PROJECT DESCRIPTION REPORT

ATLAS/TOLEDO COPPER MINE

INTEGRATED MINING & PROCESSING OPERATIONS

(Mine to Port Operations)

Brgy. Don Andres Soriano, Toledo City, Cebu

APRIL 2021

CARMEN COPPER CORPORATION

CARMEN COPPER CORPORATION

Management System ISO 14001:2015 OHSAS 18001:2007 TÜVRheinland CERTIFIED www.tuv.com ID 9108651528

February 16, 2021
ROD (L) 056/21

Engr. WILLIAM P. CUÑADO
Director
Environmental Management Bureau
EMB Central Office
DENR Compound, Visayas Avenue
Diliman, Quezon City

Dear Director Cuñado:

Greetings!

We, Carmen Copper Corporation (CCC), would like to express our intention to apply for an Environmental Compliance Certificate (ECC) for the whole operation of the Toledo Mine, with the site office located at Barangay Don Andres Soriano, Toledo City, Cebu.

Application shall cover all "Mine to Port" operations, from ore mining activities, ore processing plant operations including by products, tailings conveyance and storage, hauling and port operation activities.

Attached herewith are the active Environmental Compliance Certificates (ECC's) issued by the Environmental Management Bureau Region 7 (EMB 7) in favour of the company for your information and reference, namely:

1. 25 MW Thermal Power Plant Project (ECC RO7 – 0909 – 0051) issued on Oct. 8, 2009;
2. Airport Waste Rock Dump and Ilag Expansion (ECC RO7 – 1012 – 0379) issued on Sept. 16, 2011; and
3. Biga Pit Tailings Storage Facility and Marcona Waste rock Dump (ECC 07 06 12 – 29 0278 0120) issued on Oct. 31, 2018.

Moreover, please be informed that we also have two (2) on-going ECC applications, to wit:

1. ECC amendment for the proposed Airstrip Waste Rock Dump Expansion and Crushing Plant Project submitted to EMB 7 on March 5, 2020 (see attached letter dated Feb. 20, 2020); and
2. ECC application for the Carmen Concentrator Facility submitted to EMB Central Office on August 19, 2020 (see attached letter dated Aug. 17, 2020).

All of the above active ECC's and on-going applications are subject to the proposed "Mine to Port" consolidated ECC application for company's Toledo Mine operation.

We also would like to inform you that we will be submitting a letter to the Mines and Geosciences Bureau Central Office expressing our intention to recall or defer our request for the MPSA consolidation subject to further internal discussions.

We hope that our intention to apply for the consolidated certificate merits your positive approval.

Very truly yours,

ROY O. DEVERATURDA
President and CEO

CC:

ATTY. WILFREDO G. MONCANO
Acting Director
DENR-Mines and Geosciences Bureau
North Avenue,Diliman,
Quezon City

ENGR. ARMANDO L. MALICSE
Officer-in-Charge Regional Director
DENR-Mines and Geosciences Bureau
Regional Office VII

MME. LORMELYN E. CLAUDIO, CESO IV
Regional Director
Environmental Management Bureau VII
Banilad, Mandaue City

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1. BASIC PROJECT INFORMATION

1.1 PROJECT INFORMATION

Name of Project	**Toledo Copper Mines Integrated Mining and Processing Operations**
Project Location	Barangays Don Andres Soriano/Lutopan, Biga, Media Once, and Loay,Toledo City
Nature of Project	Resource Extractive Industry and Mineral Processing Project: Metallic Mineral or Ore Processing
Mineral Production Sharing Agreement (MPSA)	MPSA 210-2005-VII: 234.2875 Hectares (Carmen Mining Area) MPSA 264 2008-VII: 648.0159 hectares (Lutopan Mining Area)
Size/Scale	Milling Output: The plant will be based on an initial throughput of 1,000 tons per hour and an output of 400 tons per hour upgraded ore of 0.35%Cu grade but could be adjusted based on plant requirements.
CNC/ECC Issued	CNC (01-24-05) for the Mining Operations of ACMDC
	ECC 07-06 05-080079-104 (May 08, 2006)-Atlas Tailings Disposal System & Biga Pit Rehabilitation
	ECC 07-0612-290278 120 (Dec. 29, 2006) – Sigpit Creek (interim) and Biga Pit Disposal Facilities Project • Amended ECC 07-0612-290278 120 (Dec. 28, 2011)-Biga TSF Impounded Water Relief Project • Amended ECC 07-0612-290278 120 (April 22, 2013)-Atlas Mines Tailings Disposal Facility and WRD • Amended ECC 07-0612-290278 120 (Oct. 21, 2018)-Biga Pit TSF Enhancement & Marcona WRD
	ECC RO7-1012-0379 (Jan. 25, 2011)-Airstrip Site WRD/Landfill • Amended ECC RO7-1012-0379 (Sept. 16, 2011)-Airstrip Site WRD/ Landfill Expansion

1.2 PROPONENT INFORMATION

Proponent Name	**Carmen Copper Corporation**
Address	DAS, Toledo City
Authorized signatory/ representative to apply for ECC	**ROY O. DEVERATURDA,** President & CEO CHRISTOPHER JOHN W. SALCEDO Manager, Environment Division
Contact Details	+63 9173261021, cwsalcedo@carmencopper.com

Vision & Mission Statement. Carmen Copper Corporation aims to be the leading copper producer in the Philippines, a preferred employer in the industry and a role model for responsible mining and good governance. Anchored on this vision, Carmen Copper will enhance value for its shareholders by pursuing long-term prospects for stability, growth and diversification while harmonizing safe and efficient business practices with the social and environmental needs of its host communities.

Brief History

- 1935 - Toledo Copper Mine was first incorporated as Masbate Consolidated Mining Company.
- 1953 - Incorporated as Atlas Consolidated Mining and Development Corporation under the aegis of Andres Soriano y Roxas

- 1978 - Attained a milling capacity of 110,000 dry metric tons (DMT) per day from 3 concentrators – Dascon, Bigacon & Carcon, then the biggest in the Far East
- 1994 - ACMDC operations were suspended indefinitely due to depressed metal prices
- 2004 - Carmen Copper Corporation incorporated on September 16, 2004 - a subsidiary of ACMDC
- 2007 - Started full scale rehabilitation of the Toledo Copper mine
- 2008 - Production resumed at Carmen Concentrator with a milling rate of 20,000MT of copper ore per day.
- 2011 - SM Investments Corporation (SMIC), one of the country's largest and most respected conglomerates becomes a major shareholder
- 2017 - On November 23, Carmen Copper marked its 250th shipment of copper concentrate

Awards

- Presidential Mineral Industry and Environment Award (PMIEA) Titanium Achievement (2017)
- Presidential Mineral Industry and Environment Award (PMIEA) Platinum Achievement (2018, 2019)
- PMSEA | Most Improved Safety Performance (2019)

Gawad Tugas

- Gawad Tugas for Forest Protection and Management (2017)
- Gawad Tugas for Responsible Mining (2015, 2018)

Best Mining Forest

- Best Mining Forest Champion (2010)
- Best Mining Forest 1st Runner Up (2011)
- Best Mining Forest 2nd Runner Up (2012)
- Best Mining Forest 1st Runner Up (2013)
- Best Mining Forest, 2nd Runner Up (2014)
- Best Mining Forest 1st Runner Up (2015)
- Best Mining Forest 2nd Runner Up (2016)

Other Awards

- Best National Greening Program Implementer in Region 7 (2013)
- Outstanding Grievance Machinery for Industrial Peace (2017, 2019)
- Silver Anvil Award for 2017 Sustainability Report
- Silver Anvil Award for 2018 Sustainability Report

1.3 IEC, PUBLIC CONSULTATIONS

A number of IEC and Public Consultations were conducted for the Integrated Mining and Processing Operations. Prior to this plan submission of ECC application for the Integrated Mining and Processing operations, IEC/Public Consultations were also conducted for the supposedly ECC Amendment for the Airstrip WRD and the ECC for the Carmen Concentrator Facility, which was shelved/cancelled as it was advised/recommended to integrate all the ECCs issued and the entire mining and processing operations of the Toledo Copper Mines.

1.3.1 IEC, Public Consultation for the Integrated Mining and Processing Operations. Format/ Outline of the IEC, Public Consultations Programme for the Integrated Mining and Processing Operations EIA Study/ECC application:

- PEISS regulations for the ECC application of the Company, the need to conduct IEC, public consultations and perception survey for the surrounding/affected communities
- Company (CCC) existing ECCs and the need to integrate and apply for an ECC for the whole mining operations
- Brief discussion/overview of the entire mining operations, vision/objectives of the Company,
- Open Forum

Table 1.1 IEC/Public Consultations Summary of Concerns

	Barangay Date/Time/Venue	No. of Attendees/ Residents	Summary of Concerns/Insights Raised
1	Barangay Bagacay March 6, 2021/2:05PM Bio Char Bldg., Purok 4	16	a) Mr. Virgilio Rico (Bagakay Farmers Asso) indicated that they don't have any concerns since they understood very well the mining operations b) Mrs. Lucia Racoma (BFA President), on behalf of her co-participants, expresses their gratitude to the company for the continuing support (CCC has supported-assisted BFA in some of their programs/projects)
2	Barangay Cantabaco March 24, 2021/10:00-11:30AM Tech Voc Bldg.	11	a) Ms Teriote expressd her gratitude on behalf of the ICAHBWA members for CCC assistance to the organization esp. the greening programs & seedling production projects *b)* Ms. Gaviola asked about the Biga landslide & latest updates - *CCC responded/provided the updates and developments.* c) Ms. Heruela asked about the waste rock dmping at the Cantabaco landfill and how the activity will affect the residents. – The CCC response were as follows: - Activity will be limited to company-owned lots and will not encroach on private lots - The engineered dumping of waste rocks will also help stabilize the area behind the cemetery and the areas surrounding the abandoned landfill.
3	Brgy. Daanlungsod March 26, 2021/11:10-12:10NN Brgy. Session Hall	13	a) Mr. Masicampo (former ACMDC employee) indicated that they don't' have any questions/concerns since they understood the mining operations b) Brgy. Capt. Maybuena expresses their intension that the barangay is one of the recipient/beneficiary of the SDMP, and that the barangay council has sent letter for that purposeMr. Salcedo of CCC told the group to create appointment/meeting of the concerned department esp with the COMREL
4	Barangay Don Andres Soriano (DAS) March 23, 2021/1:20-2:50PM Tech Voc Bldg.	12	• Mr. Canoneo inquiry on exploration area & corresponding limits • Mr. Salas asked about the location of the latest landslide and updated on retrieval opertions • Ms Salas request for educational mine tour/museum visit • Mr Salas inquired on the destination of Copper Concentrates product- *CCC response: China, Japan, Korea and local (PASAR). Used for electronic parts like Cellphones.* • Ms Cabiluna asked about the lifespan of the present mine. • Ms Salas on the Ongoing Scholarship programs • Mr. Salas on Impacts of tailings to the environment • Mr Villarmina statement on Lake Bensis and its operations as example of tailings pond capable of sustaining life-but the activities of tourists, visitors and their irresponsible behaviors such as garbages littering are destroying its flora and fauna • Ms. Paran on covering of open pits when mined-out.
5	Barangay Loay March 25, 2021/10:25-11:35AM Barangay Health Center	9	• Mr. Bonhanoy of Sta. Cruz Farmers Asso (SCFA) indicated that they don't' have any questions/concerns regarding the discussion since they understood very well the mining operations • Mrs. Jimenez of Lupon Tagapayapa of the barangay, indicated that they don't' have any questions/concerns

			regarding the discussion since they understood very well the mining operations -mentioning the construction of the covered court, Barangay Health Center, and ambulance.
6	Barangay Media Once Pandongbato March 23, 2021/10:00-11:00Am	10	• Mrs Basalo indicated that they don't have any questions/concerns regarding the discussion since they understood very well the mining operations • Mrs. Obcial indicated that on behalf of her co-participants, she would like to express their gratitude to the company for the support given to them
7	Barangay Poog Sitio Camalig March 25, 2021/ 10:30-11:40 PM		• Mr. Rabanes that they don't have any questions/concerns regarding the discussion since they understood very well the mining operations • Mrs. Mancao indicated that on behalf of her co-participants, she would like to express their gratitude to the company for the support given to them

Figure 1.1 Photographs taken during IEC/Public Consultations in various Barangays (within Project Affected Areas)

Figure 1.1a Photos taken during the **Brgy. Bagakay** IEC, Public Consultations & Perception Survey

Figure 1.1b Photos taken during the **Brgy. Cantabaco** Residents IEC, Public Consultations & Perception Survey

Figure 1.1c Photos taken during the **Brgy. Daanlungsod Barangay Officials** IEC/Public Consultations

Figure 1.1d Photos taken during the **Brgy. DAS** residents IEC/Public Consultations & Perception Survey

Figure 1.1e Photos taken during the **Brgy. Loay** residents IEC/Public Consultations & Perception Survey

Figure 1.1f Photos taken during the **Brgy. Media Once** residents IEC/Public Consultations & Perception Survey

Figure 1.1g Photos taken during the **Brgy. POOG** residents IEC/Public Consultations & Perception Survey

1.3.2 IEC/Public Consultation for the Carmen Concentrator (Carcon) Facility

The Public Scoping/Consultation was conducted last February 24, 2020 (10:00-12:00am) at the Brgy. Biga Bagong Buhay Hall, attended by 43 residents and PO members.

