

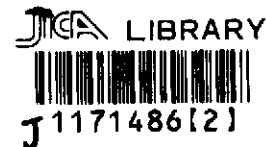
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REPUBLIC OF THE PHILIPPINES**

**THE DETAILED DESIGN STUDY
ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(PLARIDEL, CABANATUAN AND SAN JOSE BYPASSES)**

FINAL REPORT

**CABANATUAN BYPASS - CONTRACT PACKAGE IV
(INITIAL STAGE)
STA. 121+600.000 TO STA. 134+731.828**



December 2002

**KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD**

S S F

CR(6)

02-158

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REPUBLIC OF THE PHILIPPINES**

**THE DETAILED DESIGN STUDY
ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(PLARIDEL, CABANATUAN AND SAN JOSE BYPASSES)**

FINAL REPORT

**CABANATUAN BYPASS - CONTRACT PACKAGE IV
(INITIAL STAGE)
STA. 121+600.000 TO STA. 134+731.828**

December 2002

**KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD**



1171486[2]

GENERAL

INDEX OF DRAWINGS

THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY CABANATUAN BYPASS - PACKAGE IV (INITIAL STAGE)

SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING
	GENERAL		INTERSECTION DETAILS		
GC-01	INDEX OF DRAWINGS - 1 OF 3	RI-01	INTERSECTION A-22 & A-22a (STA 122+410.000) PLAN, CROSS-SECTION AND PROFILE	RI-33	GEOMETRIC DESIGN LAYOUT
GC-02	INDEX OF DRAWINGS - 2 OF 3			RI-34	PAVING AND GRADING PLAN
GC-03	INDEX OF DRAWINGS - 3 OF 3			RI-35	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
GC-04	KEY AND VICINITY MAPS	RI-02	INTERSECTION A-23 (STA 123+486.434) PLAN, CROSS-SECTION AND PROFILE		INTERSECTION A-35 (STA 134+231.098)
GC-05	LEGEND AND SYMBOLS	RI-03	GEOMETRIC DESIGN LAYOUT	RI-36	PLAN, CROSS-SECTION AND PROFILE
GC-06	ABBREVIATIONS	RI-04	PAVING AND GRADING PLAN	RI-37	GEOMETRIC DESIGN LAYOUT
GC-07	PROJECT ROAD GENERAL ALIGNMENT FEATURES	RI-05	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT	RI-38	PAVING AND GRADING PLAN
GC-08	HORIZONTAL AND VERTICAL CONTROL MONUMENTS - 1 OF 2			RI-39	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
GC-09	HORIZONTAL AND VERTICAL CONTROL MONUMENTS - 2 OF 2	RI-06	INTERSECTION A-24 (STA 125+647.978) PLAN, CROSS-SECTION AND PROFILE	RI-40	TRAFFIC SIGNAL LIGHT LAYOUT
GC-10	LOCATION OF MATERIAL SOURCES				INTERSECTION A-35a (STA 134+504.541)
GC-11	SUMMARY OF QUANTITIES - 1 OF 2	RI-07	INTERSECTION A-25 (STA 125+881.570) PLAN, CROSS-SECTION AND PROFILE	RI-41	PLAN, CROSS-SECTION AND PROFILE
GC-12	SUMMARY OF QUANTITIES - 2 OF 2	RI-08	GEOMETRIC DESIGN LAYOUT	RI-42	GEOMETRIC DESIGN LAYOUT
	ROADWAY	RI-09	PAVING AND GRADING PLAN	RI-43	PAVING AND GRADING PLAN
	GENERAL ROADWAY	RI-10	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT	RI-44	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
RG-01	GENERAL NOTES HIGHWAY/ CIVIL AND DRAINAGE	RI-11	TRAFFIC SIGNAL LIGHT LAYOUT		ROADWAY MISCELLANEOUS DRAWINGS
RG-02	ALIGNMENT TECHNICAL DESCRIPTION				TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
RG-03	LOCATION OF INTERSECTIONS / UNDERPASSES	RI-12	INTERSECTION A-26 (STA 127+000.849) & A-27 (STA 127+837.000) PLAN, CROSS-SECTION AND PROFILE	RM-01	LAYOUT PLAN, STA. 121 + 600.000 TO STA. 122 + 600.000
RG-04	SCHEDULE OF TRAFFIC SIGNS AND ROADSIDE PLANTING			RM-02	LAYOUT PLAN, STA. 122 + 600.000 TO STA. 124 + 000.000
RG-05	SCHEDULE OF PAVEMENT MARKINGS	RI-13	INTERSECTION A-28 (STA 128+767.826) PLAN, CROSS-SECTION AND PROFILE	RM-03	LAYOUT PLAN, STA. 124 + 000.000 TO STA. 125 + 400.000
RG-06	SCHEDULE OF RIGHT-OF-WAY MARKERS - 1 OF 3			RM-04	LAYOUT PLAN, STA. 125 + 400.000 TO STA. 126 + 800.000
RG-07	SCHEDULE OF RIGHT-OF-WAY MARKERS - 2 OF 3	RI-14	INTERSECTION A-29 (STA 129+442.886) PLAN, CROSS-SECTION AND PROFILE	RM-05	LAYOUT PLAN, STA. 126 + 800.000 TO STA. 128 + 200.000
RG-08	SCHEDULE OF RIGHT-OF-WAY MARKERS - 3 OF 3	RI-15	GEOMETRIC DESIGN LAYOUT	RM-06	LAYOUT PLAN, STA. 128 + 200.000 TO STA. 129 + 600.000
	PLAN AND PROFILE	RI-16	PAVING AND GRADING PLAN	RM-07	LAYOUT PLAN, STA. 129 + 600.000 TO STA. 131 + 000.000
	ALONG BYPASS	RI-17	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT	RM-08	LAYOUT PLAN, STA. 131 + 000.000 TO STA. 132 + 400.000
RP-01	PLAN AND PROFILE, STA. 121 + 600.000 TO STA. 121 + 900.000			RM-09	LAYOUT PLAN, STA. 132 + 400.000 TO STA. 133 + 800.000
RP-02	PLAN AND PROFILE, STA. 121 + 900.000 TO STA. 122 + 600.000	RI-18	INTERSECTION A-30 (STA 129+921.679) PLAN, CROSS-SECTION AND PROFILE	RM-10	LAYOUT PLAN, STA. 133 + 800.000 TO STA. 134 + 731.828
RP-03	PLAN AND PROFILE, STA. 122 + 600.000 TO STA. 123 + 300.000	RI-19	GEOMETRIC DESIGN LAYOUT		PLANTING, GUARDRAIL AND R.O.W. LAYOUT PLAN
RP-04	PLAN AND PROFILE, STA. 123 + 300.000 TO STA. 124 + 000.000	RI-20	PAVING AND GRADING PLAN	RM-11	LAYOUT PLAN, STA. 121 + 600.000 TO STA. 122 + 600.000
RP-05	PLAN AND PROFILE, STA. 124 + 000.000 TO STA. 124 + 700.000	RI-21	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT	RM-12	LAYOUT PLAN, STA. 122 + 600.000 TO STA. 124 + 000.000
RP-06	PLAN AND PROFILE, STA. 124 + 700.000 TO STA. 125 + 400.000	RI-22	TRAFFIC SIGNAL LIGHT LAYOUT	RM-13	LAYOUT PLAN, STA. 124 + 000.000 TO STA. 125 + 400.000
RP-07	PLAN AND PROFILE, STA. 125 + 400.000 TO STA. 126 + 100.000			RM-14	LAYOUT PLAN, STA. 125 + 400.000 TO STA. 126 + 800.000
RP-08	PLAN AND PROFILE, STA. 126 + 100.000 TO STA. 126 + 800.000	RI-23	INTERSECTION A-31 (STA 131+634.031) PLAN, CROSS-SECTION AND PROFILE	RM-15	LAYOUT PLAN, STA. 126 + 800.000 TO STA. 128 + 200.000
RP-09	PLAN AND PROFILE, STA. 126 + 800.000 TO STA. 127 + 500.000			RM-16	LAYOUT PLAN, STA. 128 + 200.000 TO STA. 129 + 600.000
RP-10	PLAN AND PROFILE, STA. 127 + 500.000 TO STA. 128 + 200.000	RI-24	INTERSECTION A-32 (STA 132+127.946) PLAN, CROSS-SECTION AND PROFILE	RM-17	LAYOUT PLAN, STA. 129 + 600.000 TO STA. 131 + 300.000
RP-11	PLAN AND PROFILE, STA. 128 + 200.000 TO STA. 128 + 900.000	RI-25	GEOMETRIC DESIGN LAYOUT	RM-18	LAYOUT PLAN, STA. 131 + 000.000 TO STA. 132 + 400.000
RP-12	PLAN AND PROFILE, STA. 128 + 900.000 TO STA. 129 + 600.000	RI-26	PAVING AND GRADING PLAN	RM-19	LAYOUT PLAN, STA. 132 + 400.000 TO STA. 133 + 800.000
RP-13	PLAN AND PROFILE, STA. 129 + 600.000 TO STA. 130 + 300.000	RI-27	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT	RM-20	LAYOUT PLAN, STA. 133 + 800.000 TO STA. 134 + 731.828
RP-14	PLAN AND PROFILE, STA. 130 + 300.000 TO STA. 131 + 000.000				ROADWAY STANDARD DRAWINGS AND DETAILS
RP-15	PLAN AND PROFILE, STA. 131 + 000.000 TO STA. 131 + 700.000	RI-28	INTERSECTION A-33 (STA 133+105.000) PLAN, CROSS-SECTION AND PROFILE	RS-01	GEOMETRIC DESIGN STANDARD-1 (HOR. ALIGNMENT/CURVE EASEMENTS)
RP-16	PLAN AND PROFILE, STA. 131 + 700.000 TO STA. 132 + 400.000	RI-29	GEOMETRIC DESIGN LAYOUT	RS-02	GEOMETRIC DESIGN STANDARD-2 (HORIZONTAL AND VERTICAL CURVES)
RP-17	PLAN AND PROFILE, STA. 132 + 400.000 TO STA. 133 + 100.000	RI-30	PAVING AND GRADING PLAN	RS-03	GEOMETRIC DESIGN STANDARD-3 (SUPERELEVATION ATTAINMENT)
RP-18	PLAN AND PROFILE, STA. 133 + 100.000 TO STA. 133 + 800.000	RI-31	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT	RS-04	STANDARD PORTLAND CEMENT CONCRETE PAVEMENT DETAILS
RP-19	PLAN AND PROFILE, STA. 133 + 800.000 TO STA. 134 + 500.000			RS-05	CONCRETE CURB AND GUTTER DETAILS
RP-20	PLAN AND PROFILE, STA. 134 + 500.000 TO STA. 134 + 731.828	RI-32	INTERSECTION A-34 (STA 133+808.030) PLAN, CROSS-SECTION AND PROFILE	RS-06	CURB CUT RAMP DETAILS (FOR THE PHYSICALLY HANDICAPPED)
RP-21	TYPICAL ROADWAY SECTIONS - 1 OF 2			RS-07	STANDARD KILOMETER POST AND RIGHT-OF-WAY MARKERS
RP-22	TYPICAL ROADWAY SECTIONS - 2 OF 2			RS-08	STANDARD STEEL BEAM GUARDRAIL
				RS-09	EMBANKMENT PROTECTION WALLS AND MASONRY RETAINING WALLS
				RS-10	SIDE ROAD APPROACHES AND PRIVATE DRIVEWAY ACCESS
				RS-11	STANDARD ROAD WORK SIGN AND PROJECT SIGN BOARD DETAILS

JICA JAPAN INTERNATIONAL COOPERATION AGENCY		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) CABANATUAN BYPASS - CONTRACT PACKAGE IV	SCALE :	SHEET CONTENTS :	SHEET NO. :		
	DESIGNED	10/12/02	<i>[Signature]</i>						BUREAU OF DESIGN	OFFICE OF THE SECRETARY
	CHECKED	10/19/02	<i>[Signature]</i>						Submitted By:	Recommended By:
	SUBMITTED	10/21/02	<i>[Signature]</i>						DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division
				GILBERTO S. REYES OIC, Director IV	MANUEL M. BONGQAN Undersecretary		INDEX OF DRAWINGS (INITIAL STAGE) Sheet 1 of 3	GC-01		

INDEX OF DRAWINGS

THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY CABANATUAN BYPASS - PACKAGE IV (INITIAL STAGE)

SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING
RS-12	STANDARD TRAFFIC SIGN	DS-06	STD RCPC, METHOD OF PIPE INSTALL. & TYP. BEDDING FOR CONDUITS	B12-04	AASHTO TYPE IV GIRDER (EXTERIOR SPAN)
RS-13	ADVANCE DIRECTION SIGN DETAILS - 1 OF 2	DS-07	STANDARD REINFORCED CONCRETE HEADWALL FOR RCPC	B12-05	AASHTO TYPE IV GIRDER (INTERIOR SPAN)
RS-13a	ADVANCE DIRECTION SIGN DETAILS - 2 OF 2	DS-08	STANDARD DRAINAGE DITCHES	B12-06	CONC. POURING SEQUENCE AND DIAPHRAGM DETAILS
RS-14	MOUNTING/SUPPORT FOR ROAD SIGN - TYP. SIGN MOUNTING DETAILS - 1 OF 2	DS-09	STANDARD COMBINATION CURB INLET MANHOLE	B12-07	ABUTMENT A1 MAINWALL REINFORCEMENT DETAILS
RS-15	MOUNTING/SUPPORT FOR ROAD SIGN - TYP. SIGN MOUNTING DETAILS - 2 OF 2	DS-10	STANDARD JUNCTION BOX MANHOLE	B12-08	ABUTMENT A1 WINGWALL REINFORCEMENT DETAILS
RS-16	STANDARD PAVEMENT MARKING - 1 OF 2	DS-11	STANDARD REINFORCED CONCRETE CATCH BASIN FOR RCPC	B12-09	ABUTMENT A2 MAINWALL REINFORCEMENT DETAILS
RS-17	STANDARD PAVEMENT MARKING - 2 OF 2	DS-12	TYPICAL DRAINAGE CROSS-SECTIONS	B12-10	ABUTMENT A2 WINGWALL REINFORCEMENT DETAILS
RS-18	REFLECTIVE ROAD STUD AND CONCRETE CHATTER BAR AND DETAILS	DS-13	TYPICAL DRAINAGE CROSS-SECTIONS WITH MANHOLE	B12-11	APPROACH SLAB PLAN, SECTIONS AND DETAILS
RS-19	TRAFFIC SIGNAL POLE TYPE A & FOUNDATION DETAILS			B12-12	ABUTMENT SHEAR KEY & RISER DETAILS
RS-20	TRAFFIC SIGNAL POLE TYPE B, C & D			B12-13	PIER P1 AND PIER P3 BAR ARRANGEMENT
RS-21	TRAFFIC SIGNAL POLE FOUNDATION DETAILS (TYPE B, C & D)			B12-14	PIER B2 BAR ARRANGEMENT
RS-22	TYPICAL PLANTING LAYOUT WITHOUT FRONTAGE ROAD			G12-15	PIER SHEAR KEY & RISER DETAILS
RS-23	TYPES OF PLANTING FORMS AND OTHER DETAILS			B12-16	ABUTMENT PROTECTION AND SIDE DRAIN DETAILS
RS-24	TYPICAL FENCING DETAILS				
	DRAINAGE		UNDERPASS CROSSING (BOX CULVERT)		BRIDGE NO. 13 (STA 125+614.096 TO STA 125+634.756)
	GENERAL DRAINAGE	UP-01	SITE DEVELOPMENT PLAN - UNDERPASSES ALONG BYPASS	B13-01	GEN. PLAN, ELEVATION & SECTIONS
DG-01	SCHEDULE OF DRAINAGE STRUCTURES - 1 of 2	UP-02	GEN. PLAN, ELEV. & SECTION, B-13 UNDERPASS (STA. 121+960.000)	B13-02	DECK FRAMING PLAN AND SECTIONS
DG-02	SCHEDULE OF DRAINAGE STRUCTURES / QUANTITIES FOR RCBC - 2 of 2	UP-03	GEN. PLAN, ELEV. & SECTION, B-14 UNDERPASS (STA. 122+940.000)	B13-03	AASHTO TYPE IV GIRDER
DG-03	SCHEDULE OF SIDE DITCH	UP-04	GEN. PLAN, ELEV. & SECTION, B-15 UNDERPASS (STA. 124+040.000)	B13-04	CONC. POURING SEQUENCE AND DIAPHRAGM DETAILS
	DRAINAGE CROSS-SECTIONS ALONG BYPASS	UP-05	GEN. PLAN, ELEV. & SECTION, B-16 UNDERPASS (STA. 124+550.000)	B13-05	ABUTMENT A1 & A2 MAINWALL REINFORCEMENT DETAILS
DC-01	DRAINAGE CROSS-SECTION, STA. 121 + 700.000 TO STA. 122 + 340.000	UP-06	GEN. PLAN, ELEV. & SECTION, B-17 UNDERPASS (STA. 125+040.000)	B13-06	ABUTMENT A1 & A2 WINGWALL REINFORCEMENT DETAILS
DC-02	DRAINAGE CROSS-SECTION, STA. 122 + 452.000 TO STA. 123 + 364.000	UP-07	GEN. PLAN, ELEV. & SECTION, B-18 UNDERPASS (STA. 126+674.000)	B13-07	APPROACH SLAB PLAN, SECTIONS AND DETAILS
DC-03	DRAINAGE CROSS-SECTION, STA. 123 + 475.000 TO STA. 123 + 574.000	UP-08	GEN. PLAN, ELEV. & SECTION, B-19 UNDERPASS (STA. 130+440.000)	B13-08	ABUTMENT SHEAR KEY & RISER DETAILS
DC-04	DRAINAGE CROSS-SECTION, STA. 123 + 654.000 TO STA. 124 + 360.000	UP-09	GEN. PLAN, ELEV. & SECTION, B-20 UNDERPASS (STA. 131+040.000)	B13-09	ABUTMENT PROTECTION AND SIDE DRAIN DETAILS
DC-05	DRAINAGE CROSS-SECTION, STA. 124 + 514.000 TO STA. 125 + 014.000	UP-10	CONC. COVER DETAILS (3.0m)		
DC-06	DRAINAGE CROSS-SECTION, STA. 125 + 180.000 TO STA. 125 + 655.000	UP-11	CONC. COVER DETAILS (3.0m) WITH BOX SUPPORT		
DC-07	DRAINAGE CROSS-SECTION, STA. 125 + 864.000 TO STA. 126 + 434.000	UP-12	SPECIAL RCBC BARREL DETAIL		
DC-08	DRAINAGE CROSS-SECTION, STA. 126 + 624.000 TO STA. 126 + 994.000	UP-13	BOX CULVERT BARREL BAR SCHEDULE		
DC-09	DRAINAGE CROSS-SECTION, STA. 127 + 006.000 TO STA. 127 + 692.000	UP-14	WINGWALL DETAIL		
DC-10	DRAINAGE CROSS-SECTION, STA. 127 + 832.000 TO STA. 128 + 297.000	UP-15	TYPICAL PLAN REINF. CONCRETE AT END BOX CULVERT & CURB DETAIL		
DC-11	DRAINAGE CROSS-SECTION, STA. 128 + 394.000 TO STA. 128 + 784.000	UP-16	APPROACH SLAB DETAIL		
DC-12	DRAINAGE CROSS-SECTION, STA. 129 + 110.000 TO STA. 129 + 455.000				
DC-13	DRAINAGE CROSS-SECTION, STA. 129 + 789.000 TO STA. 129 + 940.000				
DC-14	DRAINAGE CROSS-SECTION, STA. 130 + 129.000 TO STA. 130 + 654.000				
DC-15	DRAINAGE CROSS-SECTION, STA. 130 + 920.000 TO STA. 131 + 594.000				
DC-16	DRAINAGE CROSS-SECTION, STA. 131 + 644.000 TO STA. 132 + 115.000				
DC-17	DRAINAGE CROSS-SECTION, STA. 132 + 460.000 TO STA. 133 + 620.000				
DC-18	DRAINAGE CROSS-SECTION, STA. 133 + 790.000 TO STA. 132 + 200.000				
DC-19	DRAINAGE CROSS-SECTION, STA. 134 + 250.000 TO STA. 134 + 390.000				
	ALONG CROSSROAD		BRIDGES		BRIDGE NO. 14 (STA 132+632.444 TO STA 132+993.224)
DC-20	DRAINAGE CROSS-SECTION, INTERSECTION A-24, A-29, A-30, A-34 & A-35	BG-01	BRIDGE LOCATION MAP (CONTRACT PACKAGE IV)	BS-01	TYP. BEARING PAD, EXP. JOINT, BEARING SLEEVE & ANCHOR BAR
	DRAINAGE STANDARD DRAWINGS AND DETAILS	BG-02	GENERAL NOTES FOR BRIDGES - 1 OF 2	BS-02	TYPICAL SIDEWALK, RAILING AND DRAIN DETAILS
DS-01	STANDARD DETAILS OF REINFORCED CONCRETE BOX CULVERT (RCBC)	BG-03	GENERAL NOTES FOR BRIDGES - 2 OF 2	BS-02a	SCHEDULE OF REINFORCEMENT (POST, RAILING & SIDEWALK)
DS-02	STANDARD DETAILS OF REINFORCED CONCRETE BOX CULVERT (RCBC) BARRELS	BG-04	SUMMARY OF QUANTITIES BRIDGE (11, 12 AND 13)	BS-03	TYPICAL REINFORCED CONCRETE PILE DETAILS
DS-03	STANDARD DETAILS OF RCBC WINGWALLS			BS-04	TYPICAL STEEL H-PILE DETAILS
DS-04	STANDARD LOW DEPTH TYPE BOX CULVERT - 1 of 2	B11-01	BRIDGE NO. 11 (STA 122+359.060 TO STA 122+394.920)	B14G-01	GENERAL NOTES FOR BRIDGES 1 OF 3
DS-05	STANDARD LOW DEPTH TYPE BOX CULVERT - 2 of 2	B11-02	GEN. PLAN, ELEVATION & SECTIONS	B14G-02	GENERAL NOTES FOR BRIDGES 2 OF 3
		B11-03	DECK FRAMING PLAN AND SECTIONS	B14G-03	GENERAL NOTES FOR BRIDGES 3 OF 3
		B11-04	AASHTO TYPE VI GIRDER	B14-G-04	HORIZONTAL AND VERTICAL CONTROL MONUMENTS
		B11-05	CONC. POURING SEQUENCE AND DIAPHRAGM DETAILS	B14G-05	PLAN AND PROFILE
		B11-06	ABUTMENT A1 MAINWALL REINFORCEMENT DETAILS	B14G-06	GEN PLAN, ELEVATION AND SECTIONS - 1 OF 2
		B11-07	ABUTMENT A1 WINGWALL REINFORCEMENT DETAILS	B14G-07	GEN PLAN, ELEVATION AND SECTIONS - 2 OF 2
		B11-08	ABUTMENT A2 MAINWALL REINFORCEMENT DETAILS	B14G-08	BORHOLE LOCATION PLAN AND SOIL PROFILE
		B11-09	ABUTMENT A2 WINGWALL REINFORCEMENT DETAILS	B14-G-09	TABLE OF ELEVATIONS
		B11-10	APPROACH SLAB PLAN, SECTIONS AND DETAILS	B14-G-10	SUMMARY OF QUANTITIES
		B11-11	ABUTMENT SHEAR KEY & RISER DETAILS		
		B12-01	ABUTMENT PROTECTION AND SIDE DRAIN DETAILS	B14L-21	DECK SLAB PLAN (ABUT. 1 TO ABUT. 2)
				B14L-22	TYPICAL SLAB DIMENSIONS
				B14L-23	GIRDER LAYOUT PLAN (ABUT. 1 TO ABUT 2)
				B14L-24	LAYOUT AND DIMENSIONS (AASHTO GIRDER TYPE VI - MODIFIED)
				B14L-25	PIER LAYOUT AND DIMENSIONS (PIER 1 AND PIER 2)
				B14L-26	PIER LAYOUT AND DIMENSIONS (PIER 4, PIER 5, PIER 7 AND PIER 8)

