REPUBLIC OF THE PHILIPPINES

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

LAGUNA 3rd DISTRICT ENGINEERING OFFICE

MARIFLOR SUBD., BRGY. DEL REMEDIO, SAN PABLO CITY, REGION IV-A

C.Y. 2025 PROJECT

DETAILED ENGINEERING DESIGN PLAN FOR

CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP)
SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG)
ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES -
CONSTRUCTION OF CONCRETE ROAD,
BRGY. TALANGAN, NAGCARLAN, LAGUNA

COORDINATES	:	Start: 14.149764 N, 121.41197 E End: 14.151313 N, 121.413219 E
NET LENGTH	:	0.794 Lane Km.

SUBMITTED:

LUDY MITZI J. MAHENCIO
ENGINEER II
OFFICER-IN-CHARGE
PLANNING AND DESIGN SECTION

DATE:

RECOMMENDED:

MA. SHIRLEY M. SAMIANO
OFFICER-IN-CHARGE
OFFICE OF THE ASSISTANT DISTRICT ENGINEER

DATE:

APPROVED:

CARLOS C. MUERE
OFFICER-IN-CHARGE
OFFICE OF THE DISTRICT ENGINEER

DATE:

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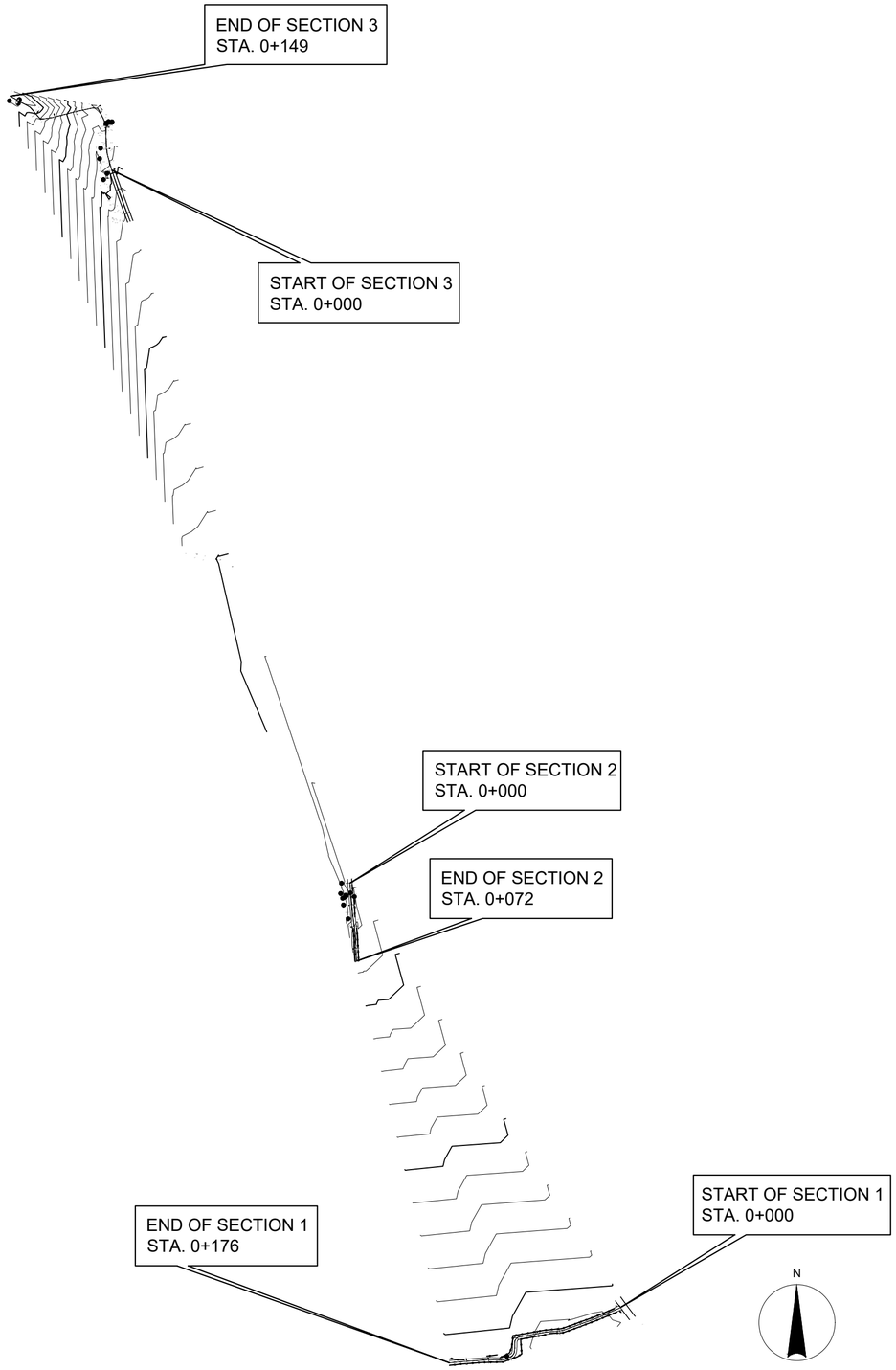
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
LAGUNA 3RD DISTRICT ENGINEERING OFFICE
MARIFLOR SUBD., BRGY. DEL REMEDIO, SAN PABLO CITY, REGION IV-A

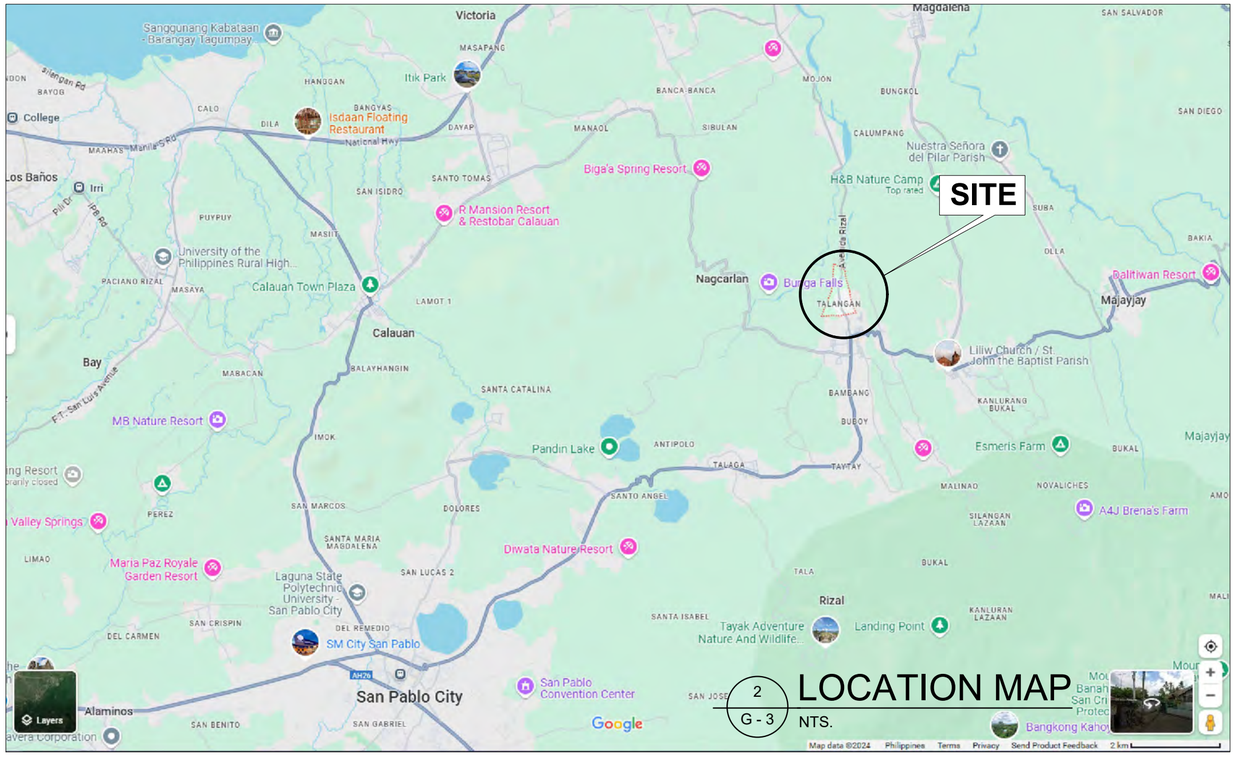
PROJECT NAME & LOCATION:	SHEET CONTENT:	DRAFTED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP) SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG) ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES - **CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA**	INDEX OF DRAWINGS	**RESTY M. MANALO** DRAFTSMAN I PREPARED: **JANICE G. FULO** ENGINEER II	**NEIL JOHN U. CONOCNONO** ENGINEER II DATE:	**LUDY MITZI J. MAHENCIO** ENGINEER II OFFICER-IN-CHARGE PLANNING & DESIGN SECTION DATE:	**MA. SHIRLEY M. SAMIANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	**CARLOS C. MUERE** OFFICER-IN-CHARGE OFFICE OF THE DISTRICT ENGINEER DATE:	G 2 7	2 21



1 / G - 3

LAYOUT PLAN

NTS.



2 / G - 3

LOCATION MAP

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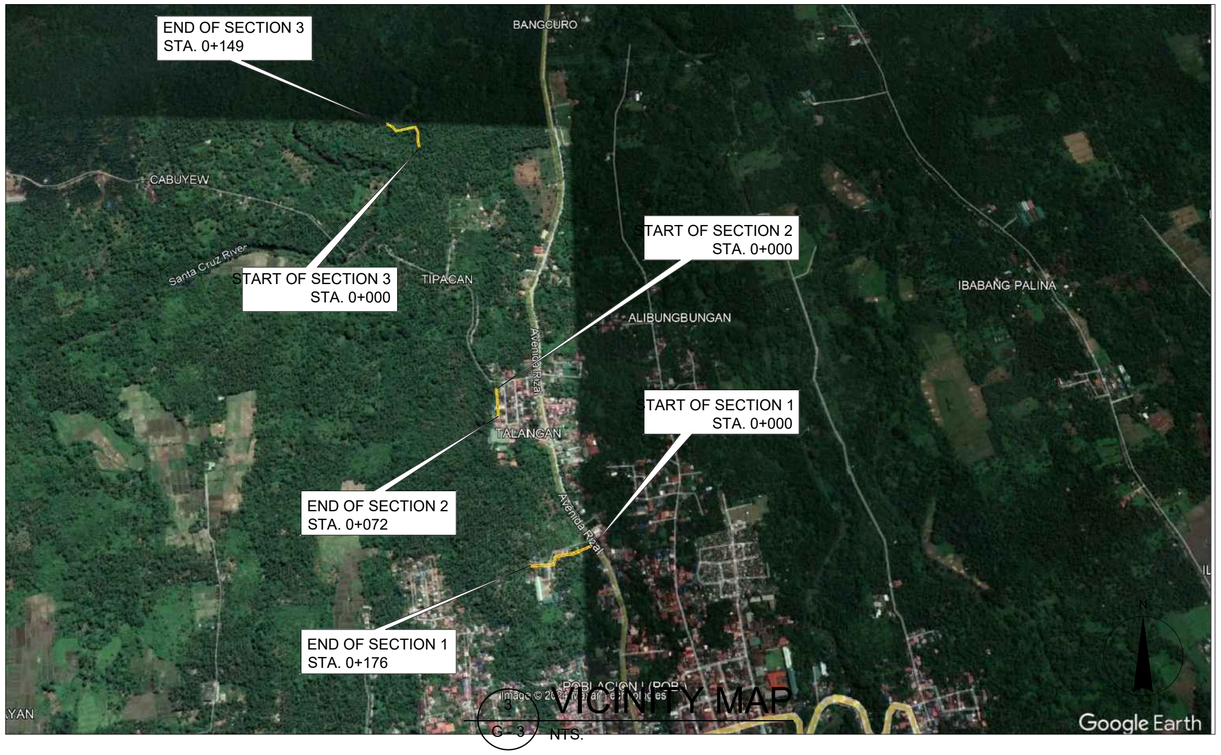

3 / G - 3

VICINITY MAP

NTS.

REPUBLIC OF THE PHILIPPINES **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS** **LAGUNA 3rd DISTRICT ENGINEERING OFFICE** MARIFLOR SUBD., BRGY. DEL REMEDIO, SAN PABLO CITY, REGION IV-A	PROJECT NAME & LOCATION: CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP) SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG) ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES - **CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA**	SHEET CONTENT: LAYOUT PLAN LOCATION MAP VICINITY MAP	DRAFTED: **RESTY M. MANALO** DRAFTSMAN I PREPARED: **JANICE G. FULO** ENGINEER II	REVIEWED: **NEIL JOHN U. CONOCNONO** ENGINEER II DATE:	SUBMITTED: **LUDY MITZI J. MAHENCIO** ENGINEER II OFFICER-IN-CHARGE PLANNING & DESIGN SECTION DATE:	RECOMMENDED: **MA. SHIRLEY M. SAMIANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	APPROVED: **CARLOS C. MUERE** OFFICER-IN-CHARGE OFFICE OF THE DISTRICT ENGINEER DATE:	SET NO. G 3 / 7	SHEET NO. 3 21

L E G E N D :

	GROUTED RIPRAP EXISTING
	STONE MASONRY
	CUT AND FILL SECTION
	ROAD SIGN
	TREES
PI	POINT OF INTERSECTION
	ORIGINAL GROUND
(PLAN) KM 7 (EXISTING)	KILOMETER POST
	NORTH SIGN
	BENCH MARK
(PLAN)	RECTANGULAR CULVERT
(PLAN)	FLOW
	PIPE CULVERT EXISTING
	PIPE CULVERT NEW
	SOLAR STUD (4.50m. SPACING)

(PLAN) (PROFILE)	BOX CULVERT EXISTING
(PLAN) (PROFILE)	BOX CULVERT NEW
KM 49	PLAN FULL KM STATION
	℄ PROJECT ROAD
	EXISTING BRIDGE
	RIVER/CREEK
C	COMMERCIAL
R1 R2	REFERENCE POINT
0 + 1 0 0	STATION
	LENGTH OF VERTICAL CURVE
	RROW
	PROPOSED BRIDGE
	PROPOSED PCCP
	PARAPET WALL PLAN
	EXISTING PAVEMENT
	MANHOLE, INLET, CURB & GUTTER

A B B R E V I A T I O N S :

ACP	ASPHALT CONCRETE PAVEMENT	Max	MAXIMUM
AZIM	AZIMUTH	MH	MANHOLE
BLDG	BUILDING	mm	MILLIMETER
BM	BENCHMARK	Mo	MIDDLE ORDINATE
BOQ	BILL OF QUANTITIES	MUN	MUNICIPAL
BR	BRIDGE	NB	NORTH BOUND
BDRY	BOUNDARY	OC	ON CENTER
BRGY	BARANGAY	OIE	OUTLET INVERT ELEVATION
BVCE	BEGIN OF VERTICAL CURVE ELEV.	PC	POINT OF CURVATURE
BVCS	BEGIN OF VERTICAL CURVE STATION	PCCP	PORTLAND CEMENT CONCRETE PAVEMENT
BW	BOTHWAYS	PI	POINT OF INTERSECTION
CIM	CURB INLET MANHOLE	PT	POINT OF TANGENCY
CL	CENTERLINE	PVI	POINT OF VERTICAL INTERSECTION
cm	CENTIMETER	PVC	POINT OF VERTICAL CURVE
CS	CURB TO SPIRAL	PVT	POINT OF VERTICAL TANGENCY
CU	CULVERT	R	RADIUS
D	DEGREE OF CURVE	RC	REINFORCED CONCRETE
DIST	DISTANCE	RCBC	REINFORCED CONCRETE BOX CULVERT
DLI-01	DRAINAGE MANHOLE MEMBER	RCPC	REINFORCED CONCRETE PIPE CULVERT
DPWH	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	RD	ROAD
E	EXTERNAL DISTANCES/EASTING	RROW	ROAD RIGHT - OF - WAY
e	SUPERELEVATION	RT	RIGHT
EB	EASTBOUND	S	NORMAL CROSSFALL
ELEV	ELEVATION	SB	SOUTH BOUND
EXTG	EXISTING	SHLDR	SHOULDER
g	GRADIENT	STA	STATION
HOR	HORIZONTAL	STD	STANDARD
I	INTERSECTION ANGLE	SW	SOUTH WEST
I I E	INLET INVERT ELEVATION	T	TANGENT
INT'L	INTERNATIONAL	TBM	TEMPORARY BENCH MARK
KMS	KILOMETERS	VC	VERTICAL CURVE
L	LEFT/LENGTH	VERT, V	VERTICAL
Lc	LENGTH OF HORIZONTAL CURVE	W	WIDENING
LM	LINEAR METER	WB	WEST BOUND
LT	LEFT	WW	WINGWALL
LVC	LENGTH OF VERTICAL CURVE	Ø	DIAMETER
M	METER	NC	NORMAL CROWN

REPUBLIC OF THE PHILIPPINES
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SHEET CONTENT:
LEGEND AND ABBREVIATION

DRAFTED:
RESTY M. MANALO
DRAFTSMAN I

PREPARED:
JANICE G. FULO
ENGINEER II

REVIEWED:
NEIL JOHN U. CONOCNONO
ENGINEER II
DATE:

SUBMITTED:
LUDY MITZI J. MAHENCIO
ENGINEER II
OFFICER-IN-CHARGE
PLANNING & DESIGN SECTION
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OFFICER-IN-CHARGE
OFFICE OF THE ASSISTANT DISTRICT ENGINEER
DATE:

APPROVED:
CARLOS C. MUERE
OFFICER-IN-CHARGE
OFFICE OF THE DISTRICT ENGINEER
DATE:

SET NO. G 4 7

SHEET NO. 4 21

GENERAL NOTES

1.0 SPECIFICATION :

1.1 ALL WORKS SHALL COMPLY WITH THE GENERAL SPECIFICATION FOR ROAD AND BRIDGES, 1988" AND THE SPECIAL AND SUPPLEMENTAL SPECIFICATIONS FOR THIS PROJECT.

