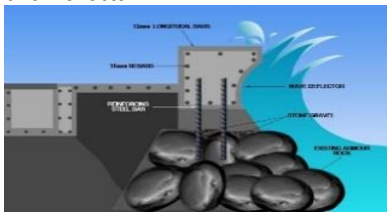





SECTION ES. EXECUTIVE SUMMARY

ES 1.0 Project Fact Sheet

Table ES-1. Project Fact Sheet

Name of Project	PROPOSED 286.86 HECTARE PARAÑAQUE RECLAMATION PROJECT	
Project Location	Along the Coast of Manila Bay in the Territorial Jurisdiction of the City of Parañaque, Metro Manila	
Project Category per EMB Memorandum Circular 2014-005	"Category A-1 New": Environmentally Critical Project (ECP) / MC 2014-005 Major Reclamation Project ≥ 50 hectares	
Project Classification per EMB Memorandum Circular 2014-005	3.3 Reclamation and other land restoration project	
Scope of Project	Horizontal development only (Note: separate ECCs will be applied for the vertical development and source of reclamation materials)	
Project Area	286.86 Hectares	
Project Cost	Php 76.70 Billion	
Summary of Major Components (Only the "Construction" Phase covered in ECC application, i.e. dredging, reclamation and horizontal development works)	Major Components	Brief Description
	• One (1) Island	286.86 ha
	• Access Ways	3.00 km viaduct
	• Internal Road Network	Total area of 63.91 ha (more or less); 16.0 meters (m) up to 30.0 m or wider
	• Storm Surge Protection	Typical Wave Deflector 
• Drainage System	A conceptual Drainage System 	
Project proponent	PARAÑAQUE CITY GOVERNMENT The Honorable Mayor Edwin L. Olivarez Office of the Mayor San Antonio Avenue, San Antonio Parañaque, Metro Manila Telephone No.: (02) 826 8244	
EIA Preparer / Consultant	CEnSE Technical Consultancy Services Unit 405 Yrreverre Square Building, 888 Mindanao Avenue, Quezon City Telephone No.: (02)455-2022 Cellular No.: 0927-6116742 E-mail address: cense_tech@yahoo.com.ph ; cense.consultancy@gmail.com Contact Person: Engr. Venice Montemayor	



ES 1.1 Project Description Summary

The Environmental Impact Statement (EIS) Report has been prepared to serve as a requirement for an application for an Environmental Compliance Certificate (ECC) for the Proposed Project. **The ECC application covers only the horizontal development or the reclamation of land, including the construction of access way(s).** The vertical development which will be implemented after the full stabilization of the reclaimed land will basically cater to mixed use development. This development – referred to as the *Operations Phase* – is not included in this ECC application.

The project will be situated along the coast of Manila Bay fronting the five (5) coastal barangays namely **Baclaran, Tambo, La Huerta, Don Gallo** and **San Dionisio** within the territorial jurisdiction of Parañaque City. In addition, the three (3) inland barangays namely **Moonwalk, Sto. Niño** and **Vitalez** are included as beneficiaries.

The reclamation will consist of one (1) island with approximately 950 meter distance from the nearest corner of the reclamation layout to the nearest shoreline of Manila Bay, which is also a reclaimed land (Bayshore Complex).

ES 2.0 Process Documentation of the conduct of EIA

Documentation of the EIS

The screening per EMB Memorandum Circular 2014-005 showed that the proposed project falls under “Category A: Environmentally Critical Project (ECP)” and classified as “3.3 Reclamation and other land restoration project”.

The content of the EIS report was established during the conduct of Technical Scoping on 04 July 2019 (See **Annex ES-A**). As prescribed by the EMB/DENR under the Revised Procedural Manual (RPM) protocol, the appropriate type of documentation for this project is the Environmental Impact Statement (EIS).

For the Operations Phase (Vertical Developments) of the Project which will involve various locators both from the public and the private sectors, the activities thereof will be subject to the appropriate guidelines under the PEISS; Programmatic EIS may be applicable and be considered.

ES 2.1 Document Types for ECC Application and Generic Contents

An Environmental Impact Statement (EIS) Report is the appropriate document. A Programmatic EIS type of report is not appropriate because the activities involved are only dredging, reclamation and horizontal works and the responsibility for this rests on one entity only, i.e. the project proponent. During the operations phase a Programmatic EIS may be applicable because of several types of activities involved and of the participation of various locators.

ES 2.2 The EIA Team

The table showing the list of EIA Preparer is provided below.



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Table ES-2. EIA Team Composition

Team Member	Field of Expertise
Engr. Venice Montemiyor	Team Leader
Dr. Felixberto Roquia	Sociology Module
Benjamin Francisco	Marine and Fresh Water Ecology (Team Leader)
Virgilio Pantaleon	Coral Reef, Seagrass
Engr. Emerson Darroles	Oceanography
Jose Rene Villegas	Marine Team
Ernie Fontamillas	Marine Team
Michael Francisco	Fisheries
Nazario Sabello	Air Quality
Neil John S. Tolentino	Geology
Proponent's External Expertise	
• Arch. Armand Alli, EnP	– Master Planning
• Engr. Ricardo Yuson	– Engineering
• Engr. Jon Kasilag	– Oceanography/Modeling
• Engr. Leonarda Gustillo	– Topography/Bathymetry
• Princess Mercado	– Reclamation Methodology

ES 2.3 EIA Schedule

The following are the activities that were conducted for this study. Continuing activities will be based on the results of the Review Committee Meetings.

Table ES-3. Table ES.3. EIA Study Schedule

ACTIVITY	DATE
• Secondary Data Researches	October 2017
• Marine Study	February 2020
• Bathymetric Survey	Year 2018
• Geotechnical Survey	Year 2018. By A.M. Geoconsult
• Engineering Geological and Geohazard Assessment Report (EGGAR)	August 2019
• Preliminary Concept Master plan and Engineering Design	September-October 2017
SOCIAL PREPARATION UNDERTAKEN	
IEC and Perception Survey (Public participation Documentation provided in Annex 3)	
• Initial Perception Survey	January 2018
• Information, Education and Communication (IEC)	26 January 2018
• Focus Group Discussion	16 July 2018
• Public Scoping	27 February 2019
• Technical Scoping	04 July 2019
• Perception Survey	01-09 August 2019
✓ Barangay Baclaran	
✓ Barangay Tambo	
✓ Barangay La Huerta	
✓ Barangay Don Gallo	
✓ Barangay San Dionisio	
✓ Barangay Moonwalk	
✓ Barangay Vitalez	
✓ Barangay Sto. Niño	



ES 2.4 EIA Methodologies

Table ES-4. EIA Methodology

Module / Section	Baseline	Methodology
LAND		
Land Use Classification	Secondary data: City Comprehensive Land Use Plan (CLUP) of Parañaque	Assessment of compatibility of the proposed project in the land use classification, Manila Bay Coastal Strategy, Consistency with the PRA Implementing Rules and Regulations, Relation to the PRA Master Plan for Manila Bay
Geology	Secondary data: Geologic, seismic, liquefaction, slope hazard maps and evaluation based on government data and maps. Primary data: Borehole drilling by 3 rd party	Identify and assess project impact in terms of the changed in topography including existing hazard as maybe aggravated Conduct of EGGA. MGB Methodology
Pedology/Soil	Primary data: Geotechnical Investigation	Physical and chemical properties relevant for design purposes
WATER		
Hydrology / Hydrogeology	Secondary data: Existing drainage system. Historical flooding occurrences	Identify and assess project impact on the change in drainage morphology, local drainage and resulting effects of flooding
Marine Water Quality	Primary data: Standard Methods for Water Quality Sampling and Monitoring. Water Body Classification: DENR Class SB Parameters Considered <ul style="list-style-type: none"> • BOD • Fecal Coliforms • COD • Lead • Total Coliforms • Hexavalent Chromium • Total Suspended Solids • pH • Oil and Grease • DO • Fecal Coliforms • Nitrate • Phosphate • Arsenic • Mercury • Cadmium • Color • Chromium 	Assess impacts on siltation of surface and coastal marine waters Based on DAO 2016-08 Analytical Methods: by CRL Laboratory, recognized by DENR Metals : Spectrophometry AAS Cold Vapour AAS for Hg Coliform : Multiple Tube Fermentation BOD : Azide Modification Winkler O & G: Gravimetry (n-Hexane extraction) DO : Winkler/Titrametric pH : Electrometry TSS : Gravimetry



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Module / Section	Baseline	Methodology																		
	<ul style="list-style-type: none"> • Chloride • Temperature • Ammonia • Boron • Fluoride • Selenium • Sulfate • Barium • Copper • Iron • Manganese • Nickel • Zinc • Benzene • Cyanide as free cyanide • PCBs • Phenols/Phenolic Substances • Surfactants • Total Organochlorine Pesticide <p>Secondary data: BFAR Report on Manila Bay</p>																			
Oceanography	<p>Primary data: Tide Measurements 2/6/2018– 19/6/2018. Bathymetric data</p>	<p>Tidal Stations</p> <p>Echo sounder or equivalent</p>																		
Marine	<p>Primary data: Abundance / density / distribution of ecologically and economically important species, mangroves, benthism plantons, coral rees, algae, seaweeds, sea grasses</p> <p>Presence of pollution indicators</p>	<p>Transect, manta tow and spot dives surveys, marine resource characterization (e.g. city/municipal and commercial fisheries data), Key informant interview.</p> <p>Mircoscopic Examination</p>																		
AIR																				
Ambient Air Quality	<p>Primary data: Ambient air quality sampling and testing.</p> <p>DENR Classification Ambient Air and Noise Classification: Class B – Commercial Area</p> <p>Parameters Considered: TSP, PM10, SO₂, NO₂</p>	<p>Methodology: Standard Methods for Ambient Air Quality Sampling by Volume Sampler</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">TSP</td> <td style="width: 33%;">Graseby High Volume Sampler</td> <td style="width: 33%;">Gravimetric</td> </tr> <tr> <td>PM10</td> <td>Graseby High Volume Sampler</td> <td>Gravimetric</td> </tr> <tr> <td>PM 2.5</td> <td>Graseby High Volume Sampler</td> <td>Gravimetric</td> </tr> <tr> <td>So₂</td> <td>Gas Bubbler Sampler</td> <td>Pararosanine</td> </tr> <tr> <td>NO₂</td> <td>Gas Bubbler Sampler</td> <td>Griess Saltzman</td> </tr> <tr> <td>Noise</td> <td>Type 2 – Sound</td> <td>Instantaneous reading</td> </tr> </table>	TSP	Graseby High Volume Sampler	Gravimetric	PM10	Graseby High Volume Sampler	Gravimetric	PM 2.5	Graseby High Volume Sampler	Gravimetric	So ₂	Gas Bubbler Sampler	Pararosanine	NO ₂	Gas Bubbler Sampler	Griess Saltzman	Noise	Type 2 – Sound	Instantaneous reading
TSP	Graseby High Volume Sampler	Gravimetric																		
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So ₂	Gas Bubbler Sampler	Pararosanine																		
NO ₂	Gas Bubbler Sampler	Griess Saltzman																		
Noise	Type 2 – Sound	Instantaneous reading																		
Ambient Noise Quality	<p>Primary data: Noise Meter</p>																			



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Module / Section	Baseline	Methodology	
		Level Meter	
Contribution in terms of GHG	Data on Greenhouse Gases	Estimation of projected greenhouse gasses (GHG)	
PEOPLE			
<ul style="list-style-type: none"> • Demographic Profile / Baseline 	Primary data: Conduct of Public Perception Survey, Public Scoping Secondary data: Comprehensive Land Use Plan and Socio Demographic Profile of Parañaque City		

ES 2.5 Public Participation Activities

ES 2.5.1 Information, Education and Communication (IEC) Activities

- **IEC AND FGD WITH THE CONCERNED STAKEHOLDERS**

IEC activities were conducted with the concerned stakeholders on 20 February 2018 at San Dionisio Sports Gymnasium and 16 July 2018 at Parañaque City Hall. Among these invited were LGU Officials, Government Offices, Non-Government Organizations (NGO) / People's Organization (PO), Private Offices and Impact Barangays. The Environmental Impact Assessment (EIA) Preparer discussed the proposed project and the initial perceived environmental issues. The location of the identified lift nets and mussel farms was also presented. Moreover, the other participants appreciated the IEC as the chance to raise issues and feedback. The presentation gave background and understanding on the proposed project as well as the potential impacts that could arise. Provided below are the top key issues raised during the IEC and FGD conducted.

See **Annex ES-B1**.

Key Issues and Concerns raised during IEC and FGD conducted:

- Traffic Problem
- Impacts on LPPCHEA
- Impacts on Livelihood
- Source of Filling Materials

- **INITIAL SURVEY WITH THE COMMUNITIES NEAR THE PROJECT SITE**

The results of the initial surveys covering the communities near the project site are presented in **Annex ES-B2**. The said surveys were conducted as part of the Information, Education and Communication (IEC).

ES 2.5.2 Public Scoping

The Public Scoping conducted on 27 February 2019 at Barangay San Dionisio Sports Complex, Paranaque City and was attended by participants from different sectors. The concerned stakeholders, especially those known to have opposing on reclamation projects, as well as those located in the Impact Areas were invited to participate. Among those invited were LGU Officials, Government Offices, Non-Government Organizations (NGO) / People's Organization (PO), and others. On the other hand, there were also participants that are not included in the official list of invitees but attended the said scoping. The Summary of Participants during the Public Scoping is provided in **Annex ES-B3**.

It is noted that sufficient lead time was provided the invitees. For whatever the individual reasons maybe for their inability to attend, the stakeholders continued to be consulted to date for their concerns, if any. Letters of No Objection (LONO) have in fact been secured from certain agencies as shown below and provided in **Annex 1.7**.



- a. Philippine Reclamation Authority (PRA) dated 17 October 2018
- b. Department of Information and Communications Technology (DICT) dated 09 January 2019
- c. Philippine Navy (PN) dated 22 January 2019
- d. Philippine Ports Authority (PPA) dated 20 February 2019
- e. Department of Energy (DOE) dated 5 March 2019
- f. Philippine Coast Guard (PCG) dated 19 March 2019
- g. Bureau of Fisheries and Aquatic resources (BFAR) dated 18 September 2019

Summary of Issues and Concerns Raised during Public Scoping Activity

The objective of the conducted Public Scoping Activity and other continuing IEC to be conducted is to ensure that the Environmental Impact Assessment (EIA) will address the relevant issues and concerns of the stakeholders and that it will be consistent with the Philippine Environmental Impact Statement System (PEISS).

Among the major issues are: (a) source of the sands/filling materials; and (b) impacts on San Nicholas Shoal. A bullet list of the top Issues and Concerns raised during the Public Scoping Activity is provided below.

Major Issues and Concerns during Public Scoping Activity

○ **Issues Not Directly related to Environmental Concerns of the Reclamation Project**

- Source of Filling Materials and Impacts on San Nicholas Shoal

○ **Issues Directly Related to Environmental Concerns of the Reclamation Project**

--During the Construction/Reclamation Phase

- Impacts on Water Circulation
- Impacts on Fisherfolks
- Displacement of settlers
- Miscellaneous Concerns:
 - ✓ Solid Waste
 - ✓ Erosion
 - ✓ Subsidence
 - ✓ Storm Surge
 - ✓ Sea Level Rise
 - ✓ Climate Change

--During the Operations Phase

- Traffic Problem

--Others

- Impacts on LPPWP
- Impacts policy on clean up and rehabilitation of Manila Bay

The complete Public Scoping Report is provided in **Annex ES-B3**. It is noted that details on the project were preliminary and not yet firm during the conduct of Public Scoping Activity.



The Table of List of Issues and Concerns, Proponent's Response and page discussed in the EIS is provided in **Section 2.4, Table 2.4-31**.

ES 3.0 EIA Summary

ES 3.1 Summary of Alternatives

This is discussed in **Section 1.3** from which the key parameters are as follows:

Territorial Jurisdiction

- Must not be in or conflict with ECAs or Protected Areas as declared in the NIPAS, principally the LPP Wetland Park and mangrove communities
- The site should be legally within the juridical jurisdiction of the LGU-Proponent, which for this project is Parañaque City. Conflict on jurisdiction with other LGUs should be avoided.
- The site should not be populated with mangroves.
- It should not be in conflict with Presidential Proclamations e.g. Presidential Proclamation 41.

The options for the appropriate landforms are also discussed in **Section 1.3**.

The landforms must address environmental issues e.g. circulation and sediment transport.

ES 3.2 Summary of Main Impacts and Residual Effects after Applying Mitigation

These are provided in **Table ES.5**.

Table ES-5. Summary of Main Impacts and Residual Effects

Activity / Resource Likely	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Residual Effect
I. PRE-CONSTRUCTION			
Site Clearing	Displacement of lift nets	<ul style="list-style-type: none"> • Avoidance or • Thru agreements with fisherfolks 	Nil
II. CONSTRUCTION PHASE			
Dredging and Reclamation Phase	Impacts on ECA	Not Relevant ECA distant from site	Nil
	Solid Waste Generation	<ul style="list-style-type: none"> • Domestic garbage from construction crews segregated and collected onboard ship and disposed onshore per RA 9003. No garbage disposal to Manila Bay. • Inventory of solid wastes, principally garbage through records of amount of garbage 	Nil
	Disturbance of Marine Species	<ul style="list-style-type: none"> • Provision of silt curtains where sediment streams are likely to 	Nil. After applying of mitigating measures



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Activity / Resource Likely	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Residual Effect
	Silt Dispersal	<p>occur and escape.</p> <ul style="list-style-type: none"> • Installation of silt and sediment weirs around reclamation equipment and barges; • Monitoring of sediment fluxes and application of more stringent control measures when necessary; or temporary cessation of activities • Sediment canals in reclaimed areas will be installed to divert sludge into filters and weirs that capture sediments and fugitive reclamation filling materials at source. 	
Land Stabilization	Inducement of natural hazards such as floods, subsidence, liquefaction, tsunami, storm surge, land subsidence	<ul style="list-style-type: none"> • Reclamation platform itself with wave deflector gives sheltering effect. • Appropriate structure to be selected in DED stage. Current best option is the use of wave deflector for tsunamis/storm waves; soil compaction/stabilization for liquefaction & subsidence; sufficient drainage system & retention/storage areas for floodwaters, among others. • Structural defense options are: seawalls at breakwaters wave deflectors, other similar defenses such as revetment; angled bypass walls. • Monitoring of ground level will be done during the period of soil stabilization (before vertical development) to determine quantitative surface movements with respect to both spatial and temporal rates. • Design of evacuation routes • Public education, awareness and preparedness campaign to include each of the known hazards. This will include evacuation drills, placing of signage, and establishing alert systems. This will be done in coordination with agencies like NDRRMC, PHIVOLCS, PAGASA, Project NOAH, etc. vis-a-vis the Disaster/Risk Reduction and Management Plan of the government. 	Nil Reclamation will not cause floods, subsidence, and other natural hazards
	Soil Erosion	<ul style="list-style-type: none"> • To prevent erosion on the seaward portion of the project, the construction 	Nil



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Activity / Resource Likely	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Residual Effect
		of the seawalls shall be implemented in the initial phase of the reclamation. Consideration shall be given to forming a bund after the construction of the sea wall and placement of filter material, using selected granular material where possible, along the line of and immediately behind the sea wall. Such a bund assists in stabilizing the sea wall and its foundation if mud waves occur during filling.	
Dredging and Reclamation Phase	Change in Seabed properties	<ul style="list-style-type: none"> Reclamation technology to minimize seabed soil removal e.g. by maximum reuse of existing through surcharges derived from SNS; possible use of sand bag technology, etc. 	Nil
	Perceived Permanent loss of 286.86 Hectare Manila Bay Waters of the City of Parañaque, Change in Bathymetry		Permanent residual effect
	Change in water circulation	<ul style="list-style-type: none"> Final design and alignment of landform to be based on the mathematical modeling for the landform layout. Will include in modeling other approved projects. 	Minimal
	Disruption in water circulation pattern and coastal erosion and deposition		Minimal
	Overall impact on whole Manila Bay circulation pattern and dispersion behaviours of existing outfalls and discharges		Nil
	Inducement of Flooding	<ul style="list-style-type: none"> Project will not block or disturb existing drainage system 	Nil
Degradation of marine water quality	<ul style="list-style-type: none"> Silt curtains and containment structures Pre-screening of filling materials; most possible source is from Manila Bay (San Nicolas Shoal) itself Install liquid waste management system ensuring modern waste retrieval and treatment system. Treatment and disposal of liquid waste at point source will involve collecting liquids of point source origin; directing waste into integrated multiple waste streams facilities or collecting vessels, and application of treatments. Any fluid effluent to be discharged at sea will be monitored and tested before discharging. Installation of latrines and waste receptacles; collection facilities; Collection of shipboard wastes. Adoption of clean practices by all project operating units and personnel; Implementation of an efficient waste retrieval system; Greening of reclamation area. 	Nil	



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Activity / Resource Likely	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Residual Effect
		<ul style="list-style-type: none"> Adoption of an oil and grease recovery and treatment system; Implementation of rigid policies against indiscriminate disposal of oily waste and marine vessel bilge water. 	
	Threat to existence and/or loss of important local species and habitat	<ul style="list-style-type: none"> Support appropriate stock enhancement measures e.g., re-seeding of appropriate species; Support closed seasons to enhance reproduction capacity of sardines and recruitment of stocks. Provision of alternative livelihoods to affected fishers 	Nil after applying of mitigating measures
	Sea Level Rise	<ul style="list-style-type: none"> Elevated platform is a mitigating measure 	Nil
	Potential accidents and damages to marine ecosystems during transport of dredging vessel	<ul style="list-style-type: none"> Sea worthy vessels Navigational Devices Proper training Avoid transport during inclement weather Compliance with PCG and International regulations 	Nil
Horizontal Development	Fugitive Dust Generation from construction equipment and vehicles	<ul style="list-style-type: none"> Construction Methodology 	Nil
	Increase of Ambient Air and Noise Quality	<ul style="list-style-type: none"> Construction works distant from ESRs Short term only Sea is buffer zone itself to population onshore 	Nil
	Emissions if power generating sets used and fossil fuel using equipment	<ul style="list-style-type: none"> Proper preventive maintenance of gensets; replace leaking valves, fittings, etc. 	Nil
Land Stabilization	Essentially none – no settlers to be displaced because the area is uninhabited		
	Livelihood and employment opportunity	<ul style="list-style-type: none"> Positive effects of the proposed project 	Long term positive impacts/enhancement

ES 3.3 Risks and uncertainties relating to the findings and implications for decision making

The risks and uncertainties considered relevant are those related to natural hazards; e.g. earthquakes, liquefaction, strong typhoons, storm surges and floods. These are discussed in Section 1 and summarized in Table ES.6.

Table ES-6. Summary Table of Major Risks and Uncertainties

Risks Uncertainties relating to the findings in the EIS Report	Implications to the proposed project
Damage to containment walls due to seismic activities	Redesign and reconstruction
Potential risk to LPPWP	Re plan of navigational lane
Flooding resulting from the project	Flood control measures to be adopted
Potential damage to fishing structures	Compensation plans Resettlement plan
As a generic requirement of the PEISS Abandonment/Decommissioning Plans will be instituted as compelling reasons	



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may arise