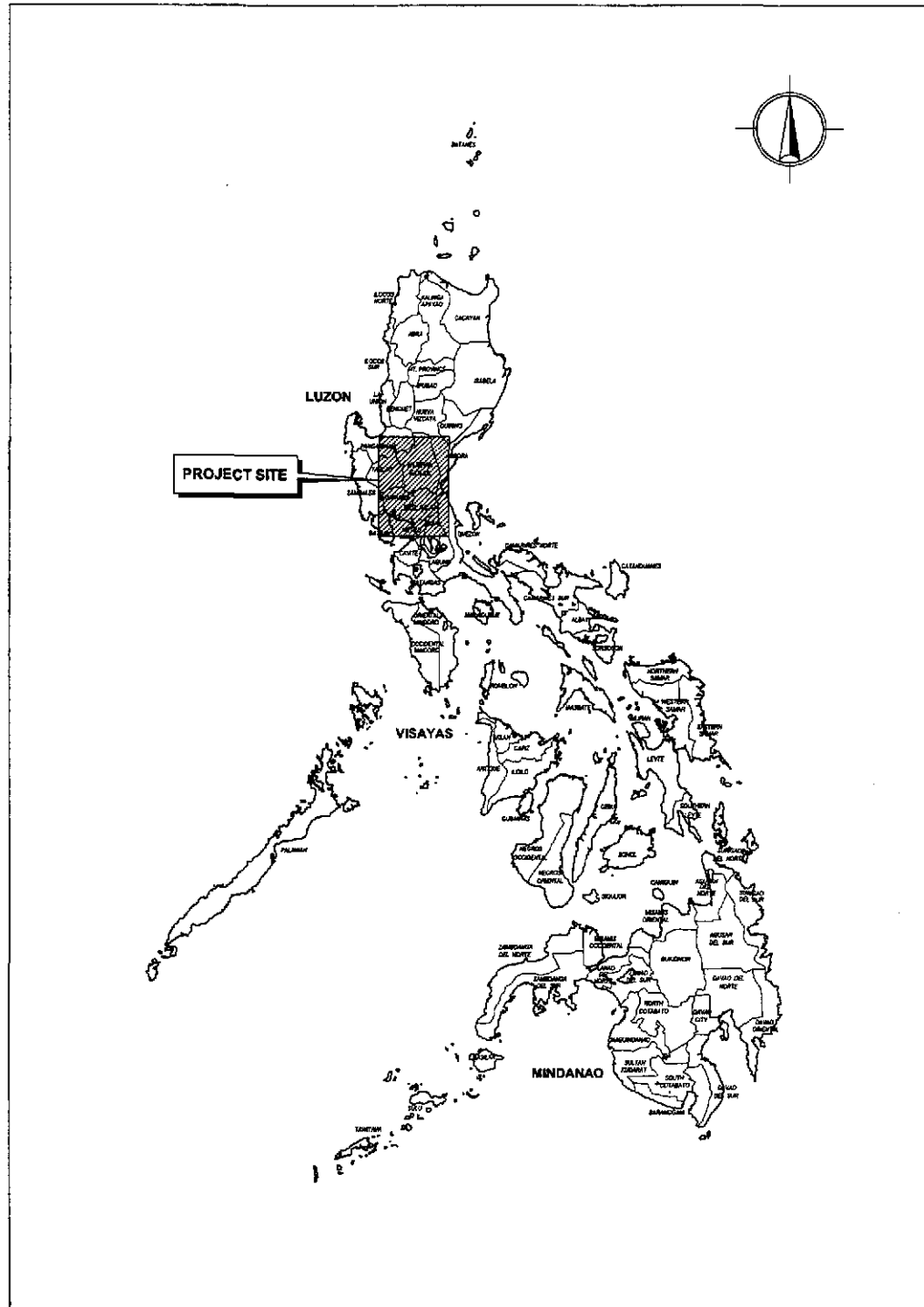
 JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED	DATE	SIGNATURE	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :					
	CHECKED	10/19/10							BUREAU OF DESIGN	OFFICE OF THE SECRETARY			
	Submitted By:		Reviewed By:						Recommended By:		Approved By:		
	10/21/10												
SUBMITTED		TEAM LEADER		Project Director		Chief, Highways Division		OE, Director IV		Undersecretary		Secretary	

INDEX OF DRAWINGS

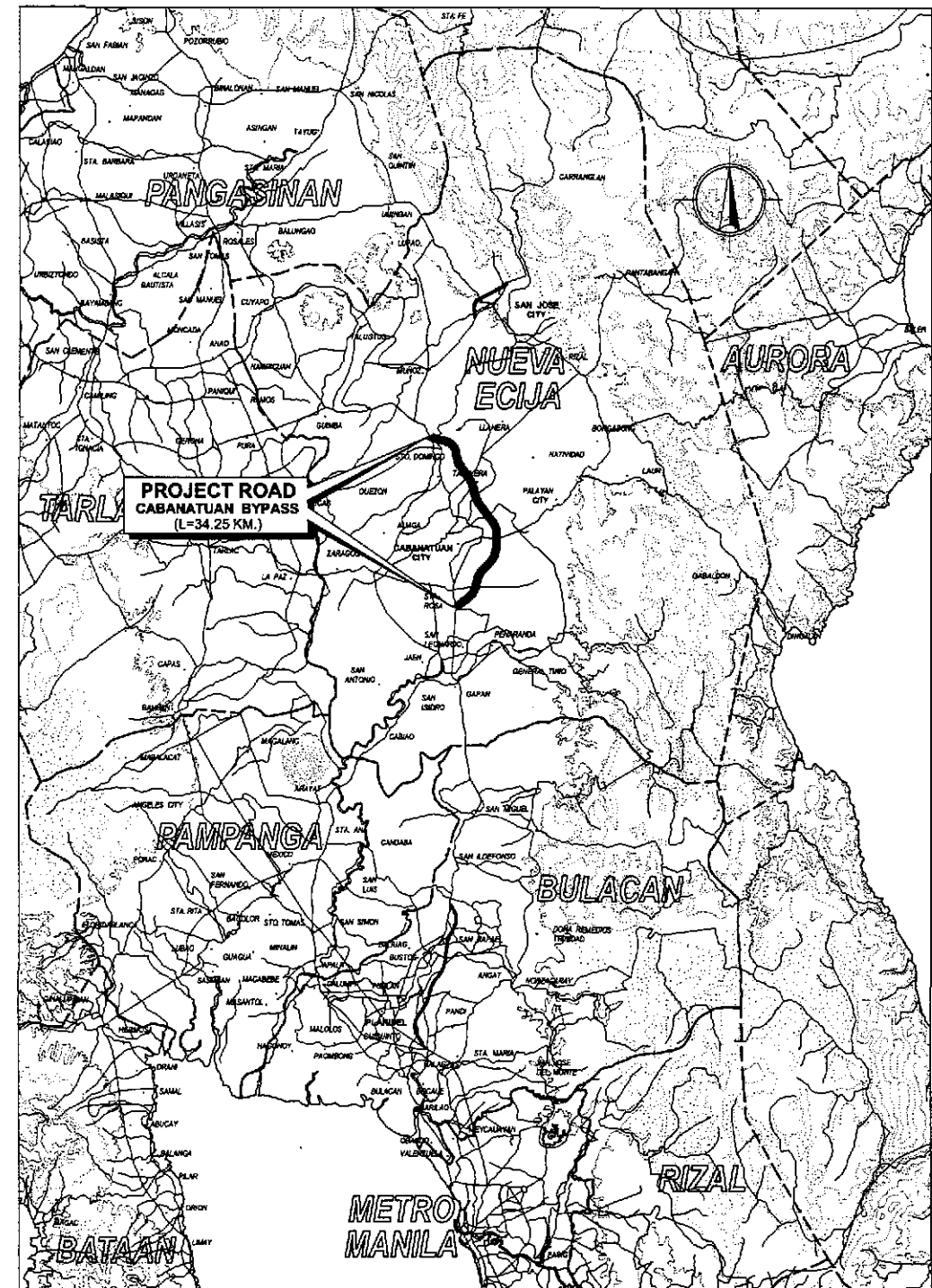
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY CABANATUAN BYPASS - PACKAGE IV (INITIAL STAGE)

SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING
B14L-27	PIER LAYOUT AND DIMENSIONS (PIER 3 AND PIER 6)	B14M-89	APPROACH SLAB REINFORCEMENT DETAILS (ABUT. A1 & A2)	FA-12	ROOF FRAMING PLAN, SCHEMATIC DIAGRAM, PURLIN CONNECTION AND CROSS BRACING CONNECTION
B14L-28	ABUTMENT LAYOUT AND DIMENSIONS (ABUT. A1 & ABUT. A2)	B14M-90	DETAILS OF SIDEWALK, RAILING AND DRAIN		
B14L-29	COPING LAYOUT AND DIMENSIONS (PIE 1 & PIER 2, FIX-FIX PIERS)	B14M-91	SIDEWALK AND LIGHT POLE BASE REINF. DETAILS, RAILING DIMENSIONS		
B14L-30	COPING LAYOUT AND DIMENSIONS (PIER P4, P5, P7 & P8, FIX-FIX PIERS)	B14M-92	DETAILS OF ABUTMENT SLOPE PROTECTION (ABUT. A1) 1 OF 3	FE-01	ELECTRICAL ENGR'S FIELD OFFICE / LABORATORY - LIGHTING LAYOUT, POWER LAYOUT & ELECTRICAL SYMBOLS AND GENERAL NOTES
B14L-31	COPING LAYOUT AND DIMENSIONS (PIER 3 & PIER 6, EXP.-EXP. PIERS)	B14M-93	DETAILS OF ABUTMENT SLOPE PROTECTION (ABUT. A2) 2 OF 3	FE-02	ENGR'S LIVING QTRS - LIGHTING LAYOUT, POWER LAYOUT & ELECTRICAL SYMBOLS AND GENERAL NOTES
	SUPER STRUCTURE REINFORCEMENT DETAIL	B14M-95	DETAILS OF PIER PROTECTION (PIERS P5 TO P8)	FE-03	ENGR'S FIELD OFFICE & LIVING QUARTERS - SCHEDULE OF LOADS AND COMPUTATIONS & ELECTRICAL RISER DIAGRAM
B14U-41	AASHTO GIRDER TYPE VI-MODIFIED REINF. DETAILS (FIX-FIX SUPPORT)-1 OF 2	B14M-96	DETAILS OF RIVER SLOPE PROTECTION		
B14U-42	AASHTO GIRDER TYPE VI-MODIFIED REINF. DETAILS (FIX-FIX SUPPORT)-1 OF 2		CONSTRUCTION WORKS		
B14U-43	AASHTO GIRDER TYPE VI-MODIFIED PRESTRESSING DETAILS (FIX-FIX SUPPORT)	B14C-101	TEMPORARY CRANEWAY BRIDGE AND DOFFERDAM LAYOUT		
B14U-44	AASHTO GIRDER TYPE VI - MODIFIED REINF. DETAILS (FIX-EXP. SUPPORT)-1 OF 2	B14C-102	DETAILS OF COFFERDAM AND CRANEWAY BRIDGE		
B14U-45	AASHTO GIRDER TYPE VI-MODIFIED REINF. DETAILS (FIX-EXP. SUPPORT)-2 OF 2	B14C-103	TENTATIVE CONSTRUCTION PLAN, ELEVATION AND SCHEDULE		
B14U-46	AASHTO GIRDER TYPE VI-MODIFIED PRESTRESSING DETAILS (FIX-EXP. SUPPORT)		ELECTRICAL	FP-01	PLUMBING ENGR'S FIELD OFFICE & LIVING QUARTERS - SEWER AND WATER LINE LAYOUT AND ISOMETRIC DIAGRAM
B14U-47	DECK SLAB TYPE VI-MODIFIED PRESTRESSING DETAILS (FIX-EXT. SUPPORT)		ELECTRICAL STANDARD DRAWINGS AND DETAILS	FP-02	ENGR'S FIELD OFFICE & LIVING QUARTERS - SEPTIC TANK DETAILS
B14U-48	DECK SLAB REINFORCEMENT DETAILS -1 OF 3	ES-01	NOTES & LEGENDS, SCHEMATIC CONTROL DIAG. & DUCT SECTION	FX-01	EXTERNAL ENGR'S FIELD OFFICE & LIVING QUARTERS - PLOT PLAN, ELEVATION OF FENCE & GATE AND TYPICAL FOUNDATION DETAIL
B14U-49	DECK SLAB REINFORCEMENT DETAILS 3 OF 3	ES-02	SERVICE POLE DETAILS		
B14U-50	END, INTERMEDIATE & CONTINUITY DIAPHRAGM REINF. DETAILS	ES-03	STREET LIGHT POLE DETAILS		
	SUBSTRUCTURE REINFORCING DETAILS		ROADWAY LIGHTING LAYOUT FOR INTERSECTIONS		
B14S-61	COLUMN REINF. DETAILS (PIERS P1 & P2 - FIXED PIER)	EI-01	LAYOUT PLAN AND LOAD SCHEDULE, INTERSECTION A-25 (STA 125+881.570)		
B14S-62	COLUMN REINF. DETAILS (PIERS P4, P5, P7 & P8 - FIXED PIER)	EI-02	LAYOUT PLAN AND LOAD SCHEDULE, INTERSECTION A-30 (STA 129+921.679)	OE-01	OTHERS ELECTRICAL UTILITY RELOCATION REFERENCE LAYOUT PLAN LAYOUT PLAN, STA. 121 + 600.000 TO STA. 122 + 600.000
B14S-63	COLUMN REINF. DETAILS (PIER 3 - EXP. PIER)	EI-03	LAYOUT PLAN AND LOAD SCHEDULE, INTERSECTION A-35 (STA 134+231.098)	OE-02	LAYOUT PLAN, STA. 122 + 600.000 TO STA. 124 + 000.000
B14S-64	COLUMN REINF. DETAILS (PIER 6 - EXP. PIER)		ROADWAY LIGHTING LAYOUT FOR BRIDGE	OE-03	LAYOUT PLAN, STA. 124 + 000.000 TO STA. 125 + 400.000
B14S-65	COPING REINF. DETAILS FOR FIX PIERS (PIERS P1, P2, P4, P5, P7 & P8)	EB-01	LAYOUT PLAN AND LOAD SCHEDULE, BRIDGE NO.14 TALAVERA RIVER BRIDGE CROSSING	OE-04	LAYOUT PLAN, STA. 125 + 400.000 TO STA. 126 + 800.000
B14S-66	COPING REINF. DETAILS FOR EXP. PIERS (PIER & PIER 6)		ENGINEER'S FIELD OFFICE & LIVING QUARTERS	OE-05	LAYOUT PLAN, STA. 126 + 800.000 TO STA. 128 + 200.000
B14S-63	COLUMN REINF. DETAILS (PIER 3 - EXP. PIER)		ARCHITECTURAL	OE-06	LAYOUT PLAN, STA. 128 + 200.000 TO STA. 129 + 600.000
B14S-64	COLUMN REINF. DETAILS (PIER 6 - EXP. PIER)		PERSPECTIVE AND TABLE OF CONTENTS	OE-07	LAYOUT PLAN, STA. 129 + 600.000 TO STA. 131 + 000.000
B14S-65	COPING REINF. DETAILS FOR FIX PIERS (PIERS P1, P2, P4, P5, P7 & P8)	FA-01	ENGR'S FIELD OFFICE - FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN	OE-08	LAYOUT PLAN, STA. 131 + 000.000 TO STA. 132 + 400.000
B14S-66	COPING REINF. DETAILS FOR EXP. PIERS (PIER & PIER 6)	FA-02	ENGR'S LIVING QTRS - FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN	OE-09	LAYOUT PLAN, STA. 132 + 400.000 TO STA. 133 + 800.000
B14S-67	PILE CAP REINF. DETAILS FOR FIX PIERS (PIER P1 & P2) - 1 OF 2	FA-03	ENGR'S LIVING QTRS - REAR & LEFT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS	OE-10	LAYOUT PLAN, STA. 133 + 800.000 TO STA. 134 + 731.828
B14S-68	PILE CAP REINF. DETAILS FOR FIX PIERS (PIERS P1 & P2) - 2 OF 2	FA-04	ENGR'S FIELD OFFICE / LABORATORY - ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS		
B14S-69	PILE CAP REINF. DETAILS FOR FIX PIERS (PIER P4, P5, P7 & P8) - 1 OF 2	FA-05	ENGR'S LIVING QUARTERS - ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS		
B14S-70	PILE CAP REINF. DETAILS FOR FIX PIERS (PIER P4, P5, P7 & P8) - 2 OF 2	FA-06	ENGR'S FIELD OFFICE & LIVING QUARTERS - FOUNDATION PLAN, R.C. RAMP DETAIL, DETAIL OF F-1, P-1, WF1 & DESIGN CRITERIA		
B14S-71	PILE CAP REINF. DETAILS FOR EXP. PIERS (PIER 3 & PIER 6) - 1 OF 2	FA-07	ENGR'S FIELD OFFICE / LABORATORY - FRONT & RIGHT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS		
B14S-72	PILE CAP REINF. DETAILS FOR EXP. PIERS (PIER 3 & PIER 6) - 2 OF 2	FA-08	ENGR'S LIVING QTRS - REAR & LEFT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS		
B14S-73	REINFORCEMENT DETAILS FOR ABUTMENT A1 & A2 - 1 OF 2	FA-09	ENGR'S FIELD OFFICE - FRONT & RIGHT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS		
B14S-74	REINFORCEMENT DETAILS FOR ABUTMENT A1 & A2 - 2 OF 2	FA-10	ENGR'S LIVING QTRS - REAR & LEFT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS		
B14S-75	BORED PILE REINF. DETAILS, Ø1000mm (ABUTMENT A1 & A2)	FA-11	ENGR'S FIELD OFFICE & LIVING QUARTERS - DETAILS OF CONNECTIONS, DETAILS 1 TO 15		
B14S-76	BORE PILE REINF. DETAILS, *1500mm (PIER 1 & PIER 2)			OC-01	CONE PENETRATION TEST (CPT) PROFILE, STA. 121 + 634.000 TO STA. 126 + 334.000
B14S-77	BORE PILE REINF. DETAILS Ø1500mm (PIER P4, P5 P7 & P8)			OC-02	PROFILE, STA. 126 + 534.000 TO STA. 131 + 134.000
B14S-78	BORE PILE REINF. DETAILS, Ø 15000mm (PIER 3)			OC-03	PROFILE, STA. 131 + 334.000 TO STA. 134 + 534.000
B14S-79	BORE PILE REINF. DETAILS Ø (PIER 6)				
	MISCELLANEOUS DRAWINGS				
B14M81	ANCHOR BAR AND BEARING DETAILS FOR FIX PIERS				
B14M-82	RISER REINFORCEMENT AND BEARING PAD DETAILS				
B14M-83	RESTRAINING BAR DETAILS				
B14M-84	EXPANSION JOINT DETAILS @ ABUTMENT AND PIERS				
B14M-85	REINF. DETAILS OF SHEAR KEY (ABUT. A1 & A2)				
B14M-86	REINF. DETAILS OF SHEAR KEY (PIER P3 & P6, EXP.-EXP. PIERS)				
B14M-87	REINF. DETAILS OF SHEAR KEY (PIER 1 & PIER 2, FIX-FIX PIERS)				
B14M88	REINF. DETAILS OF SHEAR KEY (PIERS P4, P5, P7 & P8, FIX-FIX PIERS)				

JICA JAPAN INTERNATIONAL COOPERATION AGENCY	KATAHIRA & ENGINEERS INTERNATIONAL	YEO 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	10/12/02						<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)	INDEX OF DRAWINGS (INITIAL STAGE) Sheet 3 of 3	GC-03
			CHECKED	10/19/02						<i>[Signature]</i>	Submitted By: DANILLO C. TRAJANO Project Director	Reviewed By: JOSEFINA M. ALAGAR Chief, Highway Division	Recommended By: GILBERTO S. REYES Dir. Director IV	Manuel M. Bonnon Undersecretary	Simeon A. Datumanong Secretary




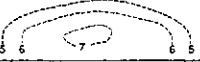
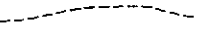
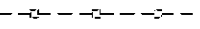
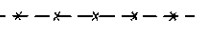

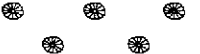
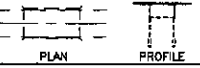
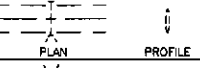
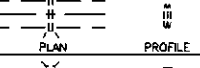
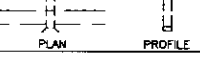
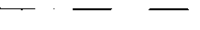
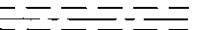
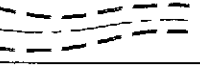




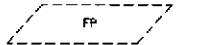

2 KEY MAP
GC-05 NOT TO SCALE

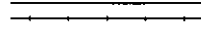

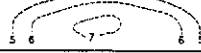
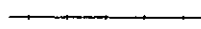


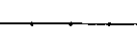

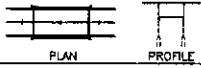
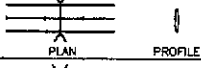
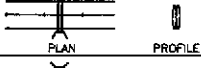
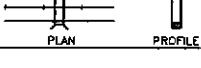
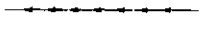



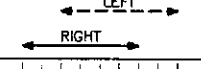
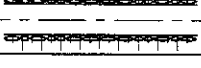
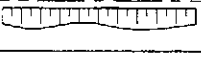
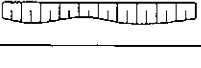

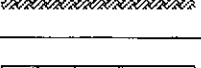
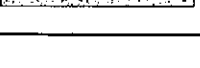
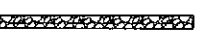
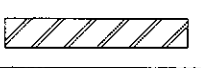
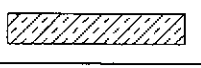
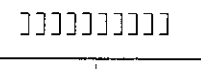




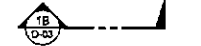







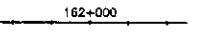
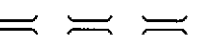
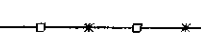
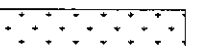





1 VICINITY MAP
GC-05 NOT TO SCALE

JICA JAPAN INTERNATIONAL COOPERATION AGENCY		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)		SCALE :	SHEET CONTENTS :	SHEET NO. :
DESIGNED	10/12/02	<i>[Signature]</i> ACACIO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY		FULL SIZE A1	KEY AND VICINITY MAP	GC-04	
CHECKED	10/19/02	<i>[Signature]</i> ROSE	Submitted By:	Reviewed By:	Recommended By:	Approved By:				
SUBMITTED	10/27/02	<i>[Signature]</i> TEAM LEADER	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OC, Director IV	MANUEL M. BONGAN Undersecretary				SIMEON A. DATUMANONG Secretary
KATAHIRA & ENGINEERS INTERNATIONAL		YEO YACHIYO ENGINEERING CO., LTD.		CABANATUAN BYPASS - CONTRACT PACKAGE IV						

LEGEND AND SYMBOLS

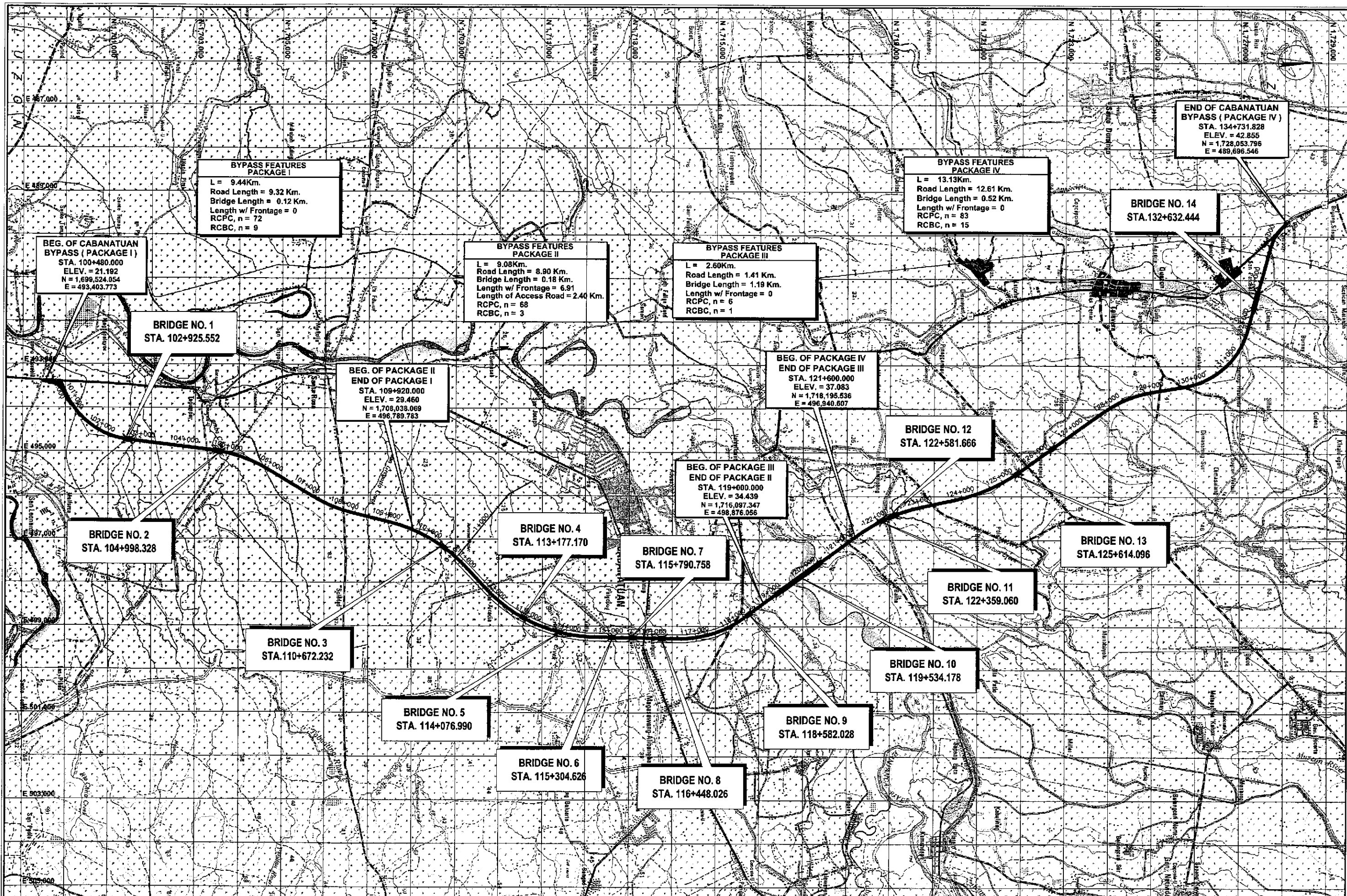
EXISTING FEATURES	
ROAD	
CONTOUR	
ORIGINAL GROUND	
CONCRETE FENCE	
BARBED WIRE FENCE	
HOUSE	
TREES	
BRIDGE	
SINGLE PIPE CULVERT	
DOUBLE PIPE CULVERT	
BOX CULVERT	
DITCH LINE/ IRRIGATION LINE	
IRRIGATION LINE	
RIVER/CREEK	
ELECTRIC POST	
KILOMETER POST	
TRAVERSE STATION POINT	
BENCHMARK	
FISH POND	
NATIONAL POWER CORP. TRANSMISSION LINE	

NEW DESIGN FEATURES	
PROJECT ROAD	
SERVICE OR FRONTAGE ROAD ALONG BYPASS	
CONTOUR	
RIGHT-OF-WAY LIMIT	
POINT OF INTERSECTION	
POINT OF INTERSECTION NO.	
☉ OF PROJECT ROAD	
FINISHED GRADE ON PROFILE	
BRIDGE	
SINGLE RC PIPE CULVERT	
DOUBLE RC PIPE CULVERT	
BOX CULVERT	
EARTH DITCH FLOW	
DIRECTION OF FLOW	
MANHOLE	
GUARDRAIL ON PLAN	
GUARDRAIL ON PROFILE	
GROUTED RIPRAP ON SLOPE	
EMBANKMENT	
EXCAVATION	
SECTION IN WATER	
SECTION IN EARTH	
SECTION IN CONCRETE	
SECTION IN GRAVEL	
SECTION IN STRUCTURAL STEEL	
SOFT BED MATERIALS TO BE EXCAVATED	
STONE MASONRY RETAINING WALL / REVETMENT / REINF. CONCRETE RETAINING WALL	
NORTH SIGN	
GRID COORDINATES	
AGGREGATE SOURCE	
LINE SYMMETRY	
SECTION TARGET	
ELEVATION TARGET	
TITLE TARGET	
SUB-TITLE TARGET	
DETAIL REF TARGET	
BOREHOLE	
STREET LIGHTING POLE	
KILOMETER POST	
STATION GRID	
LINED IRRIG. CANAL	
CHAIN LINK FENCE	
SODDING ON PLAN	
LOW TREES	
MIDDLE TREE	
HIGH TREE	

