EXECUTIVE SUMMARY

1.0 PROJECT FACT SHEET

1.1 Background of the Project

Project Name:	**PSC Expansion Project (Ore Blend Facility and New Berth Facility)**
Nature of Project:	**Manufacturing**
Total Area and Production Capacity:	**133 hectares** **9 MMTPY (Blend ore)** **5 MMTPY (Sintered Ore)** **7 MMTPY (Iron Pellet)**
Site Location:	**Phividec Industrial Authority, Municipality of Villanueva, Province of Misamis Oriental**

1.2 Profile of the Proponent

Name of Proponent:	**Philippine Sinter Corporation**
Office Address:	**23F Oledan Square** **6788 Ayala Avenue, Makati City**
Contact Person:	**Mr. Nilo C. Sagrado** **VP & Resident Manager – Sinter Plant**
Tel No./Fax No.:	**(02) 8886-7421/ (02) 85670083 or 86**

1.3 Profile of the EIS Preparer

EIS Preparer:	**Gaia South, Inc., *Environmental Consultants***
OfficeAddress:	**7th Floor Montepino Bldg., Adelantado cor. Gamboa St., Legaspi Village, Makati City**
Contact Person:	**Ebert T. Bautista** **Project Director**
Tel. No./ Fax No.:	**+63 2 88935661 (tel.) / +63 2 88935657 (fax)**

1.4 Project Size

Ang tibook proyekto adunay gidak-on nga 133 iktaryas ug adunay capasidad nga mohimo ug:

- 9 MMTPY (Blend Ore)
- 5 MMTPY (Sintered Ore)
- 7 MMTPY (Iron Pellet)

1.5 Project Components

Ang giplanohan nga pasilidad sa ore blending gilauman nga mohimo ug gibanabana 9 MMPTY nga blend ore. Ang pasilidad langkuban sa ngkadaiyang bahin sama sa paghimo sa bag-ong dunggu-anan nga adunay gitas-on nga 324 m ug kaya dungguan sa 200kT ug gibanabana nga pwede kargahan sa 14.4 MMPTY. Upat ka bag-ong yarda o luna nga adunay gitas-on nga 900 metros ug gilapdon nga 55 metros ang pagahimuon; tulo (3) kabag-ong yarda ang itapad sa daan ug ang isa ibutang sa sidlakan o este nga bahin, tunga sa daan nga settling pond handgtud sa este nga utlanan. Aduna pud tulo (3) ka bag-ong stack reclaimer nga dunay kinatibuk-ang sulod nga 3, 600T/H para sa stacking ug 3, 800T/H para sa reclaiming, blending stacker nga pwede sudlan ug 3, 800T/H, duha (2) ka blending reclaimers pwede sudlan ug 2, 600T/H kada isa, ug tulo (3) ka surge hopper nga pwede sudlan ug 80 kobiko kada isa. Makita sa TABLE ES1 ang mga butang nga kabahin sa giplanohan nga kalambuan sa PSC. Palihug susiha ang ATTACHMENT 1 para sa copya sa kasamtangang ECC sa PSC.

Table ES1. Summary of project components of the existing and proposed facilities of PSC

Descriptor	Current Operation (ECC No. 0807-021-2711)	Proposed Expansion
Capacity	12 MMTPY	9 MMTPY
Project Area	133 ha	Ore yard: 19.8ha New berth: 324m
ECC issued (Consolidated)	**ECC Ref. Code 0807-021-2711** Expansion of the Iron Ore Sintering Facility and Consolidation of ECC of the Existing Operations of the Philippine Sinter Corporation Plant	
Production Process	Downdraft Dwight Lloyd Sintering Process (Process flow in ***Figure 3.3-1***) Grate Kiln Method (Process flow in ***Figure 3.2-1*** and Process block diagram in ***Figure 3.4-4***)	Use of ore blend reclaimer and stacker
Utilities Requirement	**Water** – 2,705m^3/day **Electricity**: For Sintering CEPALCO – 24MW (less generation of SSHR & Generators (usually >10MW) Self generated – Design: 18.6 Actual: 13 MW (max) Sintering – 21.5 MW Power plant – 3 MW For Iron Ore Pellet 23.2 MWH (additional)	**Water -** 574m^3/day **Electricity**: New Berth – 270,000kWh New Common Berth – 160,000 kWh New Yard – 220,000 kWh
Raw Materials/Inputs	**Fuel (monthly) for Sintering**	**Fuel during construction:**

Descriptor	Current Operation (ECC No. 0807-021-2711)	Proposed Expansion
	806,245.22 liters Bunker C 147,964.58 liters Diesel 3,617.58 liters Gasoline **Fuel (monthly) for Iron Ore Pellet** Soft (Bituminous) coal: 14.1 kg Heavy oil: 3.8 kg Diesel: 4.7 kg [*note:* GK method is chosen due to its energy efficiency. It's estimated that the heat requirement for the GK method will be as low as 292 Mcal/tp as compared to current level of 493 Mcal/tp] **Raw Materials for Sintering (per ton sintered ore) :** 1,029 kg of main iron blend including dolomite 112 kg of limestone; 67.3 kg of carbon source; and 0.76 L of fuel oil/ton SO Typical blend of iron ore: 65% Rio Doce 28% Carajas 7% Dolomite **Raw Materials for Iron Ore Pellet (per ton sintered ore):** 957.5 kg of iron 7.5 kg of bentonite 45.8 kg of limestone; 12 kg of dolomite 16.5 kg of Anthracite Coal [*note*: in addition to the fine ore that can be processed using the current facility/process, the proposed expansion will also be able to process *super* fine ores]	New Berth – 520,000 L Existing Berth Facility – 720,000L New Yard – 880,000L *Same raw materials*
Manpower requirement	200 – permanent 640 – contractual	Permanent – 24 Contractual – 30
Discharges/Emissions	**Raw material handling** – Suspended particulates **Windbox** – iron oxides, sulfur oxides, carbonaceous compounds, aliphatic hydrocarbons, and chlorides **Sinter Plant** – Suspended particulates, CO, NO_x, SO_x and heat, Petroleum products container and contaminated materials **Limekiln Operations** – Heat, suspended particulates and noise, Petroleum products container and contaminated materials **Power generation** – Thermal water, sludge from demineralization, Petroleum products container and contaminated materials **Administration office** – Papers, packaging, office wastes **Laboratory** – Spent acids, organic and inorganic washings and spills **Canteen** – Food wastes, packaging .materials, contaminated water from oil and grease **Motorpool** – Petroleum products container and contaminated materials, spent acids, battery	

Main plant components	Current Operation		Proposed Expansion	
	Annual Production rate	Area	Components	Area
Iron Ore Pelletizing Facility (enhanced port, ore yard, sintering facility of 12 MTPY)	7 MMPTY	Yard: 22 ha Jetty: 100 m long Plant: 10.965 ha	No change	

Descriptor	Current Operation (ECC No. 0807-021-2711)		Proposed Expansion	
Sintering Equipment and facility\ies ○ 14 blending hopper (600 m^3 capacity) ○ 1 Dwight Lloyd type sinter machine (715 m^2 grate area) ○ 1 circular type sinter cooler with 457 m^2 bed area and 15,000 m^3/min capacity ○ 2 mainblower with double suction type with 20,000 m^3/min capacity	5 MMPTY	133,445.75	No change	
Burnt Lime Facility ○ 3 Chisaki kiln ○ 11 sets of belt conveyor ○ 1 burnt lime hopper ○ 1 cage mill type burnt lime crusher ○ 3 sets bucket elevator ○ 2 vibrating feeder ○ 1 screw feeder	140 MTPD	442.00 m^2	No change	
Project Components	**Current Operation**		**Proposed Expansion**	
	Components	**Area**	**Components**	**Area**
	Port/Berth ○ 2 rail mounted bulk unloaders (1800 MTPH with an automatic recovery conveyor) ○ Pump and pipeline system ○ Rail mounted shiploaded with movable trimming chute ○ Main berth (351m with 300,000 DWT capacity ○ Berth No. 2 (230m)	11,005.00m^2	○ Four (4) yards (900m x 55m) ○ Surge hoppers ○ Main berth expansion of 4 m (total of 355 m) ○ New berth (324m x 31m) ○ Conveyors (8,711 total length)	198,000m^2 2,000m^2 10,044m^2 13,868m^2
Project Components	Sinter Cooler Waste Heat Recovery ○ 1 forced circulation type heat recovery boiler ○ 1 condensing type steam turbine (18,600 kW rated output; 5,100rpm speed; 1.96 Mpa pressure; 345ºCtemperature	1,174.60m^2	No change	

Descriptor	Current Operation (ECC No. 0807-021-2711)		Proposed Expansion
	(valve inlet); 700mm Hg exhaust steam vacuum at 84,700 kg/hr rated outlet) ○ 1 totally enclosed generator (air cooled, brushless synchronous generator was installed. It has a rated capacity (output) of 23,250 kVA (18,600 kW) and voltage of 11,000V with a frequency of 60Hz and rotating speed of 1,800rpm) ○ 1 water treatment plant (200 m^3 feedwater and 5m^3/hr make-up water)		
	Administration Building, Gate and Garage/Terminal	5,971.70m^2	No change
	Recreational (park and courts)	13,905.01m^2	No change
	Uniflow kitchen	235.00m^2	No change
	Laboratory	1,178.50m^2	No change
	Warehouse	9,511.30m^2	No change
	Maintenance Building and Shops	4,649.90m^2	No change
	Waste Holding Station	164.00m^2	No change
	Electrical facilities	19,052.26m^2	No change
	Hydrated lime plant	125.00m^2	No change
	Material Handling Offices/Customs	1,729.92m^2	No change
	Cargo Berth Area and Storage Facilities	16,595.70m^2	No change
	Roads	67,537.00m^2	No change
	Settling ponds (total area including walkway)	66,387.23m^2	No change
	Others(fabrication areas/scrap yards)	30,631.00m^2	No change
	Ore yard (including conveyors) ○ 2 stacker (800TPH potable) ○ 1 rail mounted stack reclaimer (1,800/3,600MTPH)	265,264.20m^2	No change

2.0 PROCESS DOCUMENTATION

2.1 The Environmental Impact Assessment (EIA) Report

Gipasabot sa Revised Procedural Manual of DAO 03-30, and EIA usa ka proseso nga adunay kalabutan sa pagtagna ug pagsusi sa mamahimong epekto sa isa kaproyekto sa kinaiyahan samtang kini gisugdan sa pagtukod, gigamit, ug sa pagbiya na niini. EMB Memorandum Circular 2005-14 “The Revised Guidelines for Coverage Screening and

Standardized Requirements under Philippine EIS System" ang mga proyekto nga sama niini giisip nga Category A or Environmentally Critical Projects (ECP) basi sa bulto nga kaya himuon kada tuig for a manufacturing project applying for amendment.

Ang sinter facility adunay pagtugot pinaagi sa ECC No. 9807-004-120, ang Hydrated and Burnt Lime Kiln anaay ECC No. ECC No. 01-01-028-120, the Sinter Cooler Waste Heat Recovery anaay ECC No. 10 (43) 06-08 4262-41100, ug ECC No. 9207-006-120A para sa 5.5 MW stand-by generator set. Sa 2009, gihatagan ang PSC sa usa ka amended ECC (ECC No. 0807-021-2711) kung asa gitipok ang tanan kalihukan uban ang Iron Ore Pellet Facility. Ang ECC sa PSC gifile ug adunay pagtugot sa EMB CO. Busa, ang giplanohan nga kausaban sa ECC buhaton usab sa susamang opiosina lakip ang pagsumite sa EPRMP.

Ang EPRMP gilangkoban sa mga musunod:

- Pagpaila sa tibuok proyekto
- Pagsuta ug pakisusi sa epekto ngadto sa kinaiyahan
- Plano sa pagdumala sa kinaiyahan
- Pagtimbang-timbang sa mga mamahimong peligro ngadto sa kinaiyahan, Polisiya ug giya sa pagtubag sa mga emerhensiya.
- Plano ug impormasyon para sa Kalambuan sa katilingban, edukasyon ug komunikasyon.
- Pagbantay sa mga angay tumanon para sa kinaiyahan
- Polisiya alang sa paghunong/pagbiya ug pagbuhi-balik sa proyekto
- Plano unsaon pagpatuman sa EMP

Gaia South Inc., gikontrata sa PSC para moandam nianing EPRMP Report. Aduna na'y nasugdsan nga mga kalihukan mahitungod sa Pre-scoping sama sa pagpakatag sa impormasyon, pag-edukar, ug pagpakighinabi (IEC) (**Annex ES1**), Key Informant Interview (KII) ug diskusyon sa mga nagkadaiyang grupo. Aron magiyahan ang Proponent ug ang Tig-andam sa EIS kung unsaon pagpahigayon sa Environmental Impact Assessment (EIA), usa ka-Technical Scoping ang gihimo niadtong April 19, 2021 (**Annex ES2**). Ang EMB Case-handlers, Review Committee members, PSC ug ang Gaia South Inc. nagkasinabot kung unsa lang ang apil sa Technical Scoping Checklist (**Annex ES3**), diin maoy mamahinong giya sap pag-andam sa EPRMP Report.

2.2 Limitations of the Study

Ang pag-andan niing EPRMP Report natunong sa pandemya hinungdan nga napugngan ang lihok sa mga consultants didto sa nahimutangan sa proyekto ug sa komunidad. Ang mga gihangyo para sa datos gikan sa barangay ug syudad gihimo nalang pinaagi sa tawag sa telepono ug online aron malikay sa sakit ang mga consultants, magtatambong ug mga maalamong personalidad.

Base sa miuyon Technical Scoping Checklist ng EMB ang pagtuon/EIA ng mga eksperto. Ginamit usab ang datos gikan barangays, LGU, and government agencies (National Mapping and Resource Information Authority (NAMRIA), Philippine Institute of Volcanology and Seismology (PHIVOLCS), Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), and Mines and Geosciences Bureau (MGB).

