

**ENVIRONMENTAL ISSUES AND MITIGATION MEASURES/
ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN**

Name of Road: Concreting of Highway-Makandring Farm to Market Road
 Location: Barangay Langogan, Puerto Princesa City
 Implementing LGU: City Government of Puerto Princesa
 Estimated number of Beneficiaries: 2,111 residents (Male: 1,105 /Female: 845)
 New or Rehab: Rehabilitation (upgrading/concreting)
 Estimated Total Cost: Php 77,783,681.52

Issue (Potential Impact)	Assessment	Mitigation Measure	Schedule/ Duration of the Mitigation Measures	Instrument of Implementa- tion (POW, Contract, IDP, or O&M Plan)*	Responsi- ble Unit
1. Temporary increase in sedimentation during construction	<input checked="" type="checkbox"/> Topography of the road alignment necessitate massive mountain side cuttings <input checked="" type="checkbox"/> There are stations (listed in Road Section 2) wherein massive mountain side cuttings will be done. <input checked="" type="checkbox"/> Cut materials will consist mainly of hard rocks and are unlikely to generate significant sediments	<input checked="" type="checkbox"/> Earthmoving/ cutting of slopes to be done during dry months <input checked="" type="checkbox"/> The excavation materials from side cuttings will be disposed at the side of the mountain to serve as additional slope protection and embankment (Station 5+032) <input checked="" type="checkbox"/> Proper disposal at identified lower portions of the Barangay (refer to Road Section 2), and compaction of soils	15 days after NTP	DED/POW; Contract	Contractor/ Assigned Project Engr
2. Potential contamination of surface and groundwater with oil/grease	<input checked="" type="checkbox"/> Waste oil and grease from equipment could contaminate surface water	<input checked="" type="checkbox"/> Proper handling and disposal of waste oil and grease	360 calendar days full duration of construction period	Contract (Contractor's Liability)	Contractor/ Assigned Project Engr

<p>3. Potential hazards to workers:</p> <ul style="list-style-type: none"> • contamination with human waste • accidents due to side cuttings and slippery portions of the road 	<p><input checked="" type="checkbox"/> Construction workers would be temporarily housed in a bunk house</p> <p><input checked="" type="checkbox"/> Some workers would be locals and are expected to go home to their respective houses after works</p> <p><input checked="" type="checkbox"/> Construction workers will be exposed to hazardous conditions</p>	<p><input checked="" type="checkbox"/> Set up adequate latrine/toilet facility at the bunk house</p> <p><input checked="" type="checkbox"/> Workers will be provided with Personal Protective Equipment like construction helmet and boots</p>	<p>360 calendar days full duration of construction period</p>	<p>It will be stipulated in the contract that contractors will provide latrine, PPEs, and with no cost to the LGU</p>	<p>Contractor/Assigned Project Engr</p> <p>Contractor/Assigned Project Engr</p>
<p>4. Potential disruption of traffic flow</p>	<p><input checked="" type="checkbox"/> The access road and/or segments to be rehabilitated need is vital to daily activities of the residents and farmers and need to be kept open to traffic during the 12 day mountain side cutting</p> <p><input checked="" type="checkbox"/> The construction will affect daily movement of residents and farmers especially on the 12 day mountain side cutting</p>	<p><input checked="" type="checkbox"/> Keep the road open to traffic flow and minimize disruptions along the access road/ construction area; Provide adequate warning signs and traffic personnel when necessary;</p> <p><input checked="" type="checkbox"/> Undertake regular maintenance measures on the passable portions of the roads</p>	<p>Duration of the construction period (360 calendar days)</p>	<p>It will be stipulated in the contract that contractors will provide with no cost to the LGU</p>	<p>Contractor/Assigned Project Engr</p>
<p>5. Potential dust/mud nuisance, and air pollution during construction</p>	<p><input checked="" type="checkbox"/> Roads could become powdery during dry days and muddy during rainy days of the construction period</p> <p><input checked="" type="checkbox"/> Access road</p>	<p><input checked="" type="checkbox"/> Undertake sprinkling of road (including access roads) during dry days, and filling up of potholes during rainy days, especially</p>	<p>Duration of the construction period (360 calendar days)</p>	<p>Contract</p>	<p>Contractor/Assigned Project Engr</p>

