

PANGKALAHATANG BUOD

Ayon sa Philippine Statistics Authority, ang Pilipinas ay isa sa pinakamapalad na bansa sa buong mundo na nabiyayaan ng mineral na kilas na yaman. Noong 1994, tinatayang mayroong 7 bilyon metriko toneladang metallic na mineral at 50 bilyon metriko toneladang non-metallic na mineral na reserba ang Pilipinas at kasama ang mineral na limestone sa non-metallic na mineral na may kontribusyong halos 39 porsiyento sa kabuuan.

Ang mga mineral ay ang pangunahing pinagkukunan ng estado ng industriyalisasyon at may mahalagang ginagampanan sa pangkasalukuyang pambansang ekonomiya at pangkalahatang pag-unlad ng bansa. Ang industriya ng pag-mimina ay nagbibigay ng pagkatataon upang magkaroon ng trabaho ang ilang bahagi ng populasyon, direkta o di-direkta. Ang paglulunsad ng panukalang Quarry Project sa Pamias 1 at 3 ng ISLAND QUARRY and AGGREGATES CORPORATION (IQAC) ay magbibigay ng lokal at pangrehiyong pag-unlad ng ekonomiya dahil gagamitin ang produkto ng proyektong ito bilang materyales ng mga gawaan ng semento at iba pang proyektong pang-imprastruktura bilang pagsuporta sa Public-Private Partnership at Build, Build, Build Projects na ipinapatupad ng pamahalaan. Dagdag pa dito, ang industriya din ng pagmimina ang nagbibigay ng karagdagang kita sa pamahalaan sa pamamagitan ng mga buwis at bayarin na napupunta sa pamahalaan.

Sa mga aspeto ng pagmimina, hindi maaiwasan ang maaring epekto nito sa kapaligiran. Upang mapag-aralan ito at matugunan ng karampatang environment management, ang ISLAND QUARRY and AGGREGATES CORPORATION (IQAC) ay nagsumite nitong Environmental Impact Statement study report para sa proyektong Quarry sa Pamias 1 at 3.

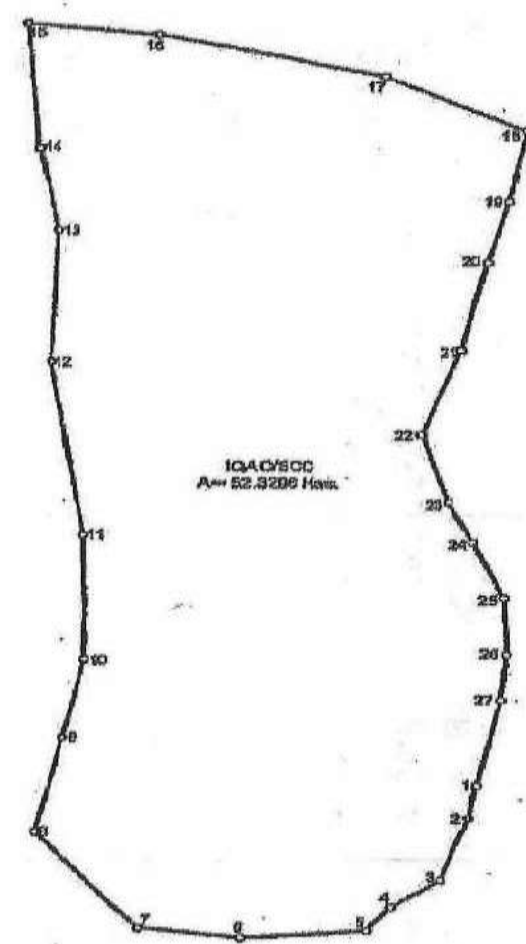
Itong Environmental Impact Assessment (EIA) na ito ay isinagawa bilang pagsunod sa Presidential Decree No. 1586, o ang tinatawag na Philippine Environmental Impact Statement (EIS) System. Ang mga impormasyon na ginamit dito ay nagmula sa Island Quarry and Aggregates Corporation, Department of Environment and Natural Resources (DENR) Environmental Management Bureau (EMB), Mines and Geoscience Bureau (MGB), National Statistics Office (NSO), Philippine Statistics Authority (PSA), Socio Economic Profile ng Antipolo, Rizal at iba pang ahensya ng pamahalaan kung saan nagreserach ang EIA Team.

Ang pag-aaral ng EIA ay nagbigay-diin sa kabuuan ng proyekto, lugar na paglalagyan nito, at mga posibleng epekto sa kapaligiran at sa kalapit na komunidad. Nagbigay din ng paliwanag ang pag-aaral na ito sa mga mitigating measures na pwedeng magsawata sa maaring hindi magandang epekto sa kapaligiran sa iba't-ibang estado at aspeto ng proyekto upang matugunan ng ISLAND QUARRY and AGGREGATES CORPORATION (IQAC).

I. Buod ng Impormasyon tungkol sa Panukalang Proyekto

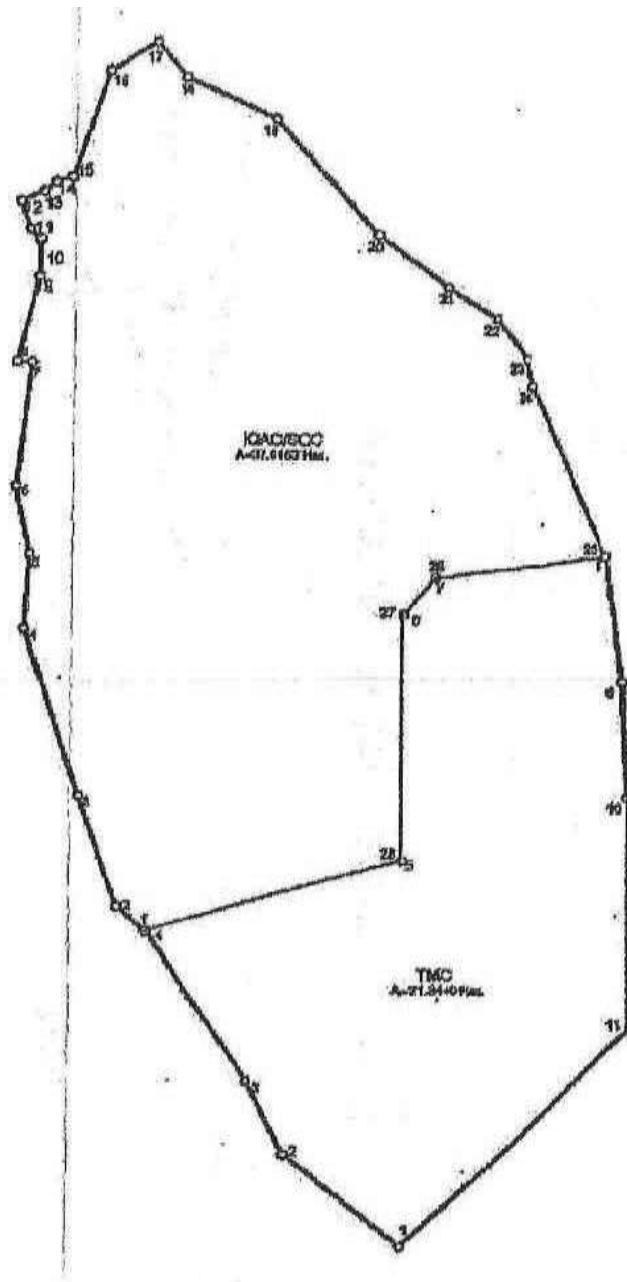
Ang Island Quarry and Aggregates Corporation (IQAC) ay isang korporasyon na legal na nakarehistro sa Securities and Exchange Commission (Annex A) sa ilalim ng batas ng Pilipinas. Si IQAC ang Assignee na binigyang ng pahintulot at karapatan na i-operate ang Parcel 1 (Pamias 1) at parte ng Parcel 2 (Pamias 3) ng MPSA No. 125-98-IV-Amended B na pinaghahawakan naman ni Teresa Marble Corporation bilang MPSA Holder.

