

# REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION VIII TACLOBAN CITY DISTRICT ENGINEERING OFFICE NEW BUS TERMINAL, BRGY. 91, ABUCAY, TACLOBAN CITY

CY 2025 PROJECT
DETAILED ENGINEERING DESIGN PLAN FOR
REPAIR/ MAINTENANCE
OF
DAMAGED PAVED ROAD - K0907+209 - K0907+321.5
ALONG TIGBAO- STA.FE- SAN MIGUEL ROAD (S00033LT)

LENGTH: 75.37 LINEAR METER

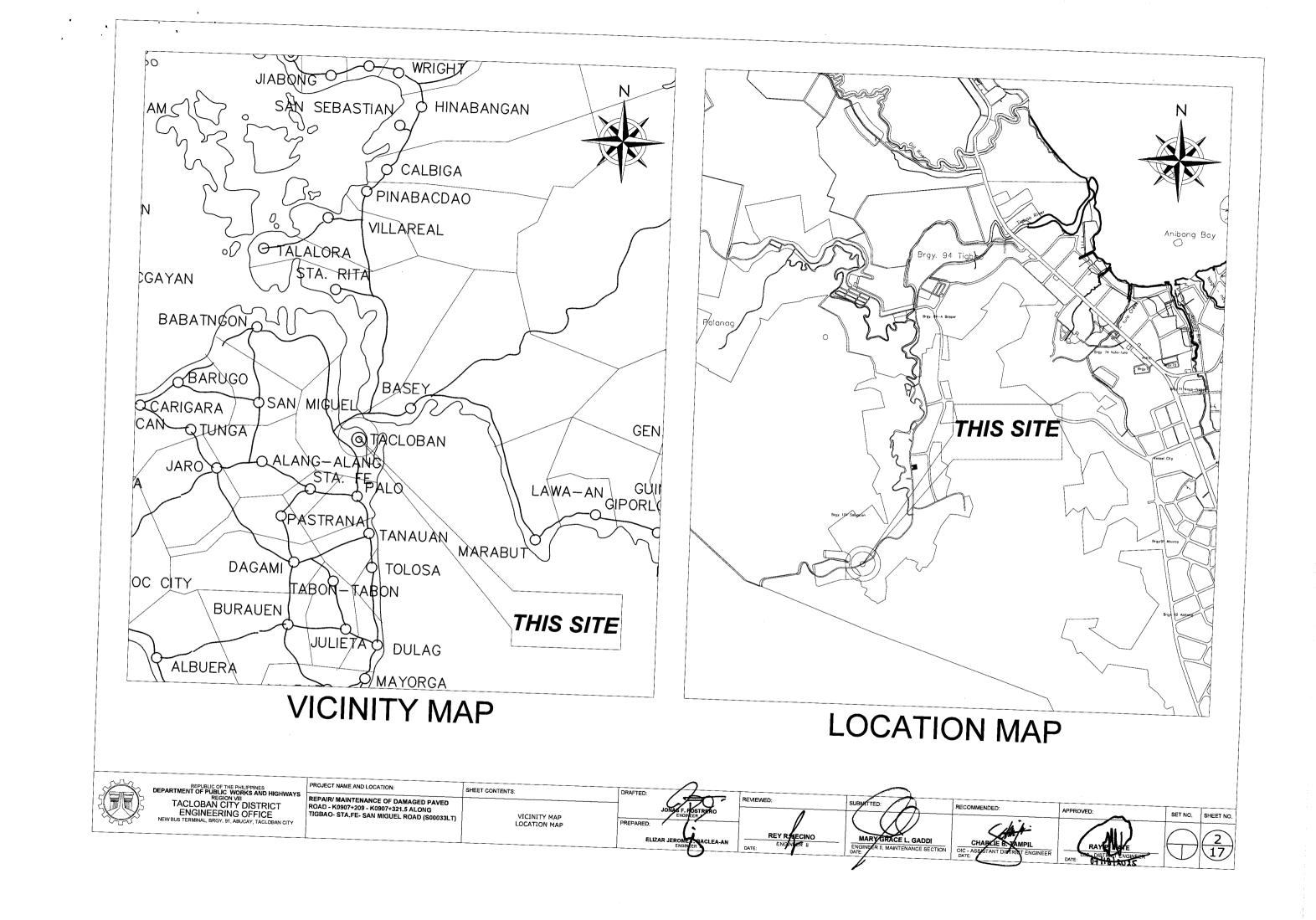
SUBMITTED:

MARY GRACE L. GADDI ENGINEER II, MAINTENANCE SECTION DATE: RECOMMENDED:

CHARLIE BY TAMPIL
OIC - ASSISTANT DISTRICT ENGINEER

APPROVED:

RAYLE MATE
OIC - DISTRICT ENGINEER
DATE: 03 1181 2025



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REPAIR/ MAINTENANCE OF DAMAGED PAVED

REPAIR MAIN FENANCE OF DAMAGED FAVE ROAD - K0907+209 - K0907+321.5 ALONG TIGBAO- STA.FE- SAN MIGUEL ROAD (S00033LT)

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Sheet 16. Standard DPWH Project Billboard

Sheet 17. COA Billboard

TACLOBAN CITY DISTRICT

# **SUMMARY OF QUANTITIES**

ITEM NO.	DESCRIPTION	UNIT	QTY.	REMARKS
B.5	Project Billboard/Signboard	ea.	4.00	
B.7(2)	Occupational Safety and Health Program	l.s.	1.00	
B.8(1)	Traffic Management	l.s.	1.00	
B.9	Mobilization / Demobilization	l.s.	1.00	
101(3)b5	Removal of Actual Structures/Obstruction, 0.28m thick, PCCP(Unreinforced)	sq.m.	120.60	
105(1)b	Subgrade Preparation (Existing Pavement)	sq.m.	120.60	
200(1)	Aggregate Subbase Course	cu.m.	24.12	
311(1)e3	Portland Cement Concrete Pavement (Unreinforced), 0.28m thick, 3 days	sq.m.	120.60	

DRAFTED:						
JONAS F. POSTRERO ENGINEER I	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET
PREPARED:  ELIZAR JEROME J. BACLEA-AN ENGINER II	REY R. JEZÍNO  DATE: ENGÂNJER II	MARY GRACE L. GADDI ENGINEER IV MAINTENANCE SECTION DATE:	CHARLIES TAMPIL  OIC - ASSISTANT DISTAICT ENGINEER DATE:	RAY PLANE DATE: DISTRICT ENGINEED		$\begin{pmatrix} 3 \\ 1 \end{pmatrix}$
				DATE: OTTINIZOUS		

#### **GENERAL NOTES**

#### I. DESIGN

A. ) THE REHABILITATION/ CONSTRUCTION PROJECT FOLLOWS THE EXISTING TRAVERSE AND GROUND ELEVATION

#### II. DESIGN STANDARDS

- A. ) DPWH DESIGN GUIDELINES, CRITERIA AND STANDARDS (DGCS), VOLUME 4, 2015 EDITION
- B. ) AASHTO A POLICY ON GEOMETRIC DEIGN STANDARDS OF HIGHWAYS AND STREETS, 2011, 6TH EDITION
- C. ) AASHTO GUIDE ON PAVEMENT DESIGN, 1993 EDITION
- D. ) HIGHWAY SAFETY DESIGN STANDARDS: PART 1 ROAD SAFETY DESIGN, AND PART 2 ROAD SIGNS AND PAVEMENT MARKINGS, 2012 EDITION

#### III. STANDARD SPECIFICATIONS

- A. ) ALL WORKS SHALL COMPLY WITH THE DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS, BRIDGES AND AIRPORTS, 2013 EDITION VOLUME 2.
- B. ) SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS PERTAINING TO THE PROJECT.

#### IV. DIMENSIONS

A. ) UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS WHICH INCLUDES STATIONING, DISTANCE BETWEEN CONTROL POINTS AND AS SHOWN IN THE PLAN ARE IN METER AND THE UNIT OF MEASURE AS SHOWN IN DETAILS OF STRUCTURE ARE IN MILLIMETERS.

#### V. TOPOGRAPHIC SURVEY

A. ) SHALL BE DONE AS PER TERMS OF REFERENCE

#### V.1.) STATIONING

A.) THE ROAD STATIONING AND ELEMENTS OF ELEMENTS OF HORIZONTAL AND VERTICAL CURVES SHOWN ON THE PLAN AND PROFILE SHEETS ARE RECKONED FROM THE ROADWAY CENTERLINE.

B. ) STATIONING OF THE BRIDGES, RCPC, RCBC, AND OTHER STRUCTURES ARE RECKONED FROM THE STATIONING OF THE ROADWAY CENTERLINE SHOWN ON THE PLAN.

#### VI. ELEVATIONS AND GRADES

- A. ) FINISHED GRADE ELEVATION SHOWN ON PLAN AND PROFILE SHEETS REFERS TO THE FINISHED PAVEMENT LEVEL SHOWN ON THE TYPICAL ROADWAY SECTION.
- B. ) GROUND GRADE SHOWN ON THE PLAN AND PROFILE SHEET REFERS TO THE ELEVATION OF THE ORIGINAL GROUND ALONG THE CENTERLINE OF THE PROJECT ROAD.
- C. ) FINISHED GRADE FOR THIS PROJECT ARE SUBJECT TO CHANGE TO SUIT EXISTING FIELD CONDITION HOWEVER THAT IT IS MORE ADVANTAGEOUS AND MORE ECONOMICAL ON THE PART OF THE GOVERNMENT AND THE DESIGN STANDARD FOR HIGHWAYS PER REQUIREMENT OF AASHTO ARE PROPERLY FOLLOWED.
- D. ) WIDENING IN CURVES IS SUBJECTED TO ADJUSTMENT TO SUIT EXISTING FIELD CONDITION AND SHALL BE BACKFIELD WITH APPROVED MATERIALS.
- E.) PROPER ROAD CONNECTION AT THE BEGINNING AND END OF THE PROJECT SHALL BE PROVIDED TO ENSURE SMOOTH RIDING SURFACE.