	and/or the construction/rehabilitation works passes through a populated area	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> in residential areas <input checked="" type="checkbox"/> Set up speed limits for vehicles, especially within residential areas <input checked="" type="checkbox"/> Control vehicle speed to lessen suspension of road dust <input checked="" type="checkbox"/> Use covered vehicles to deliver materials that may generate dust <input checked="" type="checkbox"/> Install when applicable, the appropriate air pollution control device/s 			
6. Landslide/erosion of exposed road sides resulting in sedimentation of waterways	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> The road will traverse a mountainous area necessitating deep cuts on mountainside, Please see DED for deep cuts and stations <input checked="" type="checkbox"/> The exposed slopes will likely consist of highly erodible loose materials <input checked="" type="checkbox"/> The cut slopes will be hard materials that would resist erosion <input checked="" type="checkbox"/> The road passes through a relatively benign terrain, cuts will be 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Include slope protection works at the following stations: Please see attached Table 4.4 Schedule of Trapezoidal canal <input checked="" type="checkbox"/> Areas are listed as priority areas for planting activity during Feast of the Forest of the barangay 	<p>7 days</p> <p>Every 3rd Saturday of June, yearly</p>	<p>DED/POW Contract</p> <p>City Ordinance 286</p>	<p>Contractor/Assigned Project Engr</p> <p>Barangay Officials</p>

	minimal				
7. Inadequate drainage resulting in flooding or ponding	<input checked="" type="checkbox"/> The road will block runoff, resulting in flooding on one side of the road during rainy days.	<input checked="" type="checkbox"/> Installation of cross drain (please see attached Table 4.5. Schedule of RCCP Cross drains & box Culverts)	1 week (7 calendar days)	DED/POW Contract	Contractor/Assigned Project Engr
8. Potential acceleration of denudation of the upland/hilly areas due to intensification of crop production	<input checked="" type="checkbox"/> The proposed road will connect the upland farmers to the national highway going to the public markets of Puerto Princesa and even in the nearby municipality of Roxas. The proposed project will encourage upland farmers intensify their orchard farms which could accelerate the denudation of hillsides rendering them unproductive in a few years	<input checked="" type="checkbox"/> Introduction of sustainable upland farming, and organic farming systems	August – October 2015	Training Module for Sloping Agricultural Land Technology	OCA
9. Potential increased in encroachment of human activities into the nearby public forest	<input checked="" type="checkbox"/> The proposed road will improve human access to the nearby public forest, resulting in increased slash and burn cultivation, illegal logging and poaching	<input checked="" type="checkbox"/> Enactment of City Ordinance 396, known as Conservation Protection and Restoration of the Sources of Life of Puerto Princesans	August 2015	City Ordinance 396	City ENRO

10. Local employment	<input checked="" type="checkbox"/> Construction will provide local employment opportunities	<input checked="" type="checkbox"/> Hiring priority shall be given to qualified local residents; Implement I-BUILD Manual on local hiring	360 calendar days of construction period	Contract	Contractor I-Build Team
11. High risk and other key areas along the road	<input checked="" type="checkbox"/> There are steep portions of the road that may pose risk to commuters <input checked="" type="checkbox"/> There is a school along the road	<input checked="" type="checkbox"/> Put up access road and safety signs in these key areas for the safety of commuters	Duration of the project	Contract	Contractor/ Assigned Project Engr
12. DA – IPM (SAKAKALIKASAN) /Sustainable Agriculture	<input checked="" type="checkbox"/> Runoff of chemicals from farms	<input checked="" type="checkbox"/> Information, Education and Communications Campaign on sustainable agriculture/Good Agricultural Practices (GAP) and conduct training on organic farming	2015 onwards	Training Modules	OCA /SES Team
13. Quarry Sources and locations	<input checked="" type="checkbox"/> Over extraction of quarry materials	<input checked="" type="checkbox"/> There are Sufficient Legal Sources of Quarry Materials Adjacent to the Project Site; there are Rivers that are Approved as Source of Quarry Materials	Duration of the project construction	Certification issued and Map Materials 2014 (Please see Annex 14, 15 and 16)	Contractor I – Build, SES Team,
14. Potential damage to existing road due to hauling of quarry materials	<input checked="" type="checkbox"/> Sources of quarry will cause damage to existing roads	<input checked="" type="checkbox"/> Regular maintenance and repair of existing road by the contractor	Duration of the project construction	Contract	Contractor/ I-Build Team SES Team
15. Possible discovery of artifacts, bones and other	<input checked="" type="checkbox"/> Artifact/bone or any objects of interest found during the	<input checked="" type="checkbox"/> Suspension of earth moving activities and follow the	Duration of the project construction	Contract Paleontological Finds Procedure	Contractor, I-Build Team SES Team-