2.0 DIMENSIONS :

2.1 DISTANCES BETWEEN HORIZONTAL CONTROL POINTS INCLUDING REFERENCE POINTS ARE MEASURED AND EXPRESSED IN METERS.

2.2 UNLESS OTHERWISE SPECIFIED, DIMENSIONS WHICH INCLUDE DIMENSIONS OF PIPE, BOX CULVERTS, BRIDGES AND OTHER STRUCTURES ARE MEASURED AND EXPRESSED IN MILLIMETERS.

2.3 ALL OTHER DIMENSIONS ARE EXPRESSED IN THE METRIC SYSTEM.

3.0 STATIONINGS :

3.1 THE ROAD STATIONINGS AND ELEMENTS OF HORIZONTAL AND VERTICAL CURVES ARE RELATIVE TO THE CENTER LINE SHOWN IN THE PLANS OR CENTERLINE OF INTERIM STAGE AS INDICATED IN THE PLANS AND THE PROFILE.

3.2 INDEPENDENT STATIONING WERE MADE ALONG THE CENTERLINES OF INTERSECTING ROADS STATIONING PROGRESSES TOWARDS THE CENTERLINE OF THE PROJECT ROAD OR AS SHOWN ON THE PLAN

3.3 STATIONINGS OF CIM, MH, BEGINNINGS AND ENDS OF BRIDGES AND OTHER STRUCTURES WERE RECKONED AT THE STATIONINGS ALONG THE CENTERLINE SHOWN IN THE PLAN.

4.0 HORIZONTAL CONTROL :

4.1 HORIZONTAL CONTROL ARE PRECAST CYLINDRICAL CONCRETE MONUMENTS 150 mm Ø x 400 LONG PLACED ON THE GROUND ALONG THE PROJECT ROADS. THESE CONTROL POINTS ARE SOMETIMES THE POINTS OF INTERSECTION AND POINTS OF TANGENTS ALONG THE CENTERLINE SHOWN ON PLAN AND REFERRED TO FIXED OBJECT WHICH ARE STRATEGICALLY LOCATED AND NOT LIKELY TO BE DISTURBED DURING CONSTRUCTION.

4.2 AZIMUTHS AND DISTANCES BETWEEN CONTROL POINTS WERE MEASURED BY THE USE OF AN ELECTRONIC DISTANCE METER (EDM) MEASURING DEVICE AND THEODOLITE.

4.3 INDICATED AZIMUTHS OF LINES ARE TRUE AZIMUTH ESTABLISHED BY SOLAR OBSERVATIONS MADE AT THE BEGINNING AND END OF THE PROJECT.

4.4 THE GRID COORDINATES WERE BASED ON TRUE COORDINATES.

5.0 VERTICAL CONTROL :

5.1 VERTICAL CONTROLS ARE LOCATED ALONG THE PROJECT ROADS AT AN AVERAGE INTERVAL OF 500 METERS THESE WERE ESTABLISHED ON PRECAST CONCRETE CYLINDRICAL MONUMENTS AND AT PERMANENT STRUCTURES STRATEGICALLY LOCATED.

5.2 DATUM OF ALL ELEVATION WERE RECKONED FROM TRUE ELEVATION OF THE PROJECT BASED ON BC & GC CONTROL.

6.0 ELEVATIONS AND GRADES :

6.1 FINISHED PAVEMENT LEVEL SHOWN ON PLAN AND PROFILE SHEETS REFER TO THE GRADE ELEVATION AS SHOWN ON THE TYPICAL ROADWAY SECTIONS.

6.2 GROUND LEVEL SHOWN ON PLAN AND PROFILE SHEETS REFER TO THE ELEVATION OF EXISTING GROUND ALONG THE CENTERLINE OF THE PROJECT ROAD.

7.0 ROAD CONNECTIONS AND PRIVATE ENTRANCES :

7.1 APPROACHES AND MINOR ROAD INTERSECTIONS SHALL BE CONSTRUCTED BY THE CONTRACTOR AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER IN SUCH MANNER AS TO ENSURE SMOOTH CONNECTION AND RIDING QUALITY.

7.2 EXACT LOCATIONS OF INTERSECTING ROADS AND PRIVATE ENTRANCES OR DRIVEWAYS WHERE ITEM 7.1 ABOVE, APPLIES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

8.0 DRAINAGE STRUCTURE :

8.1 EXACT LOCATIONS, SLOPES, OUTFALLS, AND INVERT ELEVATIONS OF DRAINAGE STRUCTURES SHALL BE CHECKED IN THE FIELD BY THE ENGINEER MINOR ADJUSTMENTS MAY BE MADE TO SUIT ACTUAL FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER.

8.2 ANY REVISION, REMOVAL, CLEANING AND / OR RE-LAYING OF DRAINAGE STRUCTURES AS DIRECTED BY THE ENGINEER TO SUIT EXISTING FIELD CONDITION SHALL BE CONSIDERED AS SUBSIDIARY WORK PERTAINING TO OTHER CONTRACT ITEMS. NO DIRECT PAYMENTS SHALL BE MADE FOR THIS WORK UNLESS OTHERWISE SPECIFICALLY IDENTIFIED FOR PAYMENT IN THE BID SCHEDULE.

8.3 EXISTING DRAINAGE STRUCTURES OR PARTS THEREOF REMOVE BY THE CONTRACTOR THAT ARE STILL SERVICEABLE SHALL BE TURNED OVER TO THE GOVERNMENT AND SHALL BE DEPOSITED AT AT 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.

9.0 REMOVAL AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES :

9.1 REMOVAL OF BUILDINGS, HOUSES, FENCES, UTILITY POLES, PUBLIC UTILITIES ETC. FROM THE RIGHT - OF - WAY WILL NOT BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS OTHERWISE INCLUDED AS SUCH, THEY WILL BE REMOVE BY THE RESPECTIVE OWNERS OR BY DPWH PRIOR CONSTRUCTION.

9.2 PORTION OF EXISTING UTILITIES, SUCH AS WATER LINES, TELEPHONE TRUNK LINES, ELECTRIC LINES ETC. THAT MAY OBSTRUCT THE CONSTRUCTION OF THE ROADS SHALL BE RELOCATED BY THE ENTITIES OR OWNERS CONCERNED EXTREME PRECAUTION SHALL BE EXERCISED BY THE CONTRACTOR SO AS NOT TO DAMAGE THE EXISTING UTILITIES DURING CONSTRUCTION ANY DAMAGE THEREOF SHALL BE ON THE ACCOUNT OF THE CONTRACTOR.

10.0 SUBGRADE IMPROVEMENT :

10.1 UNSUITABLE MATERIALS BELOW SUBBASE FORMATION LEVEL SHALL BE EXCAVATED TO A REQUIRED DEPTH AND WIDTH AS INDICATED ON THE DRAWINGS OR AS DIRECTED BY ENGINEER AND REPLACED WITH APPROVED MATERIALS.

11.0 INTERSECTION DRAINAGE :

11.1 INTERSECTING ROADS SHALL BE PROVIDED WITH 610mm. DIAMETER RCPC OR THE SIZE AS INDICATED ON THE PLANS, THE LENGTH OF W/C WILL BE UP TO THE END OF CONC. CURB AND GUTTER, TO ACCOMMODATE AND DRAIN EXISTING CANAL TO UNDERGROUND DRAINAGE SYSTEM BY ENGINEER AND REPLACED WITH APPROVED MATERIALS.

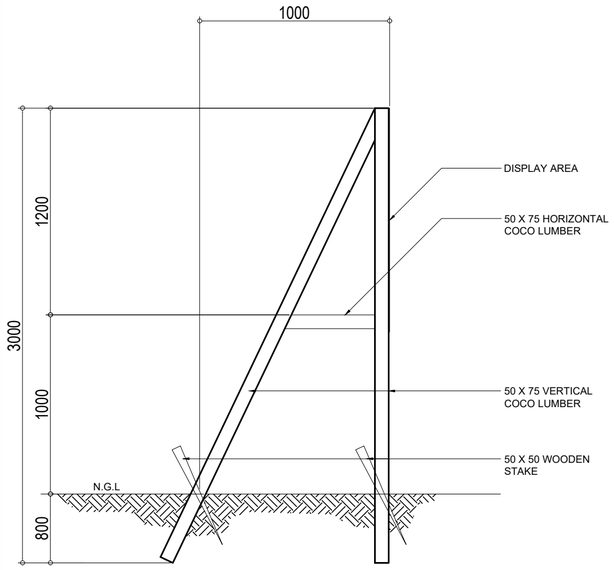
12.0 MISCELLANEOUS STRUCTURES :

12.1 LOCATION AND LENGTH OF SLOPE PROTECTION, GUARDRAILS AND STONE MASONRY MAYBE ADJUSTED BY THE ENGINEER TO SUIT ACTUAL FIELD CONDITIONS.

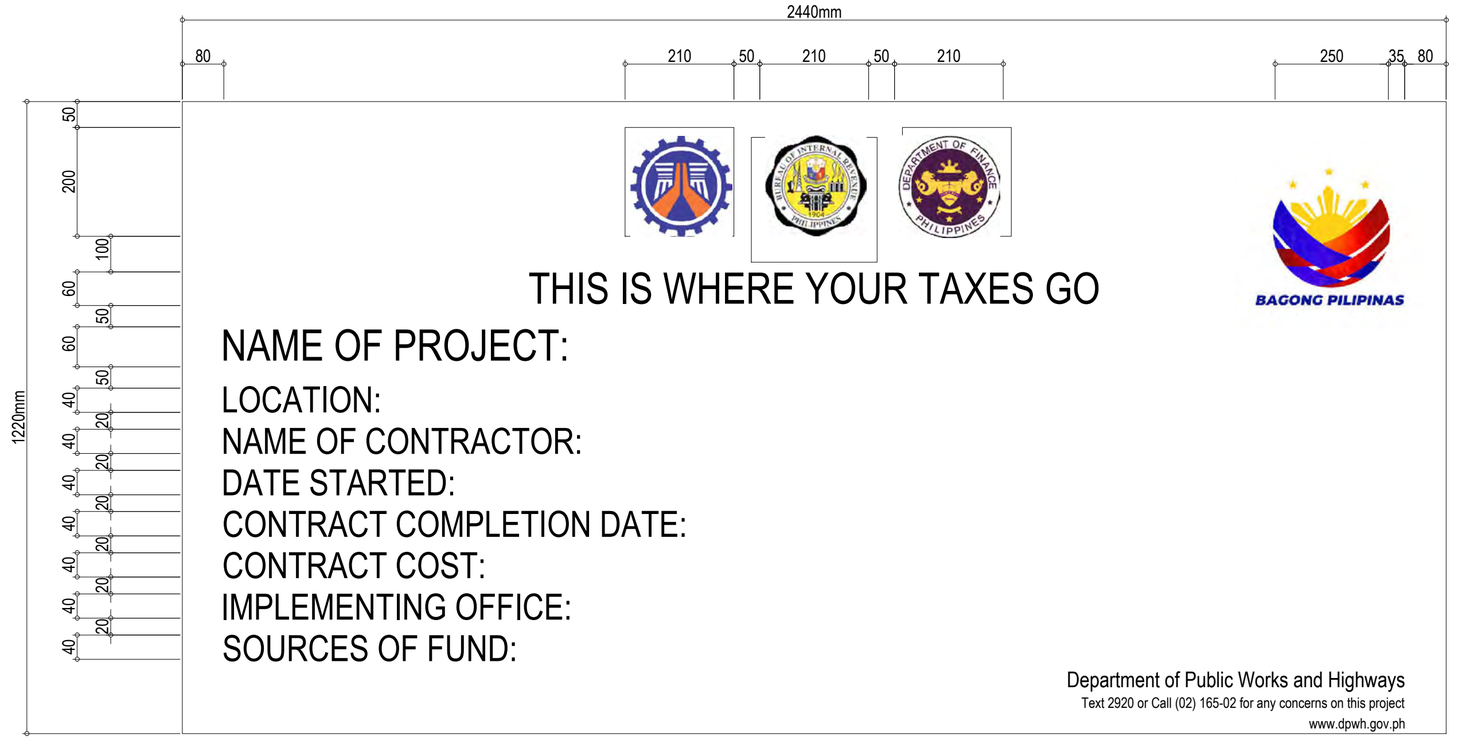
13.0 RIGHT - OF - WAY LIMIT:

13.1 PROPOSED RIGHT - OF - WAY LIMITS ARE 20.00m. FOR NATIONAL, 15.00m. FOR PROV'L ROADS AND 10.00m. FOR MUNICIPAL / BARANGAY ROADS.

REPUBLIC OF THE PHILIPPINES **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS** **LAGUNA 3rd DISTRICT ENGINEERING OFFICE** MARIFLOR SUBD., BRGY. DEL REMEDIO, SAN PABLO CITY, REGION IV-A	PROJECT NAME & LOCATION: CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP) SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG) ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES - **CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA**	SHEET CONTENT: GENERAL NOTES	DRAFTED: **RESTY M. MANALO** DRAFTSMAN I PREPARED: **JANICE G. FULO** ENGINEER II	REVIEWED: **NEIL JOHN U. CONOCNONO** ENGINEER II DATE:	SUBMITTED: **LUDY MITZI J. MAHENCIO** ENGINEER II OFFICER-IN-CHARGE PLANNING & DESIGN SECTION DATE:	RECOMMENDED: **MA. SHIRLEY M. SAMIANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	APPROVED: **CARLOS C. MUERE** OFFICER-IN-CHARGE OFFICE OF THE DISTRICT ENGINEER DATE:	SET NO. G 5 7	SHEET NO. 5 21



TYPICAL FRAME ELEVATION



THIS IS WHERE YOUR TAXES GO

BAGONG PILIPINAS

NAME OF PROJECT:

LOCATION:

NAME OF CONTRACTOR:

DATE STARTED:

CONTRACT COMPLETION DATE:

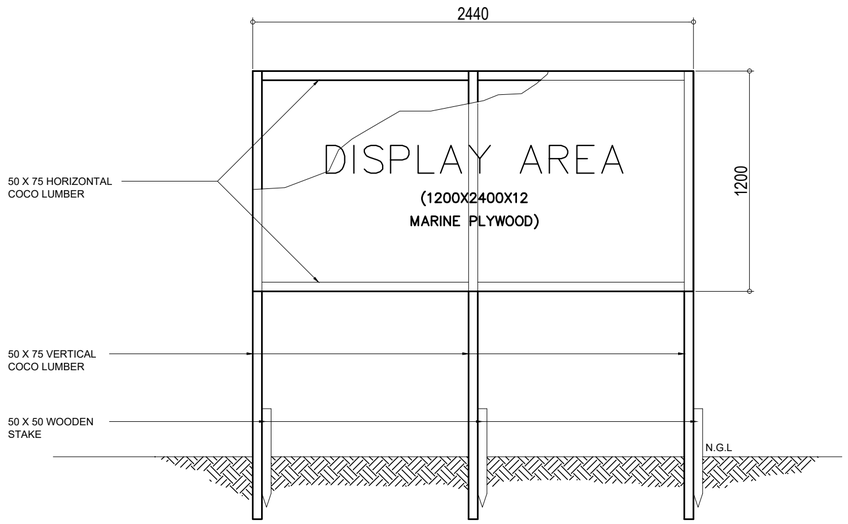
CONTRACT COST:

IMPLEMENTING OFFICE:

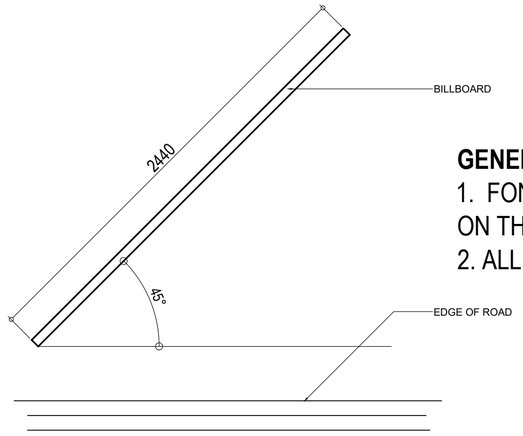
SOURCES OF FUND:

Department of Public Works and Highways
Text 2920 or Call (02) 165-02 for any concerns on this project
www.dpwh.gov.ph

DPWH STANDARD PROJECT BILLBOARD



FRONT ELEVATION
(OPTION 1)



ORIENTATION

GENERAL NOTES:

1. FONT STYLE SHALL ARIAL, WHILE THE DIMENSION AND LETTER SIZES AS INDICATED ON THE DESIGN LAYOUT SHALL BE ON WHITE BACKGROUND.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

DETAIL OF DPWH STANDARD PROJECT BILLBOARD
NOT TO SCALE

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
LAGUNA 3rd DISTRICT ENGINEERING OFFICE
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Republic of the Philippines

COMMISSION ON AUDIT

Office of the Audit Team Leader
DPWH LAGUNA 3RD DISTRICT ENGINEERING OFFICE
San Pablo City, Laguna