2.3 The Project Team

Table ES2. List of EIA team members and their respective field of expertise

Consultant/Researchers	Expertise
Ebert T. Bautista	Project Director/Technical Reviewer
Ernesto dela Cruz, PhD	Technical Team Leader/Water Quality
Liezyl S. Liton-Relleta	Senior Environmental Consultant/ Project Manager
Neil James E. Duran	Senior Environmental Consultant/ Terrestrial Fauna/Land Use
John Michael Galindon, MSc	Terrestrial Flora
Pancho Caculitan	Geology/Geological Risk Assessment
Erwin Kim Mercado	Physical Oceanography/Hydrology/Flood Modeling
Katherine Escalona, PhD	Freshwater and Marine Ecology
Danica Dela Rosa	Senior Technical Associate
Patricia Erika Lim, EnP	Meteorology, Noise and Air Quality
Merlyn Carmelita Rivera, PhD	Socio-economics and Public Health
Thelma Dela Cruz, MSc	Environmental Risk Assessment
Alfredo Guab III	Mapping Specialist
Carla Grace Canaña	Research Assistant

2.4 The EIA Study Schedule and Area

Ang giplanohan nga PSC Ore Blend ug Dungguanan diha ibutang sa kasamtangang luna sa PSC sulod sa Phividec Industrial Authority sa Villanueva, Probinsya sa Misamis Oriental.

Table ES3. EIA study schedule

Activity	Period
Pre-scoping study (including IEC, KII, FGD, and pre-scoping household survey)	January to February 22, 2021
Public Scoping Meeting	April 12, 2021
Technical Scoping Meeting	April 29, 2021
Environmental and social fieldwork	May 6-20 and June 3-11, 2021
Draft EIS Report writing	June to August 2021
Submission of EIS to EMB for 1st Procedural Screening	August 2021
Acceptance of the EIA Report for Substantive Review by the EMB	November 29, 2021
1st Review Committee Meeting	February 2022

2.5 The EIA Methodology

Ubay-ubay nga pagtuon ang gihimo sa yuta, tubig ug sa kahanginan ug usab man sa katilingban aron lang ang mga gipangayo sa technical, environmental ug regulatory requirements nga anaa sa Technical Scoping Checklist matuman. Kini nga report usa kaproduko sa tinigum nga paningkamot sa mga eksperto sa sayintipikanhong pamaagi sa DENR. **Table ES4** naghatag ug lista sa mga pamaagi sa EIA.

Table ES4. The EIA methodology

Module	Description
Land Use	• Paggamit sa Comprehensive Land Use Plan o CLUP sa Lungsod sa Villanueva
Geology and Geomorphology	• Paghimo sa mga pagtuon gamit ang mga reports, geology literature ug mga impormasyon bahin sa kahimtang sa yuta, paggamit sa geological ug seismological data lifted from publicly available international and local sources.
Pedology	• Paggamit sa mga datos gikan sa munisipyo ug ang mga Primary sample collection for physico-chemical analysis.
Terrestrial Flora	• Pag-ihap sa tanang klase sa kahoy nga nanubo sa giplanohang lugar. Pagkuha sa mga hulagway gamit ang high-resolution camera aron masuta ang mga timailhan sa kada punuan. • The conservation status of all identified species was determined/ confirmed using DENR Administrative Order 2017-11 (DAO 2017-11) and 2017 International Union for the Conservation of Nature (IUCN) Red List of Threatened Species.
Terrestrial Fauna	• Gisusi usab ang terrestrial fauna uban sa pagtuon sa mga nanubo nga mga tanum sa palibot. Gituna-an usab ang mga mananap ug insekto nga makita sa lugar. Gikuhaan ug mga hulagway ang mga tanum, insekto ug mananap nga makita sa lugar nga dili pa mailhan gamit ang high resolution camera.
Hydrology/Flood Modelling	• Paggamit sa mga datos gikan sa National Mapping and Research Information Authority (NAMRIA), Philippine Atmospheric, Geophysical and Astronomical Service Administration (PAGASA), and Mines and Geosciences Bureau (MGB). • Paggamit sa mga datos sa kawanangan gikan sa PAGASA Science Garden. • Gitun-an ang posibling kinaiya sa pagbaha tungod sa pag-ulan gamit ang Direct Rainfall Model aron mahibaw-an ang direction sa pag-dagayday sa tubig padung sa ubos nga parte sa yuta.
Physical Oceanography	• Paggamit sa mga numerical models aron matun-an ang sulog sa dagat lakip na ang lihok sa tubig uban sa kakusog sa hangin ug direksyon niini, porma sa dagat, kalidad sa tubig-dagat ug ang kainiton niini. • Post-processing of the interpolated bathymetry of the areas covering the project site was conducted using GIS.
Water Quality	• Kini nga pagtuon nigamit sa 2008 EPRMP Report, Self-Monitoring Report sa nilabay nga lima (5) katuig ug Compliance Monitoring Report sa linabay nga lima (5) katuig and primary water sampling (5 effluent water, 6 marine water, and 2 groundwater). • Used DAO 2016-08 as standard reference.
Marine Ecology	• For benthic profile, Line Intercept (LIT) method by English et al. (1997). Transects were laid haphazardly on the reef flat by divers in SCUBA. Total length of the transect was set at 100m or until a sand patch is hit. Category of lifeforms under the transect were determined by collecting a series of photos of the transect line with underwater camera set at continuous shooting. • Using the same transect, fish community was determined using Fish Visual Census (FVC). • For each of the sampling site, 30L of water was collected at the surface using bucket. The collected water was passed through a 250µm plankton net and collected filtrate at the cod end of the net was transferred to sample bottles, treated with 1% formalin.
Meteorology	• Paggamit sa mga datos sa kawanangan gikan sa PAGASA Science Garden. • Laing mahinungdanong impormasyon gikan sa PAGASA ang bahin sa klima ug ang panagna sa kadaghanon sa bagyo sulod sa 2020 padulong

Module	Description
	2050 (Climate Change in the Philippines, 2011).
Air Quality	• Duha (2) ka grupo sa sample ang gikuha sa parehong mala ug basa nga tyempo sa lima (5) sa dapit. 24-hour sampling of Total Suspended Particulates (TSP), NO_x, SO_x, and PM_{10} and 1-hour sampling for trace metals were employed. • Kalildad sa hangin palibot sa proyekto gisukod subay sa DENR Administrative Order (DAO) 2000-81 or the Implementing Rules and Regulations (IRR) of the Clean Air Act of 1999.
Noise	• Gisukod ang kataason sa saba sa lima (5) ka estasyon gamit ang non-integrating type 2 sound level meter. • 64 ka pagbasa ang gihimo sa kada estasyon Nahibaw-an ang pinakaas, pinaka-ubos, sakto-sakto lang ug arang-arang nga kasaba sa pallibot. Ang arang-arang nga kasaba maoy giisip nga sakto sa sukod.
People	• Paggamit sa mga bag-ong datos sa barangay profiles ug ang mga datos gikan sa CLUP sa lungsod sa Villanueva ug desktop researches. • Paghimo ug mga survey ug pakighinabi sa mga nagkadaiyang grupo (FGD), ug Key Informant Interview (KII).

2.6 Public Participation

DAO 2017-15 or the “Guidelines on Public Participation Under the Philippine Environmental Impact Statement (EIS) System” nagpasabot nga ang mga proyekto nahisulod sa Philippine Environmental Impact Statement System (PEISS) angayan nga maghimo ug pamaagi aron ang katawhan maapil sa kada ang-ang sa proseso sa EIA. Ang mga barangay sa Katipunan, San Martin ug Poblacion 1 uban ang mga lederes sa mga kapunungan giapil sa proceso sa EIA.

Ang Pre-Scoping gisugdan niadtong Oktobre 2019. Ang maong kalihukan naglangkob sa pag-ila sa mga stakeholders, pagpakatag sa impormasyon ug ang pagpakihinabi ug pag-edukar sa mga katawhan, ang pre-scoping gihimo aron masuta kung unsa kalawom ang kahibalo sa katawhan mahitungod sa giplanohang proyekto.

Niadtong Abril 12, 2021, gikan sa 10:00 s buntag padung alas 12:00 sa udto didto sa covered court sa San Martin, Villanueva, Misamis Oriental.

Ang panagtipok alang sa Public Scoping nahitabo didto sa San Martin covered court, sa lungsod sa Villanueva samtang ang mga myembro sa EMB ug Gaia South nitambong pinaagi sa Zoom. Laing interesadong grupo gipatambong subay sa DAO 2017-15. Dokumentado ang mga issues ug concerns sa mga nitambong sa apesto sa Yuta, Tubig, Kahanginan ug sa mga Katawhan. Annex ES2 includes the Public Scoping Report indicating the analysis of the issues raised during the meeting.

2.7 Delineation of Impact Areas

Basi sa giplanohan nga kausaban nga himuon ug ang pagpadagan sa maong proyekto sa PSC, ang Ore Blend ug Bag-ong Dunggo-anan pagahimuon lang sulod sa kasamtangan pwesto sa PSC diha sa Phividec Industrial Estate sa Lungsod sa Villaueva, Probinsya sa Misamis Oriental.

3.0 EIA SUMMARY

3.1 Summary of Baseline Characterization

Table ES5. Summary of the environmental and socio-economic profile

Module	Description
Land Use	• Basi sa CLUP sa Lungsod sa Villanueva, ang giplanohan nga proyekto diha lang pagahimuon sulod sa luna nga gipanag-iyahan sa PSC sulod sa industrial zone, mao nga walay problema sa paggamit sa yuta.
Pedology	• Sulod sa lote sa PSC, isa lang ka klase sa yuta ang makita, ang San Miguel Loam. Dili kaayo acidic pero arang-arang ngadto na sa taas ang iyang katambokon sa yuta. • Ang pagka-acidic sa yuta tunga-tunga lang anaa sa pH 6.1. Ang lebel sa Nitrogen sakto-sakto lang anaa sa 0.1-0.2%, Ubos ang lebel sa Organic matter 1.96-2.96%, Pareha nga ubos ang lebel sa Phosphorus nga anaa lang sa 0.020-0.026% ug ang Potassium 0.08-0.09. Ubos ngadto sa arang-arang ang katambukon sa yuta. • Ubos ra kaayo ang lebel sa Hg and Cd sa yuta, halos dili na mabantayan. Hexavalent Chromium nga anaa sa yuta anaa lang sa <0.10 ubos ra kaayo sa 2 mg/kg.
Geology/ Geomorphology	• Lima (5) ka klase sa bato ang makita ilalum sa lote sa PSC: Upper Miocene Opol Formation, the Pliocene Indahag Limestone, the Pleistocene Bukidnon Formation, and the Recent Cagayan Terrace Gravel and Quaternary Alluvium. • The main structural features in the area are two (2) northwest-trending faults along the course of the Tagoloan River.The northern fault is shorter and cuts through rocks of the Cagayan Terrace Gravel that bound the river to the north. The longer, southern fault is referred to in more recent literature as the Cabanglasan Fault. • The major landforms that dominate the area: deltaic plain, alluvial terrace and hilly to rigged terrain.
Terrestrial Flora	• Overall, the diversity within the project site was considered low. • The vegetation within the proposed Ore Yards 5, 6 & 7 is generally considered as secondary forest. • The proposed new berth facility area is generally open with only about seven (7) trees. • The tree inventory revealed a total of 2,272 individuals belonging to 28 species from 14 families. In terms of frequency, the most abundant was alim (*Melanolepis multiglandulosa*) with 783 counts. The estimated stand volume is 3,454.10 m^3. • The generated overall Shannon-Weiner (*H'*) diversity value of 2.03 was computed (Fernando Classification, 1998), and is considered low. • There were 22 indigenous species recorded in the area. • In terms of importance value, antipolo (*Artocarpus blancoi)* was the most ecologically important species within the proposed ore yards.
Terrestrial Fauna	• The total number of wildlife recorded is 71 constituting one (1) species of amphibian, 56 avian fauna, five (5) mammals, and nine (9) species of reptiles, including bird species observed outside the transects but within or adjacent to the study area. • Ang karsada nga makita sa palibot maoy hinungdan sa ubos nga ihap sa mga mananap. • Adunay nagkadaiyang matang sa langgam ug mga pato sama sa Philippine Duck ug ang Wandering Whistling Duck nga makita sa may lasak-lasak nga lugar duol sa tapad nga Lote sa STEAG. • The total number of mammalian fauna recorded is five (5), belonging to two (2) families constituting five (5) genera. The number of Volant mammals observed consisted of only four (4) species of fruit bat – the

Module	Description
	rousette fruit bat, greater musky fruit bat (most abundant), short nosed fruit and the lesser musky fruit bat. • Isa lang ka matang sa baki ang makita sa lugar. Siyam (9) lang ka laing klase sa mananap ang nakita sa nanimuyo sa luagr. • The diversity value (H') of all the transects ranges from 2.42 to 2.68. Low values of dominance index among the transects illustrate improved diverseness along transect sites. • Out of the 71 species of wildlife recorded, about 23% of the wildlife species are endemic to the Philippines, most of which are species of birds. • All the species recorded indicated IUCN conservation status of least concern except fr the Philippine Duck, Philippine Collared Dove, and Philippine Sailfin Lizard, which have vulnerable status.
Hydrology	• Upat (4) ka gagmay ug dagkong sapa ang makita nga midagayday sulod sa lote ug miagas padung sa Macalajar Bay – kini mao ang Taganga Creek, Tagbalitang Creek, Pugaan River and Tagoloan River. • With a catchment area covering 168,843 has, the Tagoloan River constitutes the largest river system in the vicinity. • Dose (12) ang kinatibuk-ang ihap sa mga atabay nga anaa sulod sa lote, ang unom (6) niini gipanag-iyahan sa PSC. • The water-bearing formations in the areas consist of the highly permeable sand and gravel layers within the Quarternary Alluvium and Cagayan Terrace Gravel. These are prolific aquifers capable of producing more than 40 L/s water. • The groundwater level in the deltaic plain, coastal plain and flood plain is generally shallow. The well inventory shows static water levels of less than 10 mbgs, which is substantiated by the shallow depths of the wells.
Physical Oceanography	• The model runs revealed that the general trend is that the depth-averaged currents inside the Bay splits into two (2) directions in the areas near the mouth of Tagoloan River. A greater portion of water movement flows southwards following the coastal configuration towards the innermost portion of the Bay then continued along the coasts of Cagayan de Oro, into the area of Laguindingan and back into the open area of Bohol Sea. • Point sources of tracers were continuously released in the coastal vicinity of the proposed jetty port of the project with a discharge rate of 1,000 m^3 per hour with concentrations of 10,000mg/L for a one-month period (for both summer and wet season scenarios). • For the *amihan* wind conditions, the model predicts that the tracer plume propagates in an elliptical pattern with its major axis directing towards the northeast and southwest of the release point. • The spreading of low-concentrated tracer plumes is mainly directed towards the northeastern coastal area of the project.
Water Quality	• Basi sa pagtuon, walay bisan-unsa nga klase sa pinong puthaw ang misagol sa tubig ug malabay sa dagat. • Organic pollutants represented by BOD and COD were within the guide values, with the latter only showing a range of 9 to 25mg/L. • The TSS were below the guide value of 100mg/L, ranging only from 3 to 8mg/L. • Mga hilo sama sa Benzene, toluene, and xylene (BTEX), and cyanide dili makita sa mga nilabay nga tubig. • Sa kinatibuk-an, ang mga gilabay nga tubig, basi sa moniroting report gikan January 2017 padulong March 2021, wala molapas sa gitakda nga sukdanan ang mga hugaw nga nasagol sa tubig subay sa gitakda sa Class SC sa DAO 2016-08 • Para sa kalidad sa tubig-dagat, walay nakita nga bisan-unsang klase sa

