Proposed Bongabong River Restoration Project

PROJECT DESCRIPTION FOR SCOPING

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PROJECT DESCRIPTION FOR SCOPING

1. BASIC PROJECT INFORMATION

Provided below is the Project Fact Sheet.

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<tr><td>Project Name</td><td colspan="3">Proposed Bongabong River Restoration Project</td></tr>
<tr><td>Project Location</td><td colspan="3">Will be sited in Barangays Sagana and San Isidro, Bongabong, Oriental Mindoro</td></tr>
<tr><td>Project Type</td><td colspan="3">Dredging</td></tr>
<tr><td>Project Area / Size</td><td colspan="3">7km x 125 meters; 70 hectares; 1,000,000,000 metric tons per year</td></tr>
<tr><td>Project Description</td><td colspan="3">This is a river restoration of the riverbed of Bongabong River within the jurisdiction of Brgys. Sagana and San Isidro to improve and enhance the river's capacity to prevent flooding currently being experienced in other parts of Oriental Mindoro.</td></tr>
<tr><td>Project Components</td><td colspan="3">
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<tr><th colspan="2">Project Components</th><th>Quantity/Approximate Size/Capacity</th></tr>
<tr><td colspan="2">Major Components</td><td></td></tr>
<tr><td rowspan="8">Dredging Equipment/Vessels</td><td>Cutter Suction Dredger with Hopper Barge (minimum 3,000 HP) Hooper Capacity</td><td>6 units/ 1,000-1,500 MT/hr</td></tr>
<tr><td>TSHD (Trailing Suction Hopper Dredger)</td><td>14 units/ 6000 m^3/hour</td></tr>
<tr><td>Self-Discharge Barge/ Pelican Barge</td><td>12 units/ 10,000 MT</td></tr>
<tr><td>Wheel Loader</td><td>6 unit/ 5 m^3</td></tr>
<tr><td>Grader</td><td>6 units</td></tr>
<tr><td>Dump Trucks</td><td>20 unit/ 18 m^3</td></tr>
<tr><td>Backhoe</td><td>15 unit/ 1 m^3</td></tr>
<tr><td rowspan="5">Support Facility and Common Auxiliaries</td><td>Yard stockpile (optional)</td><td>2 hectares</td></tr>
<tr><td>Staff Quarters/Barracks/Guestrooms</td><td>1 unit</td></tr>
<tr><td>Sand Processing Plant (SPP)</td><td>1 unit/>10,000 MT per hour</td></tr>
<tr><td>Administration Building/Office</td><td>1 unit</td></tr>
<tr><td>Jetty Port</td><td>1 unit</td></tr>
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</td></tr>
<tr><td colspan="4">Profile of the Proponent</td></tr>
<tr><td>Name of Proponent</td><td colspan="3">Vibranium Land Development and Technology</td></tr>
<tr><td>Authorized Signatory/ Representative</td><td colspan="3">Mr. James Niño P. Marcos
President</td></tr>
<tr><td>Contact Details</td><td colspan="3">jnpmarcos@gmail.com / 0917 887 0400</td></tr>
<tr><td colspan="4">Profile of the Preparer</td></tr>
<tr><td>EIA Preparer</td><td colspan="3">Mediatrix Business Consultancy</td></tr>
<tr><td>Address</td><td colspan="3">L29 Joy-Nostalg Center, 17 ADB Ave., Ortigas Center, Pasig City</td></tr>
<tr><td>EIA Team Members</td><td colspan="3">
<table>
<tr><th>EIA Team</th><th>Areas of Expertise</th><th>EMB Registry No.</th></tr>
<tr><td colspan="3">Mediatrix Business Consultancy</td></tr>
<tr><td>Matilde J. Fernando</td><td>EIA Project Director and Team Leader, Socio-Economics and Legal Framework</td><td>IPCO-035</td></tr>
<tr><td>Fritzie Jane Salido</td><td>Report Consolidator</td><td>IPCO-114</td></tr>
<tr><td>Reynaldo Tejada</td><td>Air and Noise Module</td><td>IPCO-036</td></tr>
<tr><td>Ria Caramoan</td><td>Water Module</td><td>IPCO-106</td></tr>
<tr><td>Hernani Bayani</td><td>Geology Module</td><td>IPCO-058</td></tr>
<tr><td>Benjamin Francisco</td><td>Marine Biology</td><td>IPCO-038</td></tr>
<tr><td>Alexis Fernando</td><td>Field Assignment and Drone Operation</td><td>IPCO-034</td></tr>
<tr><td>Ma. Luisa Martinez</td><td>Oceanography, Hydrodynamic Modelling and Sediment Transport Modeling</td><td>IPCO-133</td></tr>
<tr><td>Juvinal Esteban</td><td>IEC and Community Relations</td><td>IPCO-091</td></tr>
</table>
</td></tr>
<tr><td>Contact Person</td><td colspan="3">Matilde R. Jimenez-Fernando, LL.B.
EIA Project Director</td></tr>
<tr><td>Contact Details</td><td colspan="3">Telephone No.: (02) 689 7114
Mobile No.: +639175064499
Email Address: mediatrixbusinessconsultancy@gmail.com and</td></tr>
</table>

	mrjfernando@mediatrixph.com

2. PROJECT DESCRIPTION

2.1 Project Location and Area

This is a rehabilitation/improvement of the riverbed of Bongabong River within the jurisdiction of Brgys. Sagana and San Isidro, Bongabong, Oriental Mindoro. This Project's primary objective is to address the flooding experienced in Bongabong, Oriental Mindoro.

Figure 1 shows the project site.

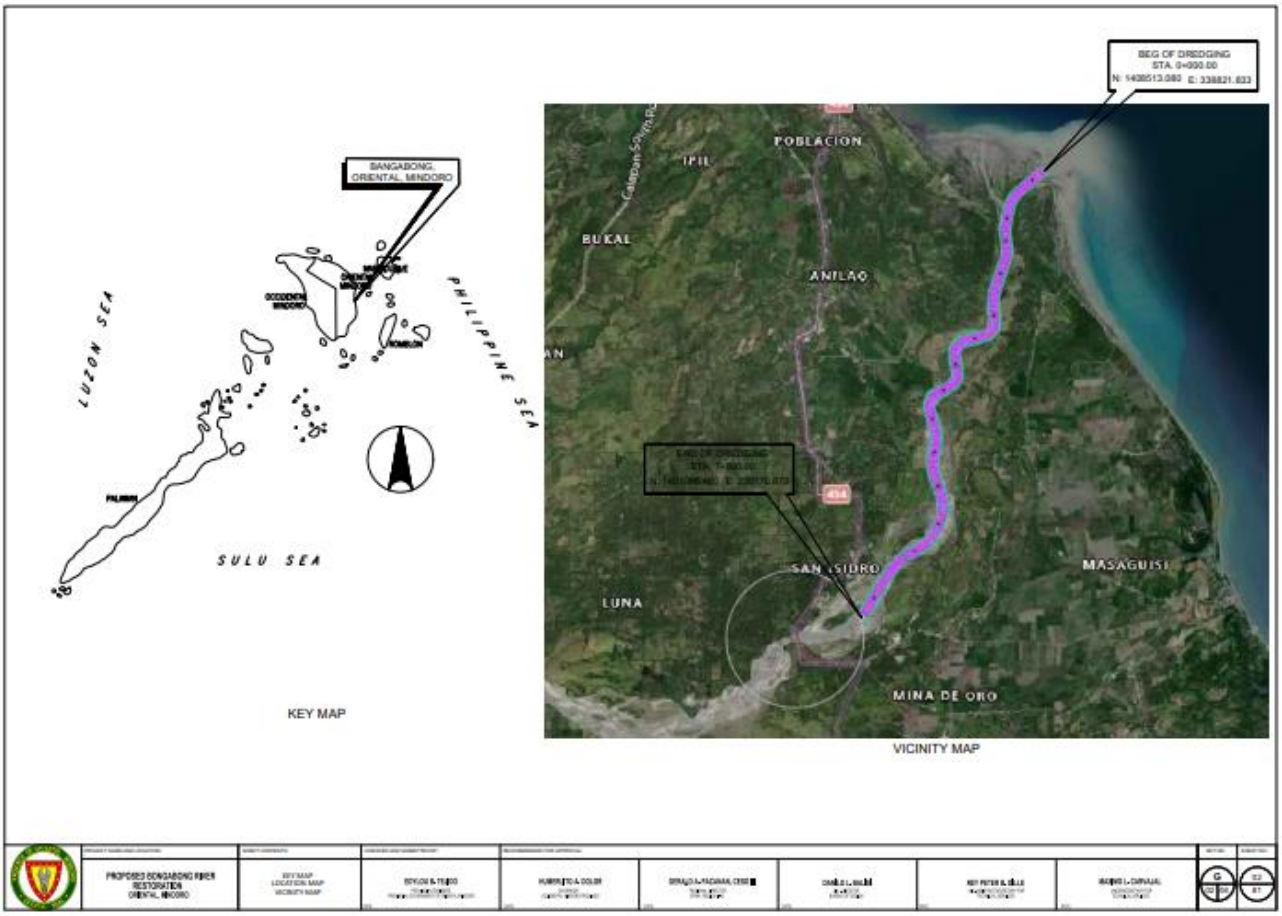

Figure 1: Location of the Project site

Figure 2 presents the Navigational Plan of the Project.

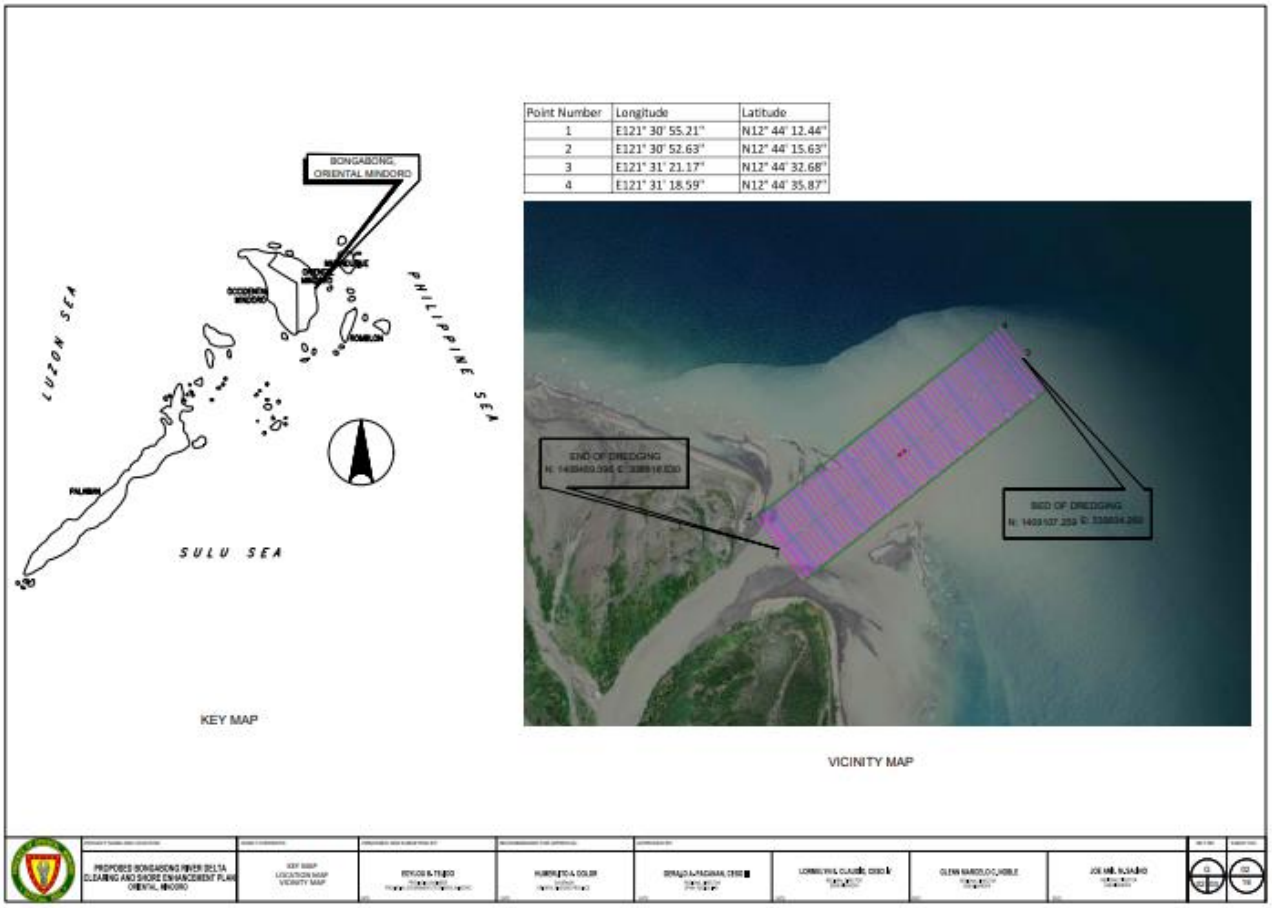

Figure 2: Vicinity Map

The following Plates are photographs of the project site and its vicinity in aerial view.

IMPACT AREA

The Direct Impact Area (DIA) of the dredging and desilting project is the river channel area up to the river delta. In terms of Socio-economics, the DIA includes the local population of the host Barangay Brgy. Sagana and Brgy San Isidro that will benefit from employment, business opportunities, taxes, job opportunities, knowledge resources, social benefits, and permit fees to be generated from the offshore dredging operation over the span or duration of the project. PRJ will also produce reliable reclamation, filling, and construction materials that will contribute to the economic stability of the province.

The Indirect Impact Areas (IIA), on the other hand, are delineated based on project phasing, the scale of the project and the site layout approach, including the adjacent coastal area. This offshore and river dredging area may be affected by operations such as the passing through ships or vessels, maritime activities of PCG, and the noise that may reach the receptor areas. Installation of silt curtains within the navigational working area's perimeter may help reduce the impact. Additionally, IIA covers the adjacent barangays, the access areas for land-based equipment for mobilization, and where most workers will stay.

Table 1 summarizes the delineation of the project's direct and indirect impact areas while **Figure 3** shows the delineated impact areas.

Table 1: The DIA and IIA of the Proposed Project

Direct Impact Areas (DIA)
Land: Access roads in Barangays Sagana and San Isidro in Bongabong, Oriental Mindoro
Water: Marine section, river delta (Offshore Navigational Working Area)
Socio-Economic: Host Barangays Sagana and San Isidro, Municipality of Bongabong, Province of Oriental Mindoro
Indirect Areas (IIA)
▪ Receptors of dredging equipment air emissions and noise levels with concentrations less than or within the criteria set by the DENR

The map of the impact areas is shown in Figure 2.

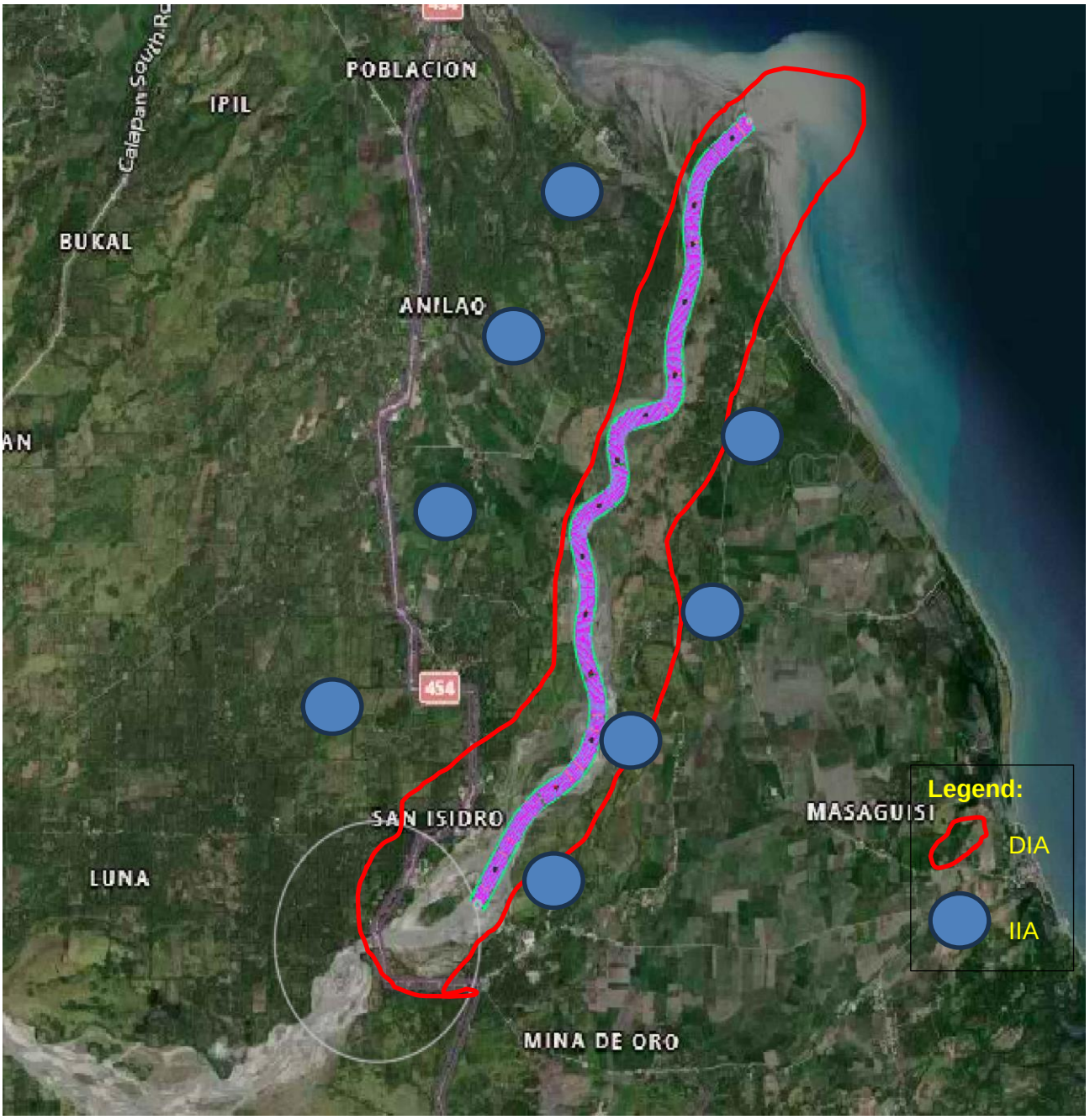

Figure 3: Map of the impact areas

Provided in Figure 3 is the map showing the distance of the Project Site from the Protected Areas and Ramsar Sites in Oriental Mindoro. The summary of distances is provided below.

Table 2: Summary of distances of the Project Site to protected areas

Protected Area	Latitude	Longitude	Distance to Project Site
Mt. Iglit-Baco national Park	12°44'50.48"N	121° 7'36.58"E	41.48 kms

Figure 4: Map delineating the Project Site concerning the Protected Areas and Ramsar Sites in Oriental Mindoro

With the plotted distance of the project site from the protected areas/Ramsar sites identified, it may be noted that the project will have no significant impact on these protected areas/Ramsar sites identified. In case there is any, the Proponent will include its protection and/or enhancement if necessary in its Social Development Programs.

2.2 Project Rationale

2.2.1 The Need for the Project

Although Bongabong is not yet experiencing flooding, the deposition of sand and silt materials in the river bed may pose hazards to agricultural farms as these may be the cause of flooding episodes in the near future. This may then endanger the lives, properties and livelihood in the area. The proposed River Restoration Project is primarily targeted to increase the Bongabong River's main channel flow capacity downstream.

Specifically, the Project specifically aims to:

- Remove the sand gravel along the Bongabong River
- Increase flood control conveyance capacity
- Provision of bank protection measures as part of the environmental protection and mitigation plan and disaster risk reduction and climate change adaptation methodology
- Improve the local drainage of adjacent communities and prevent bank erosion/collapse
- Contribute to the economic and social development of Mindoro Province; and
- Collaborate with Barangays Sagana, San Isidro, and the Municipality of Bongabong

2.3 Project Alternatives

1.1.1 *Site Selection*

The primary and ultimate considerations in the selection of the site for the dredging and desilting activities of the proposed Project is the area's need for river improvement to increase the river channel's capacity to prevent it from climate change-related disasters such as flooding;

Offshore dredging, which is part of the project will also allow the entry of another vessel equipment such as the CSD to dredge and desilt the Bongabong River delta.

1.1.2 *Technology and Design*

The Proponent considered various dredging and desilting equipment to collect the sediments in the riverbed such as mud, sand, and gravel. Among them are the self-discharge hopper barge, Trailer Hopper Suction Dredger (TSHD), and Cutter-Suction Dredger.

The TCSD is classified as a hydraulic machinery that can work in both protected and unprotected waters and has the advantage of being self-propelled which means they can move themselves and cause minimum disruption to ship traffic and the environment. They are unique in the sense that they are efficient and effective in terms of use with regards to their self-propulsion technology during the excavation of sediment from a borrow area and transport the dredged material to the reclamation site.

Mechanical Dredgers

Excavation works will be done by using a TSHD and CSD with many different forms. The effectiveness of these operations depends on the power channeled to the bucket/blade and the shape of the outskirts/ blade bucket stuck on the ground. Due to the large force needed to cope with the rigors of the land, several types of the bucket are used, such as:

i. Shovel shape at the Dipper Dredger;
ii. Shape backhoe on Dredger;
iii. Form chain on Dredger bucket, and;
iv. Shape grab on Dredger;
v. Shape of a wheel on a wheel excavator;
vi. Form drag on Dragline.

Trailing Suction Hopper Dredger (TSHD)

Compared to using other dredging and desilting equipment that may generate larger quantities of suspended and transported sediments, sand, silt, and gravel (e.g., rocks) are part as dredge and silt materials. TSHD can only create a limited level of sediments and turbidity. This occurs when hopper loading occurs with overflowing excess water and silt, sand containing fine particles. This can however be overcome by reducing the overflow of water in the hoppers or by recycling part of the overflow. An installation called the enlargement compensator system to compensate for the vertical movement of the ship about the seabed.

The trailing suction hopper dredger has a very wide application area and is therefore called the workhorse of the dredging industry. TSHD has a carrying capacity of 24,000 tons DWT, current draught is around 13.7 m

The characteristics of the trailing suction hopper dredger is a self-propelled sea or inland waterway vessel, equipped with a hold (hopper) and a dredge installation to load and unload itself. The trailing suction hopper dredger is equipped with TCSD and Bucket Chain Dredger (BCD) in a standard design.

Typical Cutter Suction Dredger

To protect and efficiently dredge and desilt the river channel, The Proponent will employ careful and efficient dredging and desilting method by using TCSD (**Figure 1.1.3.5**) to collect the sediments in the riverbed such as mud, sand, and gravel. The use of silt curtains and pond at the dredging and desilting site shall also be implemented to reduce further turbidity and spread of light plumes or equivalent. On the other hand, other options such as anti-sedimentation infrastructures, engineering, remobilizing

sediment systems, and sand by-passing plants are reliable dredging alternatives.

Final product is discharged through the chutes to the barges positioned in each side of the dredger. Output capacity is from 5,000 to 10,000 MT per hour, working 20 hours per day in two shifts of 6 hours per shift. Monthly production 40,000 to 70,000 MT based on 26 working days per month. Self-discharge barges (2-4 units) shall also be utilized in the project. Its conveyor length is 34 m, with loading time of 2.5 hours and capacity of 5,000 to 10,000 MT. The discharge rate is 25,000 MT/hour.

1.1.3 *No Project Option*

No other alternatives were considered other than the dredging and desilting approach as an enhancement and flood control measure for the area of concern. As technically defined, dredging is a type of underwater sediment excavation for various environmental enhancements including environmental enhancement of rivers, ecology, remediation, flood protection, drainage improvements and navigable purposes. Dredging is a beneficial process that can be applied to the environment as it will remove and declog or clear sediments thereby improving water quality and flow and aid in restoring the health of aquatic ecosystems/river ecology. On the other hand, dredging can also provide sand and gravel for construction and reclamation projects. The dredging of the Bongabong River ensures clear passage through its river channel and further reduces flooding risk in the surrounding areas. The dredging and desilting of the Bongabong River will improve the drainage of rainfall and upland water sources, minimizing flood damages and consequently improving the quality of life, capacity, and flow in the surrounding river communities.

To restore the natural state, ecology and flow of the river, the project provided some estimates taking into consideration the essential role played by constant sand replenishment, all restoration activities shall be initially conducted at designated offshore areas from the deltas of heavily-silted river channels for a period of 1.7 months or more depending on the conditions, to create navigational channels and provide more depth for passage of dredging vessel/s to implement flood control measures within the River Dredging Zone (RDZ).

Clearing the passage starting from the river delta/mouth would be the preliminary phase of the proposed project. This extends the deltas allowing access of large trailer suction hopper dredger. Dredging the opening of the river mouth/delta shall allow sediment transport from upstream to move down the channel. The following outputs are stated below:

- Within the RDZ of 7.0 km, there is an estimated sand deposit of 2,231,073.00 m^3 while 928,491 m^3 at its 12.50-hectare offshore.
- This sediment volume upstream of the channel is eventually transported downwards toward the river delta area, replenishing the latter portion;
- The computed volume excludes the sand replenishment from upstream during monsoon season and the river delta sand deposit at the river channel and seabed.

The “no action – no use of the area” alternative means that the dredging and desilting project will not push through (considering factors present in the area and the dynamics of the river), and that no activity or any interventions would take place in Bongabong River area. The probable and possible impacts of operation and its auxiliaries of the dredging and desilting project include possible sources of noise, leaks from oils of ships and vessels, dust, mud, and sediment plumes and the shipping emissions will not be likely to happen nor produce nor experienced at all. For some factors, this scenario would create drawbacks and in some aspects may fit well for the readily observable surrounding or environment of the Bongabong River and its ecology. However, such a no action would mean that there would be alternatives for those interested entities for dredge materials as sources or those approved reclamations in identified areas or those needing dredge fill materials will look for sources of much of its filling and construction materials from other companies, suppliers, contractors, location or sources, which may make it more expensive to build. Offhand, back-filling materials, sands or other construction materials may be sourced from debris flows of some known volcanoes but needs to transport using large cargo trucks leading to the site of the proposed activity areas where it is needed, causing more traffic, disturbance, and congestions, emissions and other land-based risks.

Support Facilities

Water Supply
Water will be supplied by two (2) water trucks to equipment and tanks (typically 4rr and 8000-liter tanks on the skids) + 2 spray installations (to be installed on an A40 Volvo dumper which will undertake anti-dust sprinkling.

Power Supply
Generator sets will supply power with the initial estimate of Generator capacity of (30kVA).

2.4 Project Components

There will be few land-based developments that will be built, the main river channel dredging component is the operations of the shipping vessels for restoration and desilting. However, other project components such as support and processing facilities will be needed.

There will be few facilities to be constructed on-site specifically for establishing office quarters and barracks including satellite stations for the project operations and a Sand Processing Plant. Thus, a field office, warehouse, staff house, and other in-land facilities shall be built. The dredged materials will be barged and then dumped in land mass in the reclamation area of Pasay, Manila, and other areas where it is needed.

Below are the Project components: The list of equipment to be used is presented in **Table 3.**

Table 3: Project Components

Project Components		Quantity/Approximate Size/Capacity
Major Components		
Dredging Equipment/Vessels	Cutter Suction Dredger with Hopper Barge (minimum 3,000 HP) Hooper Capacity	6 units/ 1,000-1,500 MT/hr
	TSHD (Trailing Suction Hopper Dredger)	14 units/ 6000 m^3/hour
	Self-Discharge Barge/ Pelican Barge	12 units/ 10,000 MT
	Wheel Loader	6 unit/ 5 m^3
	Grader	6 units
	Dump Trucks	20 unit/ 18 m^3
	Backhoe	15 unit/ 1 m^3
Support Facility and Common Auxiliaries	Yard stockpile (optional)	2 hectares
	Staff Quarters/Barracks/Guestrooms	1 unit
	Sand Processing Plant (SPP)	1 unit/>10,000 MT per hour
	Administration Building/Office	1 unit
	Jetty Port	1 unit

2.5 Project Phases, Key Environmental Aspects, Wastes, Issues, Built-in Measures

The project has four (4) phases, namely pre-development phase, development phase, operational phase, and abandonment phase. Table 4 presents the major activities, associated wastes, key environmental and social issues, and built-in pollution control measures. Built-in Pollution Control Measures are those that are inherent to the development/construction, operations, and abandonment of the mine.

Table 4: Tabulated Description of Major Activities and Key Environmental Issues in the Different Project Phases

Project Phase/ Environmental Aspect	Environmental Component Likely to be Affected	Potential Impact	Options for Prevention or Mitigation or Enhancement
Pre-Construction Phase			
	People	Acquisition of properties in the project right-of-way	• Consultation and coordination with stakeholders
		Employment opportunities	• Local hiring of qualified workers
Construction Phase			
Dredging	Water	Degradation of water quality due to siltation and contamination from used lubricants	• Removal of debris along the waterways • Proper disposal of construction wastes and used lubricants from heavy equipment. • Installation of silt traps or equivalent measures at

			strategic locations and spoils to be properly contoured to prevent erosion. • Conduct regular water quality monitoring of the affected water bodies throughout the construction phase of the project
	Air	Generation of dust	• Frequent water spraying at least once a day or frequency may be increased during extremely dry seasons to effectively mitigate dust of dry and unpaved construction sites near sensitive receptors. • Impose speed limits within the project site at 30 kph for all access roads and 10 to 20 kph in all work areas. Vehicles to and from the construction site shall follow the speed limits of existing roads outside the project site.
	Noise	Generation of noise from construction activities	• All machinery will be maintained by the original manufacturer's specifications and manuals to avoid excessive noise, vibration and vehicle exhaust pollution. • Compliance with DENR Standards on Noise
Operation Phase – will include			
Abandonment / Demobilization Phase			
• Removal of equipment on site • Settlement of Contractual Obligations			

Provided in Figure 6 is the typical construction methodology for filling and ground improvement.

2.6 Project Cost and Duration

The estimated capital investment to bring the project to operation amounts to PhP 30,000,000,000.00

As soon as the ECC is secured and other Permits are required, the dredging operations will immediately commence and will take five (5) years to complete the dredging operations.