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 II

(ULTIMATE STAGE)
STA. 39+625.000 TO STA. 47+400.000

December 2002

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD

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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 II

(ULTIMATE STAGE)

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

	DATE	SIGNATURE
DESIGNED	9/21/02	A. ACACIO
CHECKED	9/25/02	S. GOSE
SUBMITTED	9/27/02	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 :	SCALE :	SHEET CONTENTS :	SHEET NO. :
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INDEX OF DRAWINGS

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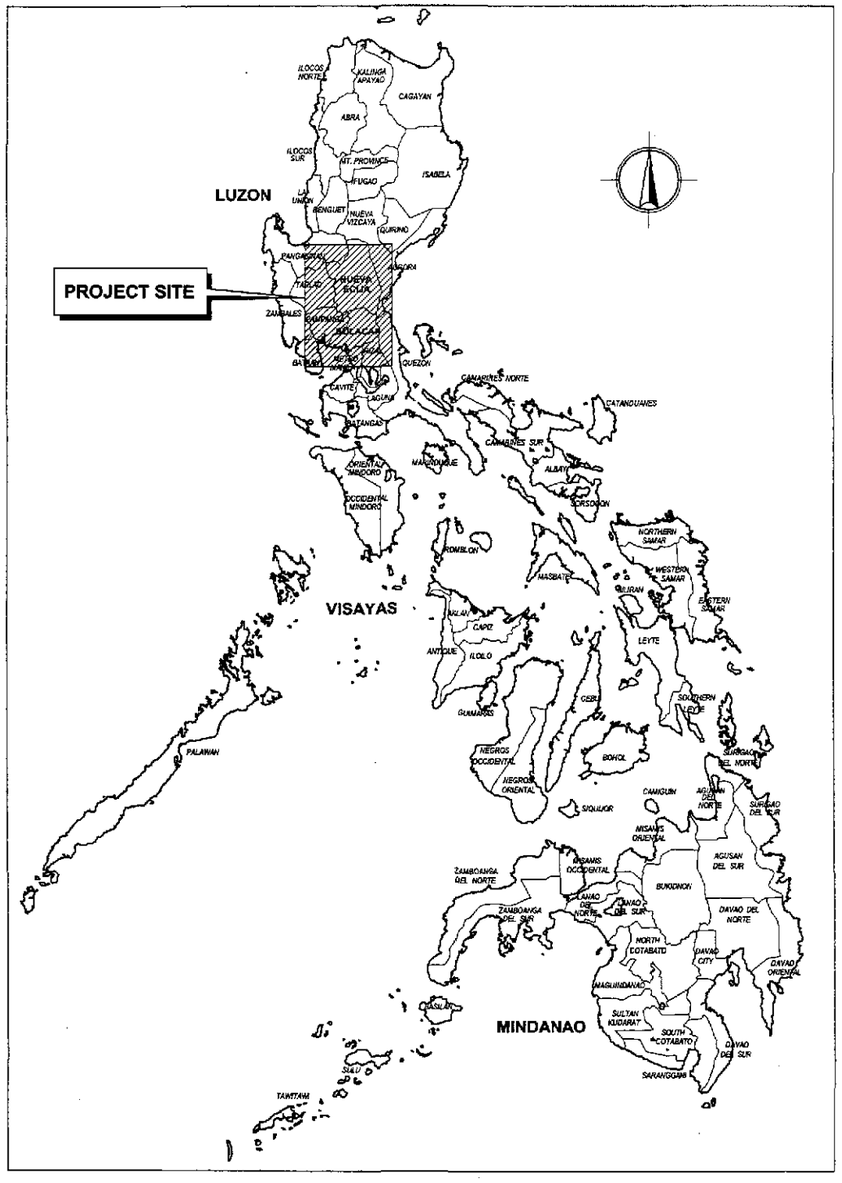

2 / GP-03 KEY MAP
NOT TO SCALE

1 / GP-03 VICINITY MAP
NOT TO SCALE

JICA JAPAN INTERNATIONAL COOPERATION AGENCY KEI KATAHIRA & ENGINEERS INTERNATIONAL yec YACHIYO ENGINEERING CO., LTD.		DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	DESIGNED	9/21/02	A. ACACIO	PJHL - PMO	BUREAU OF DESIGN	OFFICE OF THE SECRETARY	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	NOT TO SCALE	KEY AND VICINITY MAP	GP-03
	CHECKED	9/25/02	S. GOSE	Submitted By:	Reviewed By: / Recommended By:	Recommended By: (See cover sheet for Signature) / Approved By: (See cover sheet for Signature/Approval)	PLARIDEL BYPASS - CONTRACT PACKAGE II	FULL SIZE A1		
	SUBMITTED	9/25/02	TEAM LEADER	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				

LEGEND AND SYMBOLS

EXISTING FEATURES

ROAD	BARANGAY ROAD
CONTOUR	
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	
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	E490,000 / 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	182+000
LINED IRRIG. CANAL	
CHAIN LINK FENCE	
SODDING ON PLAN	
LOW TREES	
MIDDLE TREE	
HIGH TREE	

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JAPAN INTERNATIONAL COOPERATION AGENCY

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YEC YACHIYO ENGINEERING CO., LTD.

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SUBMITTED	9/27/02	M. KAUCHI, TEAM LEADER

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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
∟	ANGLE SHAPE

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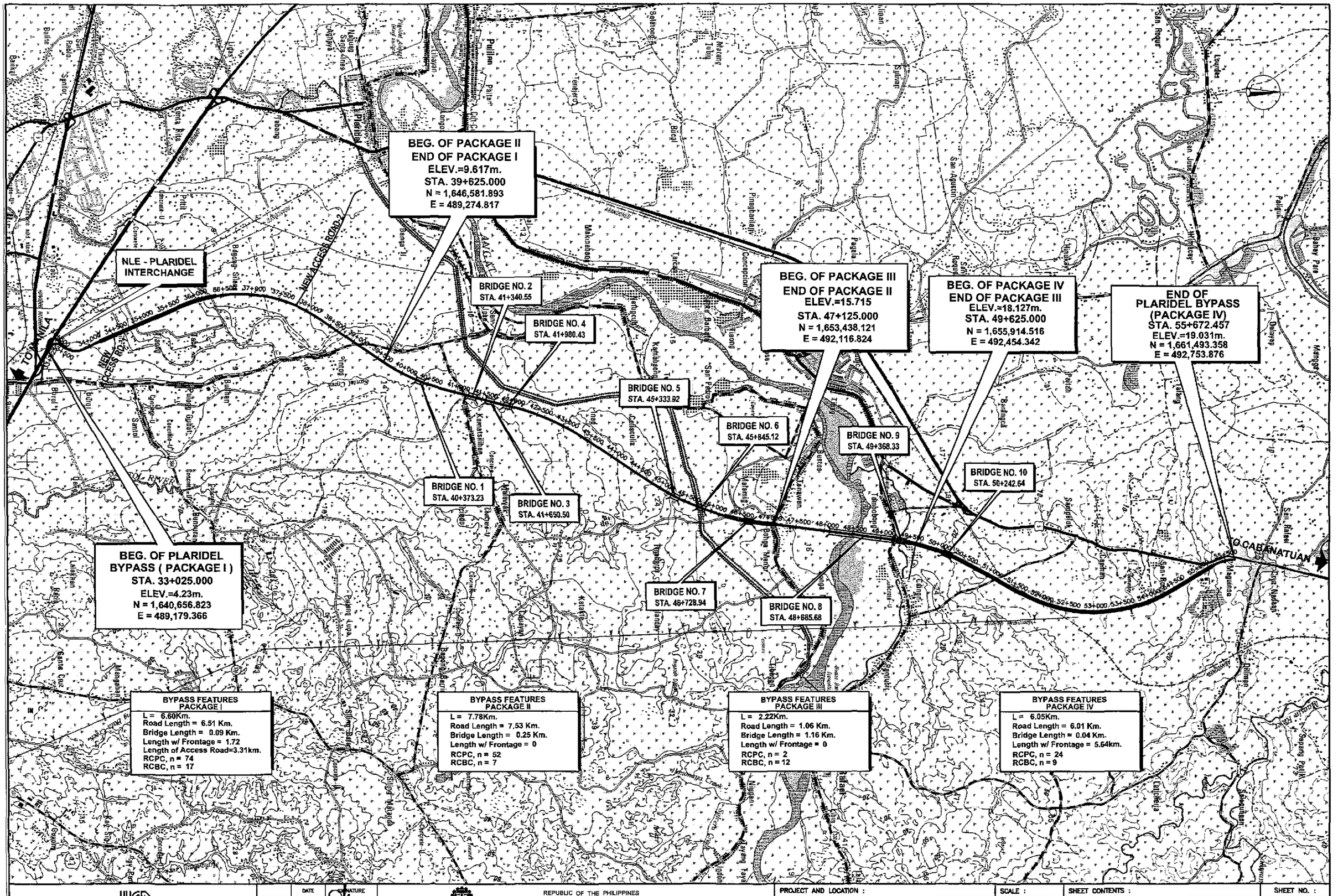
PLARIDEL BYPASS - CONTRACT PACKAGE II	FULL SIZE A1		