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	puthaw ang nasagol sa tanan sample nga nakuha sa tanan estasyon. Tanan nasukod nahisulod sa giya sa Class SC ug ang sukod sa hugaw sa tawo nga nisagol sa tubig ubos ra pud kaayo nga anaa lang sa 20 MPN/100ml sa tanan estasyon. • Sa tubig-tab-ang, dili makita ang mga bug-at nga puthaw sama sa Pb, As, uh Hg. All other parameters such as pH, fecal coliform, TSS, and O&G were within the standards.
Marine Ecology	• Total coral cover of MW1 is at 55.24% dominated by massive lifeforms. • The pillar recruits mostly the massive Porites but is also covered almost entirely of algal assemblage and other invertebrates. Although sparse, the recruitment of corals on the pillar indicates presence of viable reproducing coral colonies. • Algal assemblage and abiotic factors occur at the same rate from MW3 with only 24.66% coral cover. • Much of the reef is covered with sediment covered algal assemblage indicating the site is impacted anthropologically. • MW1 has the highest number of fish species among the sites having 36 species in 14 families. • From all sites, there is a limited occurrence of commercially important or target species. These are three (3) species of Scaridae (parrotfish) and a species of Siganidae (rabbitfish). • Niadtong tuig 2021, ang lungsod nakatala ug 7.3 tonelada nga kuha sa isda. Ang kabug-aton, nagkaubos gikan sa 7.5 sa tuig 2020 ug 8.5 tonelada sa tuig 2019. • Looc MPA ang nag-inusarang gideklara nga protected area sulod sa dagat sa lungsod sa Villanueva. • The total abundance of plankton ranges from 80,000 to more than 140,000 cells per liter with about 90% of the abundance being due to Chaetoceros.
Meteorology	• Matud pa sa PAGASA Lumbia Airport monitoring station, ang project site makasinati ug taas nga lebel sa ulan sa buwan sa Hunyo padung Oktobre nga moabot sa 200 mm kada buwan. • Normal nga kainiton sa project anaa sa 21ºC hangtud 33 ºC. • Ang normal nga kakusgon sa hangin anaa sa 1 to 4 mps halos tanan panahon. Wind at the project site comes from the South 45.5% of the time at speed range of 1 to 4 m/s and from the north 30.3% of the time at wind speed range of 1 to 4 m/s. • Gibanabana, ang probinsya sa Misamis Oriental makasinati ug isa ka bagyo kada tuig.
Air Quality and Noise	• All results are within the CAA standards for both one-hour and 24-hour averaging time for TSP and PM_{10}. • For 1-hr sampling NO_2 is present in relatively low concentrations while SO_2 was almost undetected with <0.29 µg/Ncm in all stations except for AQ1 during the second sampling while for 24-hour averaging time, SO_2 concentrations in AQ1, AQ2, and AQ3 range from 2 to 5 µg/ncm. • Most of the heavy metals were not detected to very low values. The concentration of Pb was detected ranging from 0.08 to 0.12ug/ncm, As from <0.09 to 0.07ug/ncm, Cr^{+6} from <0.1 to 0.04ug/ncm, Cd from <0.02 to 0.20ug/ncm, and Hg from <0.01 to 0.004ug/ncm. • For noise, AQ1 and AQ5 have exceeded the maximum allowable noise levels for Class A areas in all time periods. While the dominant noise sources are pedestrians and passing vehicles which are common to all stations, AQ1 and AQ5 are identified to be particularly areas with high activities (e.g., construction and Zumba activities in AQ1 during the monitoring period. AQ2, AQ3, and AQ4 are within the allowed daytime levels.

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	• Based on the monitoring data of PSC, monitored criteria pollutants and heavy metals are within the prescribed standards for ambient air quality. • For the monitored Heavy metals (Cu, Cr^{6+}, Ni, Pb, Zn, Fe, and Cd), mostly undetected with the exception of some heavy metals. Cu was detected in 3Q-2016 at the station near the ore yard. Zn was detected in both perimeter boundary and residential monitoring stations during 3Q-2019 and 1Q-2020. Fe was also detected 1Q and 3Q-2016 and 1Q-2020 while Cd was detected 3Q-2019. • For the monitored noise level, the last five (5) years shows that the noise levels at the perimeter is below the maximum allowed levels.
People	*Municipality of Villanueva* • Basi sa datos sa ihap sa katawhan niadtong 2015, gilaauman nga ang mosaka ang ihap ngadto sa 45, 109 sa tuig 2025. • Ang Lungsod adunay kinatibuk-ang ihap nga 58.84% sa trabahante. • Ang tinubdan sa tubig gikan sa own use faucet community water system anaa sa 46% ug ang standard faucet community water system 34%. • Nag-unang hinungdan sa dakit mao ang paak sa mananap, samad, ug sakit sa pagginhawa. APil usab ang alta-presyon, impeksyon sap ag-ihi impetigo ug TB. • In 2020, the most common cause of death in the Municipality was the undetermined natural death. Other documented cases are cardiovascular disease, chronic hypertensive vascular disease, and hypertensive vascular disease. • Basi sa datos sa RHU niadtong 2020, 97% ang adunay hinlo nga tubig ug kasilyas sa kada balay. • Nagkaubos usab ang ihap sa krimen sa tuig 2013-2017. • The creation of the Phividec Industrial Estate paved the way for allocating almost one third of the land areas of Barangay Tambobong, Balacanas, San Martin, Dayawan and Katipunan for the establishment of industries and businesses. • The LGU operates a Level III local waterworks system which has a total of 3,088 connections with 97% of these as domestic consumers, 2% as commercial and less than 1% as individual users. *Barangay Katipunan* • Ang IRA of Brgy. Katipunan nakit-an ug pagtaas sa tuig 2017. Gikan sa P 3, 676, 000 nisaka nagdto sa PhP5,959,368 sulod lang sa lima (5) katuig. • Matud pa sa datos sa 2021 profile, adunay 1, 883 ka panimalay gilangkuban sa 2, 586 ka pamilya. • Nag-unang paagi sa pagbyahi ang jeepney, motorized sikad ug motorsiklo. • Nahibaw-an nga ang mga nag-una nga hinungdan sa pagkamatay mao ang cardio respiratory arrest, chronic obstructive pulmonary disease (COPD), diabetes mellitus, ug aksidente. *Barangay San Martin* • Ang IRA para sa tuig 2021 anaa sa P6,988,000 ug aduna pud madawat nga bahin sa buhis sa kabtangan nga mokabat sa PhP1.4M. • Ang ihap sa lumupuyo sa tuig 2021 anaa sa 5,568. • 1,565 ka pamilya ang giserbisyuhan sa Cagayan Electric Power and Light Company, Inc (CEPALCO). • Sa tuig 2021 nag-unang klase sa sakit mao ang hilanat, ubo sip-on ug

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	samad-samad. • Ang mga nag-unang hinungdan sa kamatayon mao ang acute cardio-respiratory arrest, COPD, and diabetes. *Barangay Poblacion I* • Basi sa datos sa 2020 profile, ang ihap sa lumulupyo anaa sa 3,750. • Gibanabana nga 3% sa lumulupyo apil sa 4Ps; 6% ang mga katiguwangan ug 2% ang mga PWD. • Pagbyahi palibot sa lungsod jeepney, motorcycle, bus ug Bajaj ang pwede masakyan Result of the Perception Survey • Kadaghanan sa respondents gikan sa Poblacion 1 (55.56%) ug Katipunan (59.46%) mga ulo sa kada panimalay. • Gibanabana nga 68% ang mga babae nga nisalmot sa survey. • 62% sa mga respondents anna sa 35-59 ug mga minyo. • 13% sa mga respondents nakahuman sa koliheyo. • 98% sa mga interviewees sakop sa Tribu Higaonon. • Pinakataas ang income sa Brgy. Poblacion I (83.33%). • Kadaghanan (16%) nagreport nga gikan sa pangempleyo sa gobeyerno gikan ang ilang sweldo, 10% gikan sa negosyo, 8% gikan sa kaugalingong pagpanarbaho. • Binuwan nga sweldo anaa sa P7,251 padung 10,000 para sa kadaghanan sa mga respondents. • Pinakadako nga galastuhon ang para sa pagkaon nga PhP10,000 (5% sa mga respondents) ug P3,0001-5,000 (para sa 35% sa mga respondents). • 51% nag-ingon nga ang ilang tubig gikan sa local government samtang ang 9% gikan sa mga community faucets. • 85% ang adunay linya sa kuryente, 15% ang mga walay suga. • Gibanabana nga 67% gikan sa Poblacion 1, 9% sa San Martin , ug 11% sa Katipunan ang anaay flush type kasilyas. • 92% nag-ingon nga sila mismo ang nanag-iya sa balay nga ilang gipuy-an. • 59% nagsulti nga tungod sa kakulang sa oportunidad para makatrabaho ang isa sa ilang gikabalak-an ug 19 nag-ingon nga wala silay nakita nga problema sa ilang barangay. • Halos-tanan nakaingon nga mayo ang pamalakad sa ilang komunidad para sa San Martin (51.11%) and Katipunan (75.68%). • Anaa sa 78% sa mga kababayin-an sa tulo (3) ang nalambigit sa pagpamaligya, 8% ang mananahi, samtang 5% ang nanarbaho, ug 0.9% nag-uma. • Kakulangon sa oportunidad nga makatrabaho isa sa mga problem sa mga kakabayin-an. 52% ang miingon nga wala sila nakasinati sa ilang pamuyo. • The possible activities for women as stated during the survey include participation in livelihood programs (43%) while 36% mentioned provision of community service. • Pinaka-common nga hinungdan sa kamatayn ang hypertension, heart attack, and diabetes. • Kadaghanan miingon nga ang ilang ga basura gikolekta sa munisipyo. Laing paagi sa paglabay sa mga basura ang paglubong sa yuta (3%), pagpalata (1%), pagsunog (4%). Ang pag-lahilahi gihimo sa 96% sa mga katawhan. • Kadaghanan sa mga respondents moingon nga walay kausaban sa

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	pahanon sa milabay nga lima (5) katuig. • Ang mga nga nakita sa mga tinubdan sa tubig tungod sa ubos nga kalidad sa tubig, ubos ang presyur sa tubig, ug ang mga pagbaha; sa kahanginan, baho ang kahanginan, problema sa pamanit, sakit ug init nga hangin. • About 44% of the respondents from Poblacion 1 felt contentment with the current attributes of the environment. • Halos-tanan (91%) sa mga respondents miingon nga aduna silay kahibalo bahin sa mga kalihukan sa PSC.

3.2 Summary of Alternatives

Table ES6. Project alternatives of the proposed PSC Expansion Project

Aspect	Standard Criteria	Options Considered	Assessment
Siting	• Location • Availability • Land use • Susceptibility to natural occurrences	Ang giplanohang proyekto ibutang sulod sa Phividec Industrial Estate sa lungsod sa Villanueva, sa probinsya sa Misamis Oriental. Walay lain gipili nga lugar bisan asa sa Mindanao para butangan sa maong proyekto.	Bisan paman sa nagpadayon nga pandemya, ang demand sa sintered ore padayon nga gipangita para sa ekonomikanhong paglambo. Ang kasamtangan nga planta sa PSC sa Phividec nagpabilin nga nag-una pag-abot sa nahimutangan niini matud sa JFE Technical Report[1]. Ang mosunod mao ang mga rason nganong mayo kini nga pwesto: a) Pwesto niini sa rota sa paglayag padung Japan para sa nga kakuhaan sa ore sa laing nasud, nakatabang aron mamahimo nga hapsay ug dali ang pagbyahi. b) Lawom nga tubig maoy rason nga pwede mogamit ug dagko nga barko, nakapaubos sa gasto sa kargamento. c) Minus bagyo ug arang-arang nga panahon tibuok tuig ug uhsaya walay mosulod nga bagyo. d) Adunay available nga sub-raw materials (limestone, dolomite) sa duol nga mga isla. e) Tungod sa namugna nga relasyon ng nag-ugat sa pagsalig tali sa companya ug sa gobyerno sa Pilipinas.

