REPUBLIC OF THE PHILIPPINES

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

MOUNTAIN PROVINCE SECOND
DISTRICT ENGINEERING OFFICE

NATONIN, MOUNTAIN PROVINCE CORDILLERA ADMINISTRATIVE REGION

DETAILED ENGINEERING DESIGN PLAN FOR

REPAIR/MAINTENANCE OF SIFFU RIVER REVETMENT 16,BUTIGUE, PARACELIS, MOUNTAIN PROVINCE(PHASE I)

LOCATION : BUTIGUE, PARACELIS, MOUNTAIN PROVINCE
STATION LIMITS: STA. 000+065- STA. 000+090

SUBMITTED :

JERRY S. CHIMICAG
CHIEF, MAINTENANCE SECTION
DATE :

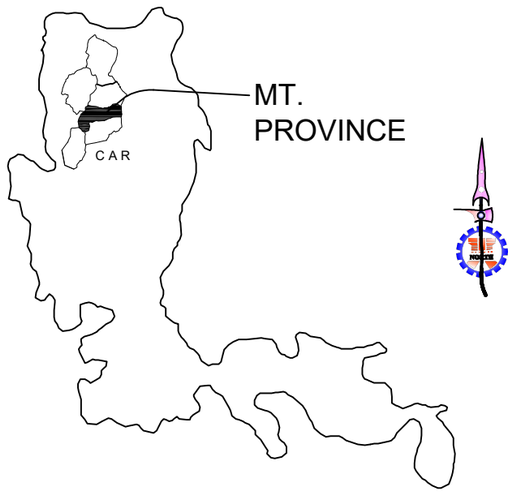
RECOMMENDED:

JONNEL K. EMENGGA
OIC-ASSISTANT DISTRICT ENGINEER

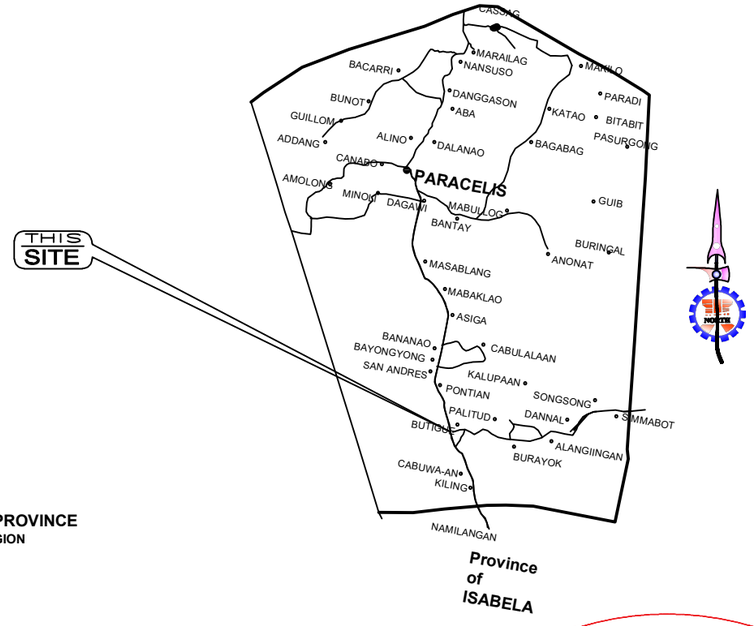
APPROVED:

ROLAND B. MATIAS
DISTRICT ENGINEER
DATE :

