



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

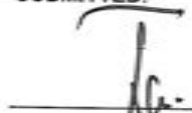
REGIONAL OFFICE No. XI
GOV. CHAVEZ COR. R. MAGSAYSAY ST. DAVAO CITY

C.Y. 2025 PROJECT
DETAILED ENGINEERING DESIGN PLAN FOR

PREVENTIVE MAINTENANCE OF ROAD:
ASPHALT OVERLAY - MAHARLIKA HIGHWAY - (S01364MN) K1469+368
- K1469+530, K1470+168 - K1470+537, (S00066MN) K1471+521 -
K1471+890, DAVAO DEL NORTE

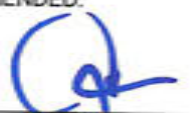
SECTION	:	BRGY. TUGANAY
LOCATION	:	CARMEN, DAVAO DEL NORTE
STATION LIMITS (AS PER RBIA)	:	SECTION 1: (S01364MN) K1469+368 TO K1469+530 SECTION 2: (S01364MN) K1470+168 TO K1470+400 SECTION 3: (S00066MN) K1471+658 TO K1471+890 SECTION 4: (S01364MN) K1470+400 TO K1470+537 SECTION 5: (S00066MN) K1471+521 TO K1471+658
STATION LIMITS (AS PER PLAN)	:	SECTION 1: STA. 1469+333.776 TO STA. 1469+495.924 (WITH EQUATIONS) SECTION 2: STA. 1470+052.263 TO STA. 1470+284.141 (WITH EQUATION) SECTION 3: STA. 1470+052.263 TO STA. 1470+284.141 (WITH EQUATION) SECTION 4: STA. 1470+284.141 TO STA. 1470+421.141 SECTION 5: STA. 1470+284.141 TO STA. 1470+421.141
PHYSICAL TARGET	:	0.900 KM. / 1.610 LANE-KM.
ROAD SECTION ID	:	(S01364MN), (S00066MN)

SUBMITTED:


JUDY ANN T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION

DATE:

RECOMMENDED:


JOSELITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR

DATE:

APPROVED:


JUBY B. CORDON
REGIONAL DIRECTOR

DATE:

A. GENERAL INFORMATION AND DETAILS

PROJECT LIMITS

ASPHALT OVERLAY

SECTION 1 (OUTER 2 LANES)

AS PER RBIA:

(S01364MN)

BEGINNING OF SECTION 1 : K 1469 + 368

END OF SECTION 1 : K 1469 + 530

TOTAL LENGTH = 162.00 LN.M

AS PER PLAN:

BEGINNING OF SECTION 1 : Sta. 1469 + 333.776

END OF SECTION 1 : Sta. 1469 + 495.924

TOTAL LENGTH = 162.000 LN.M

PLUS / MINUS EQUATIONS:

$$\frac{\text{STA. 1469} + 399.852 \text{ BK}}{\text{STA. 1469} + 400.000 \text{ AH}} = 0.148$$

TOTAL EQUATION = 0.148

NET LENGTH OF SECTION 1 = 162.000 LN.M

SECTION 2 (OUTER 1 LANE)

AS PER RBIA:

(S01364MN)

BEGINNING OF SECTION 2 : K 1470 + 168

END OF SECTION 2 : K 1470 + 400

TOTAL LENGTH = 232.00 LN.M

AS PER PLAN:

BEGINNING OF SECTION 2 : Sta. 1470 + 052.263

END OF SECTION 2 : Sta. 1470 + 284.141

TOTAL LENGTH = 231.878 LN.M

PLUS / MINUS EQUATIONS:

$$\frac{\text{STA. 1470} + 140.122 \text{ BK}}{\text{STA. 1470} + 140.000 \text{ AH}} = 0.122$$

TOTAL EQUATION = 0.122

NET LENGTH OF SECTION 2 = 232.000 LN.M

SECTION 3 (OUTER 1 LANE)

AS PER RBIA:

(S00066MN)

BEGINNING OF SECTION 3 : K 1471 + 658

END OF SECTION 3 : K 1471 + 890

TOTAL LENGTH = 232.00 LN.M

AS PER PLAN:

BEGINNING OF SECTION 3 : Sta. 1470 + 052.263

END OF SECTION 3 : Sta. 1470 + 284.141

TOTAL LENGTH = 231.878 LN.M

PLUS / MINUS EQUATIONS:

$$\frac{\text{STA. 1470} + 140.122 \text{ BK}}{\text{STA. 1470} + 140.000 \text{ AH}} = 0.122$$

TOTAL EQUATION = 0.122

NET LENGTH OF SECTION 3 = 232.000 LN.M

SECTION 4 (3 LANES)

AS PER RBIA:

(S01364MN)

BEGINNING OF SECTION 4 : K 1470 + 400

END OF SECTION 4 : K 1470 + 537

TOTAL LENGTH = 137.00 LN.M

AS PER PLAN:

BEGINNING OF SECTION 4 : Sta. 1470 + 284.141

END OF SECTION 4 : Sta. 1470 + 421.141

TOTAL LENGTH = 137.000 LN.M

NET LENGTH OF SECTION 4 = 137.000 LN.M

SECTION 5 (3 LANES)

AS PER RBIA:

(S00066MN)

BEGINNING OF SECTION 5 : K 1471 + 521

END OF SECTION 5 : K 1471 + 658

TOTAL LENGTH = 137.00 LN.M

AS PER PLAN:

BEGINNING OF SECTION 5 : Sta. 1470 + 284.141

END OF SECTION 5 : Sta. 1470 + 421.141

TOTAL LENGTH = 137.000 LN.M

NET LENGTH OF SECTION 5 = 137.000 LN.M

NET LENGTH FOR OVERLAY = 900.000 LN.M



1 LOCATION PLAN

SCALE: 1:10,000

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REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ COR. R. NAGSAYAN AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:

PREVENTIVE MAINTENANCE OF ROAD:
ASPHALT OVERLAY - MAHARLIKA HIGHWAY -
(S01364MN) K1469+368 - K1469+530, K1470+168 -
K1470+537, (S00066MN) K1471+521 - K1471+890,
DAVAO DEL NORTE

SHEET CONTENTS:

PROJECT LIMITS
INDEX OF SHEETS
LOCATION PLAN

DRAFTED AND PREPARED:

EDUARDO JOSEPH M. SARTIGA
ENGINEER II

REVIEWED:

DENVER ALDORIN A. SEMPIO
ENGINEER I, D.C. SECTION CHIEF

DESIGNED:

JUDITH T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION

RECOMMENDED:

JOSE LITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR

APPROVED:

JUBY B. CORDON
REGIONAL DIRECTOR

SET NO.

A
1/12

SHEET NO.

1
24



1 VICINITY MAP
NOT TO SCALE

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION OF WORK	UNIT	QUANTITY	REMARKS
PART A. FACILITIES FOR ENGINEER				
A.1.1(3)	CONSTRUCTION OF FIELD OFFICE FOR THE ENGINEER	LS	1.00	BAHAY KUBO
A.1.1(5)	OPERATION AND MAINTENANCE OF FIELD OFFICE FOR THE ENGINEER	MONTH	2.00	
PART B. OTHER GENERAL REQUIREMENT				
B.4(1)	CONSTRUCTION SURVEY AND STAKING	KM	0.30	
B.5	PROJECT BILLBOARD / SIGNBOARD (2 OPVM)	EACH	2.00	
B.5	PROJECT BILLBOARD / SIGNBOARD (2 DENR-EMB)	EACH	2.00	
B.5	PROJECT BILLBOARD / SIGNBOARD (2 CDA)	EACH	2.00	
B.7(2)	OCCUPATIONAL SAFETY AND HEALTH PROGRAM	LS	1.00	
B.8(1)	TRAFFIC MANAGEMENT	MONTH	2.00	THE CONTRACTOR SHALL PREPARE A SEPARATE TRAFFIC OPERATIONAL PLAN (TOP) TO BE SUBMITTED AND APPROVED BY THE CONCERNED LGU TRAFFIC BOARD
B.9	MOBILIZATION / DEMOBILIZATION	LS	1.00	
PART C. EARTHWORKS				
101(2)(1)	REMOVAL OF ACTUAL STRUCTURES/ OBSTRUCTION, 0.25 M THICK, ACP	SQ.M	842.55	FOR EXISTING DAMAGED ACP. REMOVAL BY ROTO-MILLING. VERIFY ACTUAL THICKNESS ON SITE
101(2)(2)	REMOVAL OF ACTUAL STRUCTURES/ OBSTRUCTION, 0.10 M THICK, ACP	SQ.M	842.55	FOR EXISTING DAMAGED ACP. REMOVAL BY ROTO-MILLING. VERIFY ACTUAL THICKNESS ON SITE
102(2)	SURPLUS COMMON EXCAVATION	CUM.	26.00	FOR JUNCTION
105(1)(4)	SUBGRADE PREPARATION, COMMON MATERIAL	SQ.M	45.00	FOR JUNCTION
PART D. SUBBASE AND BASE COURSE				
200(1)	AGGREGATE SUBBASE COURSE	CUM.	7.00	FOR JUNCTION
PART E. SURFACE COURSE				
300(1)	GRAVEL SURFACE COURSE	CUM.	115.00	FOR GRAVEL SHOULDER
302(2)	EMULSIFIED ASPHALT	SQ.M	19,571.30	2 APPLICATIONS
310(1)(4)	BITUMINOUS CONCRETE SURFACE WEARING COURSE, HOT LAID, 50 MM	SQ.M	5,486.63	
310(2)(4)	BITUMINOUS CONCRETE SURFACE BINDER COURSE, HOT LAID, 50 MM	SQ.M	5,486.63	
311(1)(4)	PORTLAND CEMENT CONCRETE PAVEMENT (UNREINFORCED), 0.20 M THICK, 14 DAYS	SQ.M	45.00	
PART H. MISCELLANEOUS STRUCTURE				
812(1)	REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS WHITE	SQ.M	341.85	FOR PEDESTRIAN CROSSING, LAKE AND EDGE LINES
813(1)	CONCRETE JOINT SEALANT (HOT-POURED ELASTIC TYPE)	KG	97.92	FOR CONCRETE JOINTS

NOTE: QUANTITIES ARE SUBJECT TO INCREASE/DECREASE DEPENDING ON THE ACTUAL FIELD CONDITIONS.

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION: PREVENTIVE MAINTENANCE OF ROAD: ASPHALT OVERLAY - MAHARLIKA HIGHWAY - (S01364MN) K1469+368 - K1469+530, K1470+168 - K1470+537, (S00066MN) K1471+521 - K1471+890, DAVAO DEL NORTE	SHEET CONTENTS: VICINITY MAP SUMMARY OF QUANTITIES	DRAFTED AND PREPARED: EDWARD JOSEPH M. SARTIGA ENGINEER I	REVIEWED: DENNIS A. SEMPYO ENGINEER, OIC - SECTION CHIEF	DESIGNED: JUDY ANN T. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION	RECOMMENDED: JOSEPH B. CABALLERO ASSISTANT REGIONAL DIRECTOR	APPROVED: JUDY B. CORDOIN REGIONAL DIRECTOR	SET NO. A	SHEET NO. 2
			DATE	DATE	DATE	DATE	DATE	212	24

GENERAL NOTES (ROADS, DRAINAGE, AND STRUCTURES)

SPECIFICATIONS

1. ALL WORKS SHALL COMPLY WITH THE "DPWH STANDARD SPECIFICATIONS VOLUME II, HIGHWAYS, BRIDGES AND AIRPORTS 2013", SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS PERTAINING TO THIS PROJECT.

DIMENSIONS

1. DISTANCES BETWEEN THE HORIZONTAL CONTROL POINTS INCLUDING REFERENCE POINTS ARE MEASURED AND EXPRESSED IN METERS.
2. UNLESS OTHERWISE SPECIFIED, DIMENSIONS OF PIPES, BOX CULVERTS, BRIDGES AND OTHER STRUCTURES ARE MEASURED AND EXPRESSED IN MILLIMETERS.
3. ALL OTHER DIMENSIONS ARE EXPRESSED IN METERS.

ELEVATIONS AND GRADES

1. FINISHED GRADE ELEVATION SHOWN ON PLAN AND PROFILE SHEETS REFERS TO FINISHED PAVEMENT LEVEL AS INDICATED IN THE TYPICAL ROADWAY SECTION.
2. GROUND GRADE SHOWN ON THE PLAN AND PROFILE SHEETS REFERS TO THE ELEVATION OF THE ORIGINAL GROUND ALONG THE CENTERLINE OF THE PROJECT ROAD.

GRADING AND OTHER GENERAL REQUIREMENTS

1. ALIGNMENT AND GRADES ARE SUBJECT TO ADJUSTMENT TO SUIT ACTUAL FIELD CONDITION.
2. DISTANCES AND ELEVATIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
3. GRADE SHOWN ARE TOP OF FINISHED PAVEMENT.
4. ALL WORKS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, REVISED 2013 AND "A POLICY ON GEOMETRIC DESIGN", AASHTO 2011.
5. WHERE NO DETOURS ARE AVAILABLE, TRAFFIC SHALL BE HANDLED IN ACCORDANCE TO PROVISIONS OF CLAUSE 75 OF THE DPWH STANDARD SPECIFICATIONS, VOLUME I, REQUIREMENTS AND CONDITIONS OF CONTRACT (2013).
6. THE APPARENT SILENCE OF SPECIFICATIONS, PLANS, SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS, AS TO ANY DETAIL OR THE APPARENT OMISSION FROM THEM OF DETAILED DESCRIPTION CONCERNING ANY POINT SHALL BE REGARDED AS MEANING THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIAL AND WORKMANSHIP OF FIRST CLASS QUALITY ARE TO BE USED.
7. ROADS CLOSED TO TRAFFIC SHALL BE PROTECTED BY EFFECTIVE BARRICADES, AND OBSTRUCTIONS SHALL BE ILLUMINATED AT NIGHT, SUITABLE WARNING SIGNS, ILLUMINATED AT NIGHT BY LANTERNS OR FLARES, SHALL BE PROVIDED, ALL LIGHTS FOR THIS PURPOSE SHALL BE KEPT BURNING FROM SUNSET TO SUNRISE.
8. THE CONTRACTOR WILL BE REQUIRED TO ERECT WARNING SIGNS OUTSIDE OF, AND 150M FROM, EACH END OF THE PROJECT, AND 150M IN ADVANCE AT ANY PLACE ON THE PROJECT WHERE OPERATIONS INTERFERE WITH THE USE OF THE ROAD BY TRAFFIC, AND AT ALL INTERMEDIATE POINTS WHERE THE NEW WORK CROSSES OR COINCIDES WITH AN EXISTING ROAD.
9. BEFORE THE START OF ACTUAL CONSTRUCTION, THE AS-STAKED PLAN SHOULD BE SUBMITTED TO THE REGIONAL OFFICE IN ORDER THAT IMMEDIATE STEPS MAY BE TAKEN TO CORRECT OR ADJUST WHATEVER APPRECIABLE DEVIATION THERE MAY BE FROM THE ORIGINAL PLAN.
10. THE IMPLEMENTING OFFICE SHALL IDENTIFY THE LOCATIONS OF AND PROVIDE ACCESSIBILITY FACILITIES FOR PERSONS WITH DISABILITIES IN ACCORDANCE WITH DO NO. 37, S. 2009.
11. QUARRY SITE IS LOCATED AT PANDAPAN QUARRY AND ASPHALT BATCHING PLANT IS LOCATED AT CARMEN, DAVAO DEL NORTE. DISPOSAL SITE IS SIX (7) KMS. WITHIN PROJECT LIMIT.
12. DESIGN WAS BASED ON SURVEY DATA SUBMITTED BY THE SURVEY AND INVESTIGATION SECTION OF PLANNING AND DESIGN DIVISION OF THE DPWH-REGIONAL OFFICE XI.

EARTHWORKS

1. ALL CONCRETE PAVEMENT, BASE COURSE, SIDEWALKS, CURBS, GUTTERS, ETC., DESIGNATED FOR REMOVAL SHALL BE BROKEN INTO PIECES, THE SIZE OF WHICH SHALL NOT EXCEED 300mm (12in) IN ANY DIMENSION AND STOCKPILED AT DESIGNATED LOCATIONS ON THE PROJECT OR AS DIRECTED BY THE ENGINEER.
2. ALL EXCAVATIONS SHALL BE FINISHED TO REASONABLY SMOOTH AND UNIFORM SURFACES. NO MATERIALS SHALL BE WASTED WITHOUT AUTHORITY OF THE ENGINEER. EXCAVATION OPERATIONS SHALL BE CONDUCTED SO THAT MATERIAL OUTSIDE OF THE LIMIT OF SLOPES WILL NOT BE DISTURBED.
3. SPOILS FROM DEMOLISHED/EXCAVATED MATERIALS SHALL NOT BE ALLOWED TO BE STOCKPILED AT THE SHOULDER OR PART OF THE TRAVELED ROADWAY AND SHALL BE REMOVED IMMEDIATELY TO PREVENT OBSTRUCTION. SPOILS REMOVED SHALL BE DISPOSED OFF IN DESIGNATED AREAS APPROVED BY THE ENGINEER.
4. APPROACHES AND ROAD CONNECTIONS SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN SUCH MANNER AS TO ENSURE PROPER CONNECTIONS TO THE RIDING SURFACES.

SURFACE COURSE

1. APPLICATION OF BITUMINOUS MATERIALS SHALL BE MADE ONLY WHEN THE AGGREGATE IS DRY AND ATMOSPHERIC TEMPERATURE IN THE SHADE IS 15 DEGREES OR ABOVE AND WHEN THE WEATHER IS NOT FOGGY OR RAINY. THE PROPORTION OF BITUMINOUS MATERIAL ON THE BASIS OF TOTAL DRY AGGREGATE SHALL BE FROM 5.0 TO 8.0 MASS PERCENT. THE EXACT PERCENTAGE TO BE USED SHALL BE IN ACCORDANCE WITH THE JOB-MIX FORMULA AND OTHER QUALITY CONTROL REQUIREMENTS.

2. ALL JOINTS SHALL BE SUFFICIENTLY SEALED WITH ASPHALT SEALANT PRIOR TO OPENING TO VEHICULAR TRAFFIC. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO CONTROL TRAFFIC OVER NEWLY-LAID BITUMINOUS SURFACE TREATMENT SO THAT THE SURFACE IS NOT DAMAGED IN ANY WAY. TRAFFIC SHALL BE PROHIBITED FROM TRAVELING AT SPEEDS IN EXCESS OF 40KPH UNTIL THE ASPHALTIC MATERIAL HAS SET. NO VEHICLES, INCLUDING THOSE DELIVERING AGGREGATES SHALL BE PERMITTED TO TURN AROUND ON NEWLY-LAID MATERIAL.
3. WHEN RAIN APPEARS IMMINENT, ALL PAVING OPERATIONS SHALL STOP.
4. EXISTING PAVEMENTS WITH DEFECTS (OTHER THAN SHATTERED SLABS) AND JOINTS SHALL BE SEALED REPAIRED BEFORE OVERLAYING THE ASPHALT.
5. CRACKS TO BE FILLED WITH ASPHALT SEALANT SHALL BE APPLIED WITH WASHED SAND. EXCESS SAND SHALL BE BROOMED AFTER 2-4 HOURS.
6. IN ASPHALT OVERLAYING AT CURVES, SUPERELEVATION OF THE EXISTING PAVEMENT SHALL BE MAINTAINED OR IMPROVED. APPROPRIATE CROSS SLOPES (NORMAL CROWN) SHALL BE APPLIED TO DRAIN THE PAVEMENT.
7. PURSUANT TO DEPARTMENT ORDER NO. 137, SERIES OF 2016, FOR NEWLY CONSTRUCTED CONCRETE AND ASPHALT ROAD PROJECTS, AN IRI VALUE OF NOT MORE THAN 3.00MM/KM IS PRESCRIBED. NON-COMPLIANCE WITH THE SAID DO SHALL BE SUBJECT TO PAY ADJUSTMENTS CORRESPONDING TO THE ACQUIRED IRI VALUE. COMPLIANCE OF THE CONTRACTORS TO THE IRI REQUIREMENT AND STRICT IMPLEMENTATION OF PROPER BASE AND SUBBASE PREPARATION IS EMPHASIZED PRIOR TO CONCRETE POURING. PREPARATORY WORKS IN EXISTING SURFACES/ROADBED PRIOR TO ASPHALT LAYING AND PAVING AND FINISHING FOR CONCRETE PAVEMENT.

REMOVAL OF EXISTING STRUCTURES AND OBSTRUCTIONS

1. NO PAYMENT SHALL BE MADE FOR REMOVAL OF OTHER MISCELLANEOUS STRUCTURES THAT MAY BE REQUIRED AS SUBSIDIARY WORK PERTAINING TO OTHER CONTRACT ITEMS EXCEPT FOR SPECIFIC ITEMS EXPRESSLY IDENTIFIED FOR PAYMENT.
2. REMOVAL OF EXISTING ASPHALT OVERLAY SHALL BE THROUGH ROTO-MILLING TO SYSTEMATICALLY REMOVE THE SPECIFIED THICKNESS OF EXISTING ASPHALT OVERLAY.
3. ROTO-MILLING OR COLD MILLING, SHALL BE CONDUCTED USING A ROTO-MILLING MACHINE OR COLD MILLING ASPHALT PAVEMENT MACHINE WITH ROTATING CUTTING DRUMS WITH TEETH THAT WILL GRIND AND REMOVE THE ASPHALT SURFACE. THE DEPTH OF MILLING SHALL BE CLOSELY MONITORED BY THE PROJECT ENGINEER TO ENSURE COMPLIANCE TO APPROVED PLANS AND SPECIFICATIONS.
4. PROPER TRAFFIC CONTROL MEASURES SHALL BE IMPLEMENTED DURING THE MILLING OPERATION TO ENSURE THE SAFETY OF WORKERS AND THE TRAVELLING PUBLIC. TRAFFIC LANES MAY BE TEMPORARILY SHIFTED OR CLOSED AS NECESSARY TO FACILITATE THE MILLING PROCESS AND PROTECT WORKERS FROM VEHICULAR TRAFFIC.
5. FOLLOWING THE COMPLETION OF THE MILLING PROCESS, THE MILLED ASPHALT SHALL BE COLLECTED AND TRANSPORTED TO THE CONCERNED DISTRICT ENGINEERING OFFICE FOR STOCKPILING AND FUTURE RECYCLING OR DISPOSAL. THE STOCKPILED MILLED ASPHALT SHALL BE COVERED WITH TARPAULIN OR ANY EQUIVALENT MATERIAL TO PREVENT EXPOSURE FROM THE ELEMENTS.