The highlights/minutes of meeting were as follows:

- The meeting started with a short introduction of the company representatives by Mr. Bacalso.
- After the short introduction, Mr. Salcedo, proceed to present a brief background of the operation of the company, starting with the acquisition of the Certificate of Non-Coverage (CNC), the start of the rehabilitation of all mine related facilities and the operation of the plant by late 2008 and continuous operation of the mining complex until the present.
- Mr. Salcedo then proceeded to discuss the plan of the company to acquire an Environmental Compliance Certificate (ECC) for the Carmen Concentrator Facility.
- Mr. Salcedo reiterated that the Carmen Concentrator Facility is already covered by the issued CNC, and proposed ECC application is intended to further assure compliance of the facility to other regulations from concerned government agencies.
- After the short presentation of the project, the floor was open for questions and clarifications. Mr. Joemar Pritos was the appointed moderator.
- Question 1: Mrs. Marites Bolo, a resident of So. Danawan, Biga, Toledo City asked if the proposed application will affect the operation of Carmen Copper Corporation.

Mr. Salcedo answered that the application will not in any way affect the operation of the company since the application will only involve documentary compliance. The operation of the Carmen Concentrator facility is already covered by the CNC issued.

- Question 2: Mrs. Edna Macaday, a resident of So. Hag-it, Biga Toledo City asked the group if there be major construction or earth moving activities involved in the project?

  Mr. Salcedo answered that the project will not involve any major construction or earth moving activities. The Carmen Concentrator facility is already existing and operational. there might be scheduled maintenance or repair activities for the facility, but that is part of facility maintenance.

- With no more questions from the group, Mr. Joemar Pritos proceed with the closing discussions. The meeting ended at about 11:15 am

Figure 1.2 Photos taken during the Public Scoping/Consultation for CarCon Facility

1.3.3 Airstrip Site WRD Facility ECC Amendment. The Public Scoping activity was conducted last October 28, 2019 (9:00-11:00am), at the San Isidro Chapel, Sitio Tipolo, Brgy. Media Once, Toledo City, which was attended by seventy-two local residents and Barangay Officials. A number of issues/concerns has been raised by the residents, a summary of which were the following:

1. Prioritization of employment opportunity generated by the project.
2. Previous commitment of CCC particular water sources improvement will be implemented prior to propose commencement.
3. Proper installation of Dust suppression equipment provided and
4. Access of local residents

Figure 1.3. Photos taken during the Public Consultation for the Airstrip WRD Modifications/ECC Amendment

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The Toledo Copper Mines is located in the City of Toledo, Province of Cebu. Toledo lies on Tanon Strait across from Negros Island and the city of San Carlos, Negros Occidental, located at the western coast of Cebu Province . Toledo is connected to Cebu City, the provincial capital and second largest Philippine metropolitan area, by two stretches of road crossing the rugged spine of the island: the Naga-Uling Road and the alternate Manipis Road.

Geographically, the Toledo Copper mine site is located between 123º42' longitude and 10º18' latitude, within the political jurisdiction of Toledo City in the island province of Cebu. Cebu Island is a long narrow land mass extending more than 200 km from north tosouth but just 40 km east to west at its widest point. The mine site is at the western slope of the central highland roughly in between the island's east and west coastlines. It is about 15 km from Toledo City and about 60 km from Cebu City

The Toledo Copper Mines is within the properties of the Atlas Mines/ACMDC and the two MPSA areas that covers the following barangays: DAS/Lutopan, Media Once, Loay, Biga, Bagacay, Poog and Cantabaco. The mining and processing facilites/operations of the Toledo Copper Mines are located in the DAS/Lutopan, Media Once, Loay and Biga.

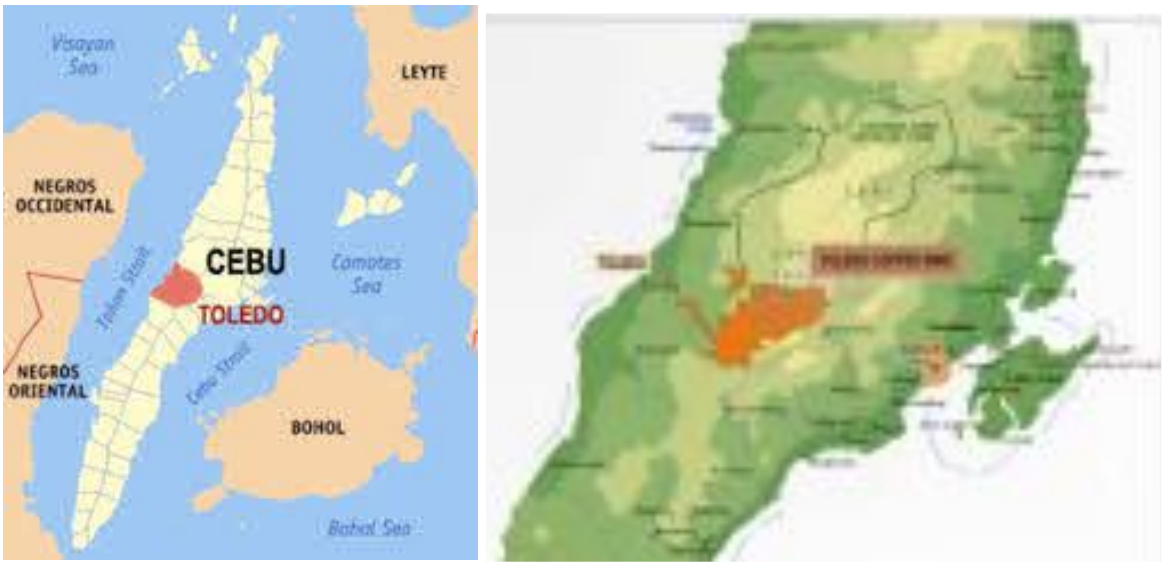


Figure 2.1 Location Map

2.2 Land Area/Ownership

The FMRDP (2010) noted the following: "*The Toledo copper mine operations of Atlas Consolidated Mining and Development Corporation embrace a group of mineral claims that are covered by existing mining leases and applications for Mineral Production Sharing Agreement (MPSA). The claims are located in Barangays Don Andres Soriano, Biga, Cantabaco, Bunga, Media Once, and Cambang-ug, all in Toledo City, and Barangay Uling in Naga, Cebu. The mineral property spans a total area of 5,218.1160 hectares, 3,284.4810 hectares of which are covered with mining claims owned by Atlas, while the remaining 1,933.6350 hectares covered with mineral claims belonging to other claimowners who have existing operating agreements with Atlas. Geographically, the Toledo Copper mine site is*

located between 123°42' longitude and 10o18' latitude, within the political jurisdiction of Toledo City in the island province of Cebu.

Carmen Copper Corporation (a subsidiary of ACMDC) revived the Toledo copper mining operation and used a total area of 1,674.0479 hectares of the ACMDC property under CCC-ACMDC Operating Agreement (See Figure 3.4). Mining operations initially resumed at the Lutopan ore body (South Lutopan Pit) located inside MPSA No. 264-2008-VII. Total area covered by actual mine operations is 883.3034 hectares."

CCC mine operations cover a total land area of 1,674.0479 hectares or 32% of the Toledo mineral property of ACMDC. The mine site lies within an existing and previously developed area with facilities and infrastructures already in place. The major orebodies and, for that matter, the mining areas, strike in the northeast-southwest direction, with the Carmen orebody (and mine workings) situated at the center of that alignment. Barangay DAS and its commercial-residential center are situated on the southwest extension of the axis with their distances to the Carmen Pit perimeter and nearest underground working (Ilag Diversion Tunnels) estimated at 3,000 and 500 meters, respectively.

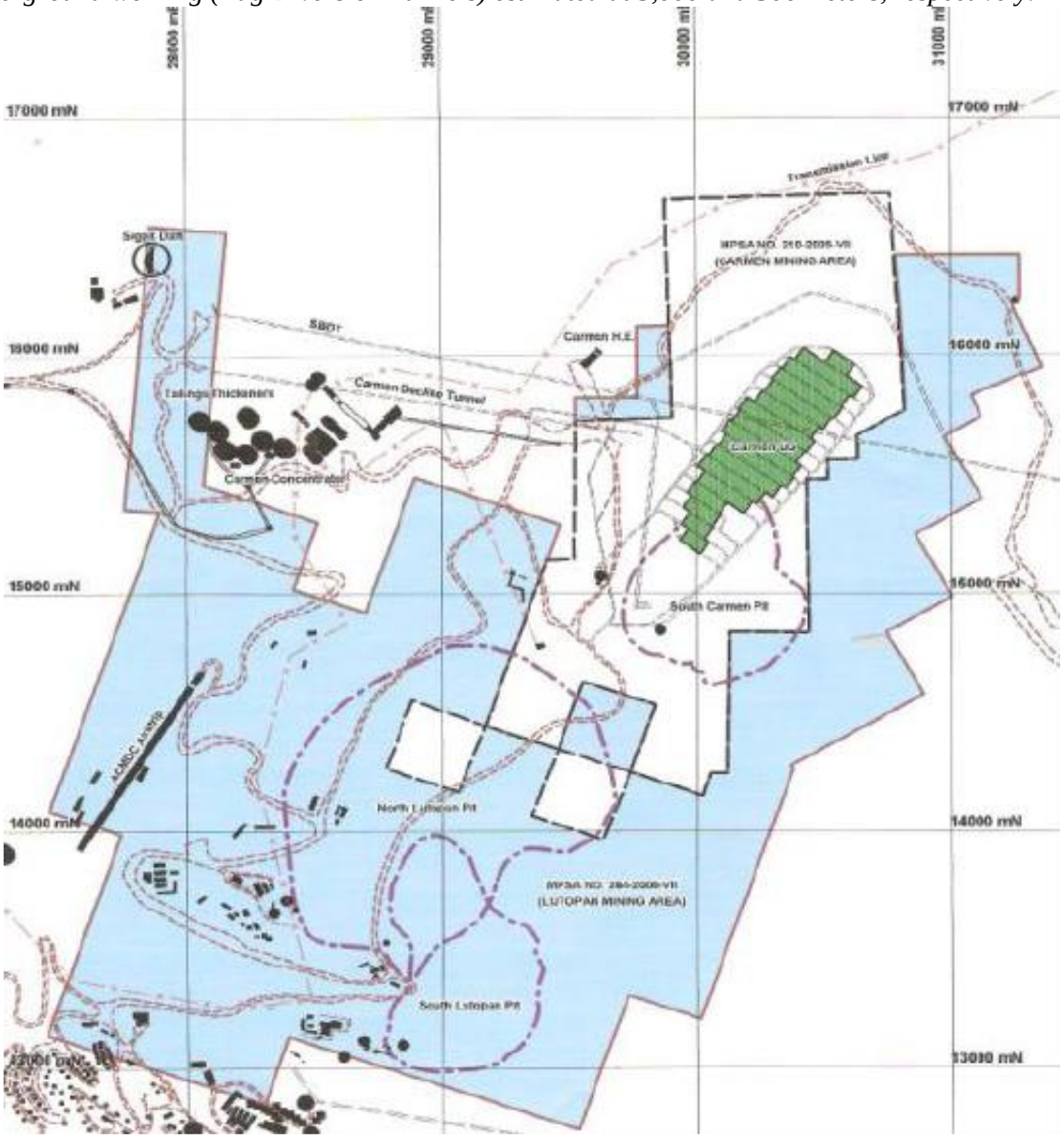


Figure 2.2. **Map Showing the ACMDC MPSA Area**
Source: FMRDP 2010

2.3 PROJECT MILESTONE, RATIONALE/OBJECTIVE

ACMDC Mining Operations and Socio-Economic Contributions: 1953 - 1994[1]

In 1953, ACMDC began its copper mining operations in Toledo. Using combined open pit and underground mining technology, Atlas commenced ore production in 1955.

In the late 1970s, ACMDC became Asia's largest copper mine and continued to generate revenues for the government through taxes. At the height of its operations, the company's total average mineable material output per day was 100,000 – 110,000 tonnes and its staff complement comprised 14,000 people

In its active years, ACMDC built housing structures, recreation centers, day-care centers, a chapel and a modern hospital with a 99-bed capacity in Toledo City. It also established and subsidized the Andres Soriano Memorial School, a De La Salle University-affiliated school, for its employees and the local communities.

Through its Community Development Division, ACMDC also implemented or financed livelihood programs such as aquaculture, cattle, swine, and poultry raising, vegetable growing, wood craft making, loom weaving that produced blankets and towels, and production of ropes, bags, gloves and safety shoes (Cal, 2003). The company also organized farmer's associations and rural development groups as part of its socio-economic program for the host communities.

