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NO. 11

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

PLARIDEL BYPASS - CONTRACT PACKAGE I

(INITIAL STAGE)
STA. 34+000.000 TO STA. 39+625.000

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ON
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GENERAL

INDEX OF DRAWINGS

THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY

PLARIDEL BYPASS - PACKAGE I

(INITIAL STAGE)

SHEET NO.	TITLE OF DRAWING
	GENERAL
GP-01	INDEX OF DRAWINGS - 1 OF 3
GP-02	INDEX OF DRAWINGS - 2 OF 3
GP-03	INDEX OF DRAWINGS - 3 OF 3
GP-04	KEY AND VICINITY MAP
GP-05	LEGEND & SYMBOLS
GP-06	ABBREVIATIONS
GP-07	PROJECT ROAD GENERAL ALIGNMENT & FEATURES
GP-08	HORIZONTAL AND VERTICAL CONTROL MONUMENTS
GP-09	LOCATION OF MATERIAL SOURCES
GP-10	SUMMARY OF QUANTITIES - 1 OF 2
GP-11	SUMMARY OF QUANTITIES - 2 OF 2
	ROADWAY
	GENERAL ROADWAY
RG-01	GENERAL NOTES (HIGHWAY / CIVIL & DRAINAGE)
RG-02	ALIGNMENT TECHNICAL DESCRIPTION
RG-03	LOCATION OF INTERSECTIONS / UNDERPASSES
RG-04	SCHEDULE OF TRAFFIC SIGNS, GUARDRAIL, ROADSIDE PLANTING, RIPRAP, AND UNSUITABLE EXCAVATION
RG-05	SCHEDULE OF PAVEMENT MARKINGS
RG-06	SCHEDULE OF ROAD RIGHT-0F-WAY MARKERS - 1 OF 2
RG-07	SCHEDULE OF ROAD RIGHT-0F-WAY MARKERS - 2 OF 2
	PLAN AND PROFILE
	ALONG BYPASS
RP-01	PLAN AND PROFILE, STA. 34 + 000.000 TO STA. 34 + 700.000
RP-02	PLAN AND PROFILE, STA. 34 + 700.000 TO STA. 35 + 400.000
RP-03	PLAN AND PROFILE, STA. 35 + 400.000 TO STA. 36 + 100.000
RP-04	PLAN AND PROFILE, STA. 36 + 100.000 TO STA. 36 + 800.000
RP-05	PLAN AND PROFILE, STA. 36 + 800.000 TO STA. 37 + 500.000
RP-06	PLAN AND PROFILE STA. 37 + 500.000 TO STA. 38 + 200.000
RP-07	PLAN AND PROFILE, STA. 38 + 200.000 TO STA. 38 + 900.000
RP-08	PLAN AND PROFILE, STA. 38 + 900.000 TO STA. 39 + 600.000
RP-09	PLAN AND PROFILE, STA. 39 + 600.000 TO STA. 39 + 625.000
RP-10	TYPICAL ROADWAY SECTIONS - 1 OF 4
RP-11	TYPICAL ROADWAY SECTIONS - 2 OF 4
RP-12	TYPICAL ROADWAY SECTIONS - 3 OF 4
RP-13	TYPICAL ROADWAY SECTIONS - 4 OF 4
	INTERSECTION DETAILS
	INTERSECTION A-1 (STA. 34+413.681)
RI-01	PLAN, CROSS-SECTION AND PROFILE
RI-02	PLAN, CROSS-SECTION AND PROFILE
RI-03	GEOMETRIC DESIGN LAYOUT
RI-04	PAVING AND GRADING PLAN
RI-05	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
RI-06	TRAFFIC SIGNAL LIGHT LAYOUT
	INTERSECTIONS C-1L & C-1R (STA. 34+541.177 & STA. 34+546.882)
RI-07	PLAN, CROSS-SECTION AND PROFILE
	INTERSECTION A-2 (STA. 34+804.257)
RI-08	PLAN, CROSS-SECTION AND PROFILE
RI-09	GEOMETRIC DESIGN LAYOUT
RI-10	PAVING AND GRADING PLAN
RI-11	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
	INTERSECTIONS C-2L & C-2R (STA. 36+053.810 & STA. 36+067.791)
RI-12	PLAN, CROSS-SECTION AND PROFILE
	INTERSECTION A-3 (STA. 36+271.676)
RI-13	PLAN, CROSS-SECTION AND PROFILE
RI-14	GEOMETRIC DESIGN LAYOUT
RI-15	PAVING AND GRADING PLAN
RI-16	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
	INTERSECTION A-4 (STA. 37+233.648)
RI-17	PLAN, CROSS-SECTION AND PROFILE
RI-18	GEOMETRIC DESIGN LAYOUT
RI-19	PAVING AND GRADING PLAN
RI-20	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
	INTERSECTION A-5 (STA. 38+115.240)
RI-21	PLAN, CROSS-SECTION AND PROFILE, STA. 0+900.000 TO STA. 1+600.000
RI-22	PLAN, CROSS-SECTION AND PROFILE, STA. 1+600.000 TO STA. 2+300.000
RI-23	PLAN, CROSS-SECTION AND PROFILE, STA. 2+300.000 TO STA. 3+000.000
RI-24	PLAN, CROSS-SECTION AND PROFILE, STA. 3+000.000 TO STA. 3+402.889
RI-25	GEOMETRIC DESIGN LAYOUT - 1 OF 2
RI-26	GEOMETRIC DESIGN LAYOUT - 2 OF 2
RI-27	PAVING AND GRADING PLAN - 1 OF 2
RI-28	PAVING AND GRADING PLAN - 2 OF 2
RI-29	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT - 1 OF 2
RI-30	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT - 2 OF 2
RI-31	TRAFFIC SIGNAL LIGHT LAYOUT
	INTERSECTION A-6 (STA. 38+710.214)
RI-32	PLAN, CROSS-SECTION AND PROFILE
	INTERSECTIONS A-7 (STA. 39+133.681) & A-7a (STA. 39+233.681)
RI-33	PLAN, CROSS-SECTION AND PROFILE
RI-34	GEOMETRIC DESIGN LAYOUT - 1 OF 2
RI-35	GEOMETRIC DESIGN LAYOUT - 2 OF 2
RI-36	PAVING AND GRADING PLAN - 1 OF 2
RI-37	PAVING AND GRADING PLAN - 2 OF 2
RI-38	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
RI-39	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
RI-40	TRAFFIC SIGNAL LIGHT LAYOUT
	ROADWAY MISCELLANEOUS DRAWINGS
	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
	ALONG BYPASS
RM-01	LAYOUT PLAN, STA. 34 + 000.000 TO STA. 35 + 400.000
RM-02	LAYOUT PLAN, STA. 35 + 400.000 TO STA. 36 + 800.000
RM-03	LAYOUT PLAN, STA. 36 + 800.000 TO STA. 38 + 200.000
RM-04	LAYOUT PLAN, STA. 38 + 200.000 TO STA. 39 + 600.000
RM-05	LAYOUT PLAN, STA. 39 + 600.000 TO STA. 39 + 625.000
	ALONG ACCESS
RM-06	LAYOUT PLAN, ACCESS ROAD NO. 1
RM-07	LAYOUT PLAN, ACCESS ROAD NO. 2 - 1 OF 2
RM-08	LAYOUT PLAN, ACCESS ROAD NO. 2 - 2 OF 2
	PLANTINGS, GUARDRAILS AND R.O.W. & KM POSTS LAYOUT
	ALONG BYPASS
RM-09	LAYOUT PLAN, STA. 34 + 100.000 TO STA. 35 + 400.000
RM-10	LAYOUT PLAN, STA. 35 + 400.000 TO STA. 36 + 800.000
RM-11	LAYOUT PLAN, STA. 36 + 800.000 TO STA. 38 + 200.000
RM-12	LAYOUT PLAN, STA. 38 + 200.000 TO STA. 39 + 600.000
RM-13	LAYOUT PLAN, STA. 39 + 600.000 TO STA. 39 + 625.000
	ALONG ACCESS
RM-14	LAYOUT PLAN, ACCESS ROAD NO. 1
RM-15	LAYOUT PLAN, ACCESS ROAD NO. 2 - 1 OF 2
RM-16	LAYOUT PLAN, ACCESS ROAD NO. 2 - 2 OF 2
	ROADWAY STANDARD DRAWINGS AND DETAILS
RS-01	GEOMETRIC DESIGN STANDARD-1 (HOR. ALIGNMENT/CURVE EASEMENTS)
RS-02	GEOMETRIC DESIGN STANDARD-2 (HORIZONTAL AND VERTICAL CURVES)
RS-03	GEOMETRIC DESIGN STANDARD-3 (SUPERELEVATION ATTAINMENT)
RS-04	STANDARD PORTLAND CEMENT CONCRETE PAVEMENT DETAILS
RS-05	CONCRETE CURB AND GUTTER DETAILS
RS-06	CURB-CUT RAMP DETAILS (FOR THE PHYSICALLY HANDICAPPED)
RS-07	STANDARD KILOMETER POST AND RIGHT-OF-WAY MARKERS
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
RS-12	STANDARD TRAFFIC SIGNS
RS-13	ADVANCED DIRECTION SIGN DETAILS - 1 OF 2
RS-13a	ADVANCED DIRECTION SIGN DETAILS - 2 OF 2
RS-14	MOUNTING/SUPPORT FOR ROAD SIGN - TYP. SIGN MOUNTING DETAILS - 1 OF 2
RS-15	MOUNTING/SUPPORT FOR ROAD SIGN - TYP. SIGN MOUNTING DETAILS - 2 OF 2
RS-16	STANDARD PAVEMENT MARKINGS - 1 OF 2
RS-17	STANDARD PAVEMENT MARKINGS - 2 OF 2
RS-18	REFLECTIVE ROAD STUDS FOR CONCRETE CHATTER BAR AND DETAILS
RS-19	TRAFFIC SIGNAL POST TYPE A & FOUNDATION DETAILS
RS-20	TRAFFIC SIGNAL POST TYPE B, C & D
RS-21	SIGNAL POLE TYPE B, C & D / FOUNDATION DETAILS
RS-22	TYPICAL PLANTING LAYOUT WITH FRONTAGE ROAD
RS-23	TYPICAL PLANTING LAYOUT WITHOUT FRONTAGE ROAD
RS-24	PLANTING LAYOUT ALONG STA. 34+000.00 TO STA. 34+407.00
RS-25	TYPES OF PLANTING FORMS & OTHER DETAILS
RS-26	TYPICAL FENCING DETAILS
	DRAINAGE
	GENERAL DRAINAGE
DG-01	SCHEDULE OF DRAINAGE STRUCTURES
DG-02	SCHEDULE OF SIDE DITCH AND QUANTITIES FOR RCBC

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CHECKED	9/18/00	S. GOSE
SUBMITTED	9/20/00	M. KATAHIRA, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE I	FULL SIZE A1	INDEX OF DRAWINGS (INITIAL STAGE) Sheet 1 of 3	GP-01

INDEX OF DRAWINGS

THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY

PLARIDEL BYPASS - PACKAGE I

(INITIAL STAGE)

SHEET NO.	TITLE OF DRAWING
	DRAINAGE CROSS-SECTIONS
	ALONG BYPASS
DC-01	DRAINAGE CROSS-SECTION, STA. 34 + 200.000 TO STA. 34 + 555.000
DC-02	DRAINAGE CROSS-SECTION, STA. 34 + 635.000 TO STA. 34 + 900.000
DC-03	DRAINAGE CROSS-SECTION, STA. 35 + 135.000 TO STA. 35 + 670.000
DC-04	DRAINAGE CROSS-SECTION, STA. 35 + 825.000 TO STA. 36 + 075.000
DC-05	DRAINAGE CROSS-SECTION, STA. 36 + 125.000 TO STA. 36 + 365.000
DC-06	DRAINAGE CROSS-SECTION, STA. 36 + 445.000 TO STA. 36 + 660.000
DC-07	DRAINAGE CROSS-SECTION, STA. 36 + 890.000 TO STA. 37 + 244.000
DC-08	DRAINAGE CROSS-SECTION, STA. 37 + 335.000 TO STA. 37 + 728.000
DC-09	DRAINAGE CROSS-SECTION, STA. 37 + 852.000 TO STA. 38 + 195.000
DC-10	DRAINAGE CROSS-SECTION, STA. 38 + 414.000 TO STA. 38 + 720.000
DC-11	DRAINAGE CROSS-SECTION, STA. 38 + 862.000 TO STA. 39 + 190.000
DC-12	DRAINAGE CROSS-SECTION, STA. 39 + 365.000 TO STA. 39 + 595.000
	ALONG ACCESS
DC-13	DRAINAGE CROSS-SECTION, INTERSECTION A-1 / ACCESS ROAD - 1
DC-14	DRAINAGE CROSS-SECTION, INTERSECTION A-2, A-4 & A-5
DC-15	DRAINAGE CROSS-SECTION, INTERSECTION A-5
DC-16	DRAINAGE CROSS-SECTION, INTERSECTION A-5
DC-17	DRAINAGE CROSS-SECTION, INTERSECTION A-5, A-6
DC-18	DRAINAGE CROSS-SECTION, INTERSECTION A-7, A-7a
	ALONG BUROL INTERCHANGES
DC-19	DRAINAGE CROSS-SECTION, RAMP C & D
DC-20	DRAINAGE CROSS-SECTION, RAMP D & E
	DRAINAGE STANDARD DRAWINGS AND DETAILS
DS-01	STANDARD DETAILS OF REINFORCED CONCRETE BOX CULVERT (RCBC)
DS-02	STANDARD DETAILS OF REINFORCED CONCRETE BOX CULVERT (RCBC) BARRELS
DS-03	STANDARD DETAILS OF RCBC WINGWALLS
DS-04	STANDARD LOW DEPTH TYPE BOX CULVERT - 1 OF 2
DS-05	STANDARD LOW DEPTH TYPE BOX CULVERT - 2 OF 2
DS-06	STD RCPC, METHOD OF PIPE INSTALL. & TYP. BEDDING FOR CONDUITS
DS-07	STANDARD REINFORCED CONCRETE HEADWALL FOR RCPC
DS-08	STANDARD DRAINAGE DITCHES
DS-09	STANDARD COMBINATION CURB INLET MANHOLE
DS-10	SPECIAL JUNCTION BOX MANHOLE
DS-11	STANDARD REINFORCED CONCRETE CATCH BASIN FOR RCPC
DS-12	TYPICAL DRAINAGE CROSS-SECTIONS
DS-13	STANDARD MAINTENANCE MARKERS
DS-14	TYPICAL RCBC EXTENSION
	UNDERPASS CROSSING (BOX CULVERT)
UP-01	SITE DEVELOPMENT PLAN - UNDERPASSES ALONG BYPASS
UP-02	GENERAL PLAN, ELEVATION & SECTION - B-0 UNDERPASS (STA. 33+740.000)
UP-03	GENERAL PLAN, ELEVATION & SECTION - B-1 UNDERPASS (STA. 36+720.000)
UP-04	GENERAL PLAN, ELEVATION & SECTION - B-2 UNDERPASS (STA. 37+690.000)
UP-05	CONCRETE COVER DETAILS (3.0m)
UP-06	CONCRETE COVER DETAILS (4.0m)
UP-07	BOX CULVERT BARREL DETAIL
UP-08	WINGWALL DETAIL
UP-09	APPROACH SLAB DETAIL

SHEET NO.	TITLE OF DRAWING
	BUROL INTERCHANGE RAMP
	INTERCHANGE ROADWAY
BI-01	GENERAL PLAN (RAMPS A, B, C, D & E)
BI-02	GEOMETRIC LAYOUT - 1 (RAMPS A, B, C, D & E)
BI-03	GEOMETRIC LAYOUT - 2 (RAMPS A, B, C, D & E)
BI-04	GEOMETRIC LAYOUT - 3 (RAMPS A, B, C, D & E)
BI-05	PLAN AND PROFILE - RAMP A
BI-06	PLAN AND PROFILE - RAMP B
BI-07	PLAN AND PROFILE - RAMP C
BI-08	PLAN AND PROFILE - RAMP D
BI-09	PLAN AND PROFILE - RAMP E
BI-10	PLAN AND PROFILE - NLE (S & N BOUNDS)
BI-11	PLAN AND PROFILE - NLE (S & N BOUNDS)
BI-12	TYPICAL CROSS SECTION
BI-13	PAVING AND GRADING PLAN
BI-14	PAVING AND GRADING PLAN
BI-15	PAVING AND GRADING PLAN
BI-16	PAVING AND GRADING PLAN
BI-17	PAVING AND GRADING PLAN
BI-18	SELECTED CROSS SECTIONS
BI-19	SELECTED CROSS SECTIONS
BI-20	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT - 1 OF 5
BI-21	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT - 2 OF 5
BI-22	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT - 3 OF 5
BI-23	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT - 4 OF 5
BI-24	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT - 5 OF 5
BI-25	PLANTING, GUARDRAILS AND R.O.W. LAYOUT - 1 OF 5
BI-26	PLANTING, GUARDRAILS AND R.O.W. LAYOUT - 2 OF 5
BI-27	PLANTING, GUARDRAILS AND R.O.W. LAYOUT - 3 OF 5
BI-28	PLANTING, GUARDRAILS AND R.O.W. LAYOUT - 4 OF 5
BI-29	PLANTING, GUARDRAILS AND R.O.W. LAYOUT - 5 OF 5
	INTERCHANGE RAMP C BRIDGE (STA 33+371.553)
	GENERAL
RB-01	GENERAL NOTES FOR BRIDGES - 1 OF 4
RB-02	GENERAL NOTES FOR BRIDGES - 2 OF 4
RB-03	GENERAL NOTES FOR BRIDGES - 3 OF 4
RB-04	GENERAL NOTES FOR BRIDGES - 4 OF 4
RB-05	HORIZONTAL AND VERTICAL CONTROL MONUMENTS
RB-06	C RAMP GENERAL PROFILE
RB-07	C RAMP GENERAL PLAN
RB-08	C RAMP GENERAL ELEVATION & TABLE OF COORDINATES & DIMENSIONS
RB-09	TABLE OF ELEVATIONS
RB-10	BOREHOLE LOCATION PLAN AND SOIL PROFILE
RB-11	SUMMARY OF QUANTITIES
	LAYOUT AND DIMENSIONS
RB-21	SUPERSTRUCTURE LAYOUT AND DIMENSIONS (ABUTMENT A1 TO A2)
RB-22	SUPERSTRUCTURE TYPICAL SECTIONS
RB-23	PIER LAYOUT AND DIMENSIONS (P1 TO P3 - INTERGRAL PIER)
RB-24	ABUTMENT LAYOUT AND DIMENSIONS (ABUTMENT A1 & A2)

SHEET NO.	TITLE OF DRAWING
	SUPERSTRUCTURE
RB-31	VOIDED SLAB REINFORCEMENT LAYOUT (ABUTMENT A1 TO A2)
RB-32	TYPICAL VOIDED SLAB REINFORCEMENT DETAILS - 1 OF 2
RB-33	TYPICAL VOIDED SLAB REINFORCEMENT DETAILS - 2 OF 2
RB-34	SCHEDULE OF REINFORCEMENT FOR VOIDED SLAB (ABUTMENT A1 TO A2)
RB-35	REINFORCEMENT SECTION DETAILS
RB-36	END DIAPHRAGM REINFORCEMENT DETAILS (ABUTMENT A1 & A2)
RB-37	INTERMEDIATE DIAPHRAGM REINFORCEMENT DETAILS
RB-38	PRESTRESSING CABLE LAYOUT (ABUTMENT A1 TO ABUTMENT A2)
RB-39	TYPICAL SECTIONS FOR PRESTRESSING AND ANCHORAGE DETAILS
RB-40	TABLE FOR CABLE LAYOUT AND PROFILE (ABUTMENT A1 TO ABUTMENT A2)
RB-41	DETAILS OF WINDING PIPE FOR VOIDED SLAB
	SUBSTRUCTURE
RB-51	COLUMN REINF. DETAILS (P1, P2 & P3) - INTERGRAL PIER
RB-52	COPING REINF. DETAILS (P1, P2 & P3)
RB-53	PILE CAP REINF. DETAILS (P1, P2 & P3) - 1 OF 2
RB-54	PILE CAP REINF. DETAILS (P1, P2 & P3) - 2 OF 2
RB-55	REINFORCEMENT DETAILS FOR ABUTMENT A1 & A2 - 1 OF 2
RB-56	REINFORCEMENT DETAILS FOR ABUTMENT A1 & A2 - 2 OF 2
RB-57	BORED PILE REINFORCEMENT DETAILS FOR ABUTMENT A1 & A2 (Ø1000mm)
RB-58	BORED PILE REINFORCEMENT DETAILS FOR PIERS (Ø1200mm)
	MISCELLANEOUS DRAWINGS
RB-71	BEARING AND ANCHOR BAR DETAILS
RB-72	EXPANSION JOINT DETAILS
RB-73	APPROACH SLAB REINFORCEMENT DETAILS (ABUTMENT A1 & A2)
RB-74	LAYOUT PLAN & ELEVATION FOR LIGHT POLE CHAIN LINK & RAILING
RB-75	CHAIN LINK RAILING DETAILS
RB-76	RAILING / PARAPET REINFORCEMENT DETAIL
RB-77	ABUTMENT AND PIER DRAINAGE
RB-78	TYPICAL STORM DRAIN DETAIL WITH GRATING
	CONSTRUCTION WORKS
RB-81	CONSTRUCTION SEQUENCE
RB-82	FOUNDATION CONSTRUCTION DETAILS AND CONSTRUCTION SCHEDULE
RB-83	SHORING DETAILS (SECTIONS AND ELEVATIONS)
	ELECTRICAL
	ELECTRICAL STANDARD DRAWINGS AND DETAILS
ES-01	NOTES & LEGENDS, SCHEMATIC CONTROL DIAG. & DUCT SECTION
ES-02	SERVICE POLE DETAILS
ES-03	STREET LIGHT POLE DETAILS
	ROADWAY LIGHTING PLAN AND LOAD SCHEDULE
EI-01	LAYOUT PLAN & LOAD SCHEDULE, INTERSECTION A-1 & C-1L (STA 34+541.177)
EI-02	LAYOUT PLAN & LOAD SCHEDULE, INTERSECTION A-5 (STA 38+115.240)
EI-03	LAYOUT PLAN & LOAD SCHEDULE, INTERSECTION A-7 (STA 39+133.681)
EI-04	LIGHTING LAYOUT, LOAD SCHEDULE AND LIGHTING FIXTURE SCHEDULE FOR BOX CULVERT (B-0)
	ROADWAY LIGHTING LAYOUT FOR INTERCHANGE BRIDGE
EB-01	LAYOUT PLAN & LOAD SCHEDULE, INTERCHANGE RAMP C
EB-02	LAYOUT PLAN & LOAD SCHEDULE, INTERCHANGE RAMP E

INDEX OF DRAWINGS

THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY

PLARIDEL BYPASS - PACKAGE I

(INITIAL STAGE)

SHEET NO.	TITLE OF DRAWING
	ENGINEER'S FIELD OFFICE & LIVING QUARTERS
	ARCHITECTURAL
FA-01	PERSPECTIVE AND TABLE OF CONTENTS
FA-02	ENGR'S FIELD OFFICE - FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN
FA-03	ENGR'S LIVING QTRS - FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN
FA-04	ENGR'S FIELD OFFICE / LABORATORY - ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS
FA-05	ENGR'S LIVING QUARTERS - ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS
FA-06	ENGR'S FIELD OFFICE & LIVING QUATERS - FOUNDATION PLAN, R.C. RAMP DETAIL, DETAIL OF F-1, P-1, WF-1 & DESIGN
FA-07	ENGR'S FIELD OFFICE / LABORATORY - FRONT & RIGHT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS
FA-08	ENGR'S LIVING QTRS - REAR & LEFT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS
FA-09	ENGR'S FIELD OFFICE - FRONT & RIGHT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS
FA-10	ENGR'S LIVING QTRS - REAR & LEFT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS
FA-11	ENGR'S FIELD OFFICE & LIVING QUARTERS - DETAIL OF CONNECTIONS, DETAILS 1 TO 15
FA-12	ROOF FRAMING PLAN, SCHEMATIC DIAGRAM, PURLIN CONNECTION AND CROSS BRACING CONNECTION
	ELECTRICAL
FE-01	ENGR'S FIELD OFFICE / LABORATORY - LIGHTING LAYOUT, POWER LAYOUT & ELECTRICAL SYMBOLS AND GENERAL NOTES
FE-02	ENGR'S LIVING QTRS - LIGHTING LAYOUT, POWER LAYOUT & ELECTRICAL SYMBOLS AND GENERAL NOTES
FE-03	ENGR'S FIELD OFFICE & LIVING QUARTERS - SCHEDULE OF LOADS AND COMPUTATIONS & ELECTRICAL RISER DIAGRAM
	PLUMBING
FP-01	ENGR'S FIELD OFFICE & LIVING QUARTERS - SEWER AND WATER LINE LAYOUT AND ISOMETRIC DIAGRAM
FP-02	ENGR'S FIELD OFFICE & LIVING QUARTERS - SEPTIC TANK DETAILS
	EXTERNAL
FX-01	ENGR'S FIELD OFFICE & LIVING QUARTERS - PLOT PLAN, ELEVATION OF FENCE & GATE AND TYPICALFOUNDATION DETAIL
	OTHERS
	ELECTRICAL
	UTILITY RELOCATION REFERENCE LAYOUT PLAN
OE-01	LAYOUT PLAN, STA. 34 + 100.000 TO STA. 35 + 400.000
OE-02	LAYOUT PLAN, STA. 35 + 400.000 TO STA. 36 + 800.000
OE-03	LAYOUT PLAN, STA. 36 + 800.000 TO STA. 38 + 200.000
OE-04	LAYOUT PLAN, STA. 38 + 200.000 TO STA. 39 + 600.000
OE-05	LAYOUT PLAN, STA. 39 + 600.000 TO STA. 39 + 625.000

SHEET NO.	TITLE OF DRAWING
	POWER TRANSMISSION LINE RELOCATION / INSTALLATION
OT-01	GENERAL MANUFACTURING INFORMATION, ASSEMBLY AND ERECTION INFORMATION, SPECIAL NOTE
OT-02	POLE RELOCATION, PLAN AND PROFILE
OT-03	POLE GENERAL DIMENSIONS AND FOUNDATION DETAILS
OT-04	TOWER PLAN AND PROFILE
OT-05	TOWER GENERAL DIMENSIONS, COLUMN FOOTING REINF. DETAILS, TOWER FOUNDATION PLAN
OT-06	TOWER GENERAL DIMENSIONS (UPPER SECTION)
OT-07	TOWER GENERAL DIMENSIONS (LOWER SECTION)
	CONE PENETRATION TEST (CPT)
OC-01	PROFILE, STA. 34 + 113.50 - STA. 39+513.00

SHEET NO.	TITLE OF DRAWING

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/20/02	
CHECKED	9/20/02	
SUBMITTED	9/20/02	

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONDAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

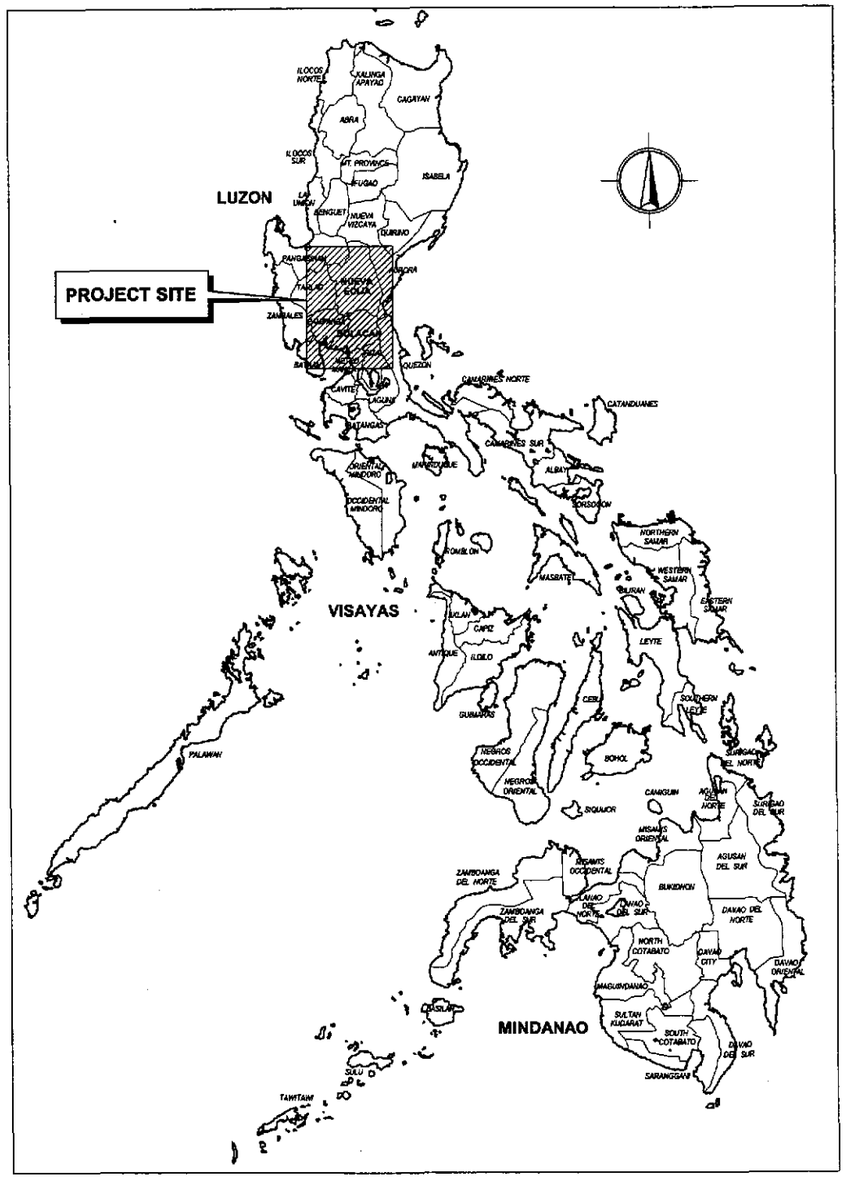
PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)