ABBREVIATIONS

A	PARAMETER (CLOTHOID)	DIST.	DISTANCE	Lo	SUPERELEVATION RUN-OFF	NIC	NOT INCLUDED IN CONTRACT
ABAN	ABANDON	DIV.	DIVISION	LG	LONG	MPa	MEGA PASCAL
ABT	ABOUT	DRWG./DWG.	DRAWING	LLV	LONG LEG VERTICAL	MC	MANHOLE COVER
ABUT	ABUTMENT	DWY.	DRIVEWAY	LM	LINEAR METER	RP	REFERENCE POINT
AC	ASPHALT CONCRETE	e%	DESIGN SUPERELEVATION	LONGIT.	LONGITUDINAL	RSP	ROCK SLOPE PROTECTION
AGG	AGGREGATE	E	EASTING	LP	LIGHT POLE	RT.	RIGHT
AH	AHEAD	EA	EACH	LS	LUMP SUM ; LEFT SIDE	S	SOUTH
APP	APPROACH	ECC/CS/PF	END OF CIRCULAR CURVE	LT	LEFT	SECT.	SECTION
ASPH	ASPHALT	E	EXTERNAL DISTANCE	m	METER	SDWK.	SIDEWALK
ASTM	AMERICAN STANDARD FOR TESTING & MATERIALS	EF	EACH FACE	mm	MILLIMETER	SHT.	SHEET
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS	EG	EDGE OF GUTTER	MAX	MAXIMUM	SL	SLOPE
AVE	AVENUE	ELEV./EL.	ELEVATION	MFL	MAXIMUM FLOOD LEVEL	SQ.M./m ²	SQUARE METER
AZIM.	AZIMUTH	EMB.	EMBANKMENT	MFWL	MAXIMUM FLOOD WATER LEVEL	SMH	SEWER MANHOLE
BCC/SC/PC	BEGINNING OF CIRCULAR CURVE	ENGR.	ENGINEER	MH	MANHOLE	SP	SPIRAL
BDRY LN	BOUNDARY LINE	EP	EDGE OF PAVEMENT	MIN.	MINIMUM	SPCD.	SPACED
BEG.	BEGINNING	EQ	EQUAL ; EQUATION	MISC.	MISCELLANEOUS	SPCS.	SPACES
BET.	BETWEEN	EQN.	EQUATION	MO	MIDDLE ORDINATE	SPL	SPECIAL
BGY./BRGY.	BARANGAY	ESMT	EASMENT	MPa	MEGA PASCAL	SPECS.	SPECIFICATIONS
BH	BOREHOLE	ETC/ST	END OF TRANSITION CURVE	MSL	MEAN SEA LEVEL	SQ.	SQUARE
BK	BACK	EW	EACH WAY	MT	METRIC TON	ST.	STREET
BLDG.	BUILDING	EXC.	EXCAVATION	DPWH	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	STA.	STATION
BLVD.	BOULEVARD	EXIST./EXTG.	EXISTING	MWSS	METROPOLITAN WATERWORKS & SEWERAGE SYSTEM	STD.	STANDARD
BM	BENCH MARK	EXP.	EXPANSION BEARING	N	NORTH / NEWTON	STIFF.	STIFFENERS
BMSL	BELOW MEAN SEA LEVEL	EXT.	EXTERIOR	N/A	NOT APPLICABLE	STIRR./STIR	STIRRUP(S)
BOT./BOTT	BOTTOM	EXTN.	EXTENSION	NC	NORMAL CROWN	STR.	STRAIGHT
BR.	BRIDGE	FF	FAR FILL/FAR FACE	NF	NEAR FACE	STRUC./STRUCT	STRUCTURAL
BRG	BEARING	FG	FINISHED GRADE	NO./No.	NUMBER	SURVY.	SURVEY
BS	BACK STATION ; BOTH SIDES	FIN.	FINISHED	OC/O.C.	ON CENTER	SYMM.	SYMMETRY
BST	BITUMINOUS SURFACE TREATMENT	FPL	FINISHED PAVEMENT LEVEL	OD	OUTSIDE DIAMETER	T	TANGENT
BTC/TS	BEGINNING OF TRANSITION CURVE	FTG.	FOOTING	OGL	ORIGINAL GROUND LEVEL	TBM	TEMPORARY BENCHMARK
BW	BOTHWAYS	FH	FIRE HYDRANT	OUT INV.	OUTLET INVERT	TEMP.	TEMPORARY
C	CURVE	FWL	FLOOD WATER LEVEL	OWL	ORDINARY WATER LEVEL	THK.	THICK
CAB	CRUSHED AGGREGATE BASE	g	GRADIENT IN PERCENT	PCC	PORTLAND CEMENT CONCRETE	Tk	SHORT TANGENT OF SPIRAL
CALC.	CALCULATED	GALV.	GALVANIZED	PEJ	PREMOULDED EXPANSION JOINT	TL	LONG TANGENT OF SPIRAL
CB	CATCH BASIN	GEN.	GENERAL	PHIL.	PHILIPPINE(S)	TRANS.	TRANSVERSE
c / c	CENTER TO CENTER	GIP	GALVANIZED IRON PIPE	PI	POINT OF INTERSECTION	Ts	TOTAL TANGENT DISTANCE
CEM	CEMENT	GPS	GLOBAL POSITIONING SYSTEM	PJHL	PHILIPPINE-JAPAN HIGHWAY LOAN	TYP.	TYPICAL OR TYPE
CEP	CONCRETE ELECTRIC POST	GL	GROUND LEVEL	PL	PROPERTY LINE/ PLATE	V	DESIGN SPEED
cm.	CENTIMETER	GRD.	GRADE	PLDT	PHILIPPINE LONG DISTANCE TELEPHONE COMPANY	VAR.	VARIABLE/VARIES
Cu M/m ³	CUBIC METER	HDWL	HEADWALL	PMO	PROJECT MANAGEMENT OFFICE	VC	VERTICAL CURVE
CHB	CONCRETE HOLLOW BLOCK	HFL	HIGH FLOOD LEVEL	POC	POINT ON CURVE	VER.	VERIFIED
CIM	CURB INLET MANHOLE	HOR.	HORIZONTAL	POT	POINT OF TANGENT	VERT.	VERTICAL
CI	CURB INLET	HSE	HOUSE	PP	POWER POLE	VOL	VOLUME
CL	CENTERLINE	HT.	HEIGHT	PR	PROJECT ROAD	W	WIDENING
CLR	CLEAR	HTL	HIGH TIDE LEVEL	PRC	POINT OF REVERSE CURVE	w	WIDTH
COL(S)	COLUMN(S)	HWL/HW	HIGH WATER LEVEL/HIGH WATER	PROJ.	PROJECT	W/	WITH
COMB. CONC.	COMBINE CONCRETE	HWY.	HIGHWAY	PROP.	PROPOSED	W/o	WITHOUT
CONC.	CONCRETE	I	INTERSECTION ANGLE	PVC	POLYVINYL CHLORIDE	WEP	WOODEN ELECTRIC POST
CONC. MON.	CONCRETE MONUMENT	ID	INSIDE DIAMETER	PVI	POINT OF VERTICAL INTERSECTION	WK	WALK
CONST.	CONSTRUCTION	IN.	INCHES	PVMT.	PAVEMENT	WT	WATER TANK
CONST. JT.	CONSTRUCTION JOINT	INC.	INCORPORATED	QTY	QUANTITY	X.Y	COORDINATE OF BCC AND ECC WITH RESPECT TO TANGENT
CONT.	CONTINUOUS	IN. INV.	INLET INVERT	R	RADIUS	&	AND
CORP.	CORPORATION	INT.	INTERIOR	RC	REINFORCED CONCRETE	@	AT
CP	CROSS PIPE	INTERM.	INTERMEDIATE	RCBC	REINFORCED CONCRETE BOX CULVER	⊥	BASELINE
C & G	CURB AND GUTTER	IRRIG.	IRRIGATION	RCBG	REINFORCED CONCRETE BOX GIRDER	⊂	CENTERLINE
CULV.	CULVERT	JT.	JOINT	RCDG	REINFORCED CONCRETE DECK GIRDER	∞	INFINITY
C/WAY	CARRIAGEWAY	kg.	KILOGRAM	RCPC	REINFORCED CONCRETE PIPE CULVERT	%	PERCENT
CYL.	CYLINDRICAL	KN	KILO NEWTON	RD	ROAD	+/-	PLUS / MINUS
CTR	CENTER	KPa	KILO PASCAL	RDWY.	ROADWAY	∅	DIAMETER
DEPT.	DEPARTMENT	FIX	FIX BEARING	REINF.	REINFORCED	⊘	SQUARE
DET.	DETAIL	KM	KILOMETER	REP	RELOCATED ELECTRIC POST	L	ANGLE SHAPE
DIA./DIAM	DIAMETER	KPH	KILOMETER PER HOUR	RET. WALL	RETAINING WALL		
DIAPH.	DIAPHRAGM	L	LENGTH	ROW	RIGHT-OF-WAY		
		Lc	LENGTH OF CIRCULAR ARC	RS	RIGHT SIDE		

JICA 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	10/12/02	<i>[Signature]</i>	BUREAU OF DESIGN			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses)	NOT TO SCALE	ABBREVIATIONS	GC-06
	CHECKED	10/19/02	<i>[Signature]</i>	Submitted By:	Reviewed By:	Recommended By:				
SUBMITTED	10/21/02	<i>[Signature]</i>	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	CILBERTO S. REYES OIC, Director IV					
			OFFICE OF THE SECRETARY			CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1			



 JAPAN INTERNATIONAL COOPERATION AGENCY	DESIGNED	DATE	SIGNATURE	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :			SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/02	<i>[Signature]</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)			1:40,000	PROJECT ROAD GENERAL ALIGNMENT / FEATURES
 KATAHIRA & ENGINEERS INTERNATIONAL	SUBMITTED	10/21/02	<i>[Signature]</i>	BUREAU OF DESIGN Submitted By: DANILDO C. TRAJANO Project Director	OFFICE OF THE SECRETARY Recommended By: JOSEFINA M. ALACAR Chief, Highways Division	OFFICE OF THE SECRETARY Recommended By: GILBERTO S. REYES OIC, Director IV	OFFICE OF THE SECRETARY Approved By: MANUEL M. BONOAN Undersecretary	OFFICE OF THE SECRETARY Approved By: SIMEON A. DATUMANONG Secretary	CABANATUAN BYPASS - CONTRACT PACKAGE IV FULL SIZE A1	

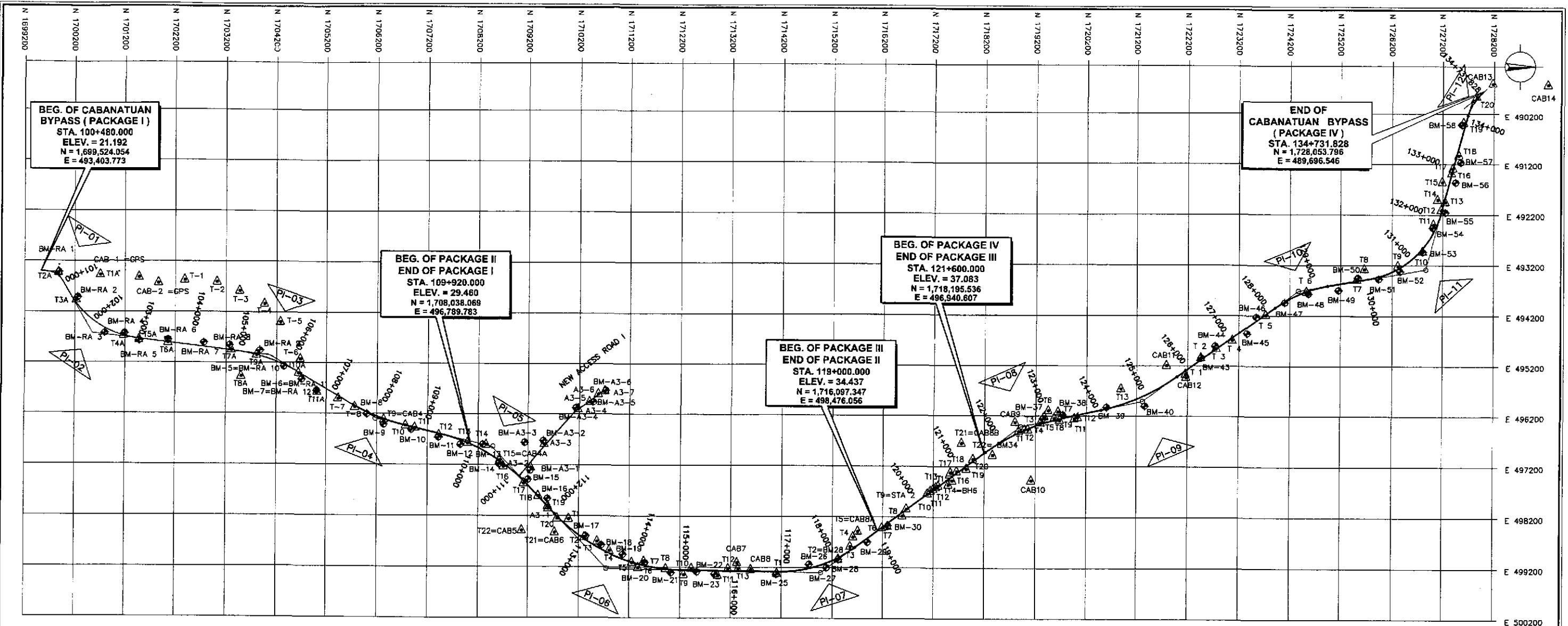


TABLE OF HORIZONTAL AND VERTICAL CONTROL			
POLYGON POINT	COORDINATES NORTHING EASTING	ELEV.	REMARKS
BM-RA 1	1,699,880.470 493,418.310	21.773	It is located on the left side of the national highway going north of the beginning of the bypass re-alignment under an acacia tree near the steel fence corner of a building in San Leonardo.
BM-RA 2	1,700,254.842 493,913.436	21.932	It is located on the left side of the road alignment placed on the side of a road (dirt) 1.50 m. from its centerline and approximately 3 m. away from the top bank of an irrigation canal beside an acacia tree.
BM-RA 3	1,700,792.820 494,817.824	22.451	It is located on the right side of the bypass alignment placed on top of a rice paddy intersection in the middle of a ricefield.
BM-RA 4	1,701,192.044 494,824.849	22.645	It is located on the left side of the alignment placed on the top bank of a fishpond underneath two acacia trees in Brgy. Tagumpay, San Leonardo.
BM-RA 5	1,701,481.927 494,766.231	21.587	It is located on the left side of the alignment placed in the middle of a ricefield beside a nipa hut in Brgy. Tagumpay, San Leonardo.
BM-RA 6	1,702,062.462 494,751.855	22.910	It is located on the left side of the road alignment placed on the side of a road 2 m. from its centerline beside an electric post in Brgy. Tagumpay, San Leonardo.
BM-RA 7	1,702,761.108 494,810.381	22.874	It is located on the right side of the road alignment placed on the top bank of a creek 3.50 m. from its centerline and under a dipterocarp trees in Brgy. Tagumpay, San Leonardo.
BM-RA 8	1,703,271.267 494,855.750	23.741	It is located on the left side of the alignment placed on the side of a road (gravel) 2 m. away from the centerline and 4 m. from the top bank of an irrigation canal in Brgy. Tabuguing, Sta. Rosa.
BM-RA 9	1,703,867.688 494,960.590	23.977	It is located on the left side of the alignment placed on the side of a road 1.70 m. away from the centerline.
BM-5	1,704,562.828 495,238.110	25.505	It is located on the right side of the alignment placed on the side of a dirt road 1.50 m. away from its centerline and 60 cm. from the toe of an irrigation canal.
BM-6	1,704,703.014 495,521.310	25.723	It is located on the left side of the alignment placed on top of a rice paddy intersection in the middle of a ricefield in Brgy. Tagumpay, Sta. Rosa.
BM-7	1,705,058.152 495,590.387	27.032	It is located on the right side of the alignment placed on top of a check gate of an irrigation canal.
BM-8	1,705,401.638 496,021.555	25.111	It is located on the right side of the alignment placed on top of a rice paddy intersection in the middle of a ricefield in Brgy. Soledad, Sta. Rosa.
BM-9	1,706,337.897 496,411.792	27.188	It is located on the right side of the alignment placed on the side of the concrete road 3 m. away from its centerline in Brgy. Soledad, Sta. Rosa.
BM-10	1,706,881.482 496,511.250	26.638	It is located on the right side of the alignment placed on the intersection of a rice paddy in the middle of a ricefield in Brgy. Soledad, Sta. Rosa.
BM-11	1,707,413.404 496,659.842	27.220	It is located on the right side of the road alignment placed on the top bank of irrigation canal 1.20 m. from its centerline under the shades of an acacia tree in Brgy. Soledad, Sta. Rosa.
BM-12	1,707,844.454 496,802.502	27.148	It is located on the right side of the alignment placed on the side of a ricefield owned by Mr. Ayo Vilared in Brgy. Tagapos, Sta. Rosa.
BM-13	1,708,291.751 496,799.903	26.656	It is located on the right side of the alignment placed on the side of a ricefield under a phoenix tree in Brgy. Tagapos, Sta. Rosa.
BM-14	1,708,620.284 497,180.515	28.714	It is located on the right side of the road alignment placed on the top bank of irrigation canal 1.50 m. from its centerline and 3 m. away the side of a road in Brgy. Tagapos, Sta. Rosa.
BM-15	1,709,200.415 497,484.887	28.688	It is located on the right side of the alignment placed on the side of a dirt road 1.50 m. away from the centerline at Brgy. Sta. Arcadia, Cabanatuan City.
BM-16	1,709,584.212 497,662.982	28.530	It is located on the right side of the alignment placed on the side of a dirt road 1.50 m. away from the centerline at Brgy. Sta. Arcadia, Cabanatuan City.
BM-17	1,710,336.115 498,592.643	31.009	It is located on the left side of the alignment placed on the side of road (gravel) 1.80 m. away from its centerline in Brgy. Sta. Arcadia.
BM-18	1,710,649.187 498,773.128	30.565	It is located on the left side of the alignment placed on the intersection of rice paddy in the middle of a ricefield in the side of Brgy. Valle Cruz.
BM-19	1,711,076.165 498,651.653	31.218	It is located on the left side of the alignment placed on the side of a ricefield underneath two mango trees in Brgy. Valle Cruz.