#### VII. REMOVAL OF EXISTING STRUCTURES AND OBSTRUCTIONS

- A. ) ALL WORKS SHALL COMPLY WITH CLAUSE 39 REQUIREMENTS AND CONDITIONS OF CONTRACTS VOLUME-1 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS AND HIGHWAYS 1995.
- B. ) PORTIONS OF EXISTING UTILITIES SUCH AS WATER MAINS, IRRIGATION CHANNELS, TELEPHONE POSTS AND TRUNK LINE, ETC. THAT MAY CAUSE OBSTRUCTION TO THE CONSTRUCTIONS OWNER CONCERNED, EXTREME PRECAUTION SHALL BE EXERCISED BY THE CONTRACTOR NOT TO DAMAGE ANY SECTION OF THE EXISTING PUBLIC UTILITIES DURING CONSTRUCTION, ANY REPAIR OF DAMAGE HEREOF SHALL BE ON THE ACCOUNT OF THE CONTRACTOR, ANY REMOVAL OF THE MISCELLANEOUS STRUCTURES THAT MAY BE REQUIRED SHALL BE SUBSIDIARY WORK PERTAINING TO OTHER CONTRACT ITEM. NO DIRECT PAYMENT SHALL BE MADE FOR THIS EXCEPT FOR SPECIFIC ITEMS EXPLICITLY IDENTIFIED FOR PAYMENT IN THE BID SCHEDULE.

#### VIII. ROAD CONNECTIONS AND PRIVATE ENTRANCES

- A. ) APPROACHES AND PRIVATE ENTRANCES SHALL BE CONSIDERED BY THE CONTRACTOR AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN SUCH A MANNER TO ENSURE SMOOTH CONNECTIONS AND RIDING QUALITY.
- B. ) NO OPENING FOR DRIVEWAYS OR PRIVATE ENTRANCES SHALL BE ALLOWED EXCEPT WITH THE PRIOR APPROVAL FROM THE PROPER AUTHORITIES.

# IX. THE IMPLEMENTING OFFICE SHALL IDENTIFY THE LOCATIONS OF AND PROVIDE ACCESSIBILITY FACILITIES FOR PERSONS WITH DISABILITY IN ACCORDANCE WITH D.O. 37 SERIES OF 2009

# DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION WITH TACLOBAN CITY DISTRICT ENGINEERING OFFICE NEW BUS TERMINAL, BRCY. 91, ABUCAY, TACLOBAN CITY

37 SERIES OF 2009					
ROJECT NAME AND LOCATION:	SHEET CONTENTS:				
EPAIR/ MAINTENANCE OF DAMAGED PAVED DAD - K0907+209 - K0907+321.5 ALONG GBAO- STA.FE- SAN MIGUEL ROAD (S00033LT)	GENERAL NOTES				

#### **DESIGN SPECIFICATIONS**

#### 1. ) PAVEMENT DESIGN CRITERIA

A.) PAVEMENT DESIGN PARAMETER: DESIGN REQUIREMENTS

A. PERFORMANCE PERIOD FOR PCCP	
	20 YEARS (FOR PCCP)
B. DESIGN TRAFFIC: ESAL	3.81E+06
C. DESIGN RELIABILITY: R	0.85
D. STANDARD DEVIATION:S <sub>O</sub>	<del>-</del>
E. DESIGN SERVICEABILITY LOSS: APSI	0.35
F. PCCP MODULUS OF RUPTURE; S <sub>C</sub>	2.00
C. DOOR MODULUS OF RUPTURE; S <sub>C</sub>	635.55
G. PCCP MODULUS OF ELASTICITY: Ec	3.37E+06
H. SUBGRADE DESIGN CBR	25.06
I. EFFECTIVE ROADBED RESILIENT MODULUS: MR	37,585.79
J. SUBBASE ELASTIC MODULUS: ESB	,
K. SUBBASE THICKNESS	15,000.00
	200.00 MM
L. EFFECTIVE MODULUS AT SUBGRADE REACTION: K (pci)	900.00
M. DRAINAGE COEFFICIENT: J	1.00
N. LOAD TRANSFER COEFFICIENT: J	4.10
O. LOSS OF SUPPORT: Ls	· · · · =
P. K (corrected):	1.00
· · · · (doi/doi/du).	230.00

COORDINATE REFERENCE SYSTEM	PRS92 / PHILIPPINE ZONE V
200	TRANSVERSE MERCATOR (TM) IN ZONE OF 2' NET WIDTH
	PHILIPPINE REFERENCE SYSTEM 1992/WGS84
EPSG CODE:	3125

#### REFERENCE BENCHMARK DETAILS

- 1.) THE POSITION OF PROJECT CONTROL POINTS SHALL BE DEFINED AND MARKED ON THE GROUND BY MONUMENT IF PERMANENT NATURE
- 2.) CRITERIA FOR LOCATION MONUMENTS
- ACCESIBILITY

PREPARE

- GROUND STABILITY
- SECURITY FROM POSSIBLE ACTS OF DISTRUBANCE

#### 3.) INTERVAL OF MONUMENTS

- PRIMARY GPS CONTROLS (GPS): 3KM INTERVAL
- PRIMARY PROJECT CONTROL (BM): 500M INTERVAL
- INTERMEDIATE CONTROL (IBM): EVERY 250M INTERVAL IN BETWEEN IBM'S

EQUIPMENT USED: TOPCON / RTK GR5 - BASE SER.NO.1118-23692, ROVER SER.NO.1118-23953, CONTROLLER NO. 224852

REVIEWED:

RECOMMENDED:

RECOMMENDED:

APPROVED:

SET NO. SHEET NO.

SHEET NO.

SHEET NO.

SHEET NO.

CHARLIE B. VAMPIL

OIC - ASSISTANT DISTRING ENGINEER

DATE:

#### **CONSTRUCTION REQUIREMENT**

#### 1. ALL CONSTRUCTION SHALL CONFORM TO:

A. CONDITIONS OF CONTRACT

B. THE SPECIAL PROVISIONS

C. THE SPECIFICATIONS OF ITEMS OF WORK FOR THIS PROJECT SHALL BE THE DPWH STANDARD SPECIFICATIONS FOR PUBLIC WORKS & HIGHWAYS 2013 EDITION, PRESENTED IN THE TENDER DOCUMENTS OF THE PROJECT.

#### SETTING OUT

A. THE SETTING OUT AND ELEVATION OF THE DIFFERENT COMPONENTS OF THE STRUCTURE SHALL BE APPROVED BY THE ENGINEER PRIOR TO THE START OF ANY CONSTRUCTION WORK.

#### 3. EXCAVATION

A. EXCAVATION FOR STRUCTURES SHALL BE NEAT LINES AS SHOWN IN THE PLANS AND THE SOIL UNDERNEATH STRUCTURE FOUNDATION SHALL NOT BE DISTURBED.

#### 4. REINFORCED CONCRETE

#### A. CONCRETE MIX AND PLACING

1. DESIGN OF CONCRETE MIX SHALL MEET THE DESIGN CONCRETE STRENGTH GIVEN UNDER ITEM 1 OF MATERIALS

CONCRETE SHALL BE DEPOSITED, VIBRATED AND CURED IN ACCORDANCE WITH THE SPECIFICATIONS.

3. FOR CONCRETE DEPOSITED AGAINST THE GROUND, LEAN CONCRETE WITH A MINIMUM THICKNESS OF 50 MM SHALL BE LAID FIRST BEFORE INSTALLING THE REINFORCING, THIS

LEAN CONCRETE SHALL NOT BE CONSIDERED IN MEASURING THE STRUCTURAL DEPTH OF CONCRETE SECTION.

#### B. CONSTRUCTION JOINT

1. THE POSITION AND FORM OF ANY CONSTRUCTION JOINT SHALL AS SHOWN ON DRAWINGS OR AS AGREED WITH THE ENGINEERS.

C. FALSEWORK

ALL FALSEWORK SHALL BE DESIGN BY THE CONTRACTOR SUBJECT TO THE APPROVAL BY THE ENGINEER.

#### 5. EMBANKMENT

A. PRIOR TO CONSTRUCTION OF EMBANKMENT, ALL NECESSARY CLEARING & GRUBBING IN THE AREA SHALL BE PERFORMED IN CONFORMITY WITH ITEM 100. B. ALL UNSUITABLE MATERIALS, OTHER THAN DELIVERED SUITABLE MATERIALS, SHALL BE DISPOSED OF IN THE MANNER SPECIFIED IN THIS ITEM OR AS DIRECTED BY THE ENGINEER.

C. CONSTRUCTION OF ROADWAY EMBANKMENTS INCLUDES PREPARATION OF THE AREAS UPON WHICH SELECTED MATERIALS ARE TO BE PLACED, PLACING AND COMPACTING EMBANKMENT MATERIALS IN HOLES, PITS AND OTHER DEPRESSION WITHIN THE ROADWAY AREA.

#### 6. ALIGNMENT AND GRADE

A. FINISHED GRADE FOR THIS PROJECT ARE SUBJECT TO CHANGE TO SUIT EXISTING FIELD CONDITION HOWEVER THAT IT IS MORE ADVANTAGEOUS AND MORE ECONOMICAL ON THE PART OF THE GOVERNMENT AND THE DESIGN STANDARD FOR HIGHWAYS PER REQUIREMENT OF AASHTO AREA PROPERLY FOLLOWED.

B. WIDENING IN CURVES IS SUBJECTED TO ADJUSTMENT TO SUIT EXISTING FIELD CONDITION AND SHALL BE BACKFIELD WITH APPROVED MATERIALS.