Ang MPSA 125-98-IV ay mayroong sukat na 110.69 hectares na ipinagkaloob sa Teresa Marble Corporation (TMC) noong June 17, 1998 ng Department of Environment and Natural Resources (DENR). Nang lumaon, isang Deed of Assignment naman ang isinagawa noong November 5, 2015 sa pagitan ng TMC at IQAC kung saan in-assign ni TMC ang lahat ng karapatan kay IQAC sa 89.345-hectare na parte ng mga nasabing MPSA. Ang Deed of Assignment ay inamiyendahan noong April 5, 2016 upang isama ang probisyon na si IQAC ang siyang manangot sa lahat ng obligasyon at responsibilidad ng TMC sa parteng inassign sa kanya ni TMC. Ang pag-amiyenda sa Deed of Assignment ay na-aprubahan ng DENR noong May 18, 2016, kung saan naiwan kay TMC ang sukat na 21.345 hektarya ay pinangalanang MPSA 125-98-IV Amended A dahil ang ibang bahaging napunta kay IQAC ay pinangalanang MPSA 125-98-IV Amended B.

Titulo ng Proyekto	Quarry Project sa Pamias 1 and 3																																	
Lokasyon ng Proyekto	Brgy. San Luis and Brgy. San Jose, Antipolo City, Rizal																																	
Objective	To increase the extraction capacity of limestone as raw materials for cement and other construction industries																																	
Sukat o laki ng lupang masaskop ng Proyekto	Pamias 1 – 52.3296 Ha. Pamias 3 – 37.0153 Ha. Total Lot Area – 89.3449 Ha.																																	
Geographical Coordinates	<p>27 Corners of PAMIAS 1 - MPSA 125-98 IV Amended B (Parcel 1)</p>  <table border="1"> <thead> <tr> <th>CORNER</th> <th>LATITUDE</th> <th>LONGITUDE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>14°35'38.16" N</td> <td>121°12'27.97" E</td> </tr> <tr> <td>2</td> <td>14°35'36.65" N</td> <td>121°12'27.7" E</td> </tr> <tr> <td>3</td> <td>14°35'33.83" N</td> <td>121°12'26.71" E</td> </tr> <tr> <td>4</td> <td>14°35'32.61" N</td> <td>121°12'25" E</td> </tr> <tr> <td>5</td> <td>14°35'31.52" N</td> <td>121°12'24.21" E</td> </tr> <tr> <td>6</td> <td>14°35'3.2" N</td> <td>121°12'19.82" E</td> </tr> <tr> <td>7</td> <td>14°35'31.65" N</td> <td>121°12'16.33" E</td> </tr> <tr> <td>8</td> <td>14°35'36.04" N</td> <td>121°12'12.5" E</td> </tr> <tr> <td>9</td> <td>14°35'40.35" N</td> <td>121°12'13.48" E</td> </tr> <tr> <td>10</td> <td>14°35'43.95" N</td> <td>121°12'14.28" E</td> </tr> </tbody> </table>	CORNER	LATITUDE	LONGITUDE	1	14°35'38.16" N	121°12'27.97" E	2	14°35'36.65" N	121°12'27.7" E	3	14°35'33.83" N	121°12'26.71" E	4	14°35'32.61" N	121°12'25" E	5	14°35'31.52" N	121°12'24.21" E	6	14°35'3.2" N	121°12'19.82" E	7	14°35'31.65" N	121°12'16.33" E	8	14°35'36.04" N	121°12'12.5" E	9	14°35'40.35" N	121°12'13.48" E	10	14°35'43.95" N	121°12'14.28" E
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13	14°36'3.57" N	121°12'12.98" E
14	14°36'7.35" N	121°12'12.2" E
15	14°36'13.02" N	121°12'11.65" E
16	14°36'12.53" N	121°12'15.47" E
17	14°36'10.65" N	121°12'23.19" E
18	14°36'8.15" N	121°12'28.21" E
19	14°36'4.88" N	121°12'27.64" E
20	14°36'2.12" N	121°12'26.93" E
21	14°35'58.07" N	121°12'26.06" E
22	14°35'54.25" N	121°12'24.65" E
23	14°35'51.16" N	121°12'25.72" E
24	14°35'49.32" N	121°12'26.61" E
25	14°35'46.76" N	121°12'27.69" E
26	14°35'44.16" N	121°12'27.82" E
27	14°35'42.06" N	121°12'27.62" E

28 Corner of PAMIAS 3 - MPSA 125-98 IV Amended B (Parcel 2)



Pamias 3 (northern block) in relation to the remaining tenement (southern block) of TMC of MPSA 125-98-IV.