[1] *JFE Technical Report 2009*

Aspect	Standard Criteria	Options Considered	Assessment
			Ang kasamtangan nga lokasyon sa PSC anna sulod sa economic zone hinungdan nga ang paggamit ug pagpanag-iya sa yuta dili problema. Ang mahimutangan sa proyekto gitagna nga posibleng makasinati sa pagtaas sa tubig-dagat tungod nag-atubang man kini sa Bohol Sea. Ang butangan sa proyekto layo sa pangpang ug luwas sa hulga sa pagdahili sa yuta. The project site may experience respective peak acceleration amplitudes of about 0.35g, 0.25g and 0.20g in soft soil, medium soil and rock conditions. This indicates that slight to moderate ground motion may be expected in the area in the event of an earthquake with magnitude greater than 5.0. <u>People</u> Basi sa mga FGDs ug mga KIIs nga gipahigayon, kadaghanan sa mga respondents nagtuo nga walay dautan nga epekto sa kinaiyahan ang maong proyekto. Sil apud nagtuo nga magdala kini ug dugang trabaho ug laing-laing kalambuan sa katilingban .
Project type, components, and size	• Applicability • Process • Safety	Blending operation as it is independent from the sinter operation shall produce approximately 9MTPY. <u>Blending yard</u> Ang blending operation, nga lahi sa sinter operation, kaya mohimo sa gibanabana 9MPTY. <u>Blending yard</u>	Ang giplanohang proyekto bahin lang sap ag-usab sa ore yard nga naggamit ug conveyor systems ug auxiliary facilities gikan sa pantalan. Ang pagtukod sa bag-ong pantalan magpasabot nga motaas ang kapasidad kasamtangang pantalan.

Aspect	Standard Criteria	Options Considered	Assessment
		Ang ore blending pagabuhaton sulod sa upat (4) ka yarda, tulo (3) niini anaa ra sulod sa PSC. Tana lakang pagahimuon aron magpabilin ng aluwas ang tanan trabahante. Pinaagi sa paggamit sa computerized system process sa pagmonitor ug period maintenance, hapsay ug dali nga pagresponde sa pahanon nga naay maguba, makalikay sa aksidente ug pagpalyar sa mga makinarya. <u>New berth facility</u> Ang kasamtangang pantalan gamiton para sa pagdevelop sa bag-ong kagamitan sa bag-ong dungguanan. Ang PSC dili na mohimo ug bag-ong pantalan kay aduna paman bastante nga espasyo para sa bag-ong dunggu-anan	Sa kinatibuk-an, ang pag-usab sa ore blending facility ug pagbutang sa bag-ong dungguanan nagpasabot nga molambo pud ang tibuok operasyon. .
Process/ Technology		*PSC considers the conventional use of conveyor, stacker, and reclaimer. The process from the unloading of raw materials to the yard will be supported mechanically by these equipment. To ensure that fugitive dust will be suppressed in the entire process, a fully-covered conveyor system will be installed.* *PSC will use a Distributed Control System (DCS) for monitoring and controlling weight in Weighers along the BC line. On the other hand, Programmable Logic Controller (PLC) will be utilized for sequential running of motors to drive conveyors.* *The stacker, reclaimers, unloader and shiploader will have its own in dependent PLC system.* *The existing radar system of PSC will be utilized to monitor vessel movements not only the Main Berth but also the new berth.*	*PSC invests on technological advancement leading to constant efficiency of plant operation. The need to acknowledge and adopt an advanced technological system guarantees high quality output.* *Since the proposed expansion includes only the construction of a new additional berth, improvement of the existing berth, and development of the ore yard facility, discharges of chemical wastes will be mainly generated from the motorpool during the construction and offices during the operations phase. These are mainly asbestos and mercury bulb. Thus, regular waste collection and treatment shall address its proper disposal.* <u>Hazardous wastes</u> *The following are expected to be generated during the operation of the entire facility:*

Aspect	Standard Criteria	Options Considered	Assessment
		PSC maintains a Holding Station (Material Recovery Facility or MRF) used as temporary storage area for recyclable solid waste and a hazardous solid waste storage/disposal area. Hazardous wastes are temporarily stored for treatment by an EMB-accredited treater. Thus, the technical life of the temporary waste disposal facility, which is essentially for asbestos and mercury bulbs only, is approximately 25 years.	*Busted fluorescent lamp tubes, empty paint cans, lead-acid-batteries of vehicles, waste Oil generated during change oil of motorcycles, heavy equipment and service vehicles, and empty vulcanizing material during belt installation.* *<u>Electronic wastes</u>* *Empty cartridge of printer ink used at office and batteries used in cameras are the major electronic wastes in the operation.*
Supply of raw materials	• Source	*The materials will be imported from Brazil, Canada, India, and Australia. PSC is still open to source from other countries such as the Ukraine. The Company is also searching for new source of raw materials but still with uncertainty.*	*These countries are long time source of raw materials for PSC and will continue to supply the Company as it provides the specifications required by the plant.* *PSC may consider future options depending on the economy and quality of materials, among others. Due to the very specific requirements of PSC on the raw materials, careful selection must be done to ensure that the same good quality of ore will be produced.*
Source of power	• Availability • Total power requirement • Source	*PSC generates part of its power requirement mainly through its Sinter Heat Recovery Facility and supplemented by its diesel and dual-fuel generators. The remaining requirement is sourced from power utility company CEPALCO (Cagayan Electric Power and Light Company). For this expansion project, a total of 1,400 kW/day of power will be consumed during the operation. During the construction phase, about 1,594,000 kW of electricity will be utilized.*	*The existing local supplier is capable of supplying the required power of the new facilities using its current load. Issue on power interruption even at PSC's full operation is not seen to occur.*
Water management system	• Availability • Total water requirement • Source	*PSC has three (3) functional deep wells within the plant. DW4 and DW6 are used for general plant operation while DW3 is only used during sintered ore*	*Deep wells 4 and 6 will be able to provide the needed water of the additional facility from construction to operation phase. As minimal*

Aspect	Standard Criteria	Options Considered	Assessment
		loading operation. *For this expansion project, the sources of water will only be Deep wells No. 4 and 6. The proposed project will entail a total of 17,220 m^3 of water per month enough to be utilized for general cleaning works, dust control, and equipment cooling.* *Currently, PSC has the following pollution control facilities:* • *Main gas handling equipment* • *Room dedusting equipment* • *1 unit of Electrostatic Precipitator (39,000 m^3/min) Lurgi Type* • *1 unit of Electrostatic Precipitator (18,000 m^3/min) Lurgi Type* • *Drainage System* • *Pavement under belt conveyor* • *Pavement around sinter area* • *Unloader water spray system* • *Belt conveyor cover, chute* • *Main blower silencer* • *Ignition fan silencer* • *Water circulating system* • *Waste Disposal Facility* • *Hazardous waste storage/disposal area* *To maximize and ensure that the proposed ore blending and new berth project will cause no significant impacts to the people and environment, a conveyor system shall be installed from the ore blending yard to the berth facility. The main conveyor system will be covered to prevent fugitive dust. PSC will allocate about PhP21.9M for the installation of belt covers to ensure further environmental protection.*	*usage for general maintenance of the ground and equipment, including domestic use, the existing water source will be adequate. Moreover, issue on water competition may be one of the concerns that may be raised by the surrounding communities, which need to be addressed by PSC by ensuring that adequate supply of water will be available in the impact areas even at plant's full operation. Careful study on water availability including discharges must be implemented.*
Manpower	• Method of hiring • Available positions	*During the operation period, the additional workers for the ore blending and new berth facilities will be hired directly by the Company while others will be engaged thru a manpower agency.*	*One of the most pressing issues in any kind of development is the need for manpower and benefits of the local community from the project in terms of employment. Especially*

Aspect	Standard Criteria	Options Considered	Assessment
		There will be a total of 22,476 man-months for various workers consisting of mechanical, electrical and civil workers during the construction period. During the operations phase, additional positions such as administrative, maintenance, and engineering, among others will be opened to qualified individuals giving priority to local dwellers.	*during the construction period, both skilled and non-skilled workers will be needed, PSC must ensure that local dwellers who are qualified to do the job will be properly screened and accepted to do the job. The use of a manpower agency as also considered by the Company must be a venue to guarantee that workers from other areas will be the least priority.*

No Project Option

Kung wala kining giplanohan nga proyekto, magpadayon ang PSC sa iyang kasamtangan nga operasyon pero sa limitado ra nga kadaghanon. Mawad-an ang PSC sa kapas nga makig lumba sa uban nga mga sinter plants didto sa Janan hinungdan nga inanay magkawala ang operasyon sa PSC diri sa Pilipinas.

3.3 Summary of Risks and Uncertainties

Ang kalihukan sa PSC apil ang giplanohan nga pagpalapad niini, bag-ong kagamitan sa ore blending ug bag-ong dungguanan gilauman nga wala kaayo kadaut nga dala ngadto sa yuta, hangin, tubig ug sa nagpalibot nga komunidad. Sa tinuod lang, ang gisugyot nga proyekto magbag-o ug mag-umento sa mga gamit sa PSC aron mas mapataas pa ug maimprove ang produksyon aron mas bulto pa ang mabaligya ug mahatud sa laing nasud.

Sa kinaiya sa kayutaan, ang kalayo sa buhi nga bulkan Mount Hinbok-HIbok sa Probinsya sa Camiguin (67-120 km), ang nakita nga peligro mao lang ang pag-uwan sa abo kun ugaling mobuto ang bulkan ug moabot sa 10, 000 metros ang kataas sa pagsaka sa abo. Sa inani kalayo, gilauman nga ang tibuok lugar sa PSC makadawat lang ug 1 cm lang kabaga nga abo. Ang kabaga sa abo mag.agad pud sa kakusog ug direksyon sa hangin.

Basi sa mga datos, Zones 1 padung 4 anaa nahimutang duol sa sapa northeast ug east sa PSC compound kung asa makasinati sa hinay ngadto na sa makusog nga posibleng pagbaha matud sa detalyado nga landslide ug hazard map sa Villanueva (MGB 2015). Dugang pa, ang PSC Compound giisip nga ubos ang kahigayunan sa pagdahili sa yuta kay wala makita nga pangpang ug bakilid sa palibot.

Lauman nga adunay pagulbo sa abog gikan sa pagkarga ug pagdiskarga sa mga sintered products sa panahon sa operasyon tungod sa pagdagan sa mga niini sa conveyor. Hinuon, adunay mga mitigating measures ang gigamit sama sa regular nga pagbisbis sa tibuok palibot aron mapugngan ang pagdaghan sa abug.

Table ES7. Impact management plan of PSC

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
Pre-construction							
• Application of permits/licenses/ clearances from LGUs and national government agencies	PEOPLE	• Continuing partnership and coordination with host barangays and LGU of Villanueva	• PSC shall continue its IEC efforts and inform/ update respective the barangay councils of the host barangays and the LGU of Villanueva regarding the project and requirements for permits and/or clearances.	100% compliance to local and national requirements	ComRel PSC HRGA ComRel	Part of the permit application cost	IEC Plan
• Site clearing of the proposed ore blend yard area including leveling and surveying • /Site preparation for new berth facility area	PEOPLE	• Safety of the workers/staff within the premises of PSC	• Fences shall be installed around the perimeter of the project area. • Notice should be placed to inform about the workers/staff on the dangers of falling debris. • Security guards shall be stationed at the entry/exit to prevent unauthorized people from entering the construction site.	100% compliance to PSC's existing Safety Management Protocol – zero LTA and Fatal Accident	PSC Safety	Part of the construction cost	Construction Agreement
Construction							
• Site clearing and leveling including removal of vegetation • Construction of structural foundation for conveyors • Installation of equipment at the yard including the conveyor system	LAND	• Removal of vegetation cover -*a total of 2,421 trees is expected to be felled* • Change in habitat	• A 100% tree inventory within the developable areas was already conducted and PSC will secure tree cutting permit for the trees that will be felled. • PSC shall replace a maximum total of 242,100 seedlings in compliance to the provision of DENR DMO 2012-02 that a total of 100 seedlings shall be replaced for every naturally grown tree that is felled. • Seedlings will be planted along the remaining open areas within the PSC and along reforestation areas in agreement with DENR's National Greening Program. • Restocking and supplementary planting of endemic trees along existing green belts and corridors of PSC. • Earthballing and transplanting of Narra trees observed at the proposed ore blending area. • Collaboration with other Phividec locators such as STEAG for the continued protection of adjoining forested areas and marsh habitats to serve as refuge for displaced wildlife.	100% compliance to PD 705 and tree cutting permit conditions	PSC Laboratory & Envi Dept PCO	Part of the construction cost	• Include in TOR of contractor • Tree cutting permit • MOA by and between PSC, PHIVIDEC, Province of Misamis Oriental, Villanueva LGU and DENR Region X, PENRO and CENRO and other stakeholders including adjoining municipalities for participation in NGP
• Site clearing and leveling including removal of vegetation • Construction of structural foundation for conveyors • Installation of equipment at the yard including the conveyor system (*Continuation…*)	LAND	• Loss of topsoil and occurrence of soil erosion • Soil compaction	• Preferential scheduling of clearing and excavations works during the drier months (Low rainfall in Type IV areas is during the months of March to May). • Maximize cut-and-fill method of site preparation and road construction. Minimal topsoil spoils will be generated since excavation will be limited to structural foundations mainly isolated footings. • Spoils shall be hauled to designated run-off- controlled temporary spoil holding/storage area located North northwest of the proposed ore blending facility (N8°34'32.06", E124°45'32.77") with an approximate area of 6,000 m^2. • Immediate re-vegetation of exposed areas, which will not be utilized in subsequent development. • Establishment of appropriate erosion control measure such as concreting or use of gabions specifically along the drainage channel (approximately 1,250m in length with a width of 3m and a depth of 2 meters) southwest of the proposed ore blending yard. • Limiting the spoil height to 5m and covering the spoils with sacoline or tarpaulin especially during rainy months (June to September in Type IV areas).	100% compliance to the EMP	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractor	Part of the construction cost	• Include in the TOR of the contractor • Topsoil storage and management plan • SMR
• Site clearing and leveling including removal of vegetation	LAND	• Loss of topsoil and occurrence of soil erosion • Soil compaction	• Utilization of dredged materials from the new berth for backfilling and leveling of the ore blending yard.	100% compliance to the EMP	• PSC Lab & Envi Dept • PCO • PSC Planning Department	Part of the construction cost	• Include in the TOR of the contractor • Topsoil storage and