PLARIDEL BYPASS - CONTRACT PACKAGE I

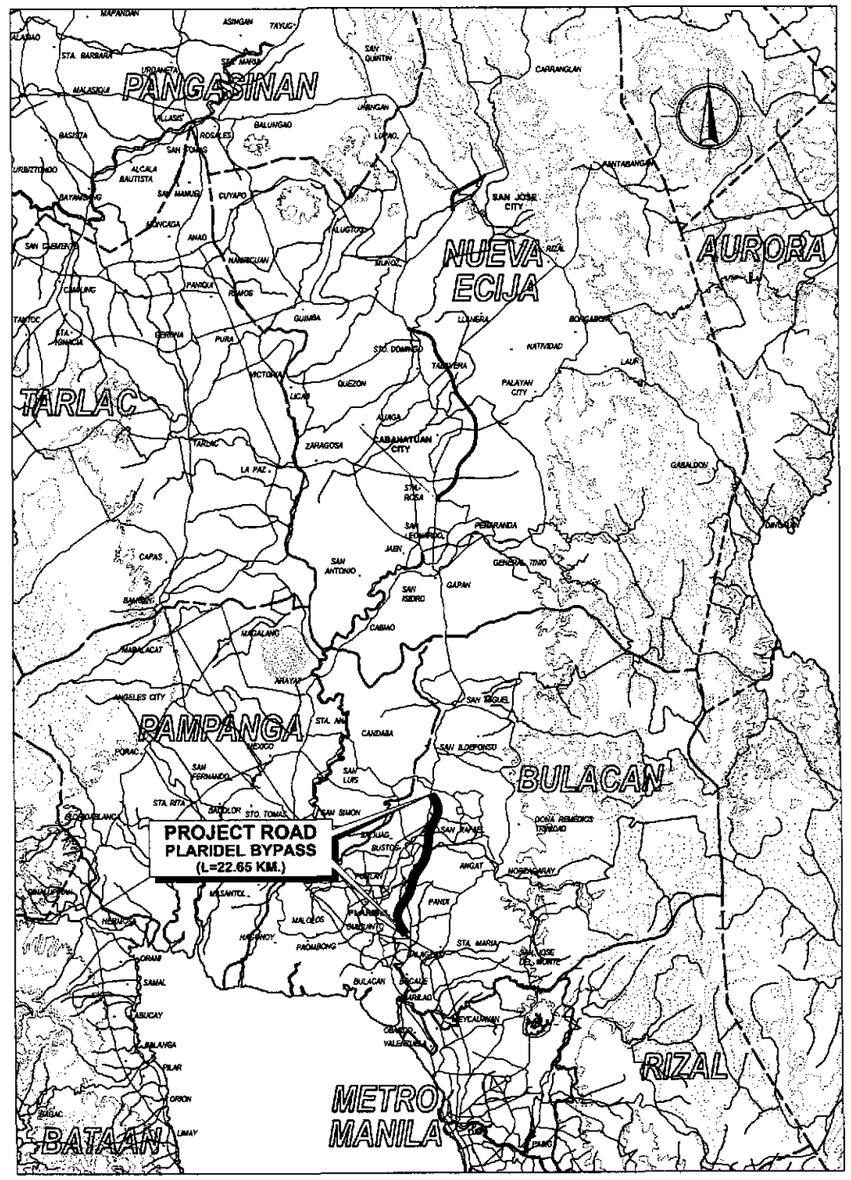
SCALE : FULL SIZE A1

SHEET CONTENTS : INDEX OF DRAWINGS (INITIAL STAGE) Sheet 3 of 3

SHEET NO. : GP-03



1 GP-04 KEY MAP
NOT TO SCALE



2 GP-04 VICINITY MAP
NOT TO SCALE

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)	SCALE :	SHEET CONTENTS :	SHEET NO. :
KATAHIRA & ENGINEERS INTERNATIONAL / YACHIYO ENGINEERING CO., LTD.	DESIGNED	9/16/02	A. ACACIO	PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	PLARIDEL BYPASS - CONTRACT PACKAGE I	NOT TO SCALE	KEY AND VICINITY MAP	GP-04
	CHECKED	9/18/02	S. GOSE	Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)	FULL SIZE A1		
	SUBMITTED	9/20/02	M. SUCHI TEAM LEADER	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONGAN Undersecretary	SIMEON A. DATUMANONG Secretary			

LEGEND AND SYMBOLS

EXISTING FEATURES

ROAD	BARANGAY ROAD
CONTOUR	5 6 7 6 5
ORIGINAL GROUND	
CONCRETE FENCE	
BARBED WIRE FENCE	
HOUSE	
TREES	
BRIDGE	PLAN PROFILE
SINGLE PIPE CULVERT	PLAN PROFILE
DOUBLE PIPE CULVERT	PLAN PROFILE
BOX CULVERT	PLAN PROFILE
DITCH LINE/ IRRIGATION LINE	
IRRIGATION LINE	
RIVER/CREEK	
ELECTRIC POST	TP CEP WEP
KILOMETER POST	KM 156
TRAVERSE STATION POINT	
BENCHMARK	
FISH POND	FP
NATIONAL POWER CORP. TRANSMISSION LINE	NPC TOWER

NEW DESIGN FEATURES

PROJECT ROAD	
SERVICE OR FRONTAGE ROAD ALONG BYPASS	
CONTOUR	5 6 7 6 5
RIGHT-OF-WAY LIMIT	
POINT OF INTERSECTION	
POINT OF INTERSECTION NO.	PI-00
℄ OF PROJECT ROAD	
FINISHED GRADE ON PROFILE	g=2.500%
BRIDGE	PLAN PROFILE
SINGLE RC PIPE CULVERT	PLAN PROFILE
DOUBLE RC PIPE CULVERT	PLAN PROFILE
BOX CULVERT	PLAN PROFILE
EARTH DITCH FLOW	
DIRECTION OF FLOW	
MANHOLE	
GUARDRAIL ON PLAN	
GUARDRAIL ON PROFILE	LEFT RIGHT
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	E495,806 N1747600
AGGREGATE SOURCE	
LINE SYMMETRY	
SECTION TARGET	1B D-03
ELEVATION TARGET	1A D-04
TITLE TARGET	2 RS-02 — IDENTIFICATION SYMBOL — SHEET NO.
SUB-TITLE TARGET	2A RS-02
DETAIL REF TARGET	2b RI-05
BOREHOLE	
STREET LIGHTING POLE	
KILOMETER POST	Km
STATION GRID	162+000
LINED IRRIG. CANAL	
CHAIN LINK FENCE	
SODDING ON PLAN	
LOW TREES	
MIDDLE TREE	
HIGH TREE	

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SUBMITTED	9/20/02	TEAM LEADER

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DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

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Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	NOT TO SCALE	LEGEND AND SYMBOLS	GP-05
PLARIDEL BYPASS - CONTRACT PACKAGE I	FULL SIZE A1		

ABBREVIATIONS

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

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CHECKED	9/18/02	SOSE
SUBMITTED	9/20/02	TEAM LEADER

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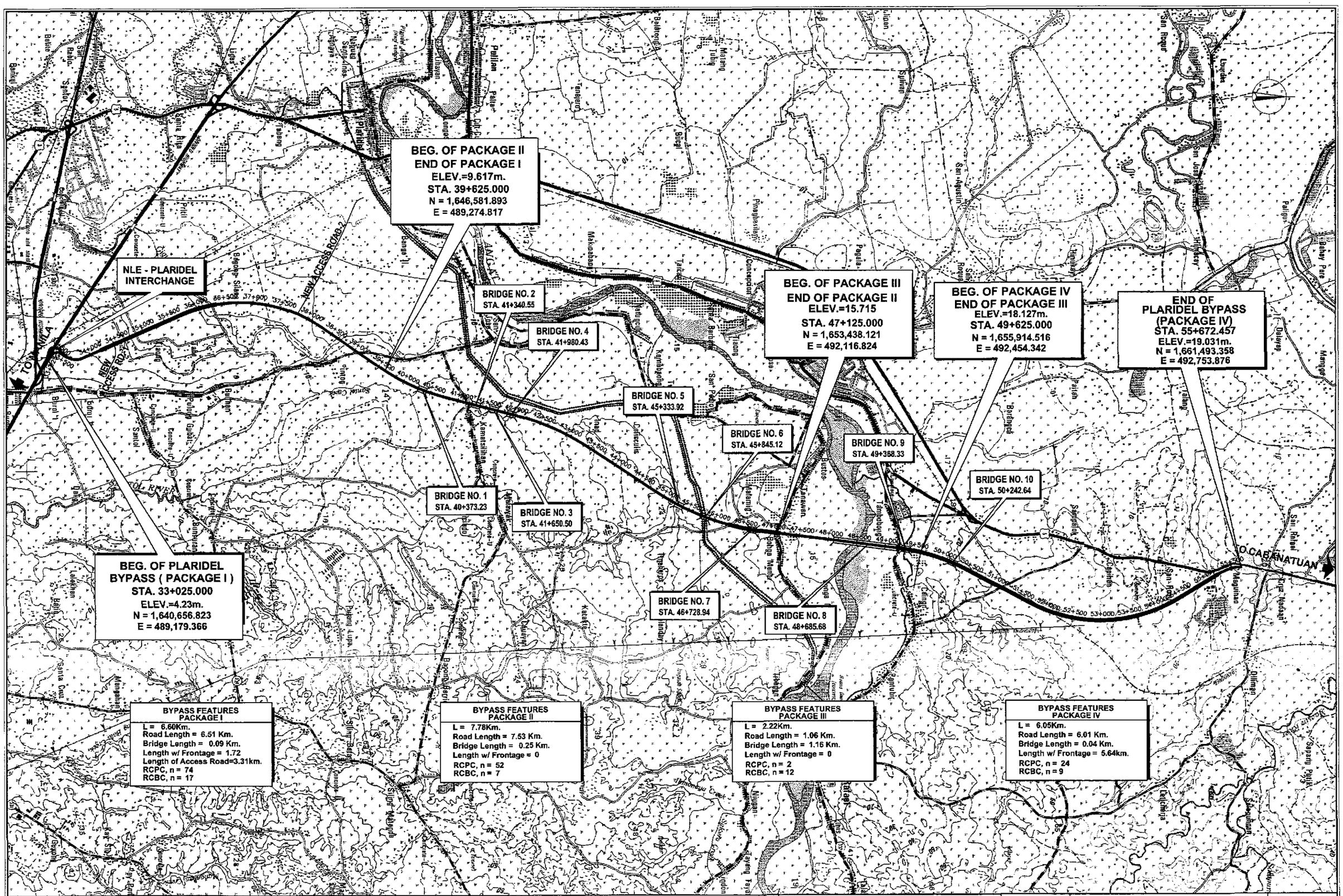
PLARIDEL BYPASS - CONTRACT PACKAGE I	FULL SIZE A1		



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CHECKED	9/18/02	S. JOSE
SUBMITTED	9/20/02	W. KUSAKA TEAM LEADER

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PLARIDEL BYPASS - CONTRACT PACKAGE I

SCALE : 1:30,000 FULL SIZE A1

SHEET CONTENTS : PROJECT ROAD GENERAL ALIGNMENT & FEATURES

SHEET NO. : GP-07

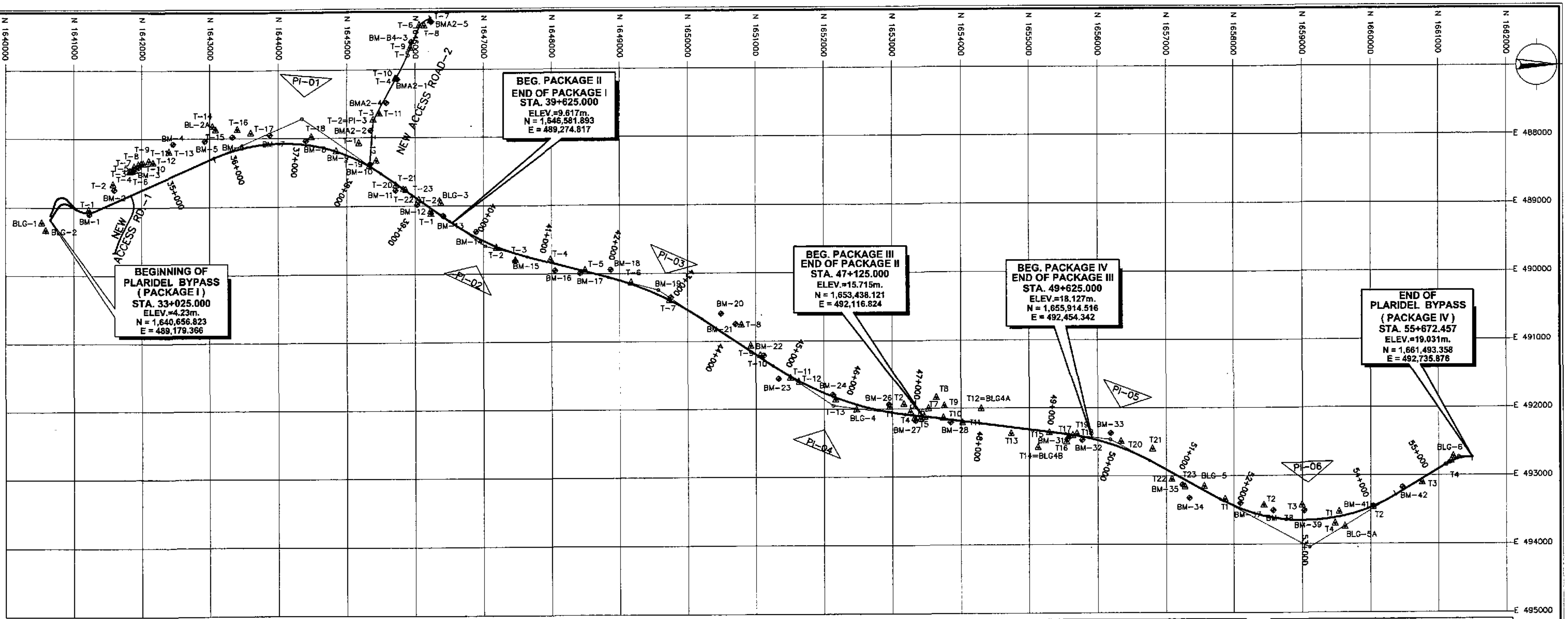


TABLE OF HORIZONTAL AND VERTICAL CONTROL

CONTROL POINT	COORDINATES NORTHING	EASTING	ELEV.	REMARKS
BM-1	1,641,232.641	489,100.464	3.537	It is loc. on a rice paddy int. on left of the alignment in Bgy. Burol 2, Guiguinto, Bulacan. It is 20m. from end of dirt rd.
BM-2	1,641,598.386	488,743.032	3.855	It is loc. on a rice paddy intersection on the left of the alignment in Bgy. Pulong Gubat, Plaridel.
BM-3	1,641,958.977	488,414.108	5.523	It is loc. on top of intersection of a rice paddy dike on left side of the alignment in Bgy. Pulong Gubat, Plaridel.
BM-4	1,642,460.780	488,080.530	2.685	It is loc. on the intersection of a rice paddy dike on the left side of the alignment in Bgy. Pulong Gubat, Plaridel.
BM-5	1,642,929.378	488,037.023	3.065	It is loc. on the rice paddy dike on the left side of the alignment in Bgy. Cueteo, Plaridel.
BM-6	1,643,338.598	487,976.161	3.339	It is loc. on the side of a concrete road near an electric post in Bgy. Cueteo, Plaridel.
BM-7	1,643,883.348	487,952.887	3.883	It is loc. on top of the intersection of a rice paddy dike on the left side of the alignment in Bgy. Cueteo, Plaridel.
BM-8	1,644,402.499	488,039.520	5.178	It is loc. on a rice paddy dike on the left side of the alignment in Bgy. Bulihan, Plaridel.
BM-9	1,644,847.404	488,197.025	6.382	It is loc. on a rice paddy dike along the alignment in Bgy. Bulihan, Plaridel.
BM-10	1,645,345.307	488,388.233	6.802	It is loc. on the side of a dirt road near a fence concrete post on left side of the align. in Bgy. Bulihan, Plaridel.
BM-11	1,645,714.384	488,771.939	8.317	It is loc. on the dike of a fishpond on the right side of the alignment in Bgy. Bulihan, Plaridel.
BM-12	1,646,032.378	488,978.695	8.415	It is loc. on the side of the prov'l road on the right side of align. near the corner of a wall in Bgy. Bulihan, Plaridel.
BM-13	1,646,415.622	489,145 127	7.659	It is loc. on the back of a college on the left side of the alignment in Bgy. Bulihan, Plaridel.
BM-14	1,646,892.978	489,377.904	8.484	It is loc. on a rice paddy dike on the left side of the align. surrounded by banana in Bgy. Bulihan, Plaridel.
BM-15	1,647,467.925	489,802.574	8.801	It is loc. on the center of a dirt road on the right side of the alignment in Bgy. San Jose, Baliwag.
BM-16	1,648,054.174	489,953.321	10.601	It is loc. on the int. of the bgy. road & the prov'l road on the left side of the align. in Bgy. San Jose, Baliwag.
BM-17	1,648,424.838	489,994.453	10.582	It is loc. on the side of the dirt road where an irr. canal is on the right side of the align. in Bgy. San Jose, Baliwag.
BM-18	1,648,870.652	489,943.559	10.265	It is loc. under a tree on the side of a creek on the left side of the alignment in Bgy. San Jose, Baliwag.
BM-19	1,649,757.184	490,350.187	11.391	It is loc. under a tree on the side of the road where an irr. canal is on the left side of align. in Bgy. Malamig, Bustos.
BM-20	1,650,493.060	490,591.189	11.615	It is loc. under a tree near an unfinished house on the left side of the alignment in Bgy. Malamig, Bustos.
BM-21	1,650,705.071	490,746.236	12.246	It is loc. on the side of the rd. near a culvert about a meter from the int. on the left side of the alignment in Bustos.
BM-22	1,651,121.786	491,211.136	12.593	It is loc. on the side of the road near an irrigation draft on the left side of the alignment in Bgy. Malamig, Bustos.
BM-23	1,651,339.258	491,553.289	18.706	It is loc. on the side of the road near an elect. post on the right side of the alignment in Bgy. Malamig, Bustos.
BM-24	1,652,126.811	491,790.544	14.480	It is loc.on the side on a wall on a fishpond dike about 40m. from the road on the lef side of the align. in Bustos
BM-26	1,652,951.730	491,935.264	17.018	It is loc. on the side of the dirt road near a coconut tree on the left side of the align. in Bgy. Malamig, Bustos.
BM-27	1,653,336.791	492,180.066	16.372	It is loc. on the side of the rd. opposite the cor. of a wall nr. an elect. post on the left side of the align. in Bustos.
BM-28	1,653,845.433	492,207.423	12.908	It is loc. on a rice paddy dike on the right side of the alignment in Bgy. Bonga Menor, Bustos.
BM-31	1,655,566.301	492,461.715	17.903	It is loc. on the side of the prov'l road under an acacia tree on the right side of the align. in Bgy. Tambobong.
BM-32	1,655,771.206	492,471.912	17.367	It is loc. on the side of a dirt road near an elect. post on the right side of the align. in Bgy. Tambobong, San Rafael.

TABLE OF HORIZONTAL AND VERTICAL CONTROL

CONTROL POINT	COORDINATES NORTHING	EASTING	ELEV.	REMARKS
BM-33	1,656,186.911	492,373.317	16.036	It is loc. under an acacia tree on a private lot on the left side of the alignment in Bgy. Tambobong, San Rafael.
BM-34	1,657,343.337	493,325.087	16.228	It is loc. on top of a rice paddy dike on the left side of the alignment in San Rafael, Bulacan.
BM-35	1,657,239.065	493,124.978	19.935	It is loc. on a rice paddy dike near the intersection on the left side of the alignment in San Rafael, Bulacan.
BM-37	1,658,097.133	493,462.758	25.474	It is loc. on the intersection of the rice paddy dike on the left side of the alignment in San Rafael, Bulacan.
BM-38	1,658,577.840	493,506.635	25.298	It is loc. on a rice paddy int. near a fence concrete post on the right side of the align. in Sn Rafael, Bulacan.
BM-39	1,659,026.390	493,512.322	25.137	It is loc. on the side of a dirt road on the right side of the alignment in San Rafael, Bulacan.
BM-41	1,660,037.271	493,451.999	28.680	It is loc. on the rice paddy intersection on the right side of the alignment in San Rafael, Bulacan.
BM-42	1,660,472.819	493,175.599	18.805	It is loc. on a rice paddy dike on the right side of the alignment in San Rafael, Bulacan.
BM A2-1	1,646,237.686	486,306.250	6.524	It is loc. on the right side of road under acacia tree near a concrete elec. post 30m. from dirt road in Plaridel.
BM A2-2	1,645,946.661	486,593.542	6.120	It is located on side of concrete road bet. two guavas 70m. from end of conc. wall of Oratex Comp. Plaridel
BM A2-3	1,645,739.141	487,142.838	7.237	It is loc. under a coconut tree on backyard about 3m. from house, 70m. from conc. road in Plaridel.
BM A2-4	1,645,576.226	487,490.381	5.555	It is loc. near an abondoned elec. post at rice paddy int. outside the fence of property, Bulihan, Plaridel.
BM A2-5	1,645,351.778	487,893.272	4.749	It is loc. beside the foot of an elec. tower, about 10m. from CL of a dirt road in Brgy. Bulihan, Plaridel.

TABLE OF GPS STATION POINTS

CONTROL POINT	COORDINATES NORTHING	EASTING	ELEV.	REMARKS
BLG-1	1,640,535.729	489,225.487	8.931	Loc. at the left guardrail going to Tabang Exit. Drilled on top of the guardrail is an iron steel 1/4x2" about 40 m. from the last approach of the bridge.
BLG-2	1,640,592.279	489,340.024	10.635	Loc. at the wall railing at the bridge's first approach. Drilled on top of the wall railing is an iron steel 1/4" x 2".
BLG-2A	1,643,045.047	487,830.179	3.777	Loc. in Bgy. Daungan, Guiguinto, Bulacan. It is embedded beside an irr. canal, about 150 m. from inter., about 15 m. from an elect. post, 50 m. from BBM 16 and about 15 m. from the fence of the house on the other side of the road.
BLG-3	1,646,381.832	488,957.118	8.646	Loc. in Bgy. Mataas, Sampaloc, Bulihan, Plaridel, Bulacan. It is on the head of an irrigation check valve, outside the Colegio de Immaculada Concepcion, about 10 m. from the shed and 4 m. from road centerline.
BLG-4	1,652,474.952	492,013.344	16.125	Loc. in Bgy. Malamig, Bustos, Bulacan. It is on the side of an irrigation canal, about 5 m. from the road centerline, 150 m. from a rd. fork, and about 5 m. from the new house.
BLG-4B	1,655,132.400	492,583,.981	9.310	Loc. in Bgy. Tambobong, San Rafael, Bulacan. It is emb. on the grd. about 600 m. from inter., 20 m. from the house.
BLG-5	1,657,566.872	493,155.992	22.517	Loc. in Bgy. Samp., Sn. Rfl, Bulacan. It is emb. on rt. side of the rd. going to Royal Northwoods 30 m. from the inter.
BLG-5A	1,659,619.893	493,753.421	29.685	Loc. in Bgy. San Roque, Hulo, San Rafael, Bulacan. It is embedded on the paddy dike 20 m. from the dirt road centerline.

TABLE OF TRAVERSE STATION POINTS

CONTROL POINT	COORDINATES NORTHING	EASTING	ELEV.
T-1	1,641,225.254	489,045.710	3.360
T-2	1,641,583.179	488,689.897	4.030
T-3	1,641,830.464	488,477.696	4.930
T-4	1,641,839.683	488,483.095	5.050
T-5	1,641,867.816	488,474.488	5.120
T-6	1,641,901.421	488,463.363	5.360
T-7	1,641,892.449	488,410.158	5.540
T-8	1,641,957.997	488,384.675	5.080
T-9	1,642,000.969	488,371.561	4.660
T-10	1,642,028.410	488,367.580	5.150
T-11	1,642,108.886	488,330.691	4.630
T-12	1,642,173.014	488,355.198	4.970
T-13	1,642,403.861	488,200.615	4.000
T-14	1,643,045.237	487,829.752	3.700
T-15	1,643,090.558	487,878.132	3.470
T-16	1,643,408.710	487,873.117	2.580
T-17	1,643,604.945	487,925.855	2.930
T-18	1,644,483.188	487,984.415	5.410
T-19	1,645,338.877	488,419.155	6.970
T-20	1,645,721.458	488,700.217	8.030
T-21	1,645,829.207	488,757.963	7.980
T-22	1,645,865.037	488,769.278	8.350
T-23	1,646,058.318	488,913.983	8.080
T-24	1,646,234.573	489,081.303	8.050
T-1	1,646,237.677	489,119.664	7.800
T-2	1,647,190.511	489,613.241	8.530
T-3	1,647,472.147	489,797.550	9.160
T-4	1,647,987.901	489,794.855	9.910
T-5	1,648,499.124	489,951.678	10.960

TABLE OF TRAVERSE STATION POINTS

CONTROL POINT	COORDINATES NORTHING	EASTING	ELEV.
T-6	1,649,171.515	490,135.688	10.900
T-7	1,649,736.908	490,395.363	11.280
T-8	1,650,793.468	490,761.338	12.560
T-9	1,650,932.296	491,070.927	14.880
T-10	1,651,073.140	491,213.182	13.180
T-11	1,651,511.858	491,544.594	18.790
T-12	1,651,634.116	491,604.256	16.560
T-13	1,652,171.172	491,865.395	15.670
T1	1,652,963.172	491,875.061	17.150
T2	1,653,166.711	491,837.097	16.340
T3	1,653,264.574	492,049.167	16.440
T4	1,653,327.487	492,142.734	16.240
T5	1,653,411.651	492,150.335	16.680
T6	1,653,472.407	492,130.939	17.350
T7	1,653,525.530	492,004.044	17.430
T8	1,653,637.260	491,842.625	15.430
T9	1,653,754.181	491,964.051	12.460
T10	1,653,739.830	494,141.877	14.840
T11	1,654,020.437	492,214.607	14.240
T13	1,654,737.523	492,379.170	11.600
T15	1,655,293.248	492,368.349	9.550
T16	1,655,545.515	492,498.513	17.830
T17	1,655,576.842	492,417.335	18.020
T18	1,655,635.552	492,409.403	17.620
T19	1,655,697.300	492,385.162	17.490
T20	1,656,337.537	492,498.250	15.870
T21	1,656,799.655	492,608.090	20.950
T22	1,657,085.568	493,052.405	19.510
T23	1,657,280.628	493,163.137	19.630

TABLE OF TRAVERSE STATION POINTS

CONTROL POINT	COORDINATES NORTHING	EASTING	ELEV.
T1	1,657,875.550	493,344.564	25.030
T2	1,658,442.470	493,433.175	25.310
T3	1,658,998.440	493,432.438	25.400
T4	1,659,475.800	493,706.043	26.820
T1	1,659,535.000	493,536.664	25.000
T2	1,660,040.390	493,471.255	28.680
T3	1,660,764.170	493,109.355	12.960
T4	1,661,191.210	492,796.889	13.480
T-1	1,645,182.514	488,080.020	6.740
T-2=PI-3	1,645,392.699	487,741.560	4.900
T-3	1,645,474.603	487,648.546	5.950
T-4	1,645,710.343	487,137.423	7.460
T-5	1,645,931.256	486,682.762	6.100
T-6	1,646,065.278	486,350.560	7.130
T-7	1,646,230.317	486,282.965	8.960
T-8	1,646,137.594	486,360.509	7.750
T-9	1,645,932.065	486,685.036	6.280
T-10	1,645,718.320	487,138.070	7.500
T-11	1,645,478.867	487,651.111	6.040
T-12	1,645,434.836	488,340.248	7.060

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

	DATE	SIGNATURE
DESIGNED	9/16/02	ACACIO
CHECKED	9/10/02	S. GOSE
SUBMITTED	9/20/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMD	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	JOSEFINA M. ALAGAR, Chief, Highways Division	GILBERTO S. REYES, OIC, Director IV	MANUEL M. BONOAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

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

SCALE : 1:30,000
FULL SIZE A1

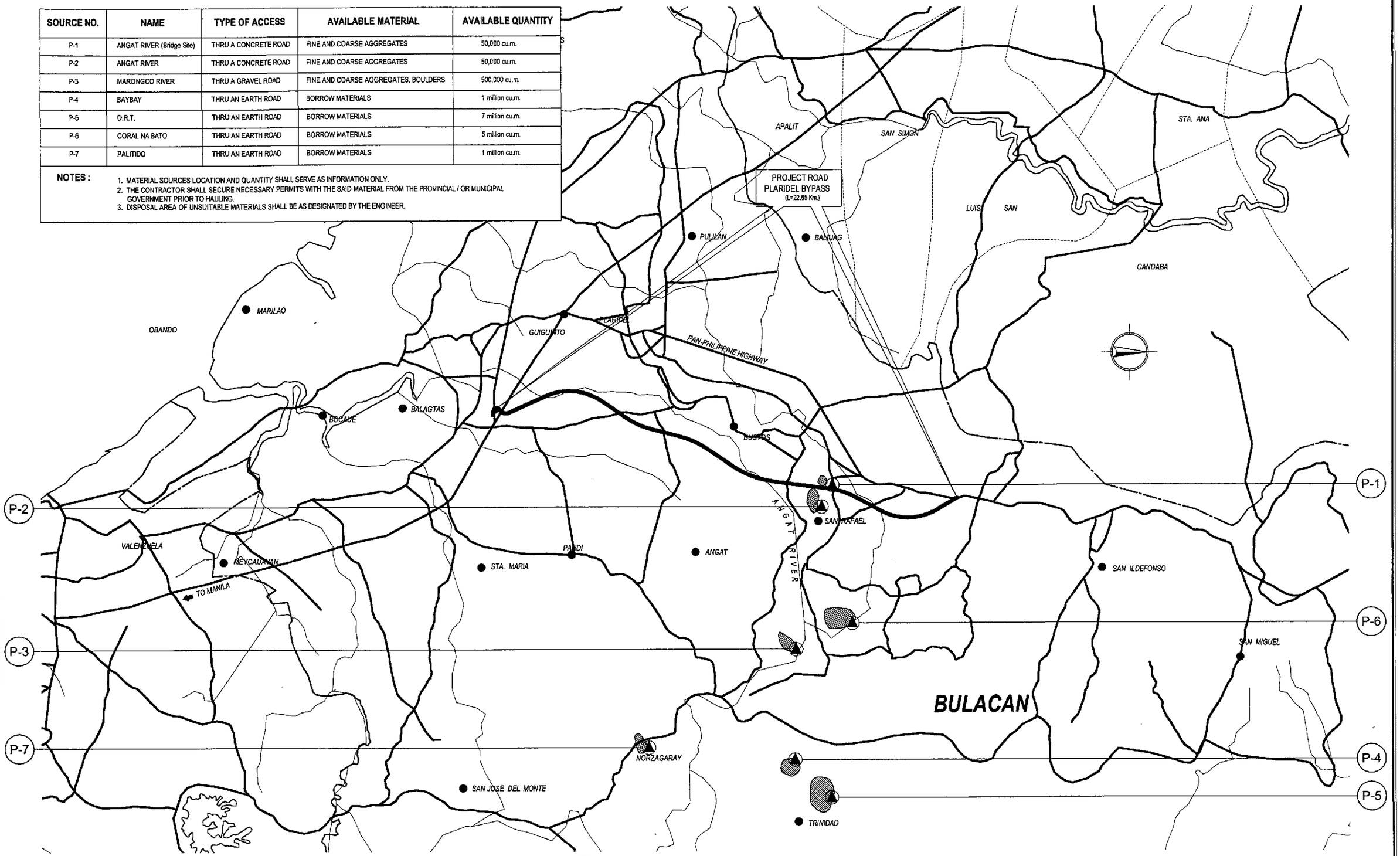
SHEET CONTENTS : HORIZONTAL AND VERTICAL CONTROL MONUMENT

SHEET NO. : GP-08

SOURCE NO.	NAME	TYPE OF ACCESS	AVAILABLE MATERIAL	AVAILABLE QUANTITY
P-1	ANGAT RIVER (Bridge Site)	THRU A CONCRETE ROAD	FINE AND COARSE AGGREGATES	50,000 cu.m.
P-2	ANGAT RIVER	THRU A CONCRETE ROAD	FINE AND COARSE AGGREGATES	50,000 cu.m.
P-3	MARONGCO RIVER	THRU A GRAVEL ROAD	FINE AND COARSE AGGREGATES, BOULDERS	500,000 cu.m.
P-4	BAYBAY	THRU AN EARTH ROAD	BORROW MATERIALS	1 million cu.m.
P-5	D.R.T.	THRU AN EARTH ROAD	BORROW MATERIALS	7 million cu.m.
P-6	CORAL NA BATO	THRU AN EARTH ROAD	BORROW MATERIALS	5 million cu.m.
P-7	PALITIDO	THRU AN EARTH ROAD	BORROW MATERIALS	1 million cu.m.