In 1994, ACMDC suspended its operations in Toledo City due to the low world market price of copper, flooding of its underground mines, and financial constraints for the necessary rehabilitation, and internal labor problems.

Toledo City officials claim that the conversion of Toledo into a city made possible through revenues from Atlas mining, is one of the positive legacies of ACMDC mining in Toledo[2]

2008 Reopening to Present Day

Overall, its total economic contribution has been growing since restarting in 2008 operations. Carmen Copper contributes to the economy through jobs and livelihood opportunities, taxes paid to the national and local governments, businesses generated by local suppliers, support for community development and public infrastructure programs.

In 2012, Carmen Copper registered Php 14.3 billion in revenues and Php9.5 billion in operating expenditures. Total taxes for 2012 amounted to Php906 million (inclusive of input VAT, customs duties, excise taxes, local government taxes, and withholding taxes), with Php820 million paid to the national government and Php86 million paid to local government units. The Company also contributed to the economy annual wages of Php759 million in 2012. Carmen Copper has been awarded as one of the top taxpayers in Toledo City in 2011 and 2012 while the Bureau of Customs also recognized Carmen Copper as one of the top exporters and importers in Cebu.[3]

The Company's community development programs are selected on the basis of their feasibility to improve the quality of life of people in the host communities. "We ensure meaningful and open engagement with our stakeholders for long-term mutual benefits and inclusive growth." Carmen

[1] Philippine Working Group on Mining/Environmental Science for Social Change. March 2008. "2003 Legacy Mines Visit: Atlas Consolidated Mining Development Corporation Toledo City, Cebu Environmental and Community Impact"
[2] By 1963, the once-sleepy town of Toledo had been elevated into a city by an Act of Congress, the city built by a mineral and only the second city of Cebu at the time (Bersales, 2018)
[3] Carmen Copper Corporation 2012 Sustainability Report

Copper assists in the development of host and neighboring barangays (villages) where it operates through projects and activities that address issues on human resource development & institutional building; enterprise development; assistance to infrastructure development & support services; access to education & educational support; access to health services, health facilities & health professionals; protection and respect of socio-cultural values; and use of facilities/ services inside the mine camp. These social development initiatives are financially supported through the allocation of a fixed annual budget equivalent to 1% of the Company's direct mining and milling costs. The barangays, the city, and its people, directly benefit from these projects, providing them with better access to basic services. Carmen Copper spent Php69.4 million for its Social Development and Management Program (SDMP) in 2012.

The Carmen Concentrator ore processing facility has been in operations since ACMDC started operating the Atlas Mines. The mining operations was suspended for some period of time and went back in operations in 2005-2006.

The mines was issued a CNC, however, areas undergoing improvement and expansion were procured ECCs (such as the Waste Rock Dumps and Tailings Disposal Facilities).

Recently, the Toledo Copper Mines was about to undertake the following:

- Apply for an ECC for the proposed upgrading of the Carmen Concentrator (Carcon) facility, with the EMB-Central Office (a Project Description Report for the CarCon facility ECC application was submitted to EMB-CO last _____ .
- Apply for an ECC Amendment for its Airstrip Site WRD modifications.

However, it is being recommended to integrate all the existing ECCs issued into one ECC that will cover the entire Mining and Processing operations of Toledo Copper Mines.

2.4 PROJECT ALTERNATIVES

Site Alternatives

CCC mine operations cover a total land area of 1,674.0479 hectares or 32% of the Toledo mineral property of ACMDC. The mine site lies within an existing and previously developed area with facilities and infrastructures already in place. The major orebodies and, for that matter, the mining areas, strike in the northeast-southwest direction, with the Carmen orebody (and mine workings) situated at the center of that alignment. Barangay DAS and its commercial-residential center are situated on the southwest extension of the axis with their distances to the Carmen Pit perimeter and nearest underground working (Ilag Diversion Tunnels) estimated at 3,000 and 500 meters, respectively.

Given that the mine has long been in operations and that the facilities, utilities, infrastructures and amenities are already sited and in-place, present and future enhancement and developments will be basically dependent on the existing locations/placement of these facilities.

Technology Alternatives

The mine project aspects where alternatives were assessed include mining methods, mineral processing, mine wastes management (tailings and waste rocks).

Table 2.1 Mining and Processing Technology Alternatives

Criteria	Criteria	Alternative methods/ technology considered	Reasons for Preferred method/ technology
Mining Method	• Ore body geometry • Available technology • Safety • Mining Cost	• Underground Mining/Block-caving extraction method • Open pit mining method	Open pit mining is observed because of the geology of deposit and current existing process
Disposal/Handling of Waste Rocks	• Environmental impacts • Capital & operating costs	• Waste Rock Dumps • Processing of Waste Rocks for construction materials	Waste rocks may be used for rehabilitation, particularly for filling of voids. Processing for construction materials to prolong the life of waste rock dumps and economics
Mineral Processing	Geo-metallurgical properties of the ore Marketability of the final project(s) Available Technology Capital Cost	Beneficiation Process- 3 stages of dry crushing and single-stage wet grinding, recovery by rougher flotation, regrinding, 4-stage selective flotation, thickening, cycloning & filtration.	Existing facilities and equipment are designed for the current beneficiation process
Tailings Storage Facility	• Available technology • Approval process • Environmental impacts • Capital cost • Availability of usable areas • Policy requirements (i.e. DMO 1999-322)	• Submarine-Sea disposal • Land-based tailings storage • Deposition of tailings as paste, thickened tailings or filtered tailings	Comply with the current regulation regarding direct disposal of tailings and will address the concern of rehabilitating the Biga Pit void.

2.5 PROJECT COMPONENT

2.5.1 ENTIRE CARMEN COPPER MINE SITE

CCC mine operations cover a total land area of 1,674.0479 hectares or 32% of the Toledo mineral property of ACMDC. The mine site lies within an existing and previously developed area with facilities and infrastructures already in place. The major orebodies and, for that matter, the mining areas, strike in the northeast-southwest direction, with the Carmen orebody (and mine workings) situated at the center of that alignment. Barangay DAS and its commercial-residential center are situated on the southwest extension of the axis with their distances to the Carmen Pit perimeter.

The major operations of Carmen Copper Mine Site, which are open-cast mining, milling, mine wastes management (waste rock and tailings), and the administration/maintenance defined the mine site land uses, facilities and components.

Table 2.2 TOLEDO COPPER MINES PROJECT COMPONENTS

	PROJECT COMPONENT/FACILITY	STATUS	Location	Area (s.m.)
A	**MINING OPERATIONS**			
	Carmen Pit	Operational	Brgy. Biga	2,430,000
	Lutopan Pit	Operational	Brgy. DAS	1,021,200
22	Mine Open Pit Office	Operational	Brgy. DAS	790
23	Carmen Pit Sub-station	Operational	Brgy. Biga	424.28
	WASTE ROCK DUMPS			
	Airstrip-Ilag	Operational (ECC R07-1012-0379	Brgy, DAS	1,470,000
	Sigpit	ECC RO7 0612-290278-0120	Brgy. Biga	2,574,900
	Marcona	Not operational (Amended ECC 07-0612-290278 120)	Brgy. Biga	690,800
B	**CARCON FACILITY**	Operational	Brgy. Biga	
5	Lime/Steel Ball Warehouse			3,313.45
6	Primary Crusher 1			43,393
7	Slaking			1,268.47
8	Screening Plant			17,438
11	Coarse Ore Stockpile			3,478.84
12	Tailings Thickener			26,336.50
13	Carcon Metlab			-
14	Carcon Mill			28,921.27
15	Secondary-Tertiary Crusher			13,091
16	Primary Crusher 2			21,788
C	**TAILINGS DISPOSAL FACILITY**	Operational		
17	Stage 1 Pumphouse		Brgy. Biga	2,366.86
18	GEHO PD Tailings Pumps		Brgy. Biga	3,204.86
19	Stage 2 Pumphouse		Brgy. Biga	1,243.91
	Stage 3 Pumphouse		Brgy. Biga	3,000
2	Biga Tailings Storage Facility (Including 12-chamber Settling Pond)	Operational (ECC RO7 06 12-29 0278-0120)	Brgy. Biga	3,305,537.76
3	Sigpit Silting/Settling pond	Operational	Brgy. DAS	12,604.95
21	Emergency Tailings Pond	Operational	Brgy. Biga	30,817.51
24	Udlom Settling Pond	Operational	Brgy. DAS	6,480.87
C	**MAINTENANCE & SERVICES**	Operational		
4	Carmen HE Shop	Operational	Brgy. Biga	30,371.33
20	Annex A-Refueling Station	Operational	Brgy. Biga	3,802
25	HE Welding Shop	Operational	Brgy. DAS	2,232.30
26	Transport Shop	Operational	Brgy. DAS	3,680
28	MMD Warehouse	Operational	Brgy. DAS	20,990.60

	PROJECT COMPONENT/FACILITY	STATUS	Location	Area (s.m.)
29	ASSAY Laboratory	Operational	Brgy. DAS	2,415.13
33	Fabrication (Machine) Shop & Blacksmith	Operational	Brgy. DAS	5,049.76
D	**UTILITIES**			
1	Malubog Dam (Water Supply)	Operational	Brgy. Gen. Climaco	1,492,703
27	Abaca Water Treatment Plant	Operational	Brgy. DAS	6,594.70
9	25MW Thermal Power Plant	Operational (Stand-by power)	Brgy. Biga	7,817
10	Power Sub-Station (2 areas)	Operational	Brgy. Biga	4,453.58
E	**FORESTATION, ENVI FACILITIES**			
34	Eco Park	Operational	Brgy. DAS	90
36	Plant Nursery	Operational	Brgy. DAS	3,186.53
	Reforestation, plantation area	Properly maintained (area presented is as of 2020)	Brgy. Biga, Brgy. Loay, Brgy. Bagakay and Brgy. DAS	1,927.75
	MRF, composting facility, etc.	Operational	Brgy. DAS	20,000
F	**ADMIN, SOCIAL/ COMMUNITY FACILITIES**			
30	CCC Hospital	Operational	Brgy. DAS	13,446.86
31	Staff Clubhouse	Operational	Brgy. DAS	958.68
32	CCC Amin, ICB & ICT Building	Operational	Brgy. DAS	2,403
35	Security Headquarters	Operational	Brgy. DAS	158.40
37	CCC Recreation Center	Operational	Brgy. DAS	4,458.25
	Museum	Operational	Brgy. DAS	3,200
G	PORT FACILITY	Operational	Brgy. Daanlungsod	81,421