MISCELLANEOUS STRUCTURES

1. OBSTRUCTIONS WITHIN THE ROADWAY, IF NOT ILLUMINATED, SHALL BE MARKED WITH REFLECTORIZED HAZARD MARKERS (REFER TO SECTION 7 OF THE HIGHWAY SAFETY DESIGN STANDARDS PART 2 MAY 2012 EDITION). FOR ADDITIONAL EMPHASIS, IT IS ADVISABLE TO MARK OBSTRUCTIONS WITH NO LESS THAN FIVE ALTERNATING REFLECTORIZED BLACK AND WHITE STRIPES.
2. THE APPLICATION OF PAINT FOR PAVEMENT MARKINGS SHALL BE PREFERABLY CARRIED OUT BY A MACHINE SPECIALLY MADE FOR THIS PURPOSE BUT WHERE BRUSHES ARE USED, ONLY ROUND OR OVAL BRUSHES NOT EXCEEDING 100mm IN WIDTH WILL BE PERMITTED. THE PAINT SHALL BE SO APPLIED AS TO PRODUCE A UNIFORM, EVEN COATING IN CLOSE CONTACT WITH THE SURFACE BEING PAINTED.
3. THE APPLIED THERMOPLASTIC PAVEMENT MARKINGS SHALL HAVE A MINIMUM OF 2 YEARS OF LONGEVITY/DURABILITY.
4. MATERIALS WHICH ARE DEFECTIVE OR HAVE BEEN APPLIED IN AN UNSATISFACTORY MANNER OR TO INCORRECT DIMENSIONS OR IN A WRONG LOCATION SHALL BE REMOVED. THE ROAD PAVEMENT SHALL BE MADE GOOD AND MATERIALS REPLACED, RECONSTRUCTED AND/OR PROPERLY LOCATED, ALL AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE ENGINEER.

FACILITIES FOR THE ENGINEER

1. THE CONTRACTOR SHALL CONSTRUCT FIELD OFFICES, LABORATORIES AND LIVING QUARTERS, INCLUDING ALL THE NECESSARY AIR CONDITIONING, ELECTRICITY, WATER, DRAINAGE AND SECURITY SERVICES FOR THE USE OF THE ENGINEER AND HIS STAFF FOR 24 HOURS A DAY OR PROVIDE THE SAME ON RENTAL BASIS UNTIL END OF CONTRACT. ON COMPLETION OF CONTRACT, THE FACILITIES INCLUDING UTILITIES SHALL REVERT TO THE GOVERNMENT UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
2. THE CONTRACTOR SHALL AT ALL TIMES DURING THE DURATION OF THE CONTACT PROVIDE FOR THE USE OF ENGINEER ALL EQUIPMENT, INSTRUMENTS AND APPARATUS, ALL INFORMATION AND RECORDS AND QUALIFIED CHAINMEN AND LABORERS REQUIRED BY THE ENGINEER FOR INSPECTING AND MEASURING THE WORKS, SUCH EQUIPMENT, INSTRUMENTS AND APPARATUS SHALL INCLUDE THOSE LISTED IN THE SPECIAL PROVISIONS.

REFERENCES

1. REVISED DPWH MANUAL ON HIGHWAY SAFETY DESIGN STANDARDS, MAY 2013 EDITION
 - 1.1. FOR ROAD SAFETY PLANNING AND DESIGN ACTIVITIES AS WELL AS ROAD SAFETY MAINTENANCE ACTIVITIES SUCH AS THE PROPER WAY OF INSTALLING/APPLYING ROAD SIGNS, ROAD SAFETY DEVICES AND PAVEMENT MARKINGS - DO 41, s.2012
2. LABOR CODE OF THE PHILIPPINES AND ITS IMPLEMENTING RULES AND REGULATIONS DOLE DO NO. 13, s.1998, OCCUPATIONAL SAFETY AND HEALTH STANDARDS AND ITS PROCEDURAL GUIDELINES
 - 2.1. FOR MONITORING, ENFORCEMENT AND IMPLEMENTATION OF CONSTRUCTION SAFETY AND HEALTH - DO 56, s.2005
3. DESIGN REFERENCES
 - 3.1. DPWH DESIGN GUIDELINES, CRITERIA, AND STANDARDS (DGCS), VOLUME 4, 2015 EDITION
 - 3.2. GUIDELINES FOR THE PREPARATION OF COST ESTIMATES FOR TRAFFIC MANAGEMENT AND SAFETY & HEALTH REQUIREMENTS FOR THE CONSTRUCTION AND MAINTENANCE OF ROADS, BRIDGES AND SAFETY & HEALTH REQUIREMENTS FOR SCHOOL BUILDINGS, 2018
 - 3.3. AASHTO A POLICY ON GEOMETRIC DESIGN STANDARD OF HIGHWAYS AND STREETS, 2018 7TH EDITION
 - 3.4. AASHTO GUIDE ON PAVEMENT DESIGN, 1993 EDITION
 - 3.5. HIGHWAY SAFETY DESIGN STANDARDS: PART 1 - ROAD SAFETY DESIGN, AND PART 2 - ROAD SIGNS AND PAVEMENT MARKINGS, 2012 EDITION

SURVEY SPECIFICATION

52. ALL PROJECT CONTROL POINTS ARE PROJECTED IN PRS '92 GRID COORDINATE SYSTEM (ZONE 5)
53. SURVEY INSTRUMENT USED, BASE CHC (70+) SN1049125, ROVER - CHC (80) SN1007089, TOTAL STATION - GEOMAX (ZOOM 50) SN2837548
54. DATE SURVEYED: FEBRUARY 3-7, 2025
55. PROJECT CONTROL POINTS, REFER TO PLAN AND PROFILE.

BENCHMARKS	NORTHING	EASTING	ELEVATION (METERS)	DESCRIPTION
BM NO. 1	815067.391	579985.588	13.84	NO. 1 CONCRETE NAIL WITH BOTTLE CAP ON TOP EOP AT RP-1, RIGHT SIDE NEAR 1465+180.000
BM NO. 1	814745.891	579209.896	15.314	NO. 1 CONCRETE NAIL WITH BOTTLE CAP ON TOP OF SIDEWALK AT RP-1, RIGHT SIDE NEAR STA. 1470+000
BM NO. 2	814595.761	578858.019	13.943	NO. 1 CONCRETE NAIL WITH BOTTLE CAP ON TOP AT RP-1, STA. 1470+490 DISTANCE 10.3M FROM CENTERLINE, RIGHT SIDE

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. R. NAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION PREVENTIVE MAINTENANCE OF ROAD: ASPHALT OVERLAY - MAHARLIKA HIGHWAY - (S01364MM) K1469+368 - K1469+530, K1470+168 - K1470+537, (S00066NN) K1471+521 - K1471+830, DAVAO DEL NORTE	SHEET CONTENTS: GENERAL NOTES (ROADS, DRAINAGE, AND STRUCTURES)	DRAFTED AND PREPARED:  EDMAR JOSEPH M. SERTIGA ENGINEER II DATE: _____	REVIEWED:  DENZEL ALDRIN A. SEMPIO ENGINEER I/C - DESIGN DIVISION DATE: _____	SUBMITTED:  JUDIN ANN T. BERNARDINO ENGINEER PLANNING AND DESIGN DIVISION DATE: _____	RECOMMENDED:  JOSE LUIS B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE: _____	APPROVED:  JUBY B. CORDON REGIONAL DIRECTOR DATE: _____	SET NO. A 3 12	SHEET NO. 3 24
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ABBREVIATIONS

ABUTMENT	ABUT	EXTERNAL DISTANCE / EASTING	E	RIGHT OF WAY	ROW
AHEAD STATIONING	AH STA	FINISHED	FINL	ROAD	RD
AND	&	FINISHED GRADE	FG	SOUTH	S
AREA	A	FINISHED PAVEMENT LEVEL	FPL	SIDEWALK	SDWK
ASPHALT CONCRETE PAVEMENT	ACP	GENERAL	GEN	SUBDIVISION OF UNDECREASED PROPERTY	Csd
AT	@	GROUND LEVEL	GL	SQUARE	SQ
AZIMUTH	AZIM	HEAD WALL(S)	HW / HWS	SQUARE METER	sq. m. / m2
BACK STATION	BK. STA.	HIGH FLOOD LEVEL	HFL	STANDARD	STD.
BARANGAY	BRGY.	HIGH TIDE LEVEL	HTL	STATION	STA.
BEGINNING OF CIRCULAR CURVE	BCC	HIGH WATER LEVEL	HWL	STRAIGHT	STR.
BEARING	BRG.	HORIZONTAL	HOR.	STREET	ST.
BEGINNING	BEG.	INCHES	INL	STRUCTURE	STRUCT.
BELOW MEAN SEA LEVEL	BMSL	INTERSECTION ANGLE	I	TANGENT DISTANCE	T
BENCHMARK	BM	INSIDE DIAMETER	ID	TEMPERATURE	TEMP.
BETWEEN	BET.	INTERIOR	INT.	TEMPORARY BENCH MARK	TBM
BORE HOLE	BH	KILOGRAM	KG.	VERTICAL	VERT
BOTH SIDES	BS	KILOMETER	km.	WIDTH	w
BOTH WAYS	BIW	KILOMETER PER HOUR	KPH	WITH	wf
BOTTOM	BOT.	LEFT	LI.		
BRIDGE	BR.	LENGTH OF CIRCULAR CURVE	LC		
SUBDIVISION OF DECREASED PROPERTY	BSD.	LENGTH OF VERTICAL CURVE	VC		
BY BUREAU OF LANDS SURVEYORS		LONGITUDINAL	LONGIT.		
BUREAU OF LANDS LOCATION MONUMENT	BLLM	MAXIMUM	MAX.		
CENTER	CTR.	MAXIMUM FLOOD LEVEL	MFL		
CENTERLINE	CL	MEAN SEA LEVEL	MSL		
CENTIMETER	cm	METER	m		
CONCRETE HOLLOW BLOCK	CHB	MILLIMETER	mm		
CLEAR	CLR	MINIMUM	MIN.		
COLUMN	COL	MONUMENT	MON		
CONCRETE	CONC.	NORTHING	N		
CONCRETE HOLLOW BLOCK	CHB	NOT APPLICABLE	NA		
CONCRETE MONUMENT	CONC. MON.	NUMBER	NO.		
CONSTRUCTION	CONST.	ORDINARY WATER LEVEL	OWL		
CORNER	COR.	ORIGINAL GROUND LEVEL	OGL		
COVER	COV.	OUTSIDE DIAMETER	OD		
CROSS PIPE	CP	PAVEMENT WIDTH	PW		
CUBIC METER	cu. m. / m3	PERCENT	%		
CYLINDRICAL	CYL.	PHILIPPINES	PHIL.		
DEGREE OF CURVE	D	PIECES	PCS.		
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	DPWH	PLUS / MINUS	+/-		
DETAIL	DET.	PUBLIC LAND SUBDIVISION	PLS		
DIAMETER	DIA. / Ø	POINT OF INTERSECTION	PI		
DIAPHRAGM	DIAP.	POINT OF CURVATURE	PC		
DISTANCE	DIST.	POINT OF VERTICAL CURVE	PVC		
DRAWING	DRWG.	POINT OF VERTICAL INTERSECTION	PVI		
EAST	E	POINT OF VERTICAL TANGENT	PVT		
ELEVATION	ELEV. / EL.	POINT OF TANGENT	POT		
END OF CIRCULAR CURVE	ECC	PORTLAND CEMENT CONCRETE PAVEMENT	PCCP		
END OF PAVEMENT	EOP	PROJECT	PROJ.		
ENGINEER	ENGR.	PROJECT ROAD	PROJ. RD		
EQUATION	EQ.	PRIVATE SURVEY	P.S.		
EXCAVATION	EXCA.	RADIUS	R		
EXISTING	EXIST. / EXTG.	REFERENCE POINT	RP		
EXPANSION	EXPN.	REINFORCED CONCRETE BOX CULVERT	RCBC		
EXTENSION	EXTN.	REINFORCED CONCRETE PIPE CULVERT	RCPC		
EXTERIOR	EXTR.	RETAINING WALL	RET. WALL		

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION: PREVENTIVE MAINTENANCE OF ROAD: ASPHALT OVERLAY - MAHARLIKA HIGHWAY - (S01364MN) K1469+368 - K1469+530, K1470+168 - K1470+537, (S00066MN) K1471+521 - K1471+890, DAVAO DEL NORTE	SHEET CONTENTS: ABBREVIATIONS	DRAFTED AND PREPARED:  EDWINO JOSEPH M. SARRIGA ENGINEER II DATE:	REVIEWED:  DENNIS ALDAMA SEMPPIO ENGINEER II, SEC. SECTION CHIEF DATE:	SUBMITTED:  JUDO ANN T. BERNARDINO CHIEF PLANNING AND DESIGN DIVISION DATE:	RECOMMENDED:  JOSE LUIS CABALLERO ASSISTANT REGIONAL DIRECTOR DATE:	APPROVED:  JUBY B. CORDON REGIONAL DIRECTOR DATE:	SET NO. A 4 12	SHEET NO. 4 24
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LEGENDS AND SYMBOLS

DRAWING SYMBOLS		
SYMBOL	ABBREVIATION	DESCRIPTION
	CL	ROADWAY CENTERLINE
		NORTH ARROW
		ELEVATION CALLOUT
		WATER LEVEL
		WATER FLOW
		POINT OF INTERSECTION
		MATCH LINE
		GRID COORDINATES
	AZM	AZMUTH
		PLAN AND PROFILE CALLOUT
		RCPC INVERSE ELEVATION PROFILE CALLOUT
		DIRECTION
		MAIN DRAWING TITLE
		SECONDARY DRAWING TITLE
		CROSS SECTION SYMBOL (COMPLEX)
		CROSS SECTION SYMBOL (COMPLEX)
		DETAIL CALLOUT

TOPOGRAPHIC FEATURES, INFRASTRUCTURE AND UTILITIES		
SYMBOL	ABBREVIATION	DESCRIPTION
		MAJOR CONTOUR
		MINOR CONTOUR
		EDGE OF ROAD (EXISTING)
		EDGE OF ROAD (PROPOSED)
		ASPHALT CONCRETE PAVEMENT
	PCP	PORTLAND CEMENT CONCRETE PAVEMENT
		CHB/GROUTED CONCRETE/ EARTH CANAL
		NATIONAL HIGHWAY
		EXISTING CANAL (PLAN)
		EXISTING CANAL (PROFILE)
	BR	BRIDGE
		CROSS-DRAIN
		LATERAL PIPE
		RCBC
		MANHOLE
		GUARDRAIL
		CHB WALL FENCE
		WOOD OR BARBED WIRE FENCE
		CYCLONE FENCE
		CONCRETE SLOPE PROTECTION
		GROUTED RIPRAP SLOPE PROTECTION
		RIVER / CREEK

TOPOGRAPHIC FEATURES, INFRASTRUCTURE AND UTILITIES		
SYMBOL	ABBREVIATION	DESCRIPTION
		TREES
		COCONUT
		BANANA PLANTATION
	SC	SCHOOL
	CH	CHURCH
	AH	AMARAN HOUSE
	CH	CONCRETE HOUSE
	WS	WOODEN STORE
	CH	COMBINATION OF CONCRETE AND WOODEN HOUSE
	S	STORE
	SB	SIGN BOARD
	SP	STEEL POST
	SEP	STEEL ELECTRIC POST
	CP	CONCRETE POST
	CEP	CONCRETE ELECTRIC POST
	WEP	WOODEN ELECTRIC POST
	LP	LAMP POST

DRAWING SYMBOLS		
SYMBOL	ABBREVIATION	DESCRIPTION
	BH	BORE HOLE
		CROSS SECTION MONUMENT
	BM	BENCH MARK
	IBM	INTERMEDIATE BENCH MARK
	PBM	PERMANENT BENCH MARK
	TP	TEST PIT
	GPS	GLOBAL POSITIONING SYSTEM
		TRAVERSE POINT
		TRAVERSE STATION AND LINE



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PREVENTIVE MAINTENANCE OF ROAD:
ASPHALT OVERLAY - MAHARLIKA HIGHWAY -
(S0136400N) K1469+368 - K1469+530, K1470+168 -
K1470+537, (S00066MN) K1471+521 - K1471+890,
DAVAO DEL NORTE

SHEET CONTENTS:
LEGENDS AND SYMBOLS

DRAFTED AND PREPARED:
EDWARD JOSEPH M. SARTIGA
ENGINEER II
DATE:

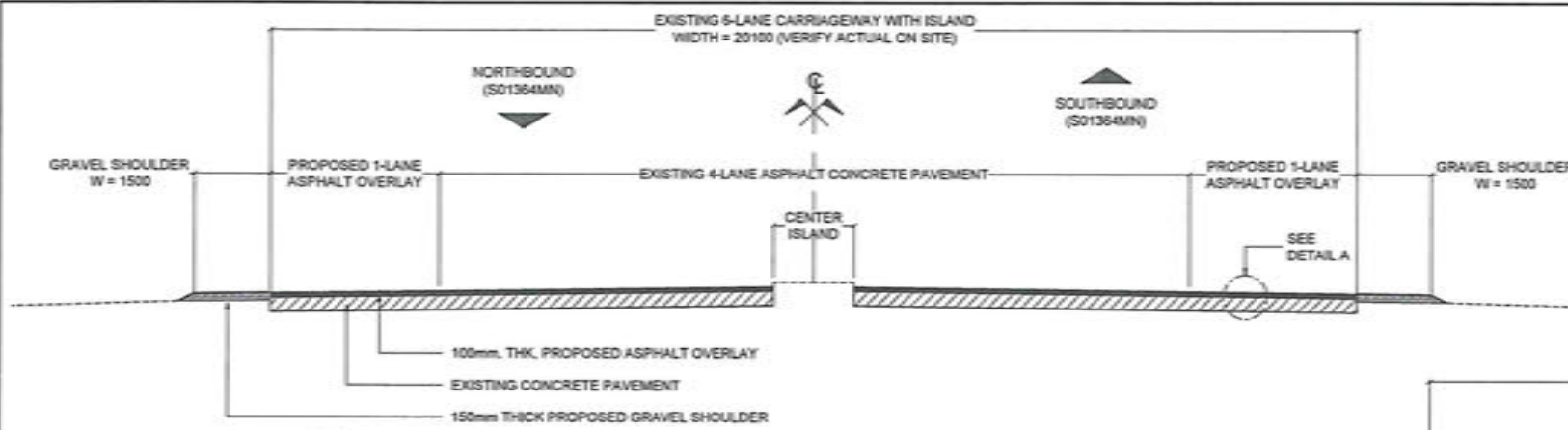
REVIEWED:
DENNIS ALDRIN A. SEMPIO
ENGINEER, SC - SECTION CHIEF
DATE:

SUBMITTED:
JOY ANN T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION
DATE:

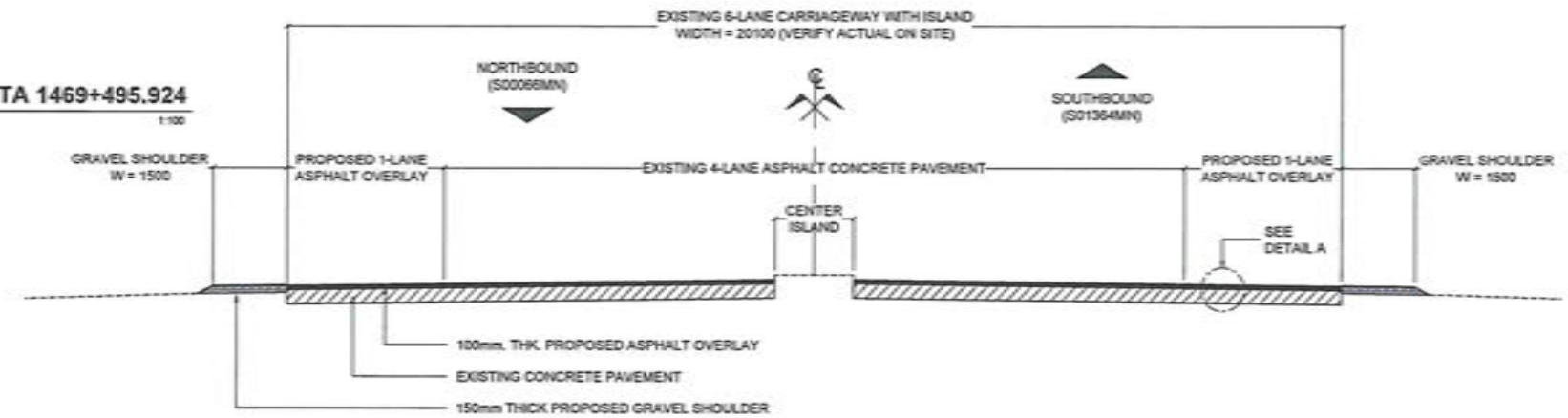
RECOMMENDED:
JOSELITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
JUBY B. CORDON
REGIONAL DIRECTOR
DATE:

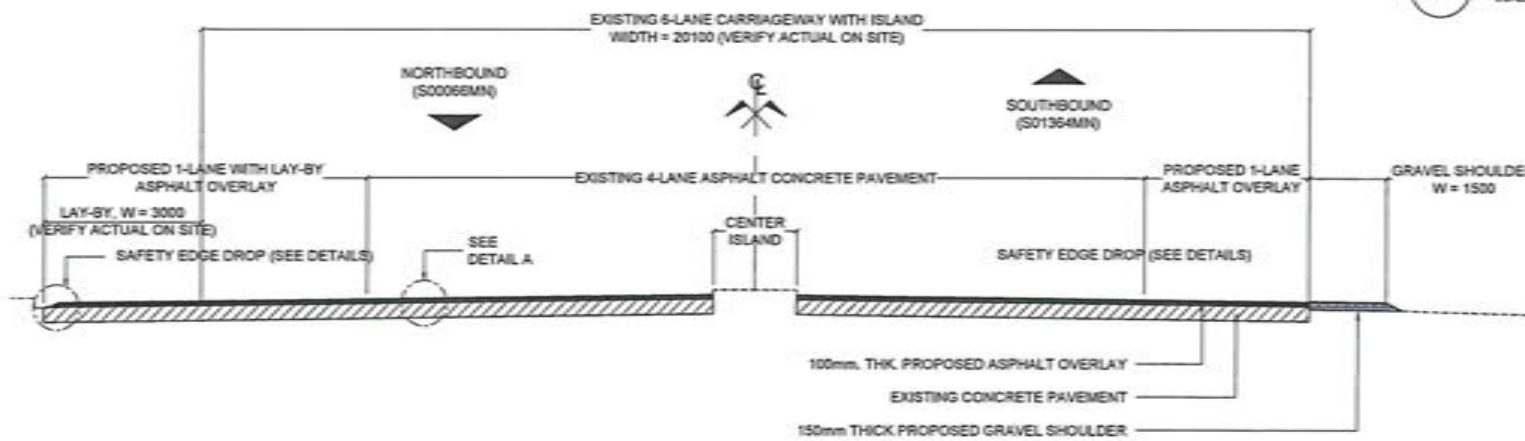
SET NO. 5
SHEET NO. 24



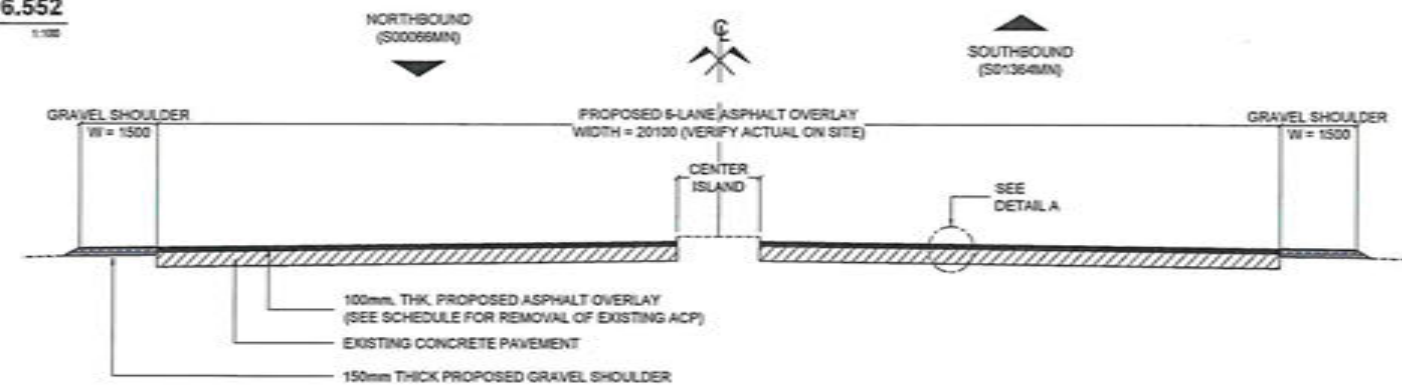
2 TYPICAL ROADWAY CROSS SECTION FOR STA. 1469+333.776 TO STA 1469+495.924
(6-LANE CARRIAGEWAY WITH ISLAND)