CORNER	LATITUDE	LONGITUDE
1	14°34'27.58" N	121°12'10.43" E
2	14°34'28.45" N	121°12'9.4" E
3	14°34'32.39" N	121°12'7.93" E
4	14°34'38.48" N	121°12'6.02" E
5	14°34'41.13" N	121°12'6.19" E
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Mga Bahagi ng Proyekto	<p>The components of the Project are:</p> <ul style="list-style-type: none"> • Extraction of limestone at 4,200,000 MT/year capacity • Development of access road • Stockpile areas 																																																																		
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Project Cost	Pamias 1 – Php 27,000,000.00																																																																		

	Pamas 3 – Php 23,000,000.00 Total Project Cost – Php 50,000,000.00
Duration of Project	The limestone quarry development works will follow immediately and is estimated to be undertaken for about two – three years (for development works only) for Parcel 1 and a portion of Parcel 2 of MPSA-125-98.
Project Proponent	Island Quarry and Aggregates Corporation (IQAC)
Address	Buenos Aires, Barangay San Juan, Antipolo, Rizal, 1870
Contact No.	(+632) 8493600
Contact Person	Engr. Nino Bert Advincula Quarry Manager Landline No.: (+632)6977000 Mobile No.:
EIA Preparer	MEDIATRIX BUSINESS CONSULTANCY
Business Address	L29 Joy-Nostalga Centre, 17 ADB Ave., Ortigas Centre Pasig City, 1600
Contact No.	(+632) 6897114; Mobile: (+63917) 5064499
Representative	Ms. Matilde Fernando Project Manager / EIA Team Leader Email: mediatrixbusinessconsultancy@gmail.com

II. PROCESS DOCUMENTATION

a. EIA Team

The preparation of this **Environmental Impact Statement (EIS)** was prepared by the project preparer, **Mediatrix Business Consultancy** together with its EIA Team who provided the necessary technical data, information and description of the project operation which is essential to the project study.

Table 1: EIA Team

NAME	DESIGNATION	IPCO NUMBER	EXPERTISE	PARTICIPATION
Ms. Matilde Fernando	Project Manager / EIA Team Leader	IPCO-035	Socio-Economic, Public Participation and community engagement, Public Health and Safety, Waste Management (Solid and Hazardous wastes Management)	Preparation of Study/ Report and consolidation of documents for the whole project study; Actual measurement of the facility, and preparation of As-built plans of the structure relevant to the requirements needed for the application
Engr. Ria Caramoan	Assistant Team Leader	IPCO-106	Air and water	Preparation of Project Description and water module
Engr. Reynaldo Tejada	Air and Noise expert	IPCO-036	Air and noise quality, air and noise modeling	Preparation of the full air and noise module
Mr. Alexis Fernando	Research	IPCO-034	Research and community engagement	Gathering of secondary information

Mr. Juvinal Esteban	Socio-economics	IPCO-091	Social work and community engagement	Preparation of socio module
Mr. Philip Fernando	Field Assignment and perception survey		Community engagement	Conduct of perception survey

b. EIA Study Schedule

Table 2 below summarizes the EIA study schedule for the project. Activities to be conducted are the Information, Education and Communication (IEC) activities, Public Scoping, Technical Scoping, and conduct of additional baseline studies, drafting of the Environmental Impact Statement (EIS) report, conduct of public hearing and site visit and review of EIS before issuance of an Environmental Compliance Certificate.

Table 2 - EIA Schedule Study Activities

Activity	Date														
	6/2015	7/2015	9/15	12/1/15	1/16	6/16	6/16	7/16	8/16	9/5/17	10/17	11/17	12/17	1/18	2/18
Site assessment and validation															
Public Scoping															
Submission of PDS with request for Technical Scoping															
Technical Scoping															
Data gathering															
Report preparation															
Procedural screening by EMB Casehandler															
1 st review by EIARC															
Public Hearing															
Final Review by EIARC															
ECC issuance															

c. EIA Study Area

The study areas in general are the primary and secondary impact areas. The primary impacts areas of the project are the adjacent establishment within 500 – meters radius. These are consist of adjoining buildings/ establishments within/ nearby vicinity including Antipolo City of Rizal Province which way may be affected or enhanced by the impacts of the project particularly in its business operation.

The secondary impact areas comprise of the region approximately 1000 meters radius from the project site. The secondary impact areas extend to the different complex in the vicinity of Antipolo City of Rizal Province. The secondary impact area was defined in consideration of the possible social and economic impacts of the project during its construction and operational phase.

d. EIA Methodology

The EIA ay inihanda ayon sa mga panuntunan na itinakda ng batas sa Philippine Environmental Impact Statement System. Inilalarawan sa Table sa ibaba ang detalye ng EIA methodology sa bawat environment sector/component.

Table ES3: EIA Methodology

EIA Study Module	Parameters/Scope	Baseline Sampling and Methodology
Land		

EIA Module	Study	Parameters/Scope	Baseline Sampling and Methodology
Geology /Geomorphology, Pedology, Land Use & Classification		Reconnaissance, land use, land classification assessment, slope, soil types and classification, erosion	Secondary data, soil sampling and testing, review of geological reports and maps, soil site assessment
Terrestrial Biology – Wildlife and Vegetation		Flora and fauna species inventory, species endemism and conservation status, species abundance, frequency and distribution	Use of secondary data and inventory
<i>Water</i>			
Hydrology/ Hydrogeology		Regional hydrogeology, catchment and drainage system	Spring & well inventory, flow measurements, use of secondary data, water balance analysis, flow duration and water flow analysis and groundwater recharge and production analysis, interviews
Water Quality		Physico-chemical and bacteriological characteristics of rivers, wells, springs, and coastal water	Primary data were secured through water sampling and laboratory analysis with additional sampling station within Primary Homes' subdivision.
Freshwater Ecology		Full accounting of all existing benthic habitats, species, composition, density, and diversity of sea grass resources and associated macro benthic algae in front of the project site , commercially-important macro invertebrates in the inter-tidal areas, plankton community	Use of primary and secondary data and interviews
<i>Air</i>			
Air Quality		Ambient air quality and noise levels	Primary data through sampling and laboratory analysis with additional sampling station noise within Primary Homes' subdivision
Meteorology/ Climatology		Monthly average rainfall, climatological normal and extremes, wind rose diagrams, and frequency of tropical cyclones	Use and review of secondary data
Air Dispersion Modeling		Worst case scenario identification, use of meteorological data	Use of AUSPLUME Model
Noise			Sampling station noise within Primary Homes' subdivision
<i>Climate Change</i>			
Temperature change		Seasonal Temperature increase (in °C) in 2020 and 2050 under medium range emission scenario in Cebu Monthly Average Temperature without Climate Change	Effects of Temperature Increase