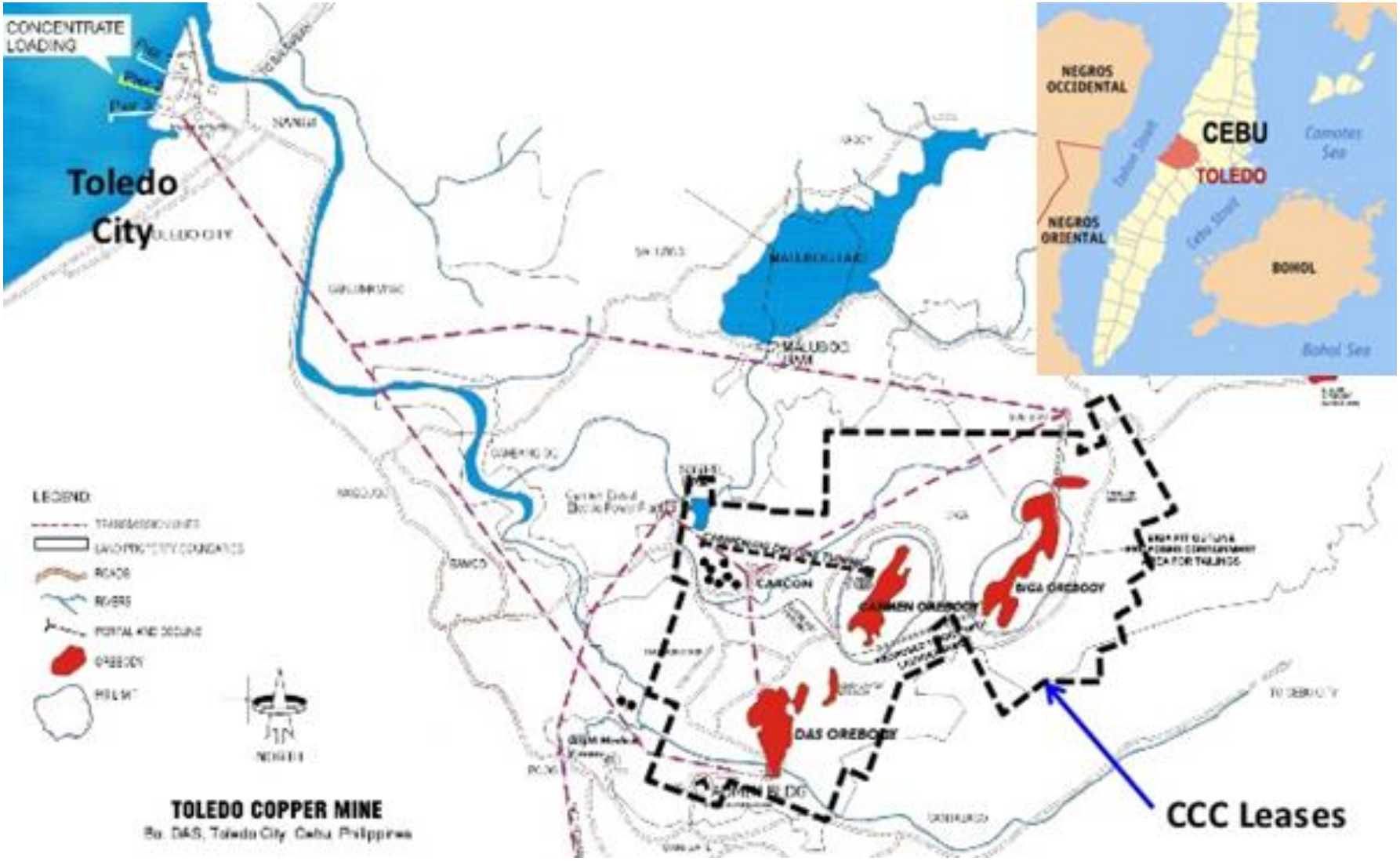


Figure 2.3 Toledo Copper Mine Area Coverage

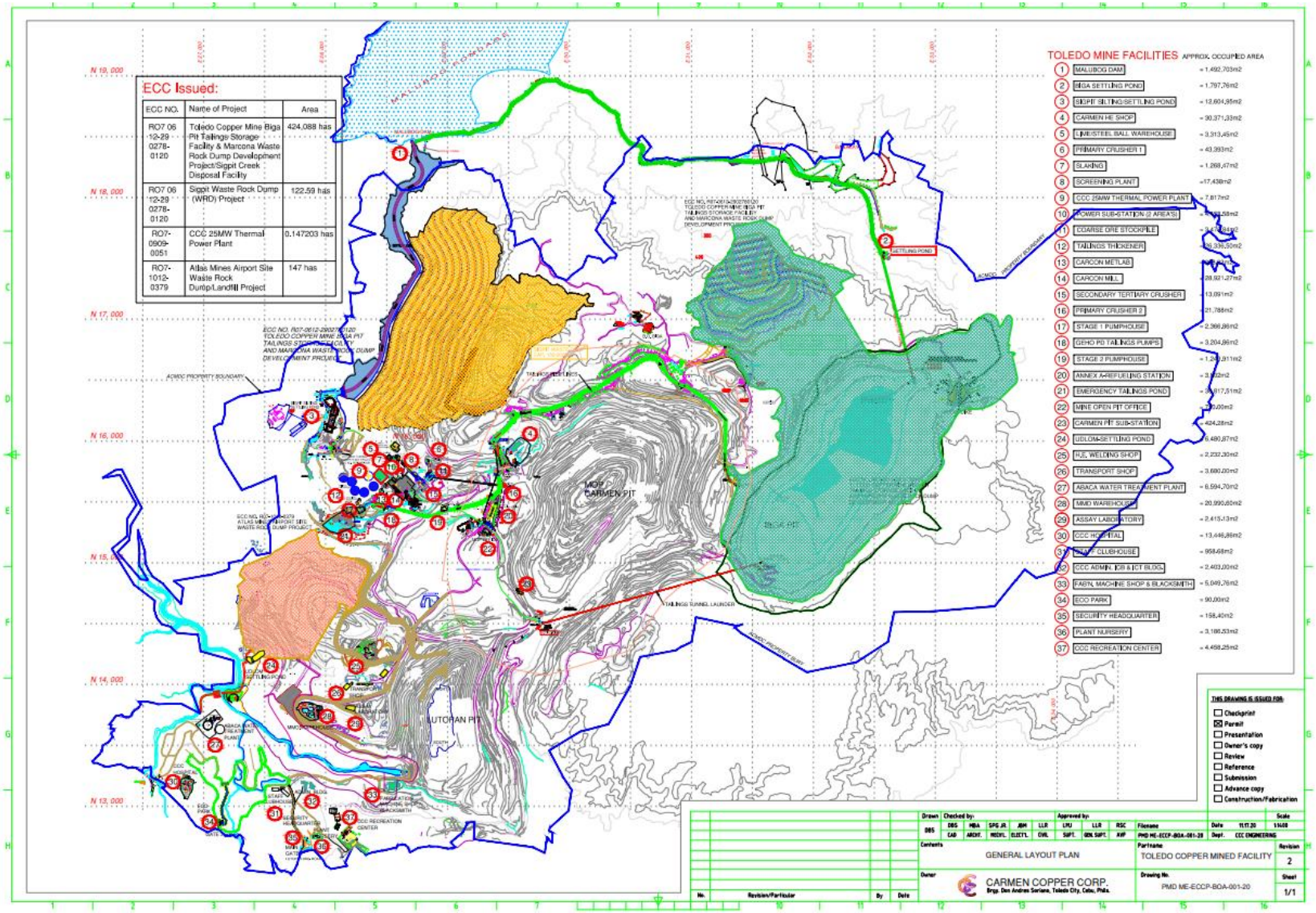


Figure 2.4 Toledo Copper Mines Site Development Layout

2.5.2 Brief Description of Major Mining, Processing and Port Facility Components

In the initial feasibility study, for the revived operations, the Carmen orebody will be mined by open-cast and later by underground method. With this, the inactive Carmen Pit and its extended Carmen Underground (CUG) Lift-1 workings are being dewatered, cleared of muck and rehabilitated. Pending the rehabilitation of Carmen Pit/Carmen Underground, however, copper mine production started with an initial MTPD of 20,000 in the last quarter of 2008 with ore produced from the South Lutopan Pit. By 2010, mining of North Lutopan Pit is expected to commence.

2.5.2.1 South Carmen Pit

The South Carmen Pit at the Southern section of the greater Carmen pit is a small pit at the hanging wall side of the Carmen ore body having a minable ore reserve of 9,117,000 metric tons at 0.31% copper and a waste to ore ratio of 1.47:1.

2.5.2.2 South Lutopan Pit

The decision to operate the South Lutopan Pit within the Lutopan Mining Area with a minable reserve of 14,539,000 at 0.33% Copper ahead of the South Carmen Pit UG Lift-1 within the Carmen Mining Area is due to the following: - Delay in the rehabilitation of Carmen UG Lift-1 and support facilities. - To provide mill feed to Carmen Concentrator (CARCON) that had been fully rehabilitated. The plan is to produce copper concentrate as early as practicable to generate a positive cash flow and to schedule only the necessary process plant and infrastructure rehabilitation and/or construction, hence deferring some capital costs and improving cash flow in the early stage so as to avail of the favorable copper price in the world market.

2.5.2.3 North Lutopan Pit

Planned activities of North Lutopan Pit are as follows: stripping is programmed to start at B+345 by July, 2009 up to the end of February, 2010 at a rate of 26,700 TPD.

2.5.2.4 Carmen Concentrator (CarCon) Facility

The run-of-mine ore from mine pits are being delivered by 100-tonner dump trucks to the Carmen Concentrator for processing. The CarCon facility complex covers a total land area of 84.318 hectares has the following component-facilities (See Section _ for processing methodology):

Table 2.3 CarCon Facility/Area Component

COMPONENTS		AREA (Sq.mtrs)
1	Primary Crusher Line 1	43,393
2	Primary Crusher Line 2	21,788
3	Secondary Crusher	13,091
4	Screening Plant	17,438
5	Fine Ore Bin	10,612
6	Mill Plant Area	330,321
7	Power Plant **(Excluded)**	7,817
8	Ore Sorting Facility	26,795
9	Open Areas and Roadways	379,880
	Total	851,135
	Net TOTAL PROJECT AREA	843,318

2.5.2.5 Tailings Disposal Facilities

The disposal method is essentially a tailings transmission and containment system that utilizes the Biga Pit as the placement site for tailings.

Initially, the final tailings are transported by gravity and distributed towards seven thickeners, each measuring 250 feet in diameter by 12 feet high, and equipped with 15 HP peripherally-driven rakes. The tailings are thickened to a slurry containing 48 % to 52 % solids before flowing through three (3) 8-inch diameter underflow pipes. All thickeners' underflows converge at a common take-off sump. From there, the tailings slurry are caused to gravitate towards thepump sump where they are thickened to about 65 % solids before being piped finally to the Biga pit containment site.

The tailings transmission system consists of two sections – an initial overland pipeline set-up from CARCON to the Carmen Throughcut and a tunnel-launder component that daylights at the Biga pit. The overland pipeline is about 2.10kms. whereas the tunnel section is approximately 1.60 kms.

The land-based system utilizes a single slurry pumping stage that takes off at a common sump at the CARCON thickeners (elevation of + 150 meters above sea level and flows towards the Biga pit outfall at elevation +400 masl. The overland pipe terminates at the vicinity of the Carmen Throughcut (elevation + 420 masl) before joining the launder line laid out inside the tunnel. The resulting tunnel grade is + 1.0% from the entry portal to the Biga pit outfall

The Amended ECC 07-0612-290278 120 (issued October. 21, 2018) which covered the Biga Pit Tailings Storage Facility (TSF) Enhancement & Marcona WRD, introduces modifications to the above-mentioned tailings transmission and containment system.

Table 2.4 Tailings Disposal Facility Component

	ECC PROJECT COMPONENTS	***REMARKS***
1	***HANDLING OF TAILINGS***	
	Development of new 4.5 kms tailings pipeline and pumping stations	Generally overland
	Emergency Tailings Pond (0.71 has)	Cancelled in the amended ECC
2	***STORAGE OF TAILINGS***	
	Biga Pit (Area: 331 hectares). The present maximum impoundment of Biga Pit Storage level is at elevation 380 meters. The plan is to raise the capacity level to Elevation 420 meters, thus a dike will be constructed.	Enhancement & development of the Biga North Dike, inclusive of: Construction of engineered fill 85m dike; Upgrading of existing Decant tower water overflow structure
3	***HANDLING/TREATMENT OF WATER OVERFLOW***	
	a. Lime Injection Plant	Retained in the amended ECC
	b. Decant Tower	Increase in height.
	c. Wastewater Treatment Facility	Retained
	d. Pipeline for Water Relief Overflow (9.08 has)	Retained
	d.1 Pipeline through Bigacon tunnel Conveyor (0.23 has.)	
	d.2 Bigacon to Malubog Dam (3.0 has.)	
	d.3 Malubog dam to Sedimentation pond (stretch of Upper Sigpit)-5.85 has.	
4	***Recycling and disposal of water overflow***	
	a. Sigpit Sedimentation Pond (1.28 has)	Cancelled in the Amended ECC
	b. Sigpit dam for disposal of water overflow	Retained
	c. Pipeline for recycle water leading to the existing water tank with storage capacity of 50,456 cu.mtrs.	Retained

Capacity of the BTSF. The current ECC indicated that the total volume of available void between two horizons of 168,716,000 cu.mtrs, equivalent to an impounding capacity of 252,000,000 tailings tonnages at peak milling capacity for 42,0000 metric tons/day of ore of Carmen Concentrater. With

this enhancement project the impounding capacity of the BTSF will be increased to ***213,235,123 cu.mtrs (DMT) or 341,176,197 tons*** (at elevation 420m.)