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
• Construction of structural foundation for conveyors • Installation of equipment at the yard including the conveyor system (*Continuation…*)					• Contractor		management plan • SMR
		• Generation of construction debris	• Construction spoils such as waste concrete/mortar will be brought to the 6,000 m^2 temporary spoil holding/storage area (N8°34'32.06", E124°45'32.77"). • PSC shall look for contractors/entities willing to accommodate the debris for backfilling purposes or other end use. • Woodwastes materials, waste rubber and plastic scraps shall be brought to the existing 40m^2 PSC sorting, storage and disposal facility (N8°34'32.34", E124°45'57.73"). • The sorting facility shall classify the waste materials for recycling or for proper disposal. • Scrap metals shall be brought to the existing 4,600 m^2 PSC scrapyard (N8°34'24.93", E124°46'5.14") for temporary storage • PSC shall look for third-party scrapyard to broker scrap metals for recycling.	100% compliance to the EMP	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractor	Part of the construction cost	• Include in the TOR of the contractor • Construction debris management plan • SMR
		• Solid waste generation	• New workers, laborers and contractors shall be oriented on PSC's existing solid waste management protocol (EMP 07 (IM-APX-003-07) for proper waste segregation of solid waste. • PSC shall put in place trash bins segregated according to the type of waste (biodegradable, non-biodegradable, recyclable and hazardous waste) in the new project/work area similar to the waste segregated bins set in the existing area. • Each bin shall be regularly collected by PSC garbage truck with segregated compartment. • The collected solid waste shall be brought to the existing PSC sorting, storage and disposal facility (N8°34'32.34", E124°45'57.73") (N8°34'32.34", E124°45'57.73"). (*Please see subsequent management and mitigation process in the solid waste management at the operation of PSC Envi Dept, Laboratory, PSC Solid Waste Sorting Facility and Hazardous Waste Storage Area*)	100% compliance to PSCs EMP and integrated manual in compliance to RA 9003	• PSC Lab & Envi Dept • PCO	Part of the construction cost	• PSC Integrated Manual EMP-07 (IM-APX-003-07)
• Site clearing and leveling including removal of vegetation • Construction of structural foundation for conveyors • Installation of equipment at the yard including the conveyor system (*Continuation…*)	LAND	• Generation of hazardous wastes – busted bulbs – used oil – oil contaminated wastes – containers previously containing toxic chemical substances – lubrication wastes – lead and lead compounds (vehicle batteries, spent battery packs) – assorted compounds (dry battery cell) – welding butts – pathogenic wastes	• Set-up of additional hazwaste container bins in identified areas where hazwaste generation is likely to occur such as the temporary facility of contractors. • Regular collection of hazardous waste generated during construction to be brought to the PSC sorting facility. • Hazardous shall be classified and sorted according to its classification and shall be temporarily stored in the 260 m^2. PSC hazardous waste storage area (N8°34'31.81", E124°45'59.01") (N8°34'32.34", E124°45'57.73"). (*Please see subsequent management and mitigation process in the hazardous waste management at the operation of PSC Envi Dept, Laboratory, PSC Solid Waste Sorting Facility and Hazardous Waste Storage Area*)	100% compliance to PSCs EMP and integrated manual in compliance to RA 6969	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractor	Part of the construction cost	• PSC Integrated Manual EMP-03 (IM-APX-003-03) • Hazardous Wastes Management, Treatment and Disposal Program • Hazwaste Generator ID • Hazwaste Treater and EMB Certificate of Treatment including Hazwaste Transport Permit
	WATER	• Increase in surface run-off and silt deposition	• Construction of a 1.6 hectares (4-chambered) new south settling pond (N8°34'28.68", E124°45'29.71") with an approximate water holding capacity of 66.58m^3 prior to the start of site grading and leveling of the area intended for the ore blending yard. • Improvement of southern drainage channel (approximately 1,250 meters in length with a width of 3m and a depth of 2m) and run-off canals within the periphery of the construction	100% compliance to PSCs EMP in compliance to RA 9275	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractor	Part of the construction cost	• Include in TOR of contractor • PSC Run-off Water and drainage Mgmt. Plan

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
			area for ore blending area (Yard 5,6&7). • Construction of a new drainage channel (approximately 900 min length with a width of 3m and a depth of 2m) in the northern side to collect run-off emanating from the proposed Yard 8. • The southern drainage channel will eventually be connected by PSC to the proposed new south settling pond as the existing south settling pond will be condemned once ore blending yard is established while the new northern drainage channel will be connected to the existing northern settling pond (N8°34'41.10", E124°45'51.01"). • Establishment of peripheral berm within the ore yard to prevent run-off from directly discharging to the nearest discharge channel. • Construction of slightly slope ore blending yard with the inclination towards the center to collect run-off allowing the flow towards southeast first to the drainage channel to give ample time for the run-off laden with soil and ore particles to settle and diverted to a sump pit (N8°34'3.49", E124°45'53.44") thereby collecting silt materials and particles thereby before meandering the drainage channel. • In the northern drainage channel, sump pit will be established prior to confluence with the 1st chamber of the northern settling pond (N8°34'34.82", E124°45'59.01"). • PSC is encouraged to consider construction of additional collector sumps or silt fences especially during the construction phase of the ore blending yards. • Secure the necessary discharge permit for the development of the new south settling pond.				
	WATER	• Water Pollution	• New workers, laborers and contractors shall be oriented on PSC's existing wastewater management program (EMP 04 (IM-APX-003-04). • Set-up of three (3) portalets for the contractors and laborers temporary facility near the construction area for the ore blending yards and conveyor system • For sanitary purposes, civil contractors shall be tasked to maintain cleanliness and ensure that accumulated wastewater shall be collected and treated before it reaches full capacity. • Wastewater that will be generated from the said portalets will be hauled and treated by a third party pozo negro siphoning service provider. • The service provider will be monitored as to the treatment and disposal and will be compelled to follow PSC Wastewater Mgmt Plan Protocol. • PSC also has several existing toilets connected to septic tanks that were located the vicinity. The said toilets can be utilized by workers and employees involved in the construction. • Aquatic plants and reeds were allowed to grow in the existing northern settling pond to facilitate phytoremediation. This practice shall also be introduced in the new southern settling pond once established. • The existing material handling area has two (2) existing oil and water separator with a total holding capacity of 5.88m^3 sufficient to trap oil that may spill near the construction area. • PSC also has an installed oil and water separator with a total holding capacity of 4.52m^3 at the Motorpool Facility in Material Handling Dept. where PMS and repair for vehicles is done. The facility shall also be utilized during the construction of the ore yard and conveyor system.	100% compliance to PSCs EMP in compliance to RA 9275 and RA 6969	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractor	Part of the construction cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04) Include in TOR of contractor • Discharge Permit • Phil Coast Guard approved Oil Spill Contingency Plan

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
			• Oil and water separators are regularly monitored and maintained by PSC to ensure its effectivity and functionality. • PSC practices putting bins containing saw dust and sand that can be sprinkled in case of accidental spillage of soil. • PSC also practices lining of limestone and HDPE in the final discharge of the northern settling pond and this shall also be implemented in the new southern settling pond. • An existing oil spill management protocol is being implemented by PSC and this shall be strictly implemented during the construction of the ore blending yard and conveyor system. • PSC also has procured universal spill kits and sorbents such as polypropelene as well as oil containment boom that can be utilized for any untoward oil spillage.				
• Site clearing and leveling including removal of vegetation • Construction of structural foundation for conveyors • Installation of equipment at the yard including the conveyor system • (*Continuation…*)	AIR	• Dust Generation	• Regulation of vehicle speed to 40km/hr within the construction areas. • Strict implementation of tarpaulin covering for delivery and haul trucks within and outside the construction area. • Wind barriers or covering of tarpaulin or sacoline materials shall be installed over excavated and dredged spoils. • Sprinkling of water along exposed areas especially during dry seasons. • PSC has two (2) water trucks to perform this activity with a capacity of 5.5kL per water truck. Water spraying activity will be done once in the early morning and once in the mid-afternoon. During drier days, additional spraying can be done before noon. The expected water requirement for the activity is 22,000 to a maximum of 33,000L per day. • The deepwell pumps of PSC have a capacity of 176,000L per day. PSC however has an option to utilize the impounded water at the settling ponds to lessen abstraction of water from their deepwell.	100% compliance to PSCs EMP in accordance with RA 8749	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractor	Part of the construction cost	• PSC Integrated Manual EMP-01 (IM-APX-003-01), EMP-01A (IM-APX-003-01A), EMP-02 (IM-APX-003-02) • Include in TOR of contractor
	AIR	• Increase in gaseous emission	• Regular maintenance of vehicles and construction equipment. • Designating a PSC envi staff and security guards to monitor and record heavy equipment during construction for smoke belchers • Identified smoke belchers shall be brought to the Motorpool Maintenance Facility for immediate overhaul of vehicles and heavy equipment. • Conduct of periodical smoke emission testing for vehicles and construction equipment. • Orientation of new employees and contractors regarding air quality management program included in EMP 01A (IM-APX-003-1A). • PSC shall require contractor that vehicles and heavy equipment that will be used on site are Euro 4 or Euro 5 compliant machine.	100% compliance to PSCs EMP in accordance with RA 8749	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractors	Part of the construction cost	• PSC Integrated Manual EMP-01 (IM-APX-003-01), EMP-01A (IM-APX-003-01A), EMP-02 (IM-APX-003-02) • SMR • EMB Permit to Operate • Include in TOR of contractor
		• Increase in noise level	• Maintain equipment deployment schedule. • Regular maintenance of vehicles and construction equipment. • Use of mufflers for heavy equipment, trucks and machines. • Immediate overhaul at the warehouse for all vehicles emitting severe noise. • Orientation of new employees and contractors regarding noise management program included in EMP 08 (IM-APX-003-08).	100% compliance to PSCs EMP in accordance with NEPC standard	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractors	Part of the construction cost	• PSC Integrated Manual EMP-08 (IM-APX-003-08) • SMR • Include in TOR of contractor
• Pile driving and dredging at the new berth facility • Construction of new berth	LAND	• Generation of solid waste, dredged materials and hazardous wastes	• New workers, laborers and contractors shall be oriented on PSC's existing solid waste management protocol (EMP 07 (IM-APX-003-07) for proper waste segregation of solid	100% compliance to PSCs EMP in	• PSC Lab & Envi Dept • PCO • PSC Planning Department	Part of the construction cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04)

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
• Installation of material handling equipment • Installation of rubber dock fenders, bollards, signages etc		– busted bulbs – used oil – oil contaminated wastes – containers previously containing toxic chemical substances – lubrication wastes – welding butts	waste. • PSC shall put in place trash bins segregated according to the type of waste (biodegradable, non-biodegradable, recyclable and hazardous waste) in the new berth construction area similar to the waste segregated bins set in the existing area. • Each bin shall be regularly collected by PSC garbage truck with segregated compartment. • The collected solid waste shall be brought to the existing PSC sorting, storage and disposal facility (N8°34'32.34", E124°45'57.73"). (*Please see subsequent management and mitigation process in the solid waste and hazardous waste management at the operation of PSC Envi Dept, Laboratory, PSC Solid Waste Sorting Facility and Hazardous Waste Storage Area*)	compliance to RA 9003, and RA 6969	• Contractors		EMP-05 (IM-APX-003-05) EMP-07 (IM-APX-003-07) • Include in TOR of contractor • Hazardous Waste Generators ID • Phil Coast Guard approved Oil Spill Contingency Plan
	WATER	• Wastewater generation	• New workers, laborers and contractors shall be oriented on PSC's existing wastewater management program (EMP 04 (IM-APX-003-04). • Set-up of one (1) portalet for the contractors and laborers temporary facility near the construction area for the new berth. • For sanitary purposes, civil contractors shall be tasked to maintain cleanliness and ensure that accumulated wastewater shall be collected and treated before it reaches full capacity. • Wastewater that will be generated from the said portalet will be hauled and treated by a third party pozo negro siphoning service provider including the three (3) portalets at the construction area for the ore blending facility. • The service provider will be monitored as to the treatment and disposal and will be compelled to follow PSC Wastewater Mgmt Plan Protocol (PSC EMP-04 (IM-APX-003-04). • PSC also has existing toilets connected to septic tanks that were located near the existing berth and BBASI Office. The said toilets can be utilized by workers and employees involved in the construction.	100% compliance to PSCs EMP in compliance to RA 9275 and RA 6969	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractors	Part of the construction cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04), EMP-05 (IM-APX-003-05), E9MP-09 (IM-APX-003-04) • Include in TOR of contractor • Discharge Permit • Phil Coast Guard approved Oil Spill Contingency Plan
	WATER	Marine Ecology • Marine habitat disturbance • Increased turbidity of adjacent marine waters due to possible deposition of debris and silt from construction • Dredging activities stir up fine sediment which increases turbidity. This reduces light penetration which in turn reduces photosynthetic rates lowering DO concentration in the water column • Resuspension of heavy metals and other persistent pollutants trapped in sediments; may also result to algal blooms as a result of nutrient release due to silt suspension.	• Proper delineation of construction boundaries for the new berth ensures that construction shall be confined to that area alone and will not damage the adjoining marine habitat. • PSC shall use silt or turbidity curtains to contain water suspended silt within the dredging/piling area. • The silt curtain can be made of vinyl barrier with float above and chain ballast below and shall be anchored in the benthic zone or the marine bottom. • Dredging shall be done in two phases enclosing it in a 300 to 400-m silt curtain (perimeter), the said protective measure will be transferred to the second phase once piling and dredging is done in the first phase. • Dredged materials shall be brought to a temporary spoil holding/storage area (N8°34'32.06", E124°45'32.77"). approximately 450m southwest of the proposed new berth • Monitoring of turbidity outside the dredging area using Secchi disk to check the effectiveness of silt curtain. • PSC shall also consider establishing a temporary settling pond (N8°34'40.77", E124°45'40.48") to pump out and collect settled silts in case of heavy turbidity. This will ensure that re-suspended silt, heavy metals and persistent pollutant are arrested and transferred to the storage area. • Mitigation measures to minimize siltation (cited above) will	100% compliance to PSCs EMP in compliance to RA 9275	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractors	Part of the construction cost	• PSC Silt Curtain Deployment Plan • PCG approved Oil Spill Contingency Plan • PSC Silt and Dredged Materials Management Plan