MAP OF LUZON



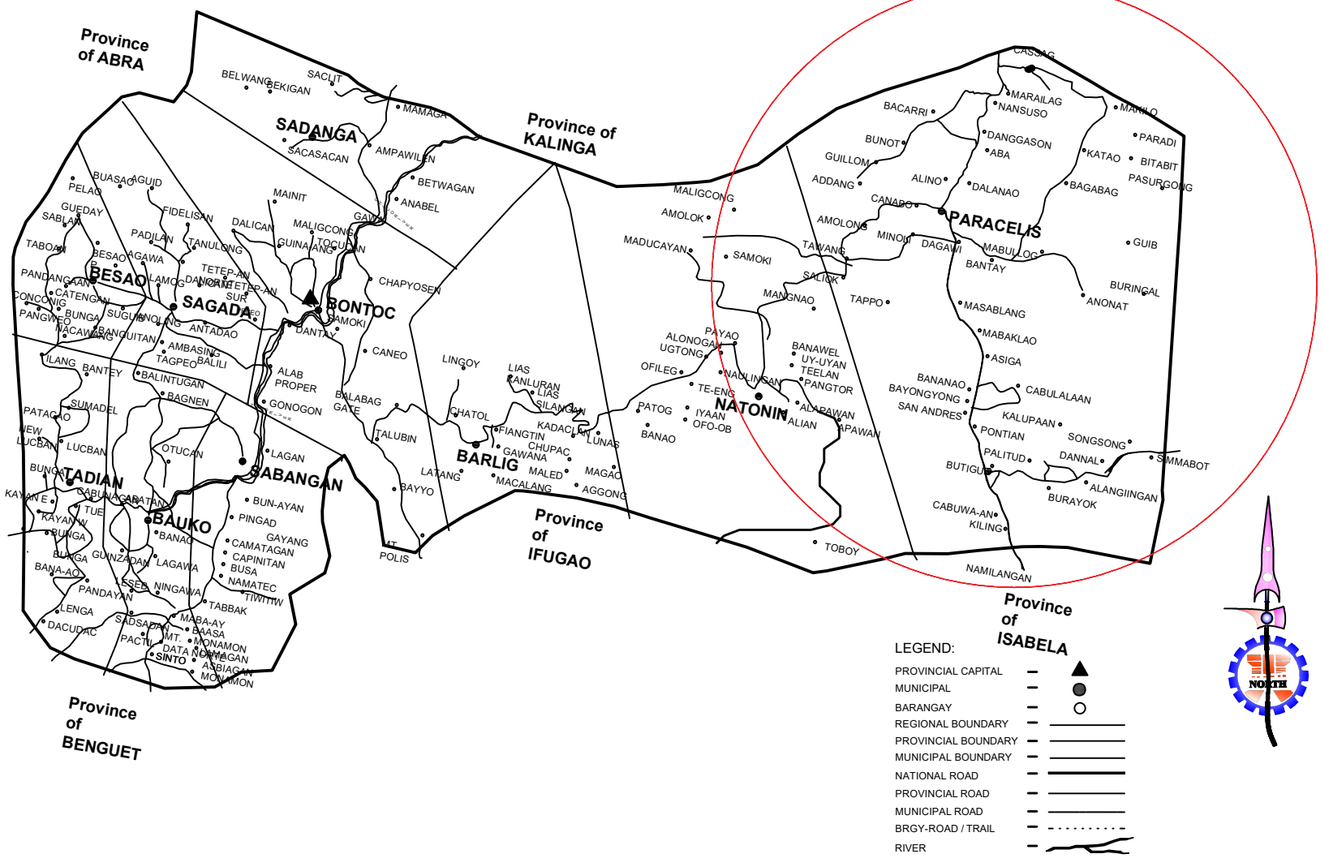
MUNICIPALITY OF PARACELIS



LOCATION MAP

PROVINCIAL MAP OF MOUNTAIN PROVINCE

CORDILLERA ADMINISTRATIVE REGION



LEGEND:

- PROVINCIAL CAPITAL
- MUNICIPAL
- BARANGAY
- REGIONAL BOUNDARY
- PROVINCIAL BOUNDARY
- MUNICIPAL BOUNDARY
- NATIONAL ROAD
- PROVINCIAL ROAD
- MUNICIPAL ROAD
- BRGY-ROAD / TRAIL
- RIVER

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
PART A	FACILITIES FOR THE ENGINEER		
PART B	OTHER GENERAL REQUIREMENTS		
B.5	Project Billboard/ Signboard	2	each
B.7(2)	Occupational Safety and Health Program	1	lump sum
B.9	Mobilization/ Demobilization	1	lump sum
PART C	EARTH WORKS		
101(1)	Removal of Structures and Obstruction	1.00	lump sum
104(2)d	Embankment From Borrow (Granular Coarse Material)	84.00	cu.m.
PART D	SUBBASE AND BASE COURSE		
PART E	SURFACE COURSES		
PART F	BRIDGE CONSTRUCTION		
404(1)a	Reinforcing Steel Bar (Grade 40)	958.15	kg.
405(1)a3	Structural Concrete (Class A, 20.68Mpa, 28 days)	25.00	cu.m.
PART G	DRAINAGE AND SLOPE PROTECTION STRUCTURES		
506 (1)	Stone Masonry	84.38	cu.m.

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PROJECT NAME AND LOCATION:	SHEET CONTENTS:	DRAFTED/PREPARED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	Set No.	Sheet No.
Repair/Rehabilitation of Addang Flood Control Structure, Brgy. Bunot, Paracelis, Mountain Province Location: Bunot, Paracelis, Mountain Province	LOCATION MAP, SUMMARY OF QUANTITIES AND INDEX OF DRAWING SHEETS	**ARNEL E. BINALAY** ENGINEER II	**JERRY S. CHIMICAG** CHIEF, MAINTENANCE SECTION DATE:	**JAKE C. CULALLAD** CHIEF, PLANNING AND DESIGN SECTION DATE:	**JONNEL K. EMENGGA** OIC-ASSISTANT DISTRICT ENGINEER DATE:	**ROLAND B. MATIAS** DISTRICT ENGINEER DATE:	B 1 | 1	02 07

GENERAL

1. In the interpretation of drawings, indicated dimensions shall govern all dimensions, distances and sizes shall not be scaled for construction purposes.
2. Unless otherwise indicated, all dimensions and member sizes are in meters.

MATERIALS:

1. CONCRETE:

Unless otherwise on the plans, the concrete class and strength shall be as follows:

STRENGTH STRUCTURAL MEMBER	CLASS	28DAY CLDR.		MAX SIZE OF COARSE AGGREGATE mm(In)
		MPa	PSI	
CONCRETE ARMOR	A	21	3045	38

2. REINFORCING STEEL:

(a) Reinforcing steel shall conform to aashto m31 (astma615), grade 40, deformed, with minimum yield strength, fy =414 mpa (60,000psi) for bars greater than 12mmØ

(b) Reinforcing steel shall be free of mill scales, oil or any substances which will weaken the bond with concrete.