2 TYPICAL ROADWAY CROSS SECTION FOR STA. 1470+052.263 TO STA 1470+284.141
(6-LANE CARRIAGEWAY WITH ISLAND)



3 TYPICAL ROADWAY CROSS SECTION FOR STA. 1470+102.698 TO STA 1470+196.552
(6-LANE CARRIAGEWAY WITH ISLAND AND LAY-BY)



4 TYPICAL ROADWAY CROSS SECTION FOR STA. 1470+284.141 TO STA 1470+421.141
(6-LANE CARRIAGEWAY WITH ISLAND)



REPUBLIC OF THE PHILIPPINES
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PROJECT NAME AND LOCATION
PREVENTIVE MAINTENANCE OF ROAD:
ASPHALT OVERLAY - MAHARLIKA HIGHWAY -
(S01364MN) K1469+368 - K1469+530, K1470+168 -
K1470+537, (S00066MN) K1471+521 - K1471+890,
DAVAO DEL NORTE

SHEET CONTENTS
TYPICAL ROADWAY CROSS SECTIONS

DRAFTED AND PREPARED:
EDUARDO JOSEPH M. SARTIGA
ENGINEER II
DATE

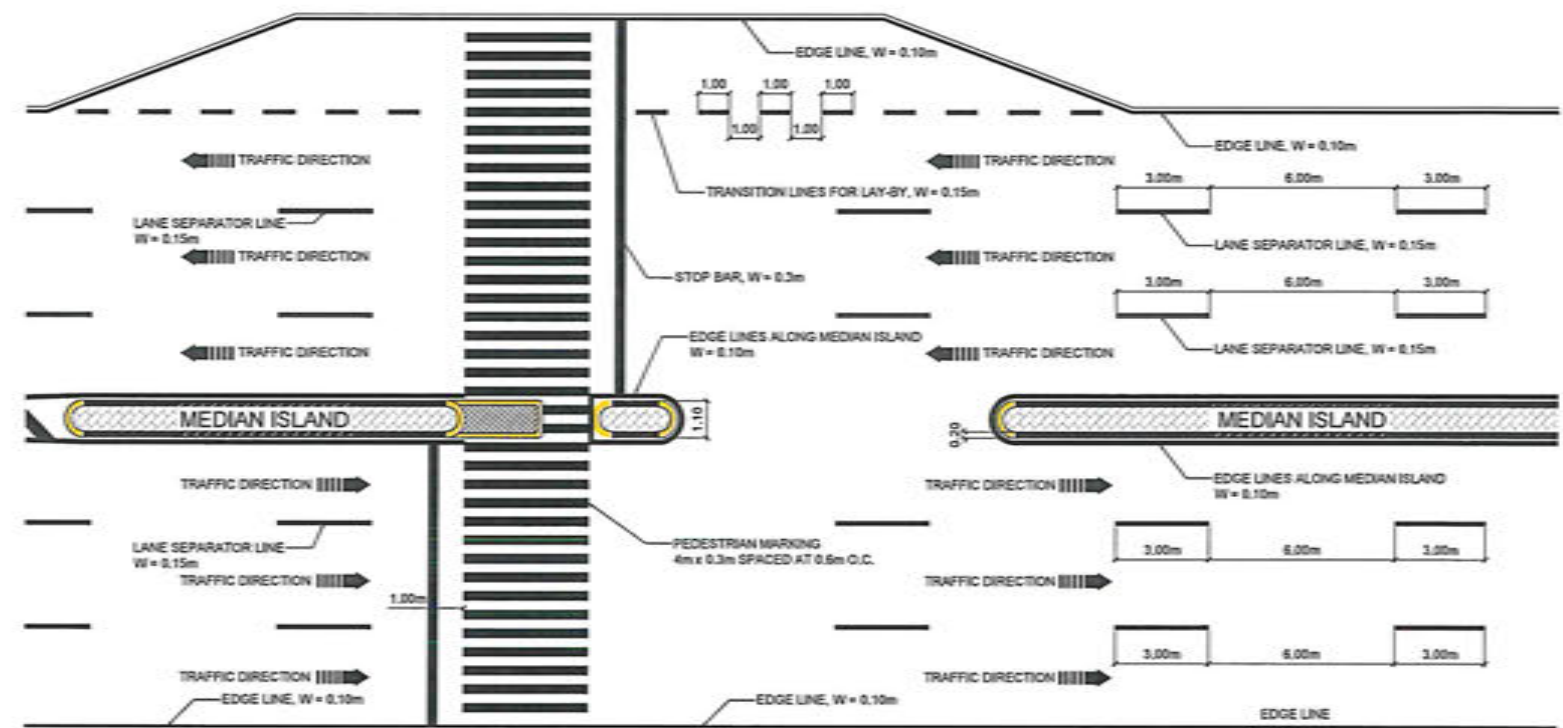
REVIEWED:
DENNIS ALDRIN A. SEMPIO
ENGINEER II, C/C - SECTION CHIEF
DATE

SUBMITTED:
JUDY ANN T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION
DATE

RECOMMENDED:
JOSELUITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE

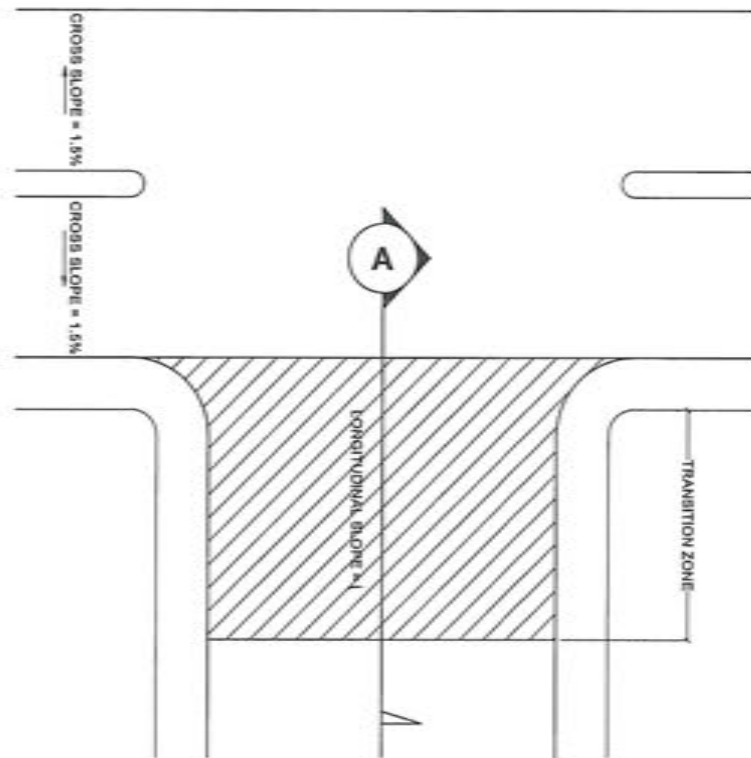
APPROVED:
JUBY S. CORDON
REGIONAL DIRECTOR
DATE

SET NO. SHEET NO.
A 6
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 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION: PREVENTIVE MAINTENANCE OF ROAD: ASPHALT OVERLAY - MAHARLIKA HIGHWAY - (S01264MM) K1468+368 - K1469+530, K1470+168 - K1470+537, (S00066MM) K1471+521 - K1471+890, DAVAO DEL NORTE	SHEET CONTENTS: TYPICAL PAVEMENT MARKING DETAILS	DRAFTED AND PREPARED:  EDWARD JOSEPH M. SARTIOA ENGINEER II DATE: _____	REVIEWED:  DENYS ALONZO A. SEMPIO ENGINEER II, DC - SECTION CHIEF DATE: _____	SUBMITTED:  JUDY ANN T. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION DATE: _____	RECOMMENDED:  JOSE LITO S. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE: _____	APPROVED:  JUBY B. CORDON REGIONAL DIRECTOR DATE: _____	SET NO.	SHEET NO.
	DAVAO REGIONAL INFRASTRUCTURE PREVENTIVE MAINTENANCE AND REHAB-SECTION OF ROAD ALONG MAHARLIKA-HIGHWAY SALVACION & TUGANAY SECTION. DPN (00-00-2000) TYPICAL PAVEMENT MARKING SECTION 0165								

JOINING ROAD WITH PCCP (AT ROAD INTERSECTION)



- NOTE:
1. THE MILLING OF EXISTING SLAB SHOULD END AT THE NEXT WEAKENED PLANE JOINT
 2. THE ALGEBRAIC DIFFERENCE OF GRADIENT AT JOINING ROAD SHOULD NOT EXCEED 0.50%. OTHERWISE APPROPRIATE VERTICAL PARABOLIC CURVE SHALL BE PROVIDED IF THE ALGEBRAIC DIFFERENCE OF GRADIENT IS MORE THAN 0.50%.

1
SCALE NTS
FIGURE 1: SCHEMATIC PLAN

1st STEP: MILLING OF EXISTING SLAB

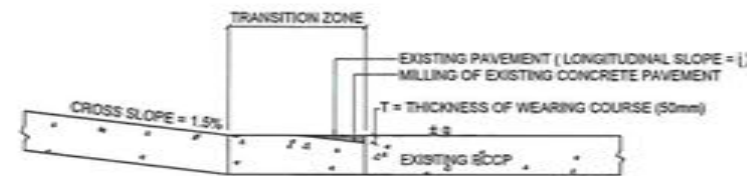


FIGURE 1a: TRANSITION PROFILE, EXISTING
SCALE NTS

2nd STEP: LAYING OF REMAINING ASPHALT COURSES

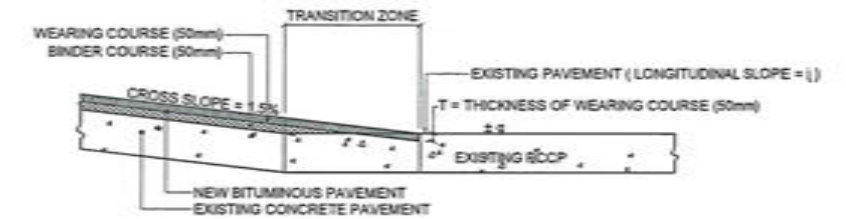
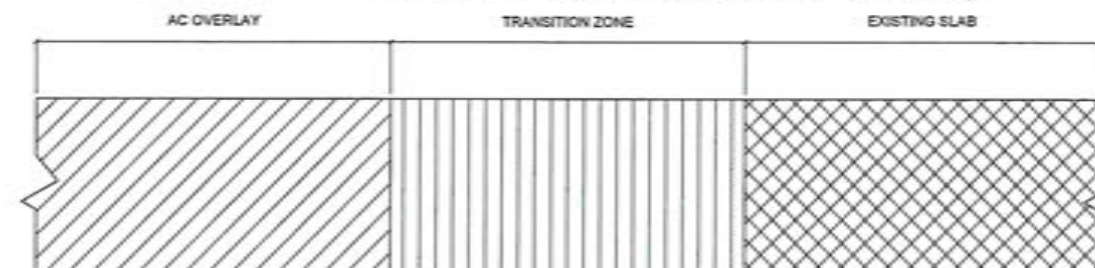


FIGURE 1b: TRANSITION PROFILE, AC OVERLAY
SCALE NTS

JOINING ROAD WITH PCCP (ALONG THRU - ROAD)



- NOTE:
1. THE MILLING OF EXISTING SLAB SHOULD END AT THE NEXT WEAKENED PLANE JOINT
 2. THE ALGEBRAIC DIFFERENCE OF GRADIENT AT JOINING ROAD SHOULD NOT EXCEED 0.50%. OTHERWISE APPROPRIATE VERTICAL PARABOLIC CURVE SHALL BE PROVIDED IF THE ALGEBRAIC DIFFERENCE OF GRADIENT IS MORE THAN 0.50%.

2
SCALE NTS
FIGURE 2: SCHEMATIC PLAN

1st STEP: MILLING OF EXISTING SLAB

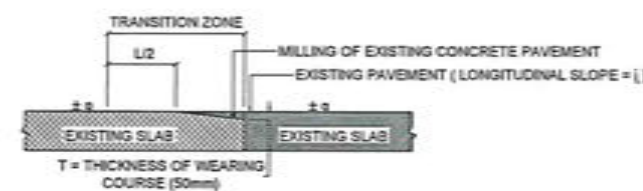


FIGURE 2a: TRANSITION PROFILE, EXISTING
SCALE NTS

2nd STEP: LAYING OF REMAINING ASPHALT COURSES

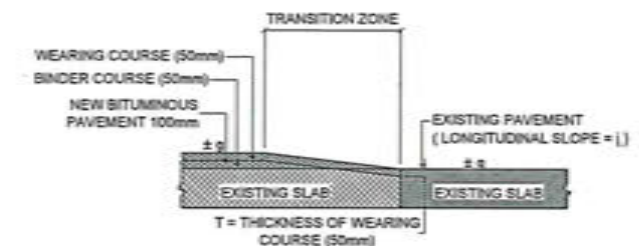


FIGURE 2b: TRANSITION PROFILE, AC OVERLAY
SCALE NTS



REPUBLIC OF THE PHILIPPINES
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(S01364MM) K1469+368 - K1469+520, K1470+168 -
K1470+520, (S00066MM) K1471+521 - K1471+890,
DAVAO DEL NORTE

SHEET CONTENTS:
ASPHALT OVERLAY JOINING ROAD WITH PCCP
(AT ROAD INTERSECTION)
ASPHALT OVERLAY JOINING ROAD WITH PCCP
(ALONG THRU - ROAD)

DRAFTED AND PREPARED:
EDWARD JOSEPH M. SARTIGA
ENGINEER II
DATE:

REVIEWED:
DENNIS ALDRIN A. SEMPIO
ENGINEER II, QC - SECTION CHIEF
DATE:

SUBMITTED:
JUAN CARLOS T. BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION
DATE:

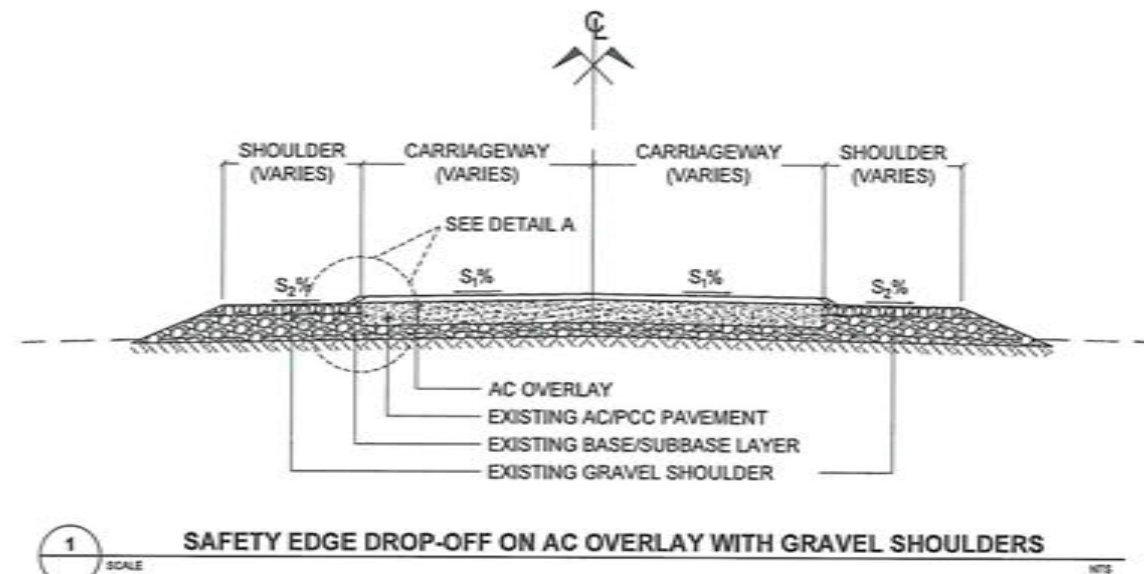
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JOSEPH B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
JUBY B. CORDON
REGIONAL DIRECTOR
DATE:

SET NO. 8
SHEET NO. 24

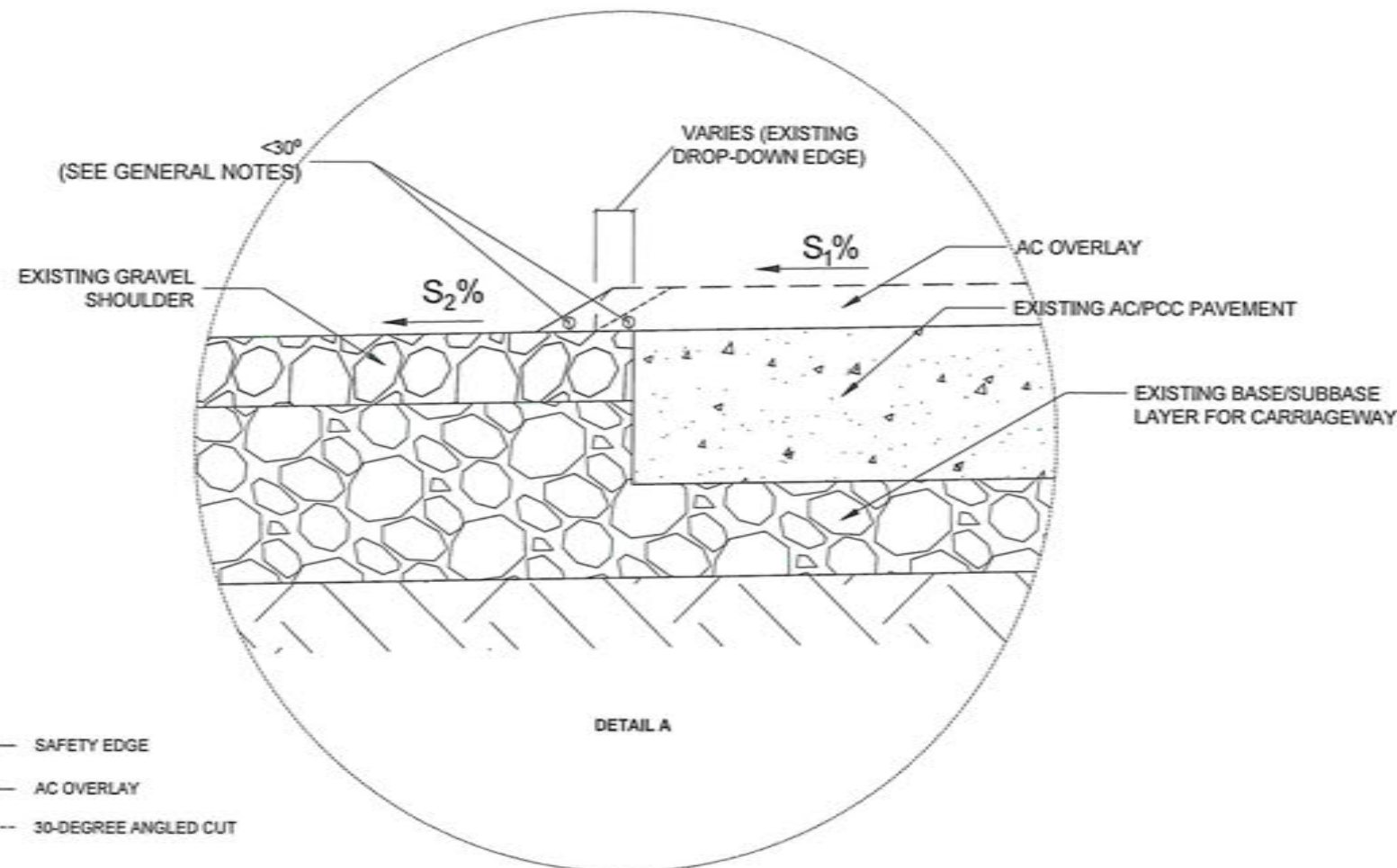
GENERAL NOTES

1. ALL WORK AFFECTED BY THE IMPLEMENTATION OF THE SAFETY EDGE DROP-OFF MUST BE ADJUSTED AS NECESSARY AND IN COMPLIANCE WITH THE DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS, BRIDGES, AND AIRPORTS, 2013, OR THE LATEST APPLICABLE ISSUANCES.
2. SAFETY EDGE TREATMENT SHOULD BE DESIGNED TO CREATE A 30-DEGREE ANGLED SHAPE RELATIVE TO THE EDGE OF THE PAVEMENT, EXTENDING UP TO THE UNPAVED SHOULDER.
3. THE MATERIALS SHOULD PROVIDE DURABILITY AND STABILITY TO WITHSTAND TRAFFIC LOADS AND ENVIRONMENTAL CONDITIONS. IF THE GRAVEL SHOULDER IS FOUND TO BE ERODIBLE, THE PROJECT ENGINEER SHOULD TAKE CORRECTIVE MEASURES SUCH AS COMPACTING THE GRAVEL OR REPLACING IT WITH SUITABLE MATERIALS.
4. USE APPROPRIATE EQUIPMENT FOR SHAPING AND COMPACTING THE SAFETY EDGE. THE CONTRACTOR MAY USE A SHOE/WEDGE MAKER OR ANY SIMILAR EQUIPMENT THAT PRODUCES THE SAME COMPACTION RESULTS. SHORT SECTIONS OF HANDWORK WILL BE ALLOWED WHEN NECESSARY FOR TRANSITIONS/ TURNOUTS.
5. THE DESIGNER SHALL VERIFY THE SUITABILITY OF SAFETY EDGE TREATMENT AT INTERSECTIONS, TRANSITION ZONES, TURNOUTS, DRIVEWAYS/ RAMP, PEDESTRIAN CROSSINGS, AND AREAS WITH MULTIPLE OVERLAYS, AMONG OTHER CRITICAL AREAS. THE DESIGN APPROACH FOR THE ABOVE SCENARIOS SHOULD BE ADJUSTED BY THE DESIGNER ON A CASE-BY-CASE BASIS.
6. TO CONSTRUCT A SAFETY EDGE ALONG EXISTING OVERLAY WITH AN INAPPROPRIATE DEGREE DROP-OFF EDGE, THE FOLLOWING STEPS SHOULD BE FOLLOWED:
 - CONDUCT A DETAILED ASSESSMENT OF THE EXISTING ASPHALT OVERLAY TO IDENTIFY SURFACE IRREGULARITIES, DAMAGE LAYERS, AND ANY AREAS REQUIRING MILLING.
 - MILL THE EXISTING OVERLAY ALONG THE EDGE TO CREATE A 30-DEGREE TAPERED SLOPE. THIS ANGLE MAY BE ADJUSTED BASED IN PAVEMENT CONDITIONS, SUCH AS SURFACE IRREGULARITIES AND DAMAGE LAYERS.
 - SELECT MILLING EQUIPMENT AND TECHNIQUES CAPABLE OF ACHIEVING THE DESIRED SLOPE ANGLE AND TRANSITION LENGTH.
 - AFTER MILLING, PREPARE THE MILLED SURFACE BY ADDRESSING ANY SURFACE IRREGULARITIES OR DEBRIS. ENSURE THAT THE MILLED EDGE IS SMOOTH AND FREE FROM DEFECTS THAT COULD AFFECT THE CONSTRUCTION OF THE SAFETY EDGE TREATMENT.
 - CONSTRUCT THE SAFETY EDGE TREATMENT AFTER MILLING ACCORDING TO GUIDELINES TO ACHIEVE THE DESIRED SLOPE, PROVIDING A GRADUAL TRANSITION FROM THE ROADWAY SURFACE. ENSURE THAT THE SAFETY EDGE THICKNESS AND PROFILE MEET DESIGN STANDARDS AND FACILITATE A SMOOTH TRANSITION FOR VEHICLES.