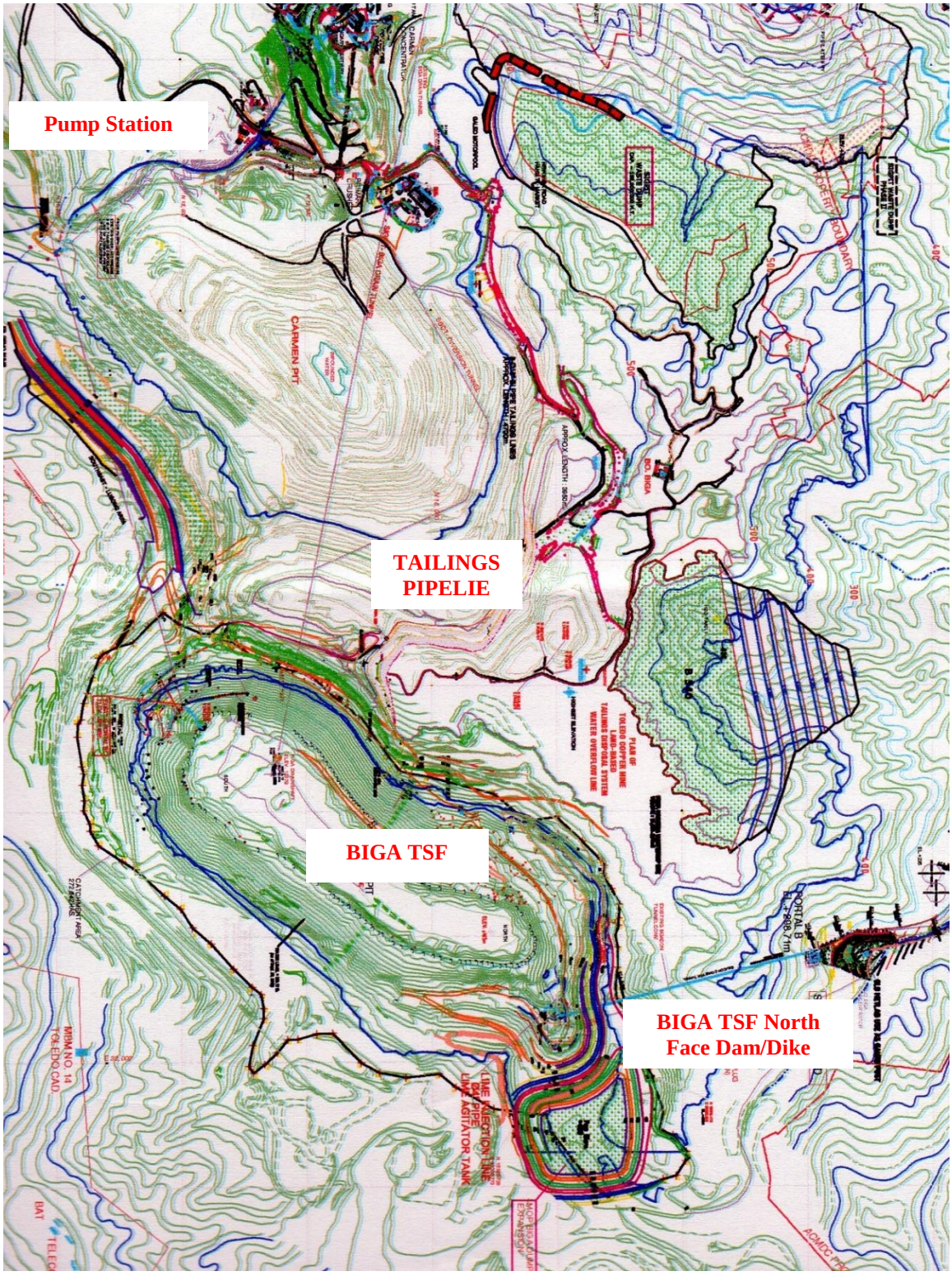


Figure 2.5. Tailings Disposal Facilities Development Layout

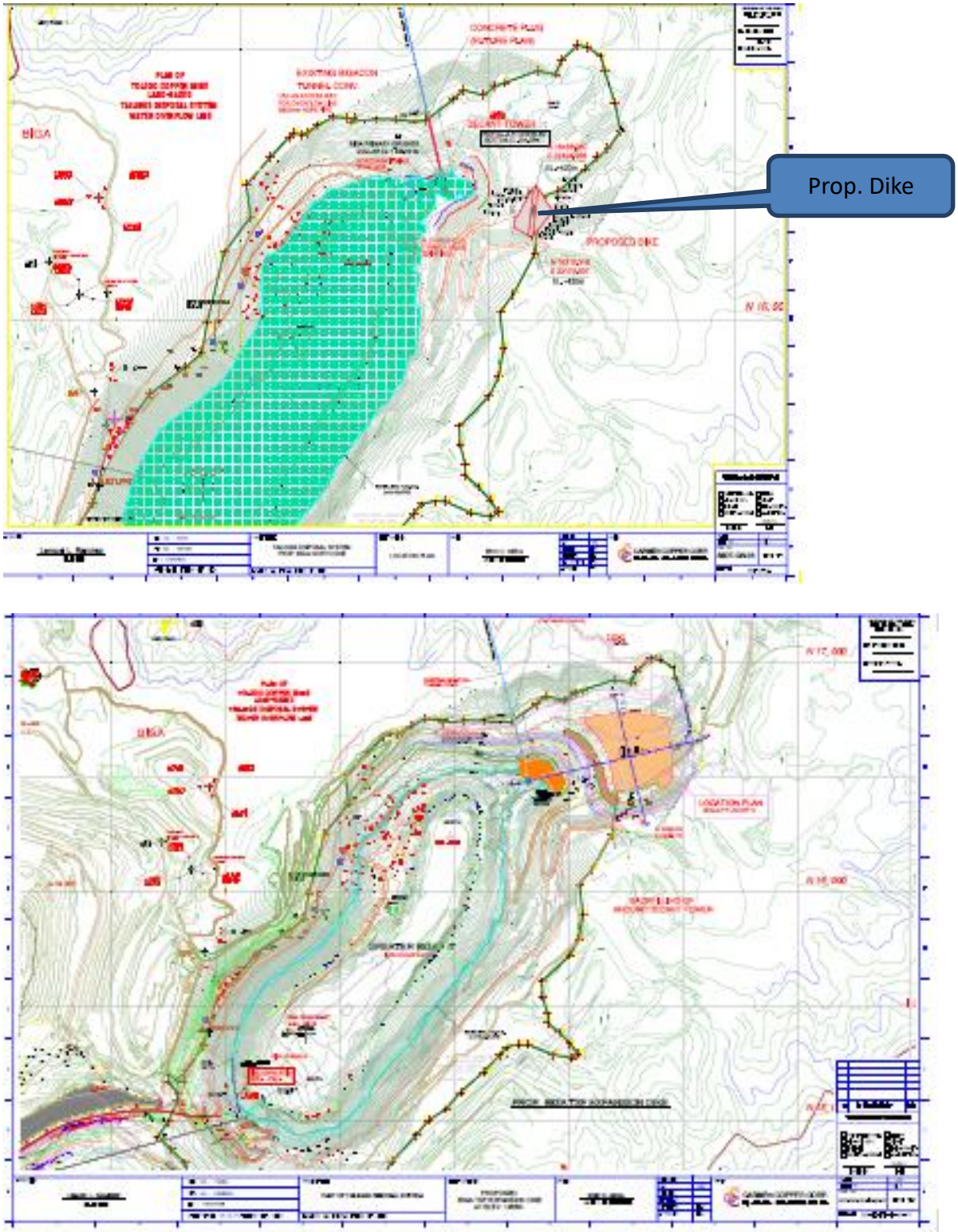


Fig. 2.6 Site Development Plan for the Biga TSF Enhancement Project

2.5.2.6 Waste Rock Dump/Landfill Facilities

The Toledo Copper Mines has a number of old/abandoned wastes dumps and WRD facility that is currently being utilized (Airstrip Site WRD) and the proposed Marcona WRD.

2.5.3.6.1 Airstrip Site WRD

The Airstrip WRD occupies a land area of 75 hectares with a capacity of 170M Tons, with the Ilag expansion area having an area of 72 hectares and can accommodate 51M Tons of waste rock. The Airstrip Site-Ilag WRD covers a total land area of 147 hectares, and a total capacity of 221 Million Tons of Waste Rock. A description of the two components (Airstrip WRD-1st Phase) and the Ilag-Expansion WRD (2nd Phase) are as follows:

a) *Airstrip Waste Dump Area*: Rock waste dump with an elevation of 405 meters having a Top Area of 14.0691 hectares, and a bottom area of 73,9282. Road networks, barrier bund, and circumferential drainage system leading to the 2-units settling ponds prior to final discharge of the Ilag River. The total area for the Airstrip site WRD will comprise 75 hectares.
b) *Ilag Waste Dump Area-Expansion*: Rock waste dump area with an elevation of 285 meters having a top area of 28.3075 hectares, and a bottom area of 66.8615 hectares. Road networks, barrier bund and Ilag diversion channel with a length of 775 linear meters leading to the boxed culver to be connected to 1-unit settling/sedimentation pond prior to its final discharge to Ilag River. The total area for the Ilag WRD Expansion will comprise 72 hectares.

The Airstrip WRD is being proposed to be modified, with the cancellation of the Ilag area, but to be expanded on the other side and the introduction of waste rock processing facility for utilization as construction material