TABLE OF HORIZONTAL AND VERTICAL CONTROL			
POLYGON POINT	COORDINATES NORTHING EASTING	ELEV.	REMARKS
BM-20	1,711,512.317 499,109.686	31.389	It is located on the left side of the alignment placed on a rice paddy intersection in the middle of a ricefield in Brgy. Valle Cruz.
BM-21	1,712,021.897 499,309.940	32.657	It is located on the left side of the alignment placed on the side of a road 1.80 m. away from its centerline and almost 3.50 m. away from the top bank of an irrigation canal in Brgy. Valle Cruz on the side of an elec. post.
BM-22	1,712,529.312 499,291.424	32.692	It is located on the right side of the alignment placed on the higher portion on the side of a dirt road 4 m. away from its centerline in Brgy. Valle Cruz.
BM-23	1,712,881.168 499,335.652	32.766	It is located on the right side of the alignment placed on a bank of a creek approximately 3 m. away from its top bank at Brgy. San Isidro, Cabanatuan City.
BM-25	1,714,097.795 499,338.845	34.013	It is located on the right side of the alignment placed on the side of a road (dirt) 1.50 m. away from its centerline and approximately 5 m. from the top bank of an irrigation canal in Brgy. San Isidro.
BM-26	1,714,739.668 499,138.544	33.408	It is located on the left side of the alignment placed on the side of a road intersection 2 m. away from its centerline adjacent to a subdivision known as Grand Victoria Estate, Brgy. Cruz Roja.
BM-27	1,715,085.051 499,202.403	33.926	It is located on the right side of the alignment placed on the intersection of a rice paddy in the middle of a ricefield in Brgy. Cruz Roja.
BM-28	1,715,321.664 499,037.069	34.467	It is located on the right side of the alignment placed on the side of the barangay road 2 m. away from its centerline at Brgy. Cruz Roja at the side of an electric post.
BM-29	1,715,891.768 498,699.775	34.622	It is located on the right side of the alignment placed on the side of a barangay road under an acacia tree 1.50 m. away from its centerline Brgy. Cruz Roja.
BM-30	1,716,304.852 498,373.638	32.793	It is located on the right side of the alignment placed on the uppermost top bank of a canal at the side of a nipa hut in Brgy. Dabero, Cabanatuan City.
BM-34	1,718,360.331 498,980.373	35.518	It is located on the right side of the alignment placed on the side of a dirt road 1.50 m. away from its centerline on the right side of the alignment placed on the side of a dirt road 1.50 m. away from its centerline between 2 camachile trees in Brgy. Saging, Cabanatuan City 3 m. away from an irrigation canal's top bank.
BM-36	1,719,342.545 496,251.677	37.437	It is located on the left side of the alignment placed underneath a mango tree in the middle of a vegetable plantation at Brgy. Pulo, Cabanatuan City.
BM-37	1,719,342.545 496,251.677	37.437	It is located on the left side of the alignment placed on the side of a ricefield underneath a mango tree near a house at Brgy. Pulo, Cabanatuan City.
BM-38	1,719,727.498 496,175.032	36.238	It is located on the left side of the alignment placed on the side of a dirt road 1.50 m. away from its centerline and about 1/2 m. away from an irrigation canal's top bank at Brgy. Pulo, Cabanatuan City.
BM-39	1,720,595.956 496,023.421	36.396	It is located on the left side of the alignment placed on the intersection of a rice paddy in the middle of a ricefield at Brgy. Pulo, Cabanatuan City.
BM-40	1,721,363.720 495,998.525	36.993	It is located on the left side of the alignment placed underneath a group of coconut tree in the middle of a ricefield at Brgy. Hornosaged, Talavera.
BM-43	1,722,462.946 495,042.546	38.534	It is located on the left side of the alignment placed on the side of a road (dirt) 1.50 m. away from its centerline beside a concrete poles with marking: BM-43-1-8.
BM-44	1,722,735.654 494,806.172	38.406	It is located on the left side of the alignment placed on the side of a dirt road intersection 1.50 m. away from its centerline beside a barangay sidewalk Brgy. Poludod, Talavera.
BM-45	1,723,356.627 494,554.149	40.327	It is located on the right side of the alignment placed on the side of a dirt road 1.50 m. away from its centerline beside a nipa hut at Brgy. Poludod, Talavera.
BM-46	1,723,535.448 494,225.615	39.229	It is located on the left side of the alignment placed on the side of a road 2 m. away from its centerline beside a camachile tree.
BM-47	1,724,094.093 493,940.197	39.500	It is located on the right side of the alignment placed on the intersection of a rice paddy in the middle of a ricefield and about 50 m. away from the top bank of a creek at Brgy. Dimasigang Sur, Talavera.
BM-48	1,724,565.996 493,782.398	42.048	It is located on the right side of the alignment placed on the side of a dirt road 2 m. away from its centerline and 4 m. away from the top bank of an irrigation canal, Brgy. Dimasigang Sur, Talavera.
BM-49	1,725,157.190 493,693.946	42.110	It is located on the right side of the alignment placed on the side of a road 3 m. away from its centerline and 1 m. away from a canal, Brgy. Julod, Talavera.
BM-50	1,725,535.980 493,447.698	43.895	It is located on the left side of the alignment placed on the side of a road 8 m. away from its centerline beside an electric post, Brgy. Julod, Talavera.

TABLE OF HORIZONTAL AND VERTICAL CONTROL			
POLYGON POINT	COORDINATES NORTHING EASTING	ELEV.	REMARKS
BM-51	1,725,836.648 493,466.458	43.274	It is located on the right side of the alignment placed in the intersection of a rice paddy in the middle of a ricefield 150 m. away from the centerline of a concrete barangay road, Brgy. Julod, Talavera.
BM-52	1,726,352.052 493,319.807	43.317	It is located on the right side of the alignment placed on the side of a dirt road 1.5 m. away from the centerline of the dirt road at Brgy. Bantug, Talavera.
BM-53	1,726,804.440 492,931.296	42.900	It is located on the right side of the alignment placed in the middle of a ricefield at the side of a well placed in the rice paddy intersection.
BM-54	1,727,002.842 492,456.434	43.790	It is located on the left side of the alignment 3 m. away from the dirt road centerline and 6 m. away from the toe of an irrigation canal beneath a camachile tree.
BM-55	1,727,251.356 492,153.048	44.219	It is located on the right side of the alignment near the corner of concrete wall/fence. It is 3 m. away from the centerline of an existing road 5 m. wide at Brgy. Campos, Talavera.
BM-56	1,727,456.793 491,560.117	42.069	It is located on the left side of the alignment 70 m. away underneath a mango tree in Brgy. Campos, Talavera.
BM-57	1,727,557.279 491,163.464	45.294	It is located on the right side of the alignment placed on the toe of a ricefield near the side of a road under a coconut tree in Brgy. Lombay, Talavera.
BM-58	1,727,578.123 490,416.550	43.530	It is located on the right side of the alignment placed on the side of a ricefield under a row of coconut trees in Brgy. Lombay, Talavera.

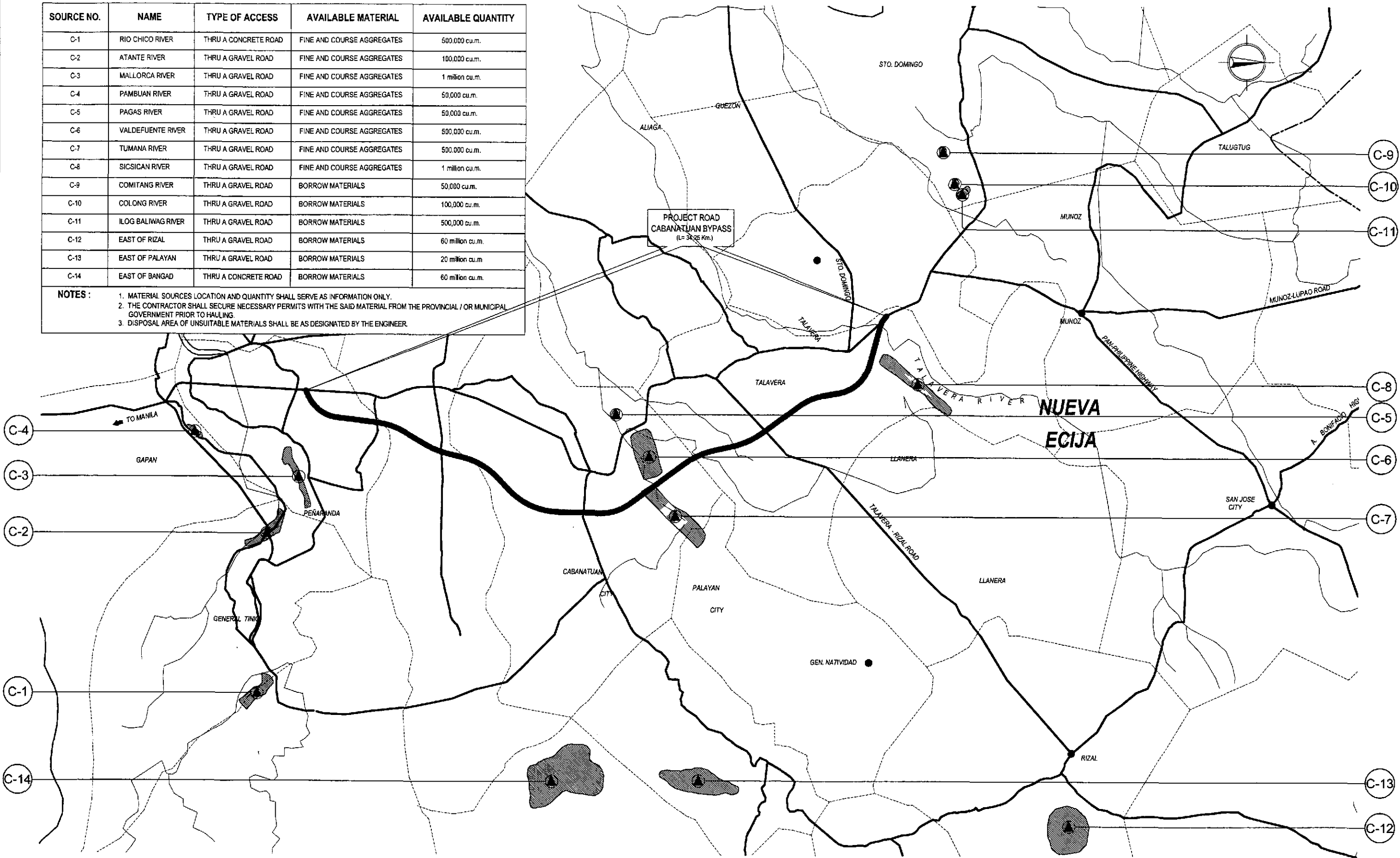
NEW ACCESS ROAD 1 - TABLE OF HORIZONTAL AND VERTICAL CONTROL			
POLYGON POINT	COORDINATES NORTHING EASTING	ELEV.	REMARKS
BM-A3-1	1,709,244.996 497,307.583	27.574	It is located on the right side of the access road placed on the side of the access road 60 m. away from its centerline between 2 coconut trees along extra farm road in Brgy. Sta. Arcadia, Cabanatuan City.
BM-A3-2	1,709,500.218 496,724.144	26.740	It is located on the left side of the access road placed on the side of a nipa tree 5 m. away from existing irrigation road near a house in Brgy. Sta. Arcadia, Cabanatuan City.
BM-A3-3	1,709,133.419 496,759.539	26.389	It is located on the right side of the access road placed on the top bank of an irrigation canal beside an ipil-od and 40 m. away from its centerline in Brgy. Sta. Arcadia, Cabanatuan City.
BM-A3-4	1,710,136.779 496,074.308	26.368	It is located on the left side of the access road alignment beside an acacia tree placed on the side of a dirt road 4 m. away from its centerline in Brgy. Sta. Arcadia, Cabanatuan City.
BM-A3-5	1,710,471.747 495,959.612	26.096	It is located on the right side of the access road alignment placed on the intersection of a rice paddy near a barbed wire fence 50 m. away from the centerline of a dirt road in Brgy. Sta. Arcadia, Cabanatuan City.
BM-A3-6	1,710,716.368 495,728.826	26.696	It is located on the right side of the road alignment near Bata bridge on its gutter 15 m. away from its 1st approach in Brgy. Sta. Arcadia, Cabanatuan City.

	DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> SUBMITTED: <i>[Signature]</i>	DATE: <i>[Date]</i> SIGNATURE: <i>[Signature]</i> POSITION: <i>[Title]</i>		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: 1:40,000 FULL SIZE A1	SHEET CONTENTS: HORIZONTAL AND VERTICAL CONTROL MONUMENTS Sheet 2 of 2	SHEET NO.: GC-09	
	BUREAU OF DESIGN OFFICE OF THE SECRETARY				CABANATUAN BYPASS - CONTRACT PACKAGE IV				
	KATAHIRA & ENGINEERS YACHIYO ENGINEERING CO., LTD.		DANILLO G. TRAYANO Project Director		JOSEFINA M. ALAGAR Chief, Highways Division		GILBERTO S. REYES OIC, Director IV		MANUEL M. BONDAN Undersecretary

SOURCE NO.	NAME	TYPE OF ACCESS	AVAILABLE MATERIAL	AVAILABLE QUANTITY
C-1	RIO CHICO RIVER	THRU A CONCRETE ROAD	FINE AND COURSE AGGREGATES	500,000 cu.m.
C-2	ATANTE RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	100,000 cu.m.
C-3	MALLORCA RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	1 million cu.m.
C-4	PAMBUAN RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	50,000 cu.m.
C-5	PAGAS RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	50,000 cu.m.
C-6	VALDEFUENTE RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	500,000 cu.m.
C-7	TUMANA RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	500,000 cu.m.
C-8	SICSICAN RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	1 million cu.m.
C-9	COMITANG RIVER	THRU A GRAVEL ROAD	BORROW MATERIALS	50,000 cu.m.
C-10	COLONG RIVER	THRU A GRAVEL ROAD	BORROW MATERIALS	100,000 cu.m.
C-11	ILOG BALIWAG RIVER	THRU A GRAVEL ROAD	BORROW MATERIALS	500,000 cu.m.
C-12	EAST OF RIZAL	THRU A GRAVEL ROAD	BORROW MATERIALS	60 million cu.m.
C-13	EAST OF PALAYAN	THRU A GRAVEL ROAD	BORROW MATERIALS	20 million cu.m.
C-14	EAST OF BANGAD	THRU A CONCRETE ROAD	BORROW MATERIALS	60 million cu.m.

NOTES:

- MATERIAL SOURCES LOCATION AND QUANTITY SHALL SERVE AS INFORMATION ONLY.
- THE CONTRACTOR SHALL SECURE NECESSARY PERMITS WITH THE SAID MATERIAL FROM THE PROVINCIAL / OR MUNICIPAL GOVERNMENT PRIOR TO HAULING.
- DISPOSAL AREA OF UNSUITABLE MATERIALS SHALL BE AS DESIGNATED BY THE ENGINEER.






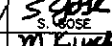



A LOCATION OF MATERIAL SOURCES
GC-08 SCALE AS SHOWN

	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/02	<i>[Signature]</i>	BUREAU OF DESIGN Submitted By: DANILO C. TRAJANO Project Director			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Palidel, Cabanatuan and San Jose Bypasses)	1:80,000	LOCATION OF MATERIAL SOURCES	GC-10
	SUBMITTED	10/21/02	<i>[Signature]</i>	C.OFFICE OF THE SECRETARY Recommended By: JOSEFINA M. ALAGAR Chief, Highways Division			CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		

SUMMARY OF QUANTITIES (INITIAL STAGE)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY(HIGHWAY AND DRAINAGE)																	QUANTITY(BRIDGE)				TOTAL QUANTITY	REMARKS			
			BYPASS	RCBC	A-22	A-23	A-24	A-25	A-26	A-27	A-28	A-29	A-30	A-31	A-32	A-33	A-34	A-35	A-35a	BRIDGE #11	BRIDGE #12	BRIDGE #13	BRIDGE #14					
407(1)c	Elastomeric Bearing Pad, Duro 60 (600x350x50mm)	each																			10.00	40.00	10.00		60.00			
407(1)e	Elastomeric Bearing Pad, Duro 60 (600x400x50mm)	each																						72.00	72.00			
407(2)a	Expansion Joint, (± 40mm Movement)	m																			20.00	20.00	20.00		60.00			
407(2)b	Expansion Joint, (± 50mm Movement)	m																						40.80	41.00			
407(2)g	Expansion Joint, 30mm for bridge sidewalk	m																			3.00	4.00	4.00		11.00			
SPL 407(3)a	Restraining Bar Ø 32 x 1495mm	each																						12.00	12.00			
SPL 407(3)b	Restraining Bar Ø 32 x 1900mm	each																						12.00	12.00			
407(4)	G.I. Drain Pipe Ø 150mm for Bridge Drainage	m																			3.00	9.00	4.00	154.98	171.00			
SPL 407(5)c	Pier Protection Concrete Blocks for Talavera Bridge	m ²																						896.00	896.00			
SPL 420(4)c	Temporary Craneway for Talavera Bridge Construction	m																						80.00	80.00			
SPL 420(5)c	Temporary Access Road (Causeway) for Talavera Bridge Construction	m																						300.00	300.00			
SPL 420(5)d	Temporary Cofferdam for Pier Construction (Talavera Bridge)	each																						3.00	3.00			
SPL 900(3)	Provisional Sum for Geotechnical Investigation	L.S.																						1.00	1.00			
PART G - DRAINAGE AND SLOPE PROTECTION STRUCTURES																												
500(1)c6	RCPC Extra Strength (32MPa), Ø 910mm (36")	m	1,861.00				8.00							11.00	11.00											1,925.00		
500(1)c7	RCPC Extra Strength (32MPa), Ø 1070mm (42")	m	168.00																							168.00		
500(1)c8	RCPC Extra Strength (32MPa), Ø 1220mm (48")	m	457.00																							457.00		
500(1)c9	RCPC Extra Strength (32MPa), Ø 1520mm (60")	m	104.00																							104.00		
502(4)a1	U-shaped Concrete Ditch W=0.50m x H=0.50m	m				125.00		172.00							440.00		260.00									997.00		
502(6)a	V-shaped Lined Ditch H=500mm, 1:1.50	m	170.00																							170.00		
502(7)a	Trapezoidal Lined Ditch B=450mm, H=500mm, 1:1.00	m	3,527.00																							3,527.00		
502(7)b	Trapezoidal Lined Ditch B=1000mm, H=500mm, 1:1.00	m	564.00																							564.00		
504(5)	Grouted Riprap Class A	m ³	204.50																		138.00	34.00	141.00	14.05	532.00			
505(1)	Stone Masonry	m ³																							386.99	465.00		
508(1)	Hand Laid Rock Apron (Loose Boulder Apron)	m ³																							138.00	138.00		
507(2)b	Steel Sheet Piles (400x85x8mm), furnished & driven	m																						683.00	5,040.00	5,723.00		
509(1)	Gabions	m ³																							352.00	1,213.50	1,566.00	
510(1)	Rubble Concrete Slope Protection	m ³																							71.00	124.42	196.00	
PART H - MISCELLANEOUS STRUCTURES																												
600(3)a	Combination Concrete Curb & Gutter/Side Strip, Type A (675x364mm)	m	2,903.00					96.00							88.00										319.00	3,406.00		
602(1)	Right-of-Way Concrete Monuments	each	583.00		27.00	10.00	12.00	9.00	9.00	5.00	14.00	14.00	21.00	11.00	8.00	20.00	22.00	12.00								787.00		
602(2)	Maintenance Marker Posts for Drainage Structure	each	134.00			2.00							2.00	2.00												144.00		
602(3)	Kilometer Posts	each	13.00																							13.00		
603(3)a	Metal Guardrails (Metal Beam) Type A (Embedded in soil)	m	3,894.00				92.00																			3,986.00		
605(1)a	Warning Signs (Triangular 900mm)	each	32.00																							32.00		
605(2)b	Regulatory Signs (Octagonal 600mm)	each				2.00									2.00		2.00	2.00	2.00							10.00		
605(2)c	Regulatory Signs (Circular Ø 600mm)	each	17.00					2.00							2.00											22.00		
605(2)d	Regulatory Signs (Rectangular 450x750mm)	each	7.00			2.00		2.00						2.00			2.00	2.00	2.00							22.00		
605(3)c	Informatory Signs (Type B, double post)	each	2.00					1.00						2.00												5.00		
605(3)d	Informatory Signs (Type C, double post)	each	2.00					1.00																		3.00		
607(2)a	ReflectORIZED Pavement Studs (Raised Profile Type, one face reflective)	each	10.00																							10.00		
607(2)b	ReflectORIZED Pavement Studs (Raised Profile Type, two faces reflective)	each	120.00					10.00							10.00											150.00		
607(3)	Chatter Bars (one face reflective)	each	516.00					36.00							32.00											618.00		
608(1)	Furnishing and Placing Top Soil	m ³	39,187.43		198.66	16.90	167.39	37.39	47.59	29.47	95.98	85.63	43.99	108.00	62.22	165.87	150.01	87.96	86.25						40,671.00			
610(1)	Sodding	m ²	195,937.17		1,986.65	169.00	1,673.87	373.93	475.87	294.74	959.88	856.29	439.94	1,079.96	622.19	1,658.74	1,500.06	879.84	862.48						208,771.00			
611(1)c	Trees (Furnishing and Transplanting) High Tree (Young Tree) 1.5m < H < 3.0m	each	1,186.00																							1,186.00		
612(1)a	ReflectORIZED Thermoplastic Pavement Markings (White)	m ²	4,488.1			104.22		84.89						121.79	107.86		121.40	122.98	137.37	103.80					5,393.00			
612(1)b	ReflectORIZED Thermoplastic Pavement Markings (Yellow)	m ²	269.17																							270.00		
SPL 620(1)b	Traffic Signal Pole Type A (Mast Arm Post H=6.0m)	each	5.00																							5.00		
SPL 620(1)c	Traffic Signal Pole Type B (Ø 114.3mm x 4.2m)	each	12.00																							12.00		
SPL 620(1)d	Traffic Signal Pole Type C (Ø 114.3mm x 3.4m)	each	11.00																							11.00		
SPL 620(1)e	Traffic Signal Pole Type D (Ø 114.3mm x 3.0m)	each	7.00																							7.00		
SPL 620(2)a	Traffic Signal Lamps Type A (5 vehicle lamps)	each	4.00																							4.00		
SPL 620(2)b	Traffic Signal Lamps Type B (3 vehicle lamps)	each	34.00																							34.00		
SPL 620(2)c	Traffic Signal Lamps Type C (2 pedestrian lamps)	each	16.00																							16.00		
SPL 620(4)a	Street Lighting Poles (Single Lamp)	each						4.00						2.00												6.00		
SPL 620(4)b	Street Lighting Poles (Dual Lamp)	each	48.00					2.00						4.00												60.00		
SPL 620(4)c	Bridge Lighting Poles (Single Lamp)	each																							12.00	12.00		
SPL 620(4)d	Street Lighting Service Pole with Panel	each						1.00						1.00												4.00		