C. PROPER ROAD CONNECTION AT THE BEGINNING AND END OF THE PROJECT SHALL BE PROVIDED TO ENSURE SMOOTH RIDING SURFACE.

#### 7. SUB-GRADE, SUB-BASE AND BASE

A. UNSUITABLE SUB-GRADE MATERIALS SHALL BE EXCAVATED BELOW THE GROUND SURFACE TO THE REQUIRED WIDTH AND DEPTH, THE AREA EXCAVATED SHALL BE BACKFILLED WITH THE APPROVED MATERIALS.

B. NO EMBANKMENT MATERIALS SHALL BE PLACED UNTIL THE FOUNDATION IS STABLE.

#### 8. CONCRETE AND CONCRETE PAVEMENT

A. TRAFFIC SHALL BE REQUIRED TO REDUCE SPEED WHEN PASSING THE VICINITY OF THE NEWLY LAID CONCRETE PAVEMENT UNTIL SUCH TIME THAT IT HAS OBTAINED THE FOURTEEN (14) DAYS REQUIRED CURING PERIOD.

B. NO ADMIXTURES OR ADDITIVES WILL BE ALLOWED FOR ALL CONCRETE WORKS WITHOUT PRIOR APPROVAL FROM THE SECRETARY OF DPWH OR HIS DULY APPOINTED REPRESENTATIVES. C. WHEN CONCRETING OF PAVEMENT PROGRESSES TRAFFIC SHALL BE MADE TO PASS OUTSIDE THE EMBANKMENT PRISM IN ORDER TO MINIMIZE THE EFFECT OF VIBRATION TO THE SETTING CONCRETE.

D. THE EXISTING CONCRETE CLIPS AND CLITTED THAT PRITE FOR THE PROPERTY OF THE PROPER

D. THE EXISTING CONCRETE CURB AND GUTTER THAT INTERFERES IN THE CONSTRUCTION SHALL BE REMOVED.

E. THE CONTRACTOR SHALL SUBMIT A SUPERSTRUCTURE PLACING SEQUENCE FOR THE ENGINEER'S APPROVAL.

#### F. CONCRETE STRENGTH BY CLASS

	28 DAYS	CYLINDER	MAX. SIZE OF COARSE
CLASS	STRENGTH		AGGREGATES
	MPa	PSi	mm (in)
A	20.7	3,000	38 (1-1/2)
В	16.5	2,400	50 (2)
С	20.7	3,000	12.50
Р	37.7	5,000	19 (3/4)
LEAN	9.9	1,400	

G. THE CONTRACTOR SHALL SUBMIT A SUPERSTRUCTURE PLACING SEQUENCE FOR THE ENGINEER'S APPROVAL.

N. TRAFFIC SHALL BE REQUIRED TO REDUCE SPEED WHEN PASSING THE VICINITY OF THE NEWLY LAID CONCRETE PAVEMENT UNTIL SUCH TIME THAT IT HAS OBTAINED THE FOURTEEN (14) DAYS REQUIRED CURING PERIOD.

I. NO ADMIXTURES OR ADDITIVES WILL BE ALLOWED FOR ALL CONCRETE WORKS WITHOUT PRIOR APPROVAL FROM THE SECRETARY OF DPWH OR HIS DULY APPOINTED REPRESENTATIVES.

J. WHEN CONCRETING OF PAVEMENT PROGRESSES TRAFFIC SHALL BE MADE TO PASS OUTSIDE THE EMBANKMENT PRISM IN ORDER TO MINIMIZE THE EFFECT OF VIBRATION TO THE SETTING CONCRETE.

K. THE EXISTING CONCRETE CURB AND GUTTER THAT TO MINIMIZE THE EFFECT OF VIBRATION TO THE SETTING CONCRETE.

L. THE EXISTING CONCRETE CURB AND GUTTER THAT INTERFERES IN THE CONSTRUCTION SHALL BE REMOVED.

#### 9. DRAINAGE STRUCTURES

A. EXACT LOCATIONS, SLOPES, OUTFALL, AND INVERT ELEVATIONS OF DRAINAGE STRUCTURES SHALL BE CHECKED IN THE FIELD, ADJUSTMENT MAY BE MADE TO SUIT ACTUAL FIELD CONDITIONS WITH APPROVAL OF THE ENGINEER.

B. EXISTING DRAINAGE STRUCTURES OR PARTS THEREOF REMOVED BY THE CONTRACTOR WHICH ARE STILL SERVICEABLE SHALL BE DEPOSITED AT A PLACE DESIGNATED BY THE ENGINEER WITHIN THE PROJECT SITE WITHOUT ANY COMPENSATION. EXTREME PRECAUTIONS SHALL BE EXERCISED BY THE CONTRACTOR SO AS NOT TO DAMAGE THESE MATERIALS DURING THE REMOVAL AND HANDLING.

C. PORTIONS OF EXISTING UTILITIES SUCH AS WATER MAINS, IRRIGATION CHANNELS, TELEPHONE POSTS AND TRUNK LINE. ETC. THAT MAY CAUSE OBSTRUCTION TO THE CONSTRUCTIONS OWNER CONCERNED, EXTREME PRECAUTION SHALL BE EXERCISED BY THE CONTRACTOR NOT TO DAMAGE ANY SECTION OF THE EXISTING PUBLIC UTILITIES DURING CONSTRUCTION, ANY REPAIR OF DAMAGE HEREOF SHALL BE ON THE ACCOUNT OF THE CONTRACTOR. ANY REMOVAL OF THE MISCELLANEOUS STRUCTURES THAT MAY BE REQUIRED SHALL BE MADE FOR THIS EXCEPT FOR SPECIFIC ITEMS EXPLICITLY IDENTIFIED FOR PAYMENT IN THE BID SCHEDULE.

#### 10. MISCELLANEOUS STRUCTURES

A. LOCATION AND LENGTH OF SLOPE PROTECTIONS, GUARDRAILS, STONE MASONRY RETAINING WALLS AND OTHER STRUCTURES MAY BE ADJUSTED BY THE CONTRACTOR TO SUIT ACTUAL FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER.

#### 11. REINFORCING STEEL

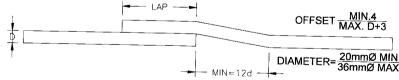
A. THE CONTRACTOR/BIDDER SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION. SHOP DRAWING SHOULD SHOW DETAILS FOR FABRICATION AND FOR PLACING REINFORCING STEEL ONLY THOSE NECESSARY FOR THE PROPER LOCATION OF THE STEEL ARE REQUIRED ON THE DRAWINGS. BENDING DETAILS MAY BE SHOWN ON A SEPARATE SHEET.

B. NO MORE THAN ONE BAR IN THERE SHALL BE SPLICED AT THE SAME SECTION UNLESS

OTHERWISE SHOWN.

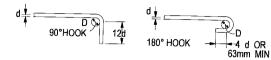
SPLICING SHALL BE KEPT TO A MINIMUM AND SHOULD BE STAGGERED AND LAPPED NOT LESS THAN 40 BAR DIAMETER UNLESS OTHERWISE SHOWN ON DRAWING. WHERE THE

LESS THAN 40 BAR DIAMETER UNLESS OTHERWISE SHOWN ON DRAWING, WHERE THE CLEAR DISTANCE BETWEEN LAPPED BARS DO NOT MEET THE REQUIREMENTS IN ITEM 12.4 THE CONTRACTOR SHALL USED CRANKED SPLICES AS DETAILED BELOW.



C. BAR SHALL BE BENT COLD. NO BAR PARTIALLY EMBEDDED IN CONCRETE SHALL BE FIELD BENT, UNLESS SHOWN ON THE DRAWN SPECIALLY PERMITTED BY THE ENGINEER. HOOKS SHALL BE FABRICATED AS SHOWN BELOW UNLESS OTHERWISE INDICATED ON THE DRAWING. BAR SHALL BE BENT AROUND A PIN WITH MINIMUM DIAMETER D.

DIMENSIONS OF 90 - DEGREE AND 180 - DEGREE HOOKS



PIN DIAMETER: D=6d FOR Ø10 THRU Ø25 D=8d FOR Ø28, Ø32 AND Ø36

DIMENSIONS FOR STIRRUPS AND TIE HOOKS



D. UNLESS OTHERWISE SHOWN IN THE DRAWINGS, THE CLEAR DISTANCE BETWEEN PARALLEL BARS IN A LAYER SHALL NOT BE LESS THAN 1.5 TIMES THE NOMINAL DIAMETER OF THE BAR NOR LESS THAN 1.5 TIMES THE MAXIMUM SIZE OF COARSE AGGREGATE. THE CLEAR DISTANCE BETWEEN LAYERS SHALL NOT BE LESS THAN 25mm NOR ONE BAR DIAMETER. THE BARS IN THE UPPER LAYER SHALL BE PLACED DIRECTLY ABOVED THOSE IN THE BOTTOM LAYER.