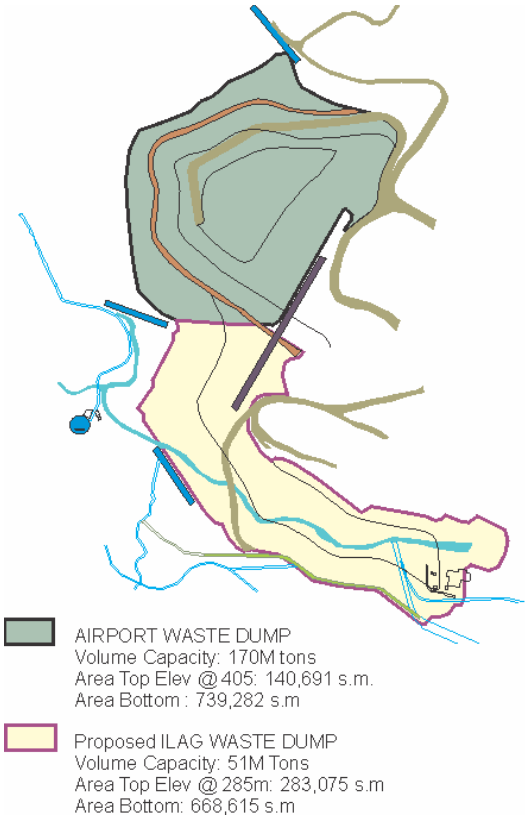


Fig. 2.7. **Airstrip Site-Ilag WRD Expanded Area (Amended ECC)**

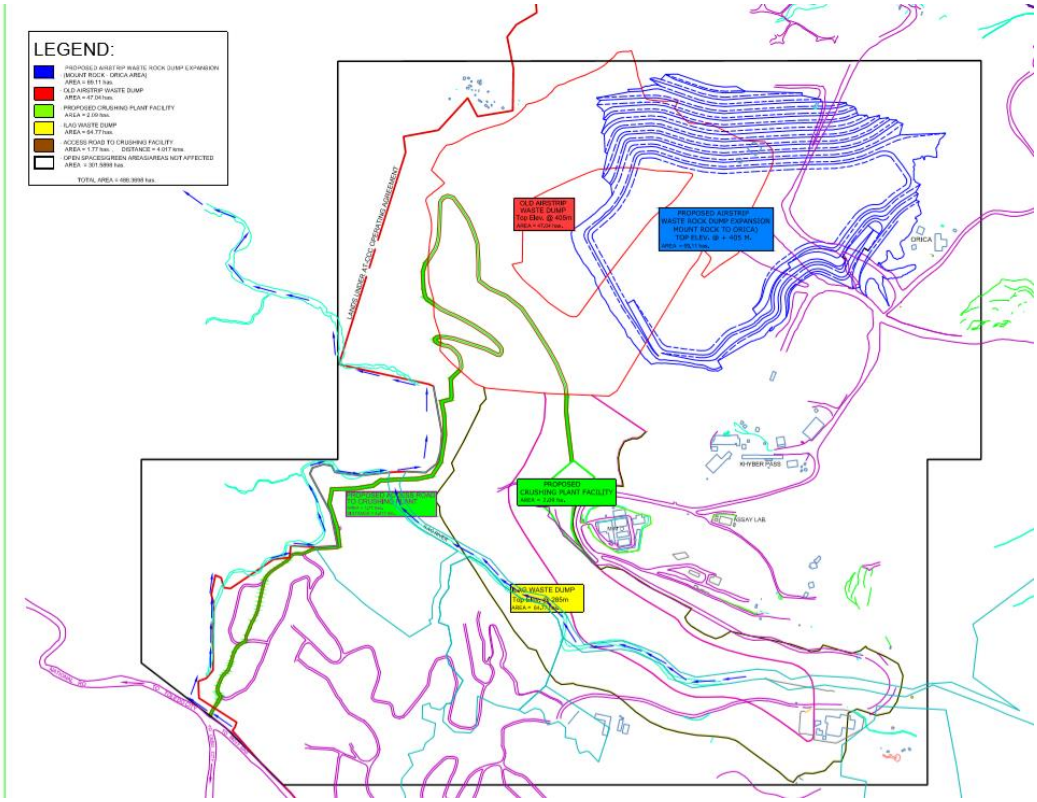


Figure 2.8 Site Development Plan for Proposed Airstrip WRD 2nd ECC Amendment

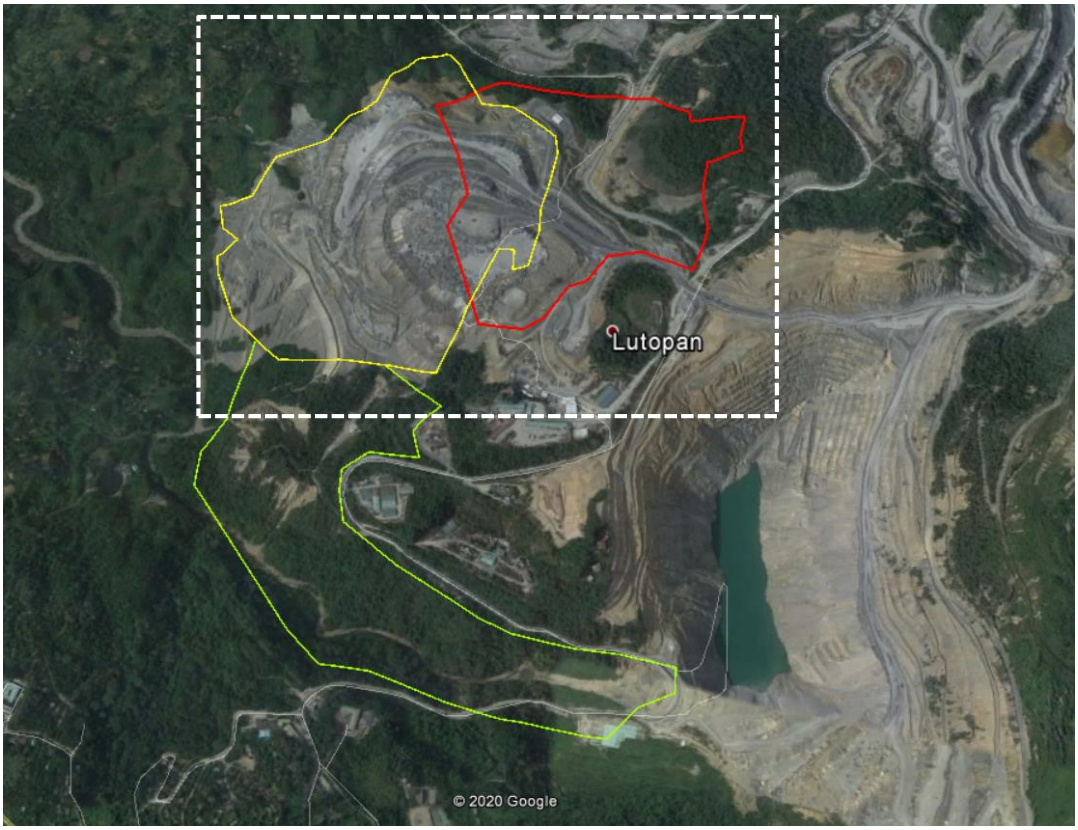


Figure 2.9 Overlay of the Airstrip-Ilag WRD ECC covered areas and the Proposed Amendment

2.5.2.6.2 Marcona WRD

The Marcona occupies a land area of 69.08 hectares with a capacity of 92M tonnes. Rock waste dump with an elevation of 540 meters having a top area of 41.177 hectares, and a bottom area of 6.0168 hectares. The proposed Marcona Waste Rock Dumpsite is designed to accommodate the waste striped/mine from the Carmen Pit.

2.5.2.6.3 Closed WRD

A number of old, abandoned and closed WRDs distributed around the Toledo Copper Mines site has been subjected for rehabilitation and tree plantation.

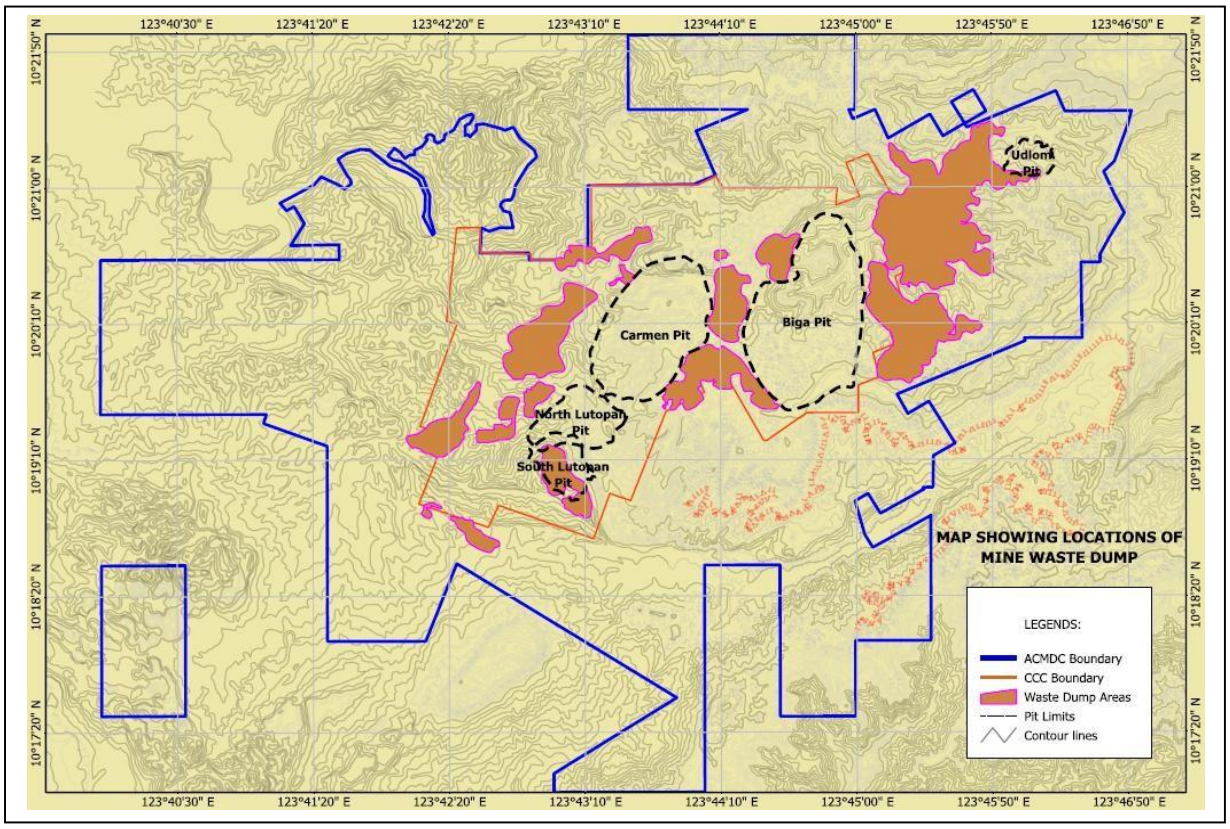


Figure 2.10 Location of Waste Rock Dumps

2.5.2.7 Port Facility

The Port Facility, operated by ACMDC since 1955 is located in Brgy Daanlungsod within the urban district of the City of Toledo. The port facility, which primarily handles copper concentrates from the mine site's Carcon facility (about 14 kilometers distant), for transport and delivery to various clients/buyers destinations.

The port facility includes the following components (utilities/infrastructures)

- Pier. Concrete and steel structure of 188.48 meters in length, supported by concrete piles.
- Copper concentrate Bin. A concrete and steel structure/warehouse having a storage capacity of 15,000 tons of copper concentrates
- Magnetite Concentrate Bin. A steel structure with a holding/storage capacity of 60,000 tons of magnetite concentrates

- 750KVA Power Substation. A concrete one-storey building having a floor area of approximately 72 sq.mtrs. Primary function is to provide power to the conveying system and support facilities of the Port
- Port Security Detachment. A concrete building of 24 sq.mtrs
- Causeway. Concrete structure of approx.. 20 sq.mtrs. for barging or RoRo operations on light cargo transit
- Fire Hydrant system
- Scale house. A 60-ton capacity truck scale to weigh copper and magnetite concentrates
- Other improvements: Terminal Office Building (84 s.m), Fabrication shop (74 s.m), Buffer Store/Warehouse, Communication tower, and Diesel Fuel Station (composed of two 15,000 liters capacity cylindrical storage tanks and a dispensing pump)

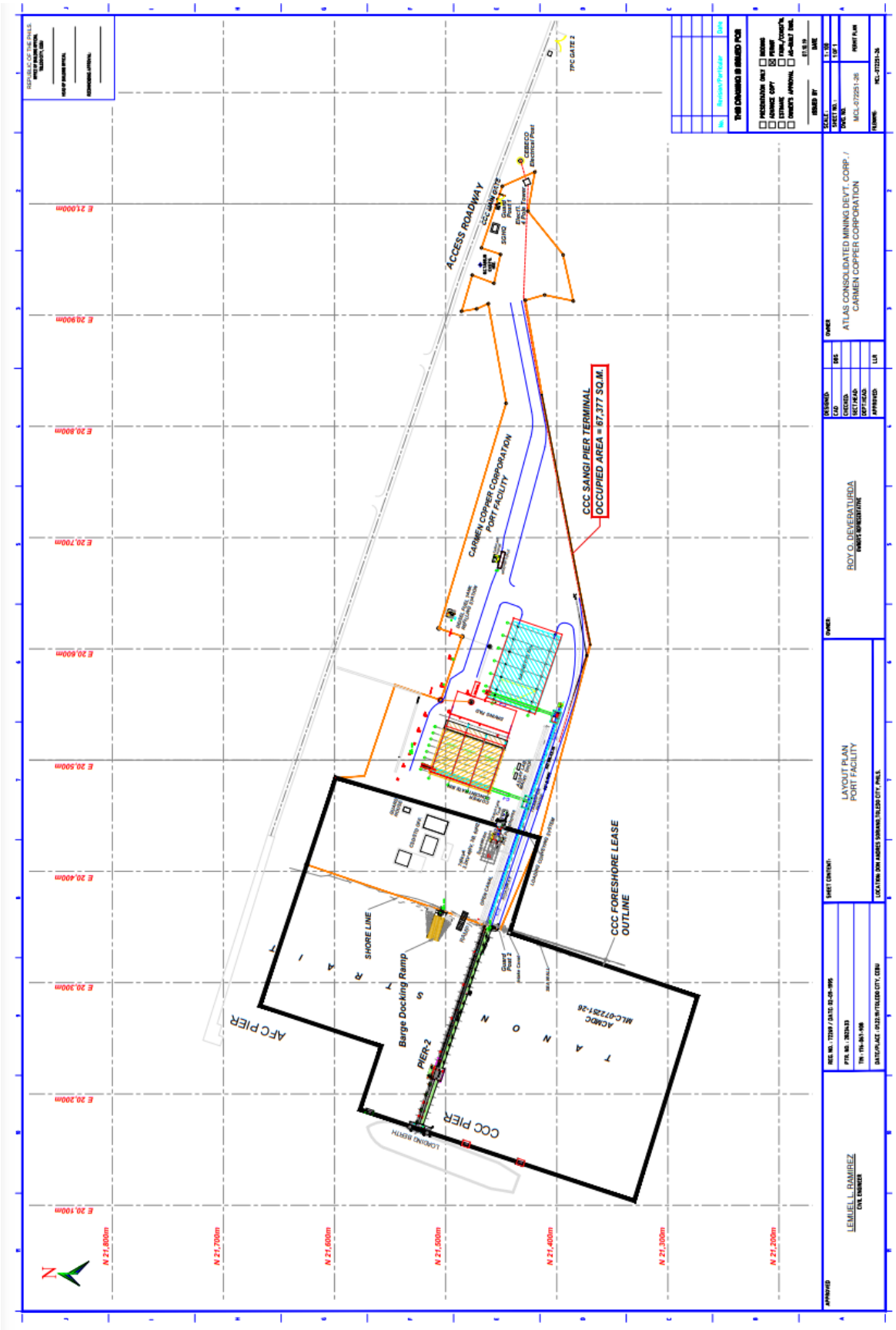


Figure 2.11 _ Port Facility Site Development Layout

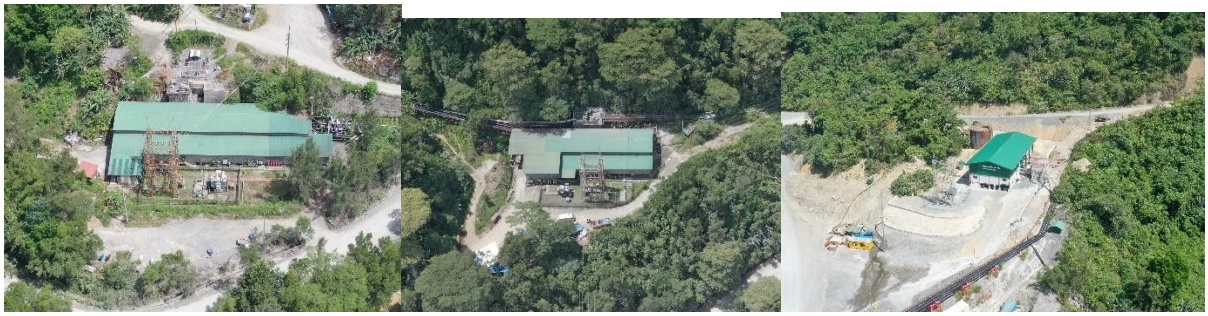
Figure 2.12 Various Site and Facilities Photographs

Photo 2.12a Lutopan Pit and Lutopan Masaba WRD

Photo 2.12b Biga Pit

Photo 2.12c Tailings Thickener

Photo 2.12d Emergency Tailings Pond



Photos 2.12e Left-Right Stage 1 to Stage 3 Pump House

Photo 2.12f Airstrip Site WRD

Photo 2.12g WRD and Udlom Settling Pond

Photo 2.12h Sigpit Silting Pond

Photo 2.12i Abaca Water Treatment Plant

Photo 2.12j H.E. Welding Shop (left) and MMD Warehouse (Right)

Photo 2.12k Administration Building

Photo 2.12l Museum and Staff Clubhouse (Left), Recreation & Gym Facilities (Right)

Photo 2.12m Hospital

Photo 2.12n Ecopark

2.6 PROCESS TECHNOLOGY

2.6.1 **General Mining Process**

The mining process for metal extraction usually consists of two parts: mining and milling. The mining component is the extraction of metal-bearing ore from rock. The milling component generally crushes, grinds and extracts a concentrate in a series of mechanical and/or chemical processes. ***Figure 2.13*** illustrates these two processes. It also shows that at both stages waste is produced.