1
SCALE

SAFETY EDGE DROP-OFF ON AC OVERLAY WITH GRAVEL SHOULDERS



LEGEND:

- SAFETY EDGE
- AC OVERLAY
- 30-DEGREE ANGLED CUT



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(S01364MM) K1469+368 - K1469+530, K1470+168 -
K1470+537, (S00066MM) K1471+521 - K1471+890,
DAVAO DEL NORTE

SHEET CONTENTS:
SAFETY EDGE DROP-OFF ON AC OVERLAY WITH
GRAVEL SHOULDER

DRAFTED AND PREPARED:
EDUARDO JOSEPH M. SARTIGA
ENGINEER II
DATE:

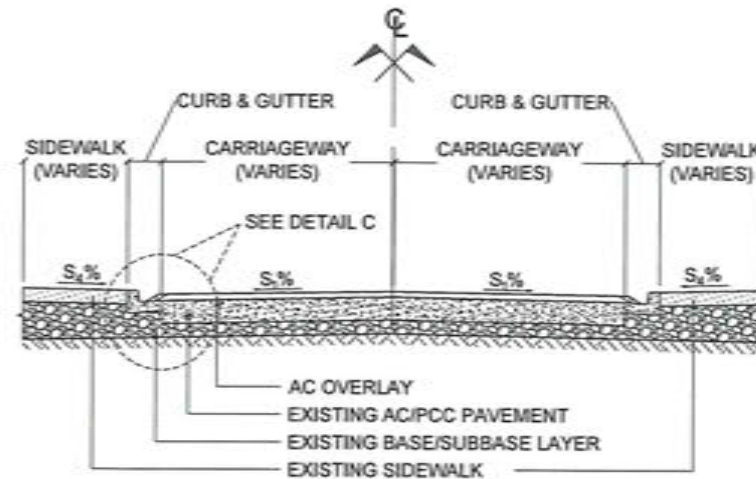
REVIEWED:
DENYLLA ALDRIN A. SEMPIO
ENGINEER II, DIC - SECTION CHIEF
DATE:

SUBMITTED:
JUDY ANN T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION
DATE:

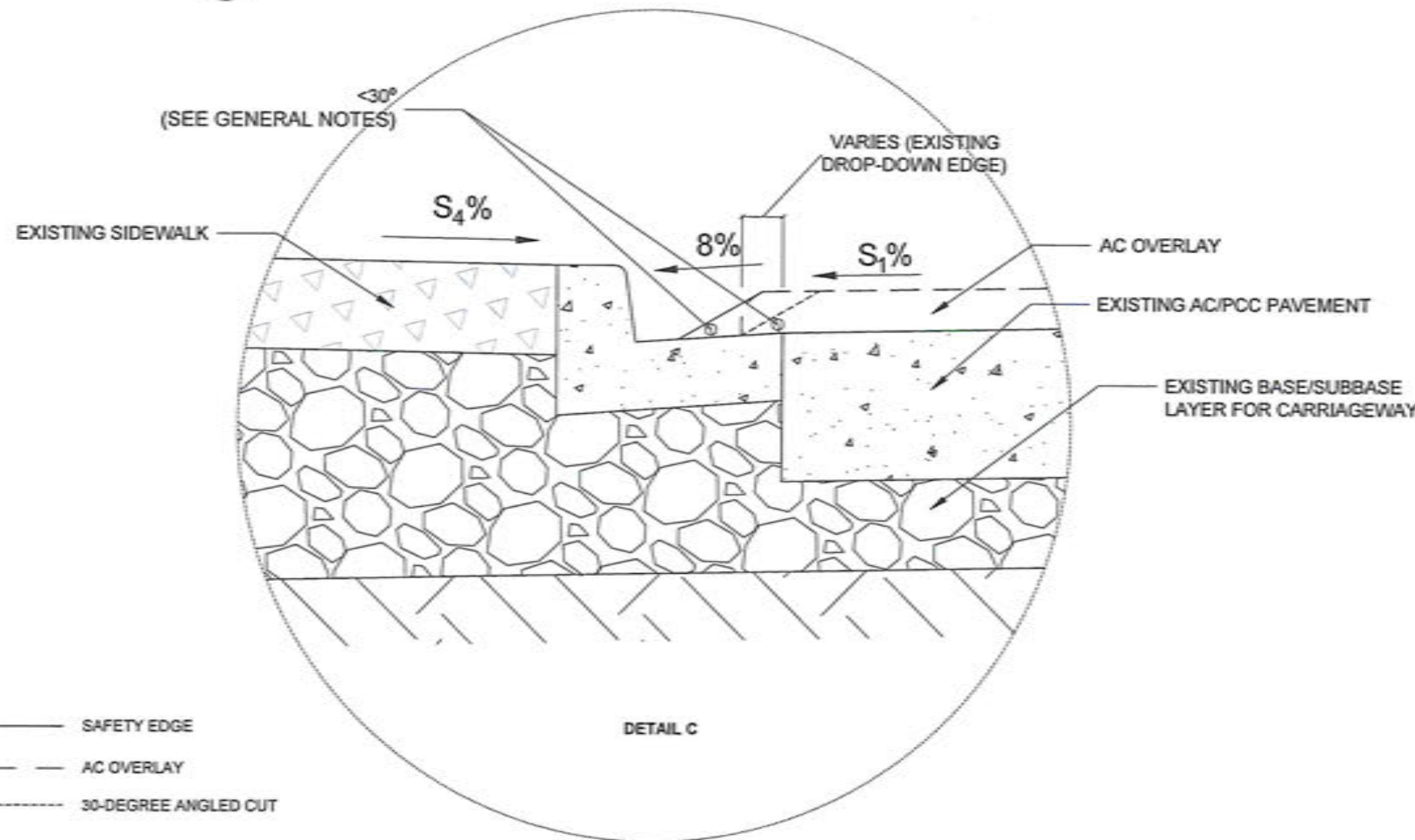
RECOMMENDED:
JOSE LITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
JUDY B. CORDON
REGIONAL DIRECTOR
DATE:

SET NO. 9
SHEET NO. 24



1 SAFETY EDGE DROP-OFF ON AC OVERLAY WITH CURB & GUTTER NTS



GENERAL NOTES

1. ALL WORK AFFECTED BY THE IMPLEMENTATION OF THE SAFETY EDGE DROP-OFF MUST BE ADJUSTED AS NECESSARY AND IN COMPLIANCE WITH THE DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS, BRIDGES, AND AIRPORTS, 2013, OR THE LATEST APPLICABLE ISSUANCES.
2. SAFETY EDGE TREATMENT SHOULD BE DESIGNED TO CREATE A 30-DEGREE ANGLED SHAPE RELATIVE TO THE EDGE OF THE PAVEMENT, EXTENDING UP TO THE GUTTER.
3. THE MATERIALS SHOULD PROVIDE DURABILITY AND STABILITY TO WITHSTAND TRAFFIC LOADS AND ENVIRONMENTAL CONDITIONS.
4. USE APPROPRIATE EQUIPMENT FOR SHAPING AND COMPACTING THE SAFETY EDGE. THE CONTRACTOR MAY USE A SHOE/WEDGE MAKER OR ANY SIMILAR EQUIPMENT THAT PRODUCES THE SAME COMPACTION RESULTS. SHORT SECTIONS OF HANDWORK WILL BE ALLOWED WHEN NECESSARY FOR TRANSITIONS/ TURNOUTS.
5. THE DESIGNER SHALL VERIFY THE SUITABILITY OF SAFETY EDGE TREATMENT AT INTERSECTIONS, TRANSITION ZONES, TURNOUTS, DRIVEWAYS/ RAMPS, PEDESTRIAN CROSSINGS, AND AREAS WITH MULTIPLE OVERLAYS, AMONG OTHER CRITICAL AREAS. THE DESIGN APPROACH FOR THE ABOVE SCENARIOS SHOULD BE ADJUSTED BY THE DESIGNER ON A CASE-BY-CASE BASIS.
6. THE DESIGNER SHALL CONDUCT A THOROUGH VERIFICATION OF THE HYDROLOGIC AND HYDRAULIC ASPECTS TO DETERMINE THE NECESSITY OF RAISING THE GUTTER TO MAINTAIN ITS CAPACITY AND ASSESS THE NEED FOR ADDITIONAL DRAINAGE.
7. THE DESIGNER SHALL ASSESS THE FUNCTIONALITY OF THE EXISTING DRAINAGE SYSTEMS OR OTHER FACILITIES TO ENSURE IT WILL CONTINUE TO OPERATE EFFECTIVELY AFTER THE COMPLETION OF THE TRANSITION.
8. TO CONSTRUCT A SAFETY EDGE ALONG EXISTING OVERLAY WITH AN INAPPROPRIATE DEGREE DROP-OFF EDGE, THE FOLLOWING STEPS SHOULD BE FOLLOWED:
 - CONDUCT A DETAILED ASSESSMENT OF THE EXISTING ASPHALT OVERLAY TO IDENTIFY SURFACE IRREGULARITIES, DAMAGE LAYERS, AND ANY AREAS REQUIRING MILLING.
 - MILL THE EXISTING OVERLAY ALONG THE EDGE TO CREATE A 30-DEGREE TAPERED SLOPE. THIS ANGLE MAY BE ADJUSTED BASED IN PAVEMENT CONDITIONS, SUCH AS SURFACE IRREGULARITIES AND DAMAGE LAYERS.
 - SELECT MILLING EQUIPMENT AND TECHNIQUES CAPABLE OF ACHIEVING THE DESIRED SLOPE ANGLE AND TRANSITION LENGTH.
 - AFTER MILLING, PREPARE THE MILLED SURFACE BY ADDRESSING ANY SURFACE IRREGULARITIES OR DEBRIS. ENSURE THAT THE MILLED EDGE IS SMOOTH AND FREE FROM DEFECTS THAT COULD AFFECT THE CONSTRUCTION OF THE SAFETY EDGE TREATMENT.
 - CONSTRUCT THE SAFETY EDGE TREATMENT AFTER MILLING ACCORDING TO GUIDELINES TO ACHIEVE THE DESIRED SLOPE, PROVIDING A GRADUAL TRANSITION FROM THE ROADWAY SURFACE. ENSURE THAT THE SAFETY EDGE THICKNESS AND PROFILE MEET DESIGN STANDARDS AND FACILITATE A SMOOTH TRANSITION FOR VEHICLES.

LEGEND:

- SAFETY EDGE
- - - AC OVERLAY
- - - 30-DEGREE ANGLED CUT



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PROJECT NAME AND LOCATION

PREVENTIVE MAINTENANCE OF ROAD:
ASPHALT OVERLAY - MAHARLIKA HIGHWAY -
(S01364000) K1469+368 - K1469+530, K1470+168 -
K1470+537, (S00066000) K1471+521 - K1471+890,
DAVAO DEL NORTE

SHEET CONTENTS

SAFETY EDGE DROP-OFF ON AC OVERLAY WITH
CURB AND GUTTER

DRAFTED AND PREPARED

EDWARD JOSEPH M. SARTIGA
ENGINEER II

DATE

REVIEWED

DENVER ALDRIN A. SEWPIO
ENGINEER II, D.C. - SECTION CHIEF

DATE

DESIGNED

JUDY ANN T. BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION

DATE

RECOMMENDED

JOSE LITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR

DATE

APPROVED

JUDY B. CORDON
REGIONAL DIRECTOR

DATE

SET NO.

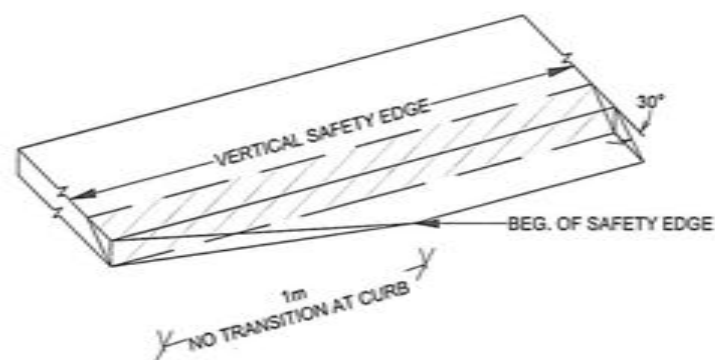
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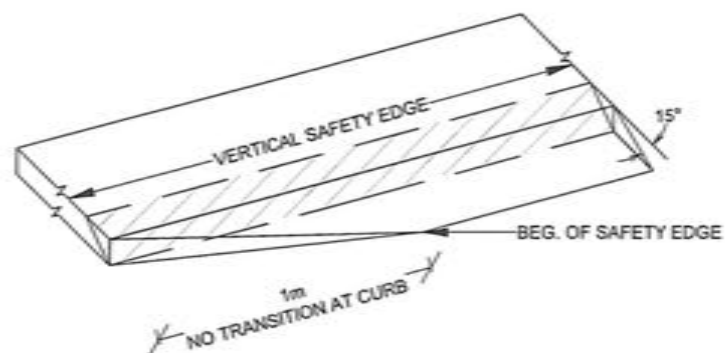
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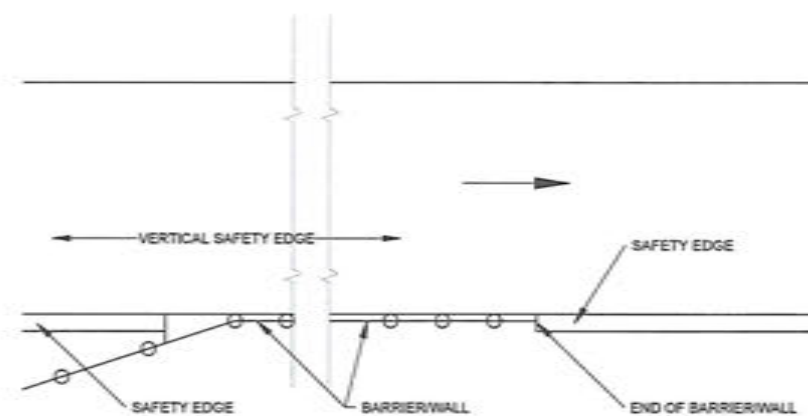
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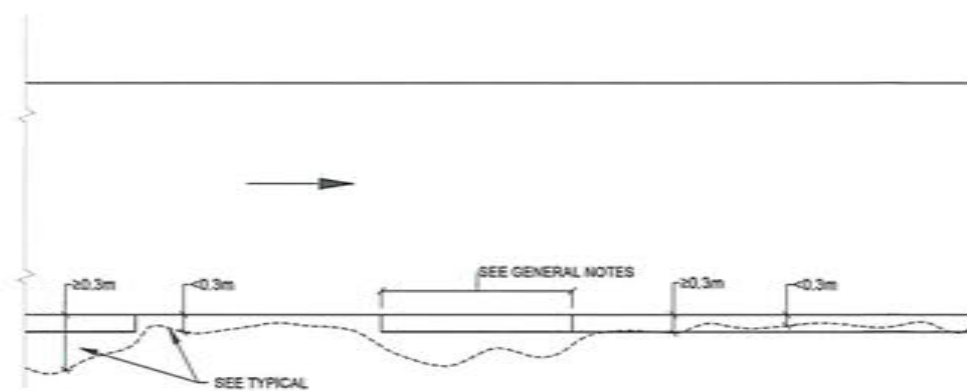
TRANSITION DETAIL
(PAVED SHOULDER)



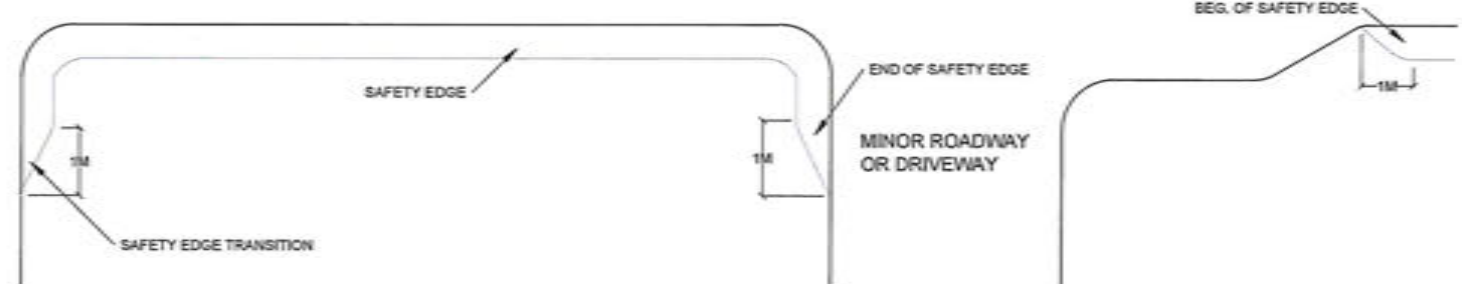
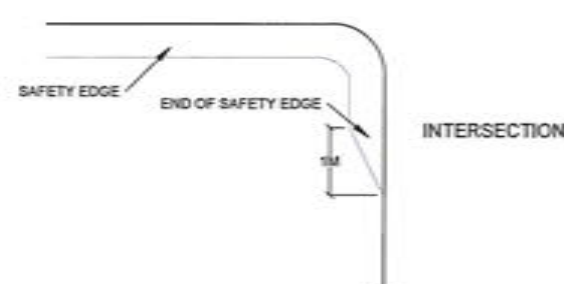
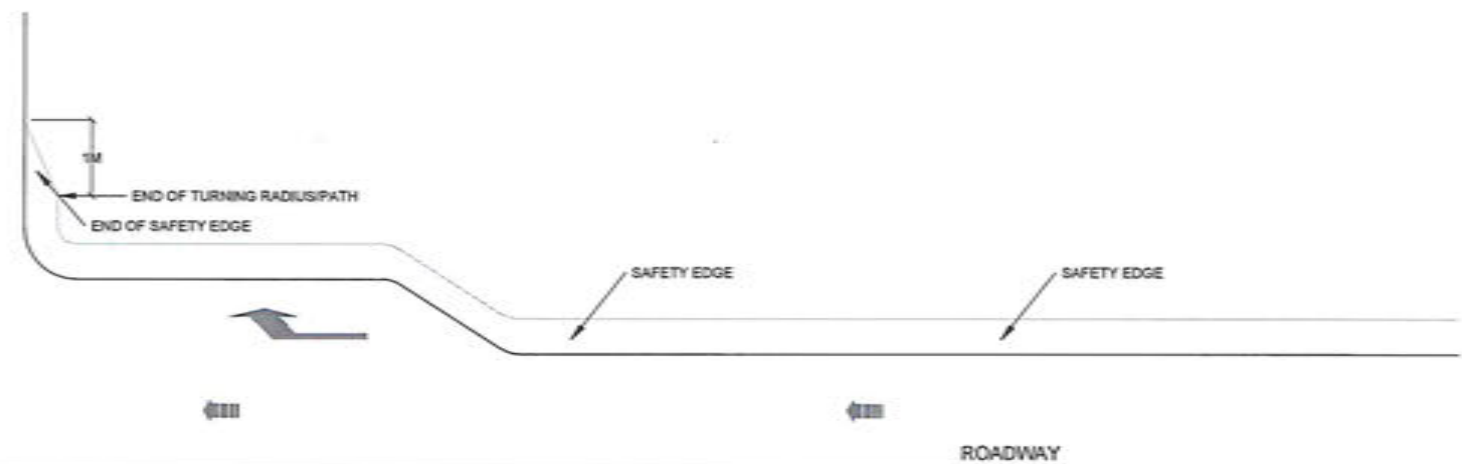
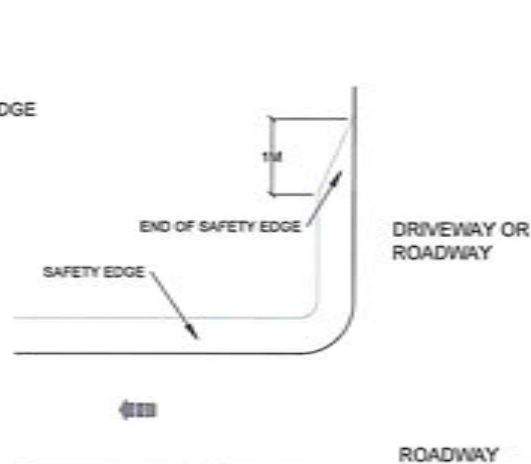
TRANSITION DETAIL
(GRAVEL SHOULDER)



BARRIER / WALL



NARROW SIDE SLOPE



DRIVEWAY AND INTERSECTION



REPUBLIC OF THE PHILIPPINES
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(S01364MN) K1469+368 - K1469+530, K1470+168 -
K1470+537, (S00066MN) K1471+521 - K1471+890,
DAVAO DEL NORTE

SHEET CONTENTS:
TRANSITION DETAILS

DRAFTED AND PREPARED:
EDUARDO JOSEPH M. SARTIGA
ENGINEER II
DATE:

REVIEWED:
DENYAL ALDRIN A. SEMPIO
ENGINEER II, OIC - SECTION CHIEF
DATE:

SUBMITTED:
JUDY B. CORDON
CHIEF PLANNING AND DESIGN DIVISION
DATE:

RECOMMENDED:
JOSELUJO S. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE:

APPROVED:
JUDY B. CORDON
REGIONAL DIRECTOR
DATE:

SET NO. 11
SHEET NO. 24

SCHEDULE FOR OVERLAY				
STATION (AS PER SURVEY)			WORKS	
Sta. 1469+333.776	-	Sta. 1469+495.924	OUTERMOST 2 LANES	
Sta. 1470+052.263	-	Sta. 1470+284.141	OUTERMOST 2 LANES	
Sta. 1470+284.141	-	Sta. 1470+421.141	6 LANES	
			R/S, INNER 2 LANES FOR REMOVAL 50mm THICK ACP	
			L/S, INNER 2 LANES FOR REMOVAL 100mm THICK ACP	