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PLARIDEL BYPASS - CONTRACT PACKAGE II

SCALE : 1:30,000 FULL SIZE A1

SHEET CONTENTS : PROJECT ROAD GENERAL ALIGNMENT & FEATURES

SHEET NO. : GP-06

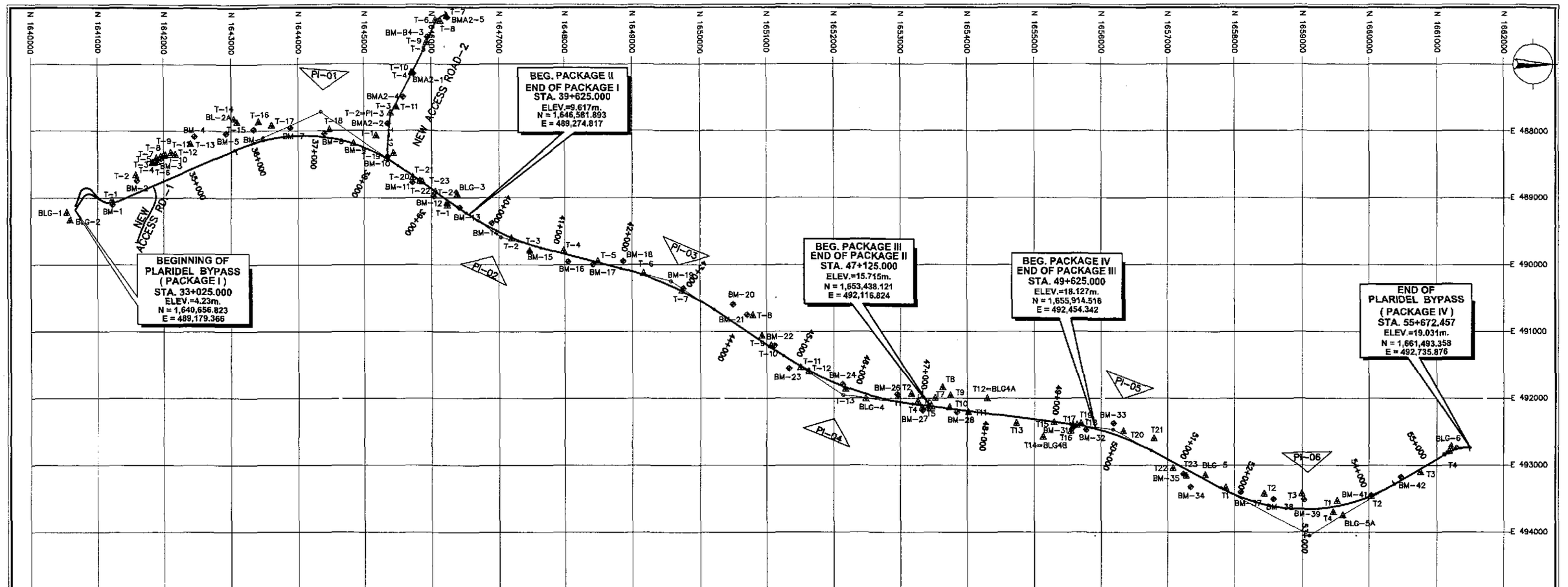


TABLE OF HORIZONTAL AND VERTICAL CONTROL

CONTROL POINT	COORDINATES NORTHING	COORDINATES EASTING	ELEV.	REMARKS
BM-1	1,641,232.841	488,100.464	3.537	It is loc. on a rice paddy int. on left of the alignment in Bgy. Buno/ 2, Guiguinto, Bulacan. It is 20m. from end of dirt rd
BM-2	1,641,598.396	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	1,642,929.376	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	1,643,338.596	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	8.602	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	1,646,032.376	488,978.695	8.413	It is loc. on the side of the provl 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	1,646,892.878	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	488,953.321	10.601	It is loc. on the int. of the bgy. road & the provl road on the left side of the align. in Bgy. San Jose, Baliwag.
BM-17	1,648,424.838	488,994.453	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	488,943.559	10.205	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	490,746.296	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	1,651,121.788	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	1,655,556.301	492,461.715	17.903	It is loc. on the side of the provl 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	COORDINATES EASTING	ELEV.	REMARKS
BM-33	1,656,188.911	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	19.835	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 align. in San 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	493,451.989	28.660	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 the rice paddy dike on the right side of the alignment in San Rafael, Bulacan.
BM A2-1	1,646,237.686	486,306.250	5.524	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	1,645,946.651	486,593.542	8.120	It is located on side of concrete mad bet. two guavas 70m. from end of conc. wall of Oratex Comp. Plaridel
BM A2-3	1,645,739.141	487,142.836	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 Bgy. Bulihan, Plaridel.

TABLE OF GPS STATION POINTS

CONTROL POINT	COORDINATES NORTHING	COORDINATES EASTING	ELEV.	REMARKS
BLG-1	1,640,536.729	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	10.835	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 BM 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	8.645	Loc. In Bgy. Malaas, 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	15.125	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	29.885	Loc. in Bgy. San Roque, Hulo, San Rafael, Bulacan. It is embedded on this paddy dike 20 m. from the dirt road centerline.

TABLE OF TRAVERSE STATION POINTS

CONTROL POINT	COORDINATES NORTHING	COORDINATES EASTING	ELEV.
T-1	1,641,225.254	489,045.710	3.360
T-2	1,641,583.179	488,669.897	4.030
T-3	1,641,830.464	488,477.696	4.930
T-4	1,641,639.683	488,483.095	5.050
T-5	1,641,867.816	488,474.488	5.120
T-6	1,641,901.421	488,483.383	5.380
T-7	1,641,892.445	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	1,642,029.410	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	1,642,403.661	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	7.960
T-22	1,645,865.037	488,769.278	8.350
T-23	1,646,058.318	486,913.983	8.080
T-24	1,646,234.573	489,061.303	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	489,951.673	10.950

TABLE OF TRAVERSE STATION POINTS

CONTROL POINT	COORDINATES NORTHING	COORDINATES 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	491,665.395	15.670
T1	1,652,963.172	491,975.051	17.150
T2	1,653,166.711	491,937.097	18.340
T3	1,653,264.574	492,049.167	18.440
T4	1,653,327.487	492,142.734	18.240
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	1,653,739.630	494,141.877	14.840
T11	1,654,020.437	492,214.607	14.240
T13	1,654,737.523	492,379.170	11.500
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	492,498.260	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	COORDINATES EASTING	ELEV.
T1	1,657,875.550	493,344.584	25.030
T2	1,658,442.470	493,433.175	25.310
T3	1,658,998.440	493,432.436	25.400
T4	1,659,478.800	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	1,660,784.170	493,109.355	12.960
T4	1,681,191.210	492,796.889	13.460
T-1	1,645,182.514	488,080.020	6.740
T-2=PI-3	1,645,392.698	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	7.480
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	486,360.508	7.750
T-9	1,645,982.065	486,855.036	6.280
T-10	1,645,718.320	487,138.070	7.500
T-11	1,645,478.867	487,551.111	6.940
T-12	1,645,434.836	488,340.248	7.050

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/21/02	A. ACACIO
CHECKED	9/25/02	S. GOSE
SUBMITTED	9/27/02	M. MUCHA 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 II