CONSTRUCTION SPECIFICATION

2013 DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS, BRIDGES AND AIRPORTS, VOL.II

CONSTRUCTION:

1. SETTING OUT:`

The setting out and the elevations of the different components of the structure shall be approved by the engineer prior to the start of any construction work.

2. REINFORCED CONCRETE:

(a) CONCRETE MIX AND PLACING

(1) Design of concrete mix shall meet the design concrete strength given under item 1 of materials.

(2) Concrete shall be deposited, vibrated and cured in accordance with the specifications.

(3) For concrete deposited againts the ground, lean concrete with a minimum thickness of 50mm shall laid first before installing the reinforcement. this lean concrete shall not be considered in measuring the structural depth of concrete sections.

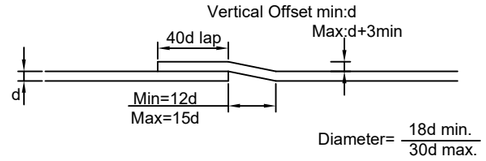
(4) The contractor shall submit to the engineer for approval placing sequences for all concreting work.

(b). BAR BENDING DIAGRAM:

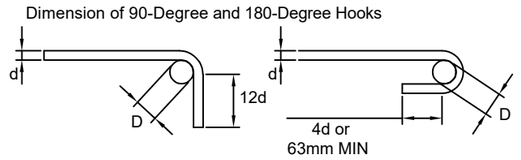
(1) The contractor shall submit to the engineer for approval of shop drawings indicating the bending, cutting, splicing and installation of all reinforcing bars.

(2) Bars shall be bent cold. bars partially embedded in concrete shall not be field bent unless permitted by the engineer.

(3) CRANKED SPLICES:

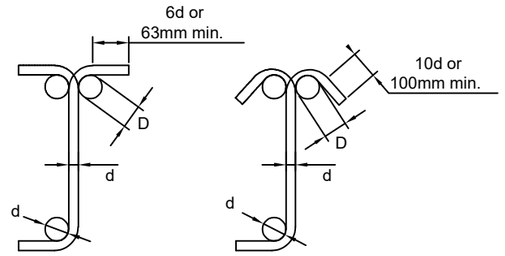


(4) HOOKS AND BENDS:



Pin Diameter: D=6d for D10 thru D25
D=8d for D28 and D32

Dimensions for Stirrups and Tie Hooks:



(c) CONCRETE COVER TO REINFORCEMENT

Minimum concrete cover to reinforcement shall be 50mm unless otherwise shown on drawings.

(d) CONSTRUCTION JOINT

(1) The position and form of any construction joint shall be as shown on or as agreed with the engineer.

(2) The interface between the first and the second pour concrete shall be roughened with an amplitude of 6mm minimum.

(e) FALSEWORK

All falsework shall be design by the contractor subject to the approval by the engineer.

(f) FORMWORK

Form works shall be constructed such that it will not yield under the load and shall be such to avoid the formation of fine. all corners of concrete members shall be chamfered to 20mm unless noted otherwise on drawings. striping of forms and shores shall be as designated by the engineer.

(g) PROTECTION AND CURING OF CONCRETE

Concrete surfaces shall be protected from harmfull effects of wind running water and shall be kept damp for at least 7 days.

3. SLOPE/EMBANKMENT PROTECTION WORKS (Stone masonry) :

(a) Foundation of embankment protection works shall sit on a firm and stable foundation. allowable soil bearing capacity shall not be less than 196 kpa. soil boring test must be conducted during construction to verify the actual bearing capacity of soil.soft spots under the foundation shall be removed and replaced with suitable bedding materials or concrete Class "B".

(b) The thickness or diameter of stones for stone masonry shall not be less than 150mm.