ZEBRA CROSSING SCHEDULE								
STATION LIMITS	STRIPS				STOPBAR LENGTH			
	WIDTH	LENGTH	NO.	AREA	LENGTH	WIDTH	AREA	TOTAL AREA
SECTION 2 (S01364MN)								
Sta. 1470+240.000	0.30	4.00	16	19.20	9.50	0.30	2.85	22.05
SECTION 3 (S00066MN)								
Sta. 1470+240.000	0.30	4.00	16	19.20	9.50	0.30	2.85	22.05
SECTION 4 (S01364MN)								
Sta. 1470+420.000	0.30	4.00	16	19.20	9.50	0.30	2.85	22.05
SECTION 5 (S00066MN)								
Sta. 1470+420.000	0.30	4.00	16	19.20	9.50	0.30	2.85	22.05

SCHEDULE FOR REMOVAL OF ASPHALT (50mm THK)						
STATION	STATION EQUATION		LENGTH	WIDTH	AREA	REMARKS
	BK	AH				
SECTION 4 (S01364MN)						
Sta. 1470+284.141	-	Sta. 1470+421.141	137.000	6.70	917.90	R/S, INNERMOST 2 LANES
LESS (FOR ISLAND)						
Sta. 1470+284.141	-	Sta. 1470+421.141	137.000	0.55	75.35	
TOTAL SECTION 4					842.55	
SCHEDULE FOR REMOVAL OF ASPHALT (100mm THK)						
STATION	STATION EQUATION		LENGTH	WIDTH	AREA	REMARKS
	BK	AH				
SECTION 5						
Sta. 1470+284.141	-	Sta. 1470+421.141	137.000	6.70	917.90	L/S, INNERMOST 2 LANES
LESS (FOR ISLAND)						
Sta. 1470+284.141	-	Sta. 1470+421.141	137.000	0.55	75.35	
TOTAL SECTION 5					842.55	

JUNCTION (230mm THICK PCCP)			
STATION (AS PER SURVEY)	WIDTH (m)	LENGTH (m)	SIDE
Sta. 1470+220.000	4.5	30	R

PAVEMENT MARKINGS SCHEDULE									
STATION LIMITS	STATION EQUATIONS		LENGTH (EDGE LINE) SINGLE SOLID WHITE 0.10M THK	LENGTH (ISLAND EDGE LINE) WHITE 0.10M THK	BROKEN LINES (TRANSITION FOR LAY-BY) 0.15M THK, 1M LENGTH	NO. OF LANES (FOR BROKEN LANE LINES)	TOTAL BROKEN LANE LINES (MULTIPLIED WITH NO. OF LANES LINES) BROKEN WHITE 0.15M THK, 3M LENGTH	AREA SQ.M. (WHITE)	
	BACK	AHEAD							
SECTION 1 (S01364MN)									
Sta. 1469+333.776 - Sta. 1469+495.924	Sta. 0+000.000	Sta. 0+000.000	162.000			2.00	36.00	48.60	
	Sta. 1469+399.852	Sta. 1469+400.000							TOTAL SECTION 1 48.60
SECTION 2 (S01364MN)									
Sta. 1470+052.263 - Sta. 1470+284.141	Sta. 1470+140.122	Sta. 1470+140.000	232.000		47.000	1.00	25.00	65.15	
									TOTAL SECTION 2 65.15
SECTION 3 (S00066MN)									
Sta. 1470+052.263 - Sta. 1470+284.141	Sta. 1470+140.122	Sta. 1470+140.000	232.000			1.00	25.00	58.10	
									TOTAL SECTION 3 58.10
SECTION 4 (S01364MN)									
Sta. 1470+284.141 - Sta. 1470+421.141			137.000	137.000		2.00	30.00	40.90	
									TOTAL SECTION 4 40.90
SECTION 5 (S00066MN)									
Sta. 1470+284.141 - Sta. 1470+421.141			137.000	137.000		2.00	30.00	40.90	
									TOTAL SECTION 5 40.90



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(S01364MN) K1469+368 - K1469+530, K1470+168 -
K1470+537, (S00066MN) K1471+521 - K1471+890,
DAVAO DEL NORTE

SHEET CONTENTS
SCHEDULES

DRAFTED AND PREPARED
EDUARDO JOSEPH M. SARTIGA
ENGINEER II
DATE

REVIEWED
DENNIS ALDRIN A. SEMPIO
ENGINEER III, OIC - SECTION CHIEF
DATE

DESIGNED
JULIAN T. BERNARDINO
CHIEF PLANNING AND DESIGN DIVISION
DATE

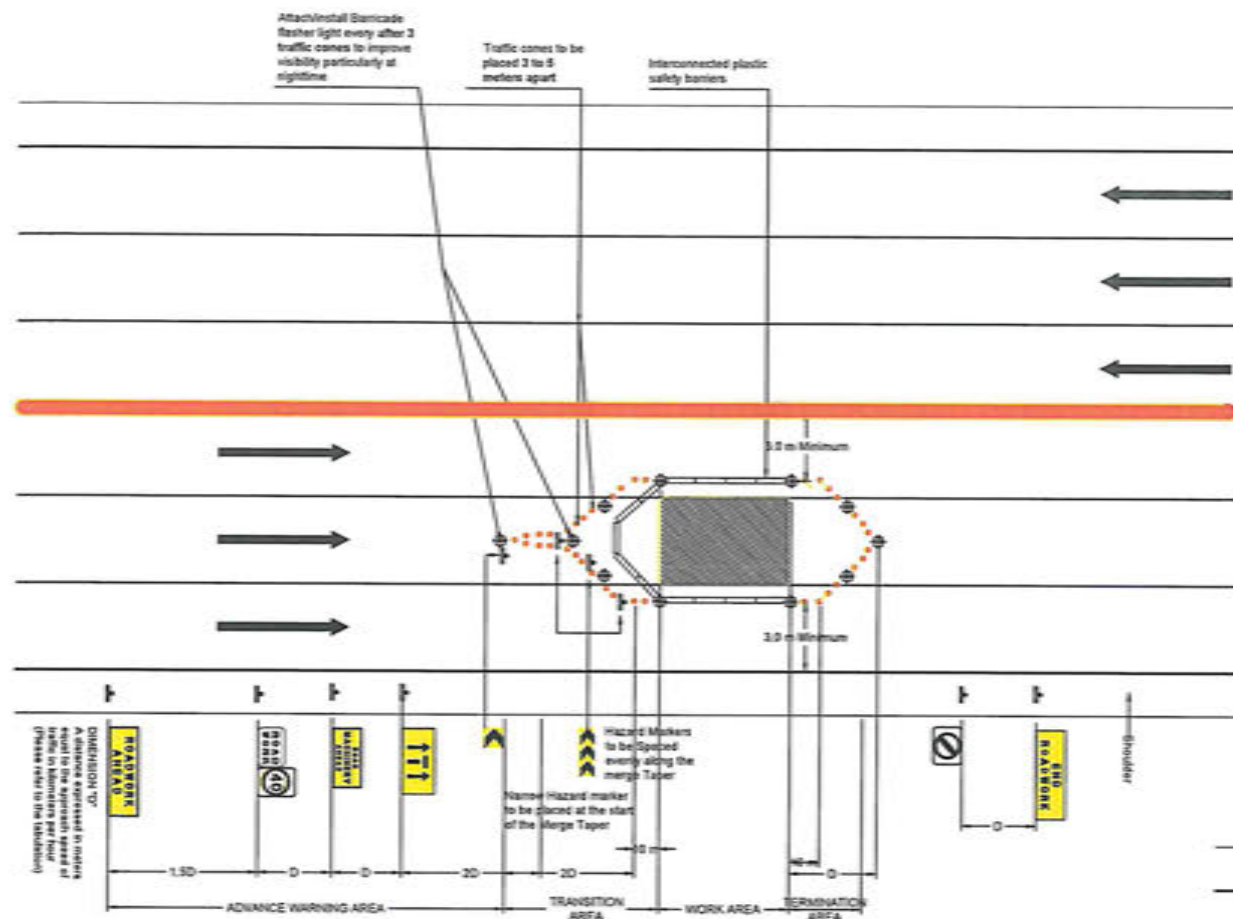
RECOMMENDED
JOSE LITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE

APPROVED
JUBY B. CORDON
REGIONAL DIRECTOR
DATE

SET NO.
A
12/12

SHEET NO.
12
24

B. TRAFFIC MANAGEMENT DETAILS



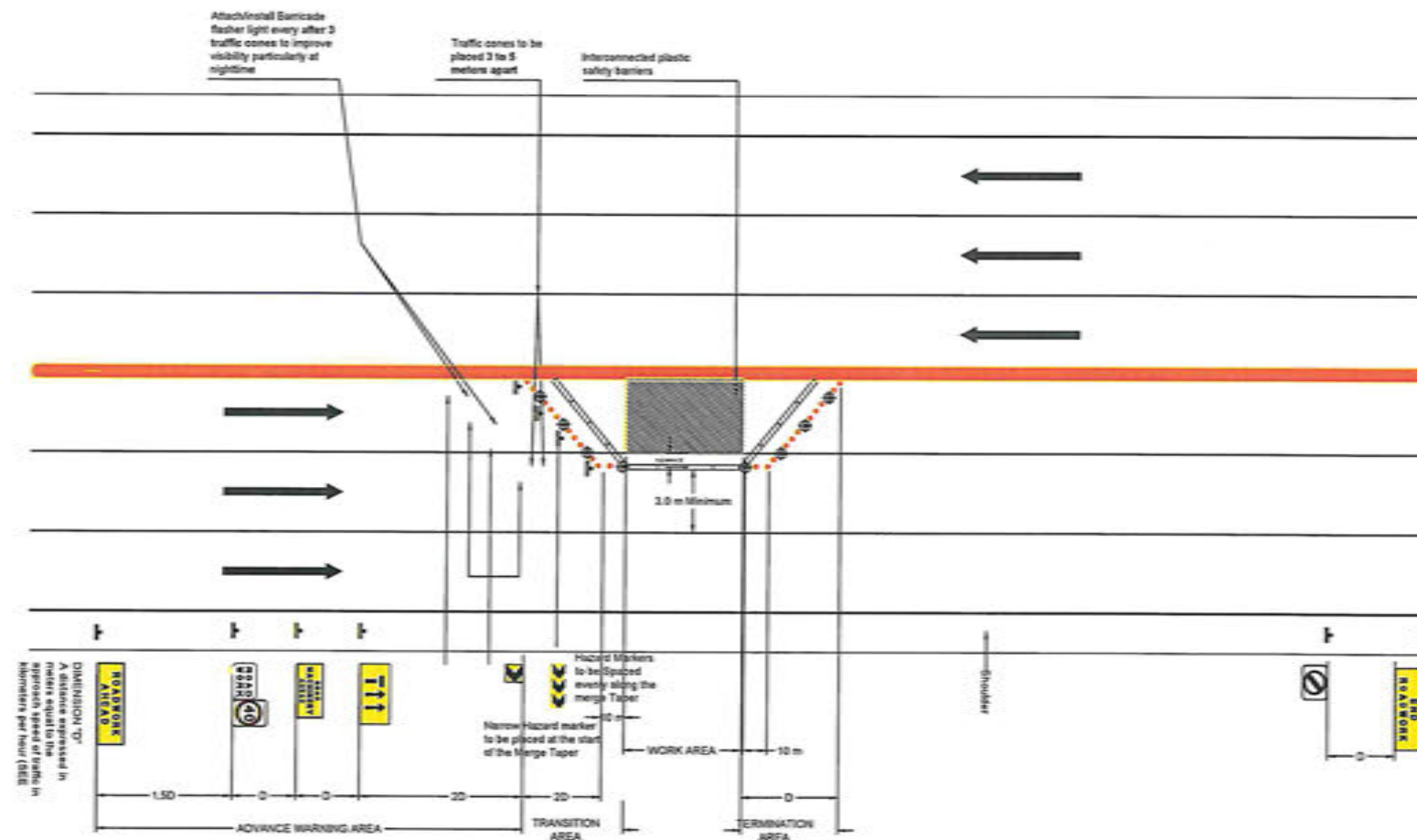
SCHEME 1: REMOVAL OF ASPHALT: INNERLANE (WITH ISLAND)

TRAFFIC MANAGEMENT STAGES		DESCRIPTION	QUANTITY
SCHEME 1: REMOVAL OF ASPHALT: INNERLANE (WITH ISLAND)		ROADWORK AHEAD (71-1)	1
		LANE STATUS (72-42)	1
		ROAD WORK (84-2)	1
		SPEED RESTRICTION (84-1)	1
		ROADWORK AHEAD (71-2)	1
		TEMPORARY HAZARD MARKER (75-3)	1
		TEMPORARY HAZARD MARKER (75-4)	3
		END SPEED RESTRICTION (84-12)	1
		END ROADWORK (72-16)	1
		TRAFFIC CONES	17
		BARRICADE FLASHER LIGHT	10
		PLASTIC SAFETY BARRIER (200 meters - Working Area Considered)	44

THE CONTRACTOR SHALL PREPARE A SEPARATE TRAFFIC OPERATIONAL PROGRAM (TOP) WHICH SHALL BE IMPLEMENTED DURING THE ENTIRE CONSTRUCTION DURATION

TRAFFIC MANAGEMENT STAGES		DESCRIPTION	QUANTITY
SCHEME 1: REMOVAL OF ASPHALT: INNERLANE (WITH ISLAND)		ROADWORK AHEAD (71-1)	1
		LANE STATUS (72-42)	1
		ROAD WORK (84-2)	1
		SPEED RESTRICTION (84-1)	1
		ROADWORK AHEAD (71-2)	1
		TEMPORARY HAZARD MARKER (75-3)	1
		TEMPORARY HAZARD MARKER (75-4)	3
		END SPEED RESTRICTION (84-12)	1
		END ROADWORK (72-16)	1
		TRAFFIC CONES	36
		BARRICADE FLASHER LIGHT	13
		PLASTIC SAFETY BARRIER (200 meters - Working Area Considered)	84

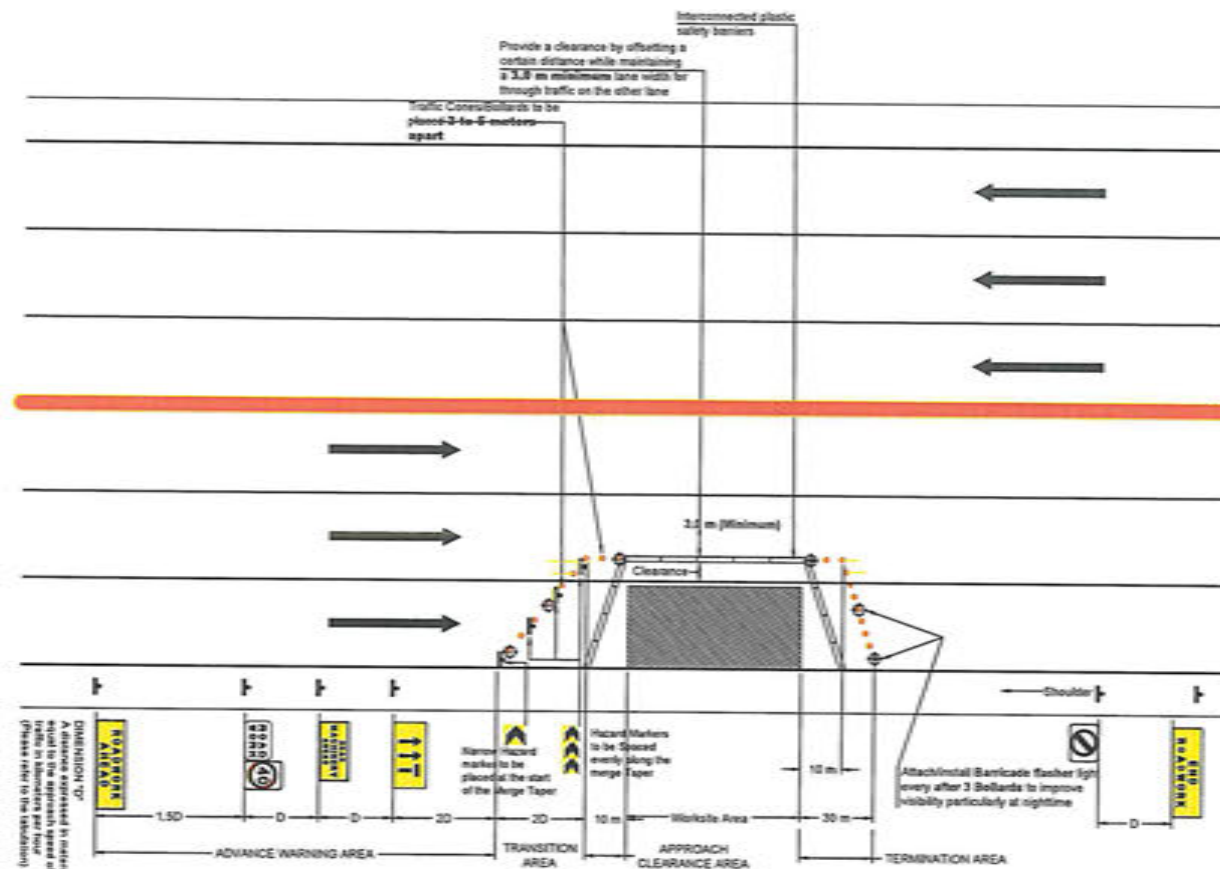
THE CONTRACTOR SHALL PREPARE A SEPARATE TRAFFIC OPERATIONAL PROGRAM (TOP) WHICH SHALL BE IMPLEMENTED DURING THE ENTIRE CONSTRUCTION DURATION



SCHEME 2: REMOVAL OF ASPHALT: INNERMOST (WITH ISLAND)

1 TRAFFIC MANAGEMENT LAYOUT

 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION:	SHEET CONTENTS:	DRAFTED AND PREPARED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
	PREVENTIVE MAINTENANCE OF ROAD: ASPHALT OVERLAY - MAHARLIKA HIGHWAY - (S01364MM) K1469+368 - K1469+530, K1470+168 - K1470+537, (S00066MM) K1471+521 - K1471+890, DAVAO DEL NORTE	TRAFFIC MANAGEMENT LAYOUT	EDWARD JOSEPH M. SARTIGA ENGINEER II	DENVER ALDRIN A. SEMPIO ENGINEER II, OIC - SECTION CHIEF	JUAN MANUEL T. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION	JOSE LITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR	JUBY S. CORDON REGIONAL DIRECTOR	B 1/10	13 24



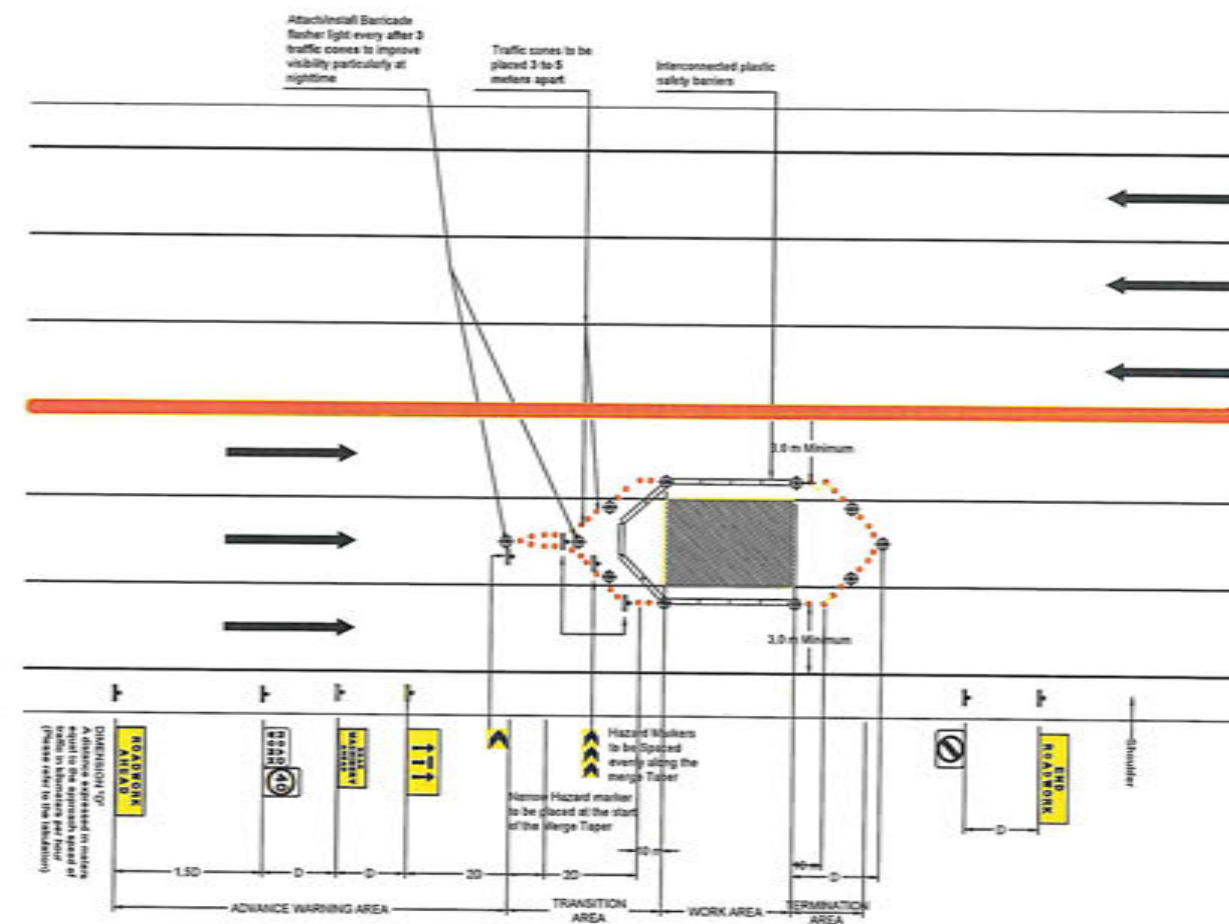
SCHEME 3: LAYING OF ASPHALT: OUTERMOST (WITH ISLAND)

TRAFFIC MANAGEMENT STAGES	DESCRIPTION	QUANTITY
SCHEME 4: LAYING OF ASPHALT: INNERLANE (WITH ISLAND)		
ROADWORK AHEAD	ROADWORK AHEAD (T1-1)	1
↑↑↑	LANE STATUS (T2-2)	1
ROAD WORK	ROAD WORK (R4-3)	1
40	SPEED RESTRICTION (R4-1)	1
ROAD MACHINERY AHEAD	ROADWORK MACHINERY AHEAD (T1-2)	1
▲	TEMPORARY HAZARD MARKER (T5-1)	1
▶▶▶	TEMPORARY HAZARD MARKER (T5-2)	3
⊘	END SPEED RESTRICTION (R4-1)	1
END ROADWORK	END ROADWORK (T2-1)	1
●	TRAFFIC CONES	36
⚡	BARRICADE FLASHER LIGHT	13
🚧	PLASTIC SAFETY BARRIER (200 meters - Working Area Considered)	84

THE CONTRACTOR SHALL PREPARE A SEPARATE TRAFFIC OPERATIONAL PROGRAM (TOP) WHICH SHALL BE IMPLEMENTED DURING THE ENTIRE CONSTRUCTION DURATION