NOTES :

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



A / GP-09 LOCATION OF MATERIAL SOURCES

SCALE AS SHOWN

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

	DATE	SIGNATURE
DESIGNED	9/16/02	A. ACACIO
CHECKED	9/18/02	S. JOSE
SUBMITTED	9/20/02	M. KUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

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

SCALE : 1:80,000 FULL SIZE A1

SHEET CONTENTS : LOCATION OF MATERIAL SOURCES

SHEET NO. : GP-09

SUMMARY OF QUANTITIES
(INITIAL STAGE)

ITEM NO	DESCRIPTION	UNIT	QUANTITY																TOTAL QUANTITY	REMARKS
			BYPASS	RCBC	A-1	C-1R	C-1L	A-2	C-2L	C-2R	A-3	A-4	A-5	A-6	A-7	A-7a	INTERCHANGE	INTERCHANGE BRIDGE		
PART C - EARTHWORKS																				
100(1)	Clearing and Grubbing	ha	22.48	-	1.76								5.26	-	-	-	3.91	-	34.00	
100(3)	Individual removal of trees, small (150mm <Ø<900mm)	each	138.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	138.00	
100(4)	Individual removal of trees, large (Ø>900mm)	each	12.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.00	
101(1)	Removal of Existing Structures and Obstructions	L.S.	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	
101(3)a	Removal of Existing PCC Pavement	m2	300.00	-	-	280.00	240.00	640.00	-	-	282.00	312.50	-	-	750.00	200.00	2,100.00		5,115.00	
101(4)b	Removal of Existing Fence (Net Fence with Barbed Wire and Concrete Posts)	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	425.00	-	425.00	
102(1)	Unsuitable Excavation	m3	63,158.66	-	-	-	-	-	-	-	-	-	-	-	-	-	58,161.73	-	121,321.00	
103(1)	Structure Excavation	m3	369.85	2,476.37	128.81	-	-	3.99	-	-	-	1.99	141.18	2.09	1.99	1.99	1,089.97	-	4,239.00	
103(2)a	Bridge Excavation above OWL (Common Soil)	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	447.28	448.00	
103(3)a	Gravel Foundation Fill	m3	37.36	208.51	15.85	-	-	-	-	-	-	-	14.56	-	-	-	-	-	277.00	
103(6)	Pipe Culverts and Drain Excavation	m3	6,642.22	-	217.20	-	-	79.64	-	-	-	47.06	968.56	36.24	61.54	25.34	222.06	-	8,300.00	
103(7)	Granular Backfill for Pipe Culvert	m3	3,475.02	-	120.06	-	-	44.02	-	-	-	26.01	519.38	20.84	34.02	14.01	118.21	-	4,372.00	
104(1)	Embankment from Roadway Excavation	m3	229.03	-	0.09	134.38	-	266.89	6.06	1.76	-	73.35	14.75	60.02	410.65	12.02	1,946.29	-	3,156.00	
104(3)	Embankment from Borrow Pit	m3	347,794.06	-	12,245.14	168.25	983.09	163.97	423.81	295.55	2,461.49	1,965.49	36,439.18	38.03	1,770.11	246.97	155,153.52	11,513.29	571,662.00	
104(4)	Embankment from Borrow (Selected Granular Material) for Bridge	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	606.86	607.00	
105(1)	Subgrade Preparation (Common Soil)	m2	-	-	-	288.49	152.38	803.29	18.00	35.58	-	502.87	-	205.58	1,639.84	55.24	-	-	3,702.00	
PART D - BASE AND SUBBASE COURSE																				
200(1)	Aggregate Subbase Course	m3	25,519.87		3,179.88	158.76	234.23	315.33	-	-	455.50	423.25	6,887.30	-	715.61	-	10,241.81	19.00	48,151.00	
201(1)	Aggregate Base Course	m3	8,216.30		-	-	-	-	-	-	-	-	-	-	-	-			8,217.00	
204(1)	Cement Stabilized Sand Base Course	m3	-		-	-	-	-	-	-	-	-	-	-	-	-	2,649.82		2,650.00	
PART E - SURFACE COURSES																				
300(1)	Gravel Surface Course	m3	7,362.58	-	-	-	-	-	40.49	34.49	-	-	-	65.56	-	44.25		-	7,548.00	
302(1)	Tack Coat	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.81	-	18.00	Application Rate= 0.70 l/m ²
310(1)	Bituminous Concrete Surface Course, hot laid	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,905.26	-	2,908.00	Density = 2.38ton/cu.m.
310(2)	Asphalt Mixture Wearing Course (t=50mm) for bridge pavement, including tack coat	m2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	908.00	908.00	
311(1)a	PCC Pavement (Plain), t=280mm	m2	54,973.60	-	-	-	-	-	-	-	-	-	-	-	-	-	23,142.74	-	78,117.00	
311(1)c	PCC Pavement (Plain), t=230mm	m2	-	-	5,193.60	360.00	916.97	645.81	-	-	895.23	1,020.31	16,640.44	-	1,084.34	-		-	26,757.00	
311(1)d	PCC Pavement (Plain), t=180mm	m2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6,919.01	-	6,920.00	
SPL 311(1)e	PCC Pavement (Lean Mix Concrete)	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,332.65	-	1,333.00	
311(2)	PCC Pavement (Reinforced) t=300mm Approach Slab	m2	152.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.00	252.00	
PART F - BRIDGE CONSTRUCTION																				
400(16)a	Cast-in-place Concrete Bored Piles Ø 1000mm	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	650.00	650.00	
400(16)b	Cast-in-place Concrete Bored Piles Ø 1200mm	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	352.00	352.00	
SPL 400(23)a	High Strain Dynamic Pile Test for Ø 1000mm Bored Piles	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	
SPL 400(23)b	High Strain Dynamic Pile Test for Ø 1200mm Bored Piles	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	
SPL 400(24)	Pile Integrity Test for Bored Piles of various diameter	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.00	12.00	
401(1)b	Concrete Railing Type B (Concrete Wall Type)	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	181.60	182.00	
SPL 401(3)d	Bridge Name Plate, 1000 x 600mm for Interchange Ramp	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.00	2.00	
404(1)	Reinforcing Steel (Grade 40)	kg	6,450.28	155,764.12	9,921.18	-	-	275.68	-	-	-	137.84	1,934.06	145.84	137.84	137.84		67,406.44	242,312.00	
404(2)	Reinforcing Steel (Grade 60)	kg	38,354.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	151,321.80	189,676.00	
405(1)a	Structural Concrete Class A (fc'=21MPa, max. aggregate 38mm) for heavily reinforced structures	m3	478.97	1,650.99	12.40	-	-	6.20	-	-	-	3.10	44.32	3.28	3.10	3.10	43.94	-	2,250.00	
405(1)e	Structural Concrete Class AA1 (fc'=28MPa, max. aggregate 25) for long bridge substructures	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	676.40	677.00	
405(2)	Structural Concrete Class B (fc'=17MPa, max. aggregate 50mm) for plain or lightly reinforced structures	m3	1,273.99	-	43.86	-	-	16.08	-	-	-	9.50	197.28	6.60	12.43	5.12	-	-	1,565.00	
405(4)c	Structural Concrete Class PP (fc'=41MPa, max. aggregate 20mm) for prestressed hollow slab girders	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	687.64	688.00	
405(6)	Lean Concrete (fc'=17MPa, max. aggregate 38mm)	m3	18.68	114.79	-	-	-	-	-	-	-	-	-	-	-	-	-	25.06	159.00	
406(3)e	Prestressing Steel 12-T12.7 for PC Hollow Slab Bridge for Burgol Ramp C, Longitudinal	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14,114.75	14,115.00	
407(1)h	Elastomeric Bearing Pad, Duro 60 (500x400x60mm)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.00	6.00	
407(2)b	Expansion Joint, (±50mm Movement)	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.70	24.00	
407(4)	G.I. Drain Pipe Ø150mm for Bridge Drainage	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38.10	39.00	
SPL 900(3)	Provisional Sum for Geotechnical Investigation	L.S.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	
PART G - DRAINAGE AND SLOPE PROTECTION STRUCTURES																				
500(1)b4	RCPC Standard Strength (32MPa), Ø 610mm (24")	m	48.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48.00	
500(1)c4	RCPC Extra Strength (32MPa),Ø 610mm (24")	m	-	-	-	-	-	-	-	-	-	-	-	15.00	-	-	-	-	15.00	
500(1)c6	RCPC Extra Strength (32MPa), Ø 910mm (36")	m	1,614.00	-	60.00	-	-	22.00	-	-	-	13.00	284.00	-	17.00	7.00	66.00	-	2,083.00	
500(1)c7	RCPC Extra Strength (32MPa), Ø 1070mm (42")	m	99.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	99.00	
502(2)b14	Special Junction Box Manhole for RCPC 1-Ø 910x1-Ø 610	each	16.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.00	
502(2)b15	Special Junction Box Manhole for RCPC 1-Ø1070 x 1-Ø 610	each	4.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.00	
502(2)b34	Special Junction Box Manhole for RCPC 2-Ø 910x1-Ø 610	each	4.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.00	
502(4)a1	U-shaped Concrete Ditch W=0.50m x H=0.50m	m	1,565.00	-	-	-	-	-	-	-	-	-	-	-	-	-	3,454.00	-	5,019.00	
502(6)b	V-shaped Lined Ditch H=500mm, 1:1.00	m	2,000.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,000.00	
502(4)a3	U-shaped Concrete Ditch W=0.30m x H=0.30m	m															450.00	80.00	530.00	
504(5)	Grouted Riprap Class A	m3	124.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.08	142.00	

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KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/16/02	
CHECKED	9/18/02	S. JOSE
SUBMITTED	9/20/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

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

SCALE : NOT TO SCALE
FULL SIZE A1

SHEET CONTENTS : SUMMARY OF QUANTITIES (INITIAL STAGE) (1 of 2)

SHEET NO. : GP-10

SUMMARY OF QUANTITIES
(INITIAL STAGE)

ITEM NO	DESCRIPTION	UNIT	QUANTITY																	REMARKS
			BYPASS	RCBC	A-1	C-1R	C-1L	A-2	C-2L	C-2R	A-3	A-4	A-5	A-6	A-7	A-7a	INTERCHANGE	INTERCHANGE BRIDGE	TOTAL QUANTITY	
PART H - MISCELLANEOUS STRUCTURES																				
600(3)a	Combination Concrete Curb & Gutter/Side Strip, Type A (675x364mm)	m	2,330.59	-	126.28	-	-	-	-	-	-	-	87.67	-	205.77	-	-	-	2,751.00	
602(1)	Right-of-Way Concrete Monuments	each	240.00	-	11.00	4.00	5.00	8.00	8.00	8.00	8.00	11.00	41.00	8.00	17.00	2.00	50.00	-	421.00	
602(2)	Maintenance Marker Posts for Drainage Structure	each	98.00	-	10.00	-	-	4.00	-	-	-	2.00	10.00	4.00	2.00	2.00	4.00	-	136.00	
602(3)	Kilometer Posts	each	6.00	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	-	7.00	
603(3)a	Metal Guardrails (Metal Beam) Type A (Embedded in soil)	m	200.00	-	-	-	-	-	-	-	-	-	64.00	-	-	-	660.00	-	924.00	
604(2)	Fencing (Chain Link Fence Fabric)	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,269.01	-	2,270.00	
604(3)	Fencing (Chain Link Fence Fabric on Bridge Railing)	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.00	100.00	
605(1)a	Warning Signs (Triangular 900mm)	each	16.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.00	
605(2)b	Regulatory Signs (Octagonal 600mm)	each	-	-	-	-	-	2.00	-	-	2.00	2.00	-	-	-	-	-	-	6.00	
605(2)c	Regulatory Signs (Circular Ø 600mm)	each	6.00	-	1.00	-	-	-	-	-	-	-	2.00	-	2.00	-	-	-	11.00	
605(2)d	Regulatory Signs (Rectangular 450x750mm)	each	5.00	-	1.00	-	-	2.00	-	-	2.00	1.00	-	-	-	-	-	-	11.00	
605(3)b	Informatory Signs (Type A, double post)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	-	1.00	
605(3)c	Informatory Signs (Type B, double post)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	-	1.00	
605(3)d	Informatory Signs (Type C, double post)	each	3.00	-	1.00	-	-	-	-	-	-	-	2.00	-	2.00	-	-	-	8.00	
607(2)b	Reflectorized Pavement Studs (Raised Profile Type, two faces reflective)	each	112.00	-	7.00	-	-	-	-	-	-	-	14.00	-	14.00	-	-	-	147.00	
607(3)	Chatter Bars (one face reflective)	each	206.00	-	28.00	-	-	-	-	-	-	-	28.00	-	42.00	-	-	-	304.00	
608(1)	Furnishing and Placing Top Soil	m3	20,290.76	-	879.19	45.12	62.63	45.07	63.70	9.84	33.86	118.28	2,663.64	58.45	93.58	63.22	4,569.23	-	28,997.00	
610(1)	Sodding	m2	101,453.78	-	4,395.85	225.60	313.17	225.33	318.50	49.19	169.32	591.39	13,318.20	292.23	467.92	316.08	22,846.14	1,689.06	145,672.00	
611(1)a	Trees (Furnishing and Transplanting) High Tree (Young H ≤ 1.50m	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,333.00	-	1,333.00	
611(1)b	Trees (Furnishing and Transplanting) Low Tree Tree) 1.5m < H ≤ 3.0m	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	166.00	-	166.00	
611(1)c	Trees (Furnishing and Transplanting) High Tree (Young Tree) 1.5m < H ≤ 3.0m	each	537.00	-	-	-	-	-	-	-	-	-	-	-	-	-	110.00	-	647.00	
612(1)a	Reflectorized Thermoplastic Pavement Markings (White)	m2	2,189.30	-	236.45	-	-	37.21	-	-	49.29	50.71	625.84	-	103.20	-	-	-	3,292.00	
612(1)b	Reflectorized Thermoplastic Pavement Markings (Yellow)	m2	189.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	189.00	
SPL 620(1)a	Traffic Signal Pole Type A (Mast Arm Post H=6.7m)	each	5.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.00	
SPL 620(1)c	Traffic Signal Pole Type B (Ø 114.3mm x 4.2m)	each	10.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.00	
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 (Ø114.3mm x 3.0m)	each	8.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.00	
SPL 620(2)a	Traffic Signal Lamps Type A (6 vehicle lamps)	each	11.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.00	
SPL 620(2)b	Traffic Signal Lamps Type B (3 vehicle lamps)	each	26.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26.00	
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	-	7.00	-	28.00	-	39.00	
SPL 620(4)b	Street Lighting Poles (Dual Lamp)	each	38.00	-	-	-	3.00	-	-	-	-	-	2.00	-	5.00	-	18.00	-	66.00	
SPL 620(4)c	Bridge Lighting Poles (Single Lamp)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.00	3.00	
SPL 620(4)d	Street Lighting Service Pole with Panel	each	-	-	1.00	-	-	-	-	-	-	-	1.00	-	1.00	-	3.00	-	6.00	
SPL 620(4)d	Fluorescent Lighting for Underpass Culverts	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.00	-	2.00	

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JAPAN INTERNATIONAL COOPERATION AGENCY
KEI KATAHIRA & ENGINEERS INTERNATIONAL
yec YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/14/02	J. TAPIA
CHECKED	9/18/02	S. GOSE
SUBMITTED	9/20/02	M. KUSHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	NOT TO SCALE	SUMMARY OF QUANTITIES (INITIAL STAGE) (2 of 2)	GP-11
PLARIDEL BYPASS - CONTRACT PACKAGE I	FULL SIZE A1		

ROADWAY

GENERAL NOTES

HIGHWAY / CIVIL AND DRAINAGE NOTES

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 SPEICIFICATIONS, 1985 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
BLG-1	1640535.729	489225.487	8.931	LOCATED AT THE LEFT GUARDRAIL GOING TO TABANG EXIT. DRILLED ON TOP OF THE GUARDRAIL IS AN IRON STEEL 1/4"x2" ABOUT 40m. FROM THE LAST APPROACH OF THE BRIDGE.
BLG-2	1640592.279	489340.024	10.635	LOCATED AT THE WALL RAILING AT THE END OF THE BRIDGE'S FIRST APPROACH. DRILLED ON TOP OF THE WALL RAILING IS AN IRON STEEL 1/4"x 2".
BLG-2A	1643045.047	487830.179	3.777	LOCATED IN BGY. DAUNGAN, GUIGUINTO, BULACAN. IT IS EMBEDDED BESIDE AN IRRIGATION CANAL, ABOUT 150m. FROM INTERSECTION, ABOUT 15m. FROM AN ELECT. POST 50m. FROM BBM 16 AND ABOUT 15m. FROM THE FENCE OF THE HOUSE ON THE OTHER SIDE OF THE ROAD.
BLG-3	1646381.832	488957.118	8.646	LOCATED IN BGY. MATAAS, SAMPALOK, BULIHAN, PLARIDEL BULACAN. IT IS ON THE HEAD OF AN IRRIGATION CHECK VALVE, OUTSIDE THE COLEGIO DE IMMACULADA CONCEPCION, ABOUT 10m. FROM THE SHED AND 4.00m. FROM ROAD CENTERLINE.
BLG-4	1652474.952	492013.344	16.125	LOCATED IN BGY. MALAMIG, BUSTOS, BULACAN. IT IS ON THE SIDE OF IRRIG. CANAL, ABOUT 5m. FORM THE ROAD CENTERLINE 150m. FROM FORK, AND ABOUT 5m. FROM THE NEW HOUSE.
BLG-4B	1655132.400	492583.981	9.310	LOCATED IN BGY. TAMBOBONG, SAN RAFAEL, BULACAN. IT IS EMBEDDED ON A ROAD GROUND ABOUT 600m. FROM INTERSECTION, 20m. FROM THE HOUSE.
BLG-5	1657566.872	493155.992	22.017	LOCATED IN BGY. SAMPALOK, SAN RAFAEL, BULACAN. IT IS EMBEDDED ON THE RIGHT SIDE OF THE ROAD GOING TO ROYAL NORTHWOODS 30m. FROM THE INTERSECTION.
BLG-5A	1659619.893	493753.421	29.185	LOCATED IN BGY. SAN ROQUE, HULO, SAN RAFAEL BULACAN. IT IS EMBEDDED ON THE RICE PADDY DIKE 20m. FROM THE DIRT ROAD CENTERLINE.

2.2 VERTICAL CONTROL IS REFERRED TO BM BL-12 ESTABLISHED BY THE BLGS WITH ELEVATION 14.935m. ABOVE MEAN SEA LEVEL LOCATED IN BARIO SABANG, PLARIDEL BULACAN. ALONG NATIONAL HIGHWAY NO.5 ABOUT 120m. NORTH OF KM POST NO 52. IT IS EMBEDDED IN A HOLE DRILLED ON TOP OF THE SOUTH SIDE OF THE FOOTING OF THE MARIANO PONCE MONUMENT. ABOUT 18m. NORTH OF THE CENTERLINE OF THE NATIONAL HIGHWAY, INSIDE THE SABANG ELEMENTARY SCHOOL GROUNDS. MARKED PC & GS BL 12, 1952, ELEV.=14.935.

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 PLARIDEL BYPASS

- NORTH LUZON EXPRESSWAY AND BUROL INTECHANGE AT START OF BYPASS.
- CONSTRUCTION OF AN 18 HECTARE SUBDIVISION (LEFT SIDE OF STA.35+000.00 CENTERLINE.)
- FLOODED SECTION AT INTERSECTION WITH SAN JOSE-CAMACHILIHAN ROAD (STA. 41+166.00 CENTERLINE).
- A NEWLY BUILT CHURCH AT INTERSECTION WITH BALIUAG-SAN RAFAEL ROAD.

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 FLOODLEVEL, 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 STATION ALONG THE NORTH LUZON EXPRESSWAY WHICH IS KM 33.

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 GRADE ARE TOP OF CROWN ALONG THE CENTERLINE. FINISHED GRADE AS SHOWN WILL BE REFERRED BASE FROM 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 CONNCTIONS AND PRIVATE ENTRANCES SHALL BE AS SHOWN IN THE DRAWING OR AS INDICATD 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, UNCLOGGING 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.

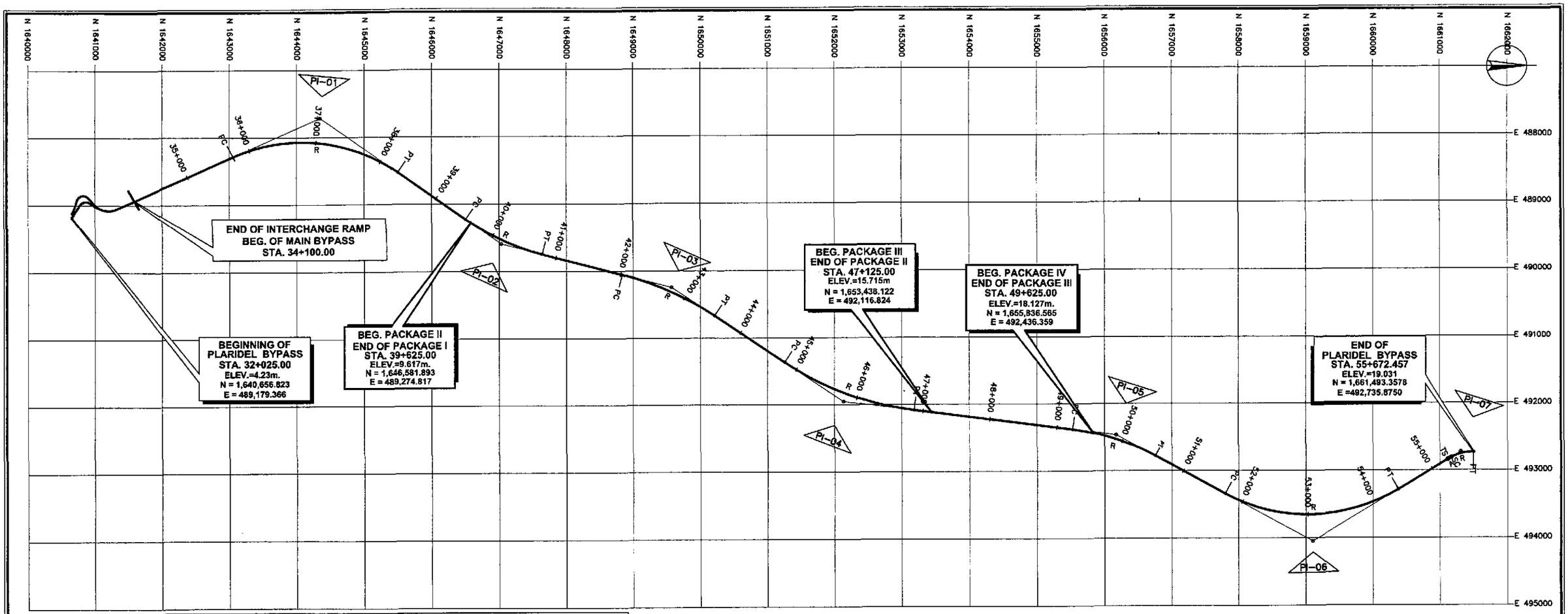
14.0 DESIGN DATA / REFERENCES

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.



ELEMENTS OF CURVES

P.I. No.	STATION	DISTANCE	AZIMUTH	TANGENT Θ_S	DEFLECTION ANGLE	A / R	Ls / Lc	STATION
BEG.	34+100.00							
01	37+150.085	3,050.085	158°12'23"	1,405.622	58°41'37"	2,500.000	2,560.993	PC=35+744.463 PT=38+305.456
		3,270.517	214°54'01"	631.471	20°27'17"	3,500.000	1,249.501	PC=39+538.880 PT=40+788.381
02	40+170.351	2,627.382	194°26'44"	762.261	19°13'42"	4,500.000	1,510.187	PC=42+022.011 PT=43+532.197
03	42+784.272	3,079.935	213°40'26"	1,055.870	26°24'35"	4,500.000	2,074.218	PC=44+794.002 PT=46+868.219
04	45+849.871	4,076.071	187°15'51"	653.242	21°08'39"	3,500.000	1,291.823	PC=49+235.179 PT=50+526.802
05	49+888.421	3,324.430	208°24'30"	1,481.484	59°20'57"	2,800.000	2,693.177	PC=51+716.506 PT=54+409.683
06	53+197.990	2,563.432	149°03'33"	217.897	32°44'53"	188.072	54.417	TS=55+273.735 SC=55+328.152
07	55+491.631	191.336	02°23'54"	02°23'54"		850.000	344.305	PT=55+672.457
END	55+672.457							

TABLE OF COORDINATES

P.I. No.	NORTHING	EASTING		NORTHING	EASTING
BEG.	1,641,555.403	488,947.023			
01	1,644,346.248	487,716.493	PC	1,643,060.096	488,283.579
			PT	1,645,499.069	488,520.712
02	1,647,028.564	489,587.713	PC	1,646,510.662	489,226.418
			PT	1,647,840.071	489,745.240
03	1,649,572.862	490,243.134	PC	1,648,834.700	490,052.981
			PT	1,650,207.221	490,665.781
04	1,652,135.007	491,950.849	PC	1,651,257.304	491,365.407
			PT	1,653,183.402	492,084.356
05	1,656,179.303	492,466.239	PC	1,655,531.364	492,383.641
			PT	1,656,753.942	492,777.019

TABLE OF COORDINATES

P.I. No.	NORTHING	EASTING		NORTHING	EASTING
06	1,659,103.468	494,047.839	PC	1,657,800.382	493,343.022
			PT	1,660,374.132	493,286.129
07	1,661,302.117	492,729.842	TS	1,661,115.228	492,841.874
			SC	1,661,162.283	492,814.552
			PT	1,661,493.358	492,735.876
END	1,661,493.358	492,735.876			

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/20/02	A. ACACIO
CHECKED	9/20/02	S. GOSE
SUBMITTED	9/20/02	M. KUROSAWA TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

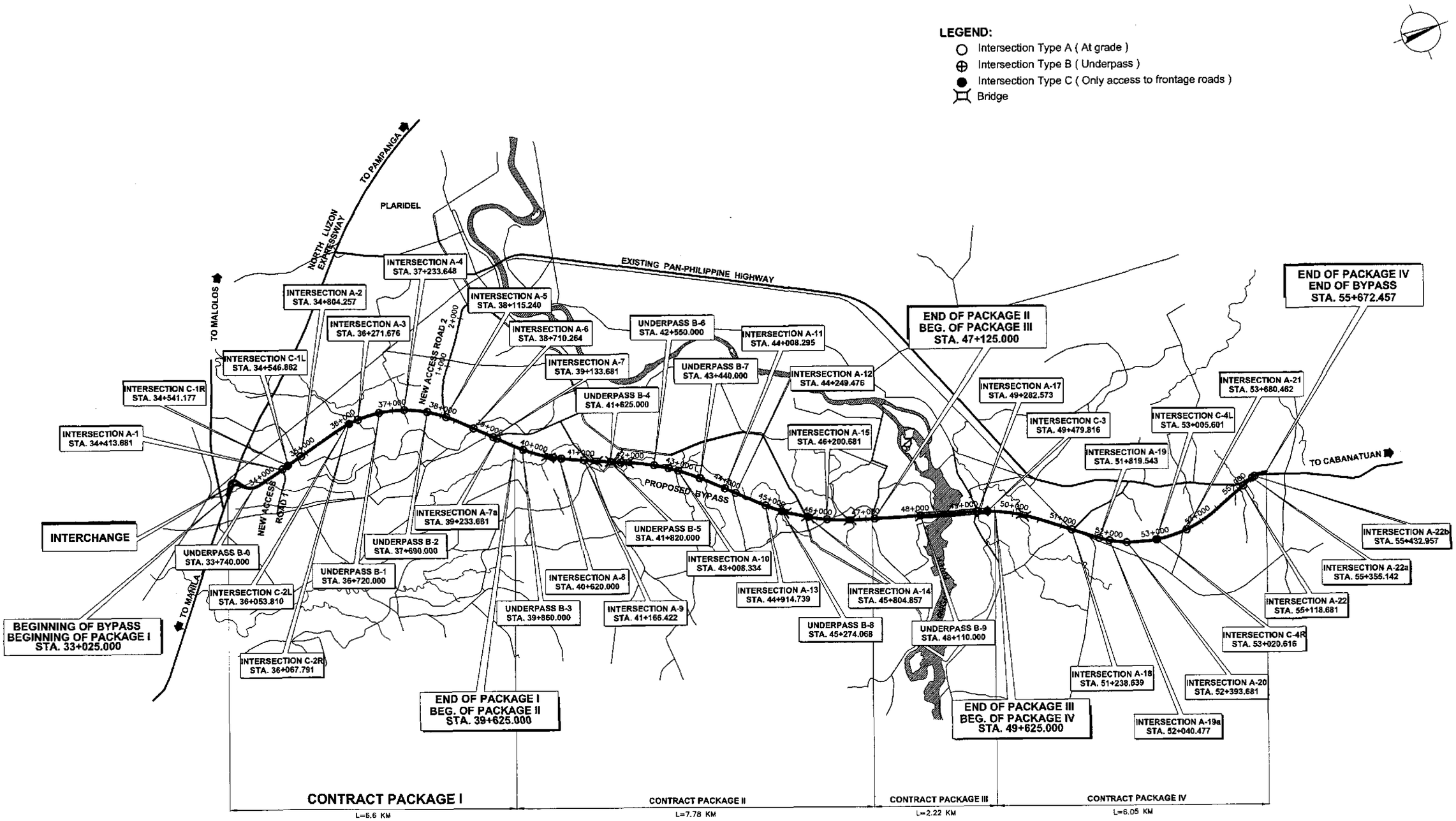
PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary

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

SCALE : 1:30,000 FULL SIZE A1

SHEET CONTENTS : ALIGNMENT TECHNICAL DESCRIPTION

SHEET NO. : RG-02



A / RG-03 LOCATION OF PROPOSED INTERSECTIONS ALONG BYPASS

SCALE 1:40,000

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JAPAN INTERNATIONAL COOPERATION AGENCY

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YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/18/02	J.B. ACACIO
CHECKED	9/18/02	S. POSE
SUBMITTED	9/20/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
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Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONGAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

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

SCALE : 1:40,000 FULL SIZE A1

SHEET CONTENTS : LOCATION OF INTERSECTIONS ALONG BYPASS

SHEET NO. : RG-03

SCHEDULE OF TRAFFIC SIGNS
CONTRACT PACKAGE I (INITIAL STAGE)

ITEM 605 (1) WARNING SIGNS (TRIAGULAR 900mm)

STATION	REF. NO.	REMARKS
34+219	W3-1	RIGHTSIDE MAIN BYPASS
34+538	W3-1	LEFT SIDE MAIN BYPASS
34+680	W2-8	RIGHTSIDE MAIN BYPASS
34+965	W2-8	LEFT SIDE MAIN BYPASS
36+120	W2-8	RIGHTSIDE MAIN BYPASS
36+419	W2-8	LEFT SIDE MAIN BYPASS
37+080	W2-8	RIGHTSIDE MAIN BYPASS
37+389	W2-8	LEFT SIDE MAIN BYPASS
37+979	W3-1	RIGHTSIDE MAIN BYPASS
37+995	W1-4(L)	CENTER ISLAND MAIN BYPASS
38+258	W3-1	LEFT SIDE MAIN BYPASS
38+450	W1-4R	LEFT SIDE MAIN BYPASS
38+992	W3-1	RIGHTSIDE MAIN BYPASS
39+010	W1-4(L)	CENTER ISLAND MAIN BYPASS
39+283	W3-1	LEFT SIDE MAIN BYPASS
39+435	W1-4R	LEFT SIDE MAIN BYPASS

ITEM 605 (2)d REGULATORY SIGNS (CIRCULAR 600mm DIA.)