Mining involves the extraction of unwanted non-metal-loaded rock in order to reach the ore. The Carmen Copper (Atlas) Mines has a number of Wastes Rock Dumps disposal facilities. Milling produces finely ground waste from which the metal concentrates has been separated. This waste is called tailings, and are disposed in the Biga Pit Tailings Storage Facility. **The WRDs and the TDF were respectively issued ECCs.**

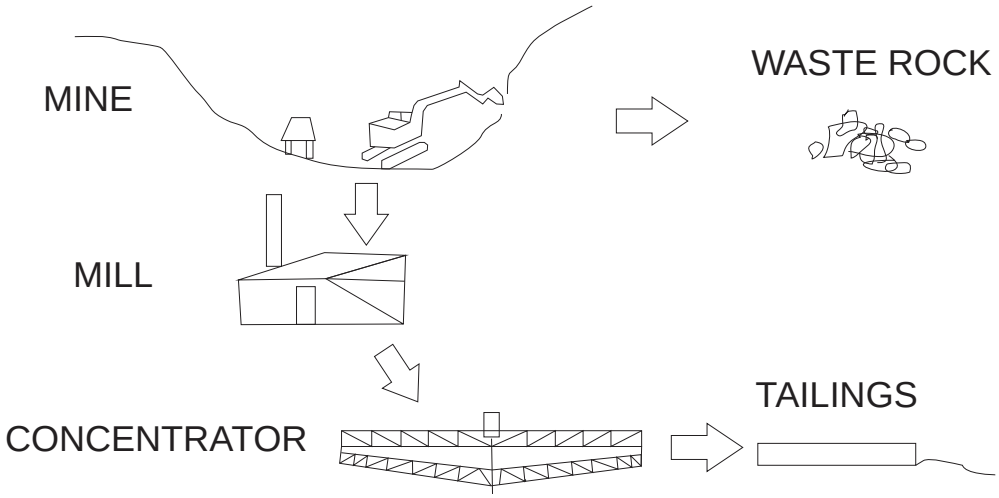


*Figure. **2.13*** **Mining and Milling Wastes Production Schema**

2.6.2 **Carmen Concentrator/Copper Ore Processing Facility**

The run-of-mine ore from Carmen Pit is being delivered by 100-tonner dump trucks to the Carmen Concentrator for processing.

Stages of Ore Processing are the following:

a. **Crushing.** Ore delivery from the mine is dumped to primary crushers Line 1 (Gyratory Crusher) and Line 2 (Jaw Crusher). The crushed ore will then be stocked in the Coarse Ore Stockpile (COS) having a capacity of 120,000 metric tons. Ore is drawn from the COS to undergo secondary and tertiary crushing. Secondary and tertiary crusher product is then transported to the screening plant for size separation. The screening plant undersize together with the primary screen undersize will be distributed to the Fine Ore Bin having a live capacity of 90,000 metric tons.

b. **Ore Sorting.** In the Ore Sorting Plant, low grade ore will be delivered and crushed to -50mm for sorting and the product ore crushed to -10mm will be directly conveyed to Fine Ore Bin (FOB). Magnetic Resonance Analyzers (MRA) will be used in ore processing which rapidly identifies ore grade so that large volume of waste rock (gangue) can be rejected. The plant will be based on an initial throughput of 1,000 tons per hour and an output of 400 tons per hour upgraded ore of 0.35%Cu grade but could be adjusted based on plant requirements.

Figure 2.14 *Ore Sorting Site Location*

c. Grinding. After the ore had been reduced to size minus 0.5 inch in three-stage crushing, it is then subjected to two-stage wet grinding. The primary ball mills can be operated three (3) configurations: hybrid circuit, closed circuit via transfer tank and closed circuit via Wemco scavengers. The cyclone overflow of each configuration will report to its respective next stage while the cyclone underflow will return to the ball mill as circulating load.

The cyclone overflow of hybrid circuit mills will flow to the open launder towards the hybrid splitter box. The slurry is fed to the secondary mills sump box which is pumped to the hydrocyclones. The secondary cyclone overflow will pass through a trash screen and will flow to the open launder towards the tank cell splitter box. The secondary cyclone underflow will feed the secondary ball mills for further size reduction. In closed circuit configuration via transfer tank, the overflow of mills will flow to the open launder towards the transfer tank and is then pumped to pass through the trash screen and will flow to the open launder towards the tank cell splitter box. Meanwhile, for closed circuit configuration via Wemco, the overflow of the mills goes directly to the scavenger flotation cells (Wemco 500).

d. Flotation. The flotation circuit is composed of multiple stages of roughing, scavenging and cleaning to produce a copper concentrate grade of 26.5% Cu and a final tails grade of less than 0.040% Cu.

The primary collector is added in hybrid splitter box while pH modifier is added in primary ball mills to allow sufficient conditioning contact with the freshly created surfaces of the ore. Secondary collector and frother are also added in roughing and scavenging stage. The concentrate of the flotation goes to the final concentrate thickener for dewatering from 30% solids to 65% solids thickener underflow. Similarly, the tailings of the flotation would undergo dewatering for water recovery and solids impoundment.

e. Dewatering. The final copper concentrate from the 3rd cleaner will undergo a series of dewatering processes such as thickening and filtration. The thickened slurry at 65% solids will be pumped to the filter feed tank and is fed to the filter press and drum filter to produce a filter cake with transportable moisture of 9.5% to be delivered to Sangi Port for shipment.

f. Tailings Thickener. The final tailings from the flotation circuit are transported by gravity and distributed to one (1) high rate thickener and six (6) conventional thickeners for disposal and water

recovery. Flocculants are added to speed up settling of solids. The thickened slurry will be pumped for delivery to Biga Tailings Storage Facility. The impounded residual water from tailings outflow and storm run-offs from the surrounding catchments inflowing to the pond will be allowed to accumulate in the pond in sufficient quantity to be pumped back to Carcon water head tanks for recycling to the milling circuit.

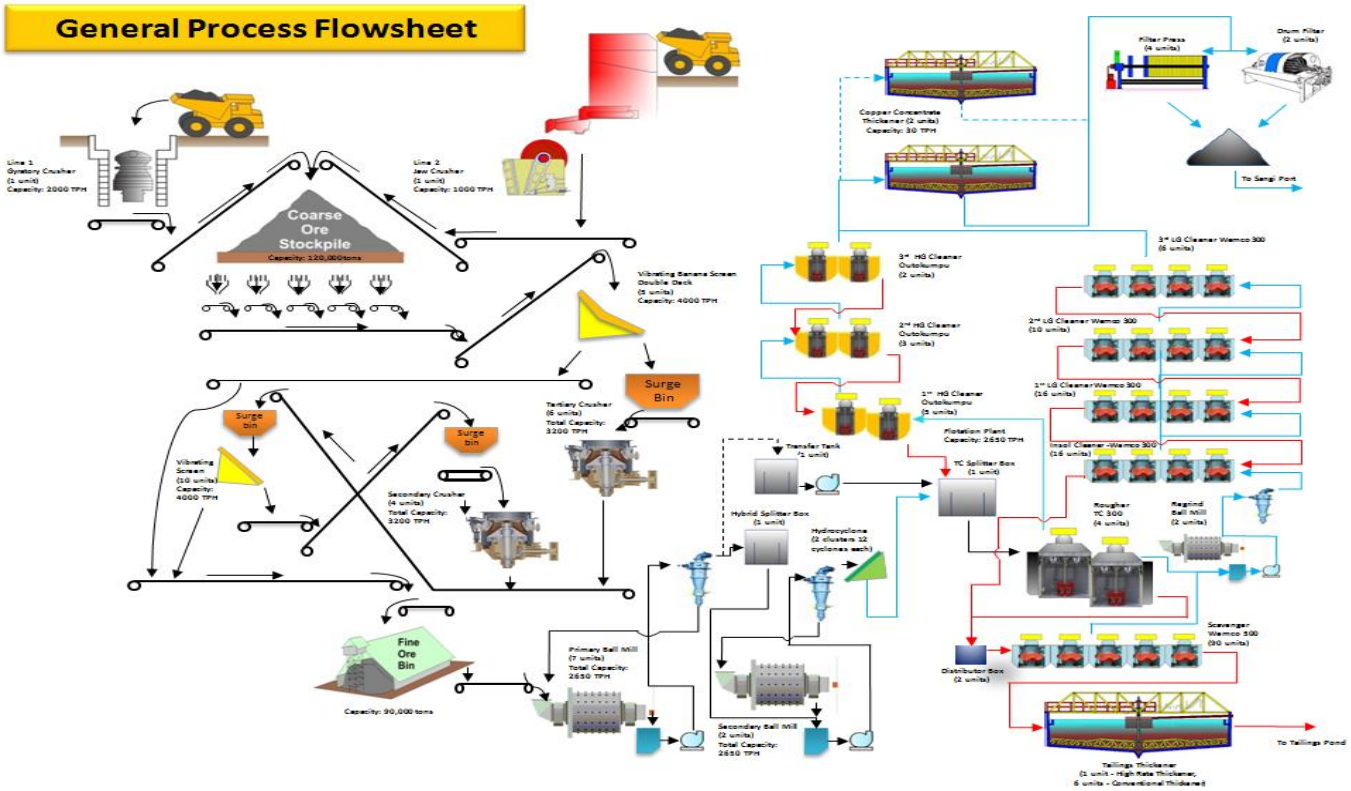


***Figure 2.15.**. Carmen Concentrator Process Flow*

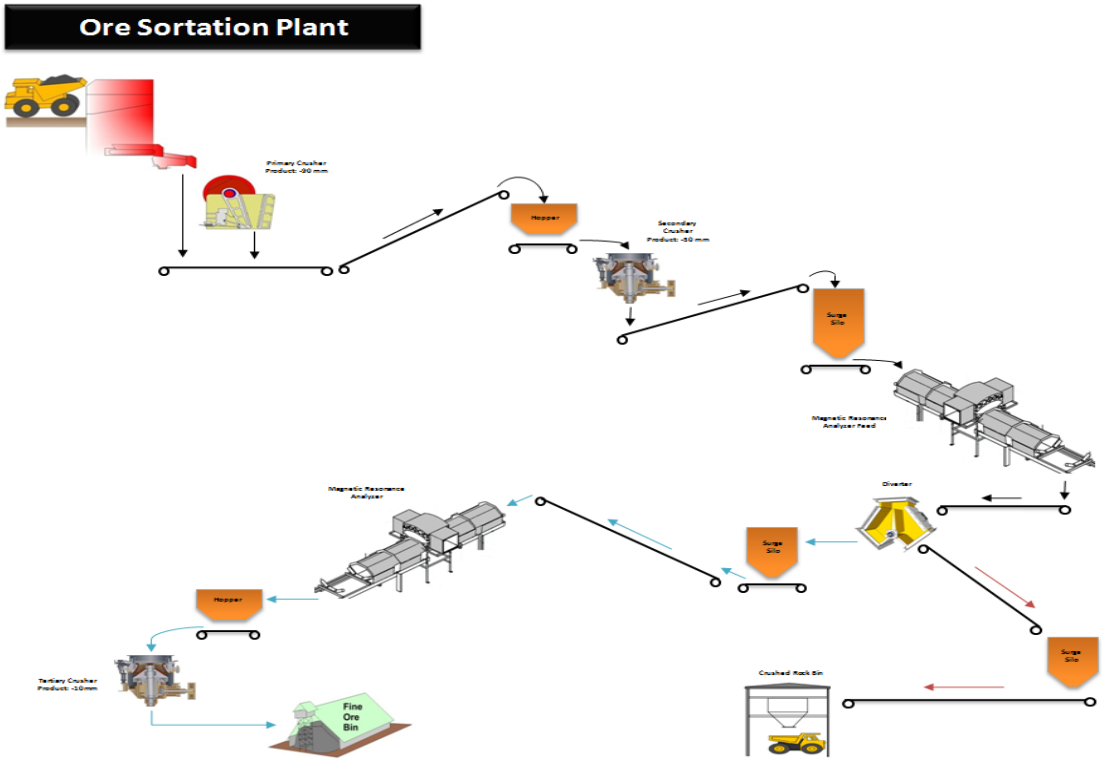


***Figure 2.16** Ore Processing Ore Sortation Plant*

FIGURE 2.17 VARIOUS CARCON FACILITIES SITE PHOTOS

Figure 2.17a Aerial View of the Carcon Facility

Figure 2.17b Photographs of Primary Crusher

Figure 2.17c Photographs of Secondary and Tertiary Crusher

Figure 2.17d Photographs of Fine Ore Bin

Figure 2.17e Photographs of Ball Mill

Figure 2.17f Photographs of Flotation Facility

Figure 2.17g Photograph of Filtration Process utilizing two rotary drum filters to remove water from the copper concentrate feed. The concentrate piles below the filter elevation represent the final product of the CCC copper processing facility

Figure 2.17k Photographs of Tailings Thickener

2.6.3 WRD Operations. Operations of the waste rock dump, generally involves the following activities (Oraee et al)

- Waste transports from the mine to the dump.
- Off-loading of the waste at the dump in accordance with the planned dump development and operating plans, including lift height and location.
- Access road construction and maintenance.
- Clearing of new areas for dumping, foundation preparation and drain construction as required in new areas.
- Maintenance, upgrade and expansion of surface water management facilities.
- Environmental monitoring of conditions at the dump including seepage water, surface water, groundwater quantities and quality.
- Dump performance monitoring and documentation including stability, erosion, consolidation and creep.

