAHIRA &amp; ENGINEERS INTERNATIONAL</b>  <b>YACHYO ENGINEERING CO., LTD.</b>				 <b>REPUBLIC OF THE PHILIPPINES</b> <b>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</b>							
	DESIGNED	DATE	SIGNATURE			BUREAU OF DESIGN	OFFICE OF THE SECRETARY	<b>PROJECT AND LOCATION :</b> <b>THE DETAILED DESIGN STUDY ON</b> <b>UPGRADING INTER-URBAN HIGHWAY SYSTEM</b> <b>ALONG THE PAN-PHILIPPINE HIGHWAY</b> <b>(Plaridel, Cabanatuan and San Jose Bypasses)</b> <b>PLARIDEL BYPASS - CONTRACT PACKAGE II</b>	<b>SCALE :</b>  1:500  FULL SIZE A1	<b>SHEET CONTENTS :</b>  <b>TRAFFIC SIGNS AND PAVEMENT</b> <b>MARKINGS LAYOUT PLAN</b> INTERSECTION A-12 (ULTIMATE STAGE)	<b>SHEET NO. :</b>  RI-12
	CHECKED	DATE	SIGNATURE			Submitted By:	Reviewed By:				
SUBMITTED	DATE	SIGNATURE	DANILO C. TRAJANO <small>Project Director</small>	JOSEFINA M. ALAGAR <small>Chief, Highways Division</small>	GILBERTO S. REYES <small>Dir., Director IV</small>	MANUEL M. BONDAN <small>Undersecretary</small>	SIMEDON A. DATUMANONG <small>Secretary</small>				



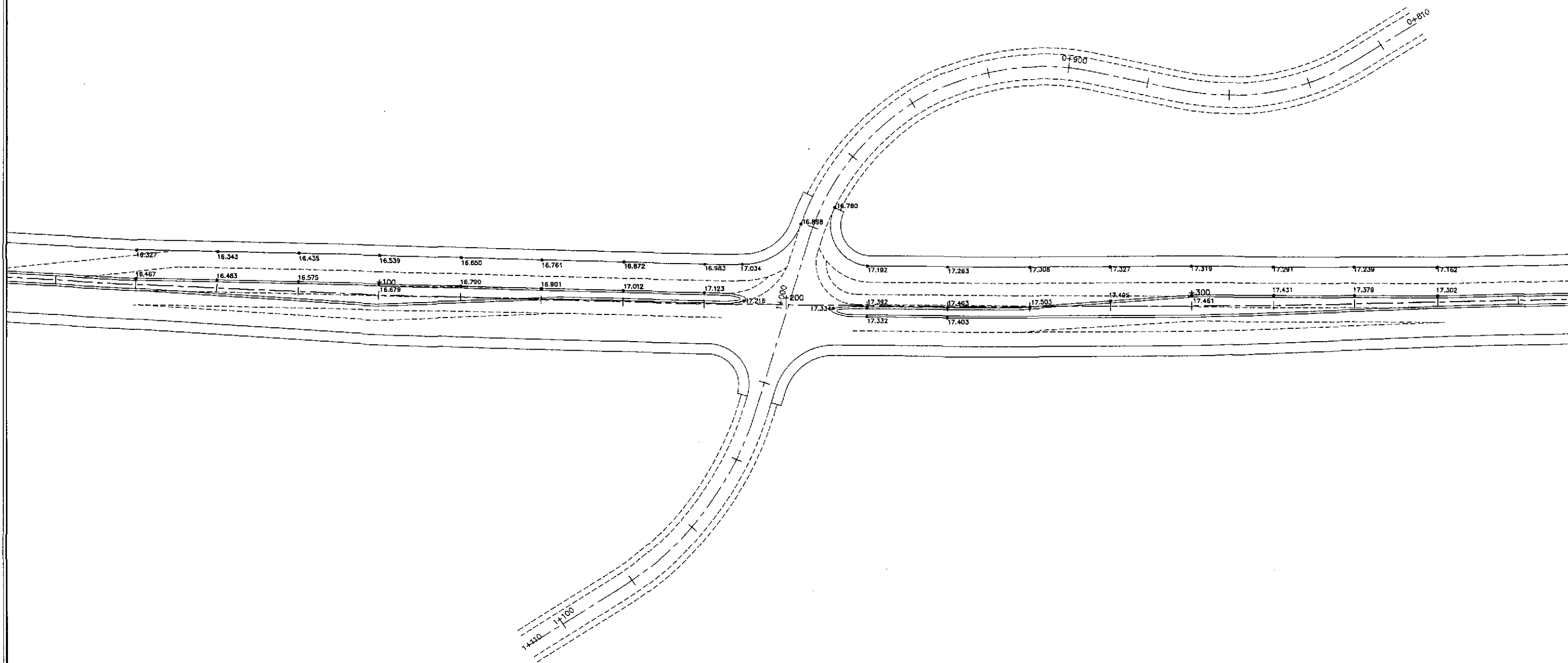
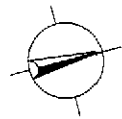
TABLE OF COORDINATES