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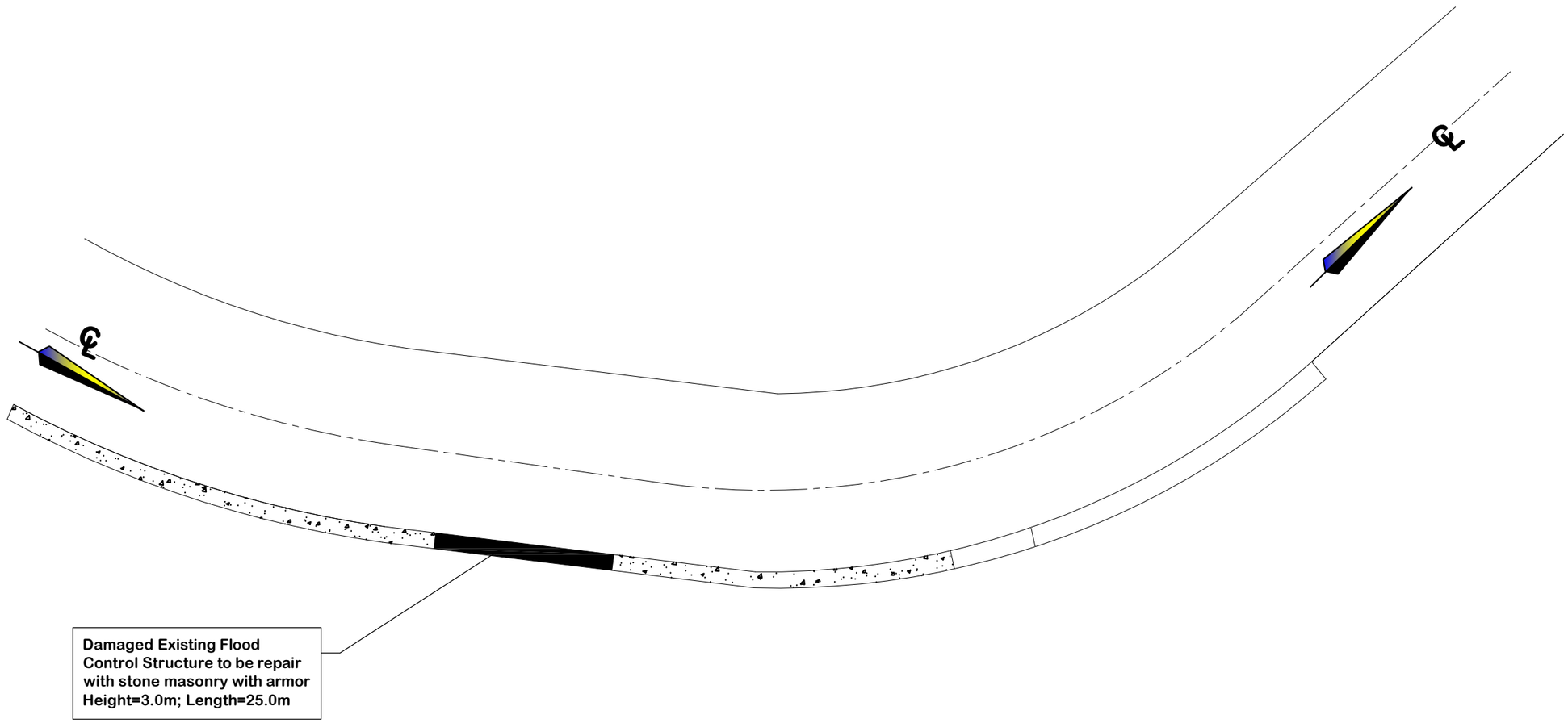
Repair/Maintenance of Siffu River Revetment 16, Butigue, Paracelis, Mountain Province(Phase I) Location: Paracelis, Mountain Province	GENERAL NOTES	**JERRY S. AGRAMOS** ENGINEER II DATE:	**JERRY S. CHIMICAG** CHIEF, MAINTENANCE SECTION DATE:	**JAKE C. CULALLAD** CHIEF, PLANNING & DESIGN SECTION DATE:	**JONNEL K. EMENGGA** OIC-ASSISTANT DISTRICT ENGINEER DATE:	**ROLAND B. MATIAS** DISTRICT ENGINEER DATE:	C 1 | 1	03 07



SKETCH PLAN

SCALE NTS

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
MOUNTAIN PROVINCE SECOND DISTRICT ENGINEERING OFFICE
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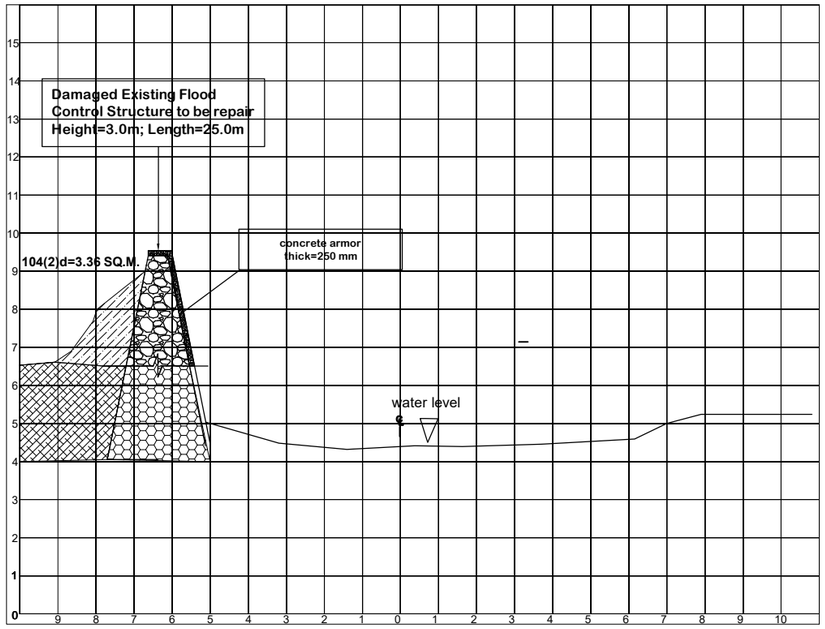
Repair/Maintenance of Siffu River Revetment 16, Butigue, Paracelis, Mountain Province(Phase I) Location: Paracelis, Mountain Province	SKETCH PLAN	**JERRY S. AGRAMOS** ENGINEER II DATE:	**JERRY S. CHIMICAG** CHIEF, MAINTENANCE SECTION DATE:	**JAKE C. CULALLAD** CHIEF, PLANNING & DESIGN SECTION DATE:	**JONNEL K. EMENGGA** OIC-ASSISTANT DISTRICT ENGINEER DATE:	**ROLAND B. MATIAS** DISTRICT ENGINEER DATE:	D 1 | 1	04 07