 JAPAN INTERNATIONAL COOPERATION AGENCY  KATAHIRA & ENGINEERS INTERNATIONAL  YACHIYO ENGINEERING CO., LTD.	DESIGNED	10/12/02		 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)				SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/02			Submitted By:	Reviewed By:	Recommended By:	Approved By:	CABANATUAN BYPASS - CONTRACT PACKAGE IV FULL SIZE A1	SUMMARY OF QUANTITIES (INITIAL STAGE) 2 of 2	GC-12
	SUBMITTED	10/21/02			DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONDAN Undersecretary			

R O A D W A Y

GENERAL NOTES

HIGHWAY / CIVIL AND DRAINAGE

1.0 DESIGN STANDARDS / SPECIFICATIONS

- 1.1 ALL GEOMETRIC DESIGN STANDARDS SHALL COMPLY WITH THE VALUES PRESCRIBED IN "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS", 1994 EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAYS AND TRANSPORTATION OFFICIALS (AASHTO), AND "DESIGN GUIDELINES CRITERIA AND STANDARDS" ISSUED BY THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS (DPWH).
- 1.2 ALL WORKS SHALL COMPLY WITH THE DPWH STANDARD SPECIFICATIONS, 1995 EDITION, VOLUME II, HIGHWAYS, BRIDGES, AND AIRPORTS, AND THE SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS FOR THIS PROJECT.

2.0 SURVEY CONTROLS AND REFERENCES

- 2.1 HORIZONTAL CONTROL IS BASED THROUGH GLOBAL POSITIONING SYSTEM (GPS) ESTABLISHED BY THE ACRE SURVEYING. CORRESPONDING GPS STATIONS ARE AS FOLLOWS:

GPS STA.	NORTHING	EASTING	ELEVATIONS	DESCRIPTION
CAB-1	1,701,482.713	493,518.261	23.777	Located in Brgy. Tagumpay, San Leonardo, Nueva Ecija. It is drilled on the left side of the Tambo Bridge's first approach, about 0.05 cm. above the bridge's concrete sidewalk.
CAB-2	1,701,869.179	493,628.408	22.525	Located in Brgy. Tagumpay, San Leonardo, Nueva Ecija. It is embedded in an open space 80 m. from highway, 15 m. from dirt road going to an ostrich farm, about 40cm x 40cm & 0.05cm above the ground.
CAB-3	1,706,318.913	495,963.410	25.984	Located in Brgy. Soledad, Sta. Rosa, Nueva Ecija. It is embedded on a 40cm x 40cm conc. mons. beside an irri. canal about 8m from rd. CL & 3 km. from the highway intersec. of Fort Magaysay & Cabanatuan City.
CAB-4	1,706,340.784	496,322.453	28.299	Located in Brgy. Soledad, Sta. Rosa, Nueva Ecija. It is embedded on a 40 cm x 40 cm conc. mons. on the left side of the rd. going to Fort Magaysay & about 370 m. from GPS Sta. CAB-3, about 4 m from rd. CL.
CAB-4A	1,708,633.059	497,110.500	27.917	Located in Brgy. Tagpos, Sta. Rosa, Nueva Ecija on Diaz property. From the highway northbound take a right turn on Mabini extension, on Mercury Drugstore going to Brgy. Sta. Arcadia. 4.9 km. from the highway take a right turn on the intersection of the dirt road after the one-way bridge with a water pipe rail. It is 1.4 km. from the intersection beside an irrigation canal on the left side.
CAB-5	1,709,079.199	498,487.150	31.478	Located in Brgy. Sta. Arcadia, Cabanatuan, Nueva Ecija. From the highway northbound take a right turn on Mabini extension, Mercury Drugstore going to Brgy. Sta. Arcadia. 3.9 km. from the intersection highway, take a left turn to a dirt road it is embedded on the right side of the road 200 m. from the Mabini extension road centerline.
CAB-6	1,709,731.859	498,528.332	31.285	Located in Brgy. Sta. Arcadia, Cabanatuan, Nueva Ecija. From the highway northbound take a right turn on Mabini extension, Mercury Drugstore going to Brgy. Sta. Arcadia. 3.2 km. from the intersection highway, take a left turn to a dirt road it is embedded on the left side of the road near an irrigation dike 500 m. from the Mabini extension road centerline.
CAB-7	1,713,328.143	498,115.188	33.348	Located in Brgy. San Isidro, Cabanatuan, Nueva Ecija. It is embedded on the sidewalk of the DPWH 3rd Engineering District driveway, about 20 m. from the centerline of the road.
CAB-8	1,713,603.208	499,247.649	33.467	Located in Urban Poor Housing Project, San Isidro, Cabanatuan, Nueva Ecija. Going to Palayan City take a left turn to the dirt road beside the DPWH compound leading to the site of the housing project, then turn right. It is embedded on the right side of the dirt road near the electric post 400 m. from the centerline of the highway.
CAB8A	1,715,705.803	498,487.077	34.234	Located in Brgy. Raja, Cabanatuan, Nueva Ecija. From Cabanatuan City proper take a right turn on Maharlika highway to a road before the Valdefuente bridge. 3 km. from the highway, turn left to a bridge.
CAB8B	1,717,749.623	498,746.848	34.436	Location in Brgy. Sapang, Cabanatuan, Nueva Ecija. From Cabanatuan City proper take a rt. turn on Maharlika highway after the Valdefuente br. to road going to Brgy. Sapang. It is emb. on the left side of the road.
CAB9	1,718,805.448	498,330.000	37.709	Located in Brgy. Buliran, Cabanatuan, Nueva Ecija. From Cabanatuan City proper take a right turn on Maharlika highway after the Valdefuente bridge to a road going to Brgy. Dalampang. 2.5 km. from the highway taking the left fork turn right at the intersection to a dirt road leading to Brgy. Bolita. It is embedded near an irrigation dike 800 m. from the bridge.
CAB10	1,719,118.959	497,481.612	37.713	Located in Brgy. Dalampang, Cabanatuan, Nueva Ecija. From Cabanatuan City proper take a right turn on Maharlika highway after the Valdefuente bridge to a road going to Brgy. Dalampang. 2.5 km. from the highway taking the left fork turn right at the intersection to a dirt road leading to Brgy. Bolita. It is embedded near an irrigation dike on the right side, 1.9 km. from the bridge.
CAB11	1,721,785.048	495,194.942	38.469	Located in Homestead I, Talavera, Nueva Ecija. Taking the Maharlika highway to Muñoz, turn right on Pinagpangan intersection to the highway going to Pantabangan. 4.3 km. from the intersection turn right to a dirt road. It is embedded on the right beside an irrigation canal 70 m. from the centerline of the highway.
CAB12	1,722,183.770	495,433.939	37.948	Located in Homestead I, Talavera, Nueva Ecija. Taking the Maharlika highway to Muñoz, turn right on Pinagpangan intersection to the highway going to Pantabangan. 4.8 km. from the intersection on the right side 50 m. from the centerline of the highway.
CAB13	1,718,173.662	489,601.903	44.230	Located in Brgy. San Pascual, Talavera, Nueva Ecija. It is embedded on the right side of the bridge 2.3 km. from San Pascual market going to San Jose.
CAB14	1,729,258.352	488,826.465	43.627	Located in Brgy. Bagong Silang, Talavera, Nueva Ecija. Take a right turn 3.4 km. from San Pascual market going to San Jose to a dirt road. It is embedded on a rice paddy dike on the right side of the road 500 m. from the highway.

- 2.2 VERTICAL CONTROL IS REFERRED TO BM DEJ-7 ESTABLISHED BY THE CAB'S WITH ELEVATION 46.695m. ABOVE MEAN SEA LEVEL, LOCATED IN THE BARRIO DE CABU, CABANATUAN CITY, IN THE PROVINCE OF NUEVA ECIA, ALONG THE ROAD TO LAUR. IT IS A DRILLED HOLE ON THE NORTH SIDE OF THE BRIDGE FROM THE SW ENTRANCE OF THE ROAD. STATION MARK IS A BRASS ROD ABOUT 1 CM. DIA. SET IN A DRILLED HOLE MARKED DEJ-7 1982.

3.0 ALIGNMENT CONTROLS AND REFERENCES

- 3.1 PROJECT IMPLEMENTATION OF ALL BYPASSES SHALL BE DONE IN TWO(2) CONSTRUCTION STAGES, THE FIRST STAGE IS THE INITIAL STAGE THAT CONSIST OF CONSTRUCTING TWO LANE-TWO WAY HIGHWAY (NORTHBOUND), GRAVEL SURFACE FRONTAGE ROAD AND GRAVEL SURFACE SERVICE ROAD AS SHOWN IN THE TYPICAL SECTIONS. IN THE SECTION WITH FRONTAGE ROAD, A GRAVEL SURFACE FRONTAGE ROAD WILL BE INITIALLY CONSTRUCTED EACH SIDE OF THE HIGHWAY. GRAVEL SURFACE SERVICE ROAD WILL BE PROVIDED IN THE SECTION WITHOUT FRONTAGE ROAD. THE SECOND STAGE IS THE ULTIMATE STAGE THAT INVOLVES THE CONSTRUCTION OF THE TWO LANE PAVEMENT (SOUTH BOUND) CONCRETING OF FRONTAGE ROADS AND CONSTRUCTION OF MEDIAN ISLAND AND OTHER HIGHWAY FACILITIES NOT INCLUDED IN THE INITIAL STAGE.
- 3.2 THE FOLLOWING MAJOR POINTS CONTROLLED THE DESIGN OF HORIZONTAL AND VERTICAL ALIGNMENT:
- 3.2.3 ALONG CABANATUAN BYPASS
- FLOODING OCCURENCE ALONG PAN-PHIL. HIGHWAY FROM KM POST 102 TO KM POST 104. (LEFT SIDE, KM 100+480 TO KM 102+000)
 - NATIONAL POWER CORPORATION TRANSMISSION TOWER (NEAR BEG. AND END OF BYPASS)
 - EXISTING LANDFILL AREA (LEFT SIDE, KM 115+700 CENTERLINE)
- 3.3 SIMPLE CIRCULAR CURVES, THREE-CENTERED CIRCULAR CURVES AND CLOTHOID CURVES WERE USED FOR HORIZONTAL CURVATURES, AND PARABOLIC CURVES WERE USED TO SMOOTHEN GRADE BREAKS.

- 3.4 DESIGN OF VERTICAL ALIGNMENT WAS CONTROLLED BY THE DESIGN MAXIMUM FLOOD LEVEL, 25-YEAR RETURN PERIOD FOR EMBANKMENT. 50-YEAR RETURN PERIOD FOR BRIDGE AND DRAINAGE STRUCTURES MINIMUM COVERING AS INDICATED IN THE PROFILES.
- 3.5 EXISTING PAVEMENT GRADES OF PAN-PHILIPPINE HIGHWAY.

4.0 DIMENSIONS

- 4.1 DISTANCES AND ELEVATIONS SHOWN ON THE PLANS ARE IN METERS (m) AND IN MILLIMETERS (mm) UNLESS OTHERWISE SPECIFIED. OTHER UNITS OF MEASUREMENT ARE EXPRESSED IN THE MORE APPROPRIATE UNITS OF THE S.I. SYSTEM AS ADOPTED IN THE DPWH STANDARD SPECIFICATIONS, 1995 (VOLUME II).

5.0 STATIONINGS

- 5.1 CENTERLINE STATIONINGS OF THE PROJECT WERE BASED FROM THE NEAREST KILOMETER POST STATION ALONG THE PAN-PHILIPPINE HIGHWAY WHICH IS KM.100 NEAR THE START OF BYPASS.
- 5.2 ROAD STATIONS AND ELEMENTS OF CURVE, BOTH HORIZONTAL AND VERTICAL ALIGNMENTS, ARE RELATIVE TO THE ROAD CENTERLINE/BASELINE UNLESS OTHERWISE INDICATED ON PLANS.

6.0 ELEVATION AND GRADES

- 6.1 ELEVATIONS AND GRADES AS DESCRIBED IN THE PROFILE ARE TOP OF CROWN ALONG THE CENTERLINE. FINISHED GRADE AS SHOWN IN THE TYPICAL SECTION WILL BE REFERRED FROM TOP OF CROWN AND PAVEMENT SLOPE.

7.0 HORIZONTAL TRANSITIONS

- 7.1 HORIZONTAL TRANSITIONS FOR ROADWAY TAPERINGS/WIDENINGS ARE DESIGNED TO BE STAKED OUT BY THE OFFSETS FROM THE BASELINE INCREASING OR DECREASING ALONG THE DIRECTION OF TRAFFIC.

8.0 UTILIZATION OF GRAVEL MATERIALS

- 8.1 GRAVEL MATERIALS ALONG THE GRAVEL CROSS ROAD IN THE INITIAL STAGE SHALL BE EXCAVATED AND RECONSTRUCTED AS SUBBASE MATERIALS TO THICKNESS AS SHOWN AND INDICATED ON THE TYPICAL SECTIONS FOR THE ULTIMATE STAGE, RECONSTRUCTION OF THE SUBBASE MENTIONED SHALL BE DONE, FOLLOWING THE NORMAL REQUIREMENT IN SUBGRADE PREPARATION.

9.0 REMOVAL OF EXISTING STRUCTURES AND OBSTRUCTIONS

- 9.1 ARTICLE 4.7 OF THE "GENERAL REQUIREMENTS AND COVENANTS" IS HEREBY AMENDED AS FOLLOWS: THE REMOVAL OF BUILDINGS, HOUSES, FENCES, UTILITY POLES AND OTHER PUBLIC UTILITIES WILL NOT BE THE RESPONSIBILITY OF THE CONTRACTOR BUT WILL BE REMOVED BY THE RESPECTIVE OWNERS, OR THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS PRIOR TO CONSTRUCTION.

10.0 ROAD CONNECTIONS AND PRIVATE ENTRANCES

- 10.1 OPENINGS FOR DRIVEWAYS OR PRIVATE ENTRANCES SHALL BE CONSTRUCTED ONLY ALONG SECTIONS OF THE PROJECT ROAD WHERE FRONTAGE ROADS AND/OR TURNOUTS ARE TO BE PROVIDED. SUCH CONNECTIONS SHALL BE DETERMINED BY THE ENGINEER AND SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO INSURE PROPER CONNECTION AND RIDING QUALITY.
- 10.2 ROAD CONNECTIONS SHALL BE CONSTRUCTED AS SHOWN ON PLANS. THE ROAD STRUCTURE OF EACH CONNECTION SHALL BE AS RECOMMENDED IN THE DRAWING.
- 10.3 THE INTERSECTIONS NOT SHOWN ON THE DRAWINGS SHALL REQUIRE PLANS SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTIONS.
- 10.4 THE LIMIT OF CONSTRUCTION FOR ROAD CONNECTIONS AND PRIVATE ENTRANCES SHALL BE AS SHOWN IN THE DRAWING OR AS DETERMINED BY THE ENGINEER.

11.0 DRAINAGE STRUCTURES

- 11.1 EXACT LOCATIONS, SLOPES, OUTFALLS, AND INVERT ELEVATIONS OF DRAINAGE STRUCTURES SHALL BE CHECKED IN THE FIELD BY THE ENGINEER. MINOR ADJUSTMENTS MAY BE MADE TO SUIT ACTUAL FIELD CONDITIONS UPON APPROVAL OF THE ENGINEER.
- 11.2 EXISTING DRAINAGE STRUCTURES THAT ARE FAULTY, BROKEN DOWN, OR NOT IN GOOD WORKING CONDITION SHALL BE DETERMINED IN THE FIELD. RECONSTRUCTION, REPAIR AND/OR REPLACEMENT OF SAME SHALL BE DIRECTED BY THE ENGINEER, AND SHALL CONFORM TO THE STANDARDS AS SHOWN IN THE DRAWINGS.
- 11.3 EXISTING DRAINAGE STRUCTURES OR PARTS THEREOF REMOVED BY THE CONTRACTOR THAT ARE STILL SERVICEABLE SHALL BE TURNED OVER TO THE GOVERNMENT AND SHALL BE DEPOSITED AT A PLACE DESIGNATED BY THE ENGINEER WITHOUT ANY COMPENSATION. EXTREME PRECAUTIONS SHALL BE EXERCISED BY THE CONTRACTOR NOT TO DAMAGE THESE MATERIALS DURING THE REMOVAL AND HANDLING OPERATION.
- 11.4 THE CLEANING, UNBLOCKING AND/OR RELAYING OF REINFORCED CONCRETE PIPES, CONSTRUCTION OF CHANNELS AND DITCHES AS DIRECTED BY THE ENGINEER TO ENSURE AN OPERATIONAL TEMPORARY DRAINAGE SYSTEM DURING THE CONSTRUCTION PERIOD SHALL BE UNDERTAKEN BY THE CONTRACTOR WITHOUT ANY COMPENSATION.