EIA Module	Study	Parameters/Scope	Baseline Sampling and Methodology
		Monthly Average Temperature with Climate Change (2006-2035)	
Rainfall change		Seasonal rainfall change (in %) in 2020 and 2050 under medium range emission scenario in Cebu Monthly Average Rainfall without Climate Change (1980-2010) Monthly Average Rainfall with Climate Change (2006-2035) Monthly Average Rainfall with Climate Change (2006-2065)	Effects of change in rainfall pattern
Greenhouse as Assessment		GHG Emissions based on IPCC 2006 Guidelines and USEPA Procedure	Bunker oil consumption vs GHG emissions
<i>People: Socio-Economic, Health</i>			
Public health and Demography		Morbidity and mortality trends, Demographic data of impact area: - Number of households and household size - Land area, - Population, - Population density /growth - gender and age profile, - literacy rate, profile of educational attainment	Interviews with key elected officials of the barangays (from barangay captains to councilors and the social welfare barangay officers/ barangay health workers); analysis of secondary health data; Use of secondary data from RHU and NSO; Interviews with the locals; household-level survey
Socio-economics		Socioeconomic data: Main sources of Income, Employment rate/ profile, sources of livelihood, Poverty incidence, commercial establishments and activities, banking and financial institutions	Perception surveys, Interviews with municipal and barangay officials; analysis of secondary data; analysis of survey results Provision of traffic management flow in a traffic management plan Provision of housing options for workers within the vicinity
<i>Environmental Risk Assessment</i>			
Risk Assessment		Safety risks and physical risks	Consequence and Frequency analyses to be undertaken using the methodology described in the Revised Procedural Manual for DAO 2003-30

e. Public Participation

Participation of the stakeholders in connection to the project study is necessarily relevant. Public participation through Public Scoping was conducted on July 21, 2015.

Formal written invitations were issued before the scheduled date. Invitations sent were duly acknowledged, received and forwarded to the persons concerned. Announcements

were also posted in conspicuous areas. A photo of the announcement is shown in the photograph below:



Registration started as early as 8:30 am while the Program started at 9:30 am

Project presentation was provided by the Operations Manager Engr. Normandy Chan joined by Mr. Chito Maniago and Ms. Erlinda Lizardo while the Environmental Impacts and Mitigation Measures was provided by the EIA Team led by Ms. Medi Fernando.

The Open Forum session was moderated and facilitated by Ms. Fernando. Shown in Table 3 below are the issues and concerns raised:

Issue	By / Affiliation	Response
RD Paragas expounded on the objectives of Public Scoping as part of the EIA Process	Regional Director Samuel Paragas, MGB Region IVA Director	The proponent noted the explanation of RD Paragas.
Monthly check-up of the people who may be affected by the project	Ms. Violeta Faiyaz, Antipolo City ENRO	IQAC will make a proactive stance ; community engagement plan will be implemented which is among the top of the list of CEMEX
70% of PAMIAS 1 is within Brgy. San Luis; Informal settlers in PAMIAS I; titled lands of HGC and covered by DAR projects with lot awardees in the area; La Salle University; rock formation near Mystical Cave	Brgy. Chairman Cate of Brgy. San Luis	Concerns were duly noted; these will be addressed by the Proponent; dialogue with La Salle will be undertaken; the nature and ownership of the lots in the area, particularly whether it is covered by DAR will be verified and confirmed
EIA Report should be provided in advance to Brgy. San Luis before Public hearing	Dondi Sarmiento	Concern duly noted; copies will be provided to major stakeholders before Public Consultation

The Local Chief Executives of Antipolo are primarily concerned on extensive environmental protection; advocacy on tree planting and other projects ; Rehabilitation of Hinulugang Taktak and preservation of San Jose Watershed	Konsehal Tapales	Extensive environmental protection and preservation will be undertaken by IQAC in partnership with the LGU and the community thru the existing community engagement program of the Proponent
Proper information on Project Phases (before and after)	PENRO Isidro Mercado	Pictures and figures will be provided in the presentation during the Public Consultation for the stakeholders to better appreciate the project phases
Change of management	Jun Ronda, resident of Brgy. San Jose	The obligations of the Project are guaranteed by the laws to continue the obligations to the community; ECC conditions are also obligations of the new management; CEMEX is here to stay; Mam Nancy: ECC condition for transfer of ownership includes transfer of obligations under the ECC

f. CLRF Commitments

Sa mga kahalintulad na proyekto gaya ng pagmimina at paggawa ng semento, Contingent Liability and Rehabilitation Fund (CLRF) ay dapat na ipatupad at sundin kapalit ng EMF at EGF. Itong CLRF ay isang environmental guarantee fund mechanism na naniniguradong may tama at karampatang compensation for damages at progressive at suitable rehabilitation sa maaring epekto ng operasyon ng minahan. Ang pondong ito ay binubuo ng mga sumusunod:

- Monitoring Trust Fund (MTF)
- Mine Rehabilitation Fund (MRF)
- Mine Waste Tailings Reserve Fund (MWTRF) and
- Final Mine Rehabilitation and Decommissioning Fund (FMRDF)

III. EIA SUMMARY

Summary of Alternatives Considered in terms of Siting, Technology Selection/Operation Processes and Design o Buod ng mga Pagpipilian ayon sa lugar, teknolohiya at proseso ng operasyon

Ang mga sumusunod na pamantayan ay isinaalang-alang sa pagpili ng lugar ng proyekto:

Technology Selection/Operation Processes

Wala ng iba pang lugar na isinaalang-alang sapagkat ang pangunahing konsiderasyon sa pagpili ay ang pagkakaroon ng kasunduan sa TMC na inaprubahan ng pamahalaan, ng MGB.

Maaring Mangyari Kung Walang Proyekto

Kung walang proyekto o hindi matutuloy ang proyekto,ang mga sumusunod ay hindi mangyayari at hindi matutupad:

- Pagkakaroon ng nahapuhay ng mga tao
- Pagkakaroon ng social development at management program
- Pagkakaroon ng dadag kita ng lokal na pamahalaan ng Antipolo
- Pagkakaroon ng multiplier o domino effect ng proyekto gaya ng dagdag hanapuhay gaya ng tindahan, tricycle terminals, etc.

Buod ng maaring maging epekto ng proyekto kahit na mayroon pang mitigation measures

Ang maaring maging epekto ng proyekto sa worst case scenario ay ang usok at alikabok ng quarry at ingay na maaring maidulot nito dahil sa paggamit ng mga makina at malalaking sasakyan. Pinakamahalaga sa lahat ay ang positibong epekto ng proyekto na pagkakaroon ng hanapbuhay at kabuhayan ng mga tao, ang SDMP na ibinibigay ng Proyekto, environmental protection sa EPEP at progressive rehabilitation sa FMRDP.

Mga hindi inaasahang maaring mangyari sa proyekto ay epekto nito sa pagdedesisyon ng IQAC

Ang maaring mangyari na hindi inaasahan ay ang 1). Aksidente sa lugar ng quarry at ang 2). Soil erosion kung hindi maayos ang magiging mitigation para dito.