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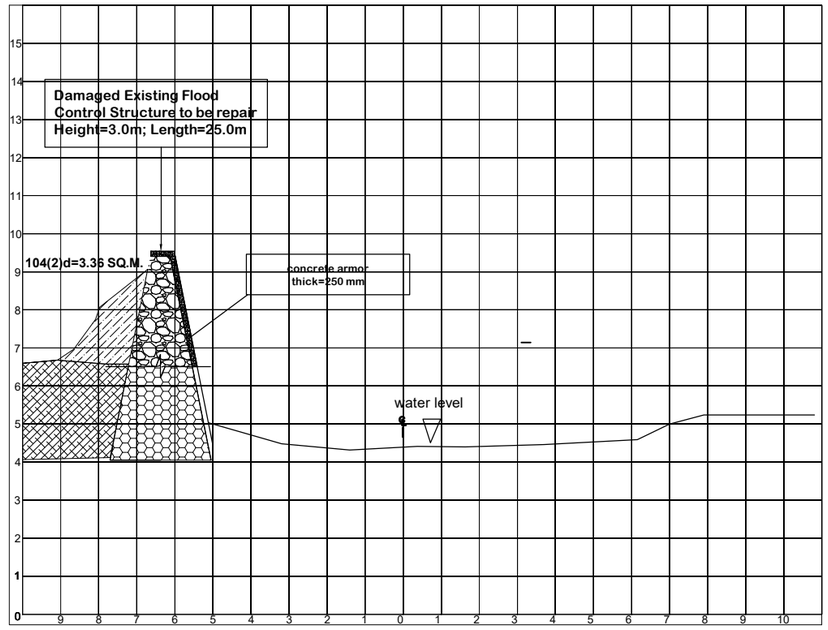

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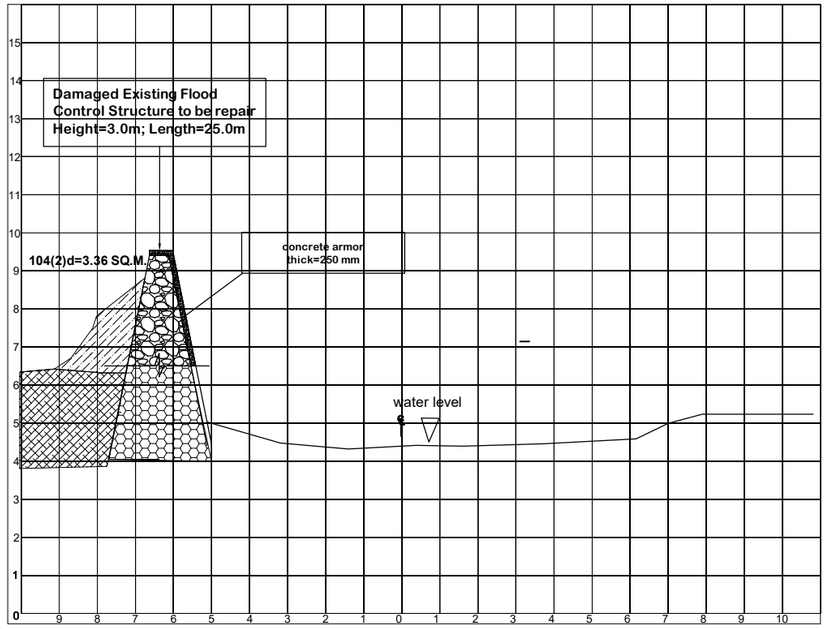