objects of interests during construction of the road	project construction within 10 meter radius and outside 10 meter radius	Archeological/ Paleontological Finds Procedure presented in Annex 29.			
16. Grievance during construction	<input checked="" type="checkbox"/> Complaints from the community, contractor and the proponent <input checked="" type="checkbox"/> The project has already established an acceptable policy on addressing grievances <input checked="" type="checkbox"/> Access to Grievance Redress Mechanism (GRM posters and Grievance Form Drop Boxes) is available in strategic locations at all levels of project implementation: <input checked="" type="checkbox"/> Barangay Hall <input checked="" type="checkbox"/> City Hall	<input checked="" type="checkbox"/> Appointed Grievance Point Person (Annex 28) <input checked="" type="checkbox"/> Establish an acceptable policy on project implementation and grievance redress mechanism	Duration of the project	Administrative Order No. 28	SES Team Grievance Point Person
17. IP/ICC	<input checked="" type="checkbox"/> There is an I/ICC in the area as per LGU Records and on-site validation <input checked="" type="checkbox"/> The road will not traverse any ancestral domain	<input checked="" type="checkbox"/> Conduct consultation with the IPs only <input checked="" type="checkbox"/> Tribal chieftains express their support	During the start of documentation	Minutes of Public Consultations dated June 10, 2014 (Annex 1) Certificates of Support: Annex 2 & 3	SES Team, I-Build Team, I-Plan Team
18. Cutting of Trees	<input checked="" type="checkbox"/> The road construction will necessitate cutting of trees: <input checked="" type="checkbox"/> Coconut <input checked="" type="checkbox"/> Fruit Trees <input checked="" type="checkbox"/> Forest species <input checked="" type="checkbox"/> The trees to be	<input checked="" type="checkbox"/> Secure cutting permit from: <input checked="" type="checkbox"/> PCA <input checked="" type="checkbox"/> DENR	During the documentation stage	Letter request from the PENRO to the Regional Director, FMD DENR-R1VB, Annex 10 Permit to Cut from PCA,	SES Team, I-Build Team, I-Plan Team

	cut are privately owned	<input checked="" type="checkbox"/> Secure permission from the owner to cut the trees		Annex 4 Waiver of Rights	
17. Demolition of affected structures at the right of way	<input checked="" type="checkbox"/> Only part of concrete structures will have to be removed during the construction	<input checked="" type="checkbox"/> Advise the owner of affected structure to demolish it by himself as their pre-construction agreement on the Barangay Site	During construction stage	Zoning Map	Punong Barangay Anti-squatting Staff
18. Batching Plant Requirement	<input checked="" type="checkbox"/> The road construction requires the setting up of 1 unit batching <input checked="" type="checkbox"/> The batching plant will be mobile and operated for less than 1 year	<input checked="" type="checkbox"/> Contractor to comply with the succeeding requirements as applicable to the setting up/construction of batching plant	During construction stage	Contract	Contractor Project Engr SES Team

Batching Plant Requirements

1. Land acquisition for the batching plant	<input checked="" type="checkbox"/> The proposed site for the Batching plant is private lot of the Punong Barangay.	<input checked="" type="checkbox"/> Project proponent (CG)/Contractor to lease the site of the Batching Plant	Prior to start of construction of the Batching Plant	Contract of lease	Project Proponent/ Contractor
2. Conditions on the Plant Site	<input checked="" type="checkbox"/> The Batching Plant is not situated in a hazardous area.	<input checked="" type="checkbox"/> The proponent LGU to determine suitable sites for setting up of the Batching Plant <input checked="" type="checkbox"/> The site should not be in a flood prone area. Consider the extreme hydrologic event of flood having a 100 year recurrence interval in site	Prior to start of construction of the Batching Plant	Environmental Issues and Mitigation Measures (EIMM)	Project Engr Contractor

		<p>selection.</p> <p><input checked="" type="checkbox"/> The site is away from critical slopes and erodible areas.</p>			
3. Disturbance to wildlife due to vegetation clearing	<p><input checked="" type="checkbox"/> The setting up of the Batching Plant will not necessitate clearing of vegetation and/or cutting of trees</p> <p>The area is cleared already</p>				
4. Temporary increase of solid waste during construction and operation of Batching Plant	<input checked="" type="checkbox"/> There will be significant volume of waste generated during construction and operation	<input checked="" type="checkbox"/> Proper handling and disposal of construction wastes	During construction and operation stage	EIMM	<p>Project Engr</p> <p>Contractor</p>
5. Potential heavy equipment hazard; i.e. dump trucks, concrete mixers, pay loader etc. during transport of aggregates and fresh concrete	<p><input checked="" type="checkbox"/> Batching Plant is situated in sparsely populated residential area</p> <p><input checked="" type="checkbox"/> The site of the batching plant is within plantation area.</p>	<p><input checked="" type="checkbox"/> Proper handling and maintenance of heavy equipment during transport and unloading of materials.</p> <p><input checked="" type="checkbox"/> Properly locate equipment yards in the plant facility.</p> <p><input checked="" type="checkbox"/> Regular maintenance (water sprinkling) and repair of the access roads to control suspended particulates</p> <p><input checked="" type="checkbox"/> Proper handling and disposal of excess oil, lubricants, paints etc.</p>	During operation stage	EIMM	<p>Project Engr</p> <p>Contractor</p>