Table 4: Summary of Baseline Characterization and Key Environmental Impacts and Management & Monitoring Plan

Summary of Baseline Characterization	Key Environmental Impacts and Management & Monitoring Plan (including assessment of the effectivity of the measures)
Land	The current land use and classification and the zoning of the area is mining area. Thus, there will be no impact on the current land use. The major impact of this proposed project on land is the quarry operation which will include land clearing and excavation.
Water	The proposed project will have very minimal water requirement. The water is necessary primarily for use in the control of dust emission, fire-fighting, watering and domestic use. Water will be sourced primarily from the plant.
Air	There will be impact on air during operations because of the expected air emissions especially particulates from quarry operations through its equipment and vehicles.
People	With the quarry operations, additional employment will be generated, with preference to qualified local residents. Also, there will be benefits because of the implementation of the Social Development and Management Program of IQAC.

Buod ng Key Environmental Impacts and Management and Monitoring Plan gayundin ang plano para sa EMF at EGF

Ang maaring kabuuang epekto na makikita sa proyekto ay ang dagdag na emission at alikabok na maaring idulot dahil sa paggamit ng mga makina at malalaking sasakyan na gamit sa pagqua-quarry. SIsigurduhin ng pag-aaral na ito na ang kabuuang benepisyo ay makakmtan at ang negatibong epekto ay maiiwasan or mababawasan. Ipinapakita ng Tables A at B ang impact mitigation matrix para sa proyektong ito gayundin ang buod ng Impact Management at Monitoring Plan (IMMoP).



Table A: Summary of Key Environmental Impacts and Mitigation Plan

Project Phase / Environmental Aspect (Project Activity Which will likely Impact the Environmental Component)	Environmental Component Likely to be Affected	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Responsible Entry	Cost	Guarantee / Financial Arrangements
I- PRE CONSTRUCTION PHASE	Preparation of Explorations Reports, securing of permits and licenses					
II- CONSTRUCTION PHASE						
Environmental Aspect # 1	A. The Land	Scraps Construction debris	<ul style="list-style-type: none"> • Good housekeeping; sell scraps • Manual sweeping • Disposal and/or use of overburdens 	Proponent	Part of Construction Cost	Compliance to RA 9003
Environmental Aspect # 2	B. The Water	Domestic waste discharges	Use of Portable toilets	Proponent	Part of Construction Cost	Compliance to Clean Water Act
		Used oil	To be treated and disposed by DENR-accredited 3 rd party treaters	Proponent	Part of Construction Cost	Compliance to RA 6969
Environmental Aspect # 3	The Air	Dust	<ul style="list-style-type: none"> • Road water sprinkling • Tree nursery and tree planting 	Proponent	Part of Construction Cost	Compliance to RA 8749
		Noise	Distance from population	Proponent	Part of Construction Cost	Compliance to DENR Standards on noise
Environmental Aspect # 4	D. People	Enhancement / positive impact	Employment generation	Proponent	N.A.	
		Employment opportunity and increase in taxes, community programs and increase economic activity	Coordination with LGU on hiring policy			



		Immigration/in-migration	Local hiring priority policy			
		Occupational safety and health hazards	<ul style="list-style-type: none"> • Health and safety policies, safety inspections and toolbox meetings • PPEs • First aid and mine rescue training 			
II- OPERATION PHASE						
Environmental Aspect # 1	A. The Land	Loss of vegetation Disturbance of wildlife resulting in displacement	<ul style="list-style-type: none"> • Open and unused areas within the project site will be replanted as soon as practicable • Development of a carbon sink program and provision of a nursery for the program • Revegetation using native or indigenous species • Retaining existing vegetation not affected by construction • Briefing of field personnel for proper and efficient environmental awareness and education • Proper segregation and disposal of wastes • Observance of specific regulations towards prohibition of hunting and poaching (or support of these activities) of any present wildlife • Proper maintenance of vehicles and heavy equipment including fitting with appropriate mufflers or silencers to decrease noise levels 	Proponent	Part of AEPEP	EPEP
		Generation of sewage and solid wastes	<ul style="list-style-type: none"> • Placement of regulations on proper waste disposal • Provide proper waste disposal facilities and toilet facilities 	Proponent		



			<ul style="list-style-type: none"> • Proper segregation of waste and implementation of 3Rs (reduce, reuse, recycling) 			
		Fugitive dust resulting from ground clearing	<ul style="list-style-type: none"> • Regular spraying of water where earthwork activities are concentrated • Replacement of vegetation in non-structure areas. • Compacting of exposed soil and immediate hauling of spoils • Provision of cover on trucks loaded with quarry materials • Impose speed restrictions for trucks 	Proponent		
	Blasting, loading, hauling, crushing, screening of ores	Vibration, airblasts, flyrocks	<ul style="list-style-type: none"> • Hiring of competent and well trained personnel • Implement controlled blasting and personnel evacuation within safety zones during blasting • Designation of buffer zones • Regular safety training of workers • Proper use of PPEs 	Proponent		
Environmental Aspect # 2	B. The Water	Domestic waste discharges	<ul style="list-style-type: none"> • Use of Portable toilets • Establishment of drainage system • Establishment of siltation ponds 	Proponent	Part of contract	Agreement with contractor
		Used Oil	<ul style="list-style-type: none"> • To be treated and disposed by DENR-accredited treaters 	Proponent	Part of contract	Agreement with contractor
Environmental Aspect # 3	C. Air	Fugitive Dusts	<ul style="list-style-type: none"> • Road water sprinkling • Tree nursery and tree planting 	Proponent	Part of Operation Cost	
		SOx and NOx emissions from heavy equipment	Regular maintenance of heavy equipment and motor vehicles	Proponent		
		Increase in sound levels during operations	<ul style="list-style-type: none"> • Regular maintenance of motor vehicle • Use of mufflers 	Proponent		



			<ul style="list-style-type: none"> • Provision of barriers and shielding stationary vibrating equipment • Provision of ear mufflers to workers • Proper scheduling of noisy activities during day time • Inform community when activities will generate excessive noise • Use of PPEs 			
Environmental Aspect # 4	D. The People	Enhancement	Socio economic benefits like employment, livelihood	Proponent		
II- ABANDONMENT PHASE	More detailed plan will be provided in the FMRDP.					
	A. The Land	Scraps Debris from demolished structures	Good housekeeping Use as filling materials for construction works	Proponent	N.A.	N.A.
		Removal of wastes and oil spills, Removal of all equipment, rehabilitation	Change in land form and use Loss of jobs and community programs			
	C. Air	Dusts from demolished structures	Sprinkling of water	Proponent		
		Noise from structures being demolished	No population center at construction sites	Proponent		
	Grading, drainage and slope stabilization works including levelling of sediment trap and settling ponds, soil conditioning and planting of endemic species or reforestation					