CONTROL POINT	COORDINATES		REMARKS
	NORTHING	EASTING	
1	1652375.127	491906.105	EDGE OF PAVEMENT 1.50m FROM THE CENTERLINE
2	1652376.045	491903.249	EDGE OF PAVEMENT 1.50m FROM THE CENTERLINE
3	1652475.987	491935.384	BEG. OF STORAGE LANE 0.25m FROM THE CENTERLINE
4	1652514.866	491946.704	END OF MEDIAN RADIUS 21
5	1652519.529	491947.485	INTERSECTION OF MEDIAN RADIUS 21 & 0.50
6	1652519.872	491946.596	INTERSECTION OF MEDIAN RADIUS 0.50 & 12.50
7	1652515.396	491944.256	END OF MEDIAN RADIUS 12.50
8	1652544.817	491955.679	END OF MEDIAN RADIUS 21
9	1652540.298	491954.939	INTERSECTION OF MEDIAN RADIUS 21 & 0.50
10	1652539.955	491955.825	INTERSECTION OF MEDIAN RADIUS 0.50 & 12.50
11	1652544.514	491958.19	END OF MEDIAN RADIUS 12.50
12	1652626.637	491980.224	EDGE OF PAVEMENT 2.75m FROM THE CENTERLINE
13	1652685.161	491993.632	EDGE OF PAVEMENT 1.50m FROM THE CENTERLINE
14	1652685.873	491990.718	EDGE OF PAVEMENT 1.50m FROM THE CENTERLINE
15	1652628.012	491974.899	EDGE OF PAVEMENT 2.75m FROM THE CENTERLINE
16	1652583.746	491966.335	BEG. OF STORAGE LANE 0.25m FROM THE CENTERLINE
17	1652551.888	491947.268	BEG. OF CORNER RADIUS 10
18	1652547.055	491931.037	END OF CORNER RADIUS 10 TO MEET EXISTING
19	1652537.956	491932.807	BEG. OF RADIUS 15 TO MEET EXISTING
20	1652521.495	491936.718	END OF CORNER RADIUS 15
21	1652433.636	491920.024	EDGE OF PAVEMENT 2.75m FROM THE CENTERLINE
22	1652376.045	491903.249	END OF TRANSITION 1.50m FROM THE CENTERLINE