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
			also reduce the impact on dissolved oxygen. Wave action also naturally increases the DO in the marine water. • Since the silt curtain has an installed float/pontoon above the water and enclosing the whole dredging/piling area, the float can effectively contain oil slick and sheen from accidental spillage and prevent it from spreading into adjoining areas. • A staff from the PSC Laboratory & Envi Dept shall be tasked to monitor the environmental condition within and adjacent to the dredging/piling area. • PSC already have universal spill kits, oil recovery equipment and sorbent dispersants that they can immediately use in case of oil spillage. • PSC is on the process of securing an approval from the Philippine Coast Guard (PCG) for their Oil Spill Contingency Plan. • PSC shall limit activities on pillar thrusting to daytime to allow settlement of organisms within the adjacent area. This will also build behavioral response among mobile species to seek refuge in the area at night and move out during the day.				
	AIR	• Increase in gaseous emissions	• New workers, laborers and contractors shall be oriented on PSC's existing air quality management program (EMP 01A (IM-APX-003-01A). • Regular maintenance of tug boats, vehicles and construction equipment. • Prior to deployment of dredger and pile driving machine, PSC will inspect the pile driving machine and will secure certificate of assurance from the contractor that the machine is in good working condition. • Maintain equipment deployment schedule. • Proper operation of pile driving machine, dredger, tugboat and heavy equipment/vehicle. • PSC shall require contractor that vehicles and heavy equipment that will be used on site are Euro 4 or Euro 5 compliant machine.	100% compliance to PSCs EMP in accordance with RA 8749	• PSC Lab & Envi Dept • PCO • PSC Material Handling • PSC Mechanical Department • Contractor	Part of the construction cost	• PSC Integrated Manual EMP-01 (IM-APX-003-01), EMP-01A (IM-APX-003-01A), EMP-02 (IM-APX-003-02) • SMR • EMB Permit to Operate • Include in TOR of contractor
		• Increase in noise level	• Maintain equipment deployment schedule. • Regular maintenance of vehicles and construction equipment. • Use of mufflers for heavy equipment, trucks and machines. • Immediate overhaul at the mechanical repair shop for all vehicles emitting severe noise. • Orientation of new employees and contractors regarding noise management program included in EMP 08 (IM-APX-003-08).	100% compliance to PSCs EMP in accordance with NEPC standard	• PSC Lab & Envi Dept • PCO • PSC Mechanical Department • Contractor	Part of the construction cost	• PSC Integrated Manual EMP-08 (IM-APX-003-08) • SMR • PSC OHS • Include in TOR of contractor
	PEOPLE	• Occupational awareness	• Promote training/Orientation of new employees, laborers and contractors.	100% compliance to PSCs OHS	• PSC Safety Office	Part of the construction cost	• Include in TOR of contractor • PSC OHS Manual
		• Occupational risk	• Posting of safety warning and danger signs in strategic locations within the construction site.				
		• Health Risk in relation to Covid-19	• Regular testing of workers from Covid-19. • Immediate quarantine/isolation of workers with symptoms. • Periodic Health Awareness on Covid-19 prevention. • Strict monitoring of visitors (with proper Covid-19 testing) prior to access to PSC facilities.	100% compliance to PSCs Covid Action Plan	• PSC Safety Office, Security and Clinic	Part of the construction cost	• Include in TOR of contractor • IATF approve Covid Safety Protocol Manual
		• Increase in local employment	• Prioritization of local hiring.	100% compliance to PSCs Hiring Plan	PSC	Part of the construction cost	• HR Hiring Procedure Manual
		• Generation of government taxes	• Prompt payment of correct and proper taxes and appropriate of necessary permits.	100% compliance based on	PSC	Part of the construction cost	• Proof of Tax payment

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
				applicable local and national laws			
		• Increased traffic due to hauling trucks, vehicles and equipment going to and from the site	• Installation of safety barriers (e.g. fence) and signages. • Drafting and implementation of Traffic management plan(including ingress/egress of vehicles at construction site), including properly trained personnel to manage traffic flow. • Implement pedestrian walkways near the construction site. • Ensure that contractor's vehicles, trucks and equipment are of good working condition through timely inspections. • Ensure that the contactor employs properly trained crew and operators, especially drivers of large equipment like cranes and earth moving vehicles.	100% compliance to PSCs traffic management plan	PSC Safety Office and Security	Part of the construction cost	• Compliance Monitoring Report • Traffic Management Plan
Operation							
Operation of the following: • Existing Berth • New Berth facility • Ore Stockyard (Existing 1 to 4) • Ore-blending Yard (5 to 8) • Conveyor Systems (Existing and new)	LAND	• Generation of solid waste, raw material spoil, lumpy ores and pellets	• Strict implementation of PSC's existing solid waste management protocol (EMP 07 (IM-APX-003-07). • Periodic re-orientation of workers, laborers and contractors on PSC's EMP 07 (IM-APX-003-07) for proper waste segregation and handling of generated solid waste in the berthing facility, raw material yard, ore blending area and contractors facility. • PSC Lab & Envi Dept has put in place trash bins segregated according to the type of waste (biodegradable, non-biodegradable, recyclable and hazardous waste) in each work area. • Regular inspection of collection bins and replacement of worn-out solid waste collection drums to fiber glass containers. • Each bin shall be regularly collected by PSC garbage truck with segregated compartment. • The collected solid waste shall be brought to the existing PSC sorting, storage and disposal facility (N8°34'32.34", E124°45'57.73"). (*Please see subsequent management and mitigation process in the solid waste management at the operation of PSC Envi Dept, Laboratory, PSC Solid Waste Sorting Facility and Hazardous Waste Storage Area*) • Installation of diverter plates with automatic recovery conveyor on the uploaders. • Manual gathering of accumulated spillage materials after completion of unloading. • Installation of strainers at discharge end to filter spilled solids. • Provision of revetments and embankments at raw material yard (1-4) and ore blending (5-8). • Manual collection of spillage at the conveyor route.	100% compliance to PSCs EMP in compliance to RA 9003	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractor	Part of the operation cost	• PSC Integrated Manual EMP-07 (IM-APX-003-07) • Include in TOR of contractor
	LAND	• Generation of Hazardous Wastes – busted bulbs – used oil – oil contaminated wastes – containers previously containing toxic chemical substances – lubrication wastes – welding butts	• Regular collection of hazardous waste generated in the daily operation to be brought to the PSC sorting facility. • Hazardous wastes shall be classified and sorted according to its classification and shall be temporarily stored in the 260m^2. PSC hazardous waste storage area (N8°34'31.81", E124°45'59.01"). (*Please see subsequent management and mitigation process for hazardous wastes indicated in the operation of PSC Envi Dept, Laboratory, PSC Solid Waste Sorting Facility and Hazardous Waste Storage Area*)	100% compliance to PSCs EMP in compliance to RA 9275 and RA 6969	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractor	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04), EMP-05 (IM-APX-003-05), E9MP-09 (IM-APX-003-04) • SMR • Hazwaste Generators ID • Include in TOR of contractor
	WATER	• Water Pollution	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 04 (IM-APX-003-04) on wastewater	100% compliance to PSCs EMP in	• PSC Lab & Envi Dept • PCO	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
			management program and EMP 04 (IM-APX-003-06) water conservation program in the berthing facility, raw material yard , ore blending area and contractors facility. • Periodic inspection of drainage and collector's sump pit in the existing berth facility. • Installation of drainage and collector's sump pit in the new berth facility to collect silt and divert run-off water. • Periodic inspection of two (2) oil/water separator with a total holding capacity of 5.88m^3 at the raw material handling station. • Installation of an additional oil/water separator with a total holding capacity of 2.94m^3 at the new berth facility. • All run-off water emanating from Yard 8 shall be diverted to North Settling Pond. • While all run-off water emanating from Yards 1-7 shall be diverted to the new South Settling Pond. • Periodic inspection of north and south settling pond for its condition including water depth, access road, influent and effluent canals, filtering weir material replacement. • Quarterly monitoring of essential effluent parameters (relative to the operation of PSC) discharging from the North Settling Pond and New South Settling Pond shall be monitored monthly. • Periodic re-orientation of workers, laborers and contractors on PSC's EMP 05 (IM-APX-003-05) on Oil Spill Containment, Recovery and Clean-up Program. • Use of floats and pontoons to contain oil slick and sheen in case of accidental spillage and prevent it from spreading into adjoining areas. • A staff from the PSC Envi Dept shall be tasked to monitor the environmental condition within and adjacent to the berth facilities. • PSC already have universal spill kits, oil recovery equipment and sorbent dispersants that they can immediately use in case of oil spillage, additional procurement of such kits for the new berth facility. • PSC also has existing toilets connected to septic tanks that were located near the existing berth and BBASI Office that can be also be utilized by the workers assigned at the new berth facility. • PSC shall require all berthing vessels that in case of offloading sewage waters, the chartered vessel will coordinate with PSC for tapping an accredited wastewater treater. • Since majority of the vessels are delivering raw materials, de-ballasting will not take place in the berth facility but instead they will intake ballast water. • For chartered vessels that will deliver the sintered ore, pellets and blended ores, PSC may request the chartered vessel to conduct partial de-ballasting at the international waters prior to entry at the country's maritime waters in accordance with the IMO protocol. • PSC shall collate information on the chartered vessel ballast water treatment system and request for record of de-ballasting activity in accordance with the IMO protocol. • In the event of de-ballasting at the berth facilities, PSC shall monitor the activity provided that the chartered vessel has an installed ballast water treatment system. For vessels that have chemical ballast treatment system, PSC may require information on the chemicals used for treatment and ensure that the chemicals are included in the PCL list. PSC may	compliance to RA 9275 and RA 6969	• PSC Planning Department • Contractor		APX-003-04), EMP-05 (IM-APX-003-05), E9MP-09 (IM-APX-003-04) • Include in TOR of contractor • Discharge Permit • Phil Coast Guard approved Oil Spill Contingency Plan

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
			request in advance information on such prior to the chartering date.				
	AIR	• Air Pollution	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 01 (IM-APX-003-01), EMP 01A (IM-APX-003-01A) and EMP 02 (IM-APX-003-02) on air quality management program for point source dust, ambient gas and ambient dust. • Operation of unloader water spray system (10m^3 per hour) during unloading activity. • Installation of another unloader water spray system (10m^3 per hour) at the new berth facility. • PSC has an existing 85 conveying lines, 79 of which are covered by arc roofing. PSC emphasizes on covering the conveyors that are used for transporting dry and fine materials. • PSC shall also install arc roofing for all the conveying route of the conveying system for ore blending as it is projected to convey dry and fine materials to and from the chartered vessels. • Covering of tarpaulins or sacoline of raw materials, ore blended stockpiles and lumpy ores and pellets during drier months. • Periodic inspection of/survey/replacement of defective/worn out conveyor belt rubber hood curtain plate to ensure that it is functioning properly and prevent spillage that may generate fugitive dust. • Regular maintenance of belt conveyor tip cleaner /head scraper. • Use of non-stick belt conveyor to reduce raw material mix spillage. • Paving of conveying route for easy maintenance especially during collection of unwarranted spillage. • Manual collection in case of spillage for all the conveying lines. • Periodic washing and spraying along paved and unpaved roads and grounds especially during dry season. • Continued use of industrial mobile vacuum cleaner. • Periodic inspection/ survey/ replacement of damaged water spray. • Quarterly monitoring of PM_{10}. • Use of low sulfur fuel oil for tugboats. • Use of Euro 4 or Euro 5 fuel for service vehicles. • Conduct of Ringelmann test for emission of all vehicles utilized in the operation of berthing facilities and conveyor system. • Immediate overhaul of smoke belching vehicles at the mechanical area.	100% compliance to PSCs EMP in compliance to RA 8749	• PSC Lab & Envi Dept • PSC Material Handling • PSC Mechanical Department •	Part of operation cost	• PSC's EMP 01 (IM-APX-003-01), EMP 01A (IM-APX-003-01A) and EMP 02 (IM-APX-003-02) • SMR • Permit to operate
	AIR	• Noise generation	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 08 (IM-APX-003-08) for noise management program including use of ear muffs in noise prone areas. • Regular maintenance of vehicles and heavy equipment. • Installation of mufflers for heavy equipment, trucks and machines. • Immediate overhaul at the mechanical repair shop for all vehicles emitting severe noise.	100% compliance to PSCs EMP in accordance with NEPC standard	• PSC Lab & Envi Dept • PCO • PSC Material Handling Dept. • PSC Mechanical Department • Contractor	Part of the operation cost	• PSC Integrated Manual EMP-08 (IM-APX-003-08) • SMR • PSC OHS • Include in TOR of contractor
	PEOPLE	• Occupational awareness • Occupational risk • Health risk in relation to Covid-19	• Promote Training/Orientation of new workers and employees. • Posting of safety warning and danger signs. • Prioritization of local hiring. • Regular testing of workers from Covid-19.	100% compliance to PSCs OHS	PSC Safety PSC HRGA	Part of operation cost	• EMS • SMR • IEC • IATF approved Covid 19 safety

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
			• Immediate quarantine/isolation of workers with symptoms. • Periodic Health Awareness on Covid-19 prevention. • Strict monitoring of visitors (with proper Covid-19 testing) prior to access to PSC facilities.				Protocol
Operation of the following: • Sintering Facility • Burnt Lime Facility • Pelletizing Ore Facility (for development)	LAND	• Generation of solid waste and hazardous wastes	• Strict implementation of PSC's existing solid waste management protocol (EMP 07 (IM-APX-003-07). • Periodic re-orientation of workers, laborers and contractors on PSC's EMP 07 (IM-APX-003-07) for proper waste segregation and handling of generated solid waste in the sintering facility, burnt lime facility and the proposed pelletizing ore facility. • PSC has put in place trash bins segregated according to the type of waste (biodegradable, non-biodegradable, recyclable and hazardous waste) in each work area. • Regular inspection of collection bins and replacement of worn-out solid waste collection drums to fiber glass containers. • Each bin shall be regularly collected by PSC garbage truck with segregated compartment. • The collected solid waste shall be brought to the existing PSC sorting, storage and disposal facility (N8°34'32.34", E124°45'57.73"). • Regular collection of hazardous waste generated in the daily operation to be brought to the PSC sorting facility. • Hazardous wastes shall be classified and sorted according to its classification and shall be temporarily stored in the 260 sq.m. PSC hazardous waste storage area (N8°34'31.81", E124°45'59.01"). *(Please see subsequent management and mitigation process for hazardous wastes indicated in the operation of PSC Envi Dept, Laboratory, PSC Solid Waste Sorting Facility and Hazardous Waste Storage Area)*	100% compliance to PSCs EMP in compliance to RA 9003, and RA 6969	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractor	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04) EMP-05 (IM-APX-003-05) EMP-07 (IM-APX-003-07) • Include in TOR of contractor • Hazardous Waste Generators ID • Phil Coast Guard approved Oil Spill Contingency Plan
		Water Pollution	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 04 (IM-APX-003-04) on wastewater management program and EMP 04 (IM-APX-003-06) water conservation program in the Sintering Facility, Burnt Lime Facility and Pelletizing Ore Facility (for development). • Periodic inspection of drainage and collector's sump pit in the perimeters of the existing Sintering Facility and Burnt Lime Facility and for the Pelletizing Ore Facility once established. • Periodic inspection and cleaning of the following oil/water separator. • Sintering facility with 1.13m^3 capacity • Burnt lime facility with 0.20m^3 capacity. • All run-off water emanating from sintering facility and burnt lime facility shall be diverted to North Settling Pond to allow run-off laden with silt to settle. • Periodic inspection of north and south settling pond for its condition including water depth, access road, influent and effluent canals, filtering weir material replacement. • Annual desilting of the north settling pond. • Silt and spoils shall be deposited temporarily near the first compartment of the North Settling Pond (N8°34'33.56", E124°45'59.13"). • Quarterly monitoring of essential effluent parameters (relative to the operation of PSC) discharging from the North Settling Pond and New South Settling Pond shall be monitored monthly. • Periodic re-orientation of workers, laborers and contractors on PSC's EMP 05 (IM-APX-003-05) on Oil Spill Containment, Recovery and Clean-up Program.	100% compliance to PSCs EMP in compliance to RA 9275 and RA 6969	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Contractor	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04), EMP-05 (IM-APX-003-05), E9MP-09 (IM-APX-003-04) • Include in TOR of contractor • Discharge Permit • Phil Coast Guard approved Oil Spill Contingency Plan

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
			• Periodic inspection and maintenance including siphoning of sludge of septic tanks in the sintering facility and the burnt lime facility. • PSC practices putting bins containing saw dust and sand that can be sprinkled in case of accidental spillage of soil in work areas. • PSC also practices lining of limestone and HDPE in the final discharge of the north settling pond. • An existing oil spill management protocol is being implemented by PSC and this shall be strictly implemented. • PSC also has procured universal spill kits and sorbents such as polypropelene as well as oil containment boom that can be utilized for any untoward oil spillage.				
		Air pollution - Point Source Dust - Gaseous Emission - Ambient Dust	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 01 (IM-APX-003-01), EMP 01A (IM-APX-003-01A) and EMP 02 (IM-APX-003-02) on air quality management program for point source dust, ambient gas and ambient dust. • Continuous monitoring of Sintering machine bed surface condition. • Regular cleaning of burner guns • Monitoring on the improvement of sintering process operation with emphasis on complete combustion of bunker oil • Continuous operation, rehabilitation and maintenance of the following air pollution control measures - Main gas handling equipment ➢ Waste gas main duct ➢ Waste Gas Cyclone ➢ Main Blower ➢ Double damper - Room dedusting cyclone (Cooler dedusting) ➢ Room dedusting equipment (8 multi cyclones) ➢ Cooler dedusting equipment (4 units dry type) ➢ Vertical double dampers for room dedusting cyclone (12 sets) - 1 unit electrostatic precipitator (Main) - 2 units electrostatic precipitator (Room EP) - stack - Main EP Smoke Stack (70 meters) • Periodic declogging of VDDs, dedusting cyclones dust chamber. • Patching of holes and replacement of deteriorated ducts. • Periodic inspection/survey/replacement of defective room dedusting system dust dropper damper/seals. • Periodic replacement of Bag Filter of Kiln # 1, #2 and #3. • Standardize automatic operation of REP Hopper Auto Vibrator Control. • Periodic monitoring of rapping insulator at MEP and REP. • Installation of level indicator alarm at dust hopper. • Installation of sampling point at Sinter Pot Machine Stack. • Installation of three (3) sets of multi cyclone and 3 sets of electrostatic precipitator for the process emission control of the proposed pelletizing plant. • Installation of hoods and suction ducts in Room EP for the proposed pelletizing plant. • Use of low sulfur BFO (Sinter, Kilns) and Carbon (Sinter, Kilns). • Continued use of burnt lime in sintering for SO_2 gas removal in flue gas. • Continued use of Fuel Catalyst at BLM Kiln/ SM IF.	100% compliance to PSCs EMP in compliance to RA 8749	• PSC SNT Mgr • PSC Envi Dept PCO • PSC Production Dept (QA/QC) • PSC Mechanical Department	Part of operation cost	• PSC's EMP 01 (IM-APX-003-01), EMP 01A (IM-APX-003-01A) and EMP 02 (IM-APX-003-02) • SMR • Permit to operate • PSC Rehabilitation Plan

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
			• Use of fuel catalyst for PSC tugboats & heavy mobile equipment. • Performance test of ORSAT Gas Analyzer @ main stack. • Measurement of Sulfur & FC content for Anthracite Coal. • Periodic conduct of stack sampling with RATA. • Periodic repair/rehabilitation of SM Ignition Furnace Hood. • Continued crushing of burnt lime in enclosed area. • Reduction of gas temperature using a heat exchanger in the burnt lime facility prior to release into the atmosphere. • Periodic monitoring of bag filters in the burnt lime facility to capture dust carried by the emitted gas. • Quarterly monitoring of ambient air concentration (PM_{10}, SO_2, NO_x and CO). • Regular conduct of studies and research that could optimize operation of sintering, burnt lime and pelletizing. • Manual collection in case of spillage in the sintering in burnt lime facility . • Periodic washing and spraying along paved and unpaved roads and grounds especially during dry season. • Continued use of industrial mobile vacuum cleaner. • Periodic inspection/ survey/ replacement of damaged water spray. • Use of Euro 4 or Euro 5 fuel for service vehicles. • Conduct of Ringelmann test for emission of all vehicles utilized in the operation of berthing facilities and conveyor system. • Immediate overhaul of smoke belching vehicles at the mechanical area.				
		• Noise Generation	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 08 (IM-APX-003-08) for noise management program including use of ear muffs in noise prone areas. • Continued maintenance of main blower and ignition fan silencer for noise attenuation that effectively reduce to <80dB. • Cleaning of CLF during preventive maintenance shutdown. • Regular maintenance of vehicles and heavy equipment. • Installation of mufflers for heavy equipment, trucks and machines. • Immediate overhaul at the mechanical repair shop for all vehicles emitting severe noise.	100% compliance to PSCs EMP in accordance with NEPC standard	• PSC Lab & Envi Dept • PCO • PSC Mechanical Department • Contractor	Part of the operation cost	• PSC Integrated Manual EMP-08 (IM-APX-003-08) • SMR • PSC OHS • Include in TOR of contractor
	PEOPLE	• Occupational awareness • Occupational risk • Health risk in relation to Covid-19	• Periodic re-orientation of workers, employees and contractors. • Posting of safety warning and danger signs. • Regular testing of workers from Covid-19. • Immediate quarantine/isolation of workers with symptoms. • Periodic Health Awareness on Covid-19 prevention. • Strict monitoring of visitors (with proper Covid-19 testing) prior to access to PSC facilities.	100% compliance to PSCs OHS	PSC Safety	Part of operation cost	• EMS • SMR • IEC • IATF approved Covid 19 safety Protocol
Operation of Heat Recovery Boiler, Steam Turbine, Generator Set and Tank farm		• Generation of solid waste and hazardous wastes	• New workers, laborers and contractors shall be oriented on PSC's existing solid waste management protocol (EMP 07 (IM-APX-003-07) for proper waste segregation of solid waste. • PSC shall put in place trash bins segregated according to the type of waste (biodegradable, non-biodegradable, recyclable and hazardous waste) in the SHR and back up genset area. • Each bin shall be regularly collected by PSC garbage truck with segregated compartment. • The collected solid waste shall be brought to the existing PSC sorting, storage and disposal facility (N8°34'32.34",	100% compliance to PSCs EMP in compliance to RA 9003, and RA 6969	• PSC Lab & Envi Dept • PCO • PSC Planning Department • PSC Mechanical Dept • PSC ELE Dept • WHSE • Powerplant Dept • Sinter Dept. • Material Handling • Administration • Sub-Contractor	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04) EMP-05 (IM-APX-003-05) EMP-07 (IM-APX-003-07) • Include in TOR of contractor • Hazardous Waste Generators ID

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
			E124°45'57.73"). • Regular collection of hazardous waste generated during construction to be brought to the PSC sorting facility. • Hazardous shall be classified and sorted according to its classification and shall be temporarily stored in the 260 m^2. PSC hazardous waste storage area (N8°34'31.81", E124°45'59.01"). *(Please see subsequent management and mitigation process for hazardous wastes indicated in the operation of PSC Envi Dept, Laboratory, PSC Solid Waste Sorting Facility and Hazardous Waste Storage Area)*				
		• Water Pollution	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 04 (IM-APX-003-04) on wastewater management program and EMP 04 (IM-APX-003-06) water conservation program in the SHR Facility and back-up generator sets powerhouse work area. • Periodic inspection and cleaning of the following oil/water separator: - WHSE Tank Farm #1 with 1.29 m^3 capacity - WHSE Tank Farm #2 with 1.28 m^3capacity - WHSE Tank Farm #3 with 0.96 m^3 capacity - Diesel Storage with 0.34 m^3 capacity • Recycling of used oil, filtering and blending with heavy fuel oil at sinter day tank for use at the sinter plant. • All run-off water emanating from SHR Facility and back-up generator sets powerhouse work area shall be diverted to North Settling Pond. • Quarterly monitoring of essential effluent parameters (relative to the operation of PSC) discharging from the North Settling Pond and New South Settling Pond shall be monitored monthly. • Periodic re-orientation of workers, laborers and contractors on PSC's EMP 05 (IM-APX-003-05) on Oil Spill Containment, Recovery and Clean-up Program. • Periodic inspection and maintenance including siphoning of sludge of septic tanks in the SHR Facility and back-up generator sets powerhouse. • PSC practices putting bins containing saw dust and sand that can be sprinkled in case of accidental spillage of soil specifically in back-up diesel genset powerhouse. • An existing oil spill management protocol is being implemented by PSC and this shall be strictly implemented. • PSC has procured universal spill kits and sorbents such as polypropelene as well as oil containment boom that can be utilized for any untoward oil spillage. • Regular monitoring of thermal water not to exceed the 3 degrees Celsius allowed in the DAO 2016-08. • Periodic inspection of HFO storage facilities including the issuing and receiving pipelines.	100% compliance to PSCs EMP in compliance to RA 9275 and RA 6969	• PSC Lab & Envi Dept • PCO • PSC Planning Department • PSC Mechanical Dept • PSC ELE Dept • WHSE • Powerplant Dept • Sinter Dept. • Material Handling • Administration Sub-Contractor	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04), EMP-05 (IM-APX-003-05), EMP-09 (IM-APX-003-04) • Include in TOR of contractor • Discharge Permit • Phil Coast Guard approved Oil Spill Contingency Plan
		• Increase in gaseous emission	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 01 (IM-APX-003-01), EMP 01A (IM-APX-003-01A) and EMP 02 (IM-APX-003-02) on air quality management program for point source dust, ambient gas and ambient dust. • The sinter waste heat recovery plant is a positive innovation of PSC operation as it utilizes the heat from the sintering process operation to be converted into electrical energy instead of releasing the waste heat directly into the atmosphere. • Periodic maintenance of the SHR and back-up genset to ensure efficiency.	100% compliance to PSCs EMP in compliance to RA 8749	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Sinter Dept • Powerplant Dept • PSC Mechanical Dept • PSC ELE Dept • Material Handling Dept Sub-Contractor	Part of operation cost	• PSC's EMP 01 (IM-APX-003-01), EMP 01A (IM-APX-003-01A) and EMP 02 (IM-APX-003-02) • SMR • Permit to operate • PSC Rehabilitation Plan

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
			• Use of low sulphur fuel for the back-up diesel genset.				
		• Noise Generation	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 08 (IM-APX-003-08)for noise management program including use of ear muffs in noise prone areas. • Installation of silencer and noise attenuators in the SHR facility. • Regular maintenance of SHR facility and diesel gensets. • Installation of mufflers for the diesel genset. • Conduct of periodic preventive maintenance . • Cleaning of CLF primarily during preventive maintenance shutdown.	100% compliance to PSCs EMP in accordance with NEPC standard	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Sinter Dept • Powerplant Dept • PSC Mechanical Dept • Material Handling Dept • PSC ELE Dept Sub-Contractor	Part of the operation cost	• PSC Integrated Manual EMP-08 (IM-APX-003-08) • SMR • PSC OHS • Include in TOR of sub-contractor
	PEOPLE	• Occupational awareness • Occupational risk • Health risk in relation to Covid-19	• Periodic re-orientation of workers, employees and contractors. • Posting of safety warning and danger signs. • Regular testing of workers from Covid-19. • Immediate quarantine/isolation of workers with symptoms. • Periodic Health Awareness on Covid-19 prevention. • Strict monitoring of visitors (with proper Covid-19 testing) prior to access to PSC facilities.	100% compliance to PSCs OHS	PSC Safety	Part of operation cost	• EMS • SMR • IEC • IATF approved Covid 19 safety Protocol
Operation of mechanical maintenance shop, electrical building and warehouse	LAND	• Generation of solid and hazardous wastes – busted bulbs – Lead and lead compounds (vehicle batteries, UPS, spent battery packs) – used oil – oil contaminated wastes – containers previously containing toxic chemical substances – lubrication wastes – welding butts – WEEEs – Assorted compounds (dry cell batteries)	• New workers, laborers and contractors shall be oriented on PSC's existing solid waste management protocol (EMP 07 (IM-APX-003-07)) for proper waste segregation of solid waste. • PSC shall put in place trash bins segregated according to the type of waste (biodegradable, non-biodegradable, recyclable and hazardous waste) in the new berth construction area similar to the waste segregated bins set in the existing area. • Each bin shall be regularly collected by PSC garbage truck with segregated compartment. • The collected solid waste shall be brought to the existing PSC sorting, storage and disposal facility (N8°34'32.34", E124°45'57.73"). • Regular collection of hazardous waste generated during construction to be brought to the PSC sorting facility. • Hazardous shall be classified and sorted according to its classification and shall be temporarily stored in the 260 sq.m. PSC hazardous waste storage area (N8°34'31.81", E124°45'59.01"). *(Please see subsequent management and mitigation process for hazardous wastes indicated in the operation of PSC Envi Dept, Laboratory, PSC Solid Waste Sorting Facility and Hazardous Waste Storage Area)*	100% compliance to PSCs EMP in compliance to RA 9003, and RA 6969	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Sinter Dept • Powerplant Dept • PSC Mechanical Dept • PSC ELE Dept • Material Handling Dept • Administration Sub-Contractor	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04) EMP-05 (IM-APX-003-05) EMP-07 (IM-APX-003-07) • Include in TOR of contractor • Hazardous Waste Generators ID
	WATER	• Water Pollution	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 04 (IM-APX-003-04) on wastewater management program and EMP 04 (IM-APX-003-06) water conservation program in the mechanical maintenance facility, warehouse and ELE work area. • Periodic inspection and cleaning of the following oil/water separator: - 4 units of same dimension (1.0mx1.0mx1.13m) with a total capacity of 4.52m^3 - ELE with a total capacity of 0.74m^3 - Garage with a total capacity of 3.22m^3 • Recycling of used oil including those scooped from the oil and water separator by filtering and blending with heavy fuel oil at sinter day tank for use at the sinter plant. • All run-off water emanating from warehouse shall be diverted to North Settling Pond. • Quarterly monitoring of essential effluent parameters	100% compliance to PSCs EMP in compliance to RA 9275 and RA 6969	• PSC Lab & Envi Dept • PCO • PSC Planning Department • Sinter Dept • Powerplant Dept • PSC Mechanical Dept • PSC ELE Dept • Material Handling Dept • Administration Sub-Contractor	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04), EMP-05 (IM-APX-003-05), EMP-09 (IM-APX-003-04) • Include in TOR of contractor • Discharge Permit • Phil Coast Guard approved Oil Spill Contingency Plan

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
			discharging from the oil & water separator specifically oil & grease parameter. • Periodic re-orientation of workers, laborers and contractors on PSC's EMP 05 (IM-APX-003-05) on Oil Spill Containment, Recovery and Clean-up Program. • Periodic inspection and maintenance including siphoning of sludge of septic tanks in the mechanical maintenance shop and warehouse and ELE. •PSC practices putting bins containing saw dust and sand that can be sprinkled in case of accidental spillage of oil. A lot of this were observed in the Mechanical maintenance shop. • An existing oil spill management protocol is being implemented by PSC and this shall be strictly implemented • PSC has procured universal spill kits and sorbents such as polypropelene and a dedicated kit is supplied in the Mechanical maintenance shop. • Implementation of waste exchange program with a cement plant to be used as fuel feed for the cement kilns • Strict implementation of car and service vehicle designated at the mechanical maintenance area to ensure that accidental spillage of oil or grease shall be captured by the oil&water separator • Periodic monitoring on the effectiveness of the oil and water separator as well as cleaning and maintenance				
	AIR	• Increase in gaseous emission	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 01 (IM-APX-003-01), EMP 01A (IM-APX-003-01A) and EMP 02 (IM-APX-003-02) on air quality management program for point source dust, ambient gas and ambient dust. • Strict conduct of Ringelmann test for emission of all vehicles entered in the facility for repair. • Routine conduct of mechanical check-up and maintenance of all PSC vehicles, trucks, heavy equipment and diesel generator sets. • Immediate overhaul of smoke belching vehicles at the mechanical area.	100% compliance to PSCs EMP in compliance to RA 8749	• PSC Lab & Envi Dept headed by PCO • PSC Planning Department • PSC Mechanical Dept • PSC Electrical Dept • Material Handling Dept • Sub-Contractor	Part of operation cost	• PSC's EMP 01 (IM-APX-003-01), EMP 01A (IM-APX-003-01A) and EMP 02 (IM-APX-003-02) • SMR • Emission test
		• Noise generation	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 08 (IM-APX-003-08) for noise management program including use of ear muffs in noise prone areas. • Installation of mufflers for the heavy equipment, trucks and service vehicles.	100% compliance to PSCs EMP in accordance with NEPC standard	• PSC Lab & Envi Dept • PCO • PSC Planning Department • PSC Mechanical Dept • PSC ELE • Material Handling Sub-Contractor	Part of the operation cost	• PSC Integrated Manual EMP-08 (IM-APX-003-08) • SMR • PSC OHS
Operation of Admin Building, Kitchen (Uniflow), clinic and other offices		• Generation of solid and hazardous wastes – busted bulbs – Lead and lead compounds (UPS, spent battery packs) – containers previously containing toxic chemical substances – WEEEs – Assorted compounds (dry cell batteries)	• Re-orientation of workers, laborers and contractors shall be oriented on PSC's existing solid waste management protocol (EMP 07 (IM-APX-003-07)) for proper waste segregation of solid waste. • PSC shall put in place trash bins segregated according to the type of waste (biodegradable, non-biodegradable, recyclable and hazardous waste) in the admin area. • Each bin shall be regularly collected by PSC garbage truck with segregated compartment. • The collected solid waste shall be brought to the existing PSC sorting, storage and disposal facility (N8°34'32.34", E124°45'57.73"). • Regular collection of hazardous waste generated in the regular operation shall be brought to the PSC sorting facility. • Hazardous shall be classified and sorted according to its classification and shall be temporarily stored in the 260 m^2. PSC hazardous waste storage area (N8°34'31.81",	100% compliance to PSCs EMP in compliance to RA 9003, and RA 6969	• PSC Admin • Clinic • PSC Lab & Envi Dept • PCO • PSC Planning Department • Sub-Contractor	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04) EMP-05 (IM-APX-003-05) EMP-07 (IM-APX-003-07) • Include in TOR of contractor • Hazardous Waste Generators ID

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
			E124°45'59.01"). *(Please see subsequent management and mitigation process for hazardous wastes indicated in the operation of PSC Envi Dept, Laboratory, PSC Solid Waste Sorting Facility and Hazardous Waste Storage Area)* • PSC shall continue to practice Environmentally Preferable Purchasing (EPP) via Procurement Department in coordination with the Envi Dept. • PSC shall also continue to implement Product Stewardship Program as part of its ISO 14001compliance.				
		• Water Pollution	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 04 (IM-APX-003-04) on wastewater management program and EMP 04 (IM-APX-003-06) water conservation program in the SHR Facility and back-up generator sets powerhouse work area. • Periodic inspection and cleaning of the oil & grease separator at the Uniflow kitchen with a total capacity of 6.48 m^3. • The admin building has a septic tank capable of accommodating all the wastewater emanating from the admin building including the water from Uniflow kitchen. • Regular conduct of wastewater analysis of Uniflow kitchen drainage including surfactant, ammonia, nitrate and phosphate to ensure that no exceedance will come from the kitchen wastewater. • Periodic dredging of drainage canals of uniflow kitchen to remove accumulated grease and siphoning of sludge from the septic tank by a third party wastewater and sludge treater.	100% compliance to PSCs EMP in compliance to RA 9275 and RA 6969	• PSC Admin • Clinic • PSC Envi Dept headed by PCO • PSC Engineering Dept • Sub-Contractor	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04), EMP-05 (IM-APX-003-05), EMP-09 (IM-APX-003-04) • Include in TOR of contractor • Discharge Permit
Operation of PSC Envi Dept Office, Laboratory, Solid waste management sorting facility and hazardous waste storage area	LAND	• Generation of solid waste	• Envi dept shall spearhead the re-orientation of workers, laborers and contractors on PSC's existing solid waste management protocol (EMP 07 (IM-APX-003-07)) for proper waste segregation of solid waste. • The dept shall ensure that all work places shall have trash bins segregated according to the type of waste (biodegradable, non-biodegradable, recyclable and hazardous waste). • Each bin shall be regularly collected by PSC garbage truck with segregated compartment. • The collected solid waste shall be brought to the existing PSC sorting, storage and disposal facility (N8°34'32.34", E124°45'57.73"). • The envi dept has dedicated workers trained to classify waste accordingly and recover recyclable materials as well as handle hazardous wastes. • Biodegradables are sorted, brought to the existing PSC compost pit located adjacent to the sorting facility. • Non-biodegradables are temporarily stored but are regularly collected by a third-party solid waste collector and transport it to their MRF for further sorting prior to disposal at a landfill facility. • PSC shall continue to practice Environmentally Preferable Purchasing (EPP) in coordination with the procurement department. • PSC shall also continue to implement Product Stewardship Program as part of its ISO 14001compliance. • Provision of training for solid waste sorters on new techniques and technology of composting such as vermiculture. • Utilization of compost and vermicast as fertilizer additive for PSC reforestation program.	100% compliance to PSCs EMP in compliance to RA 9003	• PSC Envi Dept headed by PCO	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04) EMP-05 (IM-APX-003-05) EMP-07 (IM-APX-003-07) • Include in TOR of contractor • Hazardous Waste Generators ID

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
		• Generation storage of hazardous wastes and storage of hazardous wastes – Barium from laboratory wastes – Mercury compound COD/SO2 gas analysis waste – busted bulbs – Lead and lead compounds (vehicle batteries, UPS, spent battery packs) – used oil – oil contaminated wastes – containers previously containing toxic chemical substances – lubrication wastes – welding butts – WEEEs – Assorted compounds (dry cell batteries) – Asbestos compound from the dismantling and rehabilitation of sintering facility in year 2000	• Regular collection of hazardous waste generated during operation shall be brought to the PSC sorting facility. • Hazardous shall be classified and sorted according to its classification and shall be temporarily stored in the 260 m^2. PSC hazardous waste storage area (N8°34'31.81", E124°45'59.01"). • Recycling of used oil including those scooped from the oil and water separator by filtering and blending with heavy fuel oil at sinter day tank for use at the sinter plant. • Pathogenic wastes such as RBS strips, sharps, contaminated cottons, needles, syringe and lancet shall be disinfected and deposited in the PSC chambered underground entombment facility. • Asbestos compound were also entombed in the underground facility in a separate compartment. The added safeguard is that the chamber is lined with limestone while the asbestos materials are inside a container covered by HDPE. • Mercury wastes are also entombed enclosed in specialized containers and covered by HDPE. • Used facemask shall also be disinfected prior to disposal • PSC has an existing agreement with a DENR-accredited waste treater for hazardous waste transporting, treatment and disposal. • PSC shall ensure that disposal of accumulated hazardous shall not exceed 6 months as prescribed in RA 6969 and its IRR. • Compilation off Certificate of Treatment for every batch of hazardous waste that were hauled and treated and regular reporting in the SMR submitted to EMB.	100% compliance to PSCs EMP in compliance to RA 6969	• PSC Lab & Envi Dept • PCO • Warehouse • HRGA	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04), EMP-05 (IM-APX-003-05), EMP-09 (IM-APX-003-04) • Include in TOR of contractor • Discharge Permit
	WATER	• Water Pollution	• Periodic re-orientation of workers, laborers and contractors on PSC's EMP 04 (IM-APX-003-04) on wastewater management program and EMP 04 (IM-APX-003-06) water conservation program in the SHR Facility and back-up generator sets powerhouse work area. • The laboratory has a septic tank capable of accommodating all the wastewater emanating from the laboratory with acid and organics waste pit. • Regular conduct of wastewater analysis of laboratory waste shall be conducted with implementation on neautralization of laboratory wastes before it is discarded. • Periodic dredging of drainage canals of uniflow kitchen to remove accumulated grease and siphoning of sludge from the septic tank by a third party wastewater and sludge treater.	100% compliance to PSCs EMP in compliance to RA 9275	• PSC Lab Envi Dept • PCO • HRGA	Part of the operation cost	• PSC Integrated Manual EMP-04 (IM-APX-003-04) • Include in TOR of contractor • Discharge Permit
Abandonment Phase							
• Abandonment of all buildings including offices, plant facilities, port facilities • Demolition of buildings or dismantling of facilities	LAND	• Devaluation of land value as result of improper solid and hazardous waste management and other related impacts	• PSC should include in the TOR of the contractor the collection, hauling and proper disposal of debris, solid waste and hazardous wastes generated. • Rehabilitation of the area until its safe and acceptable for the construction of a new building/facilities.	100% compliance to PSCs Abandonment Plan	PSC	Part of the Abandonment cost	• Include in TOR of contractor • EMB Approved Abandonment Plan
	WATER	• Sedimentation / siltation of drainage or waterways during dismantling activities or demolition activities	• PSC should include in the TOR of the contractor the protection of the drainage or waterways within or nearby the site.	100% compliance to PSCs Abandonment Plan	PSC	Part of the Abandonment cost	• Include in TOR of contractor • EMB Approved Abandonment Plan
	AIR	• Generation of dust • Degradation of air quality due to use of heavy equipment	• Set-up fences around the site to act as wind barrier . • Hauling trucks should be covered with canvass. • Proper maintenance of equipment and vehicles.	100% compliance to PSCs Abandonment Plan	PSC	Part of the Abandonment cost	• Include in TOR of contractor • EMB Approved Abandonment Plan
	PEOPLE	• Occupational health and	• Set-up fences around the site to prevent unauthorized	100%	PSC	Part of the	• Include in TOR of

Activity	Environmental Component Likely to be Affected	Potential Impacts	Enhancement/ Mitigating Measure	Efficiency of Measures	Responsible Entity	Cost	Commitment/ Guarantee
		safety of workers hired by the contractors • Risk to the safety of workers/staff and community	person near the site. • Placing visible warning signs.	compliance to PSCs Abandonment Plan		Abandonment cost	contractor • EMB Approved Abandonment Plan