STATION	REF. NO.	REMARKS
34+407	R3-15	CENTER ISLAND MAIN BYPASS
34+432	R3-15	CENTER ISLAND MAIN BYPASS
38+090	R3-15	CENTER ISLAND MAIN BYPASS
38+140	R3-15	CENTER ISLAND MAIN BYPASS
39+100	R3-15	CENTER ISLAND MAIN BYPASS
39+162	R3-15	CENTER ISLAND MAIN BYPASS
00+022	R3-15	CENTER ISLAND OF INTERSECTION A-1
00+976	R3-15	CENTER ISLAND OF INTERSECTION A-5
01+020	R3-15	CENTER ISLAND OF INTERSECTION A-5
00+980	R3-15	CENTER ISLAND OF INTERSECTION A-7
01+026	R3-15	CENTER ISLAND OF INTERSECTION A-7

ITEM 605 (2)b REGULATORY SIGNS (OCTAGONAL 600mm)

STATION	REF. NO.	REMARKS
00+984	R1-1A	RIGHT SIDE INTERSECTION A-2
01+032	R1-1A	LEFT SIDE INTERSECTION A-2
00+986	R1-1A	RIGHT SIDE INTERSECTION A-3
01+020	R1-1A	LEFT SIDE INTERSECTION A-3
00+974	R1-1A	RIGHT SIDE INTERSECTION A-4
01+026	R1-1A	LEFT SIDE INTERSECTION A-4

ITEM 605 (3) INFORMATORY SIGNS

STATION	REF. NO.	REMARKS
a. 2472 x 1380mm		
00+030	GS-15	RIGHT SIDE INTERSECTION A-1
b. 2472 x 1110mm		
01+122	GS-2	RIGHT SIDE INTERSECTION A-5
01+067	GS-1	LEFT SIDE INTERSECTION A-5
00+955	GS-2	RIGHT SIDE INTERSECTION A-7
01+062	GS-1	LEFT SIDE INTERSECTION A-7
c. 2140 x 1380mm		
34+600	GS-16	LEFT SIDE MAIN BYPASS
d. 2574 x 1380mm		
37+936	GS-4	RIGHTSIDE MAIN BYPASS
e. 2421 x 1380mm		
38+350	GS-3	LEFT SIDE MAIN BYPASS
f. 1069 x 1110mm		
34+100	GE7-2	LEFT SIDE MAIN BYPASS
g. 1285 x 900mm		
34+300	GE6-2	LEFT SIDE MAIN BYPASS
h. 1534 x 690mm		
34+360	GE7-3	LEFT SIDE MAIN BYPASS
i. 1726 x 1380mm		
00+890	GS-17	RIGHT SIDE OF INTERSECTION A-1
j. 1767 x 1380mm		
	GS-18	
k. 1767 x 1380mm		
	GS-19	
l. 1870 x 1110mm		
03+380	GS-20	RIGHT SIDE OF INTERSECTION A-5
m. 1840 x1110mm		
	GS-21	
n. 1767 x 1110mm		
	GS-22	

ITEM 605 (2)c REGULATORY SIGNS (RECTANGULAR 450x750mm)

STATION	REF. NO.	REMARKS
34+432	R2-7(L)	CENTER ISLAND MAIN BYPASS
38+090	R2-7(L)	CENTER ISLAND MAIN BYPASS
38+140	R2-7(L)	CENTER ISLAND MAIN BYPASS
39+100	R2-7(L)	CENTER ISLAND MAIN BYPASS
39+162	R2-7(L)	CENTER ISLAND MAIN BYPASS
00+076	R3-6P	RIGHT SIDE INTERSECTION A-1
00+984	R3-6P	RIGHT SIDE INTERSECTION A-2
01+032	R3-6P	LEFT SIDE INTERSECTION A-2
00+986	R3-6P	RIGHT SIDE INTERSECTION A-3
01+020	R3-6P	LEFT SIDE INTERSECTION A-3
00+974	R3-6P	RIGHT SIDE INTERSECTION A-4

SCHEDULE OF GUARDRAIL, ROADSIDE PLANTING, GROUTED RIPRAP AND UNSUITABLE EXCAVATION
CONTRACT PACKAGE I (INITIAL STAGE)

SCHEDULE OF GUARDRAILS

STATION FROM	STATION TO	LENGTH (m)	LOCATION
33+225	36+770	140	LEFT SIDE OF RAMP C
33+225	36+770	140	RIGHT SIDE OF RAMP C
33+465	37+760	220	LEFT SIDE OF RAMP C
33+465	33+625	160	RIGHT SIDE OF RAMP C
37+650	37+750	100	LEFT SIDE OF BYPASS
37+650	37+750	100	RIGHT SIDE OF BYPASS
1+420	1+452	32	LEFT SIDE OF A-5
1+408	1+440	32	RIGHT SIDE OF A-5

GROUTED RIPRAP, CLASS 'A'

STATION FROM	STATION TO	LENGTH (m)	VOLUME (m^3)
LEFT SIDE			
34+550	34+590	40	42.60
34+730	34+810	80	21.60
RIGTH SIDE			
34+540	34+600	60	47.70
34+740	34+800	60	12.60

UNSUITABLE EXCAVATION

STATION	DEPTHS (m)	STATION	DEPTHS (m)	STATION	DEPTHS (m)
34+113.68	0.50	38+913.68	0.30		
34+313.68	0.50	39+113.68	0.30		
34+513.68	0.50	39+313.68	030		
34+763.68	0.50	39+625.00	0.30		
34+913.68	0.25				
35+113.68	0.25				
35+313.68	0.25				
35+513.68	0.25				
35+713.68	0.20				
35+913.68	0.20				
36+133.68	0.20				
36+313.68	0.50				
36+513.68	0.50				
36+713.68	0.50				
36+913.68	0.20				
37+113.68	0.20				
37+313.68	0.30				
37+513.68	0.30				
37+713.68	0.30				
37+913.68	0.30				
38+113.68	0.30				
38+313.68	0.30				
38+528.68	0.30				
38+723.68	0.30				

A. ROADSIDE PLANTING (HIGH TREE)

STATION FROM	STATION TO	LENGTH (L.M.) LEFT	LENGTH (L.M.) RIGHT
34+100	34+700	600	500
34+700	35+400	680	660
35+400	36+100	680	680
36+100	36+800	660	660
36+800	37+500	660	660
37+500	38+200	640	640
38+200	38+900	680	680
38+900	39+600	620	600
39+600	39+625	25	25
TOTAL		5245	5705

B. ROADSIDE PLANTING @ ROAD NO. 1 (HIGH TREE)

STATION FROM	STATION TO	LENGTH (L.M.) LEFT	LENGTH (L.M.) RIGHT
0+000	0+600	550	550
0+600	0+917.99	290	290

C. ROADSIDE PLANTING @ ROAD NO. 2 (HIGH TREE)

STATION FROM	STATION TO	LENGTH (L.M.) LEFT	LENGTH (L.M.) RIGHT
1+000	1+600	550	560
1+600	2+300	700	700
2+300	3+000	700	700
3+000	3+402.89	380	380

D. CENTER MEDIAN PLANTING (MAIN BYPASS)

STATION FROM	STATION TO	LENGTH (L.M.) 1-A (6)	LENGTH (L.M.) 1-A (7)	LENGTH (L.M.) 1-A (8)
34+100	34+700	174	35	98

E. CENTER EDIAN PLANTING (ACCESS ROAD NO.1)

STATION FROM	STATION TO	LENGTH (L.M.) 1-A (6)	LENGTH (L.M.) 1-A (7)	LENGTH (L.M.) 1-A (8)
0+000	0+600	0	29	29
0+600	0+911.98	0	23	0

E. CENTER EDIAN PLANTING (ACCESS ROAD NO.1)

STATION FROM	STATION TO	LENGTH (L.M.) 1-A (6)	LENGTH (L.M.) 1-A (7)	LENGTH (L.M.) 1-A (8)
1+000	1+600	18	0	0
1+600	2+300	0	0	0
2+300	3+000	0	0	0
3+000	3+402.89	22	0	0

SCHEDULE OF PAVEMENT SURFACING (PCC & GRAVEL)

STATION FROM	STATION TO	PCCP, t=280 (sq.m.)	PCCP, t=250 (sq.m.)	PCCP, t=230 (sq.m.)	GRAVEL SURFACE COURSE (cu.m.)	LOCATION
34+100.000	34+227.494	1,884.92	–	–	–	MAIN BYPASS
34+227.494	34+818.819	7,806.16	–	7,116.38	2,164.54	A-1 & A-2
34+818.819	36+112.530	7,488.12	–	–	2,736.35	MAIN BYPASS
36+112.530	36+294.133	4,919.64	–	895.23	156.71	A-3
36+294.133	37+221.901	7,307.57	–	–	809.22	MAIN BYPASS
37+221.901	37+400.329	4,462.48	–	1,020.31	163.00	A-4
37+400.329	37+891.527	3,837.89	–	–	432.75	MAIN BYPASS
37+891.527	38+339.911	5,524.72	–	16,640.44	100.50	A-5
38+339.911	39+092.648	5,696.02	–	–	551.91	MAIN BYPASS
39+092.648	39+360.467	4,124.69	–	1,084.34	120.32	A-6
39+360.467	39+625.000	1,921.39	–	–	277.30	MAIN BYPASS

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JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/16/02	
CHECKED	9/18/02	S. GOSE
SUBMITTED	9/20/02	M. KUCHI, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	JOSEFINA M. ALAGAR, Chief, Highways Division	GILBERTO S. REYES, OIC, Director IV	MANUEL M. BONOAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

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PLARIDEL BYPASS - CONTRACT PACKAGE I

SCALE : FULL SIZE A1

SHEET CONTENTS :
SCHEDULE OF TRAFFIC SIGNS, GUARDRAILS, GROUTED RIPRAP, ROADSIDE PLANTING AND UNSUITABLE EXCAVATION

SHEET NO. : RG-04

SCHEDULE OF PAVEMENT MARKINGS

CONTRACT PACKAGE I (INITIAL STAGE)

ITEM 612(1) - REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS

1.0 CENTER LINE

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+747.84	34+787.84	40.00	200mm UNBROKEN LINE
34+820.68	34+860.68	40.00	200mm UNBROKEN LINE
34+965.68	35+175.68	210.00	150mm x 3.0m @ 4.50m GAP
35+175.68	35+902.54	726.86	150mm x 3.0m @ 9.0m GAP
35+902.54	36+112.54	210.00	150mm x 3.0m @ 4.50m GAP
36+217.61	36+257.61	40.00	200mm UNBROKEN LINE
36+285.75	36+325.75	40.00	200mm UNBROKEN LINE
36+430.75	36+640.75	210.00	150mm x 3.0m @ 4.50m GAP
36+640.75	36+857.20	216.45	150mm x 3.0m @ 9.0m GAP
36+857.20	37+067.20	210.00	150mm x 3.0m @ 4.50m GAP
37+172.22	37+212.22	40.00	200mm UNBROKEN LINE
37+255.33	37+295.33	40.00	200mm UNBROKEN LINE
37+400.36	37+891.44	491.08	150mm x 3.0m @ 4.50m GAP
38+340.00	38+550.00	210.00	150mm x 3.0m @ 4.50m GAP
38+550.00	38+696.87	146.87	150mm x 3.0m @ 9.0m GAP
38+696.87	38+906.87	210.00	150mm x 3.0m @ 4.50m GAP
39+360.39	39+570.39	210.00	150mm x 3.0m @ 4.50m GAP
39+570.39	39+625.00	54.61	150mm x 3.0m @ 9.0m GAP
00+140.00	00+847.20	707.20	A-1: 100mm x 3.0m @ 4.5m GAP
00+910.00	00+951.89	41.89	A-2: 100mm x 3.0m @ 4.5m GAP
00+951.89	00+981.89	30.00	A-2: 100mm UNBROKEN LINE
01+027.71	01+057.71	30.00	A-2: 100mm UNBROKEN LINE
01+057.71	01+090.00	32.29	A-2: 100mm x 3.0m @ 4.5m GAP
00+900.00	00+957.45	57.45	A-3: 100mm x 3.0m @ 4.5m GAP
00+957.45	00+987.45	30.00	A-3: 100mm UNBROKEN LINE
01+019.74	01+049.74	30.00	A-3: 100mm UNBROKEN LINE
01+049.74	01+120.00	70.26	A-3: 100mm x 3.0m @ 4.5m GAP
00+870.00	00+945.63	75.63	A-4: 100mm x 3.0m @ 4.5m GAP
00+945.63	00+975.63	30.00	A-4: 100mm UNBROKEN LINE
01+024.92	01+054.92	30.00	A-4: 100mm UNBROKEN LINE
01+054.92	01+100.00	45.08	A-4: 100mm x 3.0m @ 4.5m GAP
00+900.00	00+942.37	42.37	A-5: 100mm x 3.0m @ 4.5m GAP
01+081.30	03+328.23	2246.93	A-5: 100mm x 3.0m @ 4.5m GAP
00+850.00	00+870.35	20.35	A-7: 100mm x 3.0m @ 4.5m GAP
01+100.00	01+210.00	110.00	A-7: 100mm x 3.0m @ 4.5m GAP

2.0 EDGE LINES

2.1 LEFT SIDE, OUTER EDGE

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+100.00	34+788.28	688.28	MAIN BYPASS
34+788.28	00+987.27	21.41	MAIN BYPASS TO RT OF A-2
00+910.00	00+987.27	77.27	RIGHT OF A-2
00+910.00	00+981.89	71.89	LEFT OF A-2
00+981.89	34+824.78	25.87	LEFT OF A-2 TO MAIN BYPASS
34+824.78	36+257.06	1432.28	MAIN BYPASS
36+257.06	00+987.45	15.87	MAIN BYPASS TO RT OF A-3
00+900.00	00+987.45	87.45	RIGHT OF A-3
00+900.00	00+994.35	94.35	LEFT OF A-3
00+994.35	36+281.08	10.91	LEFT OF A-3 TO MAIN BYPASS
36+281.08	37+216.95	935.87	MAIN BYPASS
37+216.95	00+985.07	17.08	MAIN BYPASS TO RT OF A-4
00+870.00	00+985.07	115.07	RIGHT OF A-4
00+870.00	00+995.72	125.72	LEFT OF A-4
00+995.72	37+242.30	9.69	LEFT OF A-4 TO MAIN BYPASS
37+242.30	38+083.54	841.24	MAIN BYPASS
38+083.54	01+033.55	24.35	MAIN BYPASS TO LT OF A-5
01+033.55	03+402.89	2369.34	LEFT OF A-5
01+022.80	03+402.89	2380.09	RIGHT OF A-5
01+022.80	38+133.45	27.58	RIGHT OF A-5 TO MAIN BYPASS
38+133.45	39+111.02	977.57	MAIN BYPASS
39+111.02	00+972.57	36.70	MAIN BYPASS TO RT OF A-7
00+850.00	00+972.57	122.57	RIGHT OF A-7
00+850.00	00+963.92	113.92	LEFT OF A-7
00+963.92	39+168.18	25.24	LEFT OF A-7 TO MAIN BYPASS
39+168.18	39+625.00	456.82	MAIN BYPASS

2.2 LEFT SIDE, INNER EDGE

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+100.00	34+408.13	308.13	APPROACH TO A-1
34+427.38	34+595.87	168.49	APPROACH TO A-1
37+926.85	38+096.54	169.69	APPROACH TO A-5
38+134.62	38+306.24	171.62	APPROACH TO A-5
38+944.99	39+111.67	166.68	APPROACH TO A-7
39+155.35	39+323.68	168.33	APPROACH TO A-7
00+016.20	00+079.42	63.22	INTERSECTION A-1
00+961.33	00+983.50	22.17	INTERSECTION A-5
01+016.98	01+041.54	24.56	INTERSECTION A-5
00+922.98	00+982.27	59.29	INTERSECTION A-7
01+017.73	01+062.79	45.06	INTERSECTION A-7

2.3 RIGHT SIDE, OUTER EDGE

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+100.00	34+390.18	290.18	MAIN BYPASS
34+390.18	00+029.75	31.49	MAIN BYPASS TO RT OF A-1
00+029.75	00+911.99	882.24	RIGHT OF A-1
00+034.75	00+911.99	877.24	LEFT OF A-1
00+034.75	34+444.68	39.35	LEFT OF A-1 TO MAIN BYPASS
34+444.68	34+782.33	337.65	MAIN BYPASS
34+782.33	01+027.71	25.87	MAIN BYPASS TO RT OF A-2
01+027.71	01+090.00	62.29	RIGHT OF A-2
01+022.33	01+090.00	67.67	LEFT OF A-2
01+022.33	34+818.82	21.41	LEFT OF A-2 TO MAIN BYPASS
34+818.82	36+265.04	1446.22	MAIN BYPASS
36+265.04	01+015.60	10.96	MAIN BYPASS TO RT OF A-3
01+015.60	01+120.00	104.40	RIGHT OF A-3
01+027.32	01+120.00	92.68	LEFT OF A-3
01+027.32	36+294.13	22.55	LEFT OF A-3 TO MAIN BYPASS
36+294.13	37+221.90	927.77	MAIN BYPASS
37+221.90	01+022.14	22.89	MAIN BYPASS TO RT OF A-4
01+022.14	01+100.00	77.86	RIGHT OF A-4
01+025.56	01+100.00	74.44	LEFT OF A-4
01+025.56	37+255.03	17.21	LEFT OF A-4 TO MAIN BYPASS
37+255.03	38+096.54	841.51	MAIN BYPASS
38+096.54	00+976.92	28.06	MAIN BYPASS TO LT OF A-5
00+900.00	00+976.92	76.92	LEFT OF A-5
00+900.00	00+964.09	64.09	RIGHT OF A-5
00+964.09	38+148.08	25.76	RIGHT OF A-5 TO MAIN BYPASS
38+148.08	39+092.65	944.57	MAIN BYPASS
39+092.65	01+149.64	37.05	MAIN BYPASS TO RT OF A-7
01+149.64	01+210.00	60.36	RIGHT OF A-7
01+128.84	01+210.00	81.16	LEFT OF A-7
01+128.84	39+156.26	38.00	LEFT OF A-7 TO MAIN BYPASS
39+156.26	39+625.00	468.74	MAIN BYPASS

2.4 RIGHT SIDE, INNER EDGE

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+100.00	34+408.13	308.13	APPROACH TO A-1
34+427.38	34+595.87	168.49	APPROACH TO A-1
37+926.85	38+096.54	169.69	APPROACH TO A-5
38+134.62	38+306.24	171.62	APPROACH TO A-5
38+944.99	39+111.67	166.68	APPROACH TO A-7
39+155.35	39+323.68	168.33	APPROACH TO A-7
00+016.20	00+079.42	63.22	INTERSECTION A-1
00+961.33	00+983.50	22.17	INTERSECTION A-5
01+016.98	01+041.54	24.56	INTERSECTION A-5
00+922.98	00+982.27	59.29	INTERSECTION A-7
01+017.73	01+062.79	45.06	INTERSECTION A-7

3.0 LANE LINES

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+100.00	34+370.00	270.00	(RS) LANE LINE 150mmx3.0m @ 4.50m GAP
34+370.00	34+400.00	30.00	(RS) LANE LINE 150mm UNBROKEN
34+100.00	34+400.00	300.00	(LS) LANE LINE 150mmx3.0m @ 4.50m GAP
34+432.88	34+488.71	55.83	(RS) LANE LINE 150mmx3.0m @ 4.50m GAP
34+432.88	34+462.88	60.00	(LS) 2 - LANE LINE 150mm UNBROKEN
34+462.88	34+488.71	25.83	(LS) LANE LINE 150mmx3.0m @ 4.50m GAP
34+462.88	34+531.88	69.00	(LS) LANE LINE 150mmx3.0m @ 4.50m GAP
34+747.84	34+787.84	40.00	(RS) LANE LINE 150mm UNBROKEN
34+820.68	34+860.68	40.00	(LS) LANE LINE 150mm UNBROKEN
36+217.61	36+257.61	40.00	(RS) LANE LINE 150mm UNBROKEN
36+285.75	36+325.75	40.00	(LS) LANE LINE 150mm UNBROKEN
37+172.22	37+212.22	40.00	(RS) LANE LINE 150mm UNBROKEN
37+255.33	37+295.33	40.00	(LS) LANE LINE 150mm UNBROKEN
38+036.48	38+066.48	30.00	(RS) LANE LINE 150mmx3.0m @ 4.50m GAP
38+066.48	38+096.48	30.00	(RS) LANE LINE 150mm UNBROKEN
38+134.62	38+164.62	30.00	(LS) LANE LINE 150mm UNBROKEN
38+164.62	38+194.81	30.19	(LS) LANE LINE 150mmx3.0m @ 4.50m GAP
39+051.96	39+070.00	18.04	(RS) LANE LINE 150mmx3.0m @ 4.50m GAP
39+070.00	39+100.00	30.00	(RS) LANE LINE 150mm UNBROKEN
39+161.86	39+191.86	30.00	(LS) LANE LINE 150mm UNBROKEN
39+191.86	39+215.43	23.57	(LS) LANE LINE 150mmx3.0m @ 4.50m GAP
01+026.68	01+046.68	20.00	(LS) LANE LINE 100mm UNBROKEN(A-5)
00+956.68	00+976.68	20.00	(RS) LANE LINE 100mm UNBROKEN(A-5)
00+950.20	00+980.20	30.00	(RS) LANE LINE 100mm UNBROKEN(A-7)
01+126.24	01+156.24	30.00	(LS) LANE LINE 100mm UNBROKEN(A-7)

4.0 CONTINUITY LINE

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+488.71	34+568.68	79.97	(RS) 150mm x 1.0m @ 3.0m GAP
34+488.71	34+533.68	44.97	(LS) 150mm x 1.0m @ 3.0m GAP
34+703.34	34+747.84	44.50	(RS) 150mm x 1.0m @ 3.0m GAP
34+860.68	34+905.68	45.00	(LS) 150mm x 1.0m @ 3.0m GAP
36+175.40	36+217.61	42.21	(RS) 150mm x 1.0m @ 3.0m GAP
36+325.75	36+370.75	45.00	(LS) 150mm x 1.0m @ 3.0m GAP
37+127.31	37+172.22	44.91	(RS) 150mm x 1.0m @ 3.0m GAP
37+295.33	37+340.52	45.19	(LS) 150mm x 1.0m @ 3.0m GAP
37+991.49	38+036.48	44.99	(RS) 150mm x 1.0m @ 3.0m GAP
38+194.81	38+240.00	45.19	(LS) 150mm x 1.0m @ 3.0m GAP
39+006.95	39+051.96	45.01	(RS) 150mm x 1.0m @ 3.0m GAP
39+215.43	39+260.00	44.57	(LS) 150mm x 1.0m @ 3.0m GAP

5.0 CHEVRON

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+595.87	34+747.84	151.97	CENTER OF MAIN BYPASS
34+860.68	34+965.68	105.00	CENTER OF MAIN BYPASS
36+112.54	36+217.61	105.07	CENTER OF MAIN BYPASS
36+325.75	36+430.75	105.00	CENTER OF MAIN BYPASS
37+067.20	37+172.22	105.02	CENTER OF MAIN BYPASS
37+295.33	37+400.36	105.03	CENTER OF MAIN BYPASS
37+891.44	37+926.85	35.41	CENTER OF MAIN BYPASS
38+306.24	38+340.00	33.76	CENTER OF MAIN BYPASS
38+906.87	38+944.99	38.12	CENTER OF MAIN BYPASS
39+323.68	39+360.39	36.71	CENTER OF MAIN BYPASS
00+079.42	00+140.00	60.58	CENTER OF A-1
00+942.37	00+961.33	18.96	CENTER OF A-5
01+041.54	01+081.30	39.76	CENTER OF A-5
00+870.35	00+922.98	52.63	CENTER OF A-7
01+062.79	01+100.00	37.21	CENTER OF A-7

6.0 BARRIER LINES

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+965.68	35+175.68	210.00	LEFT SIDE
35+902.54	36+112.54	210.00	RIGHT SIDE
36+430.75	36+640.75	210.00	LEFT SIDE
36+857.20	37+067.20	210.00	RIGHT SIDE
37+400.36	37+610.36	210.00	LEFT SIDE
37+681.44	37+891.44	210.00	RIGHT SIDE
38+340.00	38+550.00	210.00	LEFT SIDE
38+696.87	38+906.87	210.00	RIGHT SIDE
39+360.39	39+570.39	210.00	LEFT SIDE

7.0 ARROWS

ARROW TYPE	NUMBER OF ARROWS	LOCATION
A	2	APPROACHING INTERSECTION A-1
B	2	APPROACHING INTERSECTION A-1
C	6	APPROACHING INTERSECTION A-1
A	2	APPROACHING INTERSECTION A-2
C	2	APPROACHING INTERSECTION A-2
A	2	APPROACHING INTERSECTION A-3
C	2	APPROACHING INTERSECTION A-3
A	2	APPROACHING INTERSECTION A-4
C	2	APPROACHING INTERSECTION A-4
A	4	APPROACHING INTERSECTION A-5
B	4	APPROACHING INTERSECTION A-5
A	4	APPROACHING INTERSECTION A-7
B	4	APPROACHING INTERSECTION A-7

8.0 PEDESTRIAN AND STOP LINES

LOCATION		AREA (m^2) PEDESTRIAN	AREA (m^2) STOP LINE	REMARKS
INT. A-1	MAIN BYPASS	14.09	8.72	SIGNALIZED
	A-1	9.88	2.03	
INT. A-2	MAIN BYPASS	28.20	6.56	UNSIGNALIZED
	A-2	61.20	2.24	
INT. A-3	MAIN BYPASS	23.02	5.81	UNSIGNALIZED
	A-3	55.20	2.82	
INT. A-4	MAIN BYPASS	20.00	5.80	UNSIGNALIZED
	A-4	36.00	1.87	
INT. A-5	MAIN BYPASS	17.75	10.04	SIGNALIZED
	A-5	24.92	6.00	
INT. A-7	MAIN BYPASS	16.98	7.90	SIGNALIZED
	A-7	33.45	4.48	

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEO YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/20/02	
CHECKED	9/20/02	S. GOCE
SUBMITTED	9/20/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