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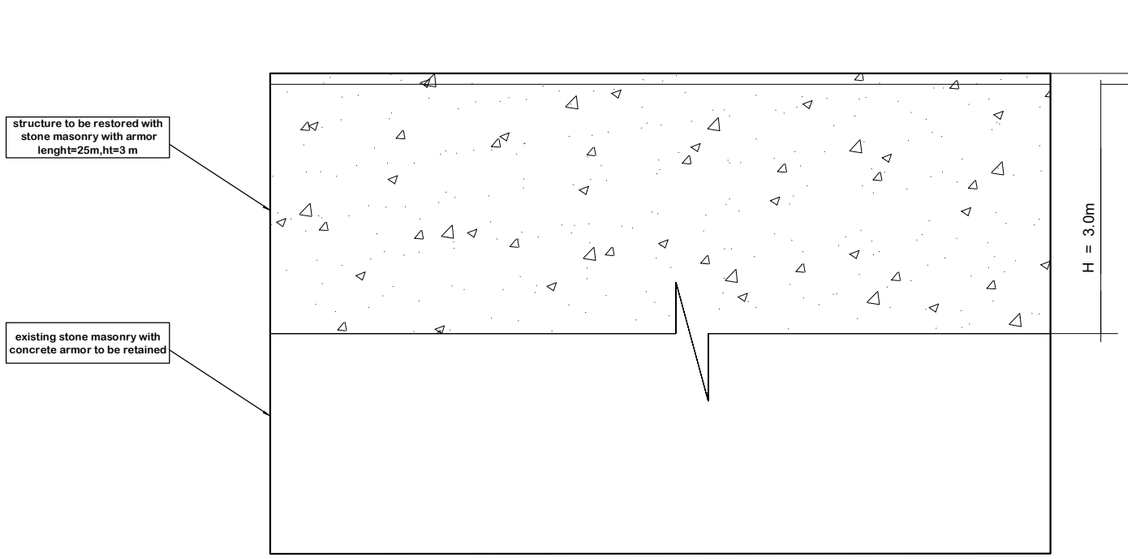
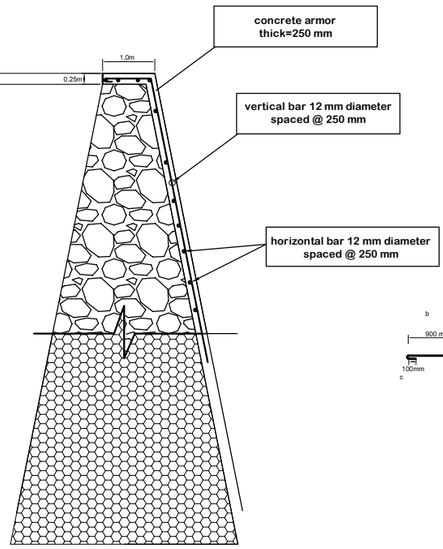
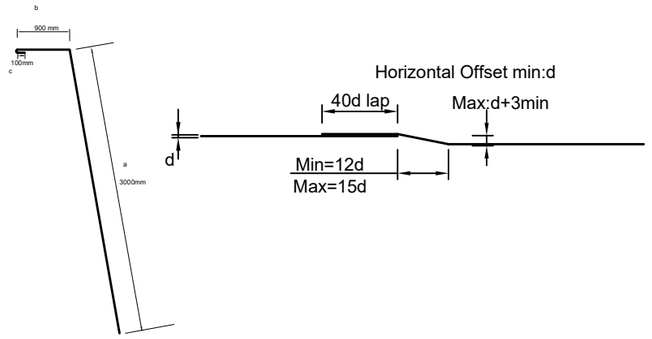
Repair/Maintenance of Siffu River Revetment 16, Butigue, Paracelis, Mountain Province(Phase I) Location: Paracelis, Mountain Province	CROSS SECTION	**JERRY S. AGRAMOS** ENGINEER II DATE:	**JERRY S. CHIMICAG** CHIEF, MAINTENANCE SECTION DATE:	**JAKE C. CULALLAD** CHIEF, PLANNING & DESIGN SECTION DATE:	**JONNEL K. EMENGGA** OIC-ASSISTANT DISTRICT ENGINEER DATE:	**ROLAND B. MATIAS** DISTRICT ENGINEER DATE:	E 1 1	5 7



ELEVATION DETAIL

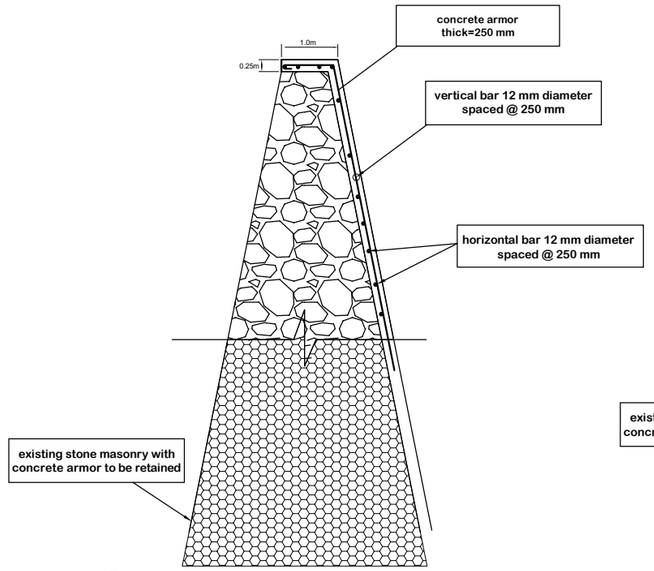
SCALE 1:25 METERS





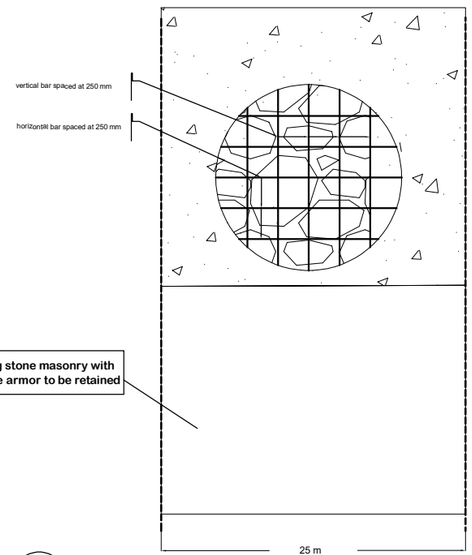
BAR BENDING DIAGRAM

SCALE



TYPICAL DETAILS OF CON RETE ARMOR

SCALE 1:20 M



FRONT ELEVATION CONCRETE ARMOR

SCALE 1:20 M

STATION	no of bars					bar dimensions/mm				
	spacing /mm	quantity	steel grade	diameter	wt. kg/m	a	b	c	bar length/ m	total wt./kgs
					.888			100		
					.888					
000+065-000+090	L=25 m									
vertical bar	250	101	40	12	.888	3000	900	100	4	358.75
horizontal bar	250	25	40	12	.888				27	599.4