2.7 PROJECT SIZE

a) Total Amount of Ore/Mineral Reserves in the project area based on exploration data*; AMC 2010 estimated Ore Reserve was 480Mt with 0.34% Cu (Carmen and Lutopan deposits).*

b) Total amount of Ore/Mineral Reserves to be extracted, rate of extraction and timetable; *442Mt with 0.33% Cu of Ore Reserve as of January 2020 and current average rate of extraction is 50k tons per day.*

c) Source material that will be fed to the mineral processing operation; *A Porphyry Copper deposit which was being mined through open pit method. Chalcopyrite and bornite are the main copper bearing minerals hosted by metavolcanics and diorite rocks.*

2.8 DEVELOPMENT PHASES

The Toledo Copper Mines has been in operations for quite some time and the facilities and infrastructures are already operational. However, the following facilities modifications will be proposed/introduced:

a. Enhancement of the CarCon Facility
b. Modifications of the Airstrip Site Waste Rock Dump facility

There will be no major construction activities that will be undertaken as the existing operations and major machineries, structures and facilities will remain as it is. The upgrading and enhancement of the Carmen Concentrator facility will be in the ore sorting and processing, where the establishment of the Ore Sorting plant will be introduced and integrated into the existing process-operations of the Carcon facility.

The modification of the Airstrip WRD facility is due to the following:

a. Introduction of a crushing facility within the area to process the waste rocks and turned into aggregate commodities, thereby reducing the volume of waste rock stored in the landfill
b. Reduction of the total landfill area as there are portions that will not anymore be included/utilized for WRD

2.8.1 Pre-Construction and Construction Phases

Both the Carcon and Airstrip WRD facilities modification-enhancement will involved the undertaking of pre-construction and construction activities/works. The pre-construction undertakings will basically involved – Planning/Detailed Engineering Design, procurement of the necessary permits and clearances (including this ECC) and bidding/awarding of contracts to a building contractor.

The typical construction activities includes the following works: clearing and grubbing, site preparation, site civil works and building construction.

2.8.2 Operation Phase/Stage

The operation stage includes the management of various operational activities in the areas of mining, processing, transport of products, administration and others.

Organizational Structure. The Carmen Copper Corporation underwent re-organization that totally upgraded the previous management structure that best responded to the needs of the company, organization and the community. It is now headed by the President & CEO and AVPs heading the operations of various departments.

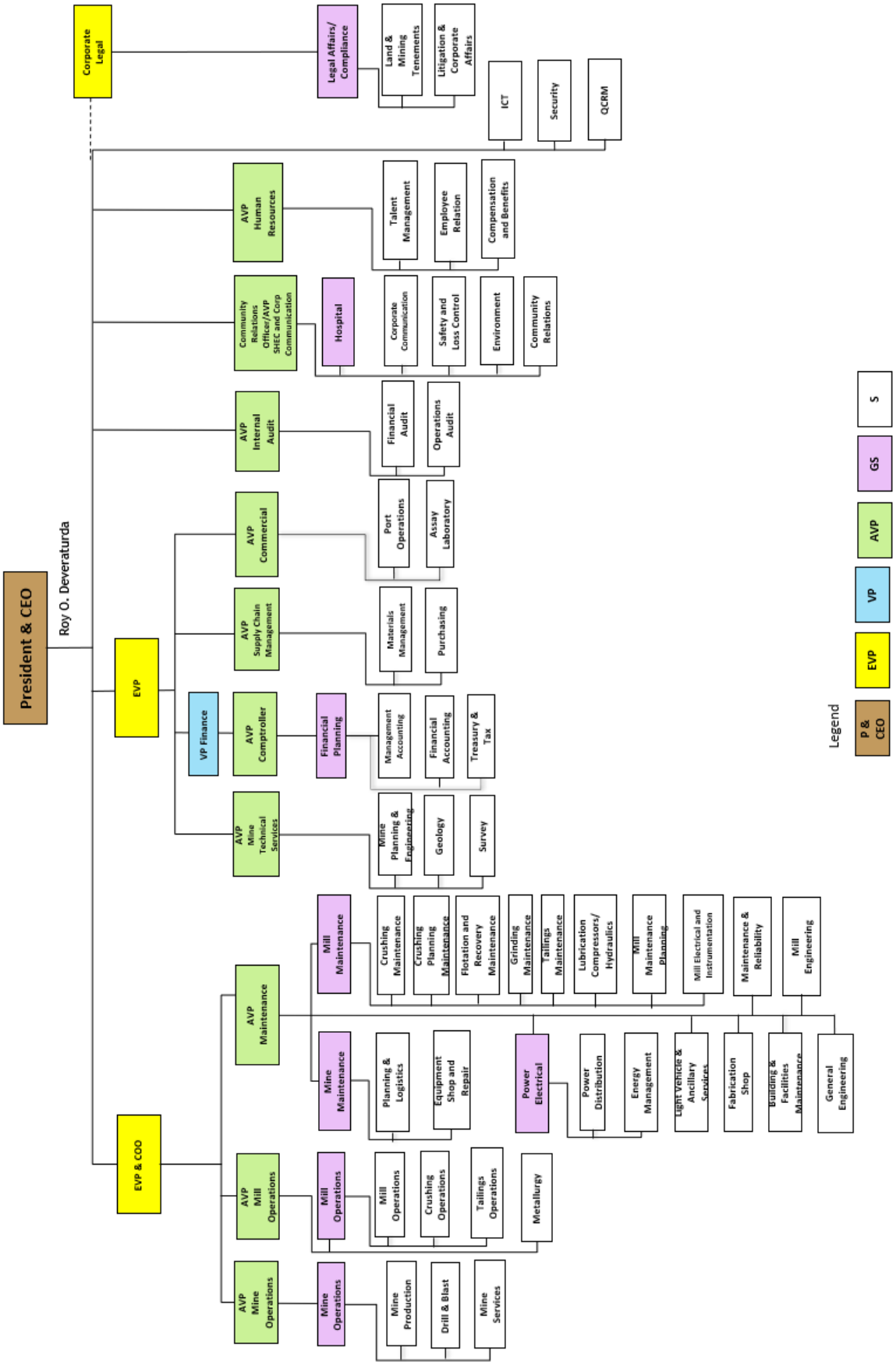


Figure 2.18 General Organizational Chart

2.8.3 Abandonment Phase

The FMRDP 2010 indicated the following Mine Closure and Rehabilitation Scenarios:

- Generally, all infrastructure, facilities, and equipment listed as fixed assets as per CCCACMDC operating agreement shall be turned over to Atlas, if not, stored/maintained for future use of CCC mining projects. Otherwise, if agreed by both parties, these will be turned over to other stakeholders for their sustainable use and development. Those which do have future use will be demolished.
- All onsite electrical and water reticulations and other items recovered from the decommissioning/demolition activities will be sold or disposed of appropriately. Those that are still usable for future projects of CCC or ACMDC shall be subjected to safekeeping.
- Abandoned areas, waste rock dumps, and mined-out areas, among others will be environmentally rehabilitated.
- In some areas, progressive rehabilitation/revegetation will be conducted, however, only after concerned operation areas give clearance to the Reforestation Section. Other areas that are directly affected or are continually used relative to mine operations during mine life will be subjected to revegetation only after final mine closure.
- Socio-economic impacts as a result of mine closure will be addressed appropriately through the SDMP.
- Handover of infrastructure, facilities and rehabilitated land will be negotiated with the identified stakeholder groups with the assurance of the beneficiary stakeholder groups that such will be sustainably used, developed or managed. Where applicable, issuance of appropriate tenurial instruments by concerned government agency shall be made.

2.9 Project Components Key Environmental Aspects, Wastes, Issues, Built-in Measures

Table 2.5 Key Environmental Aspects and Built-in Measures

Project Components	Key Envi Aspects	Wastes/Pollution Issues	Built-in measures
1 Crushing, Screening & Sorting operations	LAND: Stockpile	Sediments run-off, blockage of drainageways, smothering of plants, etc.	• Maintain established drainage system to properly run-off away from the Coarse Ore stockpile. • Maintain the Emergency Tailings Pond which served as settling pond for all run-off from the Carmen Concentrator
	LAND: Soil Contamination	Oil or chemical spills	• Facilities are established on concrete bases/provided with concrete floors and drainage system. • All areas of operation are provided with oil/chemical spill containment kits.
	LAND: Disposal of excess, spoils	By-product during screening sorting that will not be used for ore processing (e.g waste rock-gangue)	• Transport and dispose waste rock to existing waste rock dump sites for proper management. • Dispose waste as aggregates, if applicable.
	WATER	Sedimentation-siltation of waterways from stockpile and excess from processing	• Establish appropriate drainage system for the stockpile areas, if necessary • Connect drainage system into the existing Carmen Concentrator drainage system for proper management.
	Water	Oil or chemical spills from crushing, sorting machineries & equpts.	• All areas of operation are provided with oil/chemical spill containment kits. • Established drainage system are provided with appropriate oil-water separators.

Project Components	Key Envi Aspects	Wastes/Pollution Issues	Built-in measures
	AIR: Movement of vehicles	Dust	• Water sprinkling system installed at key locations. • Dust generating equipment are enclosed and isolated. • Regular sprinkling and maintenance of access roads.
	AIR: Vehicle, Equipment, Machineries, emissions	Emissions that will degrade, pollute air environment	• Use new or properly maintained equipment to assure that the operation is in conformity with vehicle air emission standards. • Subject equipment to regular preventive maintenance servicing to maintain efficient operation.
	People	Dust and Nuisance	• Dust generating equipment are enclosed and isolated. • Workers are provided with appropriate personal protective equipment.
	People-Traffic	Movement of dumptrucks to & from crushing plant and along roads also used by community	• Subject all truck drivers to the required defensive driving training. • Install appropriate traffic and road warning signs (directional signs, speed limits, etc..)
2 Mill Plant operations	Land	Accidental Oil or chemical spills contaminating ground-soil	• Facilities are established on concrete bases/provided with concrete floors and drainage system. • All areas of operation are provided with oil/chemical spill containment kits.
	Land	Disposal of excess-spilled concentrates	• Concentrate storage area is properly concreted and provided with bund walls. • Observe appropriate collection of concentrate spills and returning them to concentrate stockpile.
	Water	Oil or chemical spills	• All areas of operation are provided with oil/chemical spill containment kits. • Established drainage system are provided with appropriate oil-water separators. • Maintain efficient operation of the Emergency Tailings Pond (ETP)
		Escape/accidental spillage of tailings from thickener	• Maintain drainage system surrounding the tailings thickener area. • Direct all tailings spills into the emergency tailings pond for proper management and integration into the tailings disposal system and storage within the Biga Pit TSF.
	Water Supply	Water resources wastage & conservation	• Minimize use of fresh water from Malubog Dam by maximizing the use of recovered process water from the tailings disposal process (tailings thickener recovered water).
	Processed Wastewater	Wastewater from process-polluting ground & surface waters	• Maintain the current recycling process of using recovered process water from the tailings disposal process (tailings thickener recovered water).
	Domestic Wastewater		• Maintain proper operation of valves and faucets. • Regular inspection of water pipes to prevent leaks. • Install reminders and conduct IEC for water conservation in the operation area.
	Air Quality	Dust and Air Pollution	• Water sprinkling system installed at key locations, if applicable • Dust generating equipment are enclosed and isolated. • Structure design allow air circulation
	People	Dust and Nuisance	• Dust generating equipment are enclosed and isolated. • Workers are provided with appropriate personal protective equipment.

Project Components	Key Envi Aspects	Wastes/Pollution Issues	Built-in measures
	People	Disposal of Solid Wastes from mill plant operations	• Provide appropriate color coded bins for waste management. • Establish and follow an appropriate collection schedule. • Dispose of residual waste at the City Garbage Disposal Site will be facilitated by the CCC Building and Facilities Maintenance Group.
		Disposal of domestic wastes	• Provide all existing comfort rooms with appropriate septic tanks. • Schedule regular maintenance cleaning of