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

SCALE : FULL SIZE A1

SHEET CONTENTS : SCHEDULE OF PAVEMENT MARKINGS AND TRAFFIC SIGNS

SHEET NO. : RG-05

SCHEDULE OF RIGHT-OF-WAY MARKERS

POINT NO.	STATION	OFFSET FROM CENTERLINE	NORTHING	EASTING
BYPASS - LEFT SIDE				
1L	34+100	−16.000	1,641,548.948	488,932.383
2L	34+200	−16.000	1,641,640.448	488,892.039
3L	34+220	−17.000	1,641,658.345	488,883.055
4L	34+260	−17.000	1,641,694.945	488,866.917
5L	34+280	−18.000	1,641,712.842	488,857.933
6L	34+520	−18.000	1,641,932.443	488,761.108
7L	34+560	−28.000	1,641,965.009	488,735.820
8L	34+660	−28.000	1,642,056.510	488,695.476
9L	34+680	−29.000	1,642,074.406	488,686.492
10L	34+700	−29.000	1,642,092.707	488,678.423
11L	34+720	−27.000	1,642,111.813	488,672.184
12L	34+760	−27.000	1,642,148.414	488,656.047
13L	34+780	−28.000	1,642,166.310	488,647.063
14L	34+796.446	−27.180	1,642,181.690	488,641.180
15L	34+824.562	−27.000	1,642,207.489	488,629.999
16L	34+860	−27.000	1,642,239.914	488,615.702
17L	34+880	−28.000	1,642,257.811	488,606.719
18L	34+900	−28.000	1,642,276.111	488,598.650
19L	34+920	−27.000	1,642,294.815	488,591.496
20L	35+140	−27.000	1,642,496.116	488,502.739
21L	35+160	−28.000	1,642,514.013	488,493.755
22L	35+380	−28.000	1,642,715.314	488,404.998
23L	35+400	−27.000	1,642,734.017	488,397.844
24L	35+420	−26.000	1,642,752.721	488,390.690
25L	35+520	−26.000	1,642,844.221	488,350.346
26L	35+540	−28.000	1,642,861.715	488,340.447
27L	35+740	−28.000	1,643,044.716	488,259.759
28L	35+820	−28.000	1,643,119.145	488,228.203
29L	35+840	−27.000	1,643,138.287	488,221.611
30L	35+940	−27.000	1,643,232.985	488,186.284
31L	36+057.326	−26.880	1,643,345.819	488,149.820
32L	36+080	−28.000	1,643,367.497	488,142.286
33L	36+113.086	−27.880	1,643,399.733	488,133.336
34L	36+126.465	−27.810	1,643,412.808	488,129.860
35L	36+140	−28.000	1,643,425.985	488,126.159
36L	36+160	−27.000	1,643,445.811	488,122.064
37L	36+180	−26.000	1,643,465.662	488,118.131
38L	36+200	−26.000	1,643,485.305	488,113.385
39L	36+245.861	−26.050	1,643,530.474	488,103.044
40L	36+249.052	−26.790	1,643,533.468	488,101.639
41L	36+280	−20.000	1,643,565.435	488,101.857
42L	36+300	−18.000	1,643,585.588	488,099.873
43L	36+380	−18.000	1,643,664.901	488,085.681
44L	36+400	−17.000	1,643,684.950	488,083.518
45L	36+420	−17.000	1,643,704.862	488,080.528
46L	36+440	−16.000	1,643,724.935	488,078.688
47L	36+560	−16.000	1,643,844.920	488,065.064
48L	36+580	−17.000	1,643,864.895	488,062.357
49L	36+620	−17.000	1,643,905.059	488,059.418
50L	36+640	−18.000	1,643,925.100	488,057.191
51L	36+760	−18.000	1,644,045.886	488,053.196
52L	36+780	−17.000	1,644,066.031	488,054.094
53L	36+800	−17.000	1,644,086.167	488,054.153
54L	36+820	−17.000	1,644,106.302	488,054.374
55L	36+840	−16.000	1,644,126.411	488,055.755
56L	36+880	−16.000	1,644,166.648	488,057.000
57L	36+900	−17.000	1,644,186.804	488,056.865
58L	37+000	−17.000	1,644,287.252	488,063.599
59L	37+100	−17.000	1,644,387.350	488,074.345
60L	37+120	−18.000	1,644,407.448	488,075.983
61L	37+212.808	−18.239	1,644,499.861	488,090.039
62L	37+239.817	−16.760	1,644,526.370	488,096.296
63L	37+300	−17.000	1,644,585.858	488,107.795
64L	37+360	−17.000	1,644,644.822	488,120.915
65L	37+380	−16.000	1,644,664.168	488,126.574
66L	37+480	−16.000	1,644,761.447	488,152.342
67L	37+600	−16.000	1,644,876.704	488,188.367
68L	37+620	−17.000	1,644,896.069	488,193.962
69L	37+640	−17.000	1,644,915.059	488,200.657
70L	37+660	−18.000	1,644,934.339	488,206.565
71L	37+700	−18.000	1,644,972.059	488,220.717
72L	37+720	−19.000	1,644,991.199	488,227.089
73L	37+740	−18.000	1,645,009.548	488,235.471
74L	37+780	−18.000	1,645,046.796	488,250.823
75L	37+800	−17.000	1,645,064.931	488,259.640
76L	37+880	−17.000	1,645,138.374	488,292.698
77L	37+900	−18.000	1,645,156.999	488,300.426
78L	37+920	−19.000	1,645,175.569	488,308.307
79L	37+940	−20.000	1,645,194.082	488,316.339
80L	37+960	−21.000	1,645,212.538	488,324.523
81L	37+980	−22.000	1,645,230.934	488,332.858
82L	38+080.621	−22.010	1,645,320.060	488,381.425
83L	38+128.890	−20.590	1,645,361.370	488,407.218
84L	38+200	−21.000	1,645,422.611	488,444.507
85L	38+220	−20.000	1,645,439.036	488,456.246
86L	38+240	−19.000	1,645,455.360	488,468.111
87L	38+260	−18.000	1,645,471.582	488,480.102
88L	38+280	−17.000	1,645,487.702	488,492.218
89L	38+300	−16.000	1,645,503.717	488,504.458
90L	38+580	−16.000	1,645,733.391	488,664.674
91L	38+600	−17.000	1,645,750.366	488,675.297
92L	38+706.878	−17.000	1,645,838.022	488,736.447
93L	38+714.646	−16.000	1,645,843.820	488,741.711
94L	38+920	−16.000	1,646,012.242	488,859.204
95L	38+940	−17.000	1,646,029.217	488,869.827
96L	38+960	−18.000	1,646,046.192	488,880.450
97L	38+980	−19.000	1,646,063.167	488,891.073
98L	39+000	−21.000	1,646,080.715	488,900.875
99L	39+020	−21.000	1,646,097.118	488,912.318
100L	39+040	−20.000	1,646,112.948	488,924.582
101L	39+080	−20.000	1,646,145.754	488,947.467
102L	39+120	−22.499	1,646,179.990	488,968.304
103L	39+169.859	−18.493	1,646,218.590	489,000.116
104L	39+180	−19.000	1,646,227.197	489,005.502
105L	39+220	−19.000	1,646,260.003	489,028.388
106L	39+240	−18.000	1,646,275.834	489,040.651
107L	39+260	−17.000	1,646,291.665	489,052.915
108L	39+300	−17.000	1,646,324.471	489,075.801
109L	39+320	−16.000	1,646,340.302	489,088.064
110L	39+540	−16.000	1,646,520.731	489,213.933
111L	39+620	−16.000	1,646,586.572	489,258.724
BYPASS - LEFT SIDE				
1R	34+100	16.000	1,641,561.858	488,961.663
2R	34+160	16.000	1,641,616.758	488,937.457
3R	34+180	18.000	1,641,635.865	488,931.218
4R	34+260	18.000	1,641,709.066	488,898.942
5R	34+280	19.000	1,641,727.769	488,891.789
6R	34+340	19.000	1,641,782.670	488,867.582
7R	34+360	21.000	1,641,801.777	488,861.343
8R	34+380	21.000	1,641,820.077	488,853.275
9R	34+400	26.000	1,641,840.394	488,849.781
10R	34+440	32.000	1,641,879.415	488,839.133
11R	34+449.188	26.760	1,641,885.708	488,830.632
12R	34+460	27.000	1,641,895.698	488,826.489
13R	34+552.034	25.880	1,641,979.458	488,788.334
14R	34+560	28.000	1,641,987.602	488,787.060
15R	34+620	28.000	1,642,042.502	488,762.854
16R	34+640	27.000	1,642,060.399	488,753.870
17R	34+680	27.000	1,642,096.999	488,737.732
18R	34+700	26.000	1,642,114.896	488,728.748
19R	34+740	26.000	1,642,151.496	488,712.611
20R	34+760	27.000	1,642,170.200	488,705.457
21R	34+785.546	27.720	1,642,193.866	488,695.812
22R	34+812.438	27.000	1,642,218.181	488,684.301
23R	34+860	27.000	1,642,261.700	488,665.113
24R	34+880	28.000	1,642,280.404	488,657.959
25R	34+900	28.000	1,642,298.704	488,649.890
26R	34+920	27.000	1,642,316.600	488,640.906
27R	34+940	26.000	1,642,334.497	488,631.922
28R	35+000	26.000	1,642,389.397	488,607.716
29R	35+020	25.000	1,642,407.294	488,598.732
30R	35+060	25.000	1,642,443.894	488,582.595
31R	35+080	26.000	1,642,462.598	488,575.441
32R	35+140	26.000	1,642,517.498	488,551.234
33R	35+160	27.000	1,642,536.202	488,544.080
34R	35+380	27.000	1,642,737.503	488,455.323
35R	35+400	26.000	1,642,755.400	488,446.340
36R	35+520	26.000	1,642,865.200	488,397.927
37R	35+540	27.000	1,642,883.904	488,390.773
38R	35+640	27.000	1,642,975.404	488,350.429
39R	35+720	27.000	1,643,048.605	488,318.153
40R	35+740	26.000	1,643,066.502	488,309.169
41R	35+840	26.000	1,643,157.801	488,270.888
42R	35+960	26.000	1,643,269.217	488,229.831
43R	35+980	27.000	1,643,288.288	488,224.459
44R	36+020	27.000	1,643,325.933	488,212.274
45R	36+040	26.000	1,643,344.534	488,205.451
46R	36+160	26.000	1,643,458.875	488,173.429
47R	36+240	26.000	1,643,535.900	488,155.145
48R	36+261.795	25.560	1,643,556.891	488,150.163
49R	36+288.999	17.660	1,643,581.714	488,136.985
50R	36+291.375	16.240	1,643,583.752	488,135.138
51R	36+320	17.000	1,643,611.814	488,130.489
52R	36+400	17.000	1,643,690.133	488,117.121
53R	36+420	16.000	1,643,709.633	488,113.181
54R	36+540	16.000	1,643,827.981	488,098.784
55R	36+600	16.000	1,643,887.380	488,093.719
56R	36+620	17.000	1,643,907.269	488,093.346
57R	36+720	17.000	1,644,006.482	488,088.872
58R	36+780	17.000	1,644,066.067	488,088.094
59R	36+800	16.000	1,644,085.938	488,087.152
60R	36+840	16.000	1,644,125.677	488,087.746
61R	36+860	15.000	1,644,145.573	488,087.282
62R	36+880	15.000	1,644,165.441	488,087.976
63R	36+900	16.000	1,644,185.255	488,089.829
64R	37+000	16.000	1,644,284.386	488,096.474
65R	37+100	16.000	1,644,383.172	488,107.079
66R	37+180	16.000	1,644,461.846	488,118.402
67R	37+226.997	16.120	1,644,507.860	488,126.345
68R	37+253.412	16.890	1,644,533.560	488,131.679
69R	37+320	17.000	1,644,598.295	488,145.229
70R	37+340	16.000	1,644,617.906	488,148.568
71R	37+380	16.000	1,644,656.595	488,157.665
72R	37+400	15.000	1,644,676.128	488,161.475
73R	37+500	15.000	1,644,772.001	488,187.693
74R	37+560	15.000	1,644,828.994	488,205.257
75R	37+580	16.000	1,644,847.583	488,212.365
76R	37+600	16.000	1,644,866.427	488,218.671
77R	37+620	17.000	1,644,884.892	488,226.073
78R	37+660	17.000	1,644,922.307	488,239.432
79R	37+680	18.000	1,644,940.581	488,247.271
80R	37+760	18.000	1,645,014.484	488,276.356
81R	37+780	17.000	1,645,033.200	488,283.075
82R	37+800	17.000	1,645,051.473	488,290.864
83R	37+820	16.000	1,645,070.087	488,297.884
84R	37+880	16.000	1,645,124.350	488,322.569
85R	37+940	16.000	1,645,178.005	488,348.550
86R	37+960	17.000	1,645,195.296	488,358.387
87R	37+980	17.000	1,645,212.962	488,367.470
88R	38+000	18.000	1,645,230.086	488,377.578
89R	38+020	19.000	1,645,247.122	488,387.820
90R	38+040	20.000	1,645,264.068	488,398.193
91R	38+060	20.000	1,645,281.413	488,407.825
92R	38+080	21.000	1,645,298.184	488,418.465
93R	38+101.064	21.000	1,645,316.280	488,428.896
94R	38+148.901	20.340	1,645,357.381	488,452.597
95R	38+180	20.000	1,645,383.813	488,468.505
96R	38+240	20.000	1,645,433.892	488,500.670
97R	38+260	19.000	1,645,450.968	488,510.827
98R	38+280	18.000	1,645,467.970	488,521.125
99R	38+300	17.000	1,645,484.895	488,531.564
100R	38+320	16.000	1,645,501.843	488,542.160
101R	38+420	16.000	1,645,583.858	488,599.375
102R	38+540	16.000	1,645,682.276	488,668.033
103R	38+620	16.000	1,645,747.888	488,713.805
104R	38+640	17.000	1,645,763.719	488,726.068
105R	38+660	17.000	1,645,780.122	488,737.511
106R	38+680	16.000	1,645,797.097	488,748.134
107R	38+703.635	16.000	1,645,816.481	488,761.656
108R	38+711.948	15.000	1,645,823.872	488,765.593
109R	38+800	15.000	1,645,896.087	488,815.971
110R	38+820	16.000	1,645,911.918	488,828.234
111R	38+940	16.000	1,646,010.336	488,896.892
112R	38+960	17.000	1,646,026.167	488,909.155
113R	38+980	18.000	1,646,041.998	488,921.418
114R	39+000	19.000	1,646,057.829	488,933.682
115R	39+020	20.000	1,646,073.660	488,945.945
116R	39+040	21.000	1,646,089.490	488,958.208
117R	39+089.514	21.000	1,646,130.100	488,986.537
118R	39+150.243	21.000	1,646,179.906	489,021.283
119R	39+228.681	21.000	1,646,244.238	489,066.161
120R	39+238.681	21.000	1,646,252.439	489,071.883
121R	39+260	21.000	1,646,269.923	489,084.080
122R	39+280	20.000	1,646,286.899	489,094.703
123R	39+300	19.000	1,646,303.874	489,105.326
124R	39+320	18.000	1,646,320.849	489,115.949
125R	39+360	18.000	1,646,353.655	489,138.835
126R	39+380	17.000	1,646,370.630	489,149.457
127R	39+400	17.000	1,646,387.033	489,160.900
128R	39+420	16.000	1,646,404.008	489,171.523
129R	39+620	16.000	1,646,568.877	489,285.386
INTERSECTION A-1				
A1−1L	0+048.155	−14.760	1,641,875.418	488,858.913
A1−2L	0+080.066	−14.681	1,641,886.491	488,890.488
A1−3L	0+125.306	−10.000	1,641,891.785	488,937.478
A1−4L	0+320	−10.000	1,641,854.955	489,131.433
A1−5L	0+895.089	−10.000	1,641,622.601	489,651.424
A1−6L	0+904.483	−21.787	1,641,633.505	489,661.829
A1−1R	0+041.425	10.000	1,641,849.986	488,862.410
A1−2R	0+320	10.000	1,641,837.239	489,122.153
A1−3R	0+869.885	10.000	1,641,608.583	489,622.630
A1−4R	0+900.269	15.799	1,641,596.443	489,654.287
A1−5R	0+904.482	21.915	1,641,589.976	489,657.939
INTERSECTION C-1L				
C1L−1L	0+020	−9.771	1,641,940.326	488,728.162
C1L−2L	0+048.802	−7.500	1,641,935.360	488,699.700
C1L−3L	0+100	−7.500	1,641,921.041	488,651.127
C1L−1R	0+020	7.500	1,641,957.054	488,723.865
C1L−2R	0+100	7.500	1,641,935.267	488,646.369
INTERSECTION C-1R				
C1R−1L	0+010.866	−7.500	1,641,976.697	488,795.099
C1R−2L	0+090	−7.500	1,641,986.313	488,874.849
C1R−1R	0+009.368	7.500	1,641,981.791	488,797.348
C1R−2R	0+090	7.500	1,641,971.332	488,875.602
INTERSECTION A-2				
A2−1L	0+910	−7.500	1,642,183.259	488,574.113
A2−2L	0+961.810	−7.500	1,642,196.946	488,624.082
A2−3L	1+039.028	−7.500	1,642,217.346	488,698.556
A2−4L	1+090	−7.500	1,642,230.813	488,747.718

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KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/14/02	
CHECKED	9/18/02	
SUBMITTED	9/20/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONDAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

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

SCALE :
NOT TO SCALE
FULL SIZE A1

SHEET CONTENTS :
SCHEDULE OF ROAD RIGHT-OF-WAY MARKERS
(1 OF 2)

SHEET NO. :
RG-06

SCHEDULE OF ROAD RIGHT-OF-WAY MARKERS

POINT NO.	STATION	OFFSET FROM CENTERLINE	NORTHING	EASTING
A2-1R	0+910	7.500	1,642,168.792	488,578.076
A2-2R	0+968.074	7.500	1,642,184.134	488,634.086
A2-3R	1+039.014	7.500	1,642,202.876	488,702.506
A2-4R	1+090	7.500	1,642,216.346	488,751.680
INTERSECTION C-2L				
C2L-1L	0+010.746	-10.154	1,643,331.918	488,154.259
C2L-2L	0+014.408	-7.252	1,643,332.490	488,150.217
C2L-3L	0+028.694	-5.000	1,643,325.311	488,137.662
C2L-4L	0+070	-5.000	1,643,299.474	488,105.433
C2L-1R	0+020	4.364	1,643,338.055	488,138.588
C2L-2R	0+040	3.585	1,643,324.937	488,123.471
C2L-3R	0+060	2.252	1,643,311.388	488,108.700
C2L-4R	0+069.999	1.643	1,643,304.658	488,101.279
INTERSECTION C-2R				
C2R-1R	0+007.416	6.617	1,643,364.653	488,199.816
C2R-2R	0+020	6.664	1,643,369.172	488,212.614
C2R-3R	0+060	5.000	1,643,393.799	488,245.124
C2R-1L	0+007.564	-4.141	1,643,375.013	488,196.915
C2R-1L	0+020	-3.777	1,643,378.627	488,208.185
C2R-2L	0+033.433	-3.497	1,643,384.972	488,219.066
C2R-3L	0+040	-3.233	1,643,388.600	488,224.408
C2R-4L	0+059.999	-1.785	1,643,399.585	488,241.579
INTERSECTION A-3				
A3-1L	0+900	-7.500	1,643,520.314	488,031.596
A3-2L	0+973.502	-7.500	1,643,555.271	488,096.254
A3-3L	1+030.977	-7.500	1,643,582.605	488,146.813
A3-4L	1+120	-7.500	1,643,619.307	488,228.782
A3-1R	0+900	7.500	1,643,507.119	488,038.730
A3-2R	0+960.599	7.500	1,643,535.939	488,092.037
A3-3R	1+036.284	7.500	1,643,571.934	488,158.615
A3-4R	1+120	7.500	1,643,605.349	488,234.276

POINT NO.	STATION	OFFSET FROM CENTERLINE	NORTHING	EASTING
INTERSECTION A-4				
A4-1L	0+870	-7.500	1,644,491.916	487,983.936
A4-2L	0+920	-7.500	1,644,504.454	488,032.338
A4-3L	0+960	-9.000	1,644,515.937	488,070.684
A4-4L	0+978.759	-9.000	1,644,520.641	488,088.843
A4-5L	1+027.022	-7.500	1,644,531.292	488,135.941
A4-6L	1+100	-7.500	1,644,549.593	488,206.586
A4-1R	0+870	7.500	1,644,477.395	487,987.697
A4-2R	0+920	7.500	1,644,489.933	488,036.099
A4-3R	0+960	9.000	1,644,498.512	488,075.197
A4-4R	0+973.271	8.246	1,644,502.570	488,087.855
A4-5R	1+021.055	7.500	1,644,515.275	488,133.925
A4-6R	1+100	7.500	1,644,535.072	488,210.348
INTERSECTION A-5				
A5-1L	0+900	-10.000	1,645,339.992	488,518.790
A5-3L	1+080	-10.000	1,645,334.744	488,337.418
A5-4L	1+300	-10.000	1,645,350.263	488,117.964
A5-6L	1+456	-14.000	1,645,357.278	487,962.070
A5-5L	1+456	-10.000	1,645,361.268	487,962.353
A5-8L	1+520	-10.000	1,645,365.783	487,898.512
A5-7L	1+520	-14.000	1,645,361.793	487,898.230
A5-9L	1+620	-10.000	1,645,376.549	487,797.970
A5-10L	1+720	-10.000	1,645,405.693	487,700.400
A5-11L	2+000	-10.000	1,645,535.849	487,451.437
A5-12L	2+300	-10.000	1,645,677.275	487,186.865
A5-13L	2+500	-10.000	1,645,771.504	487,010.514
A5-14L	2+600	-10.000	1,645,816.216	486,921.521
A5-15L	2+700	-10.000	1,645,857.333	486,830.812
A5-16L	3+000	-10.000	1,645,974.421	486,554.655
A5-17L	3+200	-10.000	1,646,052.947	486,370.148
A5-18L	3+280	-10.000	1,646,103.686	486,303.906

POINT NO.	STATION	OFFSET FROM CENTERLINE	NORTHING	EASTING
A5-19L	3+340	-10.000	1,646,156.622	486,270.187
A5-20L	3+388.242	-10.000	1,646,200.759	486,250.686
A5-21L	3+400.755	-20.798	1,646,207.841	486,235.752
A5-1R	0+900	10.775	1,645,360.184	488,513.902
A5-2R	1+080	14.000	1,645,358.684	488,339.109
A5-3R	1+300	14.000	1,645,374.204	488,119.657
A5-5R	1+464	10.000	1,645,381.783	487,955.783
A5-4R	1+464	14.000	1,645,385.773	487,956.066
A5-6R	1+560.171	10.000	1,645,388.567	487,859.852
A5-7R	1+660	10.000	1,645,405.133	487,763.597
A5-8R	1+760	10.000	1,645,440.536	487,672.390
A5-9R	1+780	12.500	1,645,451.979	487,656.064
A5-10R	1+820	10.000	1,645,468.632	487,619.609
A5-11R	2+000	10.000	1,645,553.487	487,460.866
A5-12R	2+300	10.000	1,645,694.914	487,196.293
A5-13R	2+500	10.000	1,645,789.192	487,019.848
A5-14R	2+600	10.000	1,645,834.263	486,930.141
A5-15R	2+700	10.000	1,645,875.711	486,838.703
A5-16R	3+000	10.000	1,645,992.835	486,562.461
A5-17R	3+200	10.000	1,646,070.924	486,378.913
A5-18R	3+280	10.000	1,646,116.830	486,318.980
A5-19R	3+340	10.000	1,646,164.726	486,288.472
A5-20R	3+388.242	10.000	1,646,208.842	486,268.980
A5-21R	3+399.288	22.448	1,646,223.977	486,275.902
INTERSECTION A-6				
A6-1L	0+910	-3.549	1,645,899.834	488,694.872
A6-2L	0+940	-2.687	1,645,875.934	488,713.025
A6-3L	0+960	-2.680	1,645,860.381	488,725.558
A6-4L	1+041.045	-3.963	1,645,806.480	488,785.943
A6-5L	1+064.623	-2.814	1,645,785.729	488,798.821
A6-6L	1+080	-2.650	1,645,771.559	488,805.133

POINT NO.	STATION	OFFSET FROM CENTERLINE	NORTHING	EASTING
A6-1R	0+910	5.000	1,645,894.469	488,688.215
A6-2R	1+080	5.000	1,645,768.421	488,798.156
INTERSECTION A-7				
A7-1L	0+850	-7.500	1,646,319.436	488,958.845
A7-2L	0+870.357	-7.500	1,646,299.080	488,958.622
A7-3L	0+900	-10.000	1,646,272.121	488,964.166
A7-4L	0+924.241	-12.500	1,646,252.246	488,973.767
A7-5L	0+960.091	-12.500	1,646,219.781	488,988.974
A7-6L	1+039.835	-14.500	1,646,146.248	489,024.789
A7-7L	1+060	-12.500	1,646,121.610	489,025.946
A7-8L	1+080	-12.500	1,646,098.072	489,020.985
A7-9L	1+099.029	-7.500	1,646,081.540	489,005.500
A7-10L	1+210	-7.500	1,645,982.591	488,990.071
A7-1R	0+850	7.500	1,646,319.600	488,943.846
A7-2R	0+900	10.000	1,646,267.443	488,944.721
A7-3R	0+924.241	12.500	1,646,241.642	488,951.128
A7-4R	0+975.417	12.500	1,646,195.298	488,972.836
A7-5R	1+060	12.500	1,646,122.636	489,000.967
A7-6R	1+099.029	7.500	1,646,091.106	488,993.946
A7-7R	1+210	7.500	1,645,979.863	488,975.321
INTERSECTION A-7a				
A7a-1L	0+080	-5.000	1,646,241.690	489,136.914
A7a-1R	0+080	5.000	1,646,231.717	489,137.660

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KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/16/02	J. TAPIA
CHECKED	9/18/02	S. GOSE
SUBMITTED	9/20/02	M. KUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONDAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

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

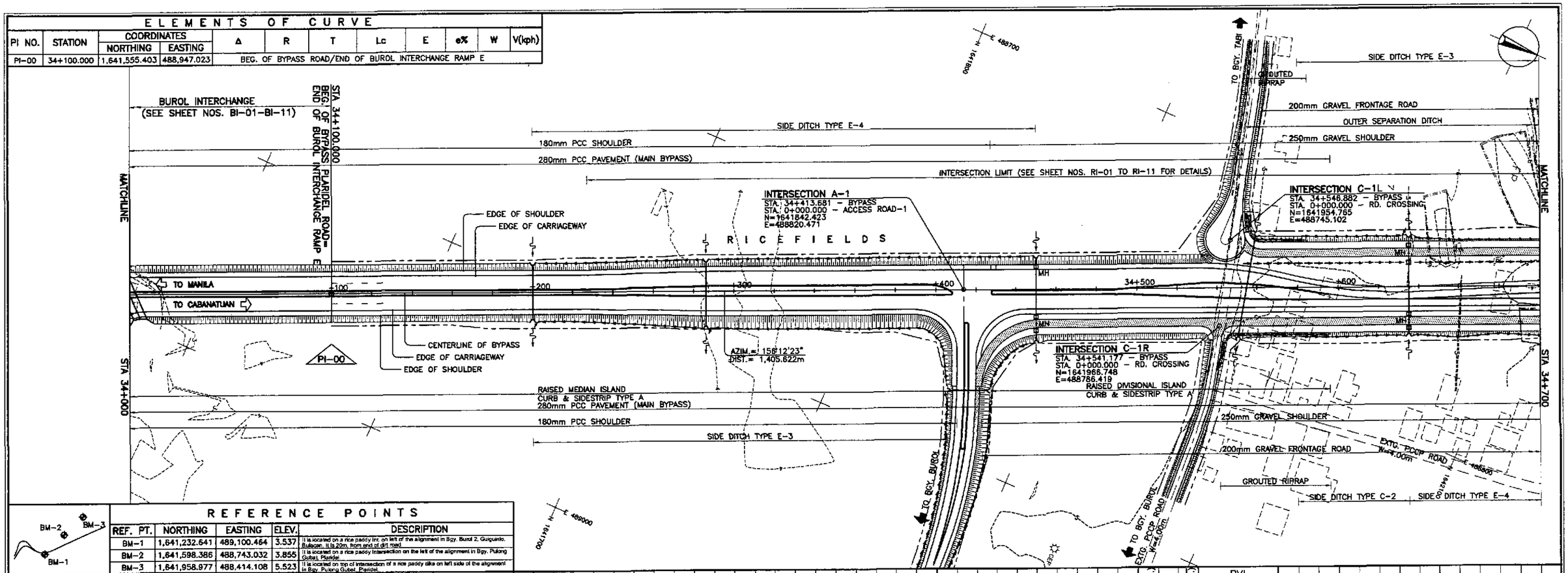
SCALE : NOT TO SCALE FULL SIZE A1

SHEET CONTENTS : SCHEDULE OF ROAD RIGHT-OF-WAY MARKERS (2 OF 2)

SHEET NO. : RG-07

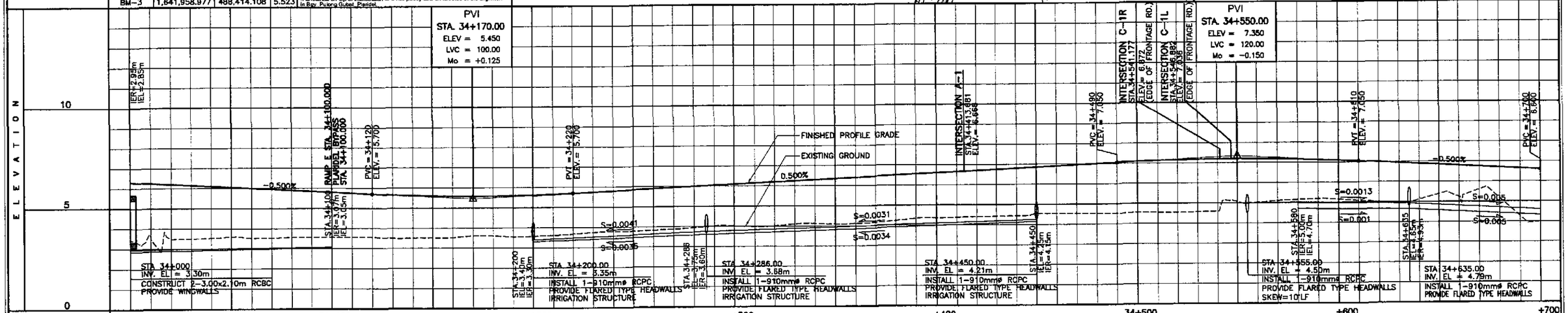
ELEMENTS OF CURVE

PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-00	34+100.000	1,641,555.403	488,947.023	BEG. OF BYPASS ROAD/END OF BUROL INTERCHANGE RAMP E							



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-1	1,641,232.641	489,100.464	3.537	It is located on a rice paddy inc. on left of the alignment in Bgy. Burol 2, Guiguinto, Bulacan. It is 20m. from end of dirt road.
BM-2	1,641,598.386	488,743.032	3.855	It is located on a rice paddy intersection on the left of the alignment in Bgy. Pulong Gubat, Plaridel.
BM-3	1,641,958.977	488,414.108	5.523	It is located on top of intersection of a rice paddy dike on left side of the alignment in Bgy. Pulong Gubat, Plaridel.