Project : _____ Cost: _____

_____

_____

Location : _____ Fund Source/S: _____

Implementing Agency/ies : _____

Development Partner/s : _____

Contractor/ Supplier : _____

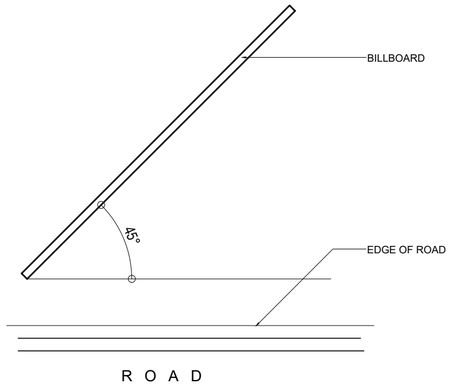
Brief Description of Project : _____

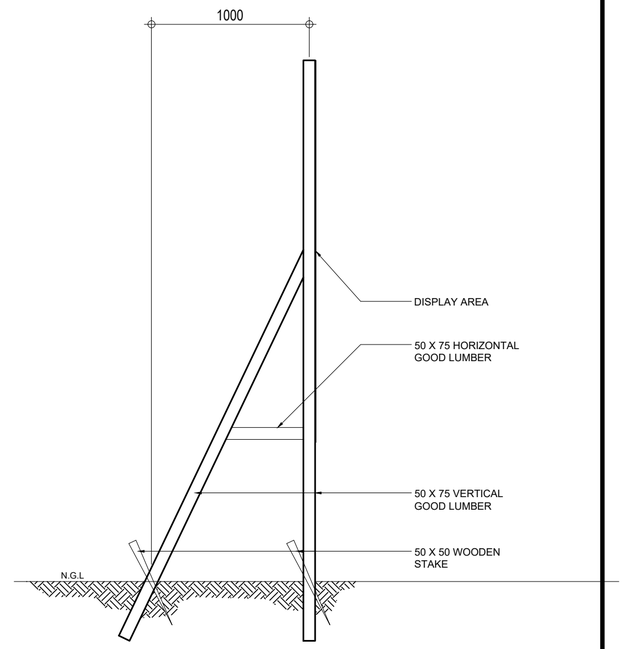
Project Detail :

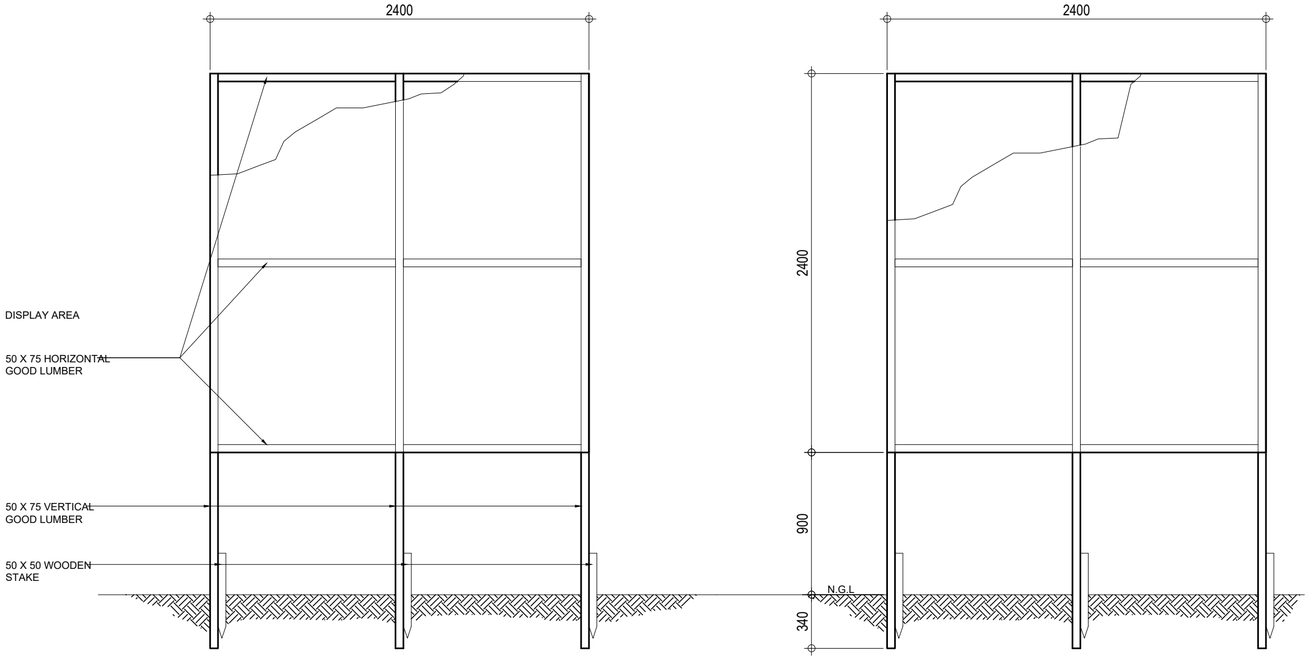
PROJECT DATE			PROJECT STATUS				REMARKS
DURATION	STARTED	TARGET DATE OF COMPLETION	PERCENTAGE OF COMPLETION	AS OF DATE	COST INCURRED TO DATE	DATE COMPLETED	

For particulars or complains about this project, Contact the Regional office or Cluster which has audit jurisdiction on this project.

COA Regional Office no./ Cluster: _____
Address: _____
Contact no.: _____ or TExt COA Citizen's Desk at 0915-539-1957







DETAIL OF COA STANDARD PROJECT BILLBOARD

NOT TO SCALE

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
LAGUNA 3RD DISTRICT ENGINEERING OFFICE
MARIFLOR SUBD., BRGY. DEL REMEDIO, SAN PABLO CITY, REGION IV-A

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SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	REMARKS
PART A	**FACILITIES FOR THE ENGINEER**			
A.1.4 (1)	Provision of Progress Photographs	6.00	month	
PART B	**OTHER GENERAL REQUIREMENTS**			
B.5	Project Billboard / Signboard	4.00	each	
B.7 (2)	Occupational Safety and Health Program	1.00	l.s.	
B.8 (2)	Traffic Management	1.00	l.s.	
B.9	Mobilization / Demobilization	1.00	l.s.	
PART C	**EARTHWORKS**			
100 (1)	Clearing and Grubbing	0.14	ha.	
101 (1)	Removal of Structures and Obstruction	1.00	l.s.	
102 (2)	Surplus Common Excavation	679.00	cu.m.	
103 (1) c	Structure Excavation (Hard Rock)	1,215.00	cu.m.	
104 (1) a	Embankment from Roadway Excavation (Common Soil)	292.00	cu.m.	
105 (1) a	Subgrade Preparation (Common Material)	1,302.00	sq.m.	
PART D	**SUBBASE AND BASE COURSE**			
200 (1)	Aggregate Subbase Course	261.00	cu.m.	
PART E	**SURFACE COURSE**			
311 (1) b1	Portland Cement Concrete Pavement (Unreinforced) (0.20 m thick, 14 days)	1,302.00	sq.m.	
PART G	**DRAINAGE AND SLOPE PROTECTION STRUCTURES**			
404 (1) a	Reinforcing Steel (Grade 40)	220.00	kg	
404 (1) b	Reinforcing Steel (Grade 60)	159.00	kg	
405 (1) a3	Structural Concrete (20.68Mpa, Class A, 28 days)	10.00	cu.m.	
407 (8)	Lean Concrete (Class B, 16.5Mpa)	9.00	cu.m.	
500 (1) b1	Pipe Culverts (610 mm dia., Class IV, RCPC)	5.00	l.m.	
510 (2)	Concrete (Slope Protection)	84.00	cu.m.	
PART H	**MISCELLANEOUS STRUCTURES**			
624 (11)	Roadway Lighting	1.00	l.s.	

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
LAGUNA 3rd DISTRICT ENGINEERING OFFICE
MARIFLOR SUBD., BRGY. DEL REMEDIO, SAN PABLO CITY, REGION IV-A

PROJECT NAME & LOCATION:
CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP) SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG) ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES -
CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA

SHEET CONTENT: SUMMARY OF QUANTITIES

DRAFTED: **RESTY M. MANALO** DRAFTSMAN I
PREPARED: **JANICE G. FULO** ENGINEER II

REVIEWED: **NEIL JOHN U. CONOCNONO** ENGINEER II
DATE:

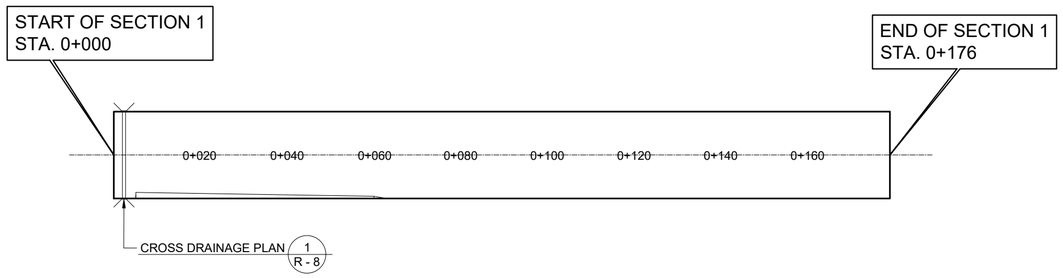
SUBMITTED: **LUDY MITZI J. MAHENCIO** ENGINEER II, OFFICER-IN-CHARGE, PLANNING & DESIGN SECTION
DATE:

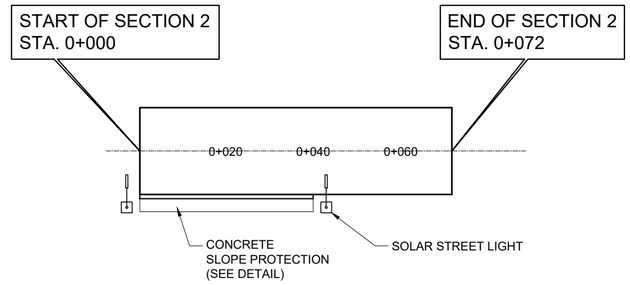
RECOMMENDED: **MA. SHIRLEY M. SAMIANO** OFFICER-IN-CHARGE, OFFICE OF THE ASSISTANT DISTRICT ENGINEER
DATE:

APPROVED: **CARLOS C. MUERE** OFFICER-IN-CHARGE, OFFICE OF THE DISTRICT ENGINEER
DATE:

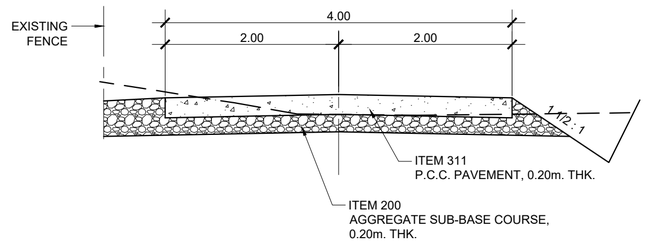
SET NO. R 1 | 14

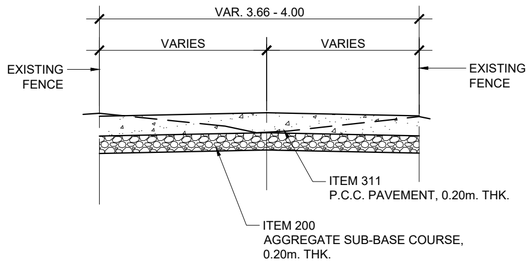
SHEET NO. 8 / 21





1
R - 2
STRAIGHT LINE DIAGRAM
NTS.





2
R - 2
TYP. ROADWAY SECTION(1)
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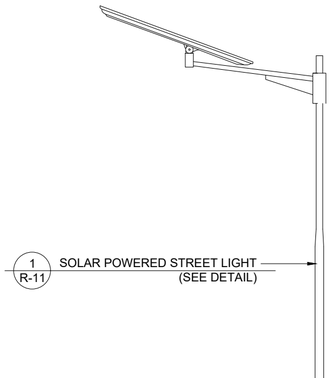
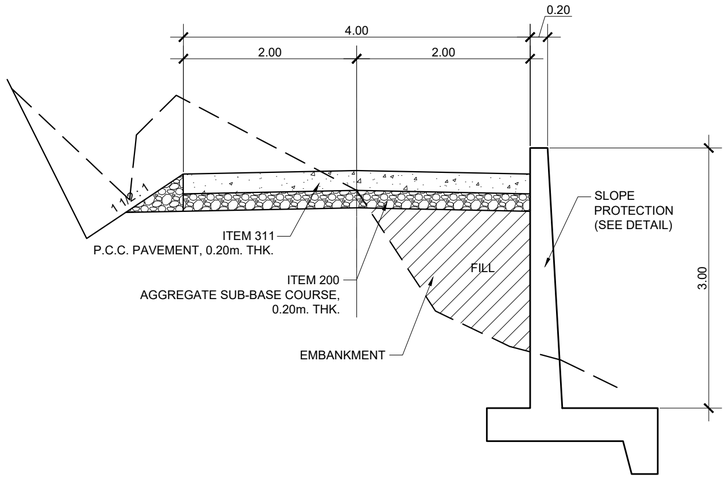
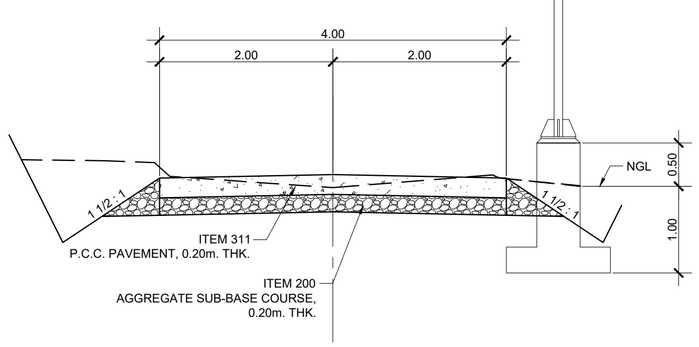


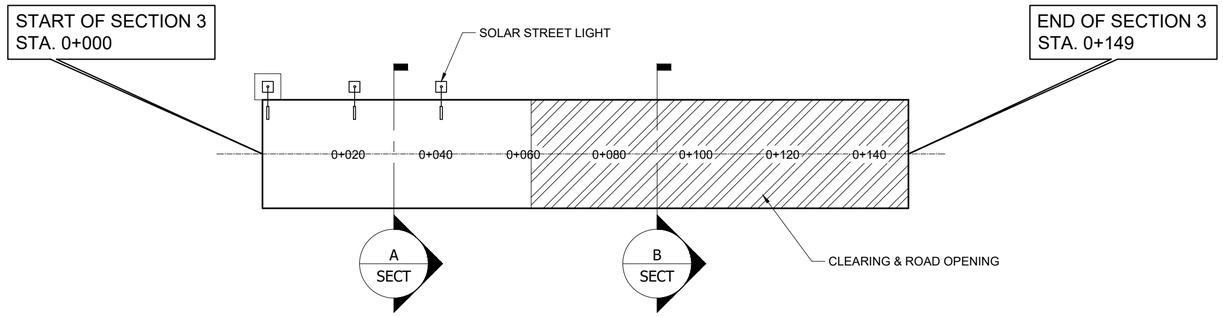




3
R - 2
TYP. ROADWAY SECTION(2)
SCALE: 1:50m.

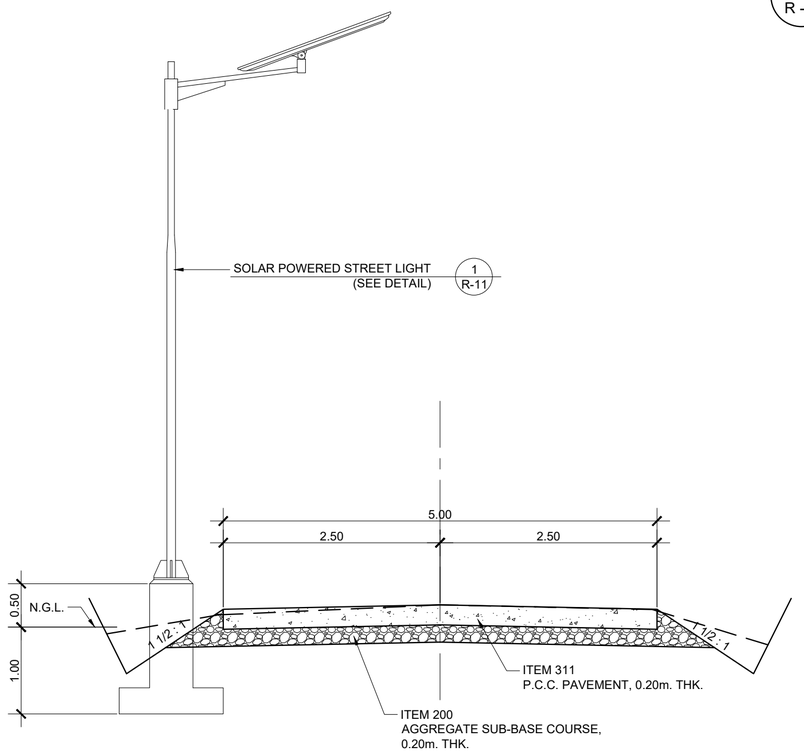
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
LAGUNA 3rd DISTRICT ENGINEERING OFFICE
MARIFLOR SUBD., BRGY. DEL REMEDIO, SAN PABLO CITY, REGION IV-A

PROJECT NAME & LOCATION:	SHEET CONTENT:	DRAFTED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP) SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG) ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES - **CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA**	STRAIGHT LINE DIAGRAM TYPICAL ROADWAY SECTION 1 & 2	**RESTY M. MANALO** DRAFTSMAN I PREPARED: **JANICE G. FULO** ENGINEER II	**NEIL JOHN U. CONOCNONO** ENGINEER II DATE:	**LUDY MITZI J. MAHENCIO** ENGINEER II OFFICER-IN-CHARGE PLANNING & DESIGN SECTION DATE:	**MA. SHIRLEY M. SAMIANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	**CARLOS C. MUERE** OFFICER-IN-CHARGE OFFICE OF THE DISTRICT ENGINEER DATE:	R 2 14	9 21

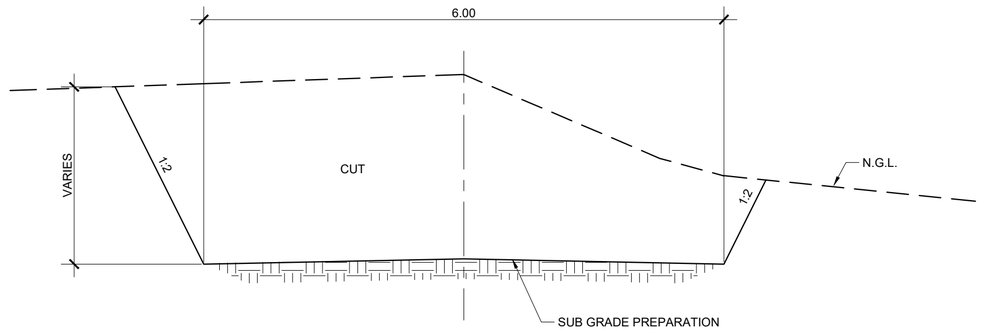


1 / R - 3 STRAIGHT LINE DIAGRAM

NTS.