TRAFFIC MANAGEMENT STAGES	DESCRIPTION	QUANTITY
SCHEME 3: LAYING OF ASPHALT: OUTERMOST (WITH ISLAND)		
ROADWORK AHEAD	ROADWORK AHEAD (T1-1)	1
↑↑↑	LANE STATUS (T2-2)	1
ROAD WORK	ROAD WORK (R4-3)	1
40	SPEED RESTRICTION (R4-1)	1
ROAD MACHINERY AHEAD	ROADWORK MACHINERY AHEAD (T1-2)	1
▲	TEMPORARY HAZARD MARKER (T5-1)	1
▶▶▶	TEMPORARY HAZARD MARKER (T5-2)	3
⊘	END SPEED RESTRICTION (R4-1)	1
END ROADWORK	END ROADWORK (T2-1)	1
●	TRAFFIC CONES	17
⚡	BARRICADE FLASHER LIGHT	10
🚧	PLASTIC SAFETY BARRIER (200 meters - Working Area Considered)	44

THE CONTRACTOR SHALL PREPARE A SEPARATE TRAFFIC OPERATIONAL PROGRAM (TOP) WHICH SHALL BE IMPLEMENTED DURING THE ENTIRE CONSTRUCTION DURATION



SCHEME 4: LAYING OF ASPHALT: INNERLANE (WITH ISLAND)

1 TRAFFIC MANAGEMENT LAYOUT

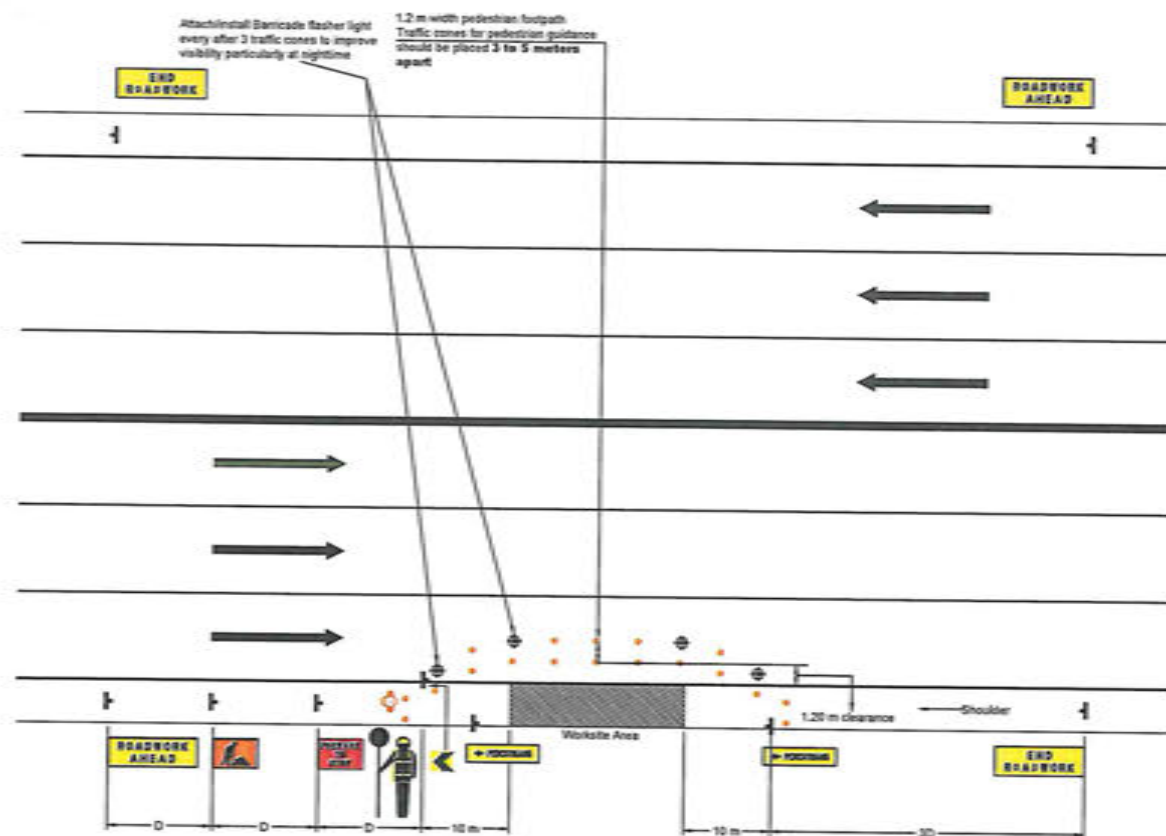
REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHARVIEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION:	SHEET CONTENTS:	DRAFTED AND PREPARED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
	PREVENTIVE MAINTENANCE OF ROAD: ASPHALT OVERLAY - MAHARLIKA HIGHWAY - (S01364MM) K1465+368 - K1469+530, K1470+168 - K1470+537, (S000966MM) K1471+521 - K1471+890, DAVAO DEL NORTE	TRAFFIC MANAGEMENT LAYOUT	EDWARD JOSEPH M. SARTIGA ENGINEER I	DENVER ALORIN A. SEMPIO ENGINEER I, C.E. SECTION CHIEF	JUDY ANN T. BERNARDINO CHIEF PLANNING AND DESIGN DIVISION	JOSE LITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR	JUBY B. CORDON REGIONAL DIRECTOR	B 2/10	14 24



THE CONTRACTOR SHALL PREPARE A SEPARATE TRAFFIC OPERATIONAL PROGRAM (TOP) WHICH SHALL BE IMPLEMENTED DURING THE ENTIRE CONSTRUCTION DURATION.



D:\INFRA2025\INFRAPREVENTIVE MAINTENANCE AND REHAB-RECON OF ROAD ALONG MAHARLIKA HIGHWAY SALVACION & TUGANAY SECTION, DON (02-25-2025)\QSM\TYPICAL\TMPIC-22 NEW TRAFFIC MANAGEMENT PROGRAM.DWG



SCHEME 7: LEVELING OF SHOULDER

TRAFFIC MANAGEMENT STAGES	DESCRIPTION	QUANTITY
SCHEME 1: LEVELING OF SHOULDER		
	ROADWORK AHEAD (T1-1)	2
	PREPARE TO STOP (T1-10)	1
	WORKING AHEAD (SYMBOLIC) (T1-2)	1
	TEMPORARY AHEAD WARNING (T1-3)	1
	END ROADWORK (T1-10)	2
	TRAFFIC CONES (20 meters - Working Area Closed)	30
	BARRICADE FLASHER LIGHT	12
	PEDESTRIAN (T1-21, 4-1)	2

THE CONTRACTOR SHALL PREPARE A SEPARATE TRAFFIC OPERATIONAL PROGRAM (TOP) WHICH SHALL BE IMPLEMENTED DURING THE ENTIRE CONSTRUCTION DURATION.

TRAFFIC MANAGEMENT STAGES	DESCRIPTION	QUANTITY
OVERLAY SUMMARY		
	ROADWORK AHEAD (T1-1)	2
	PREPARE TO STOP (T1-10)	1
	WORKING AHEAD (SYMBOLIC) (T1-2)	1
	LANE STATUS (T1-42)	1
	ROAD WORK (S4-2)	2
	SPEED RESTRICTION (S4-1)	2
	ROADWORK AHEAD (T1-1)	2
	TEMPORARY AHEAD WARNING (T1-3)	2
	TEMPORARY AHEAD WARNING (T1-3)	4
	END SPEED RESTRICTION (S4-2)	2
	END ROADWORK (T1-10)	2
	TRAFFIC CONES	108
	BARRICADE FLASHER LIGHT	12
	PEDESTRIAN (T1-21, 4-1)	2
	PLASTIC SAFETY BARRIER (20 meters - Working Area Closed)	30

THE CONTRACTOR SHALL PREPARE A SEPARATE TRAFFIC OPERATIONAL PROGRAM (TOP) WHICH SHALL BE IMPLEMENTED DURING THE ENTIRE CONSTRUCTION DURATION.

1 TRAFFIC MANAGEMENT LAYOUT

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. R. NAGSAYAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION:	SHEET CONTENTS:	DRAFTED AND PREPARED:	REVIEWED:	DESIGNED:	APPROVED:	SET NO.	SHEET NO.
	PREVENTIVE MAINTENANCE OF ROAD: ASPHALT OVERLAY - MAHARLIKA HIGHWAY - (S013648W) K1469+368 - K1469+530, K1470+168 - K1470+537, (S00066MN) K1471+521 - K1471+890, DAVAO DEL NORTE	TRAFFIC MANAGEMENT LAYOUT	EDWARD JOSEPH M. SARTIGA ENGINEER II DATE:	DENNIS ALORIN K. SEMPJO ENGINEER II, OIC - SECTION CHIEF DATE:	JUDY ANN T. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION DATE:	JOSELITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE:	JUBY B. CORDON REGIONAL DIRECTOR DATE:	B 4 10

GENERAL NOTES FOR TRAFFIC MANAGEMENT PLAN:

A. GENERAL NOTES:

- BEFORE THE START OF ACTUAL CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A TRAFFIC OPERATION PLAN TO THE REGIONAL OFFICE. THE CONTRACTOR MAY ADOPT THE TRAFFIC MANAGEMENT PLAN PREPARED DURING THE DETAILED ENGINEERING DESIGN (DED) PLAN OR FORMULATE THEIR OWN TRAFFIC OPERATION PLAN TO PROPERLY SUIT THE EXISTING WORKSITE CONDITIONS AND THE PROPOSED CONSTRUCTION METHODS TO BE USED BY THE CONTRACTOR.
- THE PROJECT ENGINEER SHALL IDENTIFY ALL DIMENSIONS "D" BASED ON SITE CONDITIONS.
- THE PROJECT ENGINEER SHALL IDENTIFY THE PROPER LOCATION AND PLACEMENT OF ALL "SPEED RESTRICTION" SIGNS BASED ON SITE CONDITIONS.
- SIGNS SHALL BE MOUNTED SO THAT THEY ARE AT OR ABOUT THE DRIVER'S EYE LEVEL, APPROXIMATELY 1 METER, WITH A MINIMUM MOUNTING HEIGHT OF 200 mm FROM THE GROUND.
- "ROADWORK AHEAD" THE FIRST ADVANCE WARNING SIGN SEEN BY DRIVERS, SHALL BE LOCATED AT A MINIMUM DISTANCE "2D" METERS (D IS THE APPROACHED SPEED OF TRAFFIC) BEFORE THE START OF THE WORKS, OR IF THERE IS A TRANSITION AREA, THE START OF THE TAPER.
- OTHER SIGNS IN THE ADVANCE WARNING AREA SHALL BE SPACED "D" METERS APART.
- LONGITUDINAL BUFFER SPACE SHALL BE 20 TO 30 METERS LONG BUT CAN BE EXTENDED IF THE WORK AREA IS HIDDEN FROM APPROACHING ROAD USER, e.g. BY A CURVE OR CREST.
- LATERAL BUFFER SPACE SHALL BE A MINIMUM OF 1.2 METERS IN SLOW SPEED AREAS, OR IN HIGH SPEED AND HIGH VOLUME AREAS, A LARGE ADJACENT CLEARANCE IN DESIRABLE WITH SAFETY BARRIERS ADJACENT TO THE WORK AREA.
- LOCATION OF TRAFFIC CONTROLLER SHALL BE 30 METERS IN ADVANCE OF WORK AREA, WITH GOOD SITE DISTANCE OF ONCOMING TRAFFIC, WITH AN ESCAPE PATH IN AN EMERGENCY, WHERE THE OTHER TRAFFIC CONTROLLER IS VISIBLE, AND CAN BE SEEN BY THE ROAD USER.
- A MINIMUM LANE WIDTH OF 2.75 m FOR CARS AND 3.25 m FOR TRUCKS IS RECOMMENDED AND EXCESSIVELY WIDE LANES SHALL BE AVOIDED TO NOT INDUCE SPEEDING IN TIMES OF LOWER TRAFFIC VOLUMES.
- THE CONTRACTOR SHALL PREPARE A SEPARATE TRAFFIC OPERATIONAL PROGRAM (TOP) WHICH SHALL BE IMPLEMENTED DURING THE ENTIRE CONSTRUCTION DURATION.

USE OF TRAFFIC CONTROLLERS (FLAGMEN)

- THE TRAFFIC CONTROLLER USES A POTABLE STOP/SLOW HAND HELD SIGN OR RED AND GREEN STOP/GO FLAG TO CONTROL THE TRAFFIC.
- WHEN CONTROLLING TRAFFIC, A TRAFFIC CONTROLLER SHOULD ENSURE THAT A SYMBOLIC WORKMAN SIGN AND PREPARE TO STOP SIGN AND ADDITIONAL SIGNS AND DEVICES REQUIRED FOR THE OVERALL WORKSITE TRAFFIC MANAGEMENT SCHEME, ARE IN PLACE TO PROVIDE ADVANCE WARNING AND INFORMATION TO ROAD USERS.
- THE TRAFFIC CONTROLLER SHOULD STAND APPROXIMATELY 30 METERS IN ADVANCE OF WORK AREA.
- THE TRAFFIC CONTROLLER SHOULD BE VISIBLE TO THE APPROACHING ROAD USER AND STAND ON THE CURB SIDE OR SHOULDER CLEAR OF THE TRAVELLED PATH TO VIEW BOTH THE WORKSITE AND ONCOMING TRAFFIC.
- TRAFFIC CONTROLLER WILL NEED TO USE TWO-WAY RADIOS TO ENSURE ADEQUATE COMMUNICATION OVER LONG DISTANCE OR WHERE THERE IS LIMITED VISIBILITY.

NOTE:

- ROADWORK AHEAD - THE FIRST ADVANCE WARNING SIGN SEEN BY DRIVERS, SHOULD BE LOCATED AT MINIMUM DISTANCE "2D" METERS (D IS THE APPROACHED SPEED OF TRAFFIC) BEFORE THE START OF THE WORKS, OR IF THERE IS A TRANSITION AREA, THE START OF THE TAPER.
- OTHER SIGN IN ADVANCE WARNING AREA SHOULD BE SPACE "D" METERS APART.
- LONGITUDINAL BUFFER SPACE SHOULD BE 20 TO 30 METERS LONG BUT CAN BE EXTENDED IF THE WORK AREA IS HIDDEN FROM APPROACHING ROAD USER, e.g. BY A CURVE OR CREST.
- LATERAL BUFFER SPACE SHOULD BE A MINIMUM OF 1.2 METERS IN SLOW SPEED AREAS, OR IN HIGH SPEED AND HIGH VOLUME AREAS, A LARGE ADJACENT CLEARANCE IN DESIRABLE WITH SAFETY BARRIERS ADJACENT TO THE WORK AREA.
- LOCATION OF TRAFFIC CONTROLLER SHOULD BE 30 METERS IN ADVANCE OF WORK AREA, WITH GOOD SITE DISTANCE OF ONCOMING TRAFFIC, WITH AN ESCAPE PATH IN AN EMERGENCY, WHERE THE OTHER TRAFFIC CONTROLLER IS VISIBLE, AND CAN BE SEEN BY THE ROAD USER.

REFERENCES:

- D.O. NO.13, SERIES 2018 - GUIDELINE FOR THE PREPARATION OF COST ESTIMATES FOR THE TRAFFIC MANAGEMENT AND SAFETY AND HEALTH REQUIREMENTS FOR THE CONSTRUCTION AND MAINTENANCE OF ROADS, BRIDGES AND SAFETY AND HEALTH.
- ROAD SAFETY MANUAL 2004
- PART 2: ROAD SAFETY AND PAVEMENT DESIGN MANUAL 2012

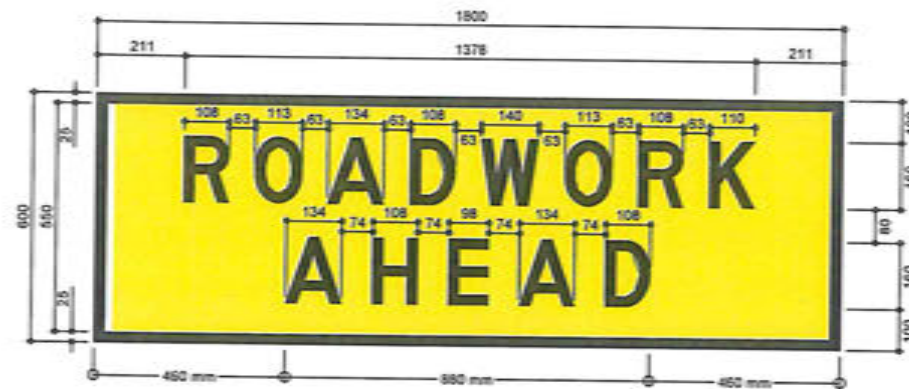
TRANSITION AREA			
SPEED OF TRAFFIC (KPH)	LENGTH OF DIVERGENCE/LATERAL SHIFT TAPER (m)	LENGTH OF MERGE TAPER (m)	LENGTH OF STRAIGHT SECTION BETWEEN MULTILANE CLOSURES (m)
≤ 40	40	80	60
50	50	100	75
60	60	120	90
70	70	140	105
80	80	160	120
90	90	180	135
100	100	200	150
110	110	220	165

APPROACH CLEARANCE AREA	
SPEED OF TRAFFIC (KPH)	BUFFER LENGTH (m)
≤ 40	0
50	0
60	20 - 30
70	20 - 30
80	20 - 30
90	20 - 30
100	20 - 30
110	20 - 30

ADVANCE WARNING AREA	
SPEED OF TRAFFIC (KPH)	SIGNAGE SPACING (D' VALUE) (m)
≤ 40	0 - 5
50	15
60	45
70	70
80	80
90	90
100	100
110	110

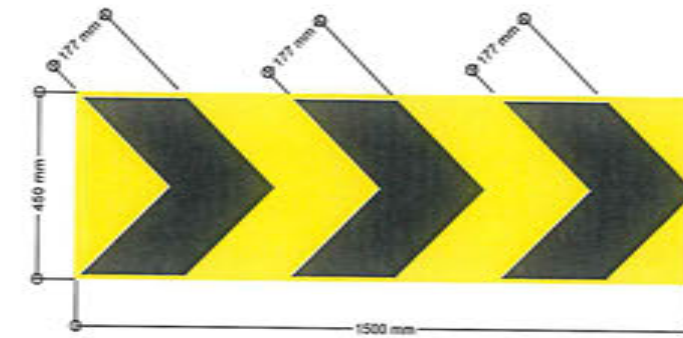
TERMINATION AREA			
SPEED OF TRAFFIC (KPH)	LENGTH OF DIVERGENCE/LATERAL SHIFT TAPER (m)	LENGTH OF MERGE TAPER (m)	LENGTH OF STRAIGHT SECTION BETWEEN MULTILANE CLOSURES (m)
≤ 40	40	80	¾ OF LEAD TAPER LENGTH
50	50	100	
60	60	120	
70	70	140	
80	80	160	
90	90	180	
100	100	200	
110	110	220	

1 TRAFFIC MANAGEMENT LAYOUT SCALE GENERAL NOTES



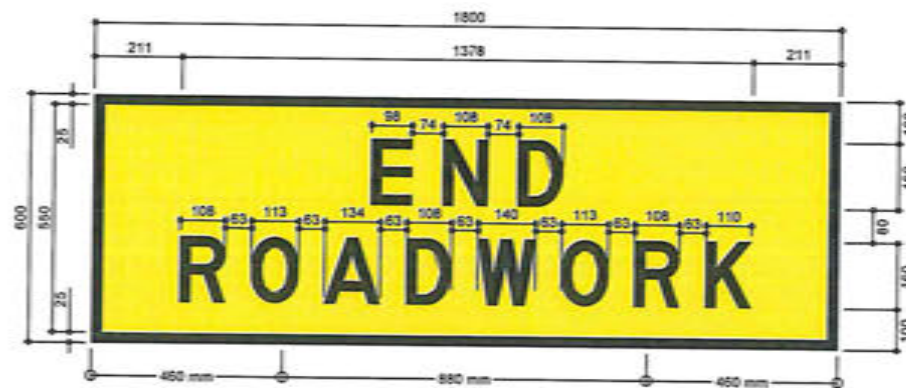
ROADWORK AHEAD DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T1-1	1800 X 600	LINE 1 - BLACK 200 DM LINE 2 - BLACK 160 DM	YELLOW REFLECTORIZED	ADVANCE WARNING SIGNS



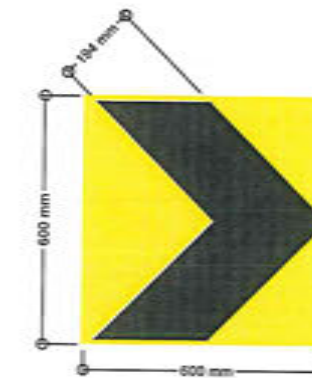
TEMPORARY HAZARD MARKER DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T5-4	1500 X 450 TYPE B-1	BLACK 177 WIDE AT 45°	YELLOW REFLECTORIZED	TEMPORARY HAZARD MARKER



END ROADWORK DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T2-16	1800 X 600	LINE 1 - BLACK 200 DM LINE 2 - BLACK 160 DM	YELLOW REFLECTORIZED	ADVANCE WARNING SIGNS



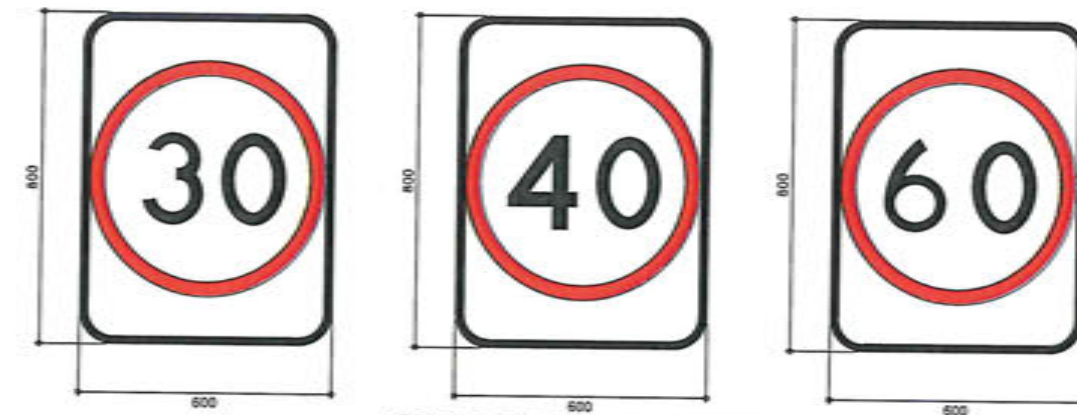
SPEED RESTRICTION DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T5-4	600 X 600 TYPE B-1	BLACK 154 WIDE AT 45°	YELLOW REFLECTORIZED	TEMPORARY HAZARD MARKER



ROAD MACHINERY AHEAD DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T1-3	1200 X 600	LINE 1 - BLACK 100 DM LINE 2 - BLACK 120 DM LINE 3 - BLACK 100 DM	YELLOW REFLECTORIZED	ADVANCE WARNING SIGNS