E. EXCEPT OTHERWISE SHOWN ON THE DRAWINGS, MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT AS FOLLOWS.

	MINIMUM CLEAR COVER mm (in)
CONCRETE IN A MARINE ENVIRONMENT OF CONCRETE	
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH CONCRETE EXPOSED TO EARTH OR WEATHER	75 (3)
PRIMARY REINFORCEMENT	50 (2)
STIRRUPS, TIES & SPIRAL	40 (1-1/2)
CONCRETE NOT EXPOSED TO WEATHER OR IN	70 (1-1/2)
CONTACT WITH GROUND	
PRIMARY REINFORCEMENT	40 (1-1/2)
STIRRUPS, TIES & SPIRAL	25 (1)
CONCRETE DECK SLABS	20(1)
TOP REINFORCEMENT	50 (2)
BOTTOM REINFORCEMENT	25 (1)

THIS PLAN SHALL ONLY BE USED AS A GUIDE, SPECIFICALLY IN THE PRE-CONSTRUCTION STAGE. THE ACTUAL IMPLEMENTATION FOR THE PROJECT, ON THE HAND, WILL BE BASED ON THE "AS-STAKED" WHICH WILL BE DONE JOINTLY BY THE CONTRACTOR, THE IMPLEMENTING OFFICE, AND THE PLANNING AND DESIGN DIVISION, FOR THE ADDITIONAL REVIEW AND APPROVAL OF THE REGIONAL

REVISE THE TEMPLATE AND/OR STAKE OUT THE LOCATION OF LINED CANAL AND OTHER STRUCTURES AS PER TYPICAL ROADWAY SECTION BEFORE COMMENCING CONSTRUCTION. ADDITIONALLY, ANY CHANGES IN THE QUANTITY OF WORKS ITEM INVOLVED AS A RESULT OF REVISION MUST BE COMPUTED AND RE-CONSIDERED IN THE "AS-STAKED PLAN".



DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION VIII
TACLOBAN CITY DISTRICT
ENGINEERING OFFICE
NEW BUS TERMINAL BROW OF A BUILDY TO GO OFFICE

PROJECT NAME AND LOCATION:

REPAIR/ MAINTENANCE OF DAMAGED PAVED
ROAD - K0907+209 - K0907+321.5 ALONG
TIGBAO- STA.FE- SAN MIGUEL ROAD (S00033LT)

CONSTRUCTION REQUIREMENT

SHEET CONTENTS

JONAS F. POSTRERO
PREPARED:

REY R. JECHO

RACLEA-AN

DATE: ENGLISHER II

REVIEWED

EY R. JACHO

ENGINER II

ENGINEER II, MAINTENANCE SECTION
DATE:

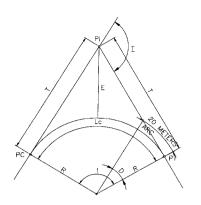
CHARLIE S AMPIL
DIC - ASSISTANT DISTRICT ENGINE

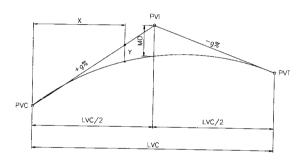
RECOMMENDED

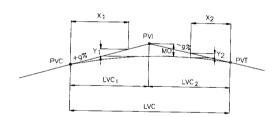
NEER DATE DATE

APPROVED

RAY PLACE
DIC - DISPARA ENGINEER
01118 2.025







#### FORMULA:

T = R ( TAN1/2 )

 $Lc = \frac{11}{180}IR$ 

 $D = \frac{1145.916}{D}$ 

E = T ( TAN1/4 )

#### LEGEND:

PI - POINT OF HORIZONTAL INTERSECTION

I - EXTERNAL ANGLE

T - LENGTH OF TANGENT

R - HORIZONTAL RADIUS

Lc - LENGTH OF CIRCULAR CURVE D - DEGREE OF CURVE (ARC DEFINITION)

PC - POINT OF CURVATURE PT - POINT OF TANGENCY

E - EXTERNAL DISTANCE

#### LEGEND:

PVI — POINT OF VERTICAL INTERSECTION
PVC — POINT OF VERTICAL CURVATURE
PVT — POINT OF VERTICAL TANGENCY
LVC, LVC1, LVC2 — LENGTH OF VERTICAL CURVES
9 — GRADE IN PERCENT
MO — MIDDLE ORDINATE

X, X<sub>1</sub>, X<sub>2</sub> - DISTANCE FROM PVC OR PVT TO ANY POINT ON CURVE

Y, Y<sub>1</sub>, Y<sub>2</sub> - VERTICAL OFFSET

A - ALGEBRAIC DIFFERENCE OF GRADES IN %

#### NOTE:

NO VERTICAL CURVE IS REQUIRED WHEN THE ALGEBRAIC DIFFERENCE IN GRADE IS LESS THAN 0.5%

#### IN ANY SYMMETRICAL VERTICAL PARABOLIC CURVE

$$MO = \frac{ALVC}{800}$$

### FORMULA:

#### LEGEND :

A — ALGEBRAIC DIFFERENCE OF GRADIENTS (%)

K – RATE OF VERTICAL CURVATURE (m)

## IN ANY UNSYMMETRICAL VERTICAL PARABOLIC CURVE

$$IO = \frac{(LVC_1)(LVC_2)(A}{LVC_1}$$

MO(X<sub>2</sub>)<sup>2</sup> (LVC 2)<sup>2</sup> Y<sub>2</sub> =

#### FORMULA:

#### LVC = KA LEGEND :

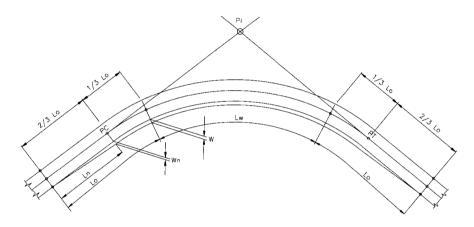
A - ALGEBRAIC DIFFERENCE OF GRADIENTS (%)

K - RATE OF VERTICAL CURVATURE (m)

#### DESIGN SPEED (Km/h) 30 KPH 40 KPH 50 KPH 60 KPH 70 KPH MIN. K FOR CREST VERTICAL CURVE 10 17 25 MIN. K FOR SAG VERTICAL CURVE 8.5 16 18.5

#### WIDENING OF PAVEMENT ON CURVE

			11 011 007	1 V L		
	RANGE	V=30 (Km/h)	0 V=40 V=50 'h) (Km/h) (Km/h)		V=60 (Km/h)	
WIDENING	MANGE	RADIUS	RADIUS	RADIUS	RADIUS	
(m)	0.549	ABOVE 90	ABOVE 105	ABOVE 123	ABOVE 143	
0.6	0.550 0.699	89 ~ <sub>73</sub>	104 ~ 84	122 ~ 97	142 ~ 112	
8.0	0.700 0.899	<sup>72</sup> ~ 58	83 ~ 66	96 ~ 76	111 ~ 86	
1.0	0.900 1.099	57 ~ 48	65 ~ 54	75 ~ 61	85 ~ 69	
1.2	1.100 1.299	47 ~ 41	53 ~ 46	60 ~ 51	68 ~ 58	
1.5	1.300	BELOW 41	BELOW 46	BELOW 51	BELOW 58	





$$Wn = \frac{WLn}{L}$$

#### LEGEND :

W = WIDENING WIDTH

Lo = LENGTH OF SUPERELEVATION RUN-OFF
Lw = LENGTH OF FULL WIDENING WIDTH
Ln = LENGTH FROM THE BEGINNING OF RUN-OFF

WITH A WIDENING OF Wn

Wn = WIDENING OF LENGTH Ln



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION VIII
TACLOBAN CITY DISTRICT ENGINEERING OFFICE BUS TERMINAL, BRGY. 91, ABUCAY, TACLOBAN

PROJECT NAME AND LOCATION:

REPAIR/ MAINTENANCE OF DAMAGED PAVED ROAD - K0907+209 - K0907+321.5 ALONG TIGBAO- STA.FE- SAN MIGUEL ROAD (S00033LT)

SHEET CONTENTS:

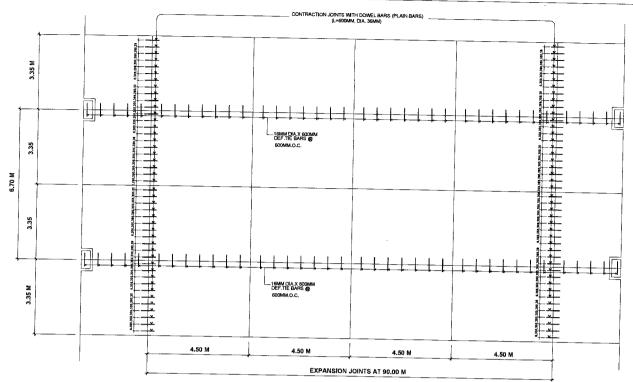
STANDARD GEOMETRIC DESIGN

PREPARED:

REVIEWED: REY R. JECINO

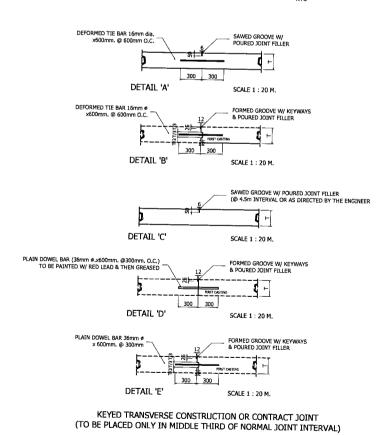
RECOMMENDED: MARY GRACE L. GADDI ENGINEER I, MAINTENANCE SEC MAINTENANCE SECTION

APPROVED:



#### PAVEMENT LAYOUT PLAN

#### TYPICAL PLAN OF A FOUR LANE PAVEMENT



#### NOTE:

TRANSVERSE CONSTRUCTION (CONTACT) JOINT WERE PROVIDED AT THE OF ANY RUN WHERE LAYING OF CONCRETE WERE STOPPED FOR THIRTY (30) MINUTES

TRANVERSE CONSTRUCTION JOINTS WHICH OCCUR AT LOCATION OF WEAKENED PLANE, BUT JOINTS WITH DOWELS ARE USED, JOINTS OCCURS IN THE MIDDLE THIRD OF THE WEAKENED PLANE (1500 - 3000 mm.), KAYED JOINT WITH THE BARS IS USED,

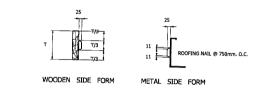
DRILLING OF HOLES ON EXISTING PCCP AND OTHER STRUCTURES WERE PERFORMED USING POWER TOOLS THE HOLES WERE PROPERLY CLEANED BEFORE GROUT/EPOXY INJECTION AND INSTALLATION OF DOWELS/THE BARS,

THE SIDE OF EXISTING CONCRETE PAVEMENT WERE CHIPPED OFF THE ROUGHEN THE SURFACE DOWEL BARS. IT WAS PROVIDED TO CONNECT THE NEW PAVEMENT
WITH THE EXISTING PAVEMENT UP TO IN DISTANCE WHERE THE FLARE IS LESS 1000mm

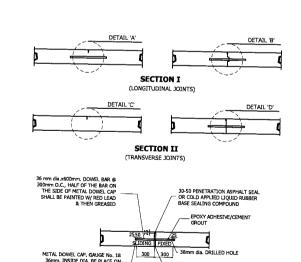
DRILLING ON HOLES ON EXISTING PCCP WERE PERFORMED USING POWER TOOLS THE HOLES WERE
THOROUGHLY CLEANED BEFORE GROUT/EPOXY INJECTION AND INSTALLATION OF DOWEL BARS.