CROSS SECTION A



CROSS SECTION B

2 / R - 3 TYP. ROADWAY SECTION(3)

SCALE: 1:50m.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
LAGUNA 3rd DISTRICT ENGINEERING OFFICE
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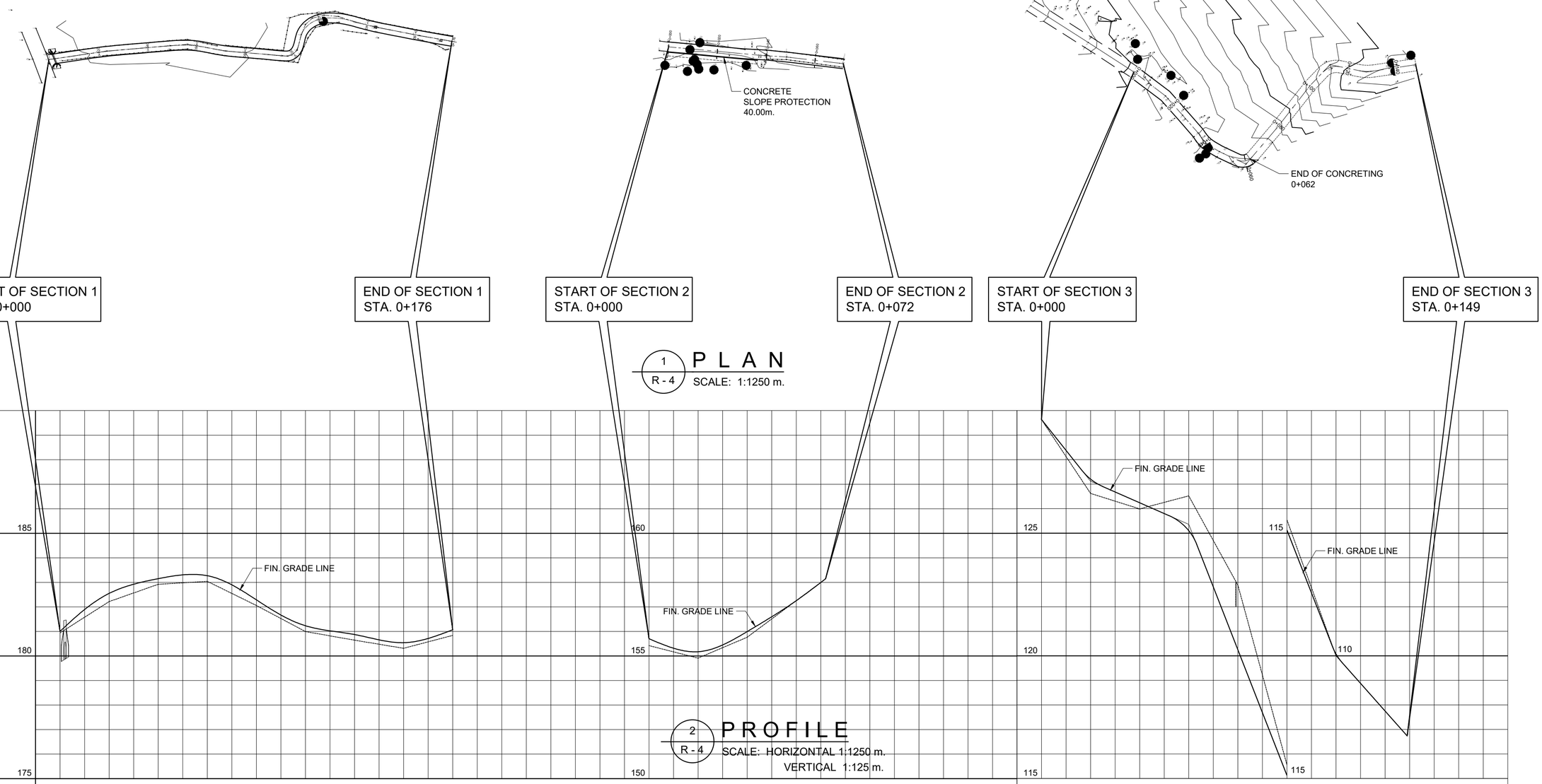
PROJECT NAME & LOCATION:	SHEET CONTENT:	DRAFTED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP) SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG) ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES - **CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA**	STRAIGHT LINE DIAGRAM(3) TYPICAL ROADWAY SECTIONS	**RESTY M. MANALO** DRAFTSMAN I PREPARED: **JANICE G. FULO** ENGINEER II	**NEIL JOHN U. CONOCNONO** ENGINEER II DATE:	**LUDY MITZI J. MAHENCIO** ENGINEER II OFFICER-IN-CHARGE PLANNING & DESIGN SECTION DATE:	**MA. SHIRLEY M. SAMIANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	**CARLOS C. MUERE** OFFICER-IN-CHARGE OFFICE OF THE DISTRICT ENGINEER DATE:	R 3 14	10 21



1 R - 4 **PLAN**
SCALE: 1:1250 m.

2 R - 4 **PROFILE**
SCALE: HORIZONTAL 1:1250 m.
VERTICAL 1:125 m.

STATION	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160
FINISHED GRADE ELEVATION	177.320	177.719	178.107	178.235	177.873	177.873	177.873	177.873	177.873
NATURAL GROUND ELEVATION	180.938	182.214	182.919	183.040	182.057	180.993	180.642	180.310	180.836

STATION	0+000	0+020	0+040	0+060	0+072
FINISHED GRADE ELEVATION	155.570	155.173	155.987	157.249	
NATURAL GROUND ELEVATION	155.419	154.943	155.757	157.249	

STATION	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+149
FINISHED GRADE ELEVATION	129.630	127.200	126.240	124.740	120.245	113.45	109.95	107.751	
NATURAL GROUND ELEVATION	129.630	126.618	125.989	126.518	122.881	115.471	110.049	107.751	

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CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA

SHEET CONTENT:
PLAN
PROFILE ELEVATION

DRAFTED:
RESTY M. MANALO
DRAFTSMAN I

PREPARED:
JANICE G. FULO
ENGINEER II

REVIEWED:
NEIL JOHN U. CONOCNONO
ENGINEER II
DATE:

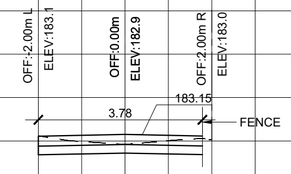
SUBMITTED:
LUDY MITZI J. MAHENCIO
ENGINEER II
OFFICER-IN-CHARGE
PLANNING & DESIGN SECTION
DATE:

RECOMMENDED:
MA. SHIRLEY M. SAMIANO
OFFICER-IN-CHARGE
OFFICE OF THE ASSISTANT DISTRICT ENGINEER
DATE:

APPROVED:
CARLOS C. MUERE
OFFICER-IN-CHARGE
OFFICE OF THE DISTRICT ENGINEER
DATE:

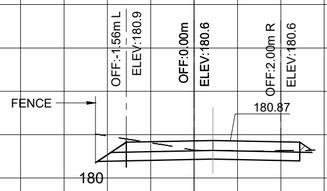
SET NO. R 4 | 14

SHEET NO. 11 | 21



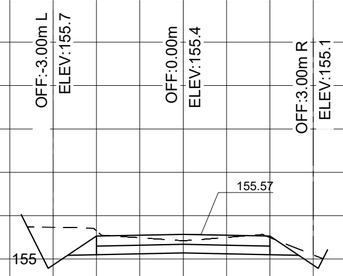
0+040.00

Ac = 1.115 sq.m.
Af = 0.000 sq.m.



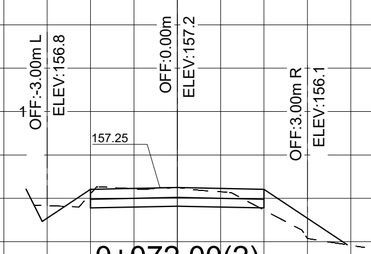
0+120.00

Ac = 1.364 sq.m.
Af = 0.026 sq.m.



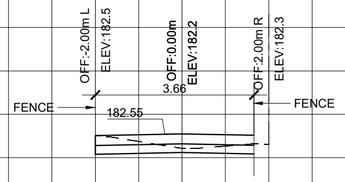
0+000.00(2)

Ac = 2.339 sq.m.
Af = 0.000 sq.m.



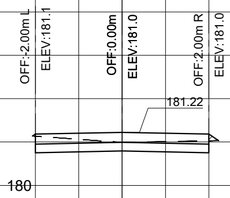
0+072.00(2)

Ac = 1.571 sq.m.
Af = 0.721 sq.m.



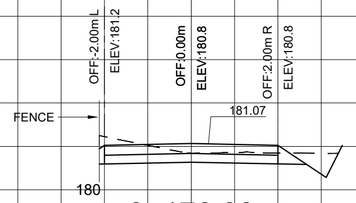
0+020.00

Ac = 0.7968 sq.m.
Af = 0.000 sq.m.



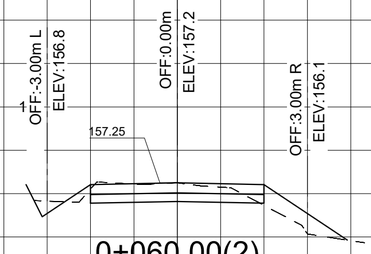
0+100.00

Ac = 1.053 sq.m.
Af = 0.076 sq.m.



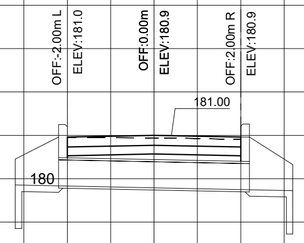
0+176.00

Ac = 1.68 sq.m.
Af = 0.000 sq.m.



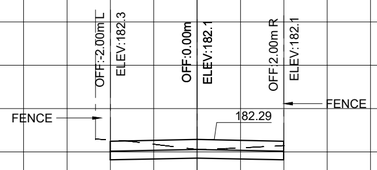
0+060.00(2)

Ac = 1.571 sq.m.
Af = 0.721 sq.m.



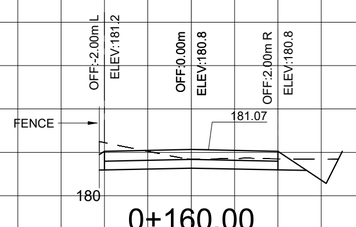
0+002

Ac = 5.890 sq.m.
Af = 0.000 sq.m.



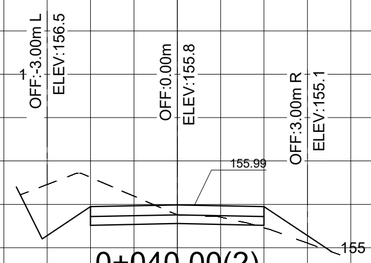
0+080.00

Ac = 1.191 sq.m.
Af = 0.000 sq.m.



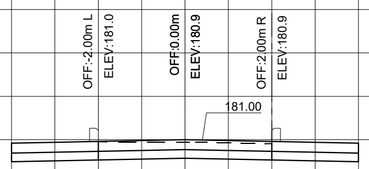
0+160.00

Ac = 1.799 sq.m.
Af = 0.000 sq.m.



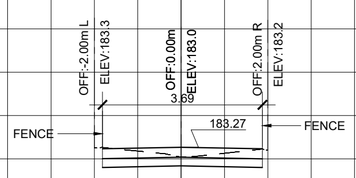
0+040.00(2)

Ac = 3.004 sq.m.
Af = 0.383 sq.m.



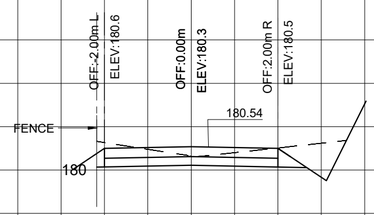
0+000.00

Ac = 3.261 sq.m.
Af = 0.000 sq.m.

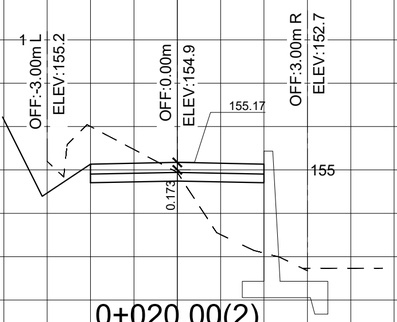


0+060.00

Ac = 1.196 sq.m.
Af = 0.000 sq.m.



0+140.00



0+020.00(2)

Ac = 4.585 sq.m.
Af = 4.585 sq.m.

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PROJECT NAME & LOCATION:
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CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA

SHEET CONTENT:
CROSS SECTIONS

DRAFTED:
RESTY M. MANALO
DRAFTSMAN I

PREPARED:
JANICE G. FULO
ENGINEER II

REVIEWED:
NEIL JOHN U. CONOCNONO
ENGINEER II
DATE:

SUBMITTED:
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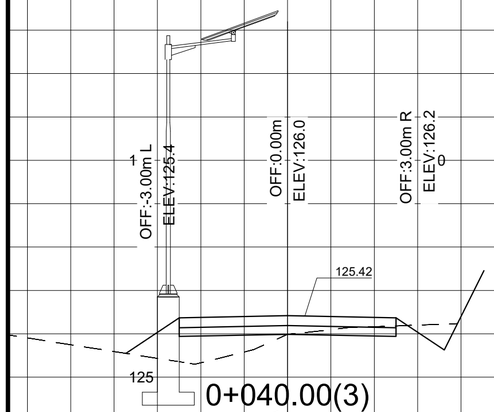
OFFICER-IN-CHARGE
OFFICE OF THE ASSISTANT DISTRICT ENGINEER
DATE:

APPROVED:
CARLOS C. MUERE
OFFICER-IN-CHARGE
OFFICE OF THE DISTRICT ENGINEER
DATE:

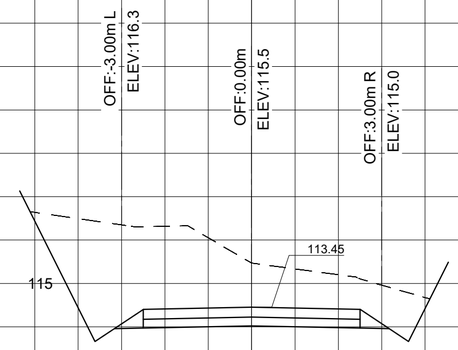
SET NO.: R 5 | 14

SHEET NO.: 12 / 21



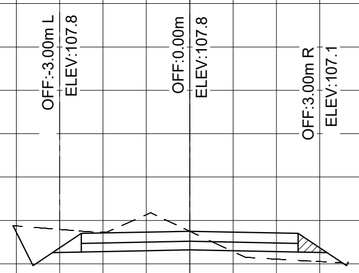
0+040.00(3)

Ac = 1.673 sq.m.
Af = 0.701 sq.m.



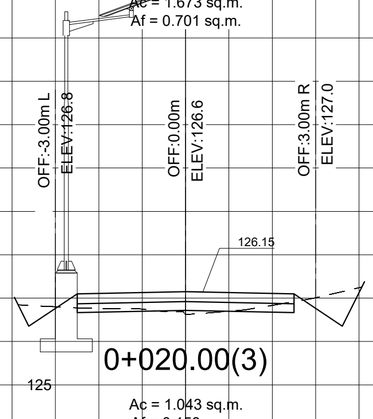
0+100.00(3)

Ac = 14.56 sq.m.
Af = 0.000 sq.m.