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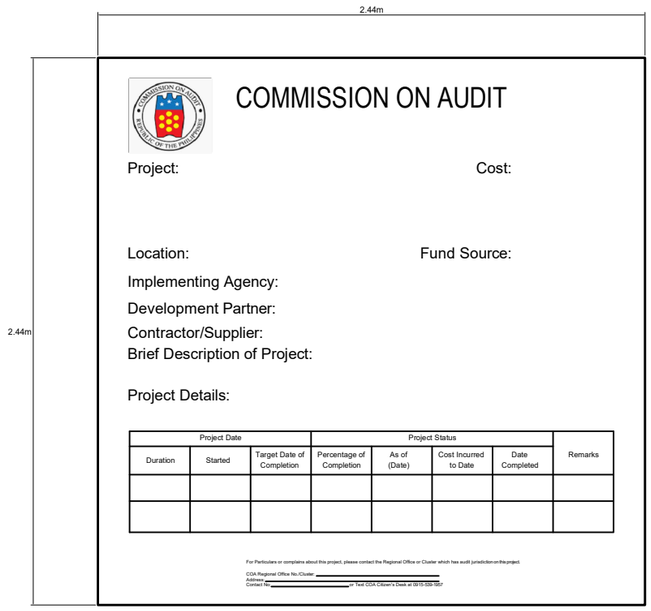
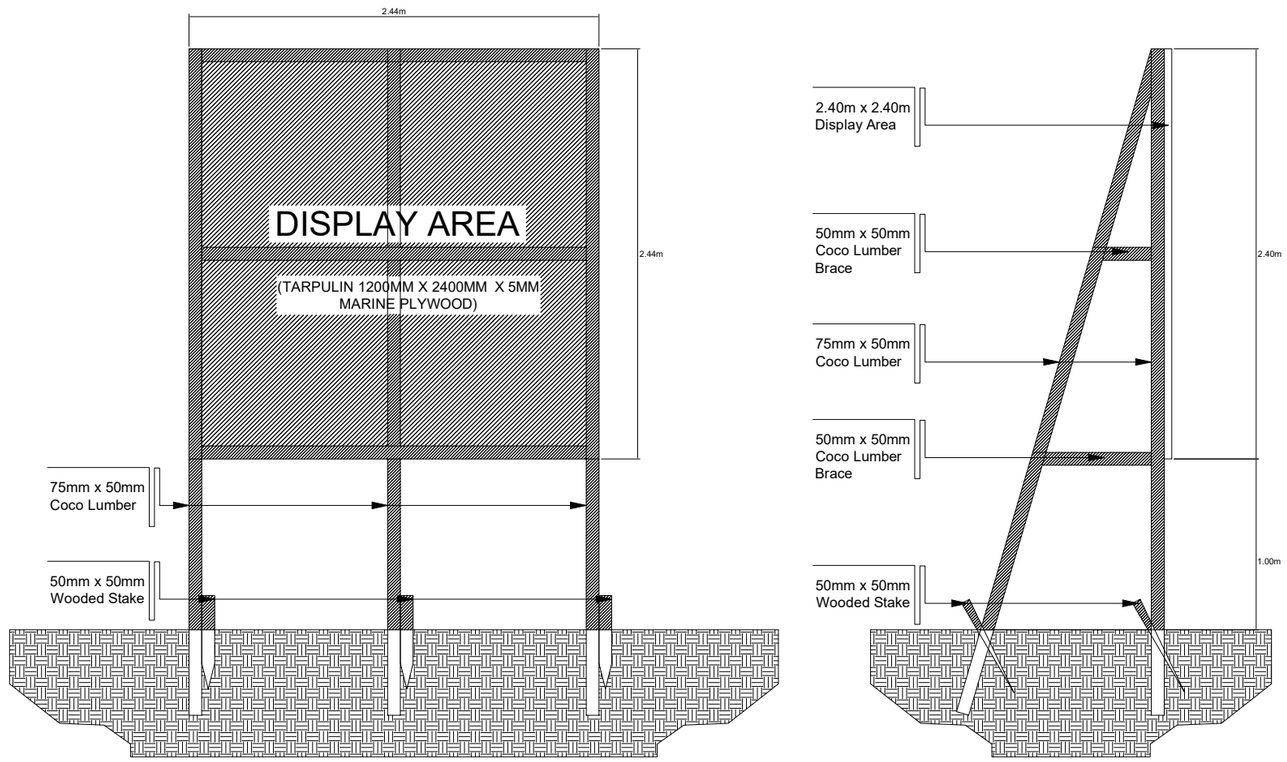
Repair/Maintenance of Siffu River Revetment 16, Butigue, Paracelis, Mountain Province(Phase I) Location: Paracelis, Mountain Province	ELEVATION DETAILS, BAR BENDING DIAGRAM,TYPICAL DETAIL OF CONCRETE ARMOR and FRONT ELEVATION OF CONCRETE ARMOR	**JERRY S. AGRAMOS** ENGINEER II DATE:	**JERRY S. CHIMICAG** CHIEF, MAINTENANCE SECTION DATE:	**JAKE C. CULALLAD** CHIEF, PLANNING & DESIGN SECTION DATE:	**JONNEL K. EMENGGA** OIC-ASSISTANT DISTRICT ENGINEER DATE:	**ROLAND B. MATIAS** DISTRICT ENGINEER DATE:	F 1 | 1	6 7