#### **GENERAL NOTES:**

- MATERIALS AND WORKMANSHIP WERE CORFORMED WITH THE DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS, BRIDGES AND AIRPORTS 2013 AND SPECIALS PROVISIONS.
- 2. CONSTRUCTION (CONTACT) JOINTS ARE FORMED WHEN CONCRETE ON ONE SIDE OF THE JOINT IS POURED AHEAD AND ALLOWED TO SET BEFORE POURING ON THE OTHER SIDE.
- 3. AT CONSTRUCTION JOINTS (LONGITUDINAL OR TRANSVERSE) WERE NO CONCRETE FROM THE LAST SLAB PLACED OVERHANGS ANY PORTION OF THE FIRST SLAB.
- 4. THE BARS ARE DEFORMED STEEL BARS. ALL THE DOWEL BARS BE SMOOTH ROUND STEEL BARS FREE FROM THE RUST AND OTHER THE DEFECTS WHICH MIGHT RESTRICT THIER MOVEMENT.
- 5. TYPED OF WEAKENED PLAIN JOINT TO ARE USED SPECIFIED IN THE PLANS AND ONLY ONE TYPE IS USED FOR THE WHOLE PROJECT.
- 6. MATERIAL FOR THE METAL SIDE ARE BRAND NEW SHEET METAL GAUGE No. 18 OF BLOCK IRON FREE FROM THE RUST AND KINKS.
- 7. SIX (6) SUCCESSIVE DOWELLED BUTT JOINTS AT NORMAL JOINT ARE PROVIDED BEFORE ON AFTER IN EXPANSION JOINT.
- 8. THE GROOVE OR CRACK ABOVE JOINTS (LONGITUDINAL OR TRANVERSE) ARE SEALED WITH 30 - 50 PENETRATION ASPHALT SEAL OR COLD APPLIED LIQUID RUBBER COMPOUND AFTER THE CONCRETE IS CURED AND BEFORE OPENING THE PAVEMENT TO TRAFFIC. ASPHALT SEAL WERE POURED IN SUCH MANNER THAT SPILLING IS PREVENTED/ELIMINATED.THIS PROVIDE A SMOOTH RIDING SURFACE.
- 9. ALL TRANVERSE JOINTS, EXCEPT CONTRUCTION JOINT CONTINUOUS FROM THE EDGE TO EDGE
- 10. ALL LONGITUDINAL JOINTS ARE AT INTERSECTIONS WITH NO GAPS OR
- 11. ALL DIMENSIONS ARE IN MIIMETERS, UNLESS OTHERWISE SPECIFIED.
- 12. AVOID STOPPAGE OF FORMWORKS ALONG CURVES.



DETAIL OF SIDE FORM



DETAILED OF DOWELLED EXPANSION JOINT AT



TACLOBAN CITY DISTRICT ENGINEERING OFFICE
JS TERMINAL, BRGY. 91, ABUCAY, TACLOBAN CITY PROJECT NAME AND LOCATION:

REPAIR/ MAINTENANCE OF DAMAGED PAVED ROAD - K0907+209 - K0907+321.5 ALONGTIGBAO-STA.FE- SAN MIGUEL ROAD (S00033LT) TYPICAL PLAN OF A FOUR LANE PAVEMENT

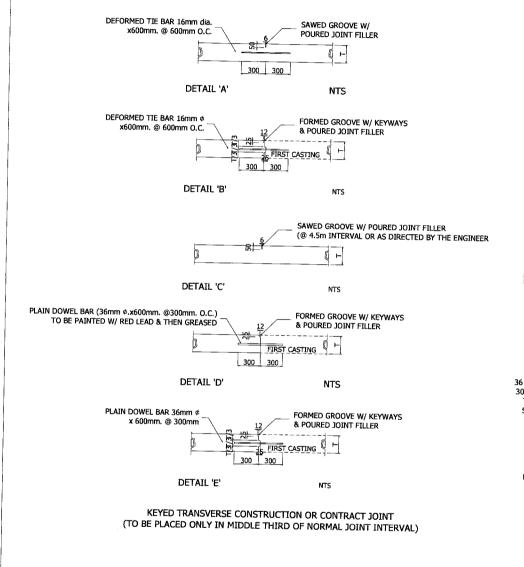
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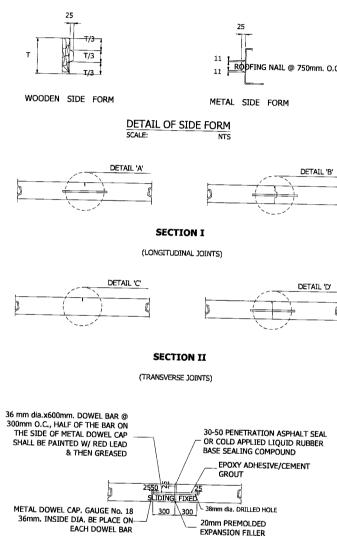
REVIEWED: PREPARED:

MARY GRACE L. GADDI AINTENANCE SECTION

RECOMMENDED:

APPROVED:

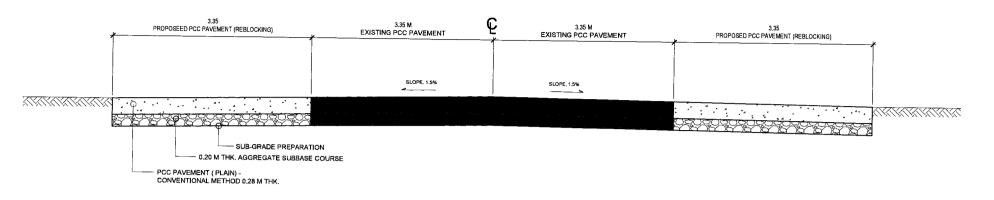




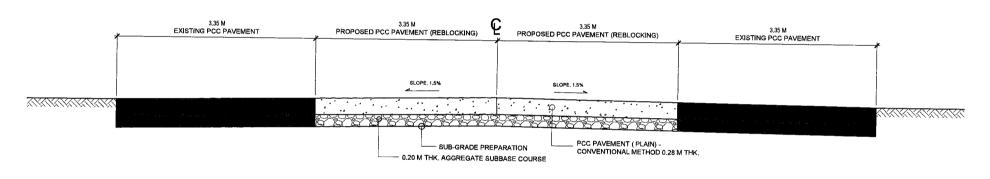
DETAILED OF DOWELLED EXPANSION JOINT AT PCCP AND EXISTING STRUCTURES

AS F	ER D.O. 40, S. 20	SUBST	TUTE	
THICKNESS OF PCCP (MM)	SIZE OF DOWEL BAR (MM)	SPACING (MM)	SIZE OF DOWEL BAR (MM)	SPACING (MM)
			32	250
280	36	300	28	190
			25	150
			32	230
290	36	295	28	170
			25	140
			32	210
300	36	274	28	150
			25	130
		255	32	200
310	36		28	150
			25	120
			32	190
320	36	238	28	140
			25	110
			32	180
330	36	223	28	130
			25	110
0.40			32	170
340	36	209	28	130
			25	100

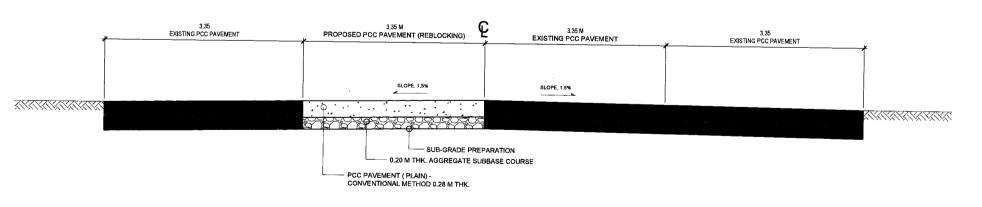
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION VIII
TACLOBAN CITY DISTRICT
ENGINEERING OFFICE
NEW BUS TERMINAL, BRGY, 81, ABUCAY, TACLOBAN CITY PROJECT NAME AND LOCATION: SHEET CONTENTS: REVIEWED: REPAIR/ MAINTENANCE OF DAMAGED PAVED ROAD - K0907+209 - K0907+321,5 ALONG TIGBAO- STA.FE- SAN MIGUEL ROAD (S00033LT) RECOMMENDED: APPROVED: SET NO. SHEET NO. KEYED TRANSVERSE CONSTRUCTION OR CONTRACT JOINT PREPARED: DETAILED OF DOWELLED EXPANSION JOINT AT PCCP AND EXISTING STRUCTURES MARY GACEL. GADDI