STATION	34+100											+200										+300										+400										34+500										+600										+700
FINISHED PROFILE GRADE ROAD/BYPASSING	6.300		6.200		6.100		6.000		5.900		5.800		5.700		5.620		5.580		5.580		5.620		5.700		5.800		5.900		6.000		6.100		6.200		6.300		6.400		6.500		6.600		6.700		6.800		6.900		7.000		7.096		7.162		7.196		7.196		7.162		7.096		7.000		6.900		6.800		6.700		6.600
EXISTING GROUND BYPASS	3.455		3.481		3.529		3.512		3.562		3.569		3.554		3.501		3.525		3.610		3.576		3.674		3.779		3.828		3.941		4.022		4.014		4.117		4.115		4.236		4.352		4.402		4.430		4.537		4.526		4.550		4.543		4.588		5.014		5.152		5.153		5.015		5.114		5.244		5.169		3.887

HORIZONTAL CURVATURE	BUROL INTERCHANGE (SHEET NOS. BI-09) — R=∞
VERTICAL CURVATURE	BUROL INTERCHANGE — L=100, Mo=+0.125; g=0.500%; L=120, Mo=-0.150; g=-0.500%
SUPERELEVATION	BUROL INTERCHANGE — NC

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YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/14/02	
CHECKED	9/16/02	
SUBMITTED	9/16/02	M. KUCHI, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

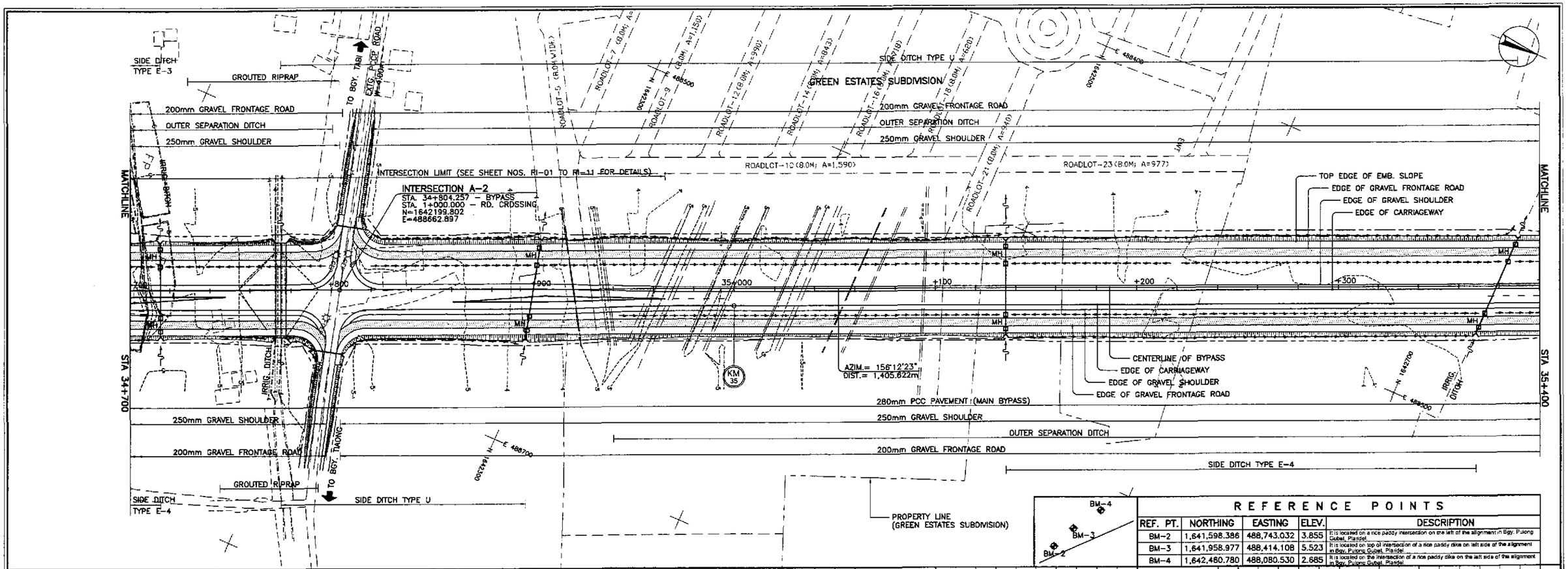
PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	JOSEFINA M. ALAGAR, Chief, Highways Division	GILBERTO S. REYES, OIC, Director IV	MANUEL M. BONOAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

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

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

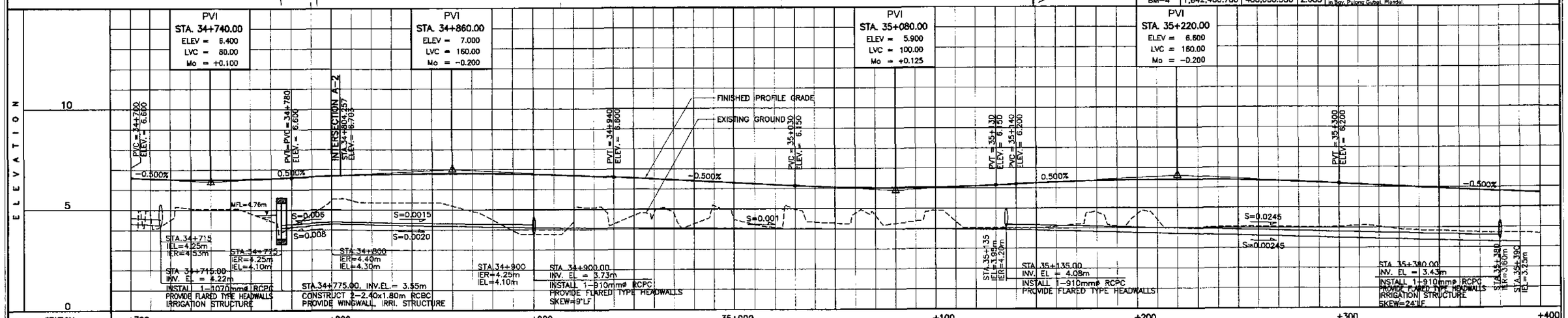
SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (INITIAL STAGE)
STA.34+000 - STA. 34+700

SHEET NO. :
RP-01



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-2	1,641,598.386	488,743.032	3.855	It is located on a rice paddy intersection on the left of the alignment in Bgy. Pulong Gubat, Plaridel.
BM-3	1,641,958.977	488,414.108	5.523	It is located on top of intersection of a rice paddy dike on left side of the alignment in Bgy. Pulong Gubat, Plaridel.
BM-4	1,642,460.780	488,080.530	2.685	It is located on the intersection of a rice paddy dike on the left side of the alignment in Bgy. Pulong Gubat, Plaridel.



STATION	+700					+800					+900					35+000					+100					+200					+300					+400
FINISHED PROFILE GRADE BYPASS	6.600	6.525	6.500	6.525	6.600	6.687	6.750	6.787	6.800	6.787	6.750	6.687	6.600	6.500	6.400	6.300	6.200	6.105	6.045	6.025	6.045	6.105	6.200	6.287	6.350	6.387	6.400	6.387	6.350	6.287	6.200	6.100	6.000	5.900	5.800	5.700
EXISTING GROUND BYPASS	3.987	4.509	5.049	4.829	4.179	5.505	5.361	5.360	5.187	4.492	3.757	4.846	4.272	4.807	4.267	4.464	4.072	4.332	4.773	4.251	4.904	4.039	4.035	4.092	4.789	4.694	3.999	4.036	4.057	4.024	4.045	4.040	3.849	3.785	3.725	3.688

HORIZONTAL CURVATURE: R=∞

VERTICAL CURVATURE: L=80, Mo=+0.100, g=0.500% | L=160, Mo=-0.200, g=-0.500% | L=100, Mo=+0.125, g=0.500% | L=160, Mo=-0.200, g=-0.500%

SUPERELEVATION: NC

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

	DATE	SIGNATURE
DESIGNED	9/18/02	A. ACACIO
CHECKED	9/18/02	S. GOSE
SUBMITTED	9/20/02	M. KISHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PUBL. - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

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

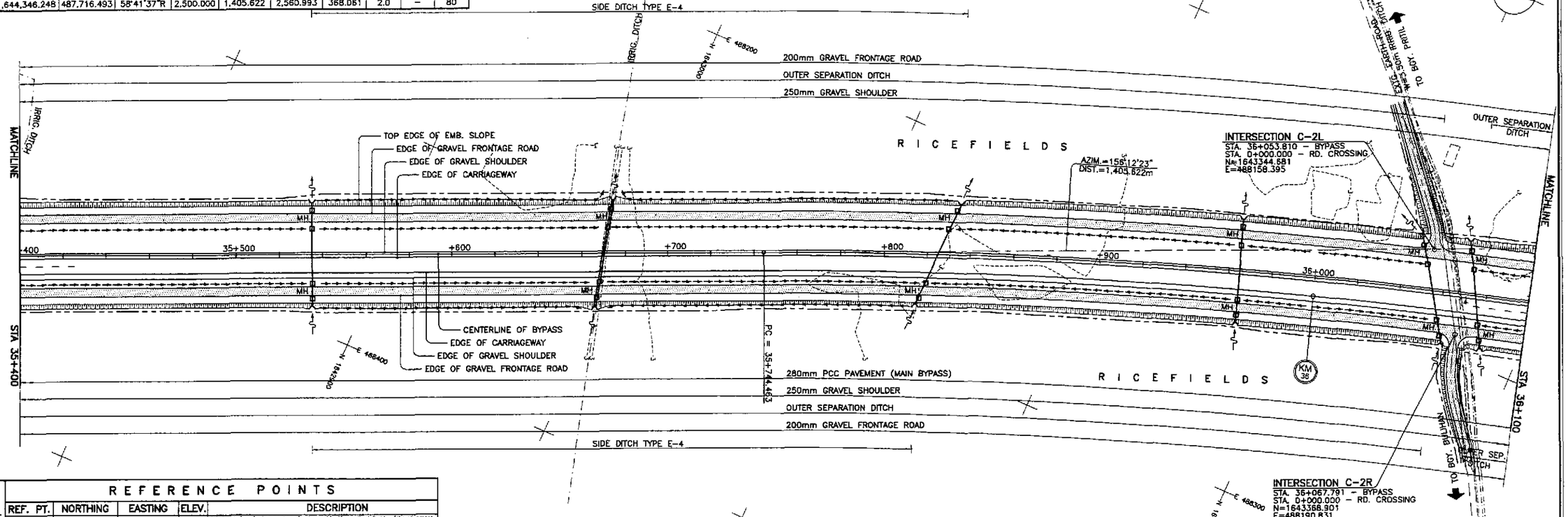
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (INITIAL STAGE)
STA.34+700 - STA. 35+400

SHEET NO. :
RP-02

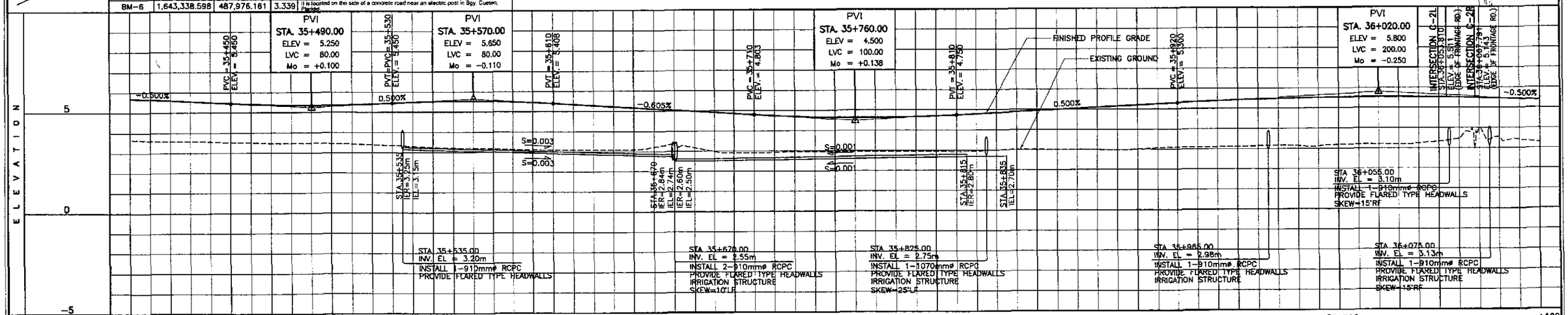
ELEMENTS OF CURVE

PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-01	37+150.085	1,644,346.248	487,716.493	58°41'37"R	2,500.000	1,405.622	2,560.993	368.061	2.0	–	80



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-4	1,642,460.780	488,080.530	2.685	It is located on the intersection of a rice paddy dike on the left side of the alignment in Bgy. Pulong Gubat, Plaridel.
BM-5	1,642,929.376	488,037.023	3.065	It is located on the rice paddy dike on the left side of the alignment in Bgy. Cuesta, Plaridel.
BM-6	1,643,338.598	487,976.161	3.339	It is located on the side of a concrete road near an electric post in Bgy. Cuesta, Plaridel.



STATION	+400		35+500		+600		+700		+800		+900		36+000		+100
FINISHED PROFILE GRADE BYPASS	5.700	5.600	5.500	5.410	5.360	5.360	5.410	5.493	5.538	5.527	5.462	5.347	5.228	5.105	4.984
EXISTING GROUND BYPASS	3.688	3.577	3.554	3.497	3.473	3.461	3.395	3.304	3.217	3.175	3.116	3.099	3.087	3.208	3.170

STATION	+700		+800		+900		36+000		+100
FINISHED PROFILE GRADE BYPASS	4.863	4.748	4.671	4.638	4.650	4.706	4.800	4.900	5.000
EXISTING GROUND BYPASS	2.912	2.933	2.959	2.943	2.948	2.934	2.950	3.012	3.011

STATION	36+000														
FINISHED PROFILE GRADE BYPASS	5.100	5.200	5.300	5.390	5.460	5.510	5.540	5.550	5.540	5.510	5.460	5.390			
EXISTING GROUND BYPASS	2.989	3.012	3.090	3.100	3.140	3.142	3.186	3.203	3.238	3.462	3.550	3.288			

HORIZONTAL CURVATURE: R=∞ | R = 2500 (35 + 744.463)

VERTICAL CURVATURE: g=-0.500% | L=80 Mo=+0.100 | g=0.500% | L=80 Mo=-0.110 | g=-0.605% | L=100 Mo=+0.138 | g=0.500% | L=200 Mo=-0.250

SUPERELEVATION: NC | S=0.005 (35+697.796 – 35+753.796) | e=+2.0% | e=-2.0%

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/16/02	A. ACACIO
CHECKED	9/18/02	S. ROSE
SUBMITTED	9/20/02	M. KIKUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

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

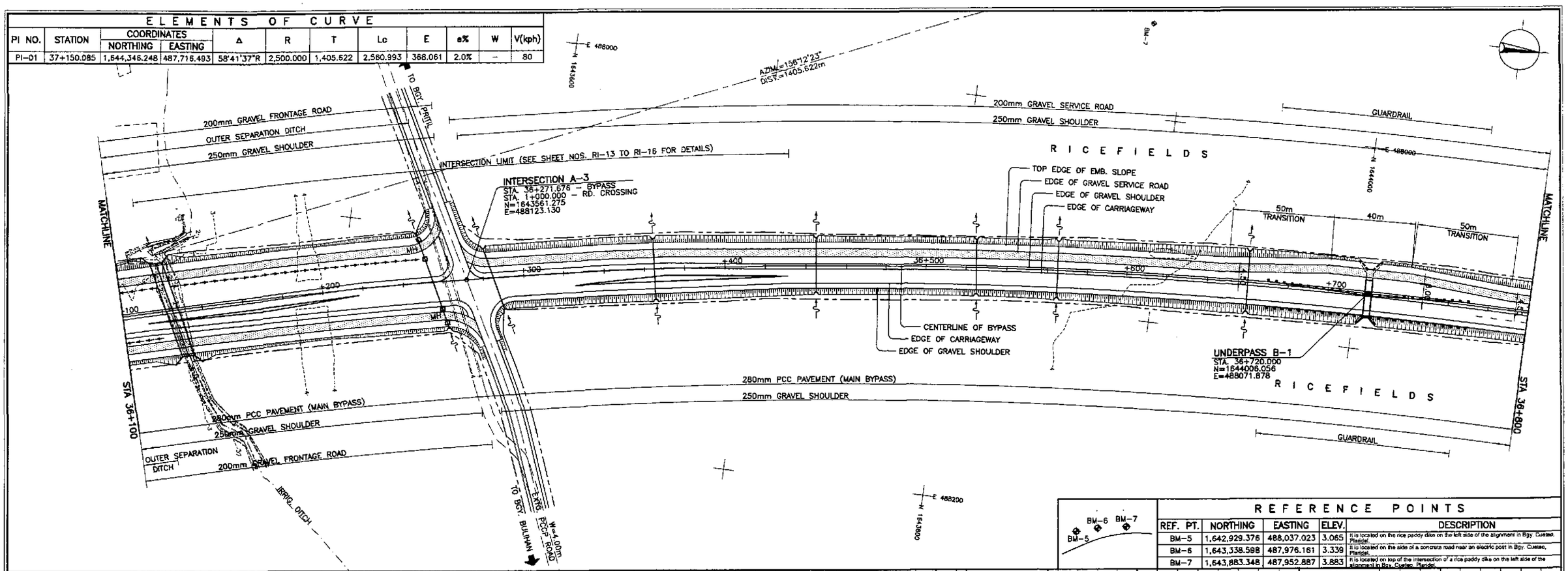
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (INITIAL STAGE)
STA. 35+400 - STA. 36+100

SHEET NO. :
RP-03

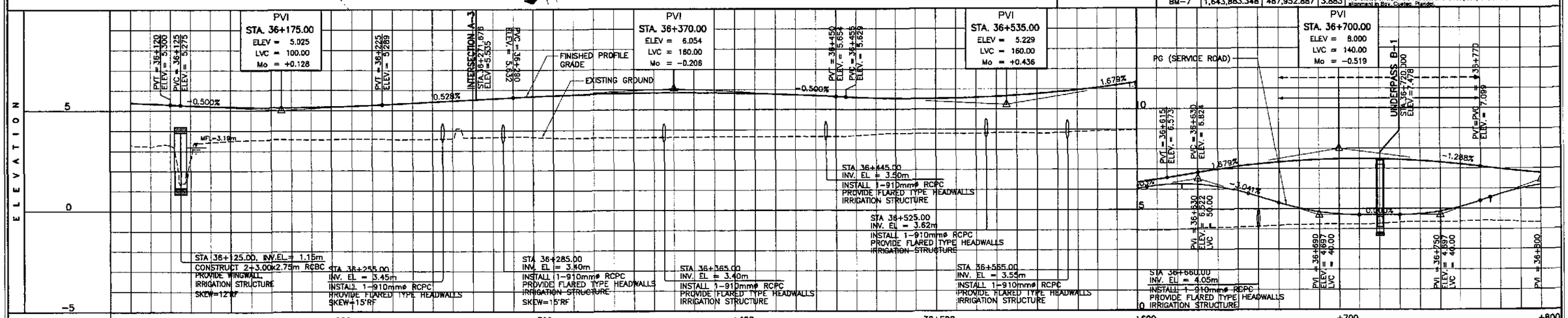
ELEMENTS OF CURVE

PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-01	37+150.085	1,644,346.248	487,716.493	58°41'37"R	2,500.000	1,405.522	2,560.993	368.061	2.0%	–	80



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-5	1,642,929.376	488,037.023	3.065	It is located on the rice paddy dike on the left side of the alignment in Bgy. Cuelaso, Plaridel.
BM-6	1,643,338.598	487,976.161	3.339	It is located on the side of a concrete road near an electric post in Bgy. Cuelaso, Plaridel.
BM-7	1,643,883.348	487,952.887	3.883	It is located on top of the intersection of a rice paddy dike on the left side of the alignment in Bgy. Cuelaso, Plaridel.



STATION	+100		+200			+300			+400			36+500			+600			+700			+800
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	5.390	5.300	5.212	5.163	5.155	5.189	5.264	5.368	5.474	5.579	5.681	5.761	5.815	5.844	5.847	5.824	5.775	5.701	5.606	5.547	5.542
EXISTING GROUND BYPASS	3.286	3.279	3.429	3.529	3.562	3.563	3.580	3.563	3.802	3.663	3.662	3.604	3.617	3.633	3.643	3.650	3.658	3.671	3.708	3.798	3.804

STATION	36+500					+600					+700					+800
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	5.592	5.696	5.855	6.088	6.336	6.041	6.656	6.257	6.882	6.113	7.233	5.609	7.399	5.039	7.481	4.735
EXISTING GROUND BYPASS	3.806	3.828	3.832	3.916	3.954	3.998	4.087		4.132	4.213	4.238	4.268	4.342	4.366	4.395	4.340

STATION	7.478		7.390		7.217		6.978		6.772
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	4.697	7.390	4.741	7.217	5.089	6.978	5.731	6.772	
EXISTING GROUND BYPASS									

HORIZONTAL CURVATURE: R = 2500

VERTICAL CURVATURE: g=-0.500% L=100 Mo=+0.128; g=0.528% L=160 Mo=-0.206; g=-0.500% L=160 Mo=+0.436; g=+1.679% L=140 Mo=-0.519; L=140 Mo=+0.327

SUPERELEVATION: e=+2.0%; e=-2.0%

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/16/02	A. ACACIO
CHECKED	9/18/02	S. JOSE
SUBMITTED	9/20/02	M. ABUCH TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONDAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

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

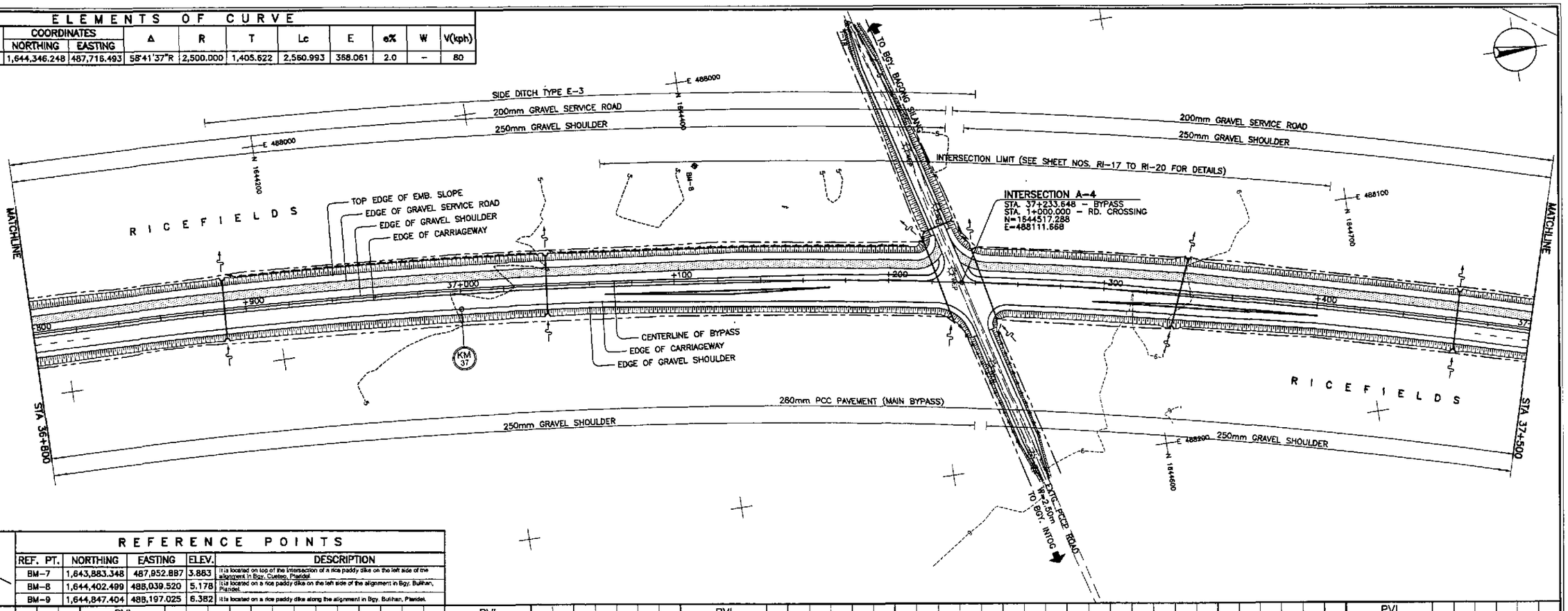
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (INITIAL STAGE)
STA. 36+100 - STA. 36+800

SHEET NO. :
RP-04

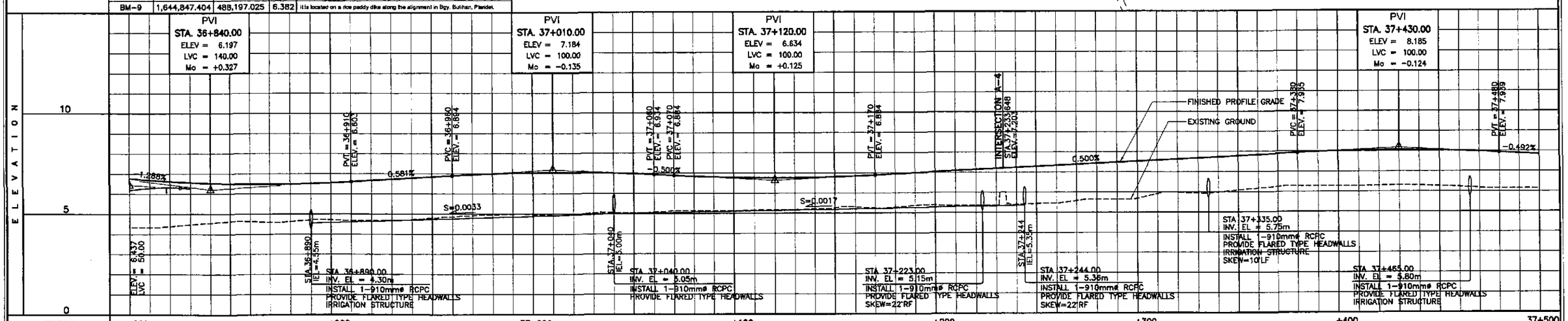
ELEMENTS OF CURVE

PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-01	37+150.085	1,644,346.248	487,715.493	58°41'37"R	2,500.000	1,405.622	2,560.993	358.061	2.0	–	80



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-7	1,643,883.348	487,952.887	3.883	It is located on top of the intersection of a rice paddy dike on the left side of the alignment in Bgy. Cueteo, Plaridel
BM-8	1,644,402.499	488,039.520	5.178	It is located on a rice paddy dike on the left side of the alignment in Bgy. Bulihan, Plaridel.
BM-9	1,644,847.404	488,197.025	6.382	It is located on a rice paddy dike along the alignment in Bgy. Bulihan, Plaridel.



STATION	+800		+900		37+000		+100		+200		+300		+400		37+500
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	6.772 / 6.185	6.621 / 6.318	6.524	6.480	6.489	6.552	6.662	6.778	6.894	6.988	7.040	7.048	7.012	6.934	6.839
EXISTING GROUND BYPASS	4.340	4.394	4.554	4.629	4.630	4.716	4.671	4.718	4.658	4.956	4.965	4.963	5.058	5.068	5.141

STATION	+100	+200	+300	+400	37+500
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	6.779	6.759	6.779	6.839	6.934
EXISTING GROUND BYPASS	5.133	5.164	5.219	5.299	5.283

STATION	+200	+300	+400	37+500
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	7.034	7.134	7.234	7.335
EXISTING GROUND BYPASS	5.378	5.356	5.391	5.457

STATION	+300	+400	37+500
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	7.435	7.535	7.635
EXISTING GROUND BYPASS	5.633	5.887	5.973

STATION	+400	37+500
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	7.735	7.835
EXISTING GROUND BYPASS	5.983	6.168

STATION	37+500
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	7.935
EXISTING GROUND BYPASS	6.273

STATION	37+500
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	8.015
EXISTING GROUND BYPASS	6.275

STATION	37+500
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	8.056
EXISTING GROUND BYPASS	6.290

STATION	37+500
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	8.057
EXISTING GROUND BYPASS	6.294

STATION	37+500
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	8.018
EXISTING GROUND BYPASS	6.226

STATION	37+500
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	7.939
EXISTING GROUND BYPASS	6.150

STATION	37+500
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	7.841
EXISTING GROUND BYPASS	6.141

HORIZONTAL CURVATURE: R = 2500

VERTICAL CURVATURE: L=140, Mo=+0.327; g=0.581%; L=100, Mo=-0.135; g=-0.500%; L=100, Mo=+0.125; g=0.500%; L=100, Mo=-0.124; g=-0.492%

SUPERELEVATION: e=+2.0%; e=-2.0%

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/14/02	A. ACACIO
CHECKED	9/18/02	S. GOSE
SUBMITTED	9/20/02	M. KUCHI, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	JOSEFINA M. ALAGAR, Chief, Highways Division	GILBERTO S. REYES, OIC, Director IV	MANUEL M. BONDAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

PROJECT AND LOCATION :
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PLARIDEL BYPASS - CONTRACT PACKAGE I

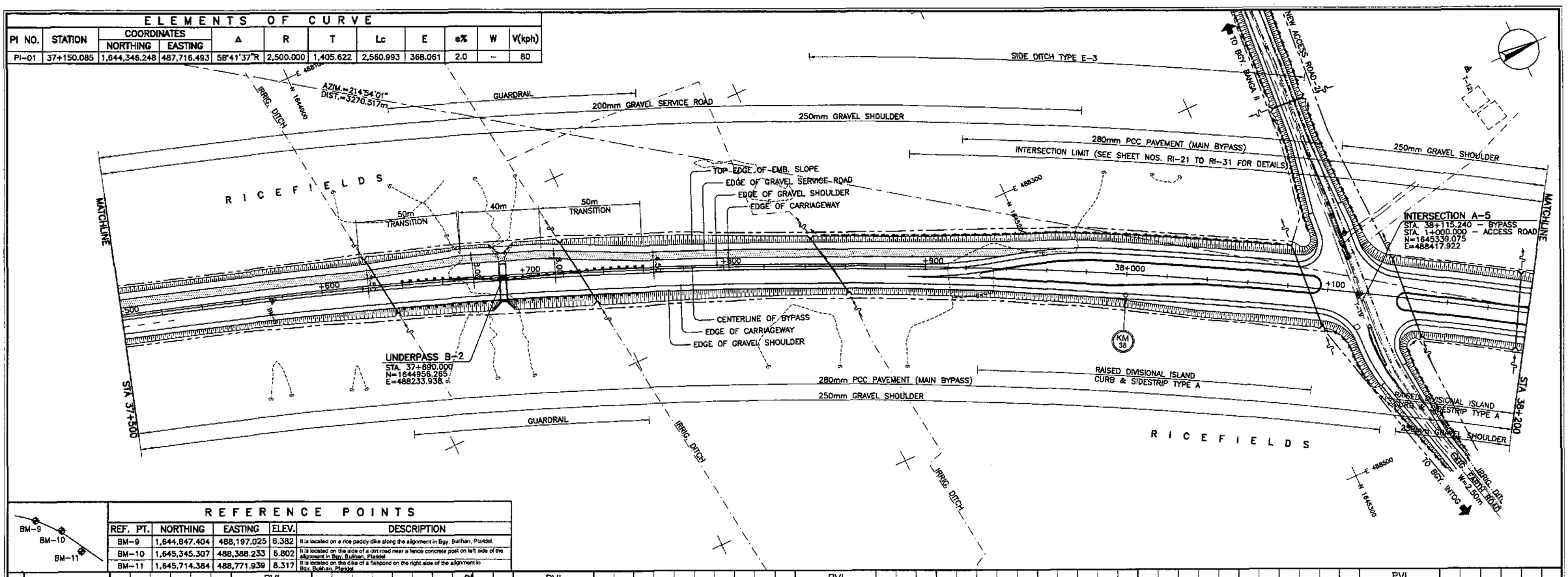
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (INITIAL STAGE)
STA. 36+800 - STA. 37+500

SHEET NO. :
RP-05

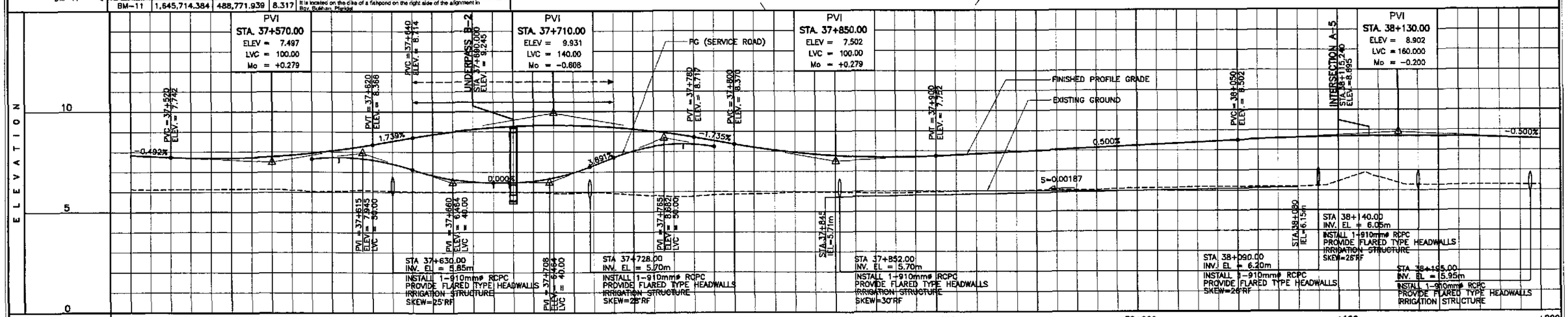
ELEMENTS OF CURVE

PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-01	37+150.085	1,644,346.248	487,716.493	58°41'37"R	2,500.000	1,405.622	2,560.993	368.061	2.0	–	80



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-9	1,644,847.404	488,197.025	6.382	It is located on a rice paddy dike along the alignment in Bgy. Bulihan, Plaridel.
BM-10	1,645,345.307	488,388.233	6.802	It is located on the side of a dirt road near a fence concrete post on left side of the alignment in Bgy. Bulihan, Plaridel.
BM-11	1,645,714.384	488,771.939	8.317	It is located on the dike of a fishpond on the right side of the alignment in Bgy. Bulihan, Plaridel.