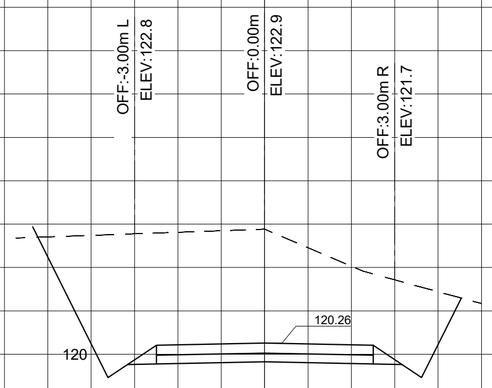
0+149.00(3)

Ac = 2.596 sq.m.
Af = 0.551 sq.m.



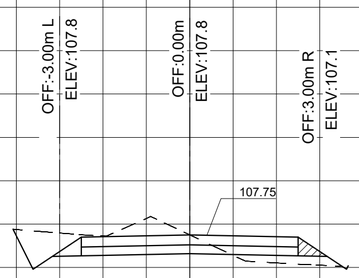
0+020.00(3)

Ac = 1.043 sq.m.
Af = 0.158 sq.m.



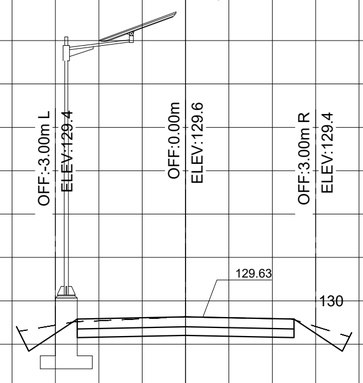
0+080.00(3)

Ac = 23.213 sq.m.
Af = 0.000 sq.m.



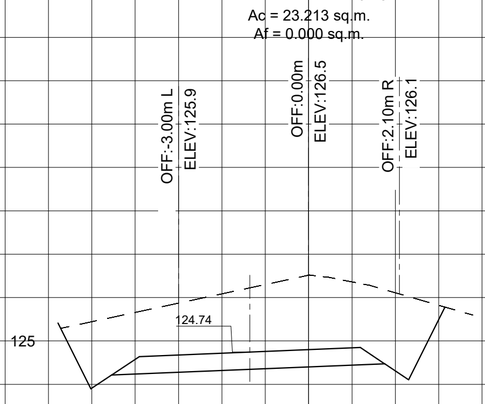
0+140.00(3)

Ac = 2.596 sq.m.
Af = 0.551 sq.m.



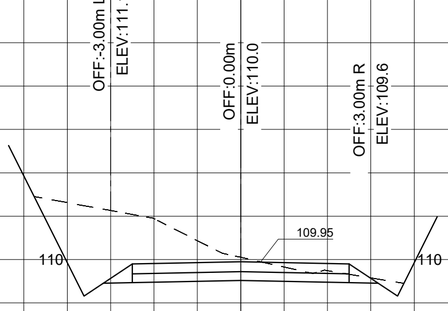
0+000.00(3)

Ac = 2.608 sq.m.
Af = 0.000 sq.m.



0+060.00(3)

Ac = 14.20 sq.m.
Af = 0.000 sq.m.



0+120.00(3)

Ac = 6.96 sq.m.
Af = 0.115sq.m.

REPUBLIC OF THE PHILIPPINES
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LAGUNA 3rd DISTRICT ENGINEERING OFFICE
MARIFLOR SUBD., BRGY. DEL REMEDIO, SAN PABLO CITY, REGION IV-A

PROJECT NAME & LOCATION:
CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP) SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG) ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES -
CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA

SHEET CONTENT:
CROSS SECTIONS

DRAFTED:
RESTY M. MANALO
DRAFTSMAN I

PREPARED:
JANICE G. FULO
ENGINEER II

REVIEWED:
NEIL JOHN U. CONOCNONO
ENGINEER II
DATE:

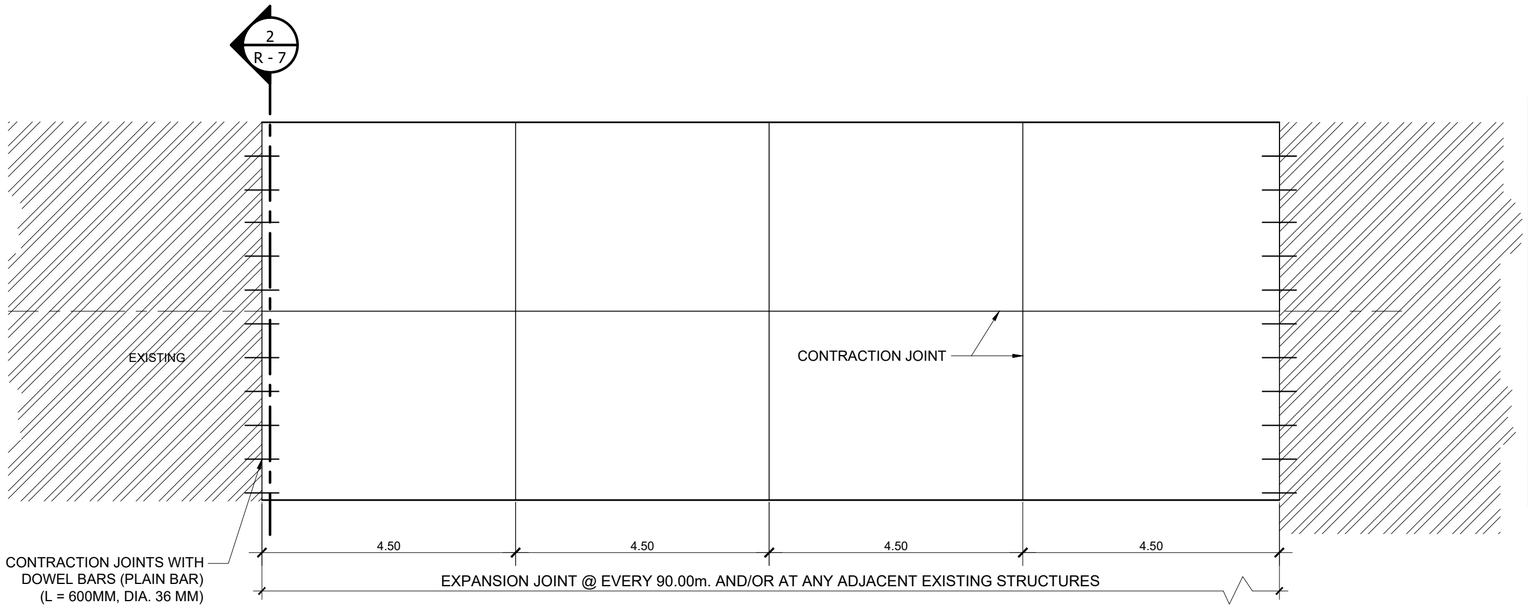
SUBMITTED:
LUDY MITZI J. MAHENCIO
ENGINEER II
OFFICER-IN-CHARGE
PLANNING & DESIGN SECTION
DATE:

RECOMMENDED:
MA. SHIRLEY M. SAMIANO
OFFICER-IN-CHARGE
OFFICE OF THE ASSISTANT DISTRICT ENGINEER
DATE:

APPROVED:
CARLOS C. MUERE
OFFICER-IN-CHARGE
OFFICE OF THE DISTRICT ENGINEER
DATE:

SET NO. R 6 14

SHEET NO. 13 21

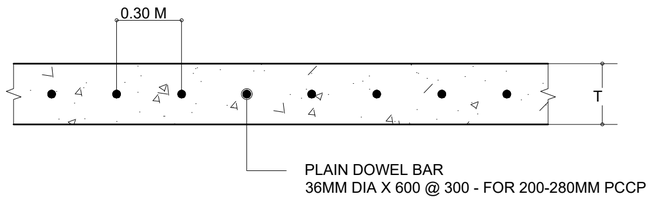


1 R - 7 **PAVEMENT LAYOUT PLAN**

SCALE: 1:20M.

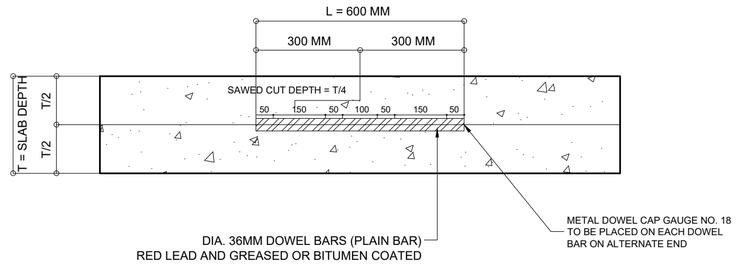
SPACING OF DOWEL BAR (DIAMETER 36MM/L=600MM)	
SLAB DEPTH, (T) (MM)	SPACING (MM)
200-280	300
290	295
300	274
310	255
320	238
330	223
340	209

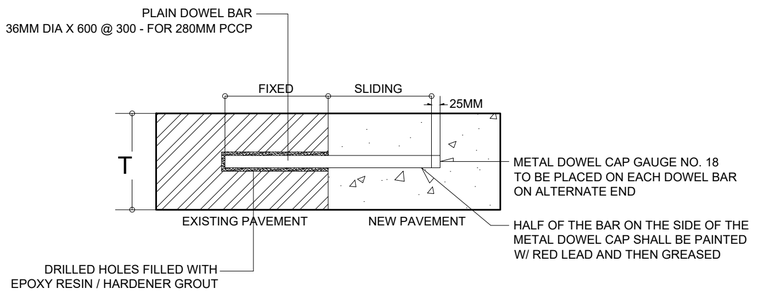
As Per D.O. 40, S. 2014			SUBSTITUTE	
Thickness of PCCP (mm)	Size of Dowel Bar (mm)	Spacing (mm)	Size of Dowel Bar (mm)	Spacing (mm)
280	36	300	32	250
			28	190
			25	150



3 R - 7 **CROSS SECTION**

NTS.





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SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG)
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LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES -
CONSTRUCTION OF CONCRETE ROAD,
BRGY. TALANGAN, NAGCARLAN, LAGUNA

SHEET CONTENT: PAVEMENT DESIGN STANDARD

DRAFTED: **RESTY M. MANALO**, DRAFTSMAN I

PREPARED: **JANICE G. FULO**, ENGINEER II

REVIEWED: **NEIL JOHN U. CONOCNONO**, ENGINEER II
DATE:

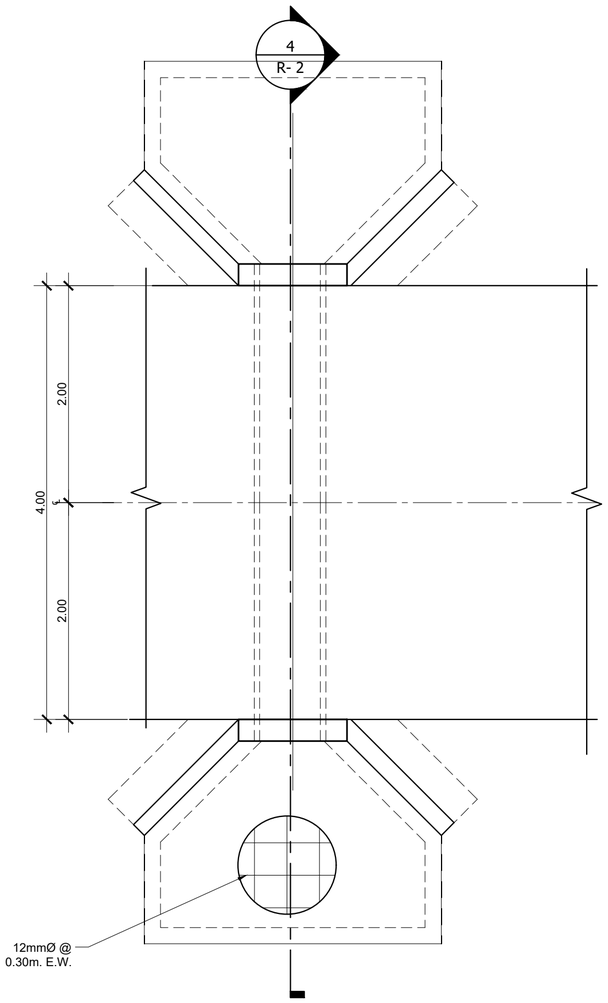
SUBMITTED: **LUDY MITZI J. MAHENCIO**, ENGINEER II, OFFICER-IN-CHARGE, PLANNING & DESIGN SECTION
DATE:

RECOMMENDED: **MA. SHIRLEY M. SAMIANO**, OFFICER-IN-CHARGE, OFFICE OF THE ASSISTANT DISTRICT ENGINEER
DATE:

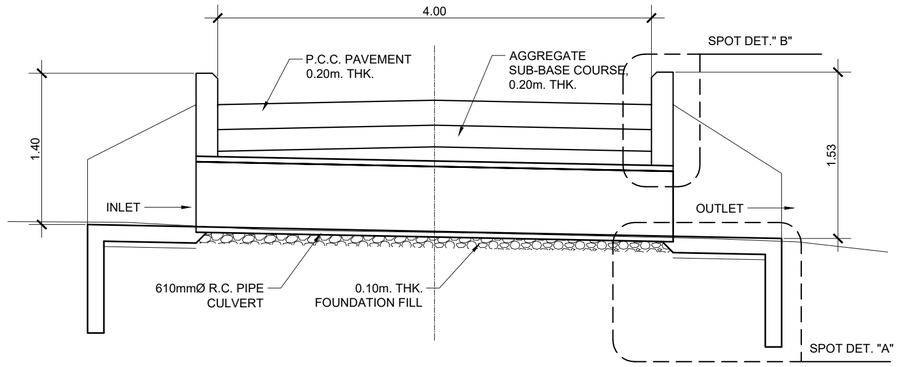
APPROVED: **CARLOS C. MUERE**, OFFICER-IN-CHARGE, OFFICE OF THE DISTRICT ENGINEER
DATE:

SET NO. R 7 | 14

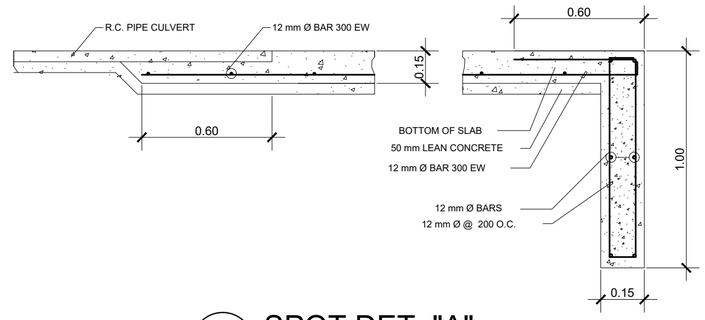
SHEET NO. 14 / 21



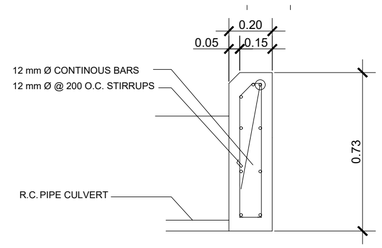
1 R - 8 **CROSS DRAINAGE PLAN**
SCALE: 1:40 m.



3 R - 3 **LONGITUDINAL SECTION**
SCALE: 1:40 m.

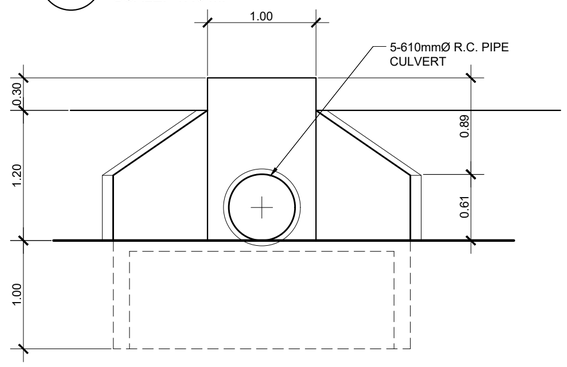


4 R - 8 **SPOT DET. "A"**
SCALE: 1:20 m.

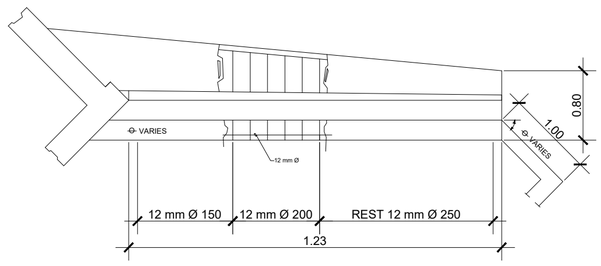


5 R - 8 **SPOT DET. "B"**
SCALE: 1:20 m.

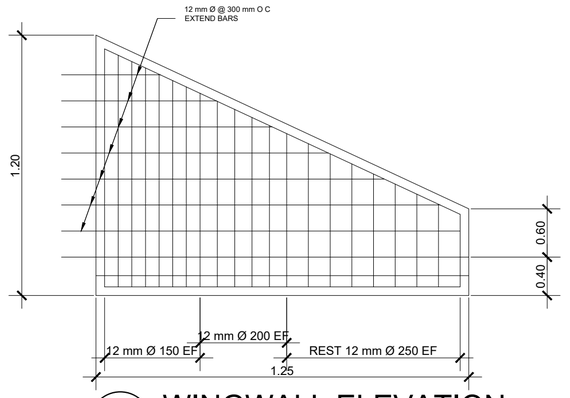
6 R - 8 **SPOT DET. "C"**
SCALE: 1:20 m.