SCALE : 1:30,000 FULL SIZE A1

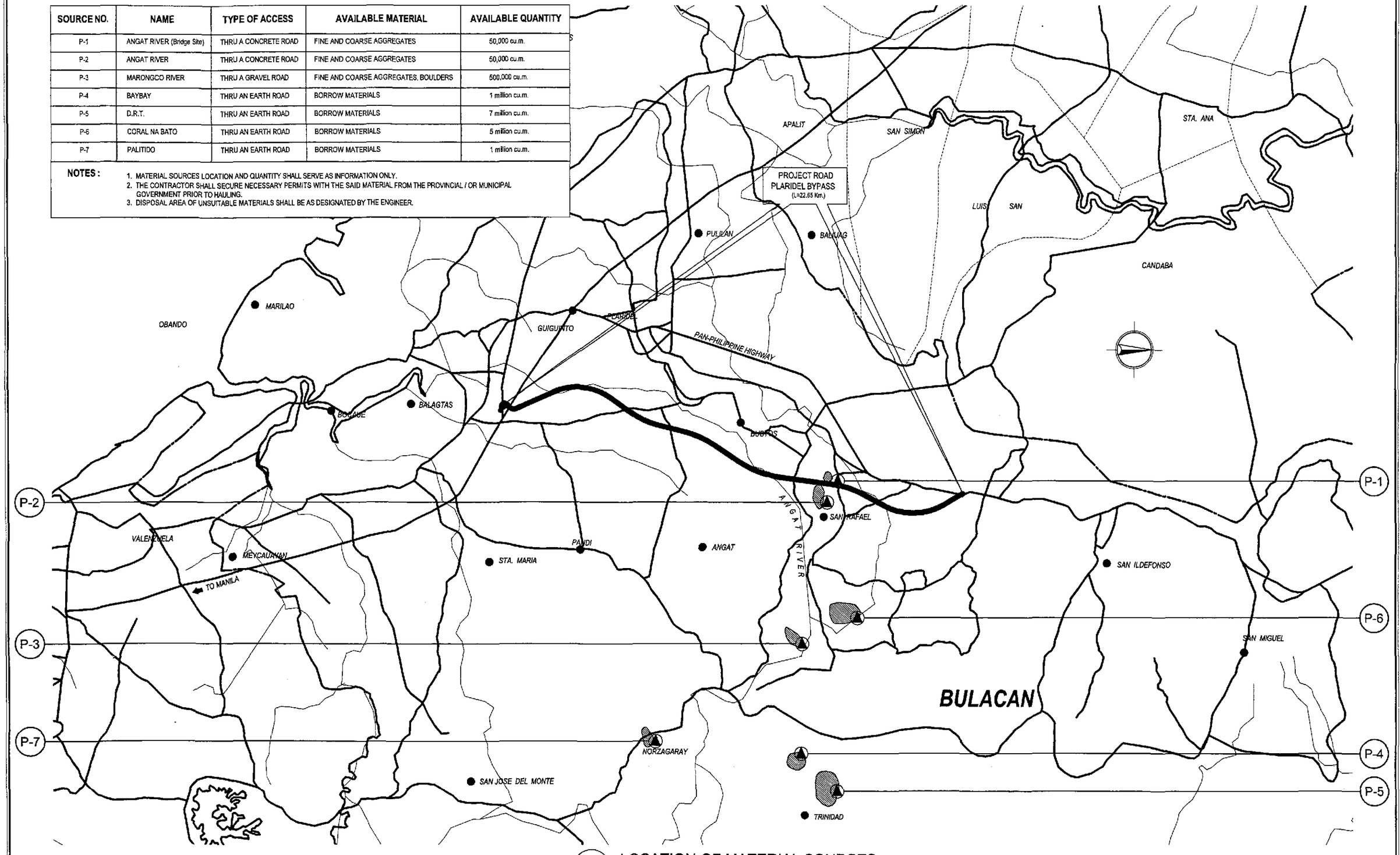
SHEET CONTENTS :
HORIZONTAL AND VERTICAL CONTROL MONUMENT

SHEET NO. : GP-07

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-08 LOCATION OF MATERIAL SOURCES
SCALE AS SHOWN

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/21/02	N. ACACIO
CHECKED	9/27/02	S. JOSE
SUBMITTED	9/27/02	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 :	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)	1:80,000	LOCATION OF MATERIAL SOURCES	GP-08
PLARIDEL BYPASS - CONTRACT PACKAGE II	FULL SIZE A1		

SUMMARY OF QUANTITIES
(ULTIMATE STAGE)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY																		
			BYPASS	A-8	A-9	B-4	A-10	A-11	A-12	A-13	A-14	A-15	A-16	BRIDGE #1	BRIDGE #2	BRIDGE #3	BRIDGE #4	BRIDGE #5	BRIDGE #6	BRIDGE #7	TOTAL
PART C - EARTHWORKS																					
100(1)	Clearing and Grubbing	ha	7.94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.00
100(1)	Removal of Existing structures and Obstructions	L.S.	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00
101(3)a	Removal of Existing PCC Pavement	m2	3,285.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,286.00
101(5)b	Relocation of Existing Guardrails	m	1,882.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,882.00
101(7)	Removal of Existing Slope Protection	m3	-	-	-	-	-	-	-	-	-	-	-	71.00	88.00	62.00	76.00	83.00	58.00	71.00	509.00
101(8)	Removal of Existing Slope Protection (Hand-laid Rock)	m3	-	-	-	-	-	-	-	-	-	-	-	41.00	44.00	-	40.00	44.00	-	41.00	210.00
101(11	Removal of Existing Combination Concrete Curb & Gutter/Side Strip	m	1,166.45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,167.00
101(12)	Relocation of Existing Road Signs	each	22.00	-	2.00	-	1.00	-	-	-	-	1.00	2.00	-	-	-	-	-	-	-	28.00
101(13)	Removal of Existing Road Signs	each	9.00	-	-	-	3.00	-	-	-	-	1.00	-	-	-	-	-	-	-	-	13.00
103(1)	Structure Excavation	m3	274.53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	275.00
103(2)a	Bridge Excavation above OWL (Common Soil)	m3	-	-	-	-	-	-	-	-	-	-	-	314.00	276.00	254.00	209.00	296.00	320.00	261.00	1,929.00
103(2)c	Bridge Excavation below OWL (Common Soil)	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	199.00	199.00
103(3)a	Gravel Foundation Fill	m3	33.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34.00
104(1)	Embankment from Roadway Excavation	m3	10,971.25	-	-	-	410.75	-	687.18	-	-	-	-	-	-	-	-	-	-	-	12,070.00
104(3)	Embankment from Borrow Pit	m3	42,059.49	-	-	-	-	-	-	-	-	-	-	587.00	798.00	474.00	591.00	1,025.00	377.00	908.00	46,820.00
104(4)	Embankment from Borrow (Selected Granular Material) for Bridge	m3	-	-	-	-	-	-	-	-	-	-	-	522.00	568.00	452.00	539.00	621.00	452.00	474.00	3,628.00
105(1)	Subgrade Preparation (Common Soil)	m2	56,282.79	-	-	-	1,262.32	-	2,446.60	-	-	-	-	-	-	-	-	-	-	-	59,992.00
PART D - BASE AND SUBBASE COURSE																					
200(1)	Aggregate Subbase Course	m3	7,775.74	-	-	-	309.78	-	600.41	-	-	-	-	30.00	30.00	30.00	30.00	30.00	30.00	30.00	8,895.00
PART E - SURFACE COURSES																					
300(1)	Gravel Surface Course	m3	53.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54.00
311(1)a	PCC Pavement (Plain), t=280mm	m2	62,878.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62,879.00
311(1)c	PCC Pavement (Plain), t=230mm	m2	-	-	-	-	748.38	-	1,450.51	-	-	-	-	-	-	-	-	-	-	-	2,199.00
311(1)d	PCC Pavement (Plain), t=180mm	m2	37,534.43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37,535.00
311(2)	PCC Pavement (Reinforced) t=300mm Approach Slab	m2	308.87	-	-	-	-	-	-	-	-	-	-	118.00	120.00	120.00	118.00	120.00	120.00	120.00	1,145.00
PART F - BRIDGE CONSTRUCTION																					
400(4)a	Precast Concrete Piles (400mmx400mm), furnished	m	-	-	-	-	-	-	-	-	-	-	-							985.00	985.00
400(4)b	Precast Concrete Piles (450mmx450mm), furnished	m	-	-	-	-	-	-	-	-	-	-	-	528.00	567.00	426.00	575.00	828.00	715.00		3,639.00
400(13)a	Precast Concrete Piles (400mmx400mm), driven	m	-	-	-	-	-	-	-	-	-	-	-							879.00	879.00
400(13)b	Precast Concrete Piles (450mmx450mm), driven	m	-	-	-	-	-	-	-	-	-	-	-	456.00	493.00	368.00	513.00	754.00	650.00		3,234.00
400(15)a	Test Piles (Concrete Pile 400mmx400mm), furnished & driven	m	-	-	-	-	-	-	-	-	-	-	-							55.00	55.00
400(15)b	Test Piles (Concrete Pile 450mmx450mm), furnished & driven	m	-	-	-	-	-	-	-	-	-	-	-	22.50	23.50	22.50	27.50	32.50	31.50		160.00
400(19)a	Pile shoes for 400mmx400mm Piles	each	-	-	-	-	-	-	-	-	-	-	-							87.00	87.00
400(19)b	Pile shoes for 450mmx450mm Piles	each	-	-	-	-	-	-	-	-	-	-	-	59.00	60.00	48.00	51.00	60.00	54.00		332.00
401(1)a	Concrete Railing Type A (Concrete Posts and Precast Beams)	m	-	-	-	-	-	-	-	-	-	-	-	70.00	67.00	60.00	48.00	67.00	80.00	90.00	482.00
404(1)	Reinforcing Steel (Grade 40)	kg												25,718.00	25,063.00	23,026.00	19,472.00	25,309.00	27,189.00	33,225.00	179,002.00
404(2)	Reinforcing Steel (Grade 60)	kg	33,247.00											20,971.00	20,854.00	17,173.00	18,654.00	24,652.00	17,360.00	59,158.00	212,069.00
405(1)a	Structural Concrete Class A (fc'=21MPa, max. aggregate 38mm) for heavily reinforced structures	m3	356.70																		357.00

JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/1/12	
CHECKED	9/25/12	
SUBMITTED	9/27/12	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 :	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 II	NOT TO SCALE FULL SIZE A1	SUMMARY OF QUANTITIES (ULTIMATE STAGE) (1 of 2)	GP-09

SUMMARY OF QUANTITIES
(ULTIMATE STAGE)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY																	
			BYPASS	A-8	A-9	B-4	A-10	A-11	A-12	A-13	A-14	A-15	A-16	BRIDGE #1	BRIDGE #2	BRIDGE #3	BRIDGE #4	BRIDGE #5	BRIDGE #6	BRIDGE #7	TOTAL
405(1)b	Structural Concrete Class A (fc'=21MPa, max. aggregate 38mm) for small & medium bridges substructures	m3	-	-	-	-	-	-	-	-	-	-	-	324.00	344.00	272.00	291.00	366.00	274.00	435.00	2,303.00
405(1)c	Structural Concrete Class A (fc'=21MPa, max. aggregate 20mm) for small & medium bridges substructures	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	222.00	222.00
405(1)d	Structural Concrete Class A1 (fc'=21MPa, max. aggregate 20mm) for small & medium bridges PCDG superstructures	m3	-	-	-	-	-	-	-	-	-	-	-	118.00	111.00	99.00	78.00	111.00	134.00	-	651.00
405(3)	Structural Concrete Class C (fc'=21MPa, max. aggregate 12mm) for thin reinforced members	m3	-	-	-	-	-	-	-	-	-	-	-	15.00	23.00	21.00	19.00	23.00	27.00	28.00	156.00
405(6)	Lean Concrete (fc'=17MPa, max. aggregate 38mm)	m3	18.16											44.00	45.00	14.00	42.00	16.00	14.00	21.00	216.00
406(1)c	Precast Prestressed Structural Concrete Member (AASHTO Girder Type IV, L=24m)	each															5.00				5.00
406(1)e	Precast Prestressed Structural Concrete Member (AASHTO Girder Type IV-B, L=30m)	each														5.00					5.00
406(1)i	Precast Prestressed Structural Concrete Member (AASHTO Girder Type V, L=33.5m)	each													5.00			5.00			10.00
406(1)j	Precast Prestressed Structural Concrete Member (AASHTO Girder Type VI, L=35m)	each												5.00							5.00
406(1)n	Precast Prestressed Structural Concrete Member (AASHTO Girder Type VI modified L=40m)	each		-															5.00		5.00
407(1)a	Elastomeric Bearing Pad, Duro 60 (400x300x50mm)	each																		10.00	10.00
407(1)c	Elastomeric Bearing Pad, Duro 60 (600x350x50mm)	each												10.00	10.00	10.00	10.00	10.00	10.00		60.00
407(2)a	Expansion Joint, (+40mm Movement)	m												20.00	20.00	20.00	20.00	20.00	20.00	20.00	140.00
407(2)g	Expansion Joint, 30mm for bridge sidewalk	m												4.00	4.00	4.00	4.00	4.00	4.00	4.00	28.00
407(4)	G.I. Drain Pipe Ø 150mm for Bridge Drainage	m												3.00	3.00	3.00	3.00	3.00	4.00	4.00	23.00
PART G - DRAINAGE AND SLOPE PROTECTION STRUCTURES																					
504(5)	Grouted Riprap Class A	m3	172.91											43.00	41.00	142.00	36.00	198.00	122.00	171.00	926.00
506(1)	Hand Laid Rock Apron (Loose Boulder Apron)	m3												85.00	88.00		85.00	91.00		84.00	433.00
507(2)b	Steel Sheet Piles (400x85x8mm), furnished & driven	m															609.00				609.00
510(1)	Rubble Concrete Slope Protection	m3												85.00	104.00		91.00				280.00
PART H - MISCELLANEOUS STRUCTURES																					
600(3)a	Combination Concrete Curb & Gutter/Side Strip, Type A (675x364mm)	m	14,645.91	-	124.49	-	-	-	-	-	-	-	57.78	-	-	-	-	-	-	-	14,829.00
605(1)a	Warning Signs (Triangular 900mm)	each	12.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.00
605(2)a	Regulatory Signs (Triangular 1039mm)	each	4.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.00
605(2)c	Regulatory Signs (Circular 6600mm)	each	6.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.00
605(2)d	Regulatory Signs (Rectangular 450x750mm)	each	6.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.00
608(1)	Furnishing and Placing Top Soil	m3	2,619.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,620.00
610(1)	Sodding	m2	26,197.63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,198.00
611(1)a	Trees (Furnishing and Transplanting) Low Tree H < 1.5m	each	57,666.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57,666.00
611(1)b	Trees (Furnishing and Transplanting) Medium Tree 1.5m < H < 3.0m	each	1,681.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,681.00
611(1)c	Trees (Furnishing and Transplanting) High Tree (Young Tree) 1.5m < H < 3.0m	each	57.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57.00
612(1)a	Reflectorized Thermoplastic Pavement Markings (White)	m2	2,925.45	-	46.31	-	44.83	-	37.80	-	-	46.20	52.37	-	-	-	-	-	-	-	3,153.00
SPL 612(2)	Removal of Existing Thermoplastic Pavement Markings	m2	334.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	335.00
SPL 620(4)e	Removal of Existing Thermoplastic Pavement	each	4.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.00

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JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/21/12	E. TAPIA
CHECKED	9/25/12	S. JOSE
SUBMITTED	9/27/12	M. KUSUMI 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 :	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 II	NOT TO SCALE FULL SIZE A1	SUMMARY OF QUANTITIES (ULTIMATE STAGE) (2 of 2)	GP-10

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 TEMORARY DRAINAGE SYSTEM DURING THE CONSTRUCTION PERIOD SHALL BE UNDERTAKEN BY THE CONTRACTOR WITHOUT ANY COMPERSATION.

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.

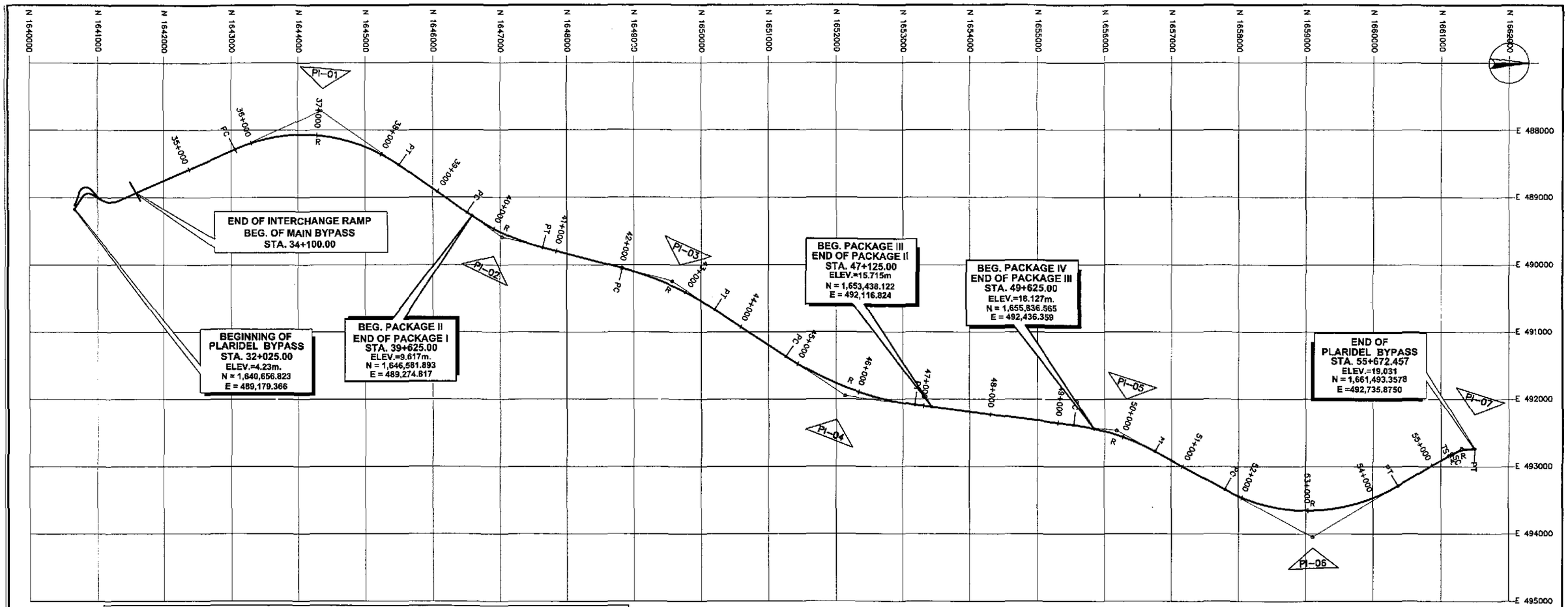
14.0 DESIGN DATA / REFERENCES

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 Ts	DEFLECTION ANGLE	A / R	Ls / Lc	STATION
BEG.	34+100.00							
01	37+150.085	3,050.085	156°12'23"	1,405.622	58°41'37"			PC=35+744.483
		3,270.517	214°54'01"			2,500.000	2,560.993	PT=38+305.456
02	40+170.351			831.471	20°27'17"			PC=39+538.880
		2,627.382	194°26'44"			3,500.000	1,249.501	PT=40+788.381
03	42+784.272			782.281	19°13'42"			PC=42+022.011
		3,079.935	213°40'26"			4,500.000	1,510.187	PT=43+532.197
04	45+848.871			1,055.870	28°24'35"			PC=44+794.002
		4,078.071	185°15'51"			4,500.000	2,074.218	PT=46+868.219
05	49+888.421			653.242	21°06'39"			PC=49+235.179
		3,324.430	208°24'30"			3,300.000	1,291.823	PT=50+526.802
06	53+197.990			1,481.484	59°20'57"			PC=51+716.506
		2,563.432	149°03'33"			2,500.000	2,693.177	PT=54+409.683
07	55+491.831			217.887	32°44'53"	188.072	54.417	TS=55+273.735
								SC=55+328.152
		191.336	02°23'54"	02°23'54"		650.000	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	487,716.483	PC	1,643,060.095	488,283.579
			PT	1,645,499.069	488,520.712
02	1,647,028.584	489,587.713	PC	1,646,510.662	489,228.418
			PT	1,647,640.071	489,745.240
03	1,649,572.662	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	492,084.358
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	1,659,103.488	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	1,661,182.283	492,814.552
			PT	1,661,493.358	492,735.876
END	1,661,493.358	492,735.876			

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JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/24/02	ACACIO
CHECKED	9/25/02	JOSE
SUBMITTED	9/27/02	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, DIC, Director IV	MANUEL M. BONOAN, Undersecretary	SIMEON A. DATUMANONG, 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 II	1:30,000 FULL SIZE A1	ALIGNMENT TECHNICAL DESCRIPTION	RG-02

LEGEND:

- ○ Intersection Type A (At grade)
- ⊕ Intersection Type B (Underpass)
- ● Intersection Type C (Only access to frontage roads)
- Bridge

TO PAMPANGA
NORTH LUZON EXPRESSWAY
PLARIDEL
TO MALOLOS
EXISTING PAN-PHILIPPINE HIGHWAY
NEW ACCESS ROAD 2
NEW ACCESS ROAD 1
PROPOSED BYPASS
TO CABANATUAN
TO MANILA

INTERCHANGE

BEGINNING OF BYPASS
BEGINNING OF PACKAGE I
STA. 33+025.000

END OF PACKAGE I
BEG. OF PACKAGE II
STA. 39+625.000

END OF PACKAGE II
BEG. OF PACKAGE III
STA. 47+125.000

END OF PACKAGE III
BEG. OF PACKAGE IV
STA. 49+625.000

END OF PACKAGE IV
END OF BYPASS
STA. 55+672.457

INTERSECTION A-1 STA. 34+413.681
INTERSECTION A-2 STA. 34+804.257
INTERSECTION A-3 STA. 36+271.676
INTERSECTION A-4 STA. 37+233.648
INTERSECTION A-5 STA. 38+115.240
INTERSECTION A-6 STA. 38+710.264
INTERSECTION A-7 STA. 39+133.681
INTERSECTION A-7a STA. 39+233.681
INTERSECTION A-8 STA. 40+620.000
INTERSECTION A-9 STA. 41+165.422
INTERSECTION A-10 STA. 43+008.334
INTERSECTION A-11 STA. 44+008.295
INTERSECTION A-12 STA. 44+249.476
INTERSECTION A-13 STA. 44+914.739
INTERSECTION A-14 STA. 45+804.857
INTERSECTION A-15 STA. 46+200.681
INTERSECTION A-17 STA. 49+282.573
INTERSECTION A-18 STA. 51+238.639
INTERSECTION A-19 STA. 51+819.543
INTERSECTION A-19a STA. 52+040.477
INTERSECTION A-20 STA. 52+393.681
INTERSECTION A-21 STA. 53+680.462
INTERSECTION A-22 STA. 55+118.681
INTERSECTION A-22a STA. 55+355.142
INTERSECTION A-22b STA. 55+432.957
INTERSECTION C-1L STA. 34+546.882
INTERSECTION C-1R STA. 34+541.177
INTERSECTION C-2L STA. 36+053.810
INTERSECTION C-2R STA. 36+067.791
INTERSECTION C-3 STA. 49+479.816
INTERSECTION C-4L STA. 53+005.601
INTERSECTION C-4R STA. 53+020.616

UNDERPASS B-0 STA. 33+740.000
UNDERPASS B-1 STA. 36+720.000
UNDERPASS B-2 STA. 37+690.000
UNDERPASS B-3 STA. 39+860.000
UNDERPASS B-4 STA. 41+625.000
UNDERPASS B-5 STA. 41+820.000
UNDERPASS B-6 STA. 42+550.000
UNDERPASS B-7 STA. 43+440.000
UNDERPASS B-8 STA. 45+274.068
UNDERPASS B-9 STA. 48+110.000

CONTRACT PACKAGE I
L=5.6 KM

CONTRACT PACKAGE II
L=7.78 KM

CONTRACT PACKAGE III
L=2.22 KM

CONTRACT PACKAGE IV
L=6.05 KM

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

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

	DATE	SIGNATURE
DESIGNED	9/24/02	A. ACACIO
CHECKED	9/25/02	S. JOSE
SUBMITTED	9/27/02	M. DUCUSIN 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 II

SCALE : 1:40,000 FULL SIZE A1

SHEET CONTENTS : LOCATION OF INTERSECTIONS ALONG BYPASS

SHEET NO. : RG-03

SCHEDULE OF TRAFFIC SIGNS
CONTRACT PACKAGE II (ULTIMATE STAGE)

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

STATION	REF. NO.	REMARKS
40+510	W5-10*	RIGHTSIDE MAIN BYPASS
40+720	W5-10*	LEFT SIDE MAIN BYPASS
41+041	W3-1**	RIGHTSIDE MAIN BYPASS
41+103	W4-2R*	LEFT SIDE MAIN BYPASS
41+216	W4-2R*	RIGHTSIDE MAIN BYPASS
41+285	W3-1**	LEFT SIDE MAIN BYPASS
42+851	W2-8	RIGHTSIDE MAIN BYPASS
43+167	W2-8**	LEFT SIDE MAIN BYPASS
43+900	W5-10*	RIGHTSIDE MAIN BYPASS
44+102	W2-8	RIGHTSIDE MAIN BYPASS
44+110	W5-10*	LEFT SIDE MAIN BYPASS
44+353	W2-8**	LEFT SIDE MAIN BYPASS
44+810	W5-10*	RIGHTSIDE MAIN BYPASS
45+010	W5-10*	LEFT SIDE MAIN BYPASS
45+700	W5-10*	RIGHTSIDE MAIN BYPASS
45+910	W5-10*	LEFT SIDE MAIN BYPASS
46+084	W2-8**	RIGHTSIDE MAIN BYPASS
46+326	W2-8**	LEFT SIDE MAIN BYPASS
46+997	W3-1	RIGHTSIDE MAIN BYPASS
47+110	W4-2R*	LEFT SIDE MAIN BYPASS
47+235	W4-2R*	RIGHTSIDE MAIN BYPASS
47+301	W3-1**	LEFT SIDE MAIN BYPASS