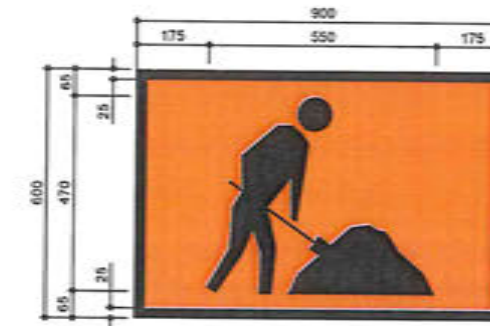
SPEED RESTRICTION DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
R4-1	600 X 800 (SIZE B)	BLACK 240 DN CIRCLE - 600 DIA. RED	WHITE REFLECTORIZED RED CIRCLE - REFLECTORIZED	REGULATORY SIGNS



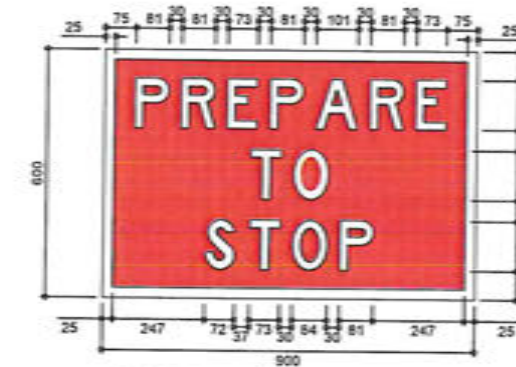
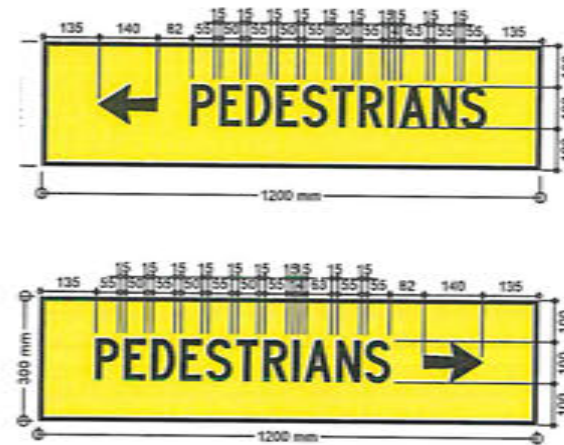
END SPEED RESTRICTION DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
R4-12	600 X 600 (SIZE B)	SYMBOL - 600 DIA. BLACK	WHITE REFLECTORIZED	REGULATORY SIGNS



WORKMEN AHEAD (SYMBOLIC) DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T1-5	900 X 600	BLACK	RED/ORANGE - FLUORESCENT FOR DAY USE - REFLECTORIZED FOR NIGHT	ADVANCE WARNING SIGNS



PREPARED TO STOP DETAILS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T8-2	1200 X 300	BLACK 100 CM ARROW 140	YELLOW REFLECTORIZED	DETOUR SIGNS

SIGN NO.	SIZE (mm)	LETTERS/SYMBOLS	BACKGROUND	TYPE OF SIGNS
T1-18	900 X 600	LINE 1 - WHITE 120 CM LINE 2 - WHITE 120 CM LINE 3 - WHITE 120 CM REFLECTORIZED	RED REFLECTORIZED	REGULATORY SIGNS

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	DRAFTED AND PREPARED	REVIEWED	SUBMITTED	RECOMMENDED	APPROVED	SET NO.	SHEET NO.
	PREVENTIVE MAINTENANCE OF ROAD: ASPHALT OVERLAY - MAHARLIKA HIGHWAY - (S01364MM) K1469+368 - K1469+530, K1470+168 - K1470+537, (S00066MM) K1471+521 - K1471+890, DAVAO DEL NORTE	TRAFFIC MANAGEMENT PROGRAM SIGNAGE	EDWARD JOSEPH M. SARTIGA ENGINEER II DATE: _____	DEWIS ALORIN A. SEMPIO ENGINEER I, OIC-SECTION CHIEF DATE: _____	JUDY ANN T. BERNARDINO CHIEF, DRAWING AND DESIGN DIVISION DATE: _____	ROSELITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR DATE: _____	JUDY B. CORDON REGIONAL DIRECTOR DATE: _____	B 7 10	19 24

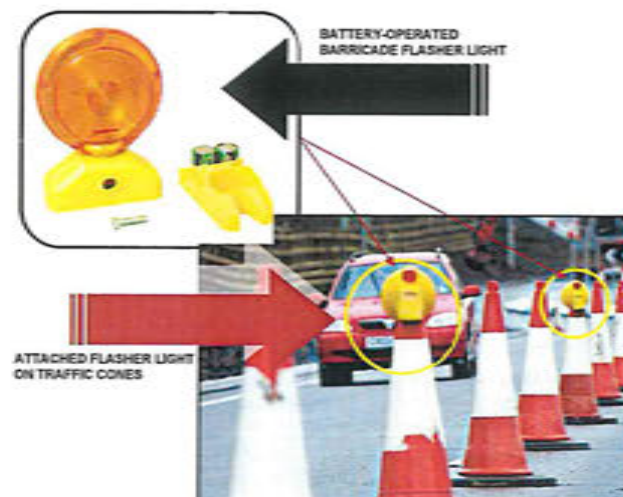


SIZE	A (mm)	B (mm)	C (mm)	D (mm)
MEDIUM	280	600	750	580
LARGE	295	625	775	610
EXTRA LARGE	310	650	800	640

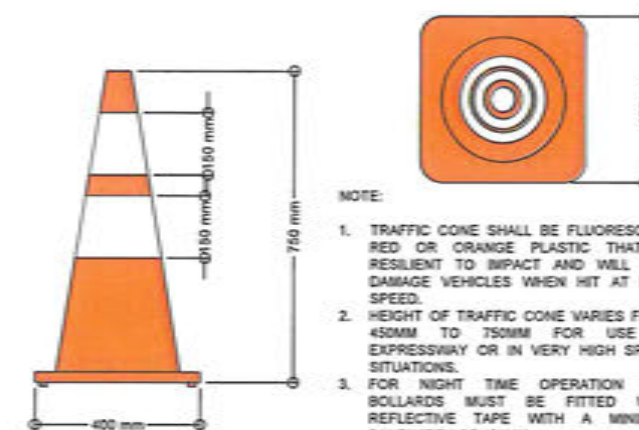
3 TRAFFIC SAFETY VEST DETAILS
SCALE: NTS

NOTE:

- ALL PERSONNEL WORKING ON OR ADJACENT TO A ROADWORK SITE SHALL WEAR APPROPRIATE ROAD SAFETY MATERIALS SUCH AS HIGH VISIBILITY VEST (MADE FROM FLUORESCENT RED/ORANGE MATERIAL), HARD HAT AND SAFETY SHOES.
- THE VEST SHALL BE WORN OVER NORMAL CLOTHING AND PROPERLY FASTENED SO THAT THE ENTIRE AVAILABLE AREA OF HIGH VISIBILITY MATERIAL CAN BE SEEN IN ANY DIRECTION. TO MAXIMIZE EFFECTIVENESS THE VEST SHOULD BE KEPT CLEAN AND IN GOOD CONDITION.
- THE TRAFFIC SAFETY VEST SHALL BE MADE FROM FLUORESCENT RED OR ORANGE MATERIAL. THE VEST SHALL ALSO HAVE TWO (2) STRIPS OF YELLOW RETRO-REFLECTIVE MATERIAL AT THE FRONT AND THREE (3) STRIPS AT THE BACK. REFLECTIVE MATERIALS SHALL BE 50mm WIDE. DPWH LOGO SHALL BE 80mm DIAMETER. THE SAFETY VEST SHOULD HAVE A SECURE FASTENING PREFERABLY A ZIP.
- THE JACKET MAY BE WORN OVER WET WEATHER CLOTHING. ALTERNATIVELY, WET WEATHER HIGH VISIBILITY CLOTHING SHALL BE MADE FROM WATER PROOF MATERIAL MATCHING THOSE PROPERTIES ABOVE FOR COLOR AND RETRO REFLECTIVITY.



4 BARRICADE FLASHER LIGHT
SCALE: NTS

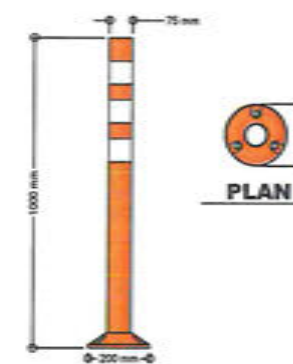


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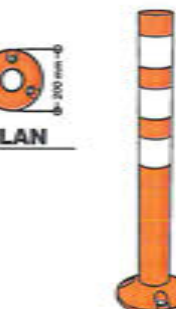
- TRAFFIC CONE SHALL BE FLUORESCENT RED OR ORANGE PLASTIC THAT IS RESILIENT TO IMPACT AND WILL NOT DAMAGE VEHICLES WHEN HIT AT LOW SPEED.
- HEIGHT OF TRAFFIC CONE VARIES FROM 450MM TO 750MM FOR USE IN EXPRESSWAY OR IN VERY HIGH SPEED SITUATIONS.
- FOR NIGHT TIME OPERATION THE BOLLARDS MUST BE FITTED WITH REFLECTIVE TAPE WITH A MINIMUM BANDWIDTH OF 150MM.

SPACING	CONDITION
5 - 10 METERS	ON TAPER WHEN USED AROUND SMALL WORK SITES (MAY BE REDUCED TO 3m TO GUIDE PEDESTRIANS OR TO PREVENT TRAFFIC TAKING A WRONG TURN THROUGH A GAP IN THE LINE OF BOLLARDS)
10 - 20 METERS	WHEN USED AS LONGITUDINAL SEPARATION BETWEEN OPPOSING TRAFFIC FLOWS WHEN USED AS LONGITUDINAL SEPARATION OF TRAFFIC FROM THE WORKSITE OR CLOSED LANE (MAY BE INCREASED TO 50m WHERE THE LENGTH OF BOLLARDS EXCEEDS 1KM)

1 TRAFFIC CONE
SCALE: NTS



2 SECTION
SCALE: NTS



2 ISOMETRIC VIEW
SCALE: NTS

SPECIFICATION	
REFLECTIVE:	ROAD SAFETY POLE
COLOR:	ORANGE
MATERIAL:	PU MATERIAL, ELASTIC, FLEXIBLE
REFLECTIVE FILM:	CRYSTAL LATTICE

NOTE:

- BOLLARDS SHALL BE FLUORESCENT RED OR ORANGE PLASTIC THAT IS RESILIENT TO IMPACT AND WILL NOT DAMAGE VEHICLES WHEN HIT AT LOW SPEED.
- HEIGHT OF BOLLARDS MUST BE UP TO 1 METER.
- FOR NIGHT TIME OPERATION THE BOLLARDS MUST BE FITTED WITH REFLECTIVE TAPE WITH A MINIMUM BANDWIDTH OF 150MM.
- SPACING @ 0.50 M. O.C.

SPACING	CONDITION
5 - 10 METERS	ON TAPER WHEN USED AROUND SMALL WORK SITES (MAY BE REDUCED TO 3m TO GUIDE PEDESTRIANS OR TO PREVENT TRAFFIC TAKING A WRONG TURN THROUGH A GAP IN THE LINE OF BOLLARDS)
10 - 20 METERS	WHEN USED AS LONGITUDINAL SEPARATION BETWEEN OPPOSING TRAFFIC FLOWS WHEN USED AS LONGITUDINAL SEPARATION OF TRAFFIC FROM THE WORKSITE OR CLOSED LANE (MAY BE INCREASED TO 50m WHERE THE LENGTH OF BOLLARDS EXCEEDS 1KM)

2 FLEXIBLE BOLLARD DETAIL
SCALE: NTS



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:

PREVENTIVE MAINTENANCE OF ROAD:
ASPHALT OVERLAY - MAHARLIKA HIGHWAY -
(501364MM) K1469+368 - K1469+530, K1470+168 -
K1470+537, (500066MM) K1471+521 - K1471+890,
DAVAO DEL NORTE

SHEET CONTENTS:

TRAFFIC CONE, FLEXIBLE BOLLARD DETAIL,
TRAFFIC SAFETY VEST DETAIL, BARRICADE
FLASHER LIGHT

DRAFTED AND PREPARED:

EDWARD JOSEPH M. SARTIGA
ENGINEER II

REVIEWED:

DENVR ALONSO A. SEMPIO
ENGINEER II, OIC - SECTION CHIEF

SUBMITTED:

JUDY M.F. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION

RECEIVED:

JOSEFINO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR

APPROVED:

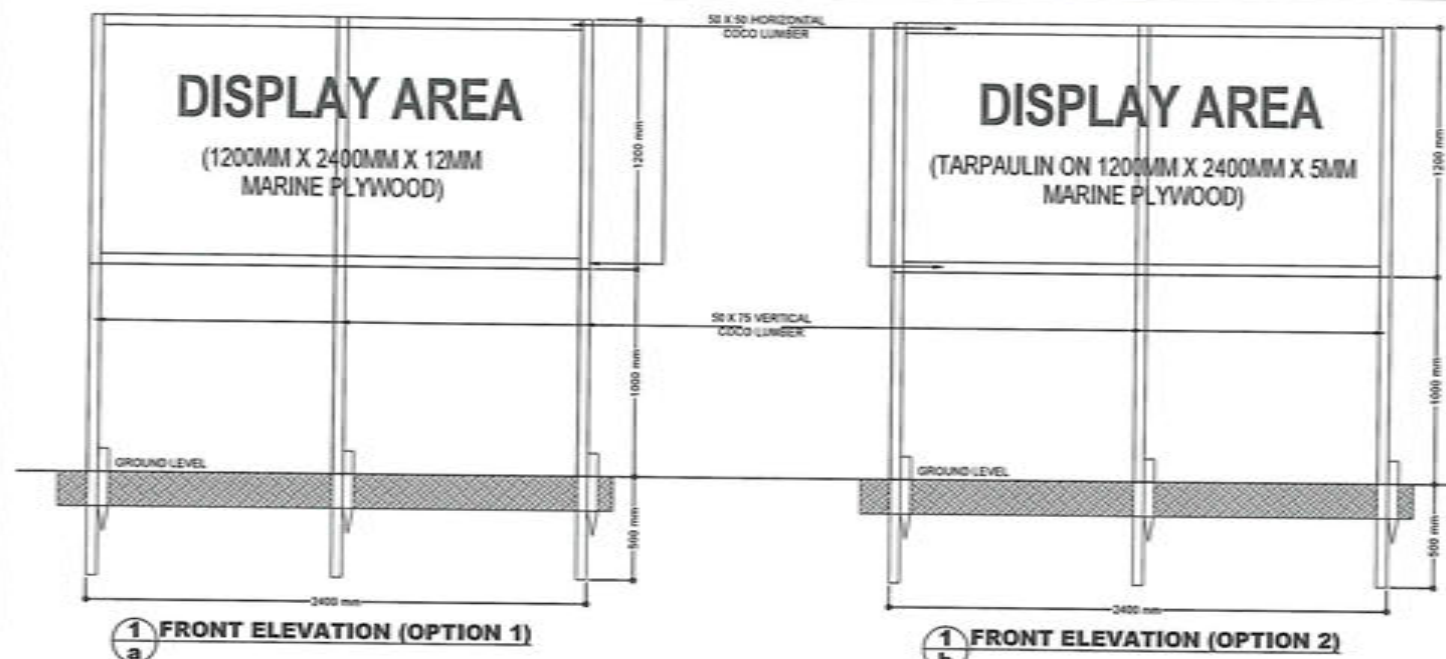
JUDY B. CORDON
REGIONAL DIRECTOR

SET NO.

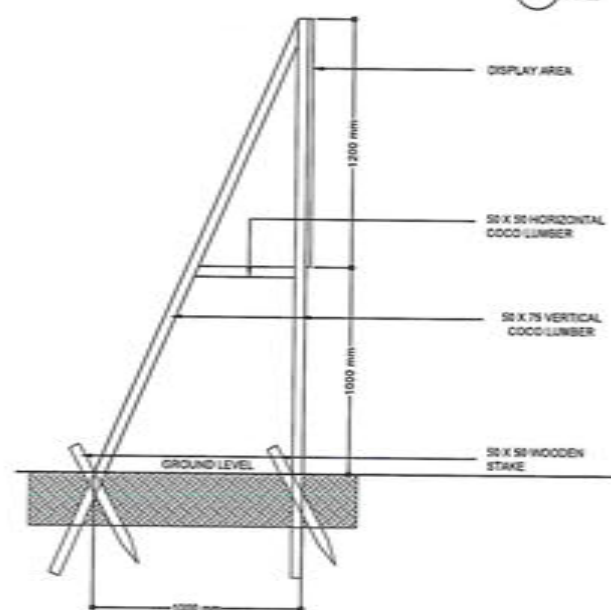
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8 10

SHEET NO.

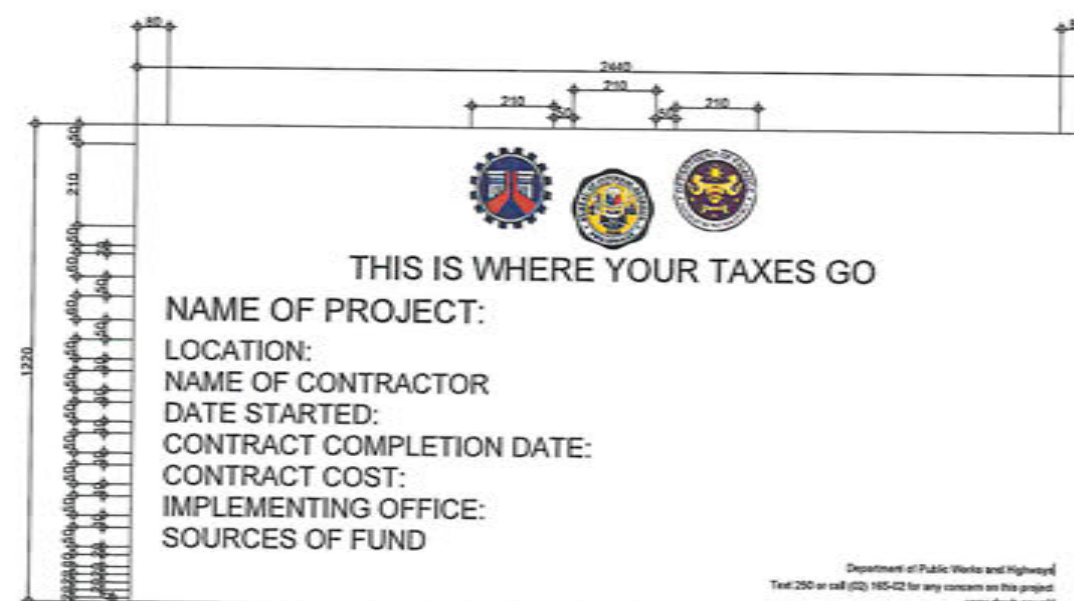
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24



1 BILLBOARD POST DETAILS

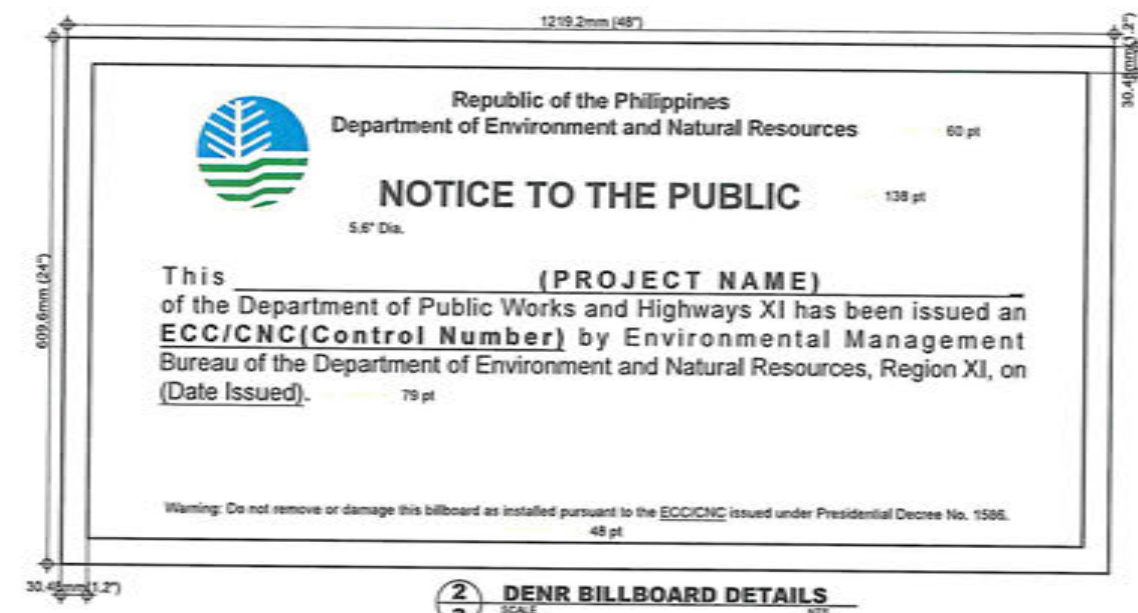


1 ORIENTATION



NOTE:
For source of Fund, state if DPWH Regular Budget, Priority Development Assistance Fund, DepEd/DA/DAR Budget, Calamity Fund, MVUC Fund etc.