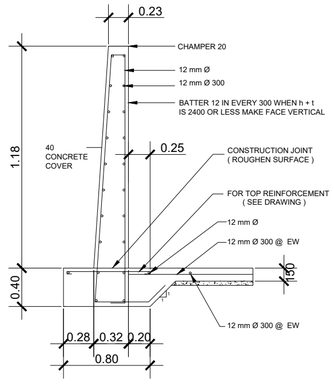
2 R - 8 **TYP. ELEVATION**
SCALE: 1:40 m.



7 R - 8 **WINGWALL PLAN**
SCALE: 1:40 m.



8 R - 8 **WINGWALL ELEVATION**
SCALE: 1:40 m.



9 R - 8 **SECTION**
SCALE: 1:40 m.

GENERAL NOTES :

SPECIFICATION :

AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES , 16th EDITION 1996 .

DESIGN LOAD :

LIVE LOAD MS - 18 (HS 20 - 44)

CONCRETE :

ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSION STRENGTH IN 28 DAYS OF f ' c = 20.7 MPa (3000 psi) .
ALL EXPOSED CORNERS TO BE CHAMFERED 20 MINIMUM . NO CONSTRUCTION JOINT ARE TO BE MADE EXCEPT WHERE SHOWN . WHEN BOTTOM SLAB IS SUBJECT TO ABRASION ADD 25 mm TO BOTTOM SLAB TO INCREASE COVERAGE ON STEEL .

STEEL REINFORCEMENT :

ALL REINFORCING STEEL TO BE INTERMEDIATE (GRADE 40) ASTM A - 615 WITH DEFORMATIONS CONFORMING TO ASTM A - 305 .

GENERAL :

IN STATING CULVERT SIZE , GIVE SPAN BY HEIGHT (SPAN FIRST) . WHEN HEIGHT OF FILL , H = 0 THE TOP OF SURFACE OF THE UPPER SLAB SHALL FOLLOW THE CROWN OF THE FINISHED ROADWAY .
THE BOX CULVERT SHALL BE CONSTRUCTED ON A LAYER OF LEAN CONCRETE 50 mm MINIMUM THICKNESS .

LIVE LOAD DISTRIBUTION REINFORCEMENT :

WHEN THERE IS LESS THAN 600 mm OF FILL ABOVE TOP SLAB OF CULVERT , ADDITIONAL REINFORCEMENT TRANSVERSE TO THE MAIN REINFORCEMENT IS ADDED TO THE BOTTOM OF THE TOP SLAB IN ACCORDANCE WITH AASTHO 1.3.2.E .

HEIGHT OF FILL :

MAXIMUM HEIGHT OF FILL IS SHOWN IS 3000 mm ABOVE TOP SLAB , FOR HEUGHT OF FILL GREATER THA 3000 mm SPECIAL DESIGN OF BOX CULVERT SHOULD BE DONE .

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CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP) SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG) ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES -
CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA

SHEET CONTENT:
CROSS DRAINAGE PLAN
TYPICAL ELEVATION
LONGITUDINAL SECTION
SPOT DETAILS
WINGWALL DETAILS
GENERAL NOTES

DRAFTED:
RESTY M. MANALO
DRAFTSMAN I

PREPARED:
JANICE G. FULO
ENGINEER II

REVIEWED:
NEIL JOHN U. CONOCNONO
ENGINEER II
DATE:

SUBMITTED:
LUDY MITZI J. MAHENCIO
ENGINEER II
OFFICER-IN-CHARGE
PLANNING & DESIGN SECTION
DATE:

RECOMMENDED:
MA. SHIRLEY M. SAMIANO
OFFICER-IN-CHARGE
OFFICE OF THE ASSISTANT DISTRICT ENGINEER
DATE:

APPROVED:
CARLOS C. MUERE
OFFICER-IN-CHARGE
OFFICE OF THE DISTRICT ENGINEER
DATE:

SET NO. R 8 | 14
SHEET NO. 15 | 21

GENERAL NOTES :

I. DESIGN CRITERIA AND SPECIFICATIONS

1. DPWH DESIGN GUIDELINES, CRITERIA, AND STANDARDS (DGCS) - VOLUME III 2015 EDITION
2. DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS, BRIDGES, AND AIRPORTS - VOLUME II, LATEST EDITION
3. DPWH STANDARD SPECIFICATIONS FOR PUBLIC WORKS STRUCTURES (BUILDINGS, PORTS AND HARBORS, FLOOD CONTROL AND DRAINAGE STRUCTURES AND WATER SUPPLY SYSTEMS) - VOLUME III, 2019 EDITION

II. DESIGN CONDITIONS

1. SURCHARGE LOAD APPLIED = 10kPa
2. SEISMIC COEFFICIENTS:
   Kh = 0.10
   Kv = 0.00
3. ASSUMED PROPERTIES :

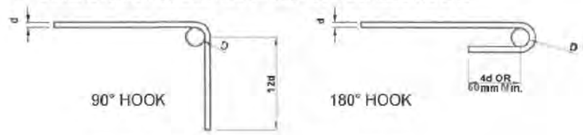
NATURAL SOIL ON SITE		
UNIT WEIGHT:	γ	= 19 - 20 kN/m^3
ANGLE OF INTERNAL FRICTION:	ϕ	= 20° - 22°
COHESION OF SOIL:	cef	= 10 - 15 kPa
ANGLE OF FRICTION STRUC. - SOIL	δ	= 7° - 10°
SOIL (PRESSURE AT REST)	cohesionless	
SATURATED UNIT WEIGHT:	ysat	= 19 - 20 kN/m^3
EMBANKMENT (DEGREE OF COMPACTION ≥ 95%)		
UNIT WEIGHT:	γ	= 18 - 20 kN/m^3
ANGLE OF INTERNAL FRICTION:	ϕ	= 25° - 30°
ANGLE OF FRICTION STRUC. - SOIL	δ	= 8° - 10°
SOIL (PRESSURE AT REST)	cohesionless	
SATURATED UNIT WEIGHT:	ysat	= 19 - 21 kN/m^3

III. SPECIAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. ALL CONCRETE SHALL BE CLASS "A" (1 : 2 : 4).
3. MINIMUM CLEARANCE BETWEEN REINFORCING STEEL AND SURFACE OF CONCRETE SHALL BE 75mm FOR VERTICAL WALL AND 100mm FOR THE FOOTING.
4. DESIGNED FOR LEVEL EARTH SURFACE WITH PROVISION AGAINST OVERTURNING FOR POSSIBLE INCREASE OF 50% IN ORDINARY EARTH PRESSURE.
5. ALL REINFORCING BARS SHALL CONFORM TO ASTM A615/A615M, USE MINIMUM GRADE 40 (fy = 276 MPa) FOR BARS WITH DIAMETER EQUAL TO OR LESS THAN 12mm, AND USE MINIMUM GRADE 60 (fy = 414 MPA) FOR BARS WITH DIAMETER EQUAL TO OR GREATER THAN 16mm.
6. BAR BENDING, SPLICING AND OTHER REQUIREMENTS SHALL CONFORM TO ITEM 404 - REINFORCING STEEL OF THE DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS, BRIDGES, AND AIRPORTS - VOLUME II, LATEST EDITION.
7. NO SPLICE SHALL BE MADE FROM THE BOTTOM OF THE WALL UP TO $\frac{1}{3}$ OF ITS HEIGHT NOR MORE THAN $\frac{1}{3}$ OF THE BARS BE SPLICED IN THE SAME CROSS SECTION.
8. ALLOWABLE SOIL BEARING CAPACITY SHALL BE GREATER THAN THE MAXIMUM PRESSURE AT TOE INDICATED IN THE SECTION DETAILS. IN CASE ALLOWABLE SOIL BEARING IS LESS THAN THE INDICATED MAXIMUM PRESSURE, GROUND IMPROVEMENT/FOUNDATION SHALL BE DESIGNED SEPARATELY.
9. SCOUR PROTECTION WORKS, EG. GABION, MATRESS, PRECAST BLOCKS, ETC. SHALL BE PROVIDED. DIMENSIONS AND TYPE SHALL BE DETERMINED BASED ON THE RESULT OF HYDRAULIC & SCOUR ANALYSIS.
10. ACTUAL DESIGN CONDITIONS AND REQUIREMENTS SHALL BE VERIFIED PRIOR ADOPTION OF DETAILS INDICATED IN THIS STANDARD PLAN.

IV. HOOK, BENDS AND SPLICER

1. DIMENSION OF 90-DEGREES AND 180-DEGREES HOOKS



PIN DIAMETER: D= 6d FOR Ø10 THRU Ø25

2. SPLICES SHALL BE SECURELY WIRED TOGETHER AND SHALL LAP OR EXTEND IN ACCORDANCE WITH THE FOLLOWING TABLE (TABLE OF LAP SPLICES AND ANCHORAGE LENGTHS) UNLESS OTHERWISE SHOWN ON DRAWINGS. SPLICES SHALL NOT BE MORE THAN 50% OF THE BARS AT ANY ONE POINT.

FOR GRADE 40 REBARS WITH CONCRETE COMPRESSIVE STRENGTH fc = 21 MPa

BAR DIAMETER (MM)	SPLICE LENGTH Ld (MM)
12	350
16	465
20	580
25	925

FOR GRADE 60 REBARS WITH CONCRETE COMPRESSIVE STRENGTH fc = 21 MPa

BAR DIAMETER (MM)	SPLICE LENGTH Ld (MM)
12	350
16	465
20	580
25	925

STANDARD SIZE OF BARS (MM)	6M RETAINING WALL				5M RETAINING WALL				4M RETAINING WALL				3M RETAINING WALL				2M RETAINING WALL			
	FRONT WALL	BACK WALL	TOP BASE	BOTTOM BASE	FRONT WALL	BACK WALL	TOP BASE	BOTTOM BASE	FRONT WALL	BACK WALL	TOP BASE	BOTTOM BASE	FRONT WALL	BACK WALL	TOP BASE	BOTTOM BASE	FRONT WALL	BACK WALL	TOP BASE	BOTTOM BASE
12.00 Ø													250	100	140	250	250	200	250	250
16.00 Ø									200	90	90	200	250	125	140	250				
20.00 Ø					200	80	100	200	200	125	140	250								
25.00 Ø	200	80	120	200	250	120	160	250												

NOTE: UNIFORM BAR SIZE SHALL BE USED PER STRUCTURE HEIGHT. COMBINATION OF BAR SIZES INDICATED IN THE TABLE WAS NOT COVERED IN THIS STANDARD PLAN. SHRINKAGE BARS SHALL BE PROVIDED WITH MAXIMUM SPACING AT EVERY 250mm ON BOTH VERTICAL WALL AND FOOTING.

SIZE AND SPACING OF REINFORCEMENT BARS

SCALE: NTS

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CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA

SHEET CONTENT:
GENERAL NOTES
SIZE AND SPACING OF REINF. BARS

DRAFTED:
RESTY M. MANALO
DRAFTSMAN I

PREPARED:
JANICE G. FULO
ENGINEER II

REVIEWED:
NEIL JOHN U. CONOCNONO
ENGINEER II
DATE:

SUBMITTED:
LUDY MITZI J. MAHENCIO
ENGINEER II
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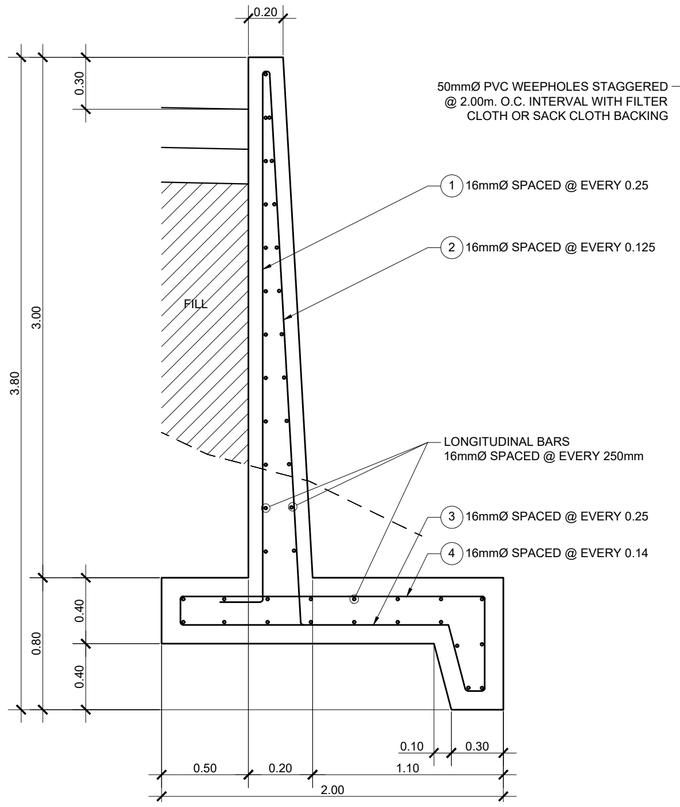
OFFICE OF THE ASSISTANT DISTRICT ENGINEER
DATE:

APPROVED:
CARLOS C. MUERE
OFFICER-IN-CHARGE
OFFICE OF THE DISTRICT ENGINEER
DATE:

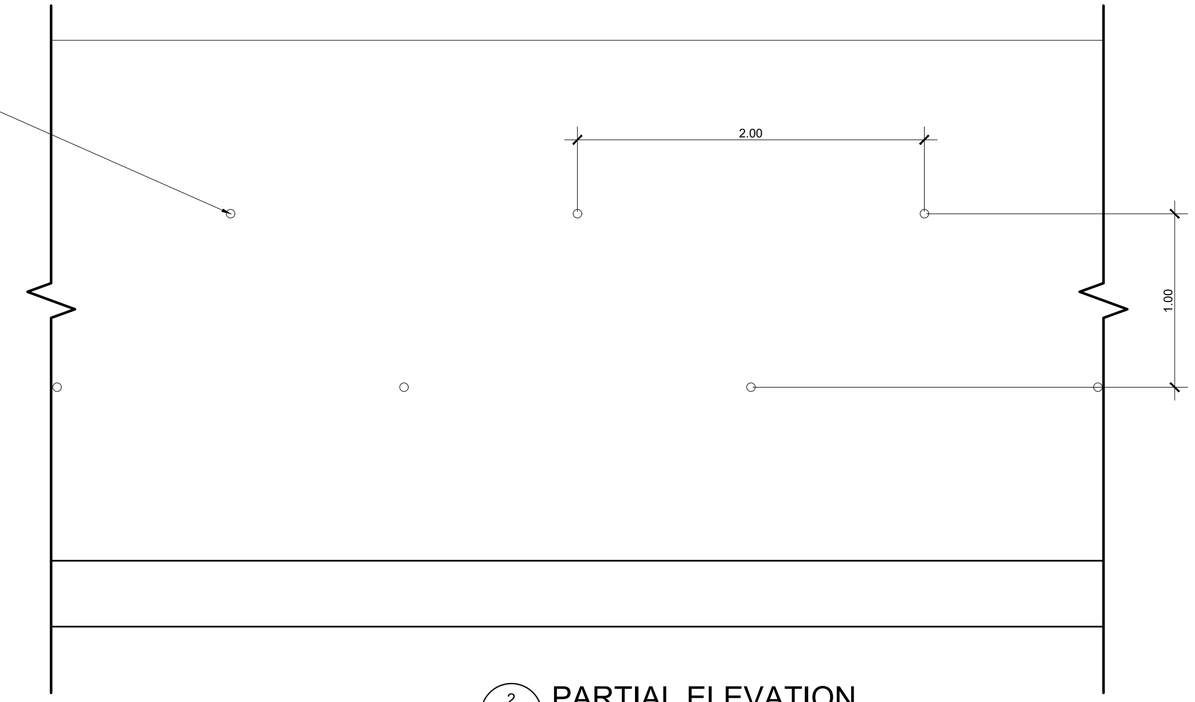
SET NO. R 9 | 14

SHEET NO. 16 / 21



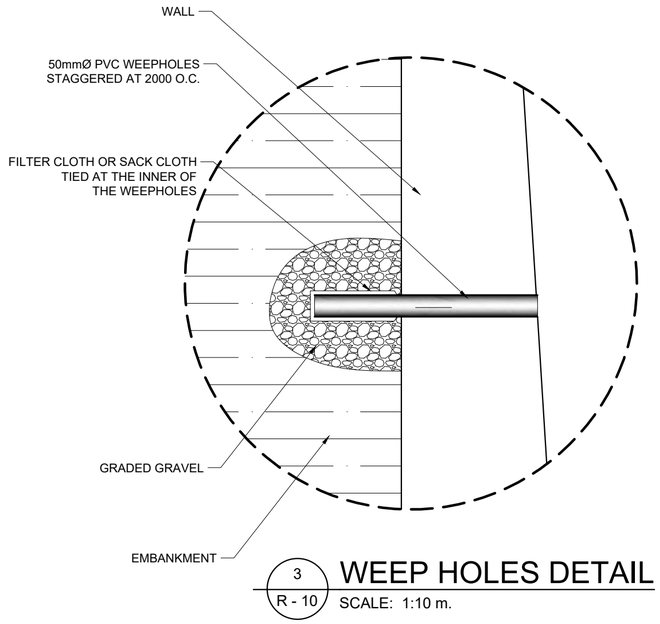
1 R - 10 **SLOPE PROTECTION SECTION**

SCALE: 1:25 m.