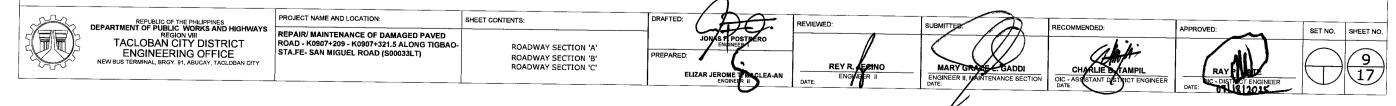
# ROADWAY SECTION 'A' SCALE 1:100

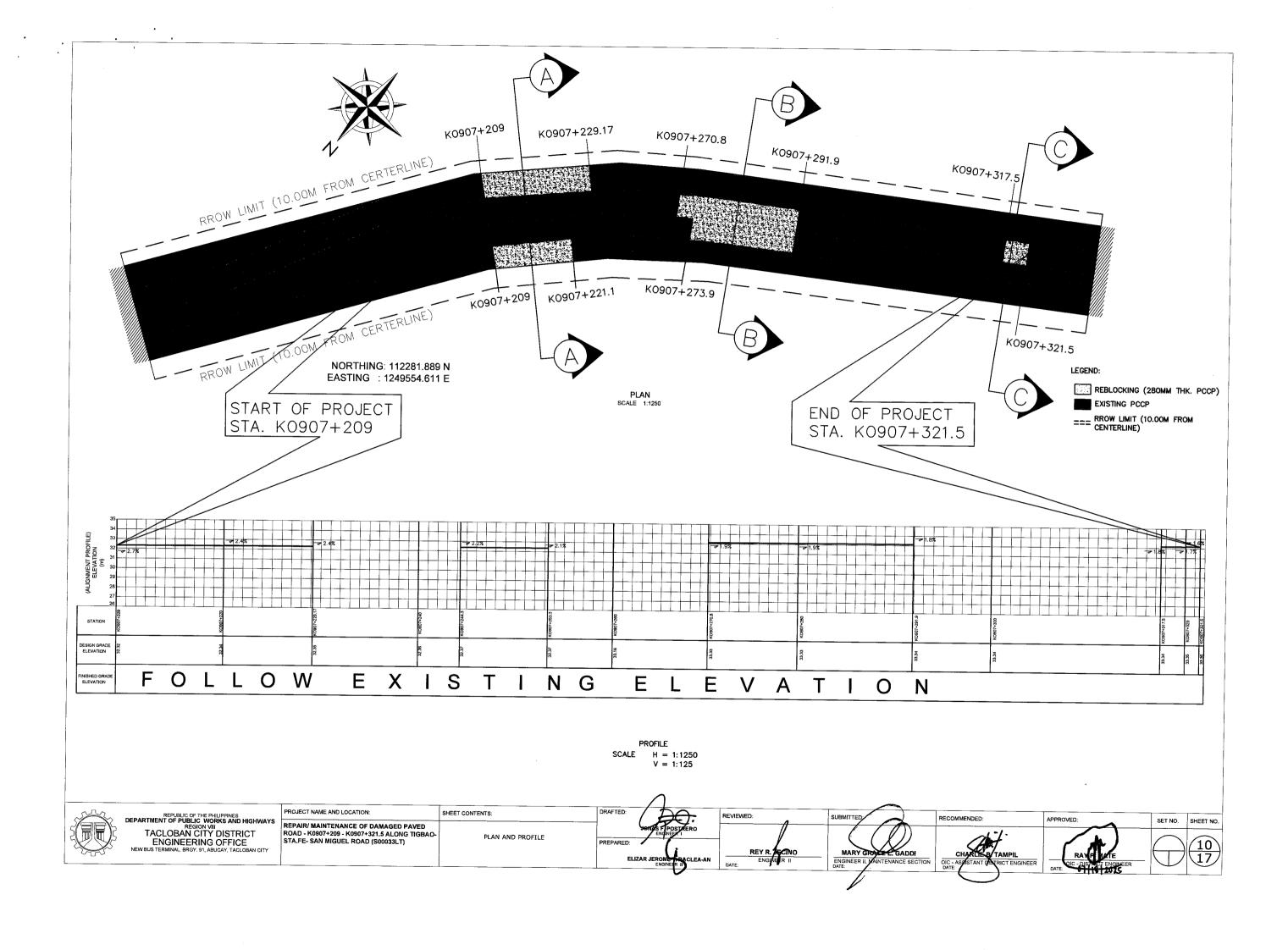


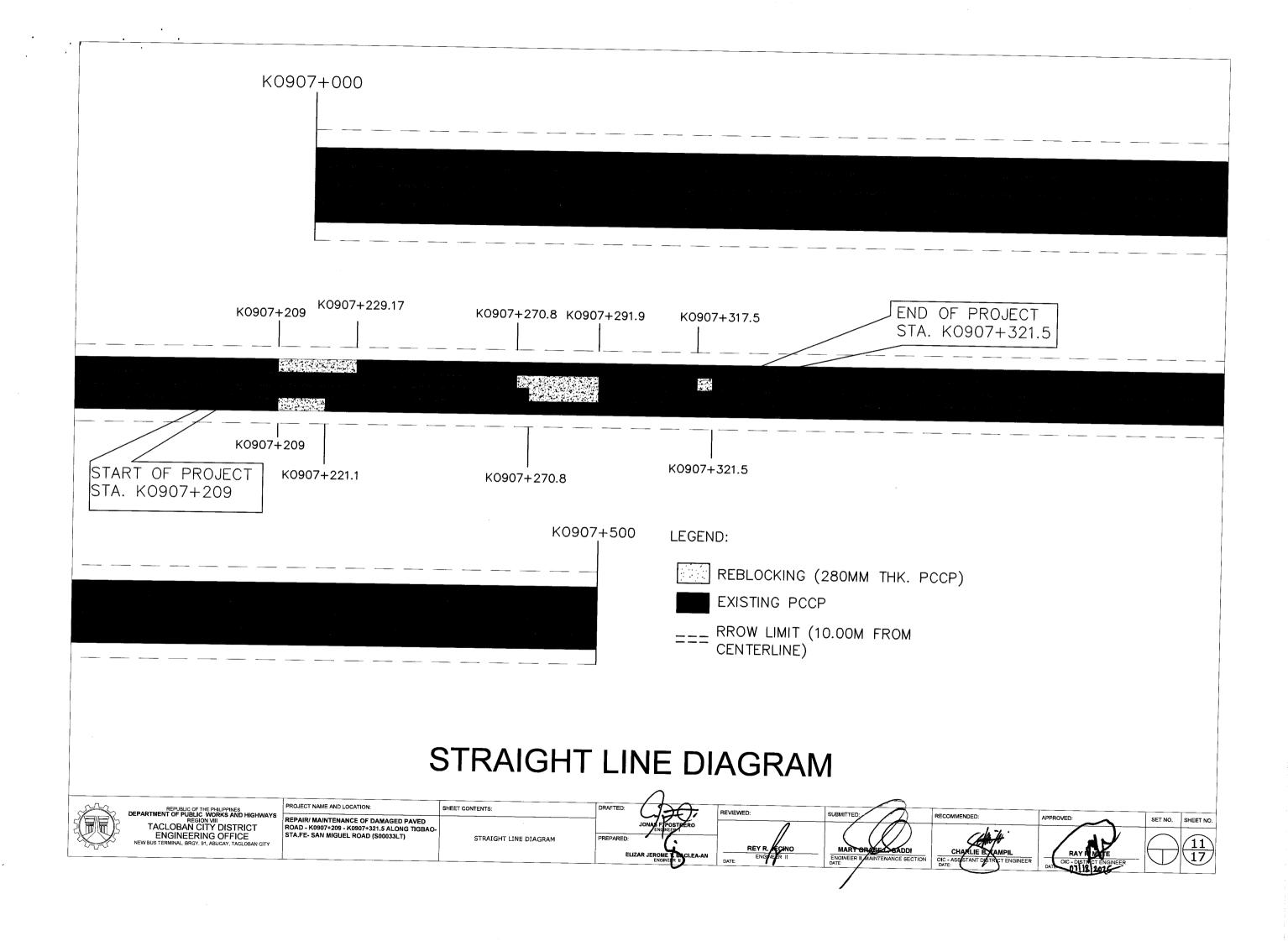
# ROADWAY SECTION 'B' SCALE 1:100

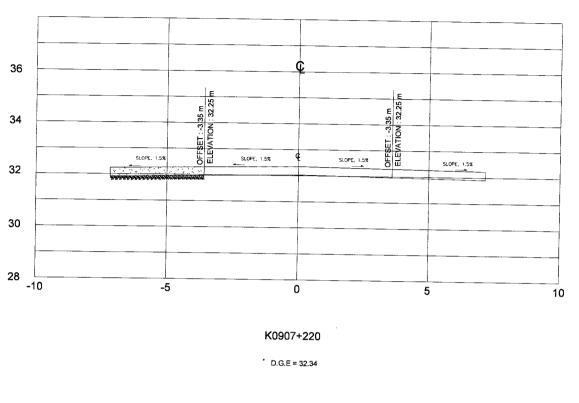


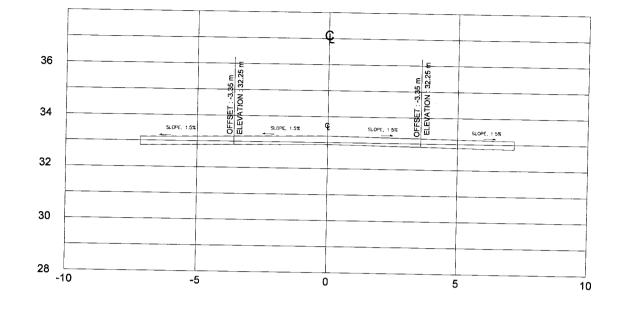
# ROADWAY SECTION 'C' SCALE 1:100



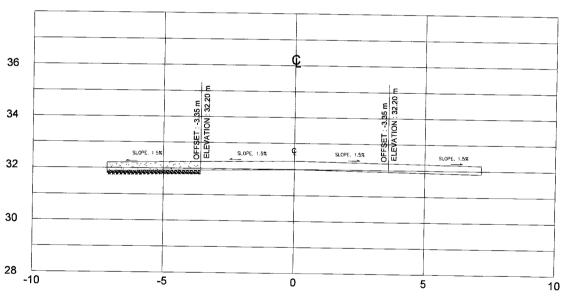






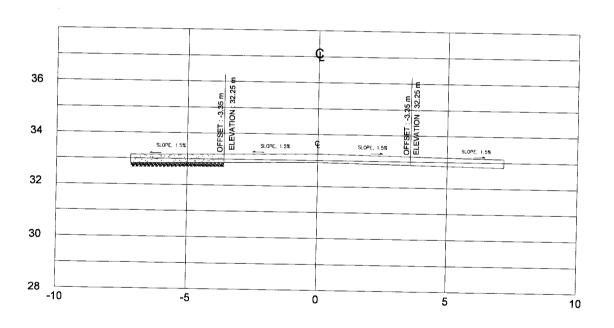


K0907+240 D.G.E = 32.36



K0907+209

D.G.E = 32.32



K0907+229.17

D.G.E = 32.35

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TACLOBAN CITY DISTRICT
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SHEET CONTENTS: CROSS SECTION A

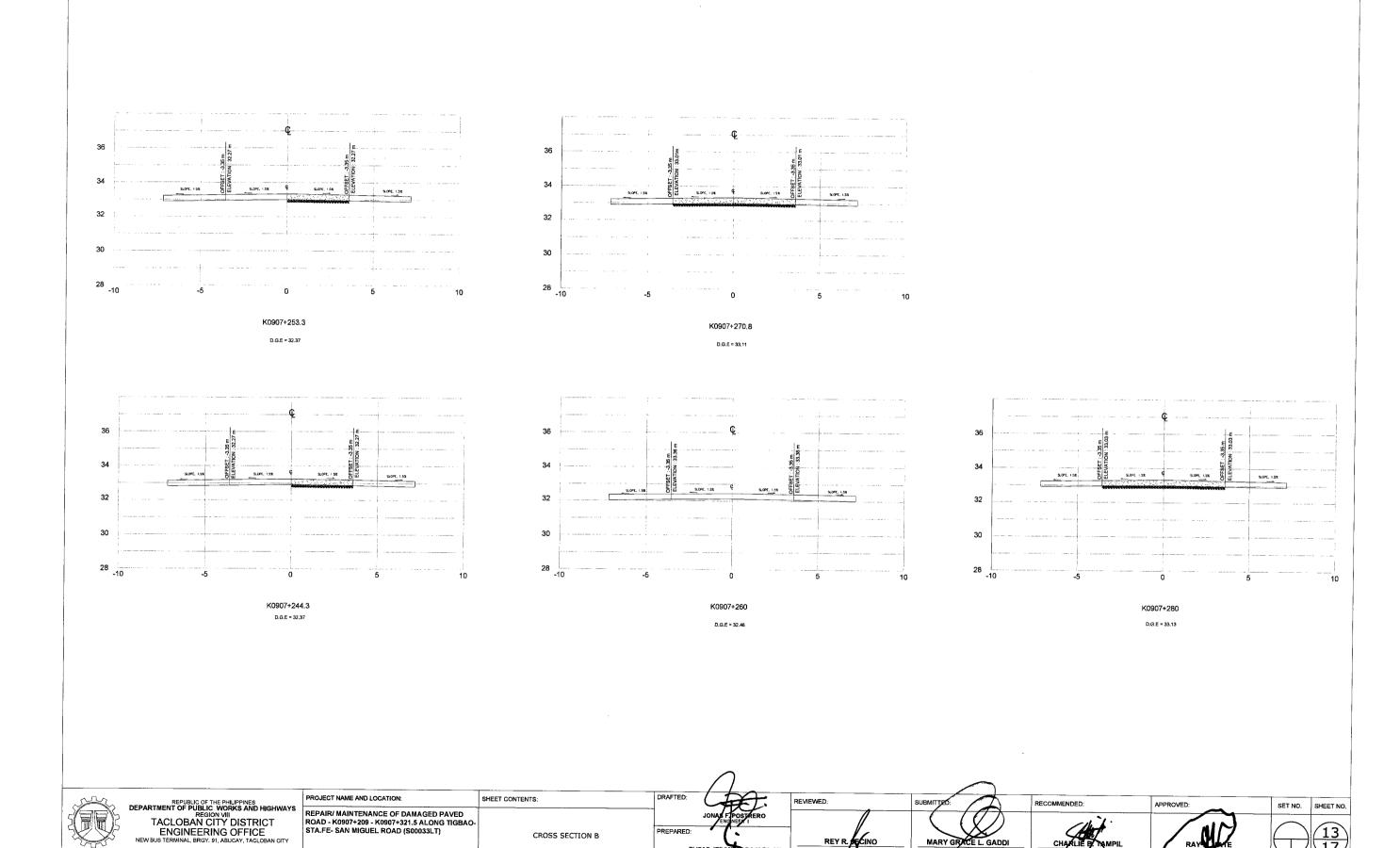
REVIEWED:

MARY GRASS GADDI
ENGINEER II. MAINTENANCE SECTION
DATE:

CHARLIE D. TAMPIL