STATION	37+500	+600	+700	+800	+900	38+000	+100	+200
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	7.841 / 7.742	7.689 / 7.724	7.849 / 8.063	7.723 / 8.366	7.602 / 8.714	7.122 / 9.012	6.629 / 9.211	6.464 / 9.311
	6.534 / 9.311	6.962 / 9.212	7.709 / 9.014	8.262 / 8.717	8.365 / 8.370	8.067 / 7.854	7.731 / 7.697	7.752 / 7.852
	7.952 / 8.052	8.152 / 8.252	8.352 / 8.452	8.549 / 8.624	8.674 / 8.699	8.689 / 8.674	8.624 / 8.549	
EXISTING GROUND BYPASS	6.141	6.126	6.143	6.147	6.103	6.042	6.075	6.031
	6.004	5.990	5.971	5.941	5.929	5.808	5.780	5.878
	5.917	5.967	5.934	5.911	5.982	6.007	6.013	6.037
	6.055	6.119	6.156	6.184	6.170	6.189	6.440	6.641
	6.258	6.257	6.284	6.256	6.549			

HORIZONTAL CURVATURE: R = 2500

VERTICAL CURVATURE: g=-0.492% L=100 Mo=+0.279; g=1.739% L=140 Mo=-0.608; g=-1.735% L=100 Mo=+0.279; g=0.500%; L=160 Mo=-0.200

SUPERELEVATION: e=+2.0% / e=-2.0%

JICA — JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL — YEO YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/16/02	A. ROCACIO
CHECKED	9/18/02	S. SOSE
SUBMITTED	9/20/02	M. MUNCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

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

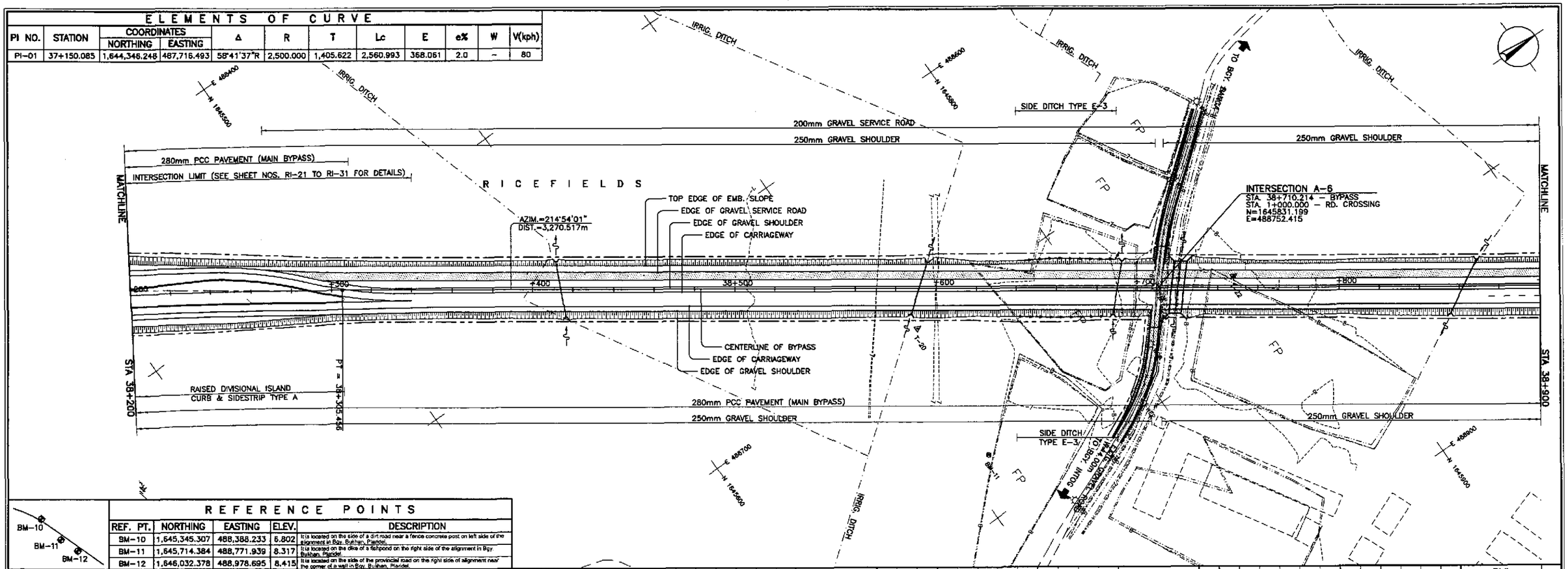
SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1

SHEET CONTENTS : PLAN AND PROFILE ALONG BYPASS (INITIAL STAGE) STA. 37+500 - STA. 38+200

SHEET NO. : RP-06

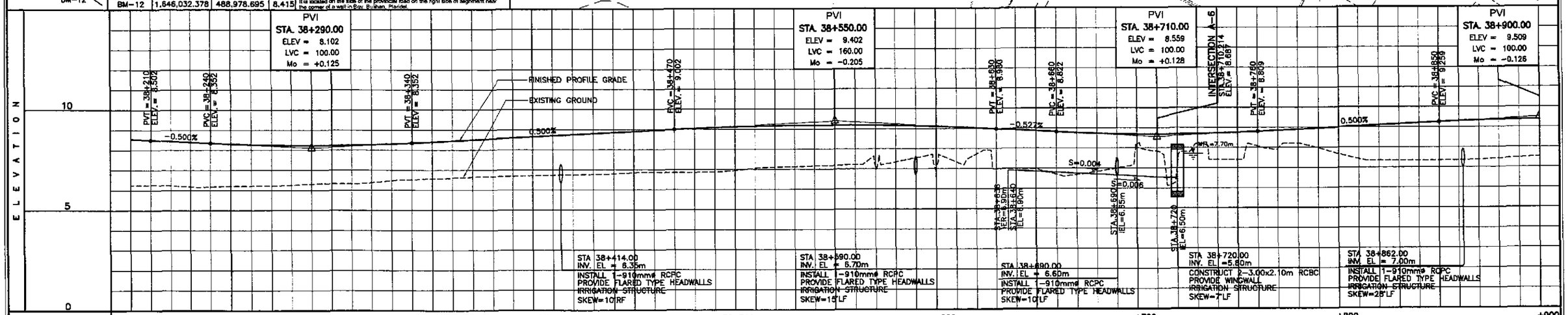
ELEMENTS OF CURVE

PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-01	37+150.085	1,644,346.248	487,716.493	58°41'37"R	2,500.000	1,405.622	2,560.993	368.061	2.0	-	80



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-10	1,645,345.307	488,388.233	6.802	It is located on the side of a dirt road near a fence concrete post on left side of the alignment in Bgy. Buhlan, Plaridel.
BM-11	1,645,714.384	488,771.939	8.317	It is located on the dike of a fishpond on the right side of the alignment in Bgy. Buhlan, Plaridel.
BM-12	1,646,032.378	488,978.695	8.415	It is located on the side of the provincial road on the right side of alignment near the corner of a wall in Bgy. Buhlan, Plaridel.



STATION	+200					+300					+400					38+500					+600					+700					+800					+900
FINISHED PROFILE GRADE BYPASS	8.549	8.452	8.352	8.272	8.232	8.232	8.272	8.352	8.452	8.552	8.652	8.752	8.852	8.952	9.049	9.123	9.172	9.195	9.192	9.164	9.110	9.030	8.928	8.822	8.738	8.684	8.691	8.730	8.809	8.909	9.009	9.109	9.208	9.304	9.363	9.383
EXISTING GROUND BYPASS	6.255	6.236	6.177	6.213	6.252	6.320	6.380	6.529	6.598	6.669	6.706	6.746	6.792	6.854	6.853	6.943	7.098	7.154	7.210	7.341	7.053	7.727	6.977	6.692	6.827	8.202	7.149	7.408	8.075	8.198	7.671	7.341	7.345	7.349	7.428	7.524

HORIZONTAL CURVATURE: R = 2500 (38 + 305.456) — R=∞

VERTICAL CURVATURE: g=-0.500% — L=100 (Mo=+0.125, 38+296.123) — g=0.500% — L=160 (Mo=-0.205) — g=-0.527% — L=100 (Mo=+0.128) — g=0.500% — L=100 (Mo=-0.126)

SUPERELEVATION: e=+2.0% — S=0.005 — e=-2.0% (38+352.123) — NC

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/14/02	A. ACACIO
CHECKED	9/18/02	S. GOSE
SUBMITTED	9/20/02	M. KIKUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONGAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

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

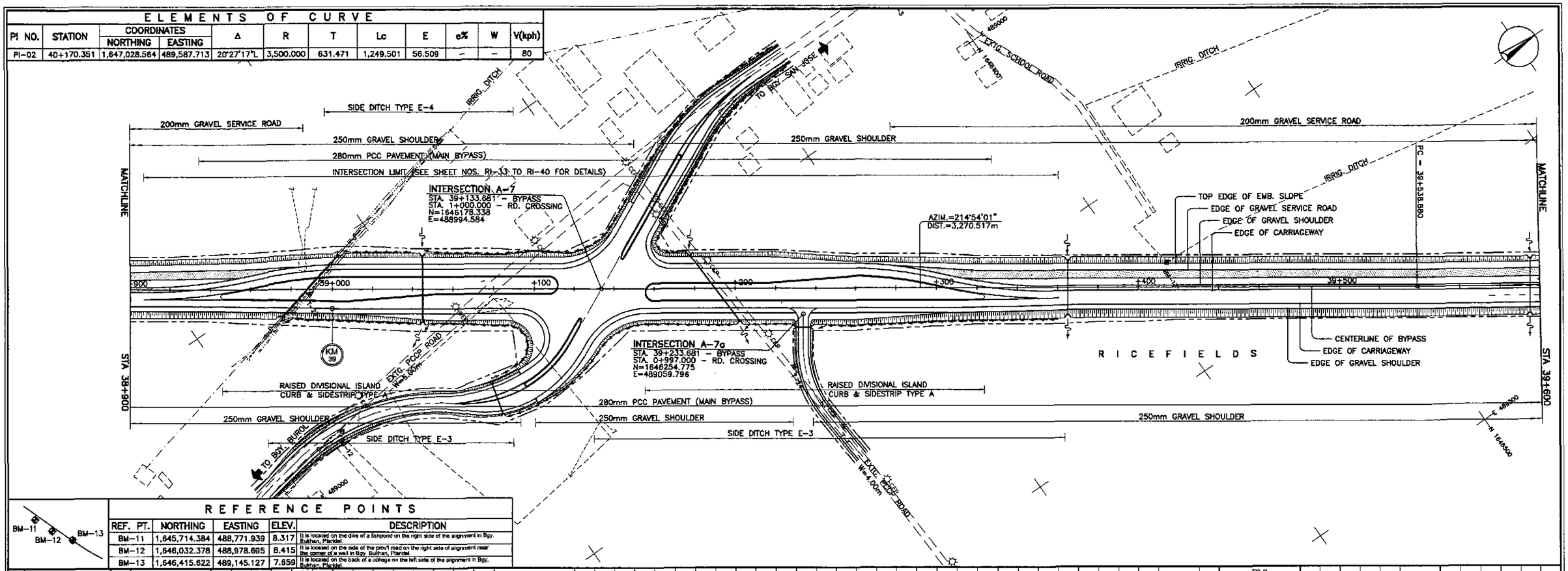
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (INITIAL STAGE)
STA. 38+200 - STA. 38+900

SHEET NO. :
RP-07

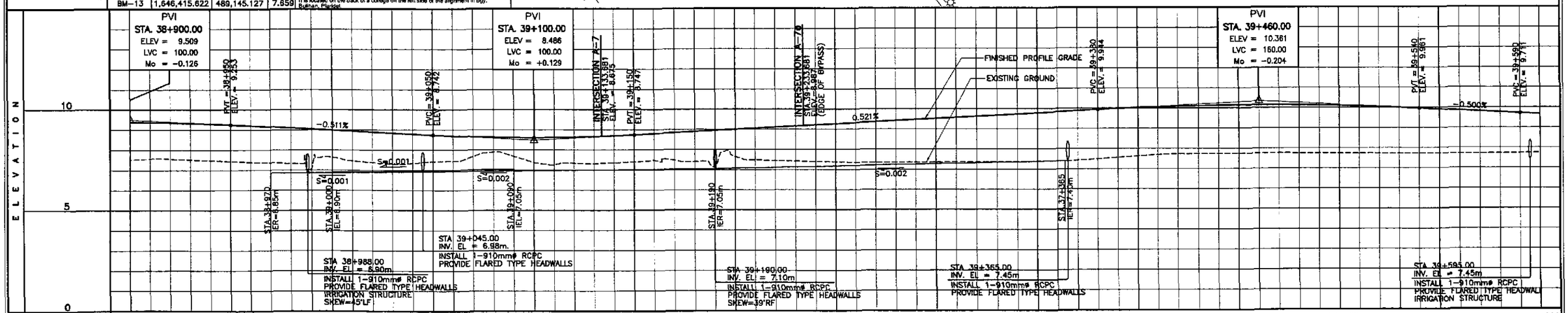
ELEMENTS OF CURVE

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



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-11	1,645,714.384	488,771.939	8.317	It is located on the dike of a fishpond on the right side of the alignment in Bgy. Bulihan, Plaridel.
BM-12	1,646,032.378	488,978.695	8.415	It is located on the side of the prov'l road on the right side of alignment near the corner of a well in Bgy. Bulihan, Plaridel.
BM-13	1,646,415.622	489,145.127	7.659	It is located on the back of a college on the left side of the alignment in Bgy. Bulihan, Plaridel.



STATION	+900					39+000					+100					+200					+300					+400					39+500					+600
FINISHED PROFILE GRADE BYPASS	9.383	9.361	9.299	9.202	9.100	8.998	8.895	8.793	8.698	8.635	8.615	8.637	8.700	8.799	8.903	9.007	9.111	9.215	9.319	9.424	9.528	9.632	9.736	9.840	9.944	10.038	10.102	10.142	10.157	10.146	10.110	10.048	9.961	9.861	9.761	9.658
EXISTING GROUND BYPASS	7.524	7.563	7.479	7.395	7.337	7.640	7.376	7.335	7.450	7.696	7.375	7.330	7.356	7.483	7.413	7.641	7.445	7.397	7.349	7.347	7.355	7.363	7.371	7.379	7.491	7.627	7.725	7.741	7.757	7.753	7.745	7.736	7.724	7.712	7.726	7.746

HORIZONTAL CURVATURE: R=∞ ; 39 + 538.880, R = 3500

VERTICAL CURVATURE: L=100, Mo=-0.126 ; g=-0.511% ; L=100, Mo=+0.129 ; g=0.521% ; L=160, Mo=-0.204 ; g=-0.500%

SUPERELEVATION: NC

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

	DATE	SIGNATURE
DESIGNED	9/16/02	R. ACACIO
CHECKED	9/18/02	S. GOSE
SUBMITTED	9/20/02	M. KIKUCHI, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	JOSEFINA M. ALAGAR, Chief, Highways Division	GILBERTO S. REYES, DIC, Director IV	MANUEL M. BONGAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

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

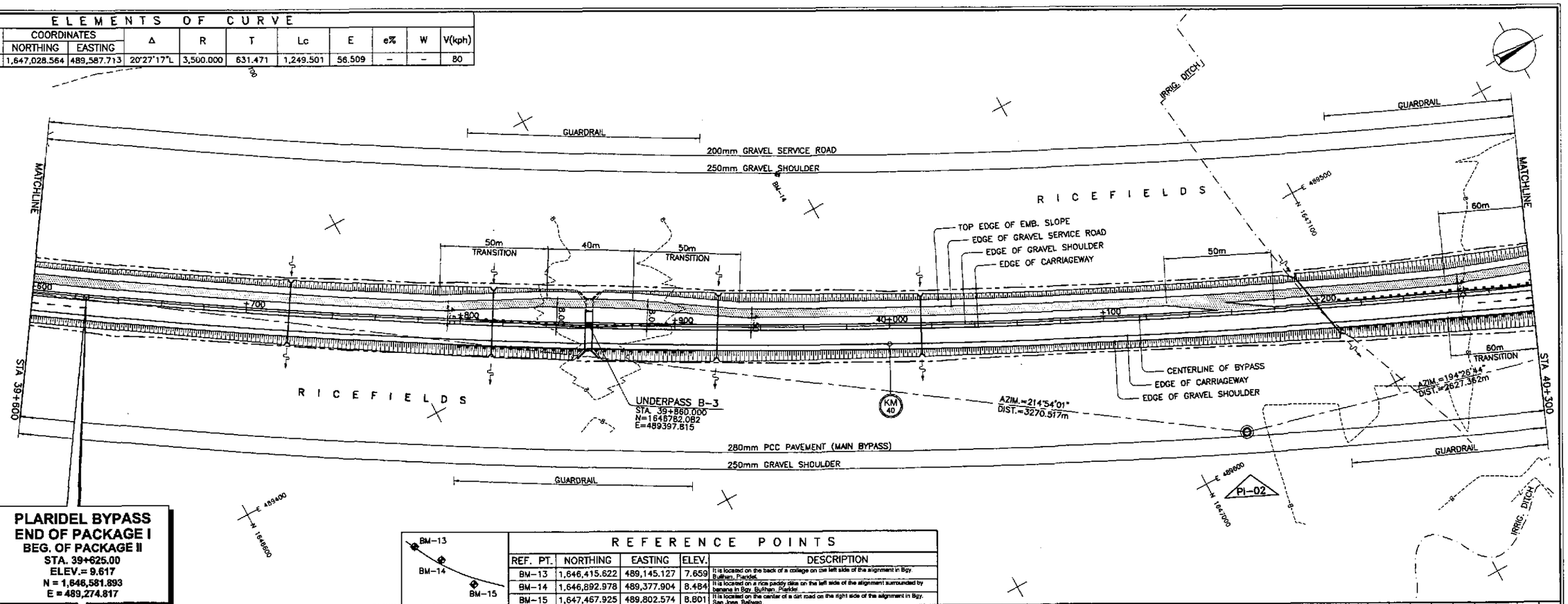
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (INITIAL STAGE)
STA. 38+900 - STA. 39+600

SHEET NO. :
RP-08

ELEMENTS OF CURVE

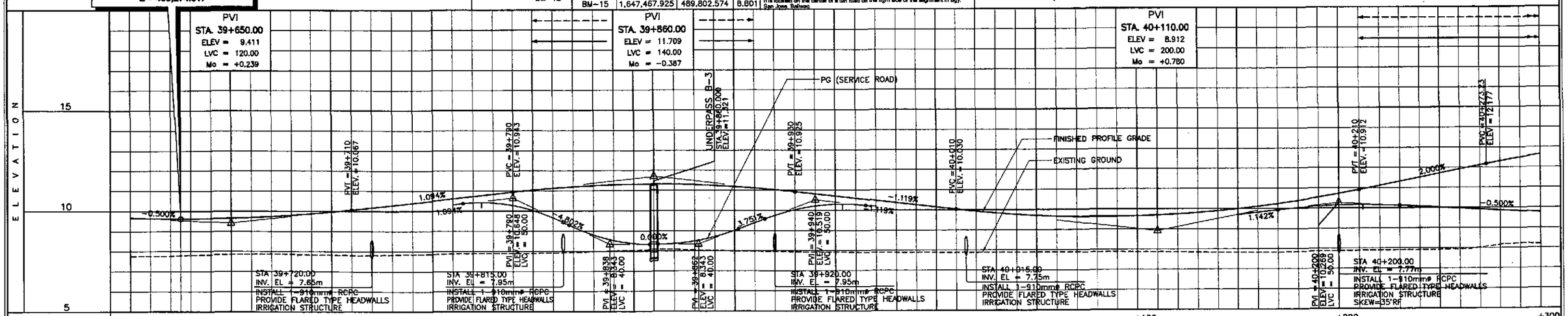
PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-02	40+170.351	1,647,028.564	489,587.713	20°27'17"L	3,500.000	631.471	1,249.501	56.509	–	–	80



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

REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-13	1,646,415.622	489,145.127	7.659	It is located on the back of a college on the left side of the alignment in Bgy. Buliran, Plaridel.
BM-14	1,646,892.978	489,377.904	8.484	It is located on a rice paddy dike on the left side of the alignment surrounded by banana in Bgy. Buliran, Plaridel.
BM-15	1,647,467.925	489.802.574	8.801	It is located on the center of a dirt road on the right side of the alignment in Bgy. San Jose, Baliwag.



STATION	FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	EXISTING GROUND BYPASS
+600	9.668	7.746
	9.621	7.775
	9.617	7.788
+650	9.627	7.823
+700	9.686	7.871
	9.799	7.854
+750	9.865	7.822
	10.177	7.810
+800	10.396	7.842
	10.615	7.874
+850	10.320	
	10.833	7.893
+900	10.406	
	11.044	7.909
+950	10.035	
	11.200	7.942
40+000	9.210	
	11.292	8.010
+050	8.537	
	11.321	8.077
+100	8.343	
	11.287	8.047
+150	8.495	
	11.190	7.995
+200	9.020	
	11.029	7.953
+250	9.756	
	10.814	7.928
+300	10.214	
	10.590	7.805
+350	10.283	
	10.356	7.894
+400	10.142	7.885
	9.926	7.880
+450	9.765	7.880
	9.656	7.880
+500	9.629	7.873
	9.655	7.865
+550	9.743	7.855
	9.894	7.839
+600	10.107	7.823
	9.812	
	10.382	7.843
+650	10.027	
	10.720	7.871
+700	10.145	
	11.112	7.895
+750	10.155	
	11.513	7.911
+800	10.069	
	11.913	7.927
+850	9.969	
	12.308	8.159
+900	9.869	
	12.641	8.195

HORIZONTAL CURVATURE: R = 3500

VERTICAL CURVATURE: L=120, Mo=+0.239; g=1.094%; L=140, Mo=-0.387; g=-1.119%; L=200, Mo=+0.780; g=2.000%

SUPERELEVATION: NC

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

	DATE	SIGNATURE
DESIGNED	9/16/02	A. ACACIO
CHECKED	9/18/02	S. GOCE DOSE
SUBMITTED	9/20/02	M. KURAHASHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

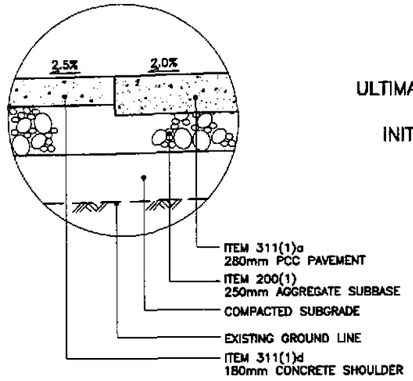
PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

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

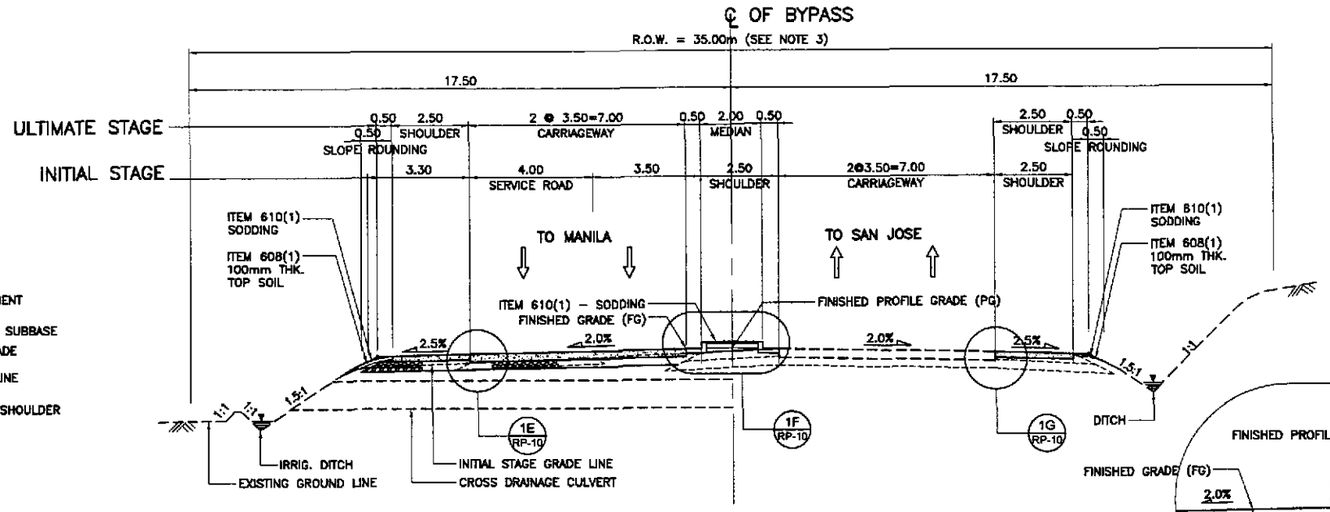
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (INITIAL STAGE)
STA. 39+600 - STA. 39+625

SHEET NO. :
RP-09



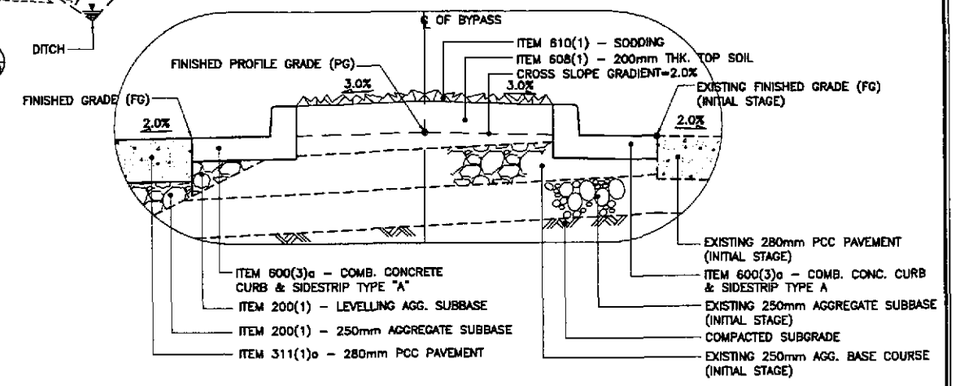
1E RP-10 DETAIL
SCALE 1:20



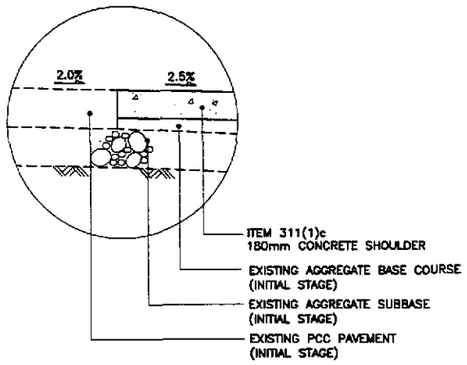
1B RP-10 NORMAL SECTION - ULTIMATE STAGE
SCALE 1:100

NOTES:

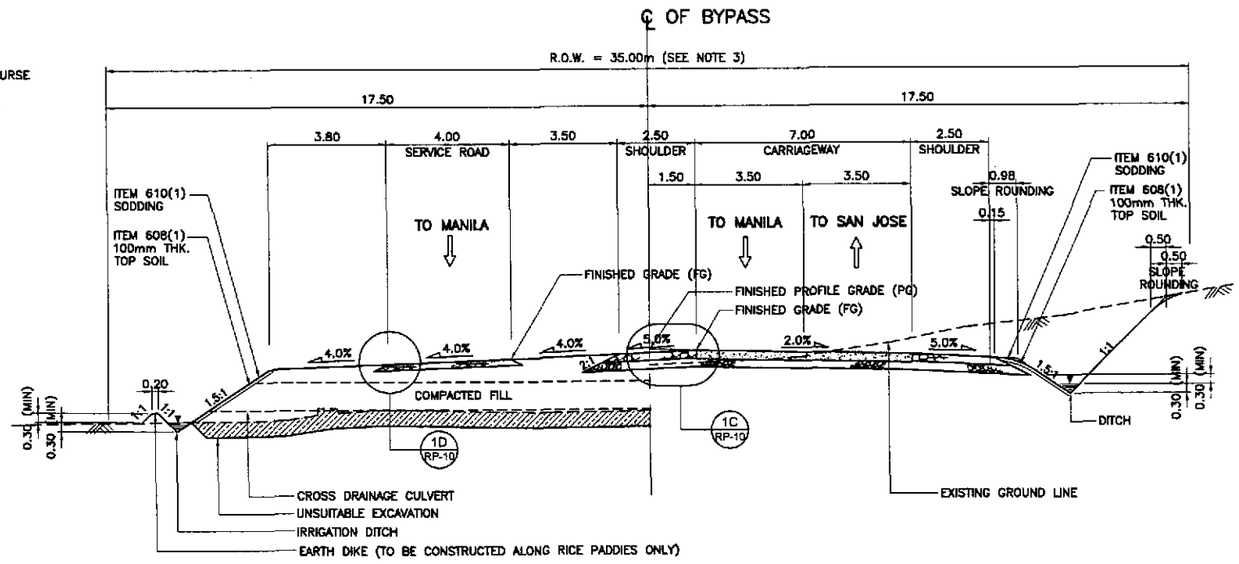
1. FINISHED PROFILE GRADE (PG) ALONG BYPASS IS TAKEN FROM THE CENTERLINE WHEREAS FINISHED GRADE (FG) IS RECKONED FROM THE PROFILE GRADE RELATIVE TO THE PAVEMENT CROSS SLOPE.
2. FOR SCHEDULE OF QUANTITIES, SEE SHEET NOS. RG-04 TO RG-07.
3. ROAD RIGHT-OF-WAY (R.O.W.) WIDTH SHALL BE VARIED DUE TO HORIZONTAL TRANSITION OF SERVICE ROAD, MEDIAN\DIVISIONAL ISLANDS, OUTER SEPERATIONS AND DUE TO HEIGHT OF EMBANKMENT. SEE SCHEDULE OF R.O.W. SHTS. NOS. R6-06-R6-07.
4. SIDESLOPES OF 1:5:1 OR FLATTER SHALL BE PROTECTED BY SODDING. SIDESLOPES ALONG AREAS PRONE TO FLOODING SHALL BE PROTECTED BY GROUTED RIPRAP AT 300mm MINIMUM THICKNESS. SIDESLOPES ALONG BUILT-UP AREAS SHALL BE PROTECTED BY STONE MASONRY AND/OR RETAINING WALLS OR AS DIRECTED BY THE ENGINEER.
5. SEE SHEET NO. RG-04 FOR UNSUITABLE EXCAVATION SCHEDULE.