12.0 ACCESSIBILITY LAW:





- 12.1 STRICT COMPLIANCE WITH BATAS PAMBANSA BILANG 344 AND ITS IMPLEMENTING RULES AND REGULATIONS SHALL BE IMPOSED.

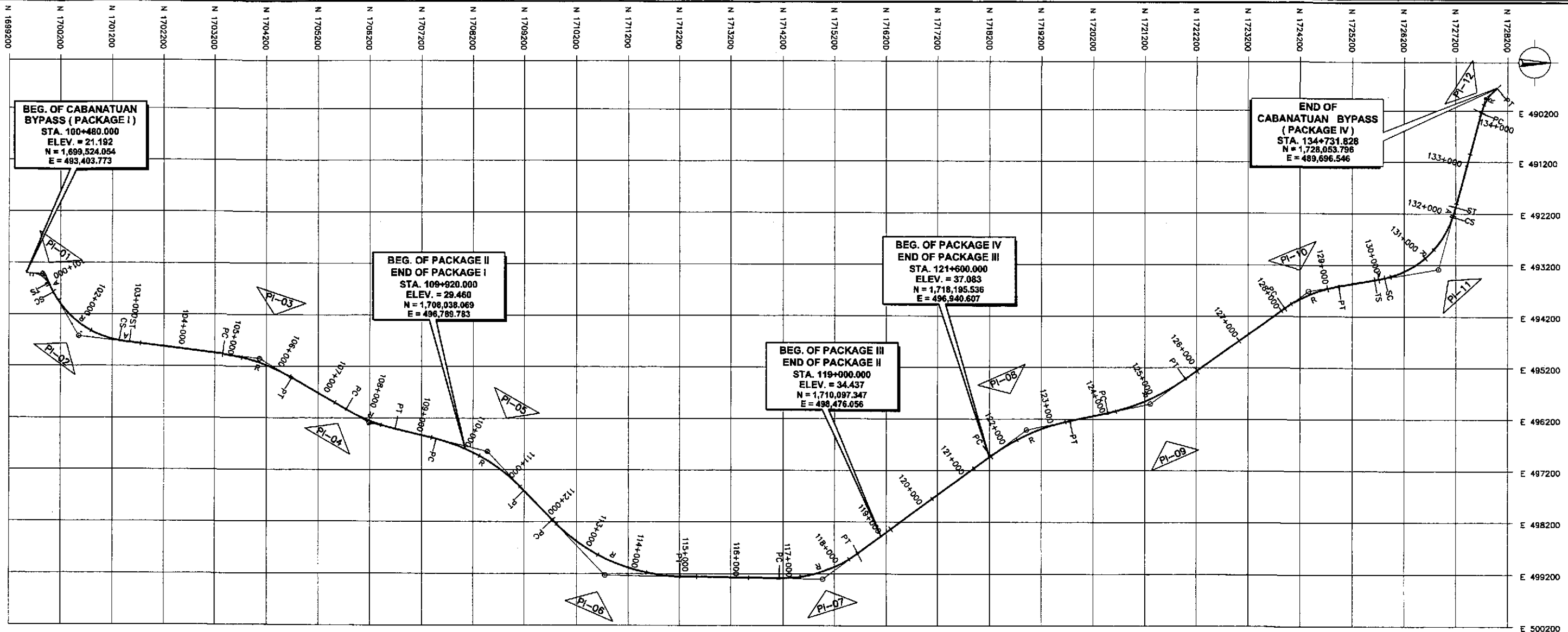
13.0 TREE PLANTING ALONG NATIONAL ROADS

- 13.1 DPWH DEPARTMENT ORDER NO. 15, SERIES OF 2000 AND ITS REQUIREMENTS SHALL BE IMPOSED. THE PLANTING OF TREES ALONG NATIONAL ROADS SHALL BE MADE A STANDARD COMPONENT OF ALL ROAD CONSTRUCTION AND IMPROVEMENT PROJECTS TO ENHANCE QUALITY OF ENVIRONMENT.

14.0 DESIGN DATA / REFERENCES

- 14.1 REPORTS
- FEASIBILITY STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHIL. HIGHWAY (PLARIDEL, CABANATUAN AND SAN JOSE BYPASSES), FINAL REPORT, NOVEMBER 1999.
 - DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY, BASIC DESIGN REPORT, SEPTEMBER 2001.
- 14.2 DRAWINGS
- FEASIBILITY STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHIL. HIGHWAY (PLARIDEL, CABANATUAN AND SAN JOSE BYPASSES).
 - DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY, BASIC DESIGN DRAWINGS, SEPTEMBER 2001.

 JAPAN INTERNATIONAL COOPERATION AGENCY 	DATE 10/12/02	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 (Plaridel, Cabanatuan and San Jose Bypasses)		SCALE: FULL SIZE A1	SHEET CONTENTS: GENERAL NOTES HIGHWAY/ CIVIL AND DRAINAGE	SHEET NO. : RG-01
	DESIGNED 10/12/02	CHECKED 10/19/02		SUBMITTED 10/21/02	Submitted By: P.R.E. - PMO DAHILO C. TRAJANO Project Director	Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division	Recommended By: GILBERTO S. REYES OC, Director IV	Recommended By: (See cover sheet for Signature) MANUEL M. BONJAN Undersecretary



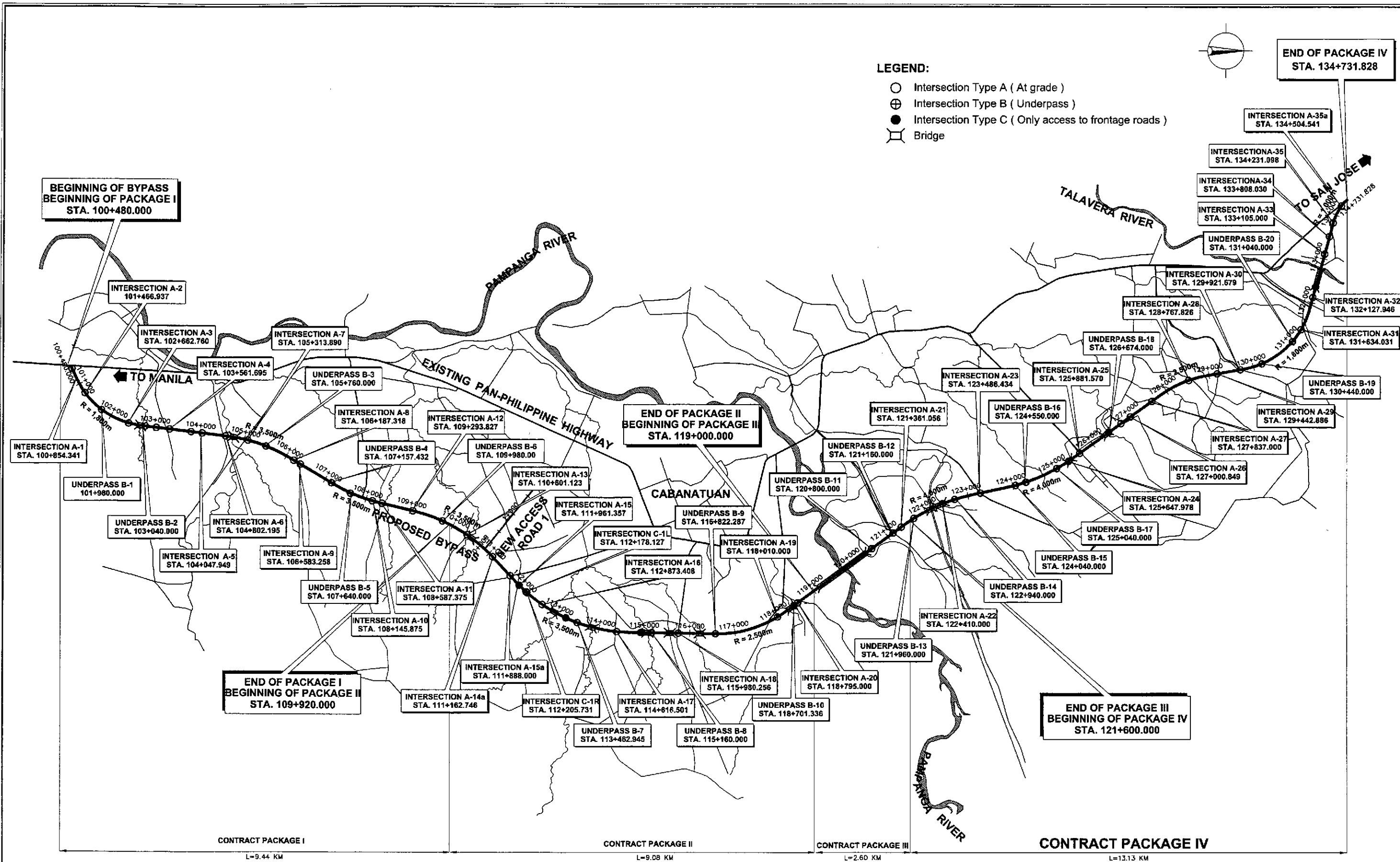
P.I. No.	STATION	DISTANCE	AZIMUTH	TANGENT	DEFLECTION	A	Ls	STATION
				Θ_s	ANGLE			
BEG.	100+480.00							
01	100+806.146	326.146	183°25'21"	246.146	56°16'36"	160.000	64.000	TS=100+560.000 SC=100+624.000
		1,385.199	239°41'57"			400.000	328.886	CS=100+852.886 ST=101+016.886
02	102+155.940			147.870	52°39'26"	600.000	200.000	TS=101+164.756 SC=101+364.756
		3,544.720	187°02'31"			1,800.000	1,454.277	TS=102+819.034 SC=103+019.034
03	105+572.571			720.109	23°15'08"			PC=104+852.462 PT=106+272.858
		2,451.020	210°17'39"			3,500.000	1,420.397	
04	108+003.769			514.528	18°43'34"			PC=107+489.241 PT=108+510.979
		2,363.853	193°34'05"			3,500.000	1,021.737	
05	110+360.304			1,035.121	32°57'04"			PC=109+325.183 PT=111+338.048
		3,288.872	226°31'09"			3,500.000	2,012.865	
06	113+591.799			1,469.788	45°33'32"			PC=112+122.011 PT=114+905.046
		4,225.526	180°57'37"			3,500.000	2,783.035	
07	117+660.785			840.295	37°09'25"			PC=116+820.490 PT=118+441.763
		4,885.881	143°48'12"			2,500.000	1,621.273	

P.I. No.	STATION	DISTANCE	AZIMUTH	TANGENT	DEFLECTION	A	Ls	STATION
				Θ_s	ANGLE	R	Lc	
08	122+487.349	4,885.881	143°48'12"	856.992	24°11'07"	-	-	PC=121+630.356 PT=123+318.815
		2,447.505	167°59'20"			4,000.000	1,688.459	
09	124+909.328			837.385	23°38'52"			PC=124+071.944 PT=125+722.871
		3,773.512	144°20'28"			4,000.000	1,650.927	
10	128+658.998			577.297	26°00'20"			PC=128+081.701 PT=129+216.405
		2,530.124	170°20'47"			2,500.000	1,134.704	
11	131+169.232			1,250.889	65°09'11"	600.000	200.000	TS=129+918.543 SC=130+118.543
		3,450.454	105°11'37"			1,800.000	1,846.841	CS=131+965.384 ST=132+165.384
12	134+365.149			292.954	32°39'23"			PC=134+072.196 PT=134+642.155
		382.627	137°50'54"			1,000.000	569.960	
END	134+731.823							

P.I. No.	NORTHING	EASTING	NORTHING	EASTING	
02	1,700,548.505	494,619.209	TS	1,700,048.415	493,763.432
			SC	1,700,152.489	493,934.189
			CS	1,701,334.236	494,712.538
			ST	1,701,532.212	494,740.724
03	1,704,066.486	495,053.779	PC	1,703,351.810	494,965.496
			PT	1,704,688.262	495,417.031
04	1,706,182.811	496,290.171	PC	1,705,738.544	496,030.623
			PT	1,706,682.980	496,410.880
05	1,708,480.693	496,844.734	PC	1,707,474.461	496,601.893
			PT	1,709,192.973	497,595.822
06	1,710,743.806	499,231.154	PC	1,709,732.427	498,164.670
			PT	1,712,213.387	498,255.786
07	1,714,968.738	499,301.970	PC	1,714,128.561	499,287.887
			PT	1,715,646.852	498,805.727
08	1,718,911.622	496,416.576	PC	1,718,220.033	496,922.679
			PT	1,719,749.852	496,238.234
09	1,721,305.544	495,907.244	PC	1,720,486.483	496,081.506
			PT	1,721,985.920	495,419.082
10	1,724,371.527	493,707.438	PC	1,723,902.473	494,043.979
			PT	1,724,940.649	493,610.632
11	1,726,665.624	493,283.164	TS	1,725,632.845	493,482.891
			SC	1,725,829.332	493,455.713
			CS	1,727,137.632	492,268.171
			ST	1,727,193.605	492,076.192
12	1,727,770.121	489,953.318	PC	1,727,693.343	490,236.031
			PT	1,727,987.313	489,756.723
END	1,728,053.796	489,696.546			

P.I. No.	NORTHING	EASTING	NORTHING	EASTING	
BEG.	1,699,524.054	493,403.773			
01	1,699,849.619	493,423.243	TS	1,699,603.912	493,408.549
			SC	1,699,667.655	493,414.070
			CS	1,699,940.066	493,581.402
			ST	1,699,973.809	493,635.763

	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 (Paridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE IV	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/02	<i>[Signature]</i>		BUREAU OF DESIGN						1:40,000	ALIGNMENT TECHNICAL DESCRIPTION	RG-02
	SUBMITTED	10/21/02	<i>[Signature]</i>		Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:		FULL SIZE A1		
			DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONJAN Undersecretary	SIMEON A. DATUMANONG Secretary						






A LOCATION OF PROPOSED INTERSECTIONS ALONG BYPASS
 RG-03 SCALE 1:40,000

	DESIGNED	DATE	SIGNATURE	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :					SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	12/19/02	A. ACACIO		BUREAU OF DESIGN Submitted By: FJHL - PMO DANILLO C. TRAJANO Project Director	OFFICE OF THE SECRETARY Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division	Recommended By: GILBERTO S. REYES DIC, Director IV	Recommended By: MANUEL M. BONDAN Undersecretary	Approved By: SIMEDN A. DATUMANONG Secretary	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:40,000	LOCATION OF INTERSECTIONS/ UNDERPASSES ALONG BYPASS
	SUBMITTED	12/21/02	TEAM LEADER DANILLO C. TRAJANO	CABANATUAN BYPASS - CONTRACT PACKAGE IV					FULL SIZE A1			

SCHEDULE OF TRAFFIC SIGNS
CONTRACT PACKAGE IV (INITIAL STAGE)

SCHEDULE OF ROADSIDE PLANTING (HIGH TREE)
GROUTED RIPRAP, ROADSIDE PLANTING AND UNSUITABLE EXCAVATION
CONTRACT PACKAGE IV (INITIAL STAGE)

ITEM 605 (1) WARNING SIGNS (TRIANGULAR 900mm)			ITEM 605 (2)c REGULATORY SIGNS (RECTANGULAR 450x750mm)			GUARDRAIL SCHEDULE				A. ROADSIDE PLANTING (HIGH TREE)				
STATION	REF. NO.	REMARKS	STATION	REF. NO.	REMARKS	STATION		LENGTH (m)	LOCATION	STATION		LENGTH (L.M.)		
						FROM	TO			FROM	TO	LEFT	RIGHT	
123+380	W2-8	RIGHTSIDE MAIN BYPASS	00+982	R3-6P	RIGHT SIDE INTERSECTION A-33	122+689	122+810	121	RIGHT SIDE OF BYPASS	121+200	121+900	300	300	
123+600	W2-8	LEFT SIDE MAIN BYPASS	01+027	R3-6P	LEFT SIDE INTERSECTION A-34	123+950	124+130	180	RIGHT SIDE OF BYPASS	121+900	122+600	540	540	
125+760	W3-1	RIGHTSIDE MAIN BYPASS	00+980	R3-6P	RIGHT SIDE INTERSECTION A-34	124+430	124+630	200	RIGHT SIDE OF BYPASS	122+600	123+300	600	600	
126+140	W1-4(R)	LEFT SIDE MAIN BYPASS	134+216	R2-7(L)	CENTER ISLAND MAIN BYPASS	124+920	125+140	220	RIGHT SIDE OF BYPASS	123+300	124+000	620	600	
126+000	W3-1	LEFT SIDE MAIN BYPASS	00+017	R2-7(L)	CENTER ISLAND INTERSECTION A-35	125+480	125+610	150	RIGHT SIDE OF BYPASS	124+000	124+700	700	700	
125+800	W1-4(L)	LEFT SIDE MAIN BYPASS	134+417	R3-1PA	RIGHT SIDE PAN-PHIL HIGHWAY	125+637	125+750	113	RIGHT SIDE OF BYPASS	124+700	125+400	660	660	
129+320	W2-8	RIGHTSIDE MAIN BYPASS	134+457	R2-6	LEFT SIDE PAN-PHIL HIGHWAY	126+550	126+750	200	RIGHT SIDE OF BYPASS	125+400	126+100	580	580	
129+580	W2-8	LEFT SIDE MAIN BYPASS	134+488	R2-7(L)	CENTER ISLAND MAIN BYPASS	130+320	130+480	160	RIGHT SIDE OF BYPASS	126+100	126+800	600	600	
129+800	W3-1	RIGHT SIDE MAIN BYPASS				132+400	132+628	228	RIGHT SIDE OF BYPASS	126+800	127+500	660	640	
130+180	W1-4(L)	LEFT SIDE MAIN BYPASS				132+997	133+100	103	RIGHT SIDE OF BYPASS	127+500	128+200	640	660	
130+050	W3-1	LEFT SIDE MAIN BYPASS				133+110	133+190	80	RIGHT SIDE OF BYPASS	128+200	128+900	660	660	
129+820	W1-4(L)	LEFT SIDE MAIN BYPASS				122+686	122+760	74	LEFT SIDE OF BYPASS	128+900	129+600	640	660	
132+020	W2-8	RIGHT SIDE MAIN BYPASS	122+354	R6-4	RIGHT SIDE MAIN BYPASS	124+000	124+080	80	LEFT SIDE OF BYPASS	129+600	130+300	640	660	
132+240	W2-8	LEFT SIDE MAIN BYPASS	122+400	R6-4	LEFT SIDE MAIN BYPASS	124+500	124+590	90	LEFT SIDE OF BYPASS	130+300	131+000	700	700	
133+000	W2-8	RIGHT SIDE MAIN BYPASS	122+577	R6-4	RIGHT SIDE MAIN BYPASS	125+000	125+070	70	LEFT SIDE OF BYPASS	131+000	131+700	660	660	
133+220	W2-8	LEFT SIDE MAIN BYPASS	122+685	R6-4	LEFT SIDE MAIN BYPASS	125+560	125+612	52	LEFT SIDE OF BYPASS	131+700	132+400	620	620	
133+690	W2-8	RIGHT SIDE MAIN BYPASS	125+609	R6-4	RIGHT SIDE MAIN BYPASS	125+639	125+680	41	LEFT SIDE OF BYPASS	132+400	133+100	300	300	
133+920	W2-8	LEFT SIDE MAIN BYPASS	125+640	R6-4	LEFT SIDE MAIN BYPASS	126+620	12+720	100	LEFT SIDE OF BYPASS	133+100	133+800	660	640	
134+110	W3-1	RIGHT SIDE MAIN BYPASS	125+860	R3-15	CENTER ISLAND MAIN BYPASS	132+998	133+020	22	LEFT SIDE OF BYPASS	133+800	134+500	500	580	
134+350	W3-1	LEFT SIDE MAIN BYPASS	125+905	R3-15	CENTER ISLAND MAIN BYPASS	0+940	0+954	14	LEFT SIDE OF A-24	134+500	134731.82	140	140	
00+085	W5-3	RIGHT SIDE INTERSECTION A-35	00+980	R3-15	CENTER ISLAND INTERSECTION A-25	0+940	0+954	14	LEFT SIDE OF A-24	TOTAL			8540	8560
134+173	W2-10(L)	CENTER ISLAND PAN-PHIL HIGHWAY	01+020	R3-15	CENTER ISLAND INTERSECTION A-25	1+008	1+040	32	RIGHT SIDE OF A-24					
134+175	W4-2(R)	LEFT SIDE MAIN BYPASS	129+895	R3-15	CENTER ISLAND MAIN BYPASS	1+008	1+040	32	RIGHT SIDE OF A-24					
134+457	W8-3A	LEFT SIDE PAN-PHIL HIGHWAY	129+944	R3-15	CENTER ISLAND MAIN BYPASS	TOTAL			2,376.00					
			00+974	R3-15	RIGHT SIDE INTERSECTION A-30									
			01+022	R3-15	LEFT SIDE INTERSECTION A-30									
			132+627	R6-4	RIGHT SIDE MAIN BYPASS									
			132+998	R6-4	LEFT SIDE MAIN BYPASS									
ITEM 605 (2)b REGULATORY SIGNS (OCTAGONAL 600mm)										GROUTED RIPRAP (RIGHT SIDE)				
STATION	REF. NO.	REMARKS					STATION	TO	LENGTH (m)	VOLUME (m ³)				
01+030.00	R1-1A	LEFT SIDE INTERSECTION A-23	134+204	R3-13A	CENTER ISLAND PAN-PHIL HIGHWAY	121+290	121+356	66	65.42					
00+974.00	R1-1A	RIGHT SIDE INTERSECTION A-23	134+216	R3-15	CENTER ISLAND MAIN BYPASS	122+691	12+827	136	53.04					
01+023.00	R1-1A	LEFT SIDE INTERSECTION A-29	134+246	R3-15	CENTER ISLAND MAIN BYPASS	132+464	132+626	162	68.04					
00+977.00	R1-1A	RIGHT SIDE INTERSECTION A-29	00+017	R3-15	CENTER ISLAND INTERSECTION A-35	133+000	133+060	60	18.00					
01+022.00	R1-1A	LEFT SIDE INTERSECTION A-32	134+460	R3-15	CENTER ISLAND MAIN BYPASS	GRAND TOTAL			204.50					
00+978.00	R1-1A	RIGHT SIDE INTERSECTION A-32	134+488	R3-15	CENTER ISLAND MAIN BYPASS					FROM	STATION	TO	LENGTH (m)	
01+022.00	R1-1A	LEFT SIDE INTERSECTION A-33								121+034.23	121+634.32	0.2		
00+982.00	R1-1A	RIGHT SIDE INTERSECTION A-33								121+634.23	122+024.23	0.5		
01+027.00	R1-1A	LEFT SIDE INTERSECTION A-34								122+024.23	122+354.23	0.3		
00+980.00	R1-1A	RIGHT SIDE INTERSECTION A-34								122+394.23	122+604.23	0.2		
ITEM 605 (2)c REGULATORY SIGNS (RECTANGULAR 450x750mm)					ITEM 605 (3) INFORMATORY SIGNS									
STATION	REF. NO.	REMARKS	STATION	REF. NO.	REMARKS									
01+030	R3-6P	LEFT SIDE INTERSECTION A-23	a. 2606 x 1630mm											
00+974	R3-6P	RIGHT SIDE INTERSECTION A-23	125+705	GS-24	RIGHT SIDE MAIN BYPASS									
125+860	R2-7(L)	CENTER ISLAND MAIN BYPASS	126+090	GS-25	LEFT SIDE MAIN BYPASS									
125+905	R2-7(L)	CENTER ISLAND MAIN BYPASS	b. 1697 x 1630mm											
00+980	R2-7(L)	CENTER ISLAND INTERSECTION A-25	00+940	GS-26	RIGHT SIDE INTERSECTION A-25									
01+020	R2-7(L)	CENTER ISLAND INTERSECTION A-25	c. 2576 x 1630mm											
01+023	R3-6P	LEFT SIDE INTERSECTION A-29	01+070	GS-27	LEFT SIDE INTERSECTION A-25									
00+977	R3-6P	RIGHT SIDE INTERSECTION A-29	d. 1984 x 1630mm											
129+895	R2-7(L)	CENTER ISLAND MAIN BYPASS	129+740	GS-28	RIGHT SIDE MAIN BYPASS									
129+944	R2-7(L)	CENTER ISLAND MAIN BYPASS	130+140	GS-29	LEFT SIDE MAIN BYPASS									
00+974	R2-7(L)	RIGHT SIDE INTERSECTION A-30	e. 1753 x 1630mm											
01+022	R2-7(L)	LEFT SIDE INTERSECTION A-30	00+920	GS-30	RIGHT SIDE INTERSECTION A-30									
01+022	R3-6P	LEFT SIDE INTERSECTION A-32	f. 1954 x 1630mm											
00+978	R3-6P	RIGHT SIDE INTERSECTION A-32	01+070	GS-31	LEFT SIDE INTERSECTION A-30									
01+022	R3-6P	LEFT SIDE INTERSECTION A-33												

 JAPAN INTERNATIONAL COOPERATION AGENCY  KATAHIRA & ENGINEERS INTERNATIONAL  YACHIYO ENGINEERING CO., LTD.	DESIGNED	10/12/02	SIGNATURE	[Signature]	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	10/19/02	Submitted By:	[Signature]	P.W.P. - P.M.O. BUREAU OF DESIGN	Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division	Recommended By: GILBERTO S. REYES OIC, Director IV	Recommended By: (See cover sheet for Signature) MANUEL M. BONDAN Undersecretary	Approved By: (See cover sheet for Signature/Approval) SIMEON A. DATUMANONG Secretary	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	FULL SIZE A1	SCHEDULE OF GUARDRAIL, TRAFFIC SIGNS, RIPRAP PLANTING & UNSUITABLE EXCAVATION	RG-04
	SUBMITTED	10/21/02	TEAM LEADER	[Signature]	DANILLO C. TRAJANO Project Director								

SCHEDULE OF PAVEMENT MARKINGS
CONTRACT PACKAGE IV (INITIAL STAGE)
ITEM 612(1) - REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS

1. EDGE LINES				1.2 RIGHT SIDE, OUTER EDGE				2.0 CENTERLINE				5.0 CHEVRON				
1.1 LEFT SIDE, OUTER EDGE				STATION				STATION				STATION				
FROM	TO	LENGTH (m)	REMARKS	FROM	TO	LENGTH (m)	REMARKS	FROM	TO	LENGTH (m)	REMARKS	FROM	TO	LENGTH (m)	REMARKS	
121+600.00	123+469.19	1889.19	MAIN BYPASS	133+116.55	133+784.16	667.61	MAIN BYPASS	01+055.25	01+150.00	94.75	A-33: 100mm x 3.0m @ 4.50m GAP	132+180.37	132+285.37	105.00	CENTER OF MAIN BYPASS	
123+469.19	00+984.85	16.99	MAIN BYPASS TO RT OF A-23	133+784.16	01+027.74	17.80	MAIN BYPASS TO RT OF A-34	00+770.00	00+949.81	179.81	A-34: 100mm x 3.0m @ 4.50m GAP	132+988.17	133+063.17	65.00	CENTER OF MAIN BYPASS	
00+984.85	00+984.85	84.85	RIGHT OF A-23	01+027.74	01+090.00	62.26	RIGHT OF A-34	00+949.81	00+979.81	30.00	A-34: 100mm UNBROKEN LINE	133+157.00	133+262.00	105.00	CENTER OF MAIN BYPASS	
00+984.85	00+988.04	33.19	LEFT OF A-23	01+021.14	01+090.00	68.86	LEFT OF A-34	01+026.64	01+056.64	30.00	A-34: 100mm UNBROKEN LINE	133+650.35	133+755.35	105.00	CENTER OF MAIN BYPASS	
00+988.04	123+501.86	2360.08	LT OF A-23 TO MAIN BYPASS	01+021.14	133+817.47	20.94	LEFT OF A-34 TO MAIN BYPASS	01+056.64	01+090.00	33.36	A-34: 100mm x 3.0m @ 4.50m GAP	133+863.31	133+908.41	45.10	CENTER OF MAIN BYPASS	
123+501.86	125+861.94	2360.08	MAIN BYPASS	133+817.47	134+731.83	914.36	MAIN BYPASS					134+168.85	134+175.50	6.65	CENTER OF PAN-PHIL HIGHWAY	
125+861.94	00+977.95	16.96	MAIN BYPASS TO RT OF A-25									134+484.63	134+504.54	19.91	CENTER OF PAN-PHIL HIGHWAY	
00+977.95	00+977.95	77.95	RIGHT OF A-25									134+642.16	134+722.16	80.00	CENTER OF MAIN BYPASS	
00+977.95	00+982.24	44.29	LEFT OF A-25									00+921.58	00+961.58	40.00	CENTER OF A-25	
00+982.24	125+896.22	14.45	LEFT OF A-25 TO MAIN BYPASS									01+038.42	01+078.42	40.00	CENTER OF A-25	
125+896.22	129+428.86	352.64	MAIN BYPASS									00+920.00	00+957.98	37.98	CENTER OF A-30	
129+428.86	00+989.78	18.85	MAIN BYPASS TO RT OF A-29									01+042.00	01+080.00	38.00	CENTER OF A-30	
00+989.78	00+989.78	99.78	RIGHT OF A-29									00+140.59	00+219.69	79.10	CENTER OF A-35	
00+989.78	00+987.00	27.78	LEFT OF A-29													
00+987.00	129+457.87	16.02	LEFT OF A-29 TO MAIN BYPASS													
129+457.87	129+891.80	433.93	MAIN BYPASS													
129+891.80	00+968.47	20.63	MAIN BYPASS TO RT OF A-30													
00+968.47	00+968.47	128.47	RIGHT OF A-30													
00+968.47	00+985.48	14.45	LEFT OF A-30													
00+985.48	129+931.55	12.92	LEFT OF A-30 TO MAIN BYPASS													
129+931.55	132+112.71	2181.16	MAIN BYPASS													
132+112.71	00+988.23	20.45	MAIN BYPASS TO RT OF A-32													
00+988.23	00+988.23	78.23	RIGHT OF A-32													
00+988.23	00+988.59	36.36	LEFT OF A-32													
00+988.59	132+141.63	15.14	LEFT OF A-32 TO MAIN BYPASS													
132+141.63	133+093.45	951.82	MAIN BYPASS													
133+093.45	00+991.25	13.35	MAIN BYPASS TO RT OF A-33													
00+991.25	00+991.25	111.25	RIGHT OF A-33													
00+991.25	00+991.25	111.25	LEFT OF A-33													
00+991.25	133+116.55	13.35	LEFT OF A-33 TO MAIN BYPASS													
133+116.55	133+793.10	676.55	MAIN BYPASS													
133+793.10	00+989.92	20.94	MAIN BYPASS TO RT OF A-34													
00+989.92	00+989.92	219.92	RIGHT OF A-34													
00+989.92	00+983.23	213.23	LEFT OF A-34													
00+983.23	133+826.42	17.80	LEFT OF A-34 TO MAIN BYPASS													
133+826.42	134+200.39	373.97	MAIN BYPASS													
134+200.39	00+035.70	32.99	MAIN BYPASS TO LT OF A-35													
00+035.70	00+219.69	183.99	LEFT OF A-35													
00+219.69	00+219.69	114.68	LEFT OF PAN-PHIL TO RT OF A-35													
00+219.69	134+215.77	40.91	RIGHT OF PAN-PHIL HIGHWAY													
134+215.77	00+070.78	24.43	RIGHT OF PAN-PHIL TO RT OF A-35													
00+070.78	00+070.78	46.26	RIGHT OF A-35													
00+070.78	00+108.21	24.86	RIGHT OF A-35													
00+108.21	134+250.32	23.24	RIGHT OF A-35 TO MAIN BYPASS													
134+250.32	134+484.63	234.31	MAIN BYPASS													
134+484.63	134+204.82	279.32	RIGHT OF PAN-PHIL HIGHWAY													
134+204.82	00+083.35	16.95	RIGHT OF PAN-PHIL TO RT OF A-35													
00+083.35	134+416.59	58.70	RIGHT OF PAN-PHIL HIGHWAY													
134+416.59	134+731.83	373.94	LEFT OF PAN-PHIL HIGHWAY													
134+731.83	134+416.59	68.04	RIGHT OF PAN-PHIL HIGHWAY													
134+416.59																

NOTE:
A - LEFT/RIGHT ARROW
B - COMBINATION OF STRAIGHT AND LEFT ARROWS OR STRAIGHT AND RIGHT ARROWS
C - STRAIGHT ARROW

8.0 PEDESTRIAN AND STOP LINES				
LOCATION	AREA (m ²)	STOP LINE		REMARKS
		PEDESTRIAN	STOP LINE	
INT. A-23	42.86	5.85		UN SIGNALIZED
INT. A-25	12.82	7.33		SIGNALIZED
INT. A-29	61.92	6.12		UN SIGNALIZED
INT. A-30	9.27	6.30		SIGNALIZED
INT. A-32	20.56	5.95		UN SIGNALIZED
INT. A-33	28.26	1.83		UN SIGNALIZED
INT. A-34	34.72	7.53		UN SIGNALIZED
INT. A-35	10.53	7.98		SIGNALIZED
INT. A-35a	29.28	7.93		UN SIGNALIZED

			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)		SCALE :		SHEET CONTENTS : SCHEDULE OF PAVEMENT MARKINGS		SHEET NO. : RG-05	
DESIGNED:	DATE:	SIGNATURE:	APPROVED:	DATE:	SIGNATURE:	PROJECT DIRECTOR:	CHIEF ENGINEER:	INSPECTOR:	RECOMMENDED BY:	RECOMMENDED BY:	APPROVED BY:	APPROVED BY:	APPROVED BY:
10/12/02	10/19/02	[Signature]	10/19/02	10/21/02	[Signature]	DANIEL C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONDAN	SIMEON A. DATUMANONG			

SCHEDULE OF ROAD RIGHT-OF-WAY MARKERS

Table with columns: POINT NO., STATION, OFFSET FROM CENTERLINE, NORTHING, EASTING. Rows include stationing from 750L to 793L and 505R to 612R. Includes a sub-section for 'BYPASS - RIGHT SIDE'.

JICA JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YEO YACHIYO ENGINEERING CO., LTD.

Table with columns: DATE, SIGNATURE. Includes dates like 10/12/02 and 10/19/02.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BUREAU OF DESIGN
OFFICE OF THE SECRETARY
Submits: DANILLO C. TRAJANO
Reviewed by: JOSEFINA M. ALADAR
Recommended by: GILBERTO S. REYES
Approved by: MANUEL M. BONGAN, SIMON J. DATUMANONG

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

SCALE: NOT TO SCALE
SHEET CONTENTS: SCHEDULE OF ROAD RIGHT-OF-WAY MARKERS (2 OF 3)
SHEET NO.: RG-07
FULL SIZE A1

SCHEDULE OF ROAD RIGHT-OF-WAY MARKERS

POINT NO.	STATION	OFFSET FROM CENTERLINE	NORTHING	EASTING	POINT NO.	STATION	OFFSET FROM CENTERLINE	NORTHING	EASTING	POINT NO.	STATION	OFFSET FROM CENTERLINE	NORTHING	EASTING	POINT NO.	STATION	OFFSET FROM CENTERLINE	NORTHING	EASTING	POINT NO.	STATION	OFFSET FROM CENTERLINE	NORTHING	EASTING	POINT NO.	STATION	OFFSET FROM CENTERLINE	NORTHING	EASTING
667R	131+180	17.000	1,726,750.128	492,948.565	719R-B	134+453.799	34.048	1,727,887.532	489,916.009	A23-3L	1+029.403	-7.500	1,719,939.225	495,219.086	A28-7L	1+110	-4.000	1,724,597.145	493,787.721	A31-4R	1+060	7.500	1,727,017.496	492,630.687	A34-11R	1+059.680	6.500	1,727,653.510	490,539.523

JICA JAPAN INTERNATIONAL COOPERATION AGENCY	YEO YACHIYO ENGINEERING CO., LTD.	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)	SCALE :	SHEET CONTENTS :	SHEET NO. :
		DESIGNED	10/12/2022			<i>[Signature]</i>	BUREAU OF DESIGN	OFFICE OF THE SECRETARY
CHECKED	10/19/2022	<i>[Signature]</i>	BUREAU OF DESIGN	OFFICE OF THE SECRETARY	CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1	(3 OF 3)	
SUBMITTED	10/20/2022	<i>[Signature]</i>	Submitted By: DANILO C. TRAJANO Project Director	Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division				