ITEM 605 (2)a REGULATORY SIGNS (TRIANGULAR 1039mm)

STATION	REF. NO.	REMARKS
41+155	RI-2*	RIGHTSIDE MAIN BYPASS
41+178	RI-2*	LEFT SIDE MAIN BYPASS
47+152	RI-2*	RIGHTSIDE MAIN BYPASS
47+190	RI-2*	LEFT SIDE MAIN BYPASS

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

STATION	REF. NO.	REMARKS
00+972	R1-1A	RIGHT SIDE INTERSECTION A-10
01+027	R1-1A**	LEFT SIDE INTERSECTION A-10
00+973	R1-1A	RIGHT SIDE INTERSECTION A-12
01+026	R1-1A	LEFT SIDE INTERSECTION A-12
00+976	R1-1A**	RIGHT SIDE INTERSECTION A-15
01+020	R1-1A	LEFT SIDE INTERSECTION A-15

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

STATION	REF. NO.	REMARKS
41+147	R2-7(L)**	CENTER ISLAND MAIN BYPASS
41+185	R2-7(L)**	CENTER ISLAND MAIN BYPASS
42+993	R2-7(L)*	CENTER ISLAND MAIN BYPASS
43+024	R2-7(L)*	CENTER ISLAND MAIN BYPASS
44+231	R2-7(L)*	CENTER ISLAND MAIN BYPASS
44+266	R2-7(L)*	CENTER ISLAND MAIN BYPASS
46+184	R2-7(L)*	CENTER ISLAND MAIN BYPASS
46+217	R2-7(L)*	CENTER ISLAND MAIN BYPASS
47+155	R2-7(L)**	CENTER ISLAND MAIN BYPASS
47+185	R2-7(L)**	CENTER ISLAND MAIN BYPASS

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

STATION	REF. NO.	REMARKS
40+350	R6-4	RIGHTSIDE MAIN BYPASS
40+395	R6-4**	LEFT SIDE MAIN BYPASS
41+147	R3-15**	CENTER ISLAND MAIN BYPASS
41+185	R3-15**	CENTER ISLAND MAIN BYPASS
41+320	R6-4	RIGHTSIDE MAIN BYPASS
41+355	R6-4**	LEFT SIDE MAIN BYPASS
41+630	R6-4	RIGHTSIDE MAIN BYPASS
41+683	R6-4**	LEFT SIDE MAIN BYPASS
41+966	R6-4	RIGHTSIDE MAIN BYPASS
42+003	R6-4**	LEFT SIDE MAIN BYPASS
42+993	R3-15*	CENTER ISLAND MAIN BYPASS
43+024	R3-15*	CENTER ISLAND MAIN BYPASS
44+231	R3-15*	CENTER ISLAND MAIN BYPASS
44+266	R3-15*	CENTER ISLAND MAIN BYPASS
45+314	R6-4	RIGHTSIDE MAIN BYPASS
45+345	R6-4**	LEFT SIDE MAIN BYPASS
45+824	R6-4	RIGHTSIDE MAIN BYPASS
45+866	R6-4**	LEFT SIDE MAIN BYPASS
46+184	R3-15*	CENTER ISLAND MAIN BYPASS
46+217	R3-15*	CENTER ISLAND MAIN BYPASS
46+706	R6-4	RIGHTSIDE MAIN BYPASS
46+745	R6-4**	LEFT SIDE MAIN BYPASS
47+155	R3-15**	CENTER ISLAND MAIN BYPASS
47+186	R3-15**	CENTER ISLAND MAIN BYPASS
00+982	R3-15**	CENTER ISLAND OF INTERSECTION A-9
01+022	R3-15**	CENTER ISLAND OF INTERSECTION A-9
00+984	R3-15**	CENTER ISLAND OF INTERSECTION A-16
01+016	R3-15**	CENTER ISLAND OF INTERSECTION A-16

ITEM 605 (3) INFORMATORY SIGNS

STATION	REF. NO.	REMARKS
a. 2442 x 1110mm		
40+982	GS-5	RIGHTSIDE MAIN BYPASS
b. 1699 x 1110mm		
41+420	GS-6	LEFT SIDE MAIN BYPASS
c. 2442 x 1630mm		
46+938	GS-7	RIGHTSIDE MAIN BYPASS
d. 2472 x 1110mm		
00+892	GS-2	RIGHT SIDE INTERSECTION A-9
01+103	GS-1	LEFT SIDE INTERSECTION A-9
00+960	GS-2	RIGHT SIDE INTERSECTION A-16
01+030	GS-1	LEFT SIDE INTERSECTION A-16

NOTE:
* - NEW SIGNS
** - EXISTING AND TO BE RELOCATED
UNMARKED - EXISTING AND TO REMAIN

SCHEDULE OF RELOCATION OF GUARDRAILS AND PLANTIGS
CONTRACT PACKAGE II (ULTIMATE STAGE)

SCHEDULE OF RELOCATION OF GUARDRAILS

STATION FROM	STATION TO	LENGTH (m)	LOCATION
40+143.66	40+351.66	208	LEFT SIDE
BRIDGE No. 1			
40+394.16	40+514.16	120	LEFT SIDE
41+170.15	41+316.15	148	LEFT SIDE
BRIDGE No. 2			
41+360.64	41+632.84	272	LEFT SIDE
BRIDGE No. 3			
41+672.41	41+964.41	292	LEFT SIDE
BRIDGE No. 4			
41+997.26	42+129.26	132	LEFT SIDE
45+228.00	45+272.00	44	LEFT SIDE
45+279.92	45+311.92	32	LEFT SIDE
BRIDGE No. 5			
45+352.76	45+520.76	168	LEFT SIDE
45+682.65	45+802.65	120	LEFT SIDE
45+807.04	45+819.04	12	LEFT SIDE
BRIDGE No. 6			
45+868.29	45+940.29	72	LEFT SIDE
46+589.24	46+701.24	112	LEFT SIDE
BRIDGE No. 7			
46+753.49	46+861.49	108	LEFT SIDE

1.) CENTER MEDIAN PLANTING

STATION FROM	STATION TO	LENGTH (L.M.) 1-A(3)	1-A(4)	1-A(5)	1-A(6)	1-A(7)	1-A(8)
39+600	40+300	0	0	0	671	0	0
40+300	41+000	0	0	0	590	0	68
41+000	41+700	70	68	0	93	55	276
41+700	42+400	0	0	0	365	0	300
42+400	43+100	70	26	0	552	0	20
43+100	43+800	0	0	0	677	0	23
43+800	44+500	70	26	70	454	0	38
44+500	45+200	0	0	70	624	0	0
45+200	45+900	0	0	28	426	65	50
45+900	46+600	70	22	0	538	0	39
46+600	47+300	70	66	0	431	0	42
47+300	48+000	0	0	0	80	0	20

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JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/12/07	
CHECKED	9/12/07	
SUBMITTED	9/12/07	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 II

SCALE : FULL SIZE A1

SHEET CONTENTS :
SCHEDULE OF TRAFFIC SIGNS,
RELOCATION OF GUARDRAILS
AND PLANTINGS

SHEET NO. :
RG-04

SCHEDULE OF PAVEMENT MARKINGS

CONTRACT PACKAGE II (ULTIMATE STAGE)