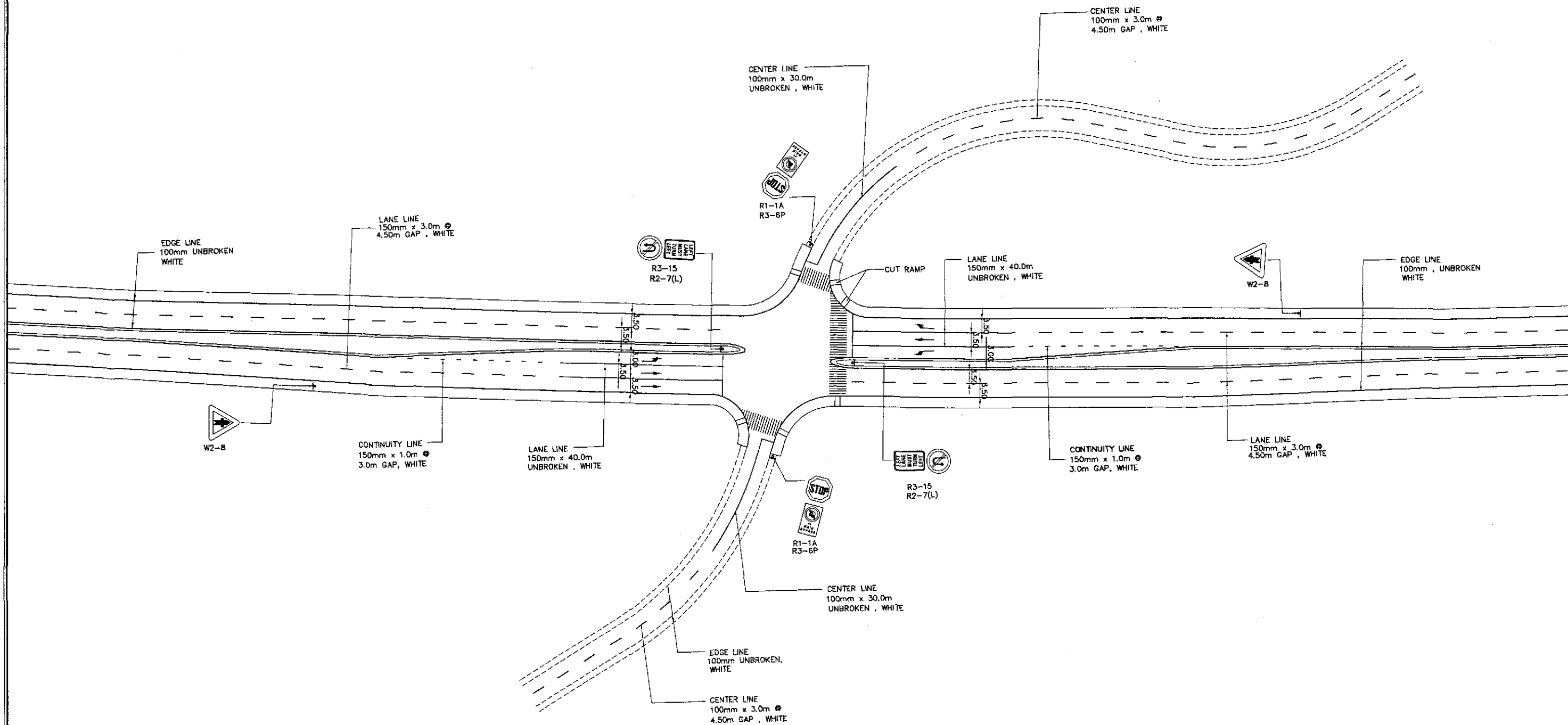
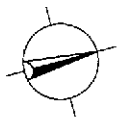
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RI-13 SCALE 1:500  
GEOMETRIC DESIGN LAYOUT  
INTERSECTION A-15 (STA. 46+200.681) - ULTIMATE STAGE

	DESIGNED	DATE	SIGNATURE	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : 1:500 FULL SIZE A1	SHEET CONTENTS : INTERSECTION DETAIL GEOMETRIC DESIGN LAYOUT INTERSECTION A-15 (ULTIMATE STAGE)	SHEET NO. : RI-13					
	CHECKED	9/23/02	S. S. S.						Submitted By: DANILLO C. TRAJANO Project Director	Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division	Recommended By: GILBERTO S. REYES OIC, Director IV	Recommended By: MANUEL M. BONOAN Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary
	SUBMITTED	7/27/02	M. M. M.						Submitted By: DANILLO C. TRAJANO Project Director	Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division	Recommended By: GILBERTO S. REYES OIC, Director IV	Recommended By: MANUEL M. BONOAN Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary



1
 PAVING AND GRADING PLAN  
 INTERSECTION A-15 (STA. 46+200.681) - ULTIMATE STAGE  
 RI-14 SCALE 1:500

<b>JICA</b> JAPAN INTERNATIONAL COOPERATION AGENCY		DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :		
	DESIGNED	9/21/02	<i>[Signature]</i>		BUREAU OF DESIGN	OFFICE OF THE SECRETARY	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:500	INTERSECTION DETAIL PAVING AND GRADING PLAN INTERSECTION A-15 (ULTIMATE STAGE)	RI-14
	CHECKED	9/25/02	<i>[Signature]</i>		Submitted By:	Recommended By:	PLARIDEL BYPASS - CONTRACT PACKAGE II	FULL SIZE A1		
SUBMITTED	9/27/02	<i>[Signature]</i>	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONGUAN Undersecretary	SIMEON A. DATUMANONG Secretary			



TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT PLAN  
 INTERSECTION A-15, (STA. 46+200.681) ULTIMATE STAGE

1  
 RI-15

SCALE

1:500

	DESIGNED	DATE	SIGNATURE	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :			SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	7/25/02	<i>[Signature]</i>		THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)			1:500	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT PLAN INTERSECTION A-15 (ULTIMATE STAGE)	RI-15	
	SUBMITTED	7/27/02	<i>[Signature]</i>		PLARIDEL BYPASS - CONTRACT PACKAGE II			FULL SIZE A1			
Submitted By: DANILLO C. TRAJANO Project Director				BUREAU OF DESIGN Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division			OFFICE OF THE SECRETARY Recommended By: GILBERTO S. REYES OIC, Director IV			Approved By: MANUEL M. BONOAN Undersecretary	