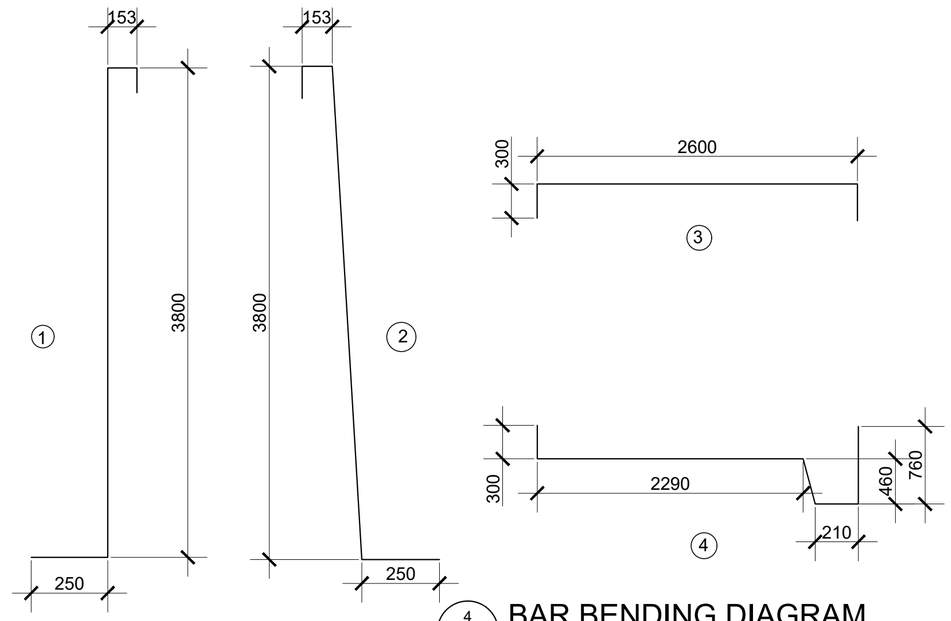
2 R - 10 **PARTIAL ELEVATION**

SCALE: 1:25 m.



3 R - 10 **WEEP HOLES DETAIL**

SCALE: 1:10 m.



4 R - 10 **BAR BENDING DIAGRAM**

SCALE: 1:25 m.

REPUBLIC OF THE PHILIPPINES
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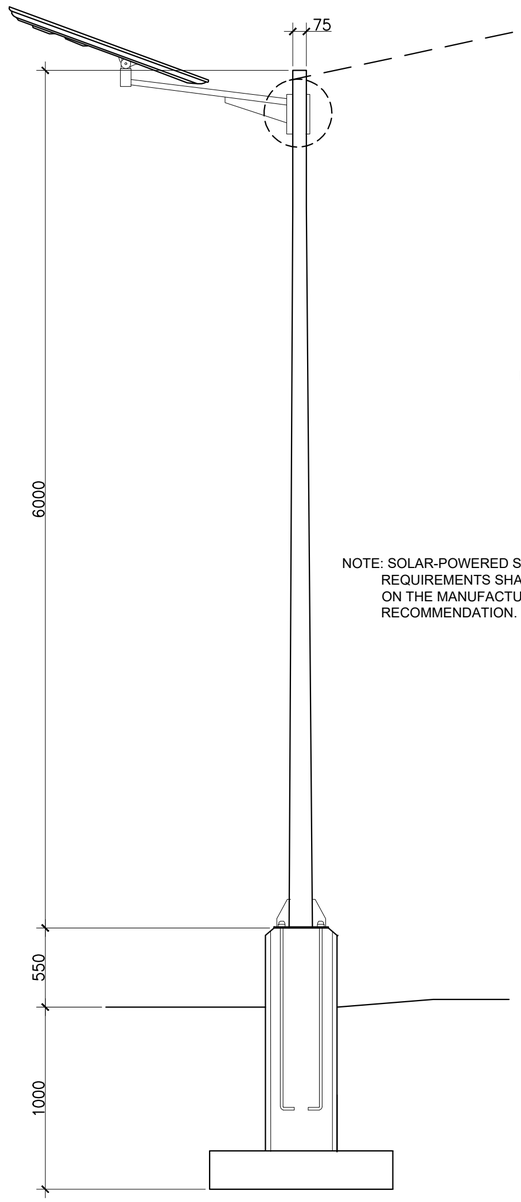
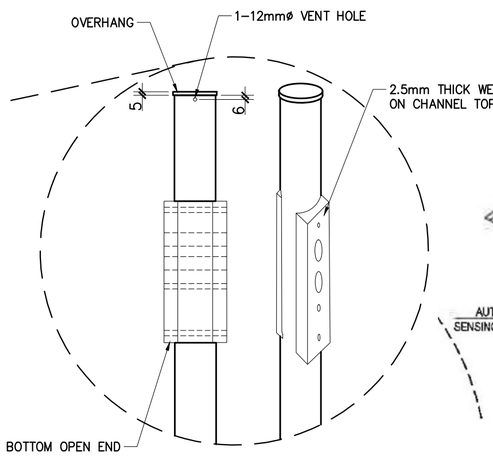
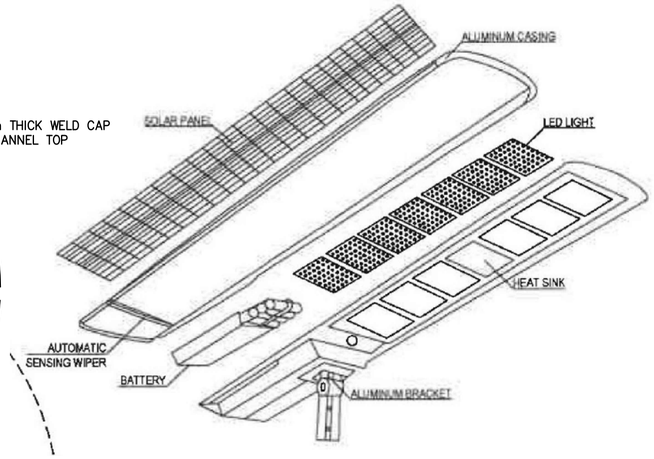
PROJECT NAME & LOCATION:	SHEET CONTENT:	DRAFTED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP) SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG) ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES - **CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA**	SLOPE PROTECTION DET. SECTION ELEVATIONS WEEP HOLES DETAIL BAR BENDING DIAGRAM	**RESTY M. MANALO** DRAFTSMAN I PREPARED: **JANICE G. FULO** ENGINEER II	**NEIL JOHN U. CONOCNONO** ENGINEER II DATE:	**LUDY MITZI J. MAHENCIO** ENGINEER II OFFICER-IN-CHARGE PLANNING & DESIGN SECTION DATE:	**MA. SHIRLEY M. SAMIANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	**CARLOS C. MUERE** OFFICER-IN-CHARGE OFFICE OF THE DISTRICT ENGINEER DATE:	R 10 14	17 21



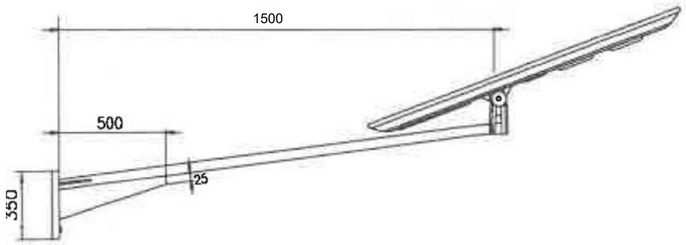
1 R-11 SINGLE ARM POST DET.
NTS.

NOTE: SOLAR-POWERED STREETLIGHT REQUIREMENTS SHALL BE BASED ON THE MANUFACTURER'S RECOMMENDATION.





3 R - 11 LED LUMINAIRE DETAILS
NOT TO SCALE



2 R - 11 SECTION OF MAST ARM
NOT TO SCALE

:

1. INCLUDE ADDITIONAL DETAIL FOR DESIRED LAMP POST TO BE USED AND REFER AND VERIFY TO MERALCO STANDARDS
2. REFER TO DPWH ELECTRICAL TECHNICAL SPECS FOR LAMP POST WATTAGE RATING, MOUNTING HEIGHT, AND SPACING EQUIVALENT.

INTEGRATED SOLAR STREETLIGHT TECHNICAL PARAMETERS

SOLAR PHOTOVOLTAIC PANEL	OPERATING VOLTAGE AND POWER	12V – 36V 60 – 310 W (SHOULD BE GREATER THAN 90% AFTER 10 YEARS AND LESS THAN 80% AFTER 25 YEARS)
	LIFETIME	>25 YEARS
	MATERIAL	MONOCRYSTALLINE/POLYCRYSTALLINE SILICON
	WEIGHT	<25 KG
	ALLOWABLE AMBIENT TEMPERATURE RANGE	-40°C TO +60°C
BATTERY	INPUT VOLTAGE	12.8V
	TYPE	LITHIUM-ION OR LEAD-ACID TYPE ELECTROLYTE PLATE LEAD ACID WITH LOW ANTIMONY LEAD ALLOY PLATES AND CERAMIC VENT PLUGS
	LIFETIME	6 – 8 YEARS
	CHARGING AND DISCHARGING CYCLES	2000
	CHARGING TIME	7 HOURS
	WORKING TIME UNDER RAINY DAYS	10 DAYS
CHARGE CONTROLLER	INTELLIGENT CONTROL FOR CIRCUIT PROTECTION	
	FEATURE	TIMING, DIMMING, AND SENSOR
LIGHT-EMITTING DIODE (LED) LAMP	LIGHT OUTPUT	50W TO 300 W
	SYSTEM FLUX	6000 – 30,000 LM
	COLOR TEMPERATURE	2,500K - 3,500K (WARM WHITE) 3,000K - 4,500K (COOL WHITE) 5,500K - 6,500K (DAYLIGHT)
	OPTICAL COVER / LENS TYPE	UV STABILIZED POLYCARBONATE COVER
	DRIVER	DIMMABLE AND DESIGNED TO OPERATE MAINTENANCE FREE FOR 50,000 HOURS WITH A COMPATIBILITY TO WIRELESS LIGHTING CONTROL PROTOCOLS.
	LIFETIME	>50,000 HOURS
	PHOTOCONTROLLER	INDIVIDUAL OR GROUP
	HOUSING	HIGH PRESSURE DIE-CAST ALUMINUM WITH HEAT MANAGEMENT SYSTEM AND RUST RESISTANT
ALLOWABLE AMBIENT TEMPERATURE	RANGE	-40°C TO +60°C
	RANGE FOR CHARGING	0°C TO +45°C
	RANGE FOR DISCHARGING	-20°C TO +35°C
CHARGE TIME	7 HOURS UNDER DIRECT AND STRONG SUNLIGHT	
IP RATING	IP 65	
WARRANTY PERIOD	6 YEARS MINIMUM	

INITIAL LUMEN OF HIGH PRESSURE LAMPS

TYPES OF LAMPS	WATTAGE	INITIAL LUMEN
HIGH PRESSURE SODIUM (HPS)	100	9500
	150	16000
	250	26000
	450	50000

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
LAGUNA 3rd DISTRICT ENGINEERING OFFICE
MARIFLOR SUBD., BRGY. DEL REMEDIO, SAN PABLO CITY, REGION IV-A

PROJECT NAME & LOCATION:
CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP) SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG) ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES -
CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA

SHEET CONTENT:
SINGLE ARM POST DET.
LED LUMINAIRE DETS.
SECTION OF MAST ARM
INTEGRATED SOLAR STREET LIGHT TECH. PARAMETERS

DRAFTED: **RESTY M. MANALO** DRAFTSMAN I
PREPARED: **JANICE G. FULO** ENGINEER II

REVIEWED: **NEIL JOHN U. CONOCNONO** ENGINEER II DATE:

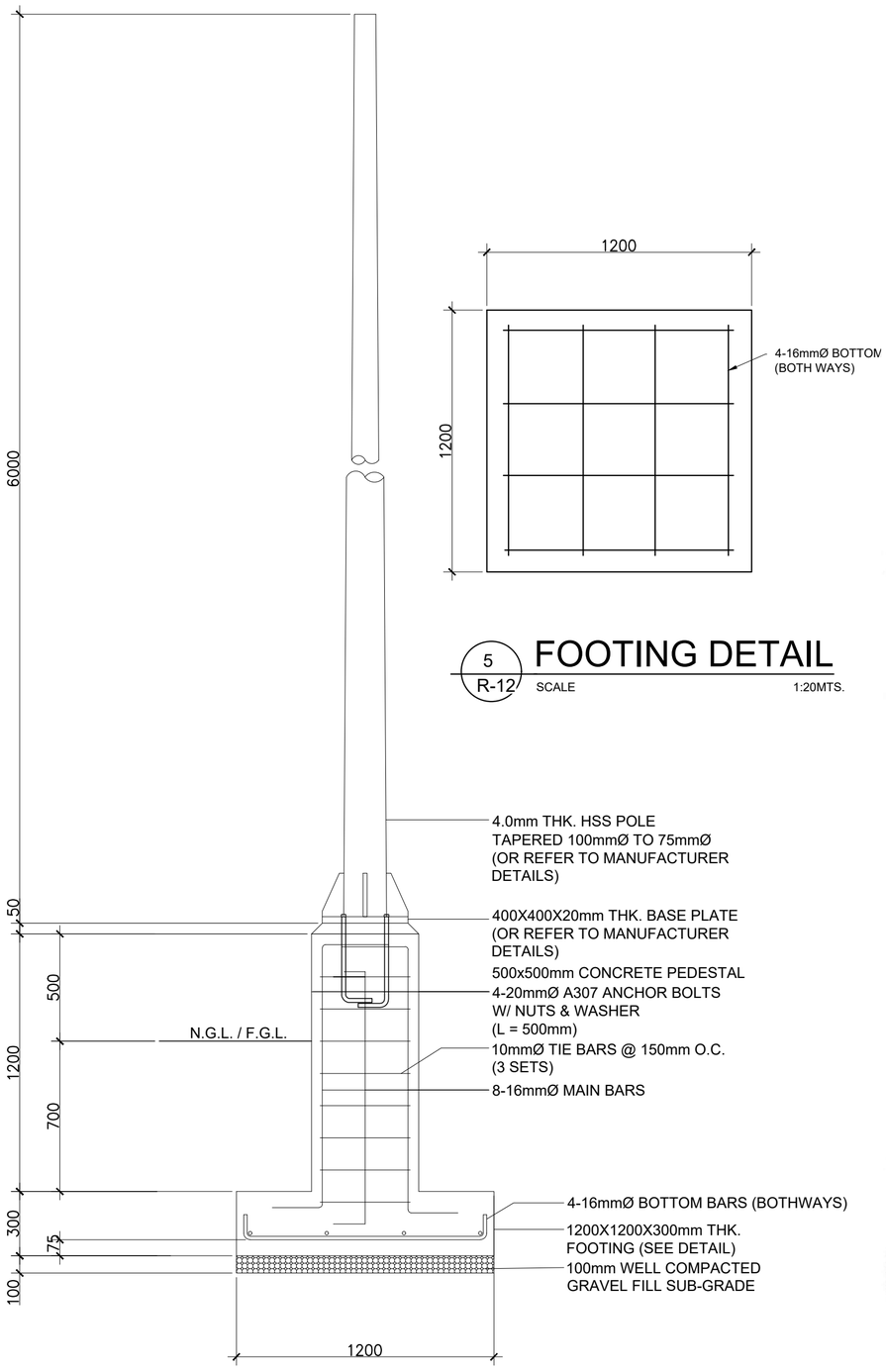
SUBMITTED: **LUDY MITZI J. MAHENCIO** ENGINEER II, OFFICER-IN-CHARGE, PLANNING & DESIGN SECTION DATE:

RECOMMENDED: **MA. SHIRLEY M. SAMIANO** OFFICER-IN-CHARGE, OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:

APPROVED: **CARLOS C. MUERE** OFFICER-IN-CHARGE, OFFICE OF THE DISTRICT ENGINEER DATE:

SET NO. R 11 | 14

SHEET NO. 18 / 21

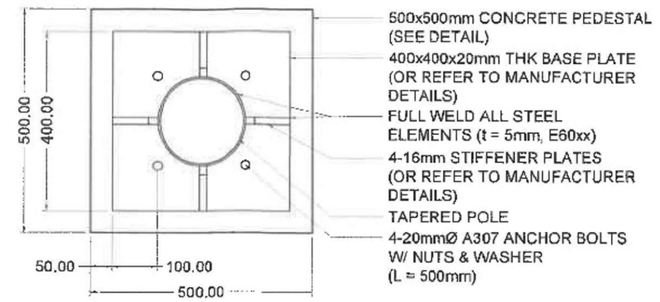


1 R-12 **FOUNDATION ELEVATION**

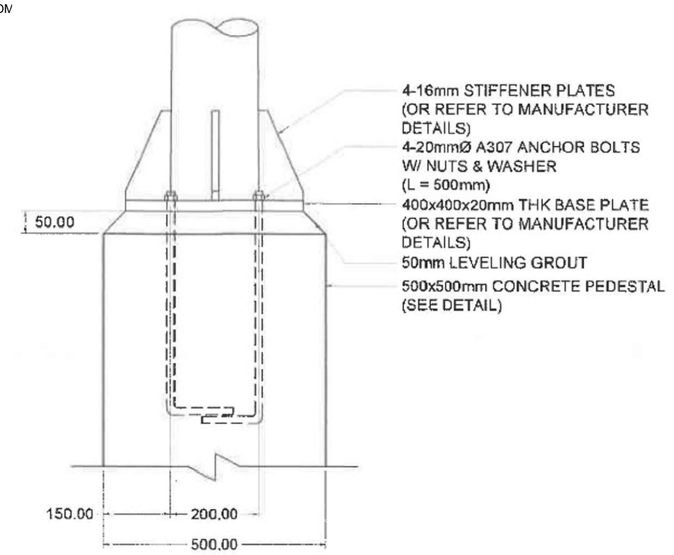
SCALE : 1 : 20 M.