ITEM 612(1) - REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS

1.0 CENTER LINE

STATION FROM	STATION TO	LENGTH (m)	REMARKS
00+880.00	00+920.00	40.00 *	A-9: 100mm x 3.0m @ 4.50m GAP
01+078.36	01+130.00	51.64 *	A-9: 100mm x 3.0m @ 4.50m GAP
00+890.00	00+943.06	53.06 *	A-10: 100mm x 3.0m @ 4.50m GAP
00+943.06	00+973.06	30.00	A-10: 100mm UNBROKEN LINE
01+026.37	01+056.37	30.00	A-10: 100mm UNBROKEN LINE
01+056.37	01+120.00	63.63 *	A-10: 100mm x 3.0m @ 4.50m GAP
00+850.00	00+944.24	94.24 *	A-12: 100mm x 3.0m @ 4.50m GAP
00+944.24	00+974.24	30.00	A-12: 100mm UNBROKEN LINE
01+025.15	01+055.15	30.00	A-12: 100mm UNBROKEN LINE
01+055.15	01+140.00	84.85 *	A-12: 100mm x 3.0m @ 4.50m GAP
00+810.00	00+946.27	136.27 *	A-15: 100mm x 3.0m @ 4.50m GAP
00+946.27	00+976.27	30.00	A-15: 100mm UNBROKEN LINE
01+021.34	01+051.34	30.00	A-15: 100mm UNBROKEN LINE
01+051.34	01+110.00	58.66 *	A-15: 100mm x 3.0m @ 4.50m GAP
00+910.00	00+934.00	24.00	A-16: 100mm x 3.0m @ 4.50m GAP
01+066.60	01+100.00	33.40	A-16: 100mm x 3.0m @ 4.50m GAP

2.0 EDGE LINES

2.1 LEFT SIDE, OUTER EDGE OF MAIN BYPASS

STATION FROM	STATION TO	LENGTH (m)	REMARKS
39+625.00	41+122.82	1497.82	MAIN BYPASS
41+122.82	00+950.82	35.22	MAIN BYPASS TO RT OF A-9
00+880.00	00+950.82	70.82 *	RIGHT OF A-9
00+880.00	00+960.45	80.45 *	LEFT OF A-9
00+960.45	41+196.01	52.36	LEFT OF A-9 TO MAIN BYPASS
41+196.01	42+986.65	1790.64	MAIN BYPASS
42+986.65	00+973.06	22.83	MAIN BYPASS TO RT OF A-10
00+890.00	00+973.06	83.06 *	RIGHT OF A-10
00+890.00	00+975.26	85.26 *	LEFT OF A-10
00+975.26	43+024.36	26.35	LEFT OF A-10 TO MAIN BYPASS
43+024.36	44+228.49	1204.13	MAIN BYPASS
44+228.49	00+974.25	19.30	MAIN BYPASS TO RT OF A-12
00+850.00	00+974.25	124.25 *	RIGHT OF A-12
00+850.00	00+976.68	126.68 *	LEFT OF A-12
00+976.68	44+263.26	24.56	LEFT OF A-12 TO MAIN BYPASS
44+263.26	46+189.17	1925.91	MAIN BYPASS
46+189.17	00+980.27	18.73	MAIN BYPASS TO RT OF A-15
00+810.00	00+980.27	170.27 *	RIGHT OF A-15
00+810.00	00+973.25	163.25 *	LEFT OF A-15
00+973.25	46+220.82	20.30	LEFT OF A-15 TO MAIN BYPASS
46+220.82	47+145.76	924.94	MAIN BYPASS
47+145.76	00+969.06	30.13	MAIN BYPASS TO RT OF A-16
00+910.00	00+969.06	59.06 *	RIGHT OF A-16
00+910.00	00+967.78	57.78 *	LEFT OF A-16
00+967.78	47+197.75	29.65	LEFT OF A-16 TO MAIN BYPASS
47+197.75	47+400.00	202.25	MAIN BYPASS

2.2 LEFT SIDE, INNER EDGE OF MAIN BYPASS

STATION FROM	STATION TO	LENGTH (m)	REMARKS
39+825.00	40+617.73	992.73	MAIN BYPASS
40+622.27	41+150.47	528.20	MAIN BYPASS
41+182.38	42+995.61	1813.23	MAIN BYPASS
43+022.09	44+005.19	983.10	MAIN BYPASS
44+010.59	44+235.22	224.63	MAIN BYPASS
44+263.72	44+913.33	649.61	MAIN BYPASS
44+916.15	45+802.86	886.71	MAIN BYPASS
45+806.85	46+190.12	383.27	MAIN BYPASS
46+211.26	47+157.94	946.68	MAIN BYPASS
47+183.24	47+400.00	216.76	MAIN BYPASS
00+958.58	00+984.38	25.80	INTERSECTION A-9
01+015.49	01+041.42	25.93	INTERSECTION A-9
00+964.58	00+985.07	20.49	INTERSECTION A-16
01+014.84	01+037.09	22.25	INTERSECTION A-16

2.3 RIGHT SIDE, OUTER EDGE OF MAIN BYPASS

STATION FROM	STATION TO	LENGTH (m)	REMARKS
39+625.00	40+980.00	135.50 *	MAIN BYPASS
40+980.00	41+134.96	154.96	MAIN BYPASS
41+134.96	01+041.42	55.80	MAIN BYPASS TO RT OF A-9
01+041.42	01+130.00	88.58 *	RIGHT OF A-9
41+155.86	41+163.97	8.11	MAIN BYPASS
41+180.00	41+193.83	13.83	MAIN BYPASS
01+046.00	01+130.00	84.00 *	LEFT OF A-9
01+046.00	41+207.97	32.34	LT OF A-9 TO MAIN BYPASS
41+207.97	41+340.00	132.03	MAIN BYPASS
41+340.00	42+992.02	1552.02 *	MAIN BYPASS
42+992.02	01+026.17	29.81 *	MAIN BYPASS TO RT OF A-10
01+026.17	01+120.00	93.83 *	RIGHT OF A-10
01+030.37	01+120.00	89.63 *	LEFT OF A-10
01+030.37	43+034.26	24.61 *	LT OF A-10 TO MAIN BYPASS
43+034.26	44+235.69	1201.43 *	MAIN BYPASS
44+235.69	01+023.32	24.56 *	MAIN BYPASS TO RT OF A-12
01+023.32	01+140.00	116.68 *	RIGHT OF A-12
01+025.65	01+140.00	114.35 *	LEFT OF A-12
01+025.65	44+270.46	19.21 *	LT OF A-12 TO MAIN BYPASS
44+270.46	46+181.35	1910.89 *	MAIN BYPASS
46+181.35	01+024.39	18.62 *	MAIN BYPASS TO RT OF A-15
01+024.39	01+110.00	85.61 *	RIGHT OF A-15
01+020.46	01+110.00	89.54 *	LEFT OF A-15
01+020.46	46+212.15	19.29 *	LT OF A-15 TO MAIN BYPASS
46+212.15	46+980.00	767.85 *	MAIN BYPASS
46+980.00	47+143.43	163.43	MAIN BYPASS
47+143.43	01+023.31	19.94	MAIN BYPASS TO RT OF A-16
01+023.31	01+100.00	76.69	RIGHT OF A-16
01+031.54	01+100.00	68.46 *	LEFT OF A-16
01+031.54	47+195.41	30.13	LT OF A-16 TO MAIN BYPASS
47+156.93	47+162.96	6.03	MAIN BYPASS
47+176.89	47+181.31	4.42	MAIN BYPASS
47+195.41	47+340.00	144.59	MAIN BYPASS
47+340.00	47+400.00	60.00 *	MAIN BYPASS

2.4 RIGHT SIDE, INNER EDGE OF MAIN BYPASS

STATION FROM	STATION TO	LENGTH (m)	REMARKS
39+625.00	40+617.73	992.73	MAIN BYPASS
40+622.27	40+940.00	317.73 *	MAIN BYPASS
40+940.00	41+150.47	210.47	MAIN BYPASS
41+182.38	41+320.00	137.62	MAIN BYPASS
41+330.00	42+840.00	1520.00 *	MAIN BYPASS
42+840.00	42+995.61	155.61	MAIN BYPASS
43+022.09	43+180.00	157.91	MAIN BYPASS
43+180.00	44+005.19	825.19 *	MAIN BYPASS
44+010.59	44+235.22	224.63	MAIN BYPASS
44+263.72	44+420.00	156.28	MAIN BYPASS
44+420.00	44+913.33	493.33 *	MAIN BYPASS
44+916.15	45+802.86	886.71 *	MAIN BYPASS
45+806.85	46+040.00	233.15 *	MAIN BYPASS
46+040.00	46+190.12	150.12	MAIN BYPASS
46+211.26	46+380.00	168.74	MAIN BYPASS
46+380.00	46+940.00	560.00 *	MAIN BYPASS
47+183.24	47+400.00	216.76	MAIN BYPASS
00+958.58	00+984.38	25.80 *	INTERSECTION A-9
01+015.49	01+041.42	25.93 *	INTERSECTION A-9
00+964.58	00+985.07	20.49 *	INTERSECTION A-16
01+014.84	01+037.09	22.25 *	INTERSECTION A-16