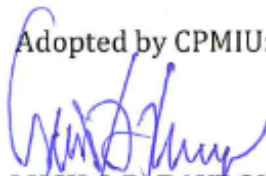
6. Potential noise during construction of the Batching Plant	<input checked="" type="checkbox"/> Project site is located 150 meters away from the residential area	<input checked="" type="checkbox"/> No plant operation during night time.	During Plant construction and operation	EIMM	Project Engr Contractor
7. Local employment	<input checked="" type="checkbox"/> Batching Plant will provide local employment opportunities that will provide a standard salary wage.	<input checked="" type="checkbox"/> Hiring priority shall be given to qualified local residents	During plant operation period	Contract	Project Engr Contractor
8. Potential hazard and risk to the community/plant ation during Batch Plant operation.	<input checked="" type="checkbox"/> Batching Plant site poses risk to the community or plantation due suspended particulates <input checked="" type="checkbox"/> Emission during operation of batching plant will affect the community and agri land	<input checked="" type="checkbox"/> Select a site out from high prevailing winds. This should be considered during the planning period to ensure that bunkers, conveyor's position are in the leeward direction to minimize the effects of winds. <input checked="" type="checkbox"/> Provide natural or artificial barriers – such as trees, and fences, to help control the emission of dust from the batching plant to the sensitive land uses. <input checked="" type="checkbox"/> Maintain a minimum 100 meters buffer area between	During Plant Operation	EIMM	Project Engr Contractor

		batching plants and sensitive land uses. (Sensitive land uses are residential area and school)			
9.Occupational health hazards to workers	<input checked="" type="checkbox"/> Batch Plant workers are exposed to unsafe and hazardous condition <input type="checkbox"/> Batch Plant activities are relatively minor	<input checked="" type="checkbox"/> Require all workers to strictly observe safety standards and use of personal protective equipment (PPE). <input checked="" type="checkbox"/> Put up safety signs within the Batch Plant <input checked="" type="checkbox"/> Provide potable water & sanitary facilities for workers within the facility.	During Batch Plant Operation	O&M	Contractor
10.Accumulation of excess materials during operation	<input checked="" type="checkbox"/> The Plant will generate significant volume of excess raw materials.	<input checked="" type="checkbox"/> Proper handling and disposal of excess material <input checked="" type="checkbox"/> Provision of covered dump sites for excess materials.	Batching Plant operation period	EIMM	Project Engr Contractor
11.Increased siltation and water quality degradation due to project activities	<input checked="" type="checkbox"/> Specify nearest/receiving water body: <u>Langogan River</u> Distance to nearest receiving water body: 3km If nearest/receiving water body is fresh	<input checked="" type="checkbox"/> Strictly observe proper waste water handling and disposal <input checked="" type="checkbox"/> Set up temporary silting ponds to minimize downstream siltation in creeks and	Batching Plant operation period	EIMM	Project Engr Contractor

	<p>water, specify:</p> <p>Current Water Use:</p> <p><input type="checkbox"/> Fishery</p> <p><input type="checkbox"/> Tourist Zone / Park</p> <p><input checked="" type="checkbox"/> Recreational</p> <p><input type="checkbox"/> Industrial</p> <p><input type="checkbox"/> Agricultural</p> <p>Distance of batching plant to the nearest well used:</p> <p><u>3</u> km</p>	<p>rivers</p> <p><input type="checkbox"/> Recycle wastewater</p> <p><input checked="" type="checkbox"/> For highly alkaline wastewater, apply pH control before wastewater re-use or disposal</p> <p><input type="checkbox"/> Others (Pls. specify): _____</p>			
--	---	--	--	--	--

Prepared by: SES TEAM

Adopted by CPMIU:


LUCILO R. BAYRON
 CPMIU Head

Noted by the Local Community


CAMILO L. BEBIT
 Punong Barangay

Endorsed by:


LUCILO R. BAYRON
 City Mayor