5 R-12 **FOOTING DETAIL**

SCALE 1:20MTS.



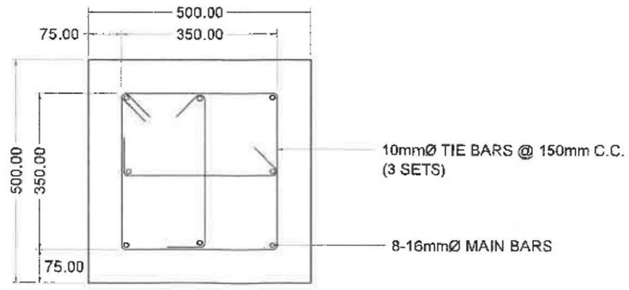
TOP VIEW



FRONT VIEW

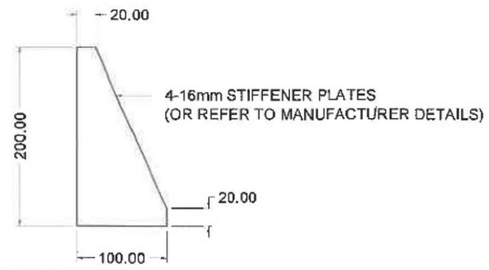
2 R-12 **BASE PLATE DETAIL**

SCALE: 1:10 MTS.



3 R-12 **PEDESTAL DETAIL**

SCALE 1:10 MTS.



4 R-12 **STIFFENER DETAIL**

SCALE 1:5MTS.

DESIGN CRITERIA

A. **REFERENCES**
- a. NATIONAL STRUCTURAL CODE OF THE PHILIPPINES (NSCP), 7TH EDITION (2015)
- b. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) 360
- c. AMERICAN CONCRETE INSTITUTE (ACI) 318
- d. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) 360

B. **DESIGN LOADS**

a. DEAD LOAD		
	i. CONCRETE	24 kN/m³
	ii. STEEL	77 kN/m³
	iii. SOIL	18 kN/m³
	iv. POLE ATTACHMENTS	50 kg
b. WIND LOAD		
	i. WIND SPEED	250 kph
	ii. EXPOSURE CATEGORY	D
	iii. DIRECTIONALITY FACTOR	0.85
	iv. OCCUPANCY CATEGORY	V (MISCELLANEOUS STRUCTURES)

C. **MATERIALS**

a. NORMAL WEIGHT CONCRETE	F_c = 28 MPa (4000 psi)
b. REINFORCING STEEL	
i. 12MMØ AND BELOW	F_y = 276 MPa (Grade 40)
ii. 16MMØ AND ABOVE	F_y = 414 MPa (Grade 60)
c. STRUCTURAL STEEL	
i. STEEL POLE	F_y = 240 MPa (A53 GRADE B) F_u = 415 MPa
ii. BASE PLATE & STIFFENER	F_y = 276 MPa (A36) F_u = 400 MPa
d. STRUCTURAL BOLTS AND FASTENERS	F_{nt} = 310 MPa (A307) F_{nv} = 165 MPa
e. WELDS	E60xx ELECTRODE

D. **DESIGN APPROACH**
- a. LOAD AND RESISTANCE FACTORED DESIGN (LRFD) IS USED TO DESIGN THE STEEL ELEMENTS.
- b. ULTIMATE STRENGTH DESIGN (USD) IS USED TO DESIGN THE CONCRETE ELEMENTS.
- c. WORKING STRESS DESIGN (WSD) IS USED TO PARTIALLY DESIGN THE FOUNDATION.
- d. LOAD COMBINATIONS CORRESPONDING TO THE DESIGN PHILOSOPHIES MENTIONED ABOVE ARE UTILIZED WHICH ARE BASED ON THE NSCP 2015.

E. **NOTES ON DESIGN LOADS**
- a. IF THE ASSUMED DESIGN LOADS IS NOT APPLICABLE FOR THE REQUIRED DESIGN, THE DESIGN SHALL BE REVISED ACCORDINGLY.

F. **NOTES ON FOUNDATION**
- a. THE FOUNDATION IS DESIGNED FOR AN ASSUMED ALLOWABLE SOIL BEARING CAPACITY (SBC) OF 95 kPa (2000 psf). IF THE LOCATION IS KNOWN OR FOUND OUT TO HAVE AN SBC OF LESS THAN THE ASSUMED, THE FOOTING DESIGN SHALL BE REVISED ACCORDINGLY.
- b. NO FOOTING SHALL REST ON FILL. PROVIDE 100mm THICK PROPERLY WELL COMPACTED GRAVEL BED BEFORE CASTING

G. **NOTES ON ASSEMBLY**
- a. MANUFACTURER MAY SUPPLY A PRE-ASSEMBLED STEEL POST WITH ACCESSORIES (MAST ARM, STIFFENERS, AND/OR BASE PLATE) PROVIDED THAT ITS DESIGN IS SUFFICIENT FOR THE DESIGN LOADS AND MATERIAL STRENGTHS PROVIDED IN THE ITEMS ABOVE.
- b. DESIGN CALCULATIONS/SPECIFICATIONS OF THE PRE-ASSEMBLED STEEL POST MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR INSTALLATION.

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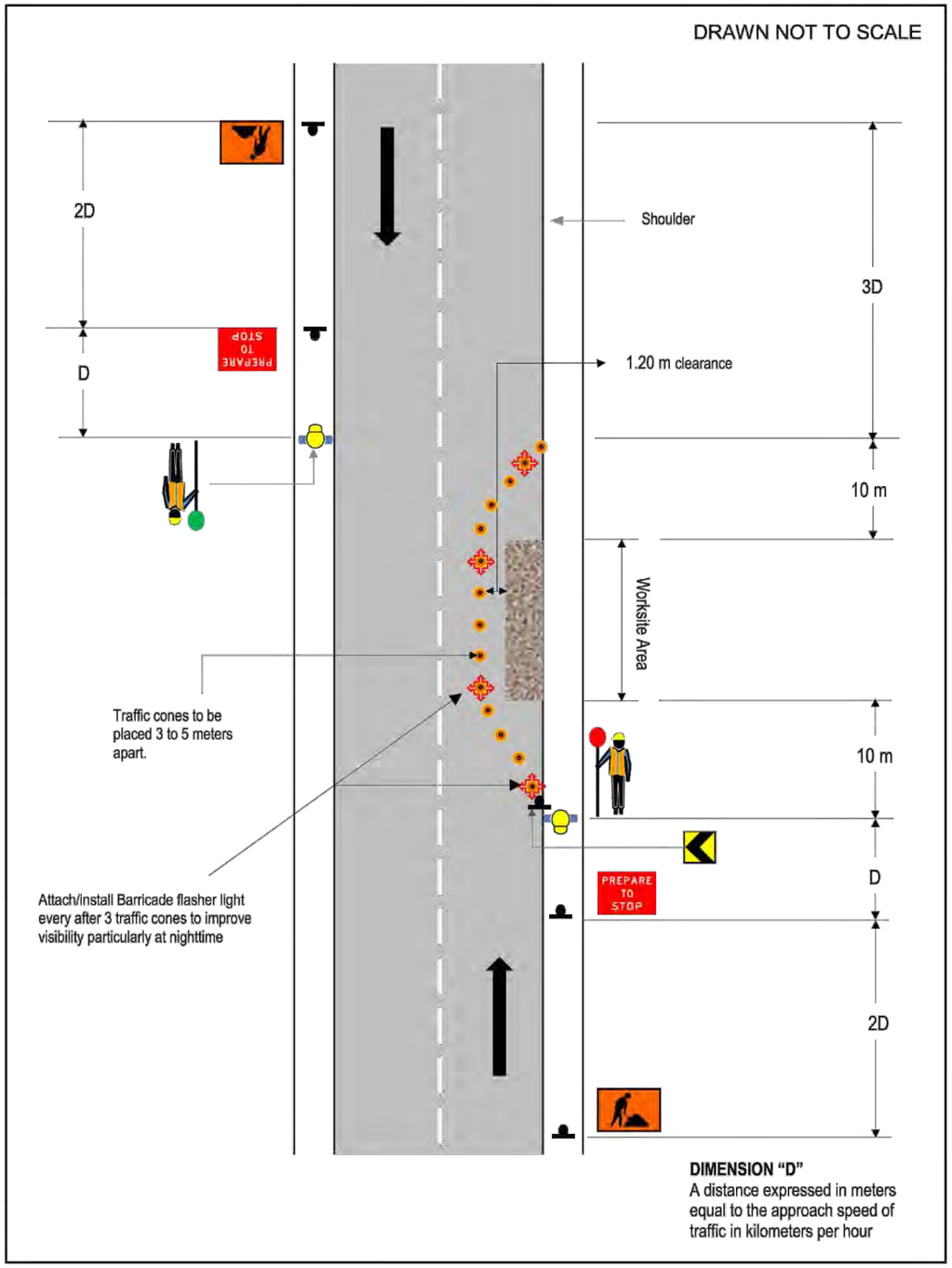
PROJECT NAME & LOCATION:	SHEET CONTENT:	DRAFTED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP) SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG) ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES - **CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA**	FOUNDATION ELEVATION FOOTING DETAIL BASE PLATE DETAIL PEDESTAL DETAIL STIFFENER DETAIL	**RESTY M. MANALO** DRAFTSMAN I PREPARED: **JANICE G. FULO** ENGINEER II	**NEIL JOHN U. CONOCNONO** ENGINEER II DATE:	**LUDY MITZI J. MAHENCIO** ENGINEER II OFFICER-IN-CHARGE PLANNING & DESIGN SECTION DATE:	**MA. SHIRLEY M. SAMIANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	**CARLOS C. MUERE** OFFICER-IN-CHARGE OFFICE OF THE DISTRICT ENGINEER DATE:	R 12 | 14	19 21

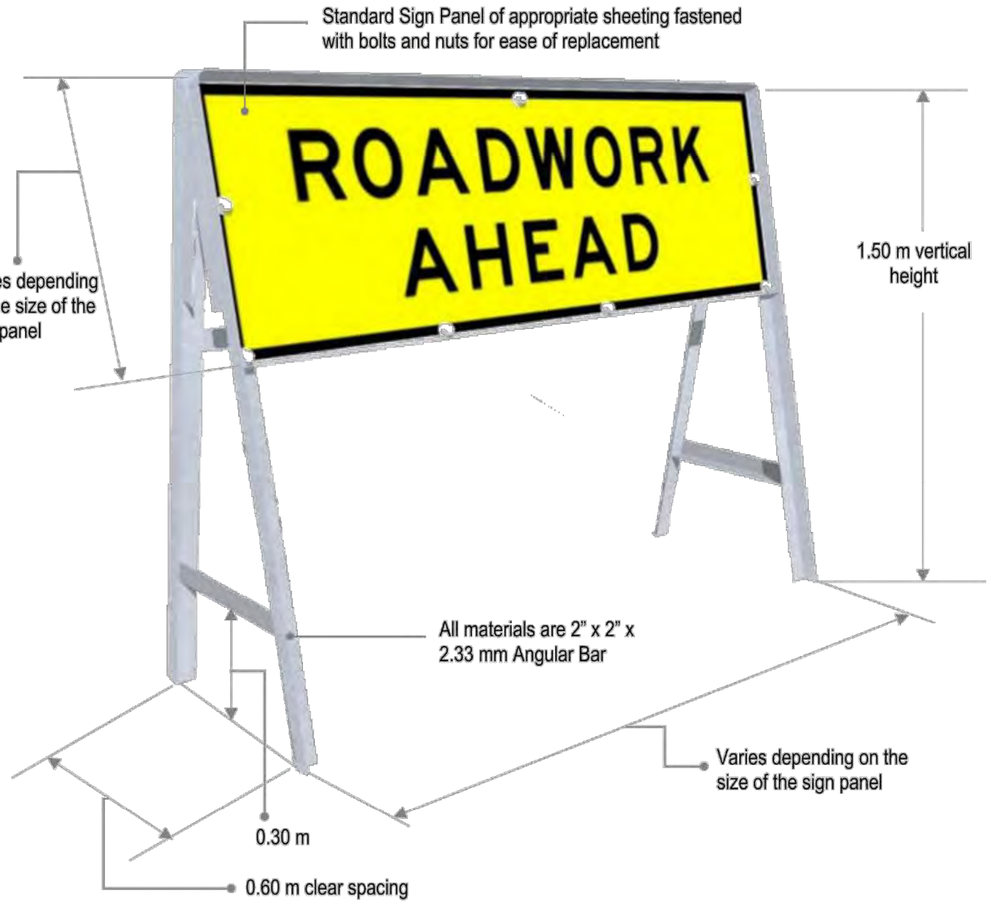
LAYOUT 3 – Part Lane Closure – 2 Lane, 2 Way Road, Low Speed, Low Volume, Short Term



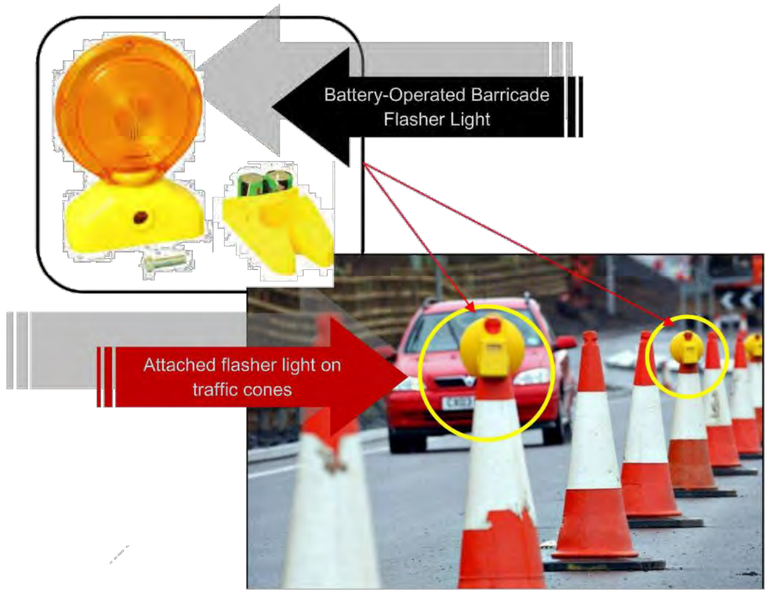
ROAD AND BRIDGE WORK SITE TEMPORARY SIGNAGE	SIGNAGE DESCRIPTION			
	Sign No.	Size (mm) (Width X Height)	Letters/Symbols	Background
ADVANCE WARNING SIGNS				
 *WORKMEN AHEAD (Symbolic)* (T1-5)	T1-5	900 x 600	Black	Red / Orange -Fluorescent for day use (Short Term) -Reflectorized for night use (Long Term)
REGULATORY SIGNS				
PREPARE TO STOP *PREPARE TO STOP* (T1-18)	T1-18	900 x 600	Line 1- White 120 DM Line 2- White 120 DM Line 3- White 120 EM Reflectorized	Red Reflectorized

ROAD AND BRIDGE WORK SITE TEMPORARY SIGNAGE	SIGNAGE DESCRIPTION			
	Sign No.	Size (mm) (Width X Height)	Letters/Symbols	Background
TEMPORARY HAZARD MARKERS				
 *TEMPORARY HAZARD MARKER* (T5-5)	T5-5	600 x 600 Type B-3	Chevrons Black 194 wide at 45°	Yellow Reflectorized

REPUBLIC OF THE PHILIPPINES **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS** **LAGUNA 3rd DISTRICT ENGINEERING OFFICE** MARIFLOR SUBD., BRGY. DEL REMEDIO, SAN PABLO CITY, REGION IV-A	PROJECT NAME & LOCATION: CONVERGENCE AND SPECIAL SUPPORT PROGRAM (CSSP) SUSTAINABLE INFRASTRUCTURE PROJECTS ALLEVIATING GAPS (SIPAG) ACCESS ROADS AND/OR BRIDGES FROM THE NATIONAL ROAD/S LEADING TO MAJOR/STRATEGIC PUBLIC BUILDINGS/FACILITIES - **CONSTRUCTION OF CONCRETE ROAD, BRGY. TALANGAN, NAGCARLAN, LAGUNA**	SHEET CONTENT: TRAFFIC MANAGEMENT PLAN SCHEDULE OF SIGNAGES	DRAFTED: **RESTY M. MANALO** DRAFTSMAN I PREPARED: **JANICE G. FULO** ENGINEER II	REVIEWED: **NEIL JOHN U. CONOCNONO** ENGINEER II DATE:	SUBMITTED: **LUDY MITZI J. MAHENCIO** ENGINEER II OFFICER-IN-CHARGE PLANNING & DESIGN SECTION DATE:	RECOMMENDED: **MA. SHIRLEY M. SAMIANO** OFFICER-IN-CHARGE OFFICE OF THE ASSISTANT DISTRICT ENGINEER DATE:	APPROVED: **CARLOS C. MUERE** OFFICER-IN-CHARGE OFFICE OF THE DISTRICT ENGINEER DATE:	SET NO. R 13 14	SHEET NO. 20 21



1 T 2 DETAILS OF THE TWO-SIDED SIGN FRAME
SCALE: NTS.



2 T 2 INSTALLING OF BARRICADE FLASHER LIGH ON TRAFFIC DEVICES
SCALE: NTS.

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