OIC - ASSISTANT DISTRICT ENGINEER
DATE:

APPROVED:



MARY GRACE L. GADDI ENGINEER II MAINTENANCE SECTION DATE:



REPUBLIC OF THE PHILIPPINES

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REGION VIII

TACLOBAN CITY DISTRICT
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NEW BUS TERMINAL, BRGY. 91, ABUCAY, TACLOBAN CITY

PROJECT NAME AND LOCATION:

REPAIR/ MAINTENANCE OF DAMAGED PAVED
ROAD - K0907+209 - K0907+321.5 ALONG TIGBAOSTA.FE- SAN MIGUEL ROAD (S00033LT)

SHEET CONTENTS:

CROSS SECTION C

JONAS F. POSTRERO
PREPARED:

REY R. JESÍNO

BIOGRAPIR II

REVIEWED:

SUBMITTED: RECOMMENDED:

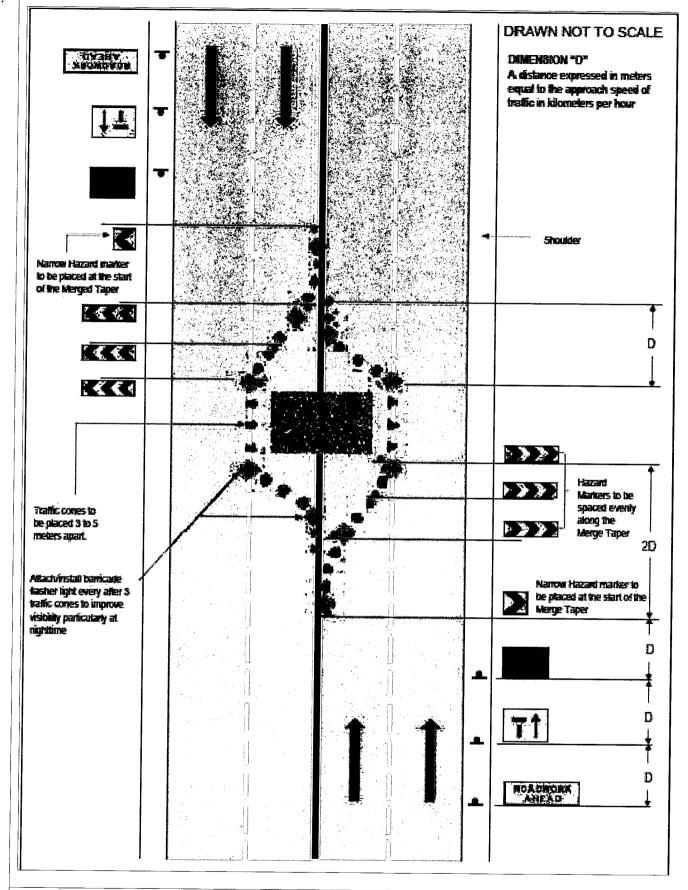
MARY GRUE GADDI

ENGINEER II MAINTENANCE SECTION

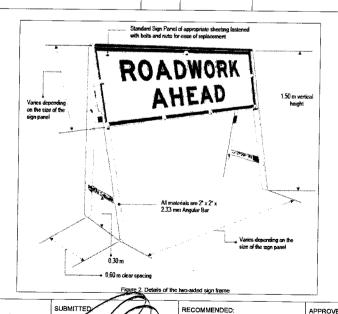
OL ASSETANT

CHARLIE & TAMPIL
OIC - ASSISTANT DISTRICT ENGINEER
DATE:

RAY THE OIC - DISTRICT ENGINEER DATE OF THE PROPERTY OF THE PR



SCHEDULE OF TRAFFIC MANAGEMENT SIGNS Size (mm) (Width X Height) Sign No. Letters/Symbols ROADWORK AHEAD ROADWORK Line 1 - White 200 DM T1-1 1800 X 600 Yellow Reflectorized AHEAD (T1-1, T1-31)Line 2 - White 160 DM WORKMEN AHEAD (Symbolic) Red / Orange (T1-5)-Fluorescent for day T1-5 900 X 600 Black use (Short Term) -Reflectorized for night use (Long Term) END END ROADWORK Line 1 - White 200 DM T2-16 1800 X 600 **ROADWORK** (T2-16, T2-17) Line 2 - White 160 DM PREPARE TO STOP Line 1 - White 120 DM (T1-18)Line 2 - White 120 DM ΤO T1-18 900 X 600 Red Reflectorized STOP Line 3 - White 120 EM Reflectorized TEMPORARY HAZARD MARKER 600 X 600 Chevrons T5-5 Yellow Reflectorized Black 194 wide at 45° Type B-3 ROAD MACHINERY AHEAD ROAD Line 1 - Black 100 EM (T1-3)**MACHINERY** Line 2 - Black 120 DM T1-3 900 X 600 Yellow Reflectorized AHEAD Line 3 - Black 100 EM PEDESTRIANS -> PEDESTRIANS BLACK 100 CM ARROW 140 1200 X 300 Yellow Reflectorized (T8-2 L or R) ← PEDESTRIANS Traffic Cones Traffic Bollards with Barricade Flasher Light





DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS TACLOBAN CITY DISTRICT ENGINEERING OFFICE
US TERMINAL, BRGY, 91, ABUCAY, TACLOBAN CITY

PROJECT NAME AND LOCATION:

REPAIR/ MAINTENANCE OF DAMAGED PAVED ROAD - K0907+209 - K0907+321.5 ALONG TIGBAO-STA.FE- SAN MIGUEL ROAD (S00033LT)

SHEET CONTENTS:

SCHEDULE OF TRAFFIC MANAGEMENT SIGNS DETAILS OF TRAFFIC MANAGEMENT SIGNS

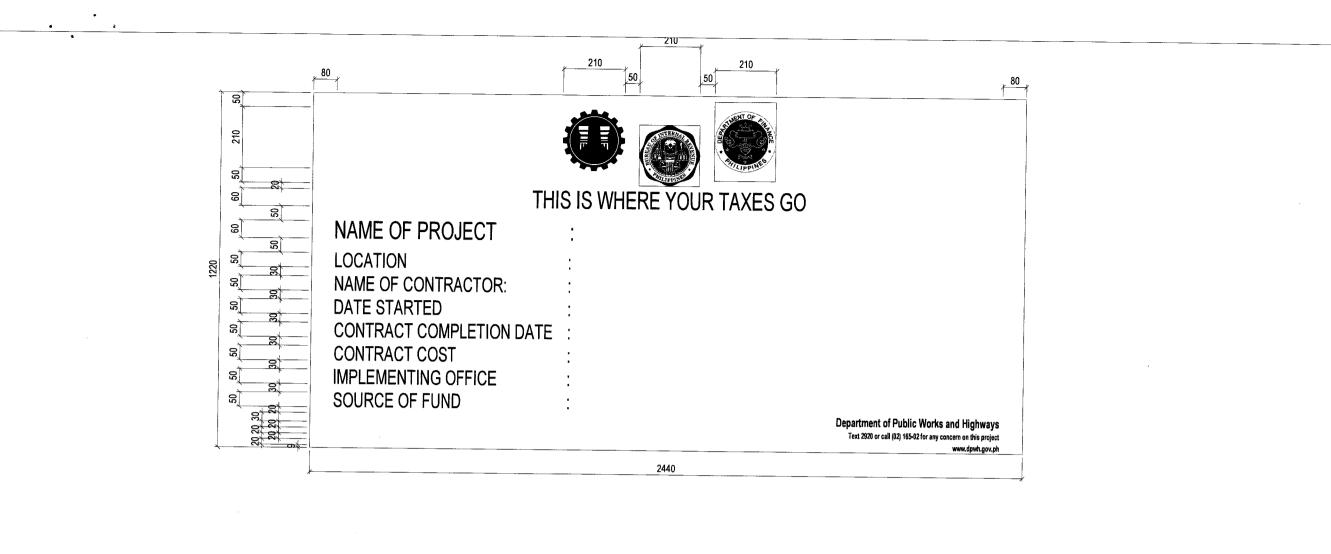
PREPARED:

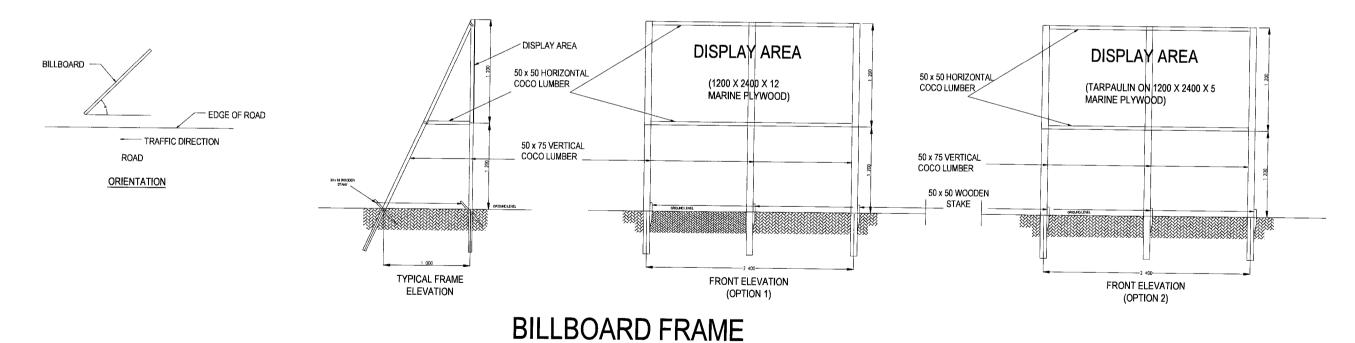
REVIEWED:

MARY GRACE L. GADDI

ENGINEER I

APPROVED:





REVIEWED:

RECOMMENDED:

MARY GRACE LOADDI

SET NO. SHEET NO.

(NOT TO SCALE, ALL DIMENSIONS ARE IN MILLIMETERS)

PROJECT NAME AND LOCATION:

TACLOBAN CITY DISTRICT ENGINEERING OFFICE REPAIR/ MAINTENANCE OF DAMAGED PAVED ROAD - K0907+209 - K0907+321.5 ALONG TIGBAO-STA.FE- SAN MIGUEL ROAD (S00033LT)

SHEET CONTENTS:

STANDARD DPWH PROJECT BILLBOARD

			Government Cent	er Candahug, Palo,				
			Ley	yte				
Project :				ost :				
Location :			<del></del>	F	and Source/s:			
Implementing A	gency/ies:		_					
Development Pa	rtner/s :		_					1
Contractor/Supp	olier :		_					
Brief Description	of Project :		_					
Project Details :								
Project Date Target			Percentage	Percentage Percentage				
Duration	Started	Date of Completion	of Completion	As of (Date)	Cost Incurred to Date	Date Completed	Remarks	
		his project, please cor	ntact the Regional Offic	ce or Cluster <b>w</b> hich	has audit jurisdiction	on this project :		
			or Te	ext COA Citizen's De	sk at 0915-5391957		i	
		<u> </u>						
								1

#### **SPECIFICATIONS:**

1. TARPAULIN, WHITE, 8 FT X 8 FT

2. RESOLUTION: 70 DPI

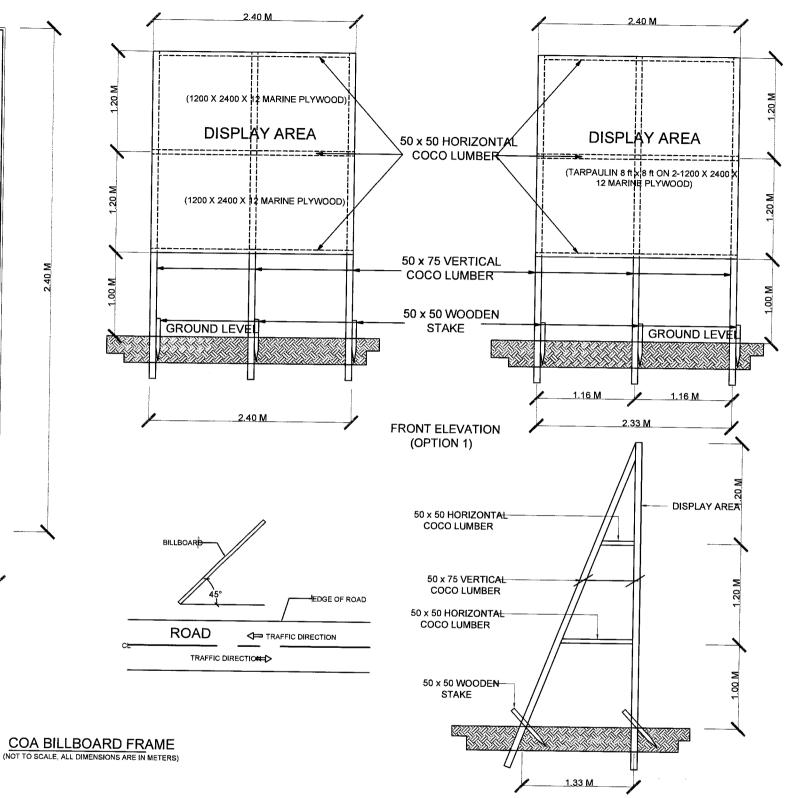
3. FONT: HELVETICA

4. FONT SIZE: MAIN INFORMATION - 3" SUB-INFORMATION - 1"

5. FONT COLOR: BLACK

6. BACKGROUND COLOR: WHITE

COA BILLBOARD FRAME





REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. VIII
TACLOBAN CITY DISTRICT

PROJECT NAME AND LOCATION: REPAIR/ MAINTENANCE OF DAMAGED PAVED ROAD - K0907+209 - K0907+321.5 ALONG TIGBAO-STA.FE- SAN MIGUEL ROAD (S00033LT)

SHEET CONTENTS:

DRAFTED: ELIZAR JER

MARY GRACE L. GADDI

SET NO. SHEET NO.

COA BILLBOARD

REVIEWED: