



EXECUTIVE SUMMARY

A. PROJECT FACT SHEET

Project Name	Proposed Seabed Dredging and Quarrying Project
Project Location	Manila Bay under the Municipal Waters of Cavite City, Noveleta and Rosario, Cavite
Project Type	Dredging and Quarrying
Project Area	4,810 hectares coastal area
Project Capacity	The annual extraction / production rate is 36 million cubic meters.
Project Description	The Project involves drawing of mineable marine sediments present in the applied project area as fill material for projects. Initially for its first 3 years, the target area where the dredged materials will be provided is in the 360-Hectare Pasay City Reclamation Project which is 15km away from the project site of AMC.
Rationale	The proposed project is consistent with and in support of the Philippine government's (through the Philippine Authority (PRA)) vision to develop projects and this Project is a support facility to reclamation projects. It is in support also of PRA's Master Plan for the Manila Bay Sector (MBS) as well as the Boulevard 2000 Vision. This project also aims to: <ul style="list-style-type: none"> • To provide suitable filling materials to reclamation projects in Manila Bay which will become the alternative site for commercial/mixed-use property project developments; and • To promote the well-being of the people of the City of Cavite and municipalities of Noveleta and Rosario and adjacent communities in terms of employment and livelihood opportunities.
Project Components	The major components of this project covered by the request for Environmental Compliance Certificate (ECC) are the following: <ul style="list-style-type: none"> • Dredging of materials from the seabed of Manila Bay • Transportation of the dredged materials and dump it into the reclamation site which is 15km away from this project site but still within Manila Bay
Manpower	The total number of officers and crewmembers for the dredging ships is estimated to be 108 personnel including technicians. Land based personnel is estimated to be about 40 support personnel. AMC shall also field its workforce for the management and monitoring of dredging operations consisting of 3 senior staff, 5 junior staff, 20 support personnel and 40 support staff for management. Over-all, all the total manpower is 202 workers.
Project Schedule	The project's overall mine life is 17 years. AMC has started its master planning and detailed engineering with the issuance of Government Seabed Quarry Permit (GSQP) to help shorten the pre-construction timeline. Quarry development will begin immediately after securing all necessary permits and licenses from other concerned agencies. Initially for its first 3 years, the target area where the dredged materials will be provided is in the 360-Hectare Pasay City Reclamation Project. The remaining 4 th year to 17 th year of extraction of dredgefill materials will be supplied to other reclamation projects. When there were no other reclamation projects to be considered by the proponent, therefore, GSQP will be terminated and seabed dredging shall halt.
Project/Investment Cost	Approximately PhP 2,434,729,360.00.
Profile of the Proponent	
Name of Proponent	Avalar Mining Corporation
Address	One Esplanade Seaside Blvd. cor. J.W. Diokno Blvd., MOA Complex, CBP – 1A, Brgy. 76, Pasay City
Authorized Signatory/ Representative	Mr. Frederick Domingo L. Borromeo General Manager
Contact Details	Telephone No.: (632)244-34-84 Mobile No.: 0930-3600017/ 0995-1833203 /0905-4153263 Email address: edeleon@avalarminingcorp.com
Profile of the Preparer	
EIA Preparer	Mediatrix Business Consultancy
Address	L29 Joy-Nostalg Center, 17 ADB Ave., Ortigas Center, Pasig City
Contact Person	Matilde R. Jimenez-Fernando General Manager



Contact Details	Telephone No.: (02) 689 7114 Mobile No.: +639175064499 Email Address: mediatrixbusinessconsultancy@gmail.com/ mrjfernando@mediatrixph.com
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B. EIA PROCESS DOCUMENTATION

EIA Team

The EIA Study was conducted by a multidisciplinary team of specialists who have extensive experiences in the conduct of baseline characterization and impact assessments for similar development projects, in close coordination with the Avalar Mining Corp. (AMC). The composition of the EIA Team is presented in **Table ES-1**.

Table ES-1: EIA Team Composition

EIA Team	Areas of Expertise	EMB Registry No.
Mediatrix Business Consultancy		
Matilde J. Fernando	Project Manager, Socio-Economics and Legal Framework	IPCO-035
Dr. Ma. Luisa Martinez	Particle Transport Modeling	
Engr. Fritzie Jane Salido	Asst. Project Manager, Water Quality	IPCO-114
Hernani Bayani	Geology Module	IPCO-058
Benjamin Francisco	Marine Biology	IPCO-038
Alexis Fernando	Research and Field Assignments	IPCO-034
Engr. Ria Caramoan	Air and Noise Quality	IPCO-106
Juvinal Esteban	IEC and Community Relations	IPCO-091
Independent Consultant		
Julie Rose De Guzman	Environmental Practitioner	-

In-house data and technical/engineering information were provided by the AMC and the revision and updating of the EISR were undertaken by Mediatrix Business Consultancy (Mediatrix). The sworn statements of accountability of AMC and the EIA Team are provided in **Annex ES-1**.

EIA Schedule

The EIA Study was commenced by conducting Information, Education and Communication (IEC) and Public Scoping activities. Technical Scoping was conducted with the EMB and EIA Review Committee (EIARC) members on August 14, 2020 via Microsoft Teams and based on the agreed scope of work, the collection of primary and secondary data was conducted. Data collected were processed, analyzed, and evaluated for impact assessment and formulation of Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP). The data and information were written into an Environmental Impact Statement Report (EISR) and the final version of the EISR will be submitted to the EMB-Central Office for Environmental Compliance Certificate (ECC) application. The major activities undertaken to complete the EIA were listed in **Table ES-2**.

Table ES-2: EIA Study Schedule

Activity	Date
IEC Activities	February 15-23, 2020 August 25-30, 2020 February 16, 2021
Public Scoping	September 3, 2020
Technical Scoping	August 14, 2020
Primary and Secondary Data Gathering	
Geology and Geological Hazards	February 2020
Hydrology/Hydrogeology	May 14 to 28, 2021
Pedology	Jan 2019, and June 2020
Groundwater and Freshwater Quality	Jan 2019, and June 2020
Marine Ecology	May 20 to 27, 2021
Air Quality and Noise	February 3 to 8, 2021
Perception Survey	February 15 to 23, 2020



Activity	Date
Preparation of EISR	February 2020 to May 2021
Submission of EISR to EMB	May 12, 2021
First EIARC Meeting	
Public Hearing	

EIA Study Area

The EIA Study area for the project covers the 4,810 hectares (ha) coastal area, which is situated within Manila Bay area.

EIA Methodology

Pursuant to the Department Administrative Order (DAO) No. 30 Series of 2003 of the Revised Procedural Manual of the Philippine EIS System (PEISS) and EMB Memorandum Circular 005 dated July 7, 2014, the proposed project is classified under A-1 Category of Environmentally Critical Projects (ECPs) which requires an EISR for an ECC application.

The EIA for the proposed project also conforms to the Revised Procedural Manual for DAO 2003-30 and DAO 2017-15 in the conduct of the following activities, to wit: (i) IEC and Scoping, (ii) collection of primary and secondary data, (iii) identification/prediction/assessment of environmental impacts, (iv) formulation of EMP and the (v) development of EMoP. The baseline information are mainly primary and secondary data which were obtained from the local government units (LGUs), DENR, Philippine Statistics Authority (PSA), PAGASA and other government agencies. Data collected were based from the approved EIA Scoping and Screening Form presented in **Annex ES-2**, which was finalized during the Technical Scoping. **Table ES-3** shows the pertinent data, sources, and methodologies used for the conduct of EIA Study.

Table ES-3: The EIA Methodology

EIA Study Module	Parameters/Scope	Baseline Sampling and Methodology
Land		
Land Use and Classification	Reconnaissance, land use, land classification assessment, slope, soil types and classification, erosion	Gathering and review of secondary data from the CLUP, site observation and validation. Also taking into consideration Manila Bay Coastal Strategy, the Philippine Authority (PRA) Boulevard 2000 Plan and its implementing Rules and Regulation, the Supreme Court Mandamus on Manila Bay, classification of the Environmental Critical Areas (ECA) and the National Integrated Protected Areas System (NIPAS).
Geology/Geomorphology, Pedology,	Reconnaissance, slope, soil types and classification, erosion	Site observation and gathering/review of secondary data from related government agencies and institutions. Conduct of Bathymetric Survey and seabed exploration by boring.
Water		
Hydrology/Hydrogeology	Regional hydrogeology, catchment and drainage system	Site observation, gathering of secondary data, analysis and interpretation using data on slope, land use, climatic normal and extremes.
Water Quality	Physico-chemical and bacteriological characteristics of water	Analysis and evaluation of monitoring results, site observation/interviews, grab sampling and laboratory analysis.



Air		
Meteorology/Climatology	Monthly average rainfall, climatological normal and extremes, wind rose diagrams, and frequency of tropical cyclones	Use and review of secondary data
Air Quality and Noise Level	Ambient air quality and noise levels	Ambient air quality and noise sampling and laboratory analysis
Air Dispersion Modeling	Worst case scenario identification, use of meteorological data	Use of Screen 3 and AERMOD Models
Temperature and Rainfall Change	Seasonal Temperature (in °C) and Rainfall (in %) Change in 2020 and 2050 under medium range emission scenario in Manila Monthly Average Temperature and Rainfall without Climate Change Monthly Average Temperature and Rainfall with Climate Change (2006-2035) Monthly Average Temperature and Rainfall with Climate Change (2006-2065)	Assessment of effects of Temperature and Rainfall Change
Greenhouse Gas Assessment	GHG Emissions based on IPCC 2006 Guidelines and USEPA Procedure	Assessment of Bunker oil consumption vs GHG emissions
People		
Public health and Demography	Morbidity and mortality trends, Demographic data of impact area: <ul style="list-style-type: none"> Number of households and household size Land area, Population, Population density /growth gender and age profile, literacy rate, profile of educational attainment 	Interviews with key elected officials of the barangays (from barangay captains to councilors and the social welfare barangay officers/ barangay health workers); Analysis of secondary health data; Use of secondary data from RHU and PSA; Interviews with the locals; household-level survey
Socio-economics	Socioeconomic data: Main sources of Income, Employment rate/ profile, sources of livelihood, Poverty incidence, commercial establishments and activities, banking and financial institutions	Perception surveys, Interviews with city and barangay officials; analysis of secondary data; analysis of survey results, Traffic assessment
Environmental Risk Assessment		
Risk Assessment	Safety risks and physical risks	Consequence and Frequency analyses to be undertaken using the methodology described in the Revised Procedural Manual (RPM) for DAO 2003-30

Public Participation Activities

Public participation in the EIA process was achieved through the conduct of different social research methodologies such as site investigation, key informant interviews, perception survey, Public Scoping and Public Hearing and continuing IEC, as presented in **Table ES-4**. These activities, both formal and informal, have provided avenues for the stakeholders to express their issues, concerns, and perception about the project. **Table ES-5** presents the summary of issues and concerns raised during public participation activities.

Table ES-4: Public Participation Activities

Participation Activities	Date Conducted	Methodology Used	Issues and Concerns	Compliance /Remarks
1 st IEC (pre-pandemic)	February 15-23, 2020	Direct interview, initial Perception survey, Distribution of flyers, FGDs, meetings & conferences	Marine damage, Seabed disturbance	Project Description Report (PDR) with IEC Report officially submitted online at the records office of DENR-EMB-CO website.
2 nd IEC (pre-pandemic)	August 25-30, 2020			
Barangays & Municipalities within the Impact Areas	February 16, 2021			



Participation Activities	Date Conducted	Methodology Used	Issues and Concerns	Compliance /Remarks
Public Participation & Stakeholders Consultation	September 3, 2020	Actual event of Public Participation of the public and concerned stakeholders		The said event was conducted in Noveleta, Cavite.

Table ES-5: Summary of Issues Raised

Comments, Issues or Suggestions	Person/Officer Raising the Issues and Concerns	Response from the Proponent and EIA Team
Coastal areas (land) will be affected by the implementation of the project, i.e. displacement of nearby houses of local residents living along the coastal area.	Punong Barangay and the President of Samahan ng mga Mangingisda	<p>Proponent and the EIA Team responded that the project will not cause displacement of houses in the land portion of the project area because the dredging project will implement measures not to affect them.</p> <p>The possibility of displacement may only occur if fortuitous events (beyond the control of man) happen.</p> <p>In cases where it is evident that the project caused negative effect to the structures and private properties, proper compensation based on existing laws, rules and regulations shall be implemented.</p>
The waste material to be dredged are tons and tons of mud and silt as to its volume, so it may alter the landscape of the coastal land barangays. What is your waste management disposal system?	President of Samahan ng mga Mangingisda	<p>The proponent has a corresponding environmental management plan and the designated source of the dredgefill materials. No waste materials from dredging will be generated as 100% of it will be used.</p> <p>For the waste management of domestic wastes, AMC will comply with the proper disposal of waste under RA 9003, RA 6969 as well as DENR Rules.</p> <p>Corresponding permits from proper authorities with corresponding plan shall also be secured.</p>
Fear of being flooded upon the implementation of the project, more so, during strong rains. Some barangays may be isolated.	Member, Samahan ng mga Magtutuyo	Fortuitous events cannot be prevented but mitigation measures are in place such as Flood Control Plan & the Emergency Response Plan.
The marine species will be affected. How would you address this especially fish kills?	Maritime Police Officer	In the process of dredging, only sand, mud and silts will be excavated. Marine species will be protected as much as possible.
So, what is your remedy to marine life. The seabed will be disturbed?	DENR-PENRO	<p>Yes the seabed will be disturbed but mitigating measures are provided under our environmental management plan. Likewise, no toxic chemical or hazardous waste will be discharged by the project.</p> <p>The following mitigation measures will be applied to reduce the project's impacts:</p> <ul style="list-style-type: none"> Silt curtains and/or other industry good practice management controls will be used to restrict the spread of sediment released during construction of the project Selection of dredging equipment (cutter, suction/hopper, etc.) by the contractor will be appropriate to the depths and material types to be dredged and to minimize the creation of plumes Marine habitat or seafloor disturbance will be fenced for protection. Works will be prohibited from exceeding the design disturbance width, and boundaries will be enforced through the use of markers and distribution of worker awareness information.
Will people benefit from this project?	Barangay Chairmen	Yes. Definitely, LGUs will be directly benefitted from this project. <i>First</i> , it will empower local taxation under the Local Government Code. <i>Second</i> , it will give employment to local residents based on qualifications. <i>Third</i> , we will support the existing livelihood programs as provided in Social Development and Management Program (SDMP). Other programs of our company will be



Comments, Issues or Suggestions	Person/Officer Raising the Issues and Concerns	Response from the Proponent and EIA Team
		<p>dealt in accordance with the welfare of the people within the affected people living in the impact area.</p> <p>On a national level while supporting the present administration's "build, build, build program, it will benefit our country as a whole by strengthening the economy while moving forward in this time of pandemic as an immediate boost to the economy.</p>
In terms of local economy, what is your contribution to the LGUs for the livelihood of the people?		There will be economic opportunities that will be created as a result of the project such as livelihood programs that will be directly coordinated with the local government units concerned and employment opportunities.

C. EIA SUMMARY

Summary of Alternatives

Siting

During the site selection process, it was identified that there exist no siting alternatives that were considered for the proposed seabed dredging and quarrying project. The selection team of AMC conducted a thorough selection of the location of the project. Upon conducting feasibility study and on the process of examining multiple locations, it was assessed that the project sites selected (Cavite City, Noveleta and Rosario) shows its strong economic condition and development growth, population, history, culture and tourism development. The selected project sites are outside of declared Protected Areas as stated in NIPAS Act. In addition, the identified project site has already been issued a Government Seabed Quarry Permit (GSQP).

Technology and Design

AMC will employ mining method by using Trailing Suction Hopper Dredger (TSHD) to collect the sediments in the seabed such as mud, sand, and gravel. Full details of this dredging and quarrying technology is discussed under project components and process/technology of this EISR.

Summary of Key Environmental Impacts and Management Plans

The major impact of the proposed project given in a worst-case scenario of typhoons is contamination of the marine environment because equipment will be left in open sea. Oil spill from the equipment may happen. However, when that time comes, the project will be forced to stop its operation and relocate its equipment before Typhoon warnings because it will not be feasible to operate in such worst-case scenario. **Table ES-6** presents the summary of key environmental impacts of the project and the corresponding management plan and mitigating measures.

Table ES-6: Summary of Key Environmental Impacts and Management Plan

Activity	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Target Performance/ Efficiency
Construction Phase- Dredging Activity/Operation			
Dredging	Water pollution / siltation / turbidity brought about by seabed disturbance within the project area	Installation of bio-friendly silt curtains around the dredging vessel and around the perimeter area of dredging area/ activities	100 % compliance to RA 9275 and DAO 2016-08 standards
	Disturbance/loss of spawning grounds for fishes.	Dredging operations will be minimized in localized areas to avoid areas where spawning aggregates occur as divulged by fishers in the area especially during October to December being the known spawning	



Activity	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Target Performance/ Efficiency
		season for sardines.	
Transportation of dredge-fill materials to reclamation site	Water Pollution due to possible spillage of dredged materials during transportation	Provision of containment facility to prevent spillage	100% Compliant to RA 9275 and DAO 2016-08 standards
	Increase of suspended solids affecting the settlement of marine species in the dredging areas	Provision of control measures when transporting filling materials	100% no proliferation of suspended solids
		The hauler shall ensure that vessels used for transporting are in good condition to prevent dredged materials from leaking or spilling	100% Compliant to RA 9275 and DAO 2016-08 standards

Risks and Uncertainties of the Project for Decision-Making

Potential risks of small oil spills will be addressed through strict fuel and oil dispersal protocols backed-up by an oil/fuel spill contingency plan consistent with Coast Guard and MARPOL regulations.

The dredging methodologies and the engagement of experienced contractors will significantly reduce project risks and uncertainties. The use of bio-friendly (geo-textile materials) as silt curtain that will encircle the dredging area. The conditions of the Government Seabed Quarry Permit (GSQP) issued by the Mines and Geosciences Bureau (MGB) contribute to the minimization of risk and uncertainties.

Because of these and based on the EIA conducted, there are insignificant risks and uncertainties for the Project because mitigation and management plans have been laid down by AMC.