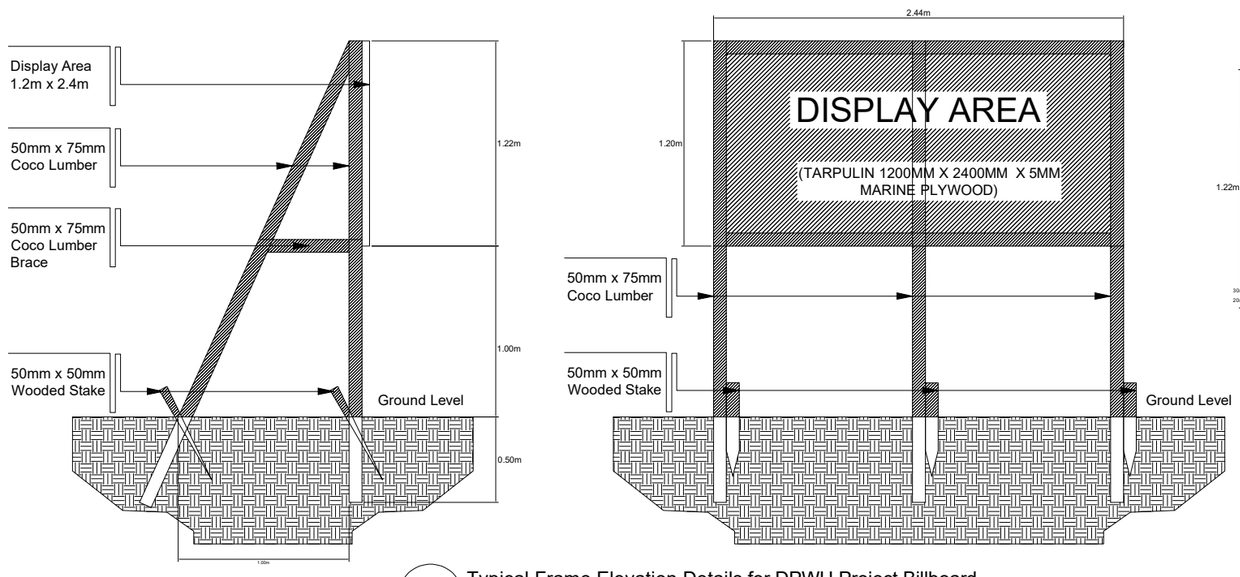
Standard COA Project Billboard

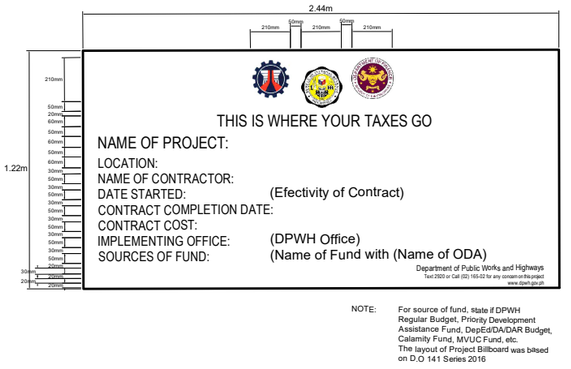
SCALE: 1:15m



Typical Frame Elevation Details for COA Project Billboard

SCALE: 1:30m





NOTE: For source of fund, state if DPWH Regular Budget, Priority Development Assistance Fund, DepEd/DA/DAR Budget, Calamity Fund, MVUC Fund, etc.
The layout of Project Billboard was based on D.O 141 Series 2016

Standard DPWH Project Billboard

SCALE: 1:15m

Typical Frame Elevation Details for DPWH Project Billboard

SCALE: 1:30m

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Repair/Maintenance of Siffu River Revetment 16, Butigue, Paracelis, Mountain Province(Phase I) Location: Paracelis, Mountain Province	PROJECT BILLBOARD DETAILS	**JERRY S. AGRAMOS** ENGINEER II DATE:	**JERRY S. CHIMICAG** CHIEF, MAINTENANCE SECTION DATE:	**JAKE C. CULALLAD** CHIEF, PLANNING & DESIGN SECTION DATE:	**JONNEL K. EMENGGA** OIC-ASSISTANT DISTRICT ENGINEER DATE:	**ROLAND B. MATIAS** DISTRICT ENGINEER DATE:	G 1 | 1	07 07