NOTE:
* - INITIAL PAVEMENT MARKINGS TO BE REMAIN

3.0 LANE LINES

STATION FROM	STATION TO	LENGTH (m)	REMARKS
39+625.00	40+946.98	1321.98	(LS) LANE LINE 150mm x 3.0m @ 9.0m GAP
39+625.00	40+946.98	1321.98 *	(RS) LANE LINE 150mm x 3.0m @ 9.0m GAP
40+946.98	41+116.98	170.00	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
40+946.98	41+146.98	200.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
41+022.83	41+134.70	111.87	(LS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
41+041.98	41+116.98	75.00	(RS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
41+086.98	41+116.98	30.00	(RS)INNER LANE LINE 150mmx3.0m @ 4.50m GAP
41+116.98	41+146.98	30.00	(RS) 3- LANE LINE 150mm UNBROKEN
41+184.37	41+214.37	30.00	(LS) 3- LANE LINE 150mm UNBROKEN
41+214.37	41+384.37	170.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
41+384.37	42+791.84	1407.47	(LS) LANE LINE 150mm x 3.0m @ 9.0m GAP
42+791.84	42+991.84	200.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
41+214.37	41+244.37	30.00	(LS)INNER LANE LINE 150mmx3.0m @ 4.50m GAP
41+214.37	41+244.37	30.00	(LS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
41+184.37	41+384.37	200.00	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
41+384.37	42+791.84	1407.47	(RS) LANE LINE 150mm x 3.0m @ 9.0m GAP
42+791.84	42+951.84	160.00	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
42+951.84	42+991.84	40.00	(RS) 2- LANE LINE 150mm UNBROKEN
41+193.83	41+277.96	84.13	(RS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
43+023.77	43+063.77	40.00	(LS) 2- LANE LINE 150mm UNBROKEN
43+063.77	43+223.77	160.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
43+223.77	44+032.20	808.43 *	(LS) LANE LINE 150mm x 3.0m @ 9.0m GAP
44+032.20	44+232.20	200.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
43+023.77	43+223.77	200.00	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
43+223.77	44+032.20	808.43 *	(RS) LANE LINE 150mm x 3.0m @ 9.0m GAP
44+032.20	44+192.20	160.00	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
44+192.20	44+232.20	40.00	(RS) 2- LANE LINE 150mm UNBROKEN
44+265.79	44+305.79	40.00	(LS) 2- LANE LINE 150mm UNBROKEN
44+305.79	44+465.79	160.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
44+465.79	45+984.42	1518.63 *	(LS) LANE LINE 150mm x 3.0m @ 9.0m GAP
45+984.42	46+184.42	200.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
44+265.79	44+465.79	200.00	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
44+465.79	45+984.42	1518.63	(RS) LANE LINE 150mm x 3.0m @ 9.0m GAP
45+984.42	46+144.42	160.00	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
46+144.42	46+184.42	40.00	(RS) 2- LANE LINE 150mm UNBROKEN
46+216.61	46+256.61	40.00	(LS) 2- LANE LINE 150mm UNBROKEN
46+256.61	47+155.96	899.35	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
47+045.76	47+155.96	110.20	(LS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
46+218.61	47+125.96	909.35	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
47+125.96	47+155.96	30.00	(RS) 3- LANE LINE 150mm UNBROKEN
47+050.96	47+125.96	75.00	(RS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
47+095.96	47+125.96	30.00	(RS)INNER LANE LINE 150mmx3.0m @ 4.50m GAP
47+184.53	47+214.53	30.00	(LS) 3- LANE LINE 150mm UNBROKEN
47+184.53	47+295.41	110.88	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
47+214.53	47+384.53	170.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
47+384.53	47+400.00	15.47	(LS) LANE LINE 150mm x 3.0m @ 9.0m GAP
47+214.53	47+289.53	75.00	(LS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
47+214.53	47+244.53	30.00	(LS)INNER LANE LINE 150mmx3.0m @ 4.50m GAP
47+184.53	47+384.53	200.00	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
47+384.53	47+400.00	15.47	(RS) LANE LINE 150mm x 3.0m @ 9.0m GAP
00+958.58	00+978.58	20.00	(RS) LANE LINE 100mm UNBROKEN (A-9)
01+021.41	01+041.41	20.00	(LS) LANE LINE 100mm UNBROKEN (A-9)
00+964.42	00+984.42	20.00	(RS) LANE LINE 100mm UNBROKEN (A-16)
01+015.77	01+035.77	20.00	(LS) LANE LINE 100mm UNBROKEN (A-16)

4.0 CONTINUITY LINE

STATION FROM	STATION TO	LENGTH (m)	REMARKS
40+977.83	41+022.83	45.00	(LS) 150mm x 1.0m @ 3.0m GAP
39+263.08	39+308.05	44.97	(RS) 150mm x 1.0m @ 3.0m GAP
40+981.98	41+041.98	60.00	(RS) 150mm x 1.0m @ 3.0m GAP
41+041.98	41+086.98	45.00	(RS) 150mm x 1.0m @ 3.0m GAP
41+244.37	41+304.37	60.00	(LS) 2 - 150mm x 1.0m @ 3.0m GAP
41+277.96	41+322.39	44.43	(RS) 150mm x 1.0m @ 3.0m GAP
42+907.20	42+951.84	44.64	(RS) 150mm x 1.0m @ 3.0m GAP
43+063.77	43+110.27	46.50	(LS) 150mm x 1.0m @ 3.0m GAP
44+147.20	44+192.20	45.00	(RS) 150mm x 1.0m @ 3.0m GAP
44+305.79	44+351.79	46.00	(LS) 150mm x 1.0m @ 3.0m GAP
46+099.42	46+144.42	45.00	(RS) 150mm x 1.0m @ 3.0m GAP
46+256.61	46+301.61	45.00	(LS) 150mm x 1.0m @ 3.0m GAP
47+001.27	47+045.76	44.49	(LS) 150mm x 1.0m @ 3.0m GAP
46+990.96	47+050.96	60.00	(RS) 150mm x 1.0m @ 3.0m GAP
47+050.96	47+095.96	45.00	(RS) 150mm x 1.0m @ 3.0m GAP
47+244.53	47+289.53	45.00	(LS) 150mm x 1.0m @ 3.0m GAP
47+289.53	47+349.53	60.00	(LS) 150mm x 1.0m @ 3.0m GAP
47+295.41	47+340.41	45.00	(RS) 150mm x 1.0m @ 3.0m GAP

5.0 CHEVRON

STATION FROM	STATION TO	LENGTH (m)	REMARKS
00+920.00	00+958.58	38.58 *	CENTER OF A-9
01+041.42	01+078.36	36.94 *	CENTER OF A-9
00+934.00	00+964.58	30.58 *	CENTER OF A-16
01+037.09	01+066.60	29.51 *	CENTER OF A-16

6.0 ARROWS

ARROW TYPE	NUMBER OF ARROWS	LOCATION
A	6	APPROACHING INTERSECTION A-9
B	2	APPROACHING INTERSECTION A-9
C	4	APPROACHING INTERSECTION A-9
A	2	APPROACHING INTERSECTION A-10
B	2	APPROACHING INTERSECTION A-10
C	2	APPROACHING INTERSECTION A-10
A	2	APPROACHING INTERSECTION A-12
B	2	APPROACHING INTERSECTION A-12
C	2	APPROACHING INTERSECTION A-12
A	2	APPROACHING INTERSECTION A-15
B	2	APPROACHING INTERSECTION A-15
C	2	APPROACHING INTERSECTION A-15
A	6	APPROACHING INTERSECTION A-16
B	2	APPROACHING INTERSECTION A-16
C	4	APPROACHING INTERSECTION A-16

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

7.0 PEDESTRIAN AND STOP LINES

LOCATION		AREA (m^2) PEDESTRIAN	AREA (m^2) STOP LINE	REMARKS
INT. A-9	MAIN BYPASS	13.47	9.00	SIGNALIZED
	A-7	33.00	4.14	
INT. A-10	MAIN BYPASS	51.60	9.02	UNSIGNALIZED
	A-10	36.60	2.03	
INT. A-12	MAIN BYPASS	49.20	9.04	UNSIGNALIZED
	A-12	29.98	1.82	
INT. A-15	MAIN BYPASS	49.20	9.55	UNSIGNALIZED
	A-15	38.40	1.80	
INT. A-16	MAIN BYPASS	11.67	8.93	SIGNALIZED
	A-16	29.56	4.17	

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/21/06	
CHECKED	9/26/06	S. JOSE
SUBMITTED	9/27/06	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
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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 II	FULL SIZE A1	SCHEDULE OF PAVEMENT MARKINGS	RG-05