2 BILLBOARD DISPLAY DETAILS



Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
Regional Office No. XI
Gov. Chavez Cor. R. Magsaysay Avenue, Davao City

Project: _____ Cost: _____
Location: _____ Fund Source/s: _____

Implementing Agencies: _____
Development Partners: _____
Contractor/Supplier: _____
Brief Description of Project: _____

Project Details:

Duration	Project Date		Project Status			Remarks
	Started	Target Date of Completion	Percentage of Completion	As of (Date)	Date Completed	

For Particular of complaints about this project, please contact the Regional Office or Cluster which has audit jurisdiction on this project:

COA Regional Office No./Cluster : XI
Address : Buhangin, Davao City
Contact No. : (082) 241-2941 or Text COA Citizens Desk (0915-5391-957)

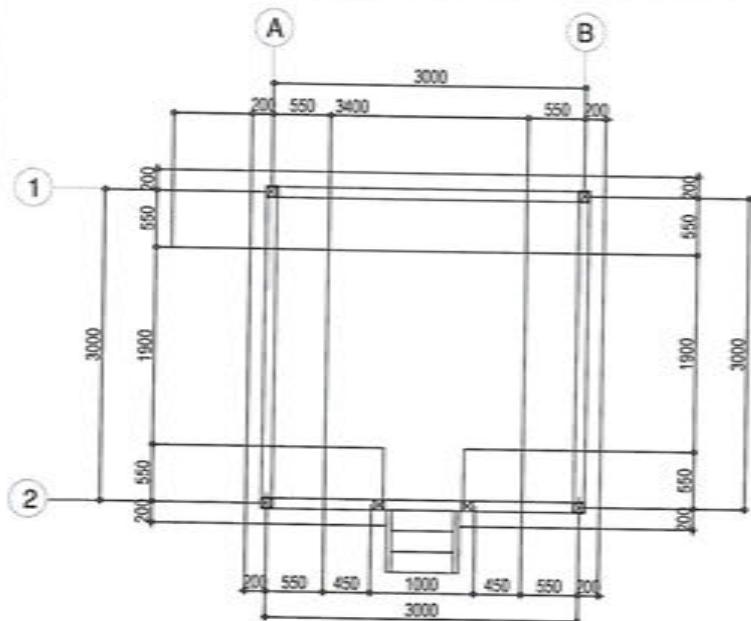
NOTES FOR COA BILLBOARD:

- TARPAULIN, WHITE, 8FT x 8 FT
- RESOLUTION: 70DPI
- FONT: HELVETICA
- FONT SIZE : MAIN INFORMATION - 3"
- SUB-Information - 1"
- FONT COLOR: BLACK

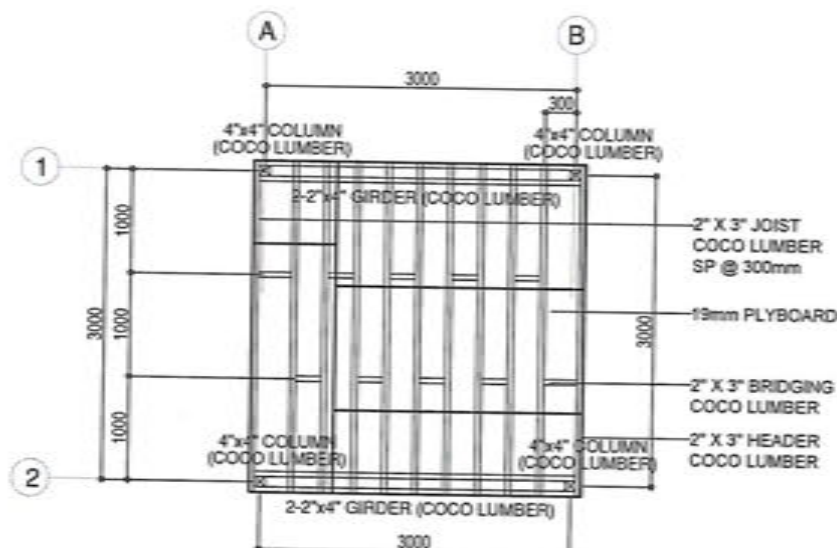
2 COA BILLBOARD DETAILS

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION: PREVENTIVE MAINTENANCE OF ROAD: ASPHALT OVERLAY - MAHARLIKA HIGHWAY - (S01364MN) K1469+368 - K1469+530, K1470+168 - K1470+537, (S00066MN) K1471+521 - K1471+890, DAVAO DEL NORTE	SHEET CONTENTS: BILLBOARDS DETAIL	DRAFTED AND PREPARED: EDWIN S. JOSEPH M. SARTIGA ENGINEER II	REVIEWED: DENYR ALDRIN A. SEMPIO ENGINEER II, OIC - SECTION CHIEF	DESIGNED: JUDY ANN T. BERNARDINO CHIEF PLANNING AND DESIGN DIVISION	RECOMMENDED: JOSE LITO S. CABALLERO ASSISTANT REGIONAL DIRECTOR	APPROVED: JUDY S. CORDON REGIONAL DIRECTOR	SET NO. B SHEET NO. 22 24
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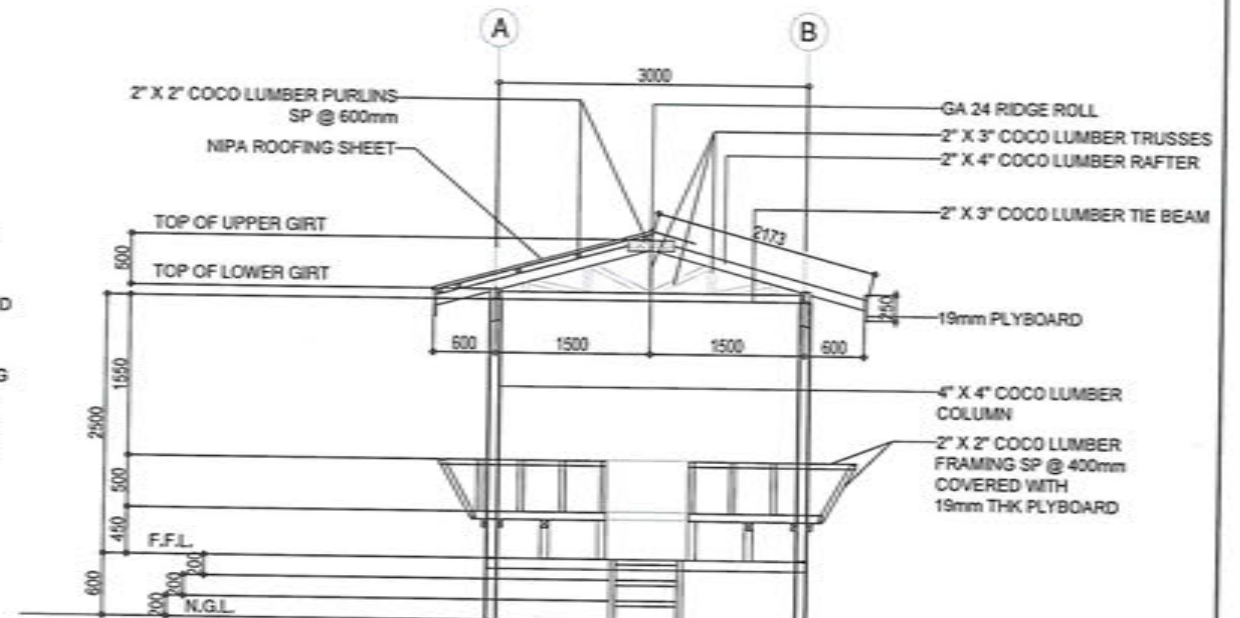
C. FACILITIES FOR THE FIELD ENGINEER



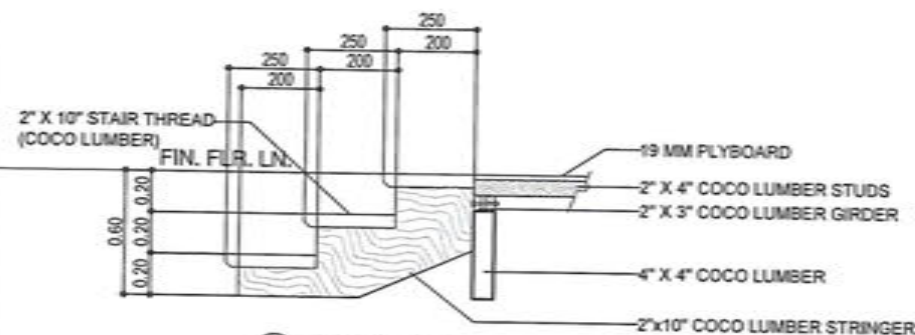
1 FLOOR PLAN



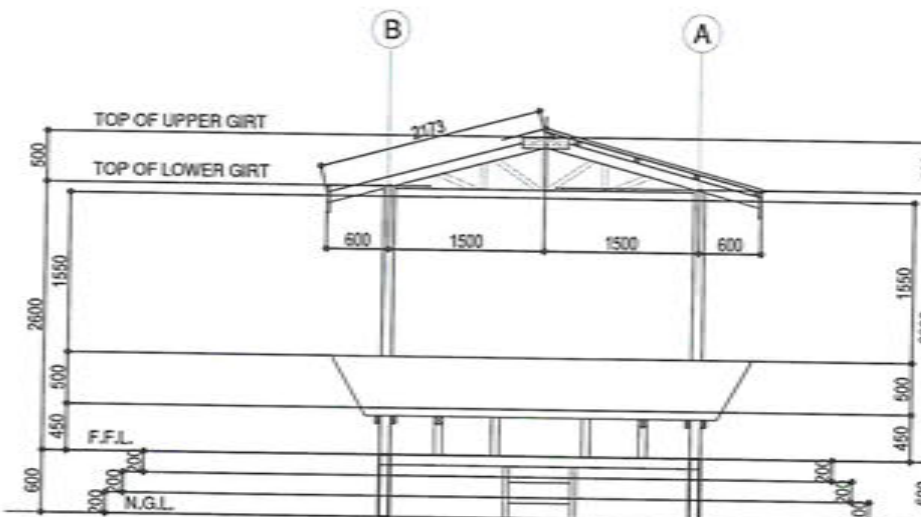
2 FLOOR FRAMING



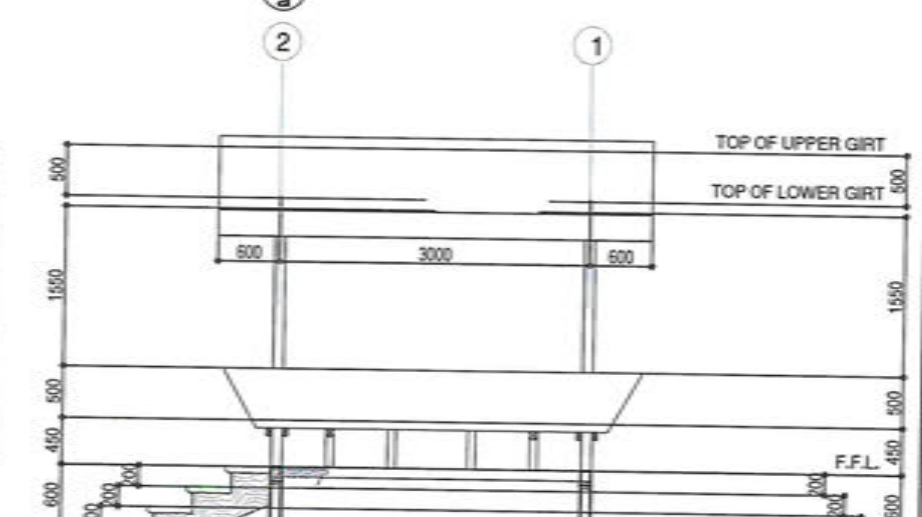
3 SECTION



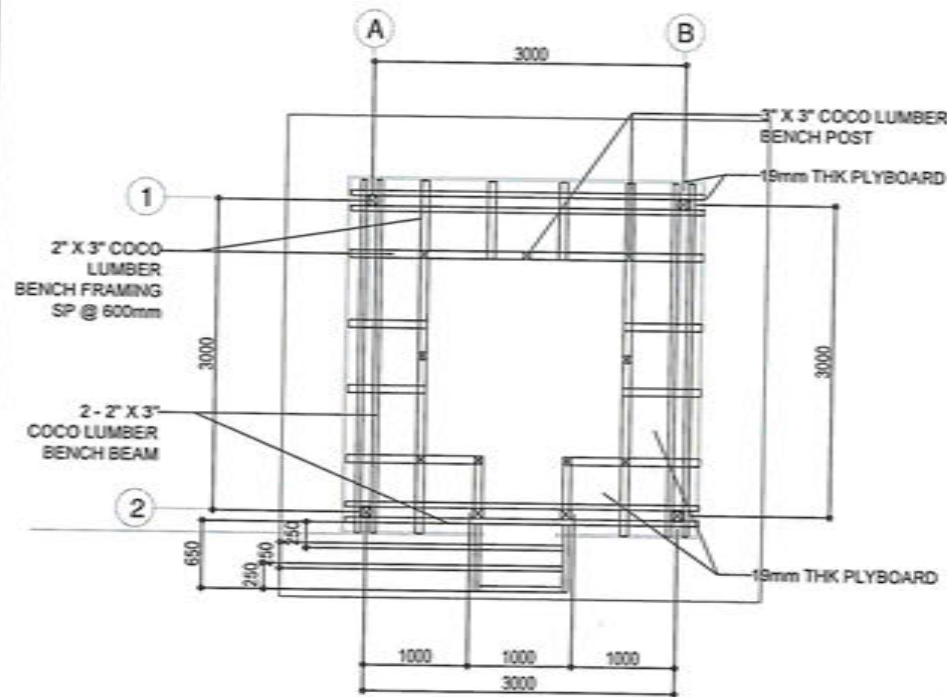
4 STAIR DETAIL



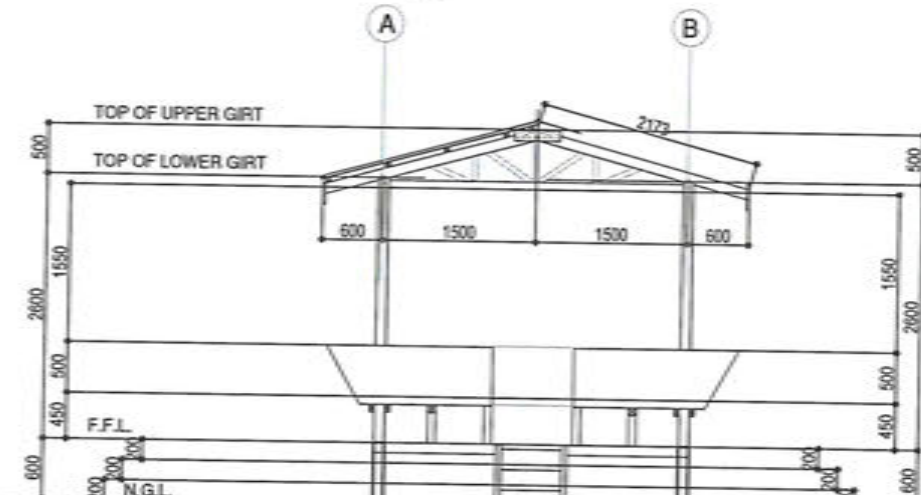
6 REAR ELEVATION



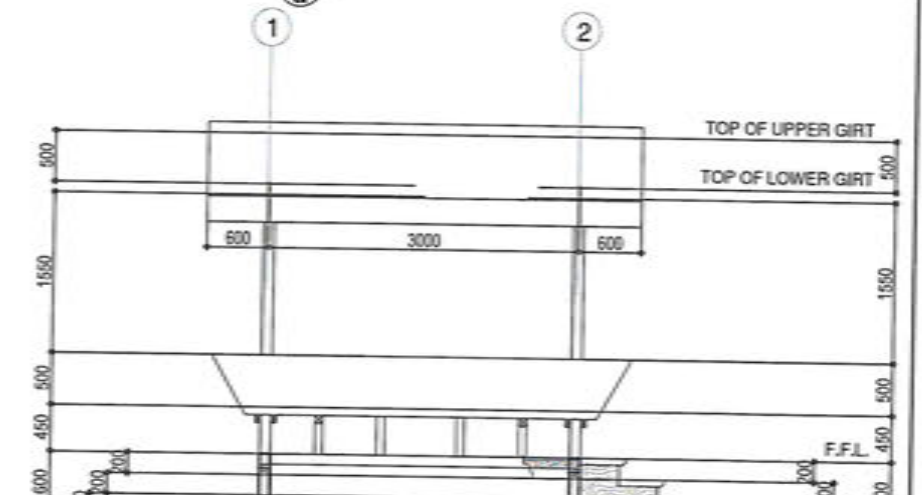
7 RIGHT SIDE ELEVATION



5 BENCH FRAMING



8 FRONT ELEVATION



9 LEFT SIDE ELEVATION



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGIONAL OFFICE NO. XI
GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION
PREVENTIVE MAINTENANCE OF ROAD:
ASPHALT OVERLAY - MAHARLIKA HIGHWAY -
(S01364MN) K1459+358 - K1469+530, K1470+168 -
K1479+537, (S00066MN) K1471+521 - K1471+830,
DAVAO DEL NORTE

SHEET CONTENTS
CAMPOUSE TYPICAL DETAILS (BAHAY KUBO)

DRAFTED AND PREPARED
FERDINAND M. BAÑOSA
ARCHITECT
DATE

REVIEWED
ALGIN A. GINGALAN
ENGINEER II, SECTION
DATE

APPROVED
JUAN T. BERNARDINO
CHIEF, PLANNING AND DESIGN DIVISION
DATE

RECOMMENDING APPROVAL
JOSEITO B. CABALLERO
ASSISTANT REGIONAL DIRECTOR
DATE

APPROVED
JUBY B. CORDON
REGIONAL DIRECTOR
DATE

SET NO. SHEET NO.
C 23
1 1 24

D. PLAN

LEGEND:

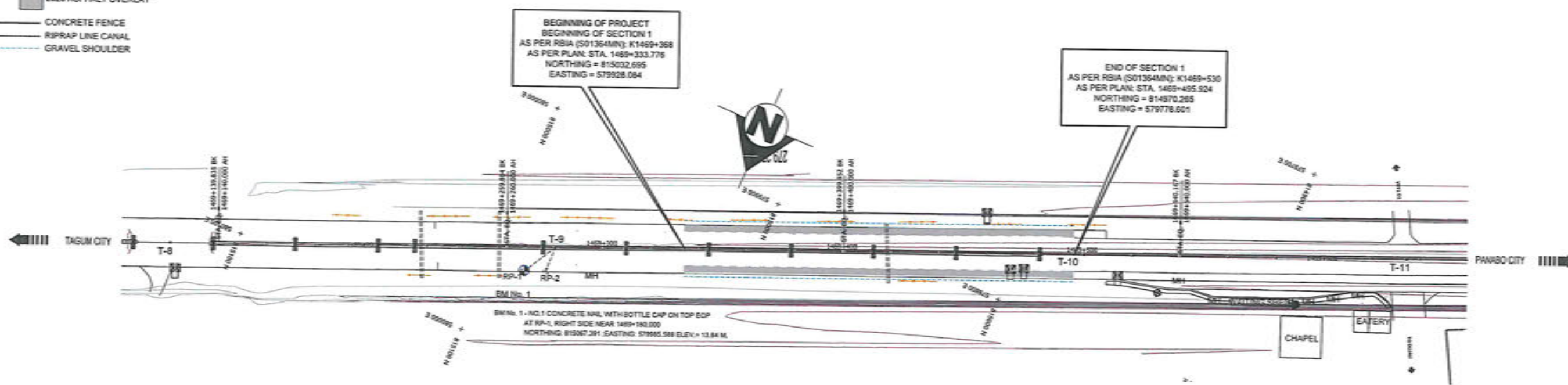
- WOODEN / ANAHAW HOUSE
- WAITING SHED
- MIX HOUSE
- CONCRETE HOUSE
- STORE
- 2025 ASPHALT OVERLAY
- CONCRETE FENCE
- RIPRAP LINE CANAL
- GRAVEL SHOULDER

PI-#	AZMUTH	DISTANCE
T-7 TO T-8	67°29'06"	239.960 M.
T-8 TO T-9	67°29'44"	158.779 M.
T-9 TO T-10	67°29'21"	219.832 M.
T-10 TO T-11	67°28'52"	134.550 M.
T-11 TO T-12	67°14'55"	157.812 M.

POINT	STATION	NORTHING	EASTING
T-8	1469+119.324	815114.364	580125.174
T-9	1469+279.983	815053.432	579877.723
T-10	1469+498.963	814968.707	579174.870
T-11	1469+634.346	814917.176	579656.579

REFERENCE POINT OF T-9			
POINT	AZMUTH	DISTANCE	NORTHING
RP-1	209°22'51"	16.201 M.	815007.391
RP-2	178°18'20"	10.528 M.	815063.945

RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT



PI-#	AZMUTH	DISTANCE
T-13 TO T-14	67°27'44"	177.281 M.
T-14 TO T-15	67°00'10"	12.289 M.
T-15 TO T-16	68°09'45"	27.723 M.
T-16 TO T-17	67°18'37"	43.054 M.
T-17 TO T-18	67°19'33"	126.192 M.
T-18 TO T-19	67°19'15"	248.129 M.
T-19 TO T-20	67°18'42"	319.812 M.

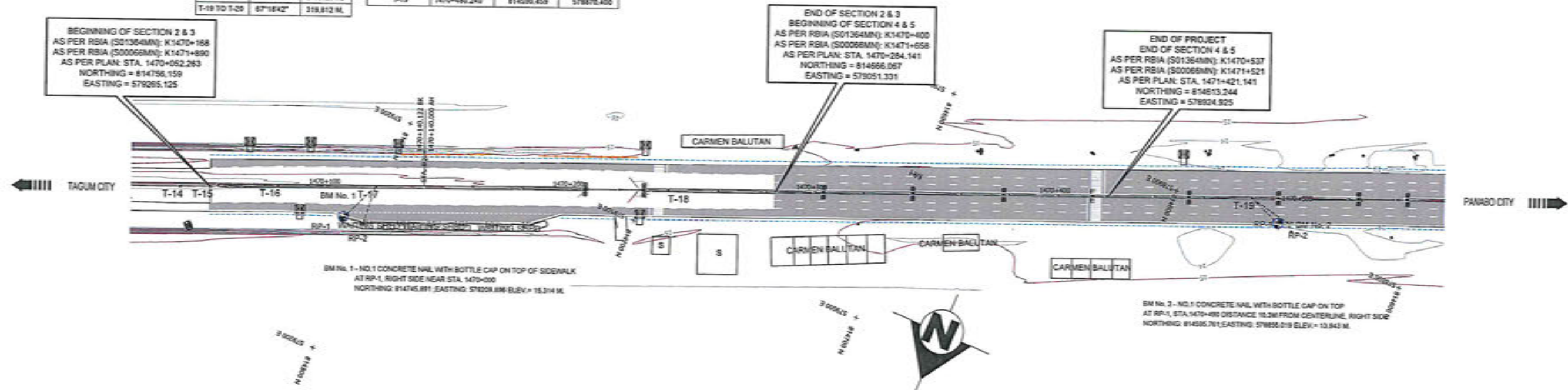
POINT	STATION	NORTHING	EASTING
T-14	1470+039.875	814760.960	579276.437
T-15	1470+052.263	814756.159	579265.125
T-16	1470+079.986	814744.935	579239.767
T-17	1470+120.041	814728.508	579202.811
T-18	1470+248.111	814683.046	579091.962
T-19	1470+480.240	814590.459	578870.400

REFERENCE POINT OF T-17			
POINT	AZMUTH	DISTANCE	NORTHING
RP-1	209°22'12"	17.849 M.	814745.891
RP-2	170°50'54"	15.844 M.	814743.310

RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF SIDEWALK
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF SIDEWALK

REFERENCE POINT OF T-19			
POINT	AZMUTH	DISTANCE	NORTHING
RP-1	110°14'10"	15.327 M.	814595.761
RP-2	100°41'20"	16.862 M.	814590.902

RP-1 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT
RP-2 - CONCRETE NAIL WITH BOTTLE CAP DRIVEN ON EDGE OF CONCRETE PAVEMENT



PLAN
SCALE 1:1250 m.

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGIONAL OFFICE NO. XI GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SURVEYED	PREPARED	APPROVED	SET NO.	SHEET NO.
	PREVENTIVE MAINTENANCE OF ROAD: ASPHALT OVERLAY - MAHARLIKA HIGHWAY - (S01364MN) K1469+368 - K1469+530, K1470+168 - K1470+537, (S00066MN) K1471+521 - K1471+890, DAVAO DEL NORTE	PLAN	RUEL M. SARTIGA ENGINEER I DANIEL M. SARTIGA ENGINEER II	EDWARD JOSEPH M. SARTIGA ENGINEER II DENVER ALDIN A. SEMPIO ENGINEER, D.C. - SECTION CHIEF	JUDY B. BERNARDINO CHIEF, PLANNING AND DESIGN DIVISION JOSE LITO B. CABALLERO ASSISTANT REGIONAL DIRECTOR	JUDY B. CORDON REGIONAL DIRECTOR	D 11

D:\INFRASTRUCTURE\PREVENTIVE MAINTENANCE AND REHAB-RECON OF ROAD ALONG MAHARLIKA HIGHWAY SALVACION & TUGANAY SECTION, DDN (02-25-2025)\08M25W PLAN AND PROFILE WITH CONTOUR.DWG