	D. The People	Social impact or cessation of employment or mass lay-off due to stoppage of work brought about by the project abandonment	<ul style="list-style-type: none"> • Payment of legal social benefits • Retrenchment package • Labor support programs 	Proponent	Part of Social Plan	
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Table B. Environmental Monitoring Plan (EMoP) with ENVIRONMENTAL QUALITY PERFORMANCE LEVELS (EQPLs

Key Environmental Aspects per Project Phase	Potential Impacts Per Env't'l Sector	Parameter to be Monitored	Method	Frequency	Location	Lead Person	Annual Estimated Cost	EQPL MANAGEMENT SCHEME					
								EQPL RANGE			MANAGEMENT MEASURE		
								ALERT	ACTION	LIMIT	ACTION	ALERT	LIMIT
I. PRE-CONSTRUCTION PHASE													
Environmental Aspect # 1	A. The Land												
Environmental Aspect # 4	B. The People	Employment generation	Hiring process in coordination with LGU PESO			Contractor	Part of construction cost						
II. CONSTRUCTION PHASE													
Environmental Aspect # 1	A. The Land	Domestic wastes (solid) Construction debris	Good housekeeping Compliance to RA 9003			Contractor	Part of construction cost	Scattered debris	Clean construction site	Scattered debris	Immediate instruction for clean-up	Clean construction on site	Scattered debris
Environmental Aspect # 2	B. The Water Contamination from domestic wastes	pH, DO, BOD, coliform, oil and grease	In situ grab sampling for laboratory analysis	Semi-annual	Baseline sampling stations depending on final	Proponent through MEPEO/PCO; MMT	50,000/monitoring	Standard EIS prediction	<ul style="list-style-type: none"> • BOD=45 mg/L • pH • COD • DO 	<ul style="list-style-type: none"> • BOD=55 mg/L • pH • COD • DO 	Implement corrective action	For sampling and testing to verify results.	Temporary stoppage of identified activity or equipment



Key Environmental Aspects per Project Phase	Potential Impacts Per Envit'l Sector	Parameter to be Monitored	Method	Frequency	Location	Lead Person	Annual Estimated Cost	EQPL MANAGEMENT SCHEME					
								EQPL RANGE			MANAGEMENT MEASURE		
								ALERT	ACTION	LIMIT	ACTION	ALERT	LIMIT
					project design				<ul style="list-style-type: none"> • Oil and grease=4 mg/L • TSS=50 mg/L • Fecal and total coliform= 8,000MP N/1,000 ml 	<ul style="list-style-type: none"> • Oil and grease=5 mg/L • TSS=70 mg/L • Fecal and total coliform= 10,000MP N/1,000ml 		Monitoring of Sources and Control of pH from sources	
Environmental Aspect # 3	C. Air pollution in receptor areas	TSP	(S)24 hr High Volume (A)Gravimetric USEPA 40 CFR, Part 50	Semi-annual	Quarry site	Proponent through MEPEO/PCO; MMT	To be determined	161	184	230	-do-	-do-	-do-
		SO2	(S)24 hr Gas Bubbler (A) Pararosaniline Method (West and Gaeke Method)					126	144	180	-do-	-do-	-do-
		NO2	S)24 hr Gas Bubbler (A) Griess-Saltzman or Chemiluminescence Method					105	120	150	-do-	-do-	-do-



Key Environmental Aspects per Project Phase	Potential Impacts Per Envit'l Sector	Parameter to be Monitored	Method	Frequency	Location	Lead Person	Annual Estimated Cost	EQPL MANAGEMENT SCHEME					
								EQPL RANGE			MANAGEMENT MEASURE		
								ALERT	ACTION	LIMIT	ACTION	ALERT	LIMIT
	Noise generation in receptor areas	Sound levels	24 hr sound measurements using handheld sound meter	Quarterly	Receptor areas	Proponent	To be determined	Recorded complain	Multiple recorded complains from the receptor areas	Multiple recorded complains from the receptor areas	Identification of the source of noise Check buffer zones and noise attenuation measures Conduct noise modeling	Corrective action on the identified source of noise Conduct monitoring after source identification	Detailed evaluation of noise exceedance if any
III. OPERATIONS PHASE													
Environmental Aspect # 1	A The Land: Soil wastes	Housekeeping	Observation	Quarterly	quarry site	Proponent	To be determined	Residual waste are contained on specific bins and collected by the barangay garbage collector. Recyclable materials are identified and segregated and sold to scrap buyer.					
		Silts in silt ponds	Desilting of ponds	Quarterly	Quarry site	Proponent	To be determined						
Environmental Aspect # 2	B The Water	Impact to water quality;	Laboratory analysis	Semi-annual	Quarry site	Proponent	To be determined	Exceedance from the baseline	<ul style="list-style-type: none"> • BOD=45 mg/L • pH • COD • DO • Oil and grease=4 mg/L • TSS=50 mg/L 	<ul style="list-style-type: none"> • BOD=55 mg/L • pH • COD • DO • Oil and grease=5 mg/L • TSS=70 mg/L 	Inspection of Activities	Corrective action on the identified source of water impact	Stoppage



Key Environmental Aspects per Project Phase	Potential Impacts Per Env't'l Sector	Parameter to be Monitored	Method	Frequency	Location	Lead Person	Annual Estimated Cost	EQPL MANAGEMENT SCHEME					
								EQPL RANGE			MANAGEMENT MEASURE		
								ALERT	ACTION	LIMIT	ACTION	ALERT	LIMIT
									• Fecal and total coliform=8,000MPN/1,000ml	Fecal and total coliform=10,000MPN/1,000ml			
Environmental Aspect # 3	C The Air	Dust	<ul style="list-style-type: none"> Road water sprinkling Tree nursery and tree planting 	Semi-annual	Part of EPEP Cost	Proponent	EPEP	Noticeable dust	For sampling and testing to verify results.	Exceedance from the baseline	Identification of the source of dust	Corrective action on the identified source of dust	Stoppage
	Noise generation in receptor areas	Sound levels	24 hr sound measurements using handheld sound meter	Semi-annual	Existing stations	Proponent	To be determined	Recorded complain	Multiple recorded complains from the receptor areas	Multiple recorded complains from the receptor areas	Identification of the source of noise Check buffer zones and noise attenuation measures Conduct noise modeling	Corrective action on the identified source of noise Conduct monitoring after source identification	Detailed evaluation of noise exceedance if any
Environmental Aspect # 4	D The People	SDP	Meetings	Quarterly		Proponent and LGU	Part of EPEP Cost						
IV. ABANDONMENT PHASE													
Environmental Aspect # 1	A The Land	Tree Planting				Proponent	Part of FMRDP	Implementation of FMRDP and appropriate planting and replanting measures					