1F RP-10 DETAIL
SCALE 1:20



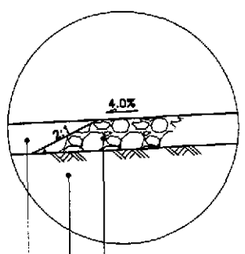
1G RP-10 DETAIL
SCALE 1:20



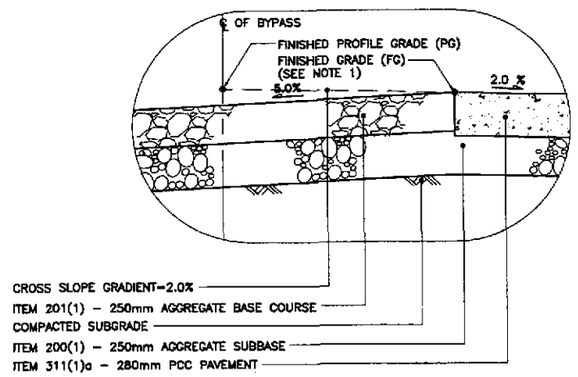
EMBANKMENT SECTION

CUT SECTION

1A RP-10 NORMAL SECTION - INITIAL STAGE
SCALE 1:100



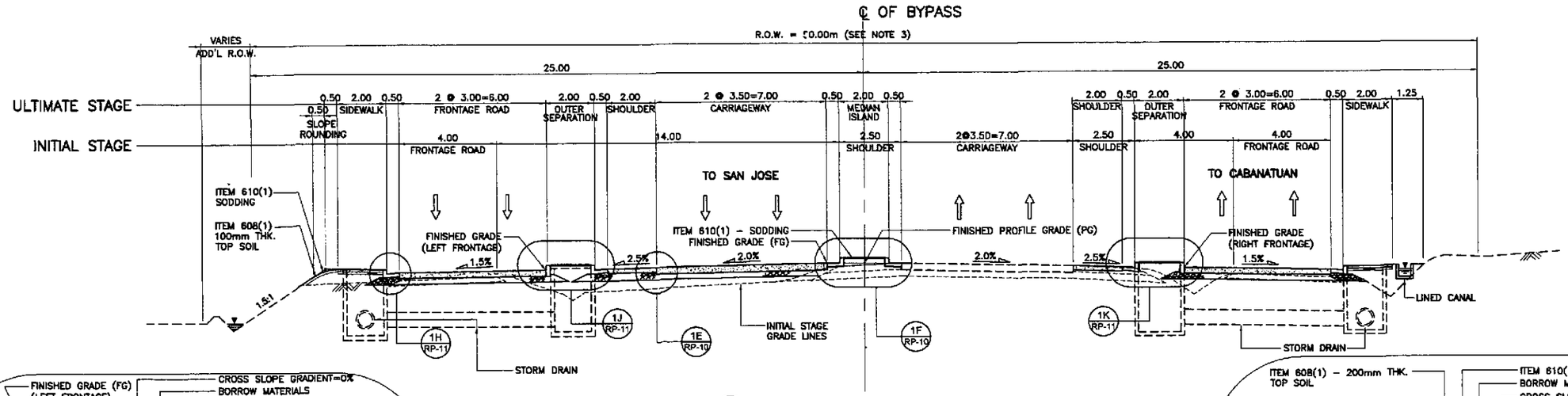
1D RP-10 DETAIL
SCALE 1:20



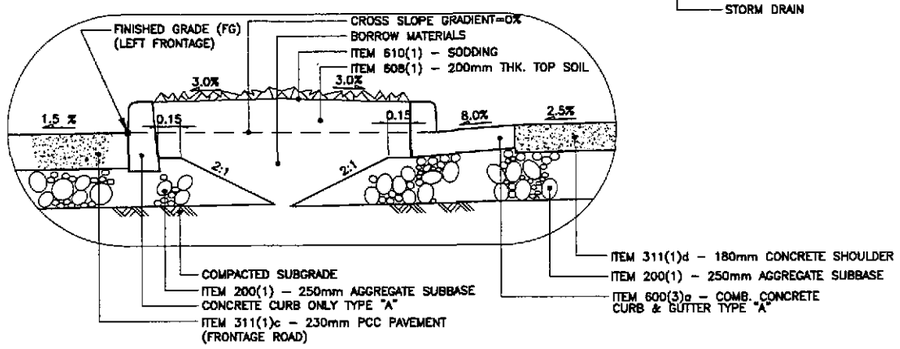
1C RP-10 DETAIL
SCALE 1:20

1 RP-10 TYPICAL ROADWAY SECTIONS - WITHOUT FRONTAGE ROAD
SCALE 1:100

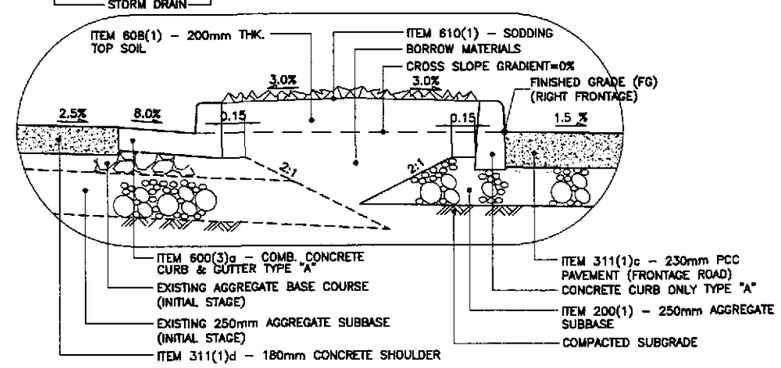
JICA JAPAN INTERNATIONAL COOPERATION AGENCY		DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	SCALE :	SHEET CONTENTS :	SHEET NO. :
KATAHIRA & ENGINEERS INTERNATIONAL / YACHIYO ENGINEERING CO., LTD.	DESIGNED	9/15/00	M. ACACIO	PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY		AS SHOWN	TYPICAL ROADWAY SECTIONS NORMAL SECTIONS WITHOUT FRONTAGE ROAD (INITIAL AND ULTIMATE STAGE) (1 of 4)	RP-10
	CHECKED	9/15/00	S. GOSE	Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)			
	SUBMITTED	9/20/00	H. KUCHI TEAM LEADER	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES DIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary			
								PLARIDEL BYPASS - CONTRACT PACKAGE I	FULL SIZE A1		



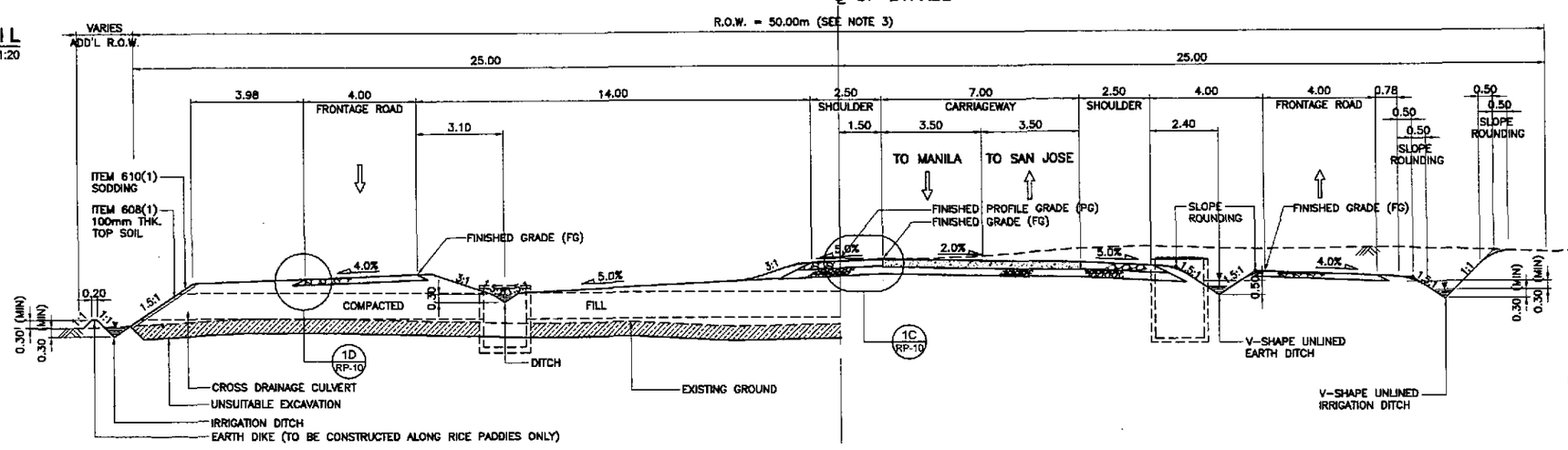
1B RP-11 NORMAL SECTION - ULTIMATE STAGE
SCALE 1:100



1J RP-11 DETAIL
SCALE 1:20



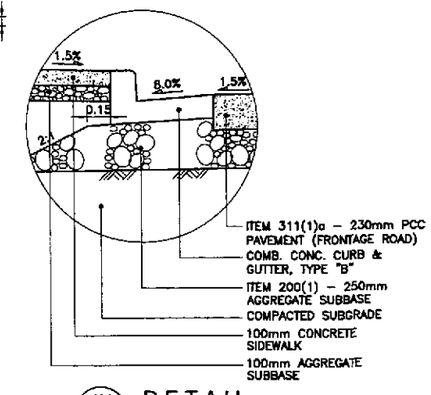
1K RP-11 DETAIL
SCALE 1:20



EMBANKMENT SECTION

CUT SECTION

1A RP-11 NORMAL SECTION - INITIAL STAGE
SCALE 1:100



1H RP-11 DETAIL
SCALE 1:20

NOTES:

1. FINISHED PROFILE GRADE (PG) ALONG BYPASS IS TAKEN FROM THE CENTERLINE WHEREAS FINISHED GRADE (FG) IS RECKONED FROM THE PROFILE GRADE RELATIVE TO THE PAVEMENT CROSS SLOPE.
2. FOR SCHEDULE OF QUANTITIES, SEE SHEET NOS. RG-04 TO RG-07.
3. ROAD RIGHT-OF-WAY (R.O.W.) WIDTH SHALL BE VARIED DUE TO HORIZONTAL TRANSITION OF SERVICE ROAD, MEDIAN/DIVISIONAL ISLANDS, OUTER SEPERATIONS AND DUE TO HEIGHT OF EMBANKMENT. SEE SCHEDULE OF R.O.W. SHTS. NOS. R6-06-R6-07.
4. SIDESLOPES OF 1:5:1 OR FLATTER SHALL BE PROTECTED BY SODDING. SIDESLOPES ALONG AREAS PRONE TO FLOODING SHALL BE PROTECTED BY GROUTED RIPRAP AT 300mm MINIMUM THICKNESS. SIDESLOPES ALONG BUILT-UP AREAS SHALL BE PROTECTED BY STONE MASONRY AND/OR RETAINING WALLS OR AS DIRECTED BY THE ENGINEER.
5. SEE SHEET NO. RG-04 FOR UNSUITABLE EXCAVATION SCHEDULE.

1 RP-11 TYPICAL ROADWAY SECTIONS - WITH FRONTAGE ROAD
SCALE 1:100

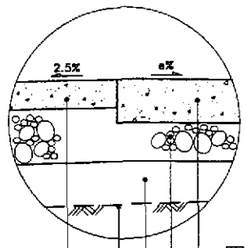
JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/15/02	A. ACACIO
CHECKED	9/15/02	S. GOSE
SUBMITTED	9/15/02	M. KIDERA TEAM LEADER

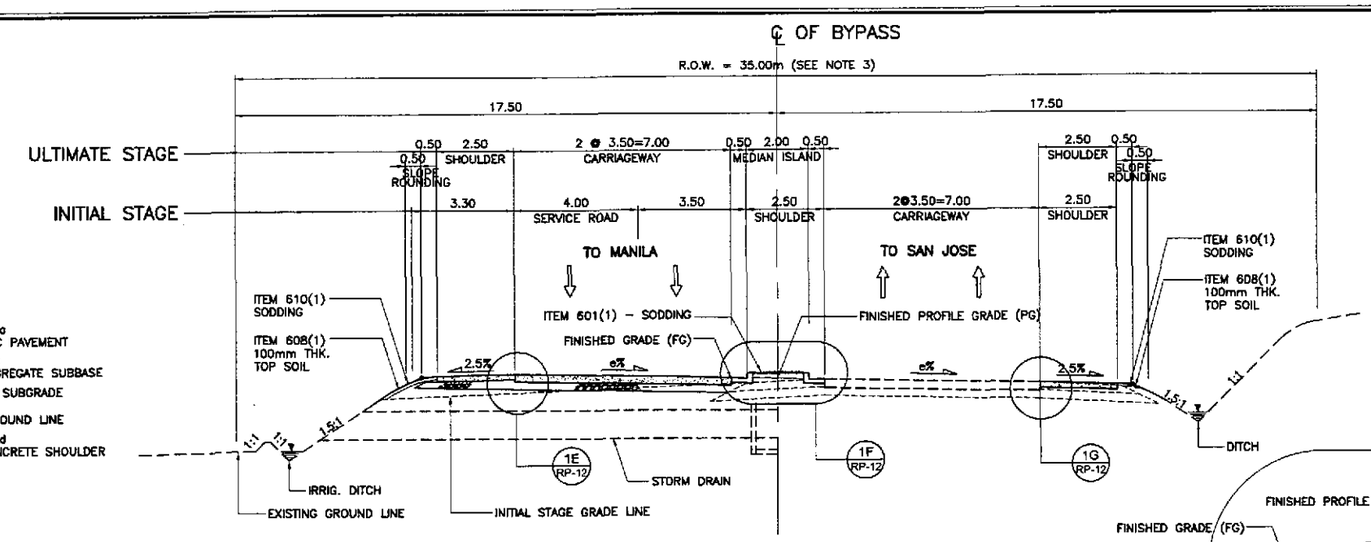
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

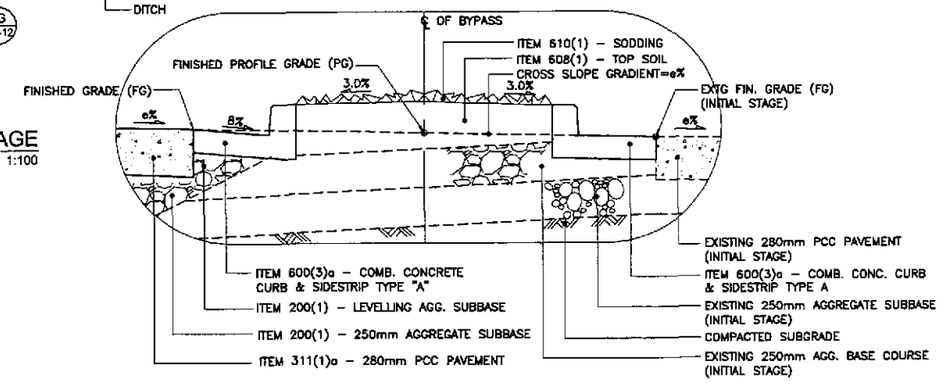
PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	TYPICAL ROADWAY SECTIONS NORMAL SECTIONS WITH FRONTAGE ROAD (INITIAL AND ULTIMATE STAGE) (2 of 4)	RP-11
PLARIDEL BYPASS - CONTRACT PACKAGE I	FULL SIZE A1		



1E / RP-10 DETAIL
SCALE 1:20



1B / RP-12 SUPERELEVATED SECTION - ULTIMATE STAGE
SCALE 1:100



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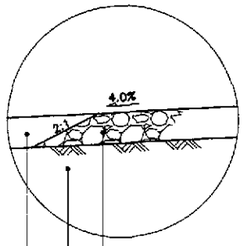
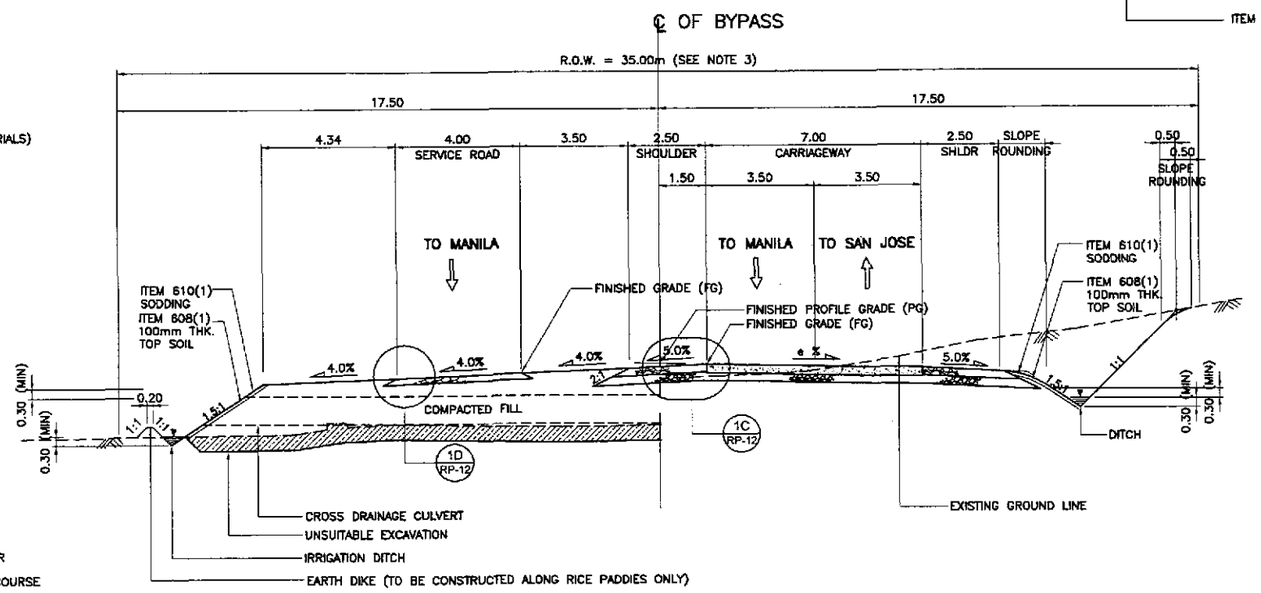


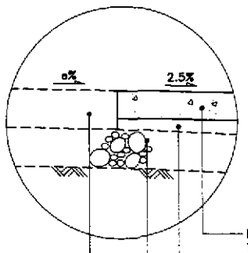
1D / RP-10 DETAIL
SCALE 1:20



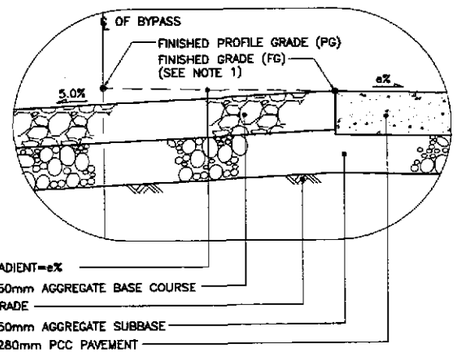
EMBANKMENT SECTION

CUT SECTION

1A / RP-12 SUPERELEVATED SECTION - INITIAL STAGE
SCALE 1:100



1G / RP-10 DETAIL
SCALE 1:20



1C / RP-10 DETAIL
SCALE 1:20

NOTES:

1. FINISHED PROFILE GRADE (PG) ALONG BYPASS IS TAKEN FROM THE CENTERLINE WHEREAS FINISHED GRADE (FG) IS RECKONED FROM THE PROFILE GRADE RELATIVE TO THE PAVEMENT CROSS SLOPE.
2. FOR SCHEDULE OF QUANTITIES, SEE SHEET NOS. RG-04 TO RG-07.
3. ROAD RIGHT-OF-WAY (R.O.W.) WIDTH SHALL BE VARIED DUE TO HORIZONTAL TRANSITION OF SERVICE ROAD, MEDIAN\DIVISIONAL ISLANDS, OUTER SEPERATIONS AND DUE TO HEIGHT OF EMBANKMENT. SEE SCHEDULE OF R.O.W. SHTS. NOS. R6-06-R6-07.
4. SIDESLOPES OF 1:5:1 OR FLATTER SHALL BE PROTECTED BY SODDING. SIDESLOPES ALONG AREAS PRONE TO FLOODING SHALL BE PROTECTED BY GROUTED RIPRAP AT 300mm MINIMUM THICKNESS. SIDESLOPES ALONG BUILT-UP AREAS SHALL BE PROTECTED BY STONE MASONRY AND/OR RETAINING WALLS OR AS DIRECTED BY THE ENGINEER.
5. SEE SHEET NO. RG-04 FOR UNSUITABLE EXCAVATION SCHEDULE.

1 / RP-12 TYPICAL ROADWAY SECTIONS - WITHOUT FRONTAGE ROAD
SCALE 1:100

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

	DATE	SIGNATURE
DESIGNED	7/14/02	ACACIO
CHECKED	7/18/02	GOSE
SUBMITTED	7/20/02	M. KIUCHI (TEAM LEADER)

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

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Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
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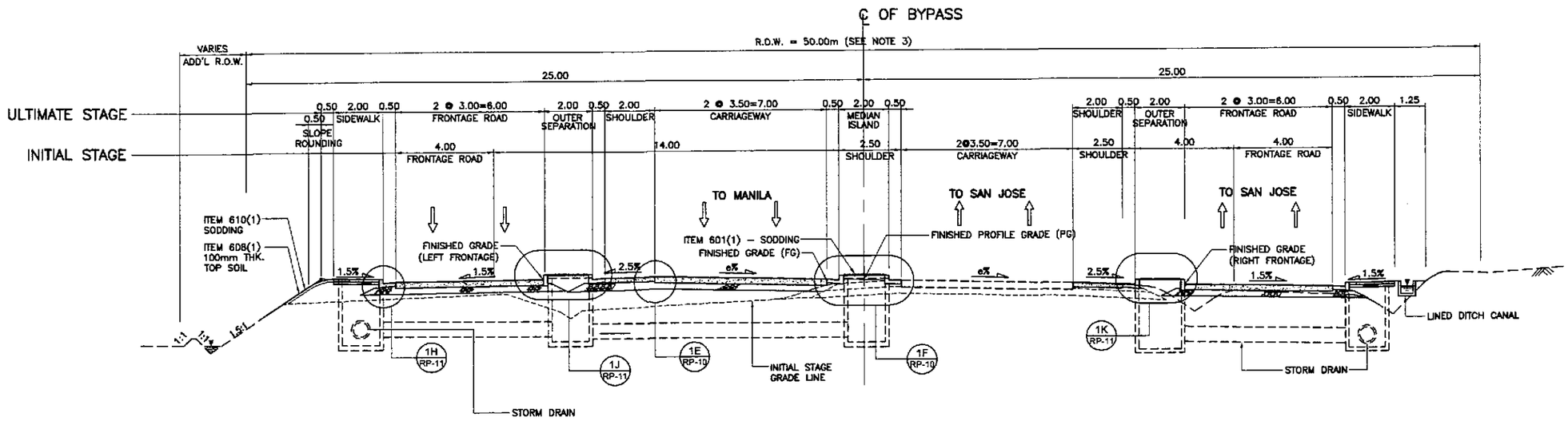
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

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

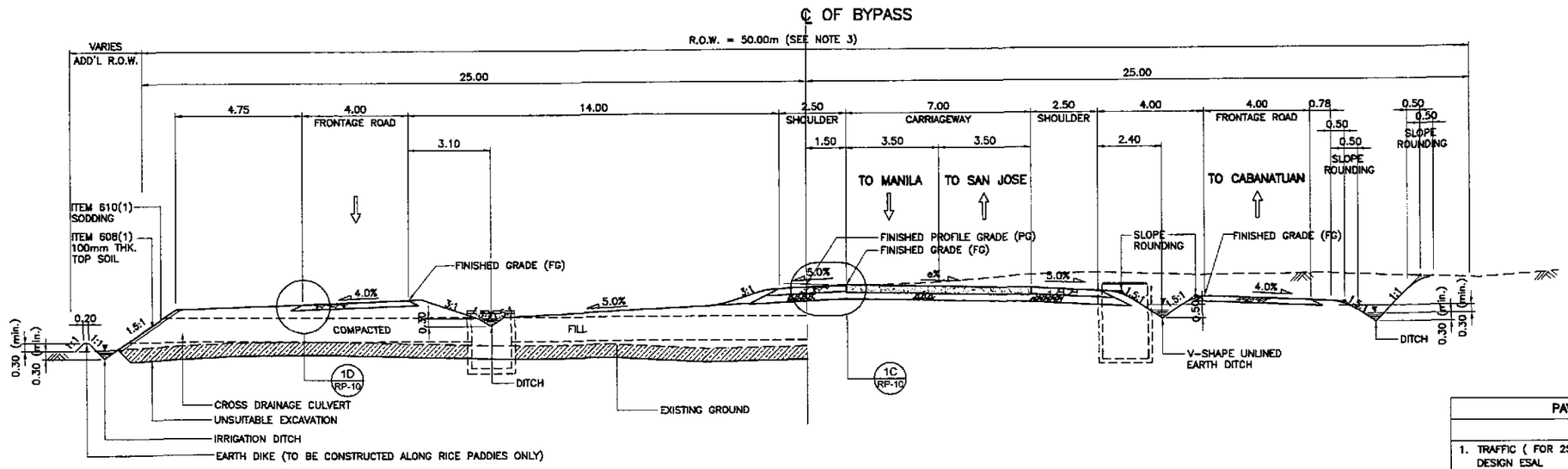
SCALE : AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
TYPICAL ROADWAY SECTIONS
SUPERELEVATED SECTIONS WITHOUT FRONTAGE ROAD (INITIAL AND ULTIMATE STAGE)
(3 of 4)

SHEET NO. : RP-12



1B / RP-13 SUPERELEVATED SECTION - ULTIMATE STAGE
SCALE 1:100



EMBANKMENT SECTION

CUT SECTION

1A / RP-13 SUPERELEVATED SECTION - INITIAL STAGE
SCALE 1:100

1 / RP-13 TYPICAL ROADWAY SECTIONS - WITH FRONTAGE ROAD
SCALE 1:100

NOTES:

1. FINISHED PROFILE GRADE (PG) ALONG BYPASS IS TAKEN FROM THE CENTERLINE WHEREAS FINISHED GRADE (FG) IS RECKONED FROM THE PROFILE GRADE RELATIVE TO THE PAVEMENT CROSS SLOPE.
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5. SEE SHEET NO. RG–04 FOR UNSUITABLE EXCAVATION SCHEDULE.

PAVEMENT DESIGN PARAMETERS	
	BEFORE ANGAT BRIDGE
1. TRAFFIC (FOR 25 YEARS DESIGN LIFE) DESIGN ESAL	4.40×10^6
2. DESIGN CBR SUBGRADE CBR	5.00 %
3. ROADBED RESILIENT MODULUS M_R	5,500 psi = 37.92 MPa
E_{SB}	13,000 psi = 89.64 MPa
E_{BS}	23,000 psi = 158.58 MPa
4. PERFORAMNCE CRITERIA Δ PSI	2
5. DESIGN RELIABILITY Z_R	50 %
S_O	0.35
6. DRAINAGE COEFFICIENT RIGID	1
7. LAYER COEFFICIENT a_1 (FOR AC)	0.39
a_2 (FOR BASE)	0.105
a_3 (FOR SUBBASE)	0.095
8. PAVEMENT CONSTRUCTION THIKNESS PCCP	280mm THK
SUBBASE	250mm THK

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

	DATE	SIGNATURE
DESIGNED	9/12/02	ACADIO
CHECKED	9/12/02	G. GOSE
SUBMITTED	9/20/02	K. KUNUCHI TEAM LEADER

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PLARIDEL BYPASS - CONTRACT PACKAGE I

SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
TYPICAL ROADWAY SECTIONS
SUPERELEVATED SECTIONS WITH FRONTAGE ROAD (INITIAL AND ULTIMATE STAGE)
(4 of 4)

SHEET NO. :
RP-13