Environmental Impact Statement (EIS)
Proposed Quarry Project in Pamias 1 and 3
Island Quarry and Aggregates Corporation (IQAC)
 Brgys. San Jose and San Luis, Antipolo City, Province of Rizal



Key Environmental Aspects per Project Phase	Potential Impacts Per Env't'l Sector	Parameter to be Monitored	Method	Frequency	Location	Lead Person	Annual Estimated Cost	EQPL MANAGEMENT SCHEME						
								EQPL RANGE			MANAGEMENT MEASURE			
								ALERT	ACTION	LIMIT	ACTION	ALERT	LIMIT	
Environmental Aspect # 2	B The Water	Based on the results of Environmental Site Assessment (ESA) that will be conducted prior to abandonment	Based on ESA recommendations			Proponent thru MEPEO; MMT	To be determined	Based on ESA recommendations			Based on ESA recommendations			
Environmental Aspect # 3	C The Air													
Environmental Aspect # 4	D The People	Social Plan (or plan available for employees guaranteed under the Labor laws of the Philippines)	Payment of Separation package			Proponent	Part of FMRDP							

The EMoP will be subject to the requirements of and agreements with the operational requirements of the MMT. The existing MMT covers the entire project and may be modified to include additional operational capacity of IQAC.

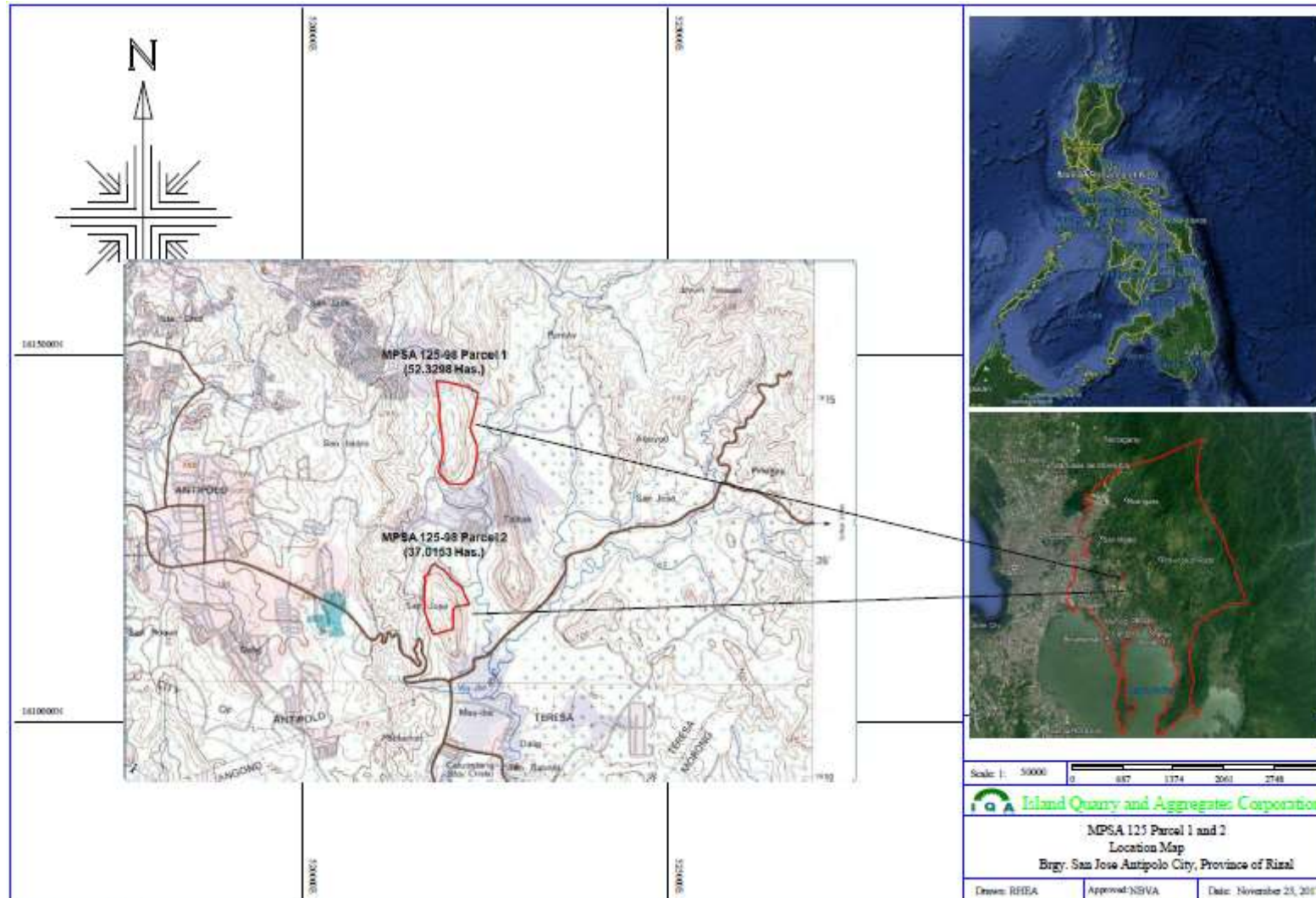


Figure ES1: Project Site Location

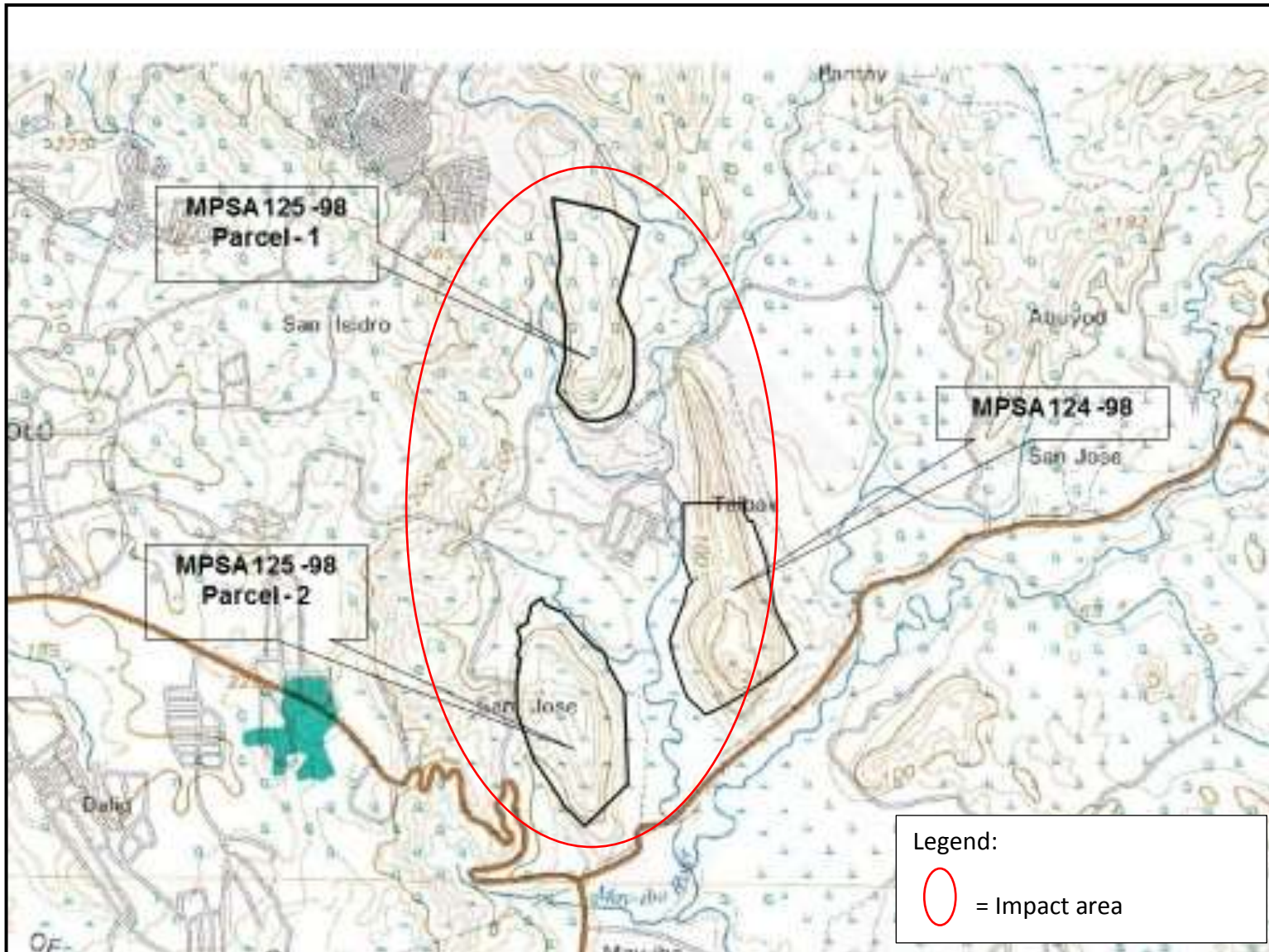


Figure ES2: Map of the Impact Areas

1. Direct Impact Area - The Project site itself and the possible air receptor within 1 km due to the expected air emissions from mining operations, i.e. Brgy. San Jose
 2. Indirect Impact Area – the hauling route of during construction and operation phase, i.e. Brgy. San Luis.
- Provided in Figure ES3 is the Mine Development Plan for the Quarry Operation.

MPSA 125-98-IV AMENDED B PARCEL 1 (PAMIAS 1) DEVELOPMENT PLAN

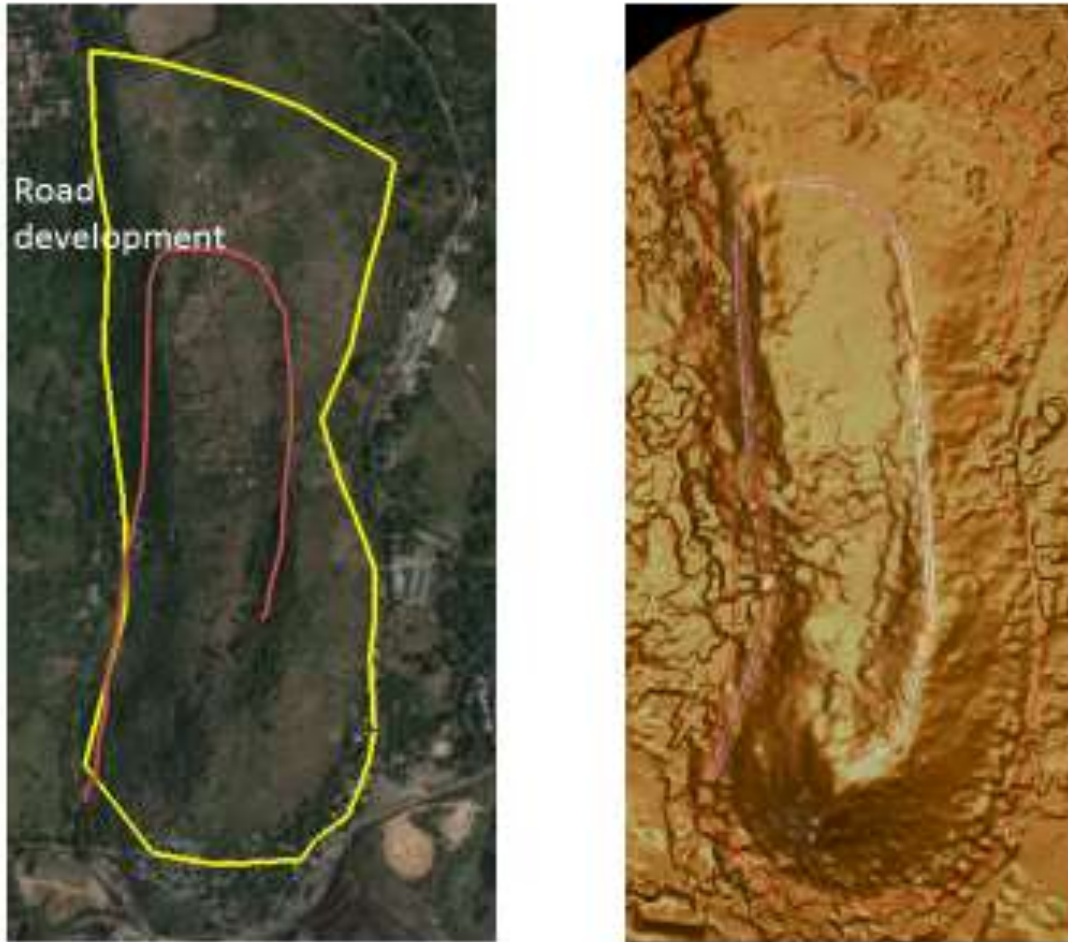


Figure ES3: Mine Development Plan

Table C shows the development schedule for the quarry.

Table C: Development schedule for the quarry

Development Schedule:

Activities	1st YEAR				2nd YEAR			
	1st Qrt	2nd Qrt	3rd Qrt	4th Qrt	1st Qrt	2nd Qrt	3rd Qrt	4th Qrt
Relocation of Informal Settler								
Road Development								
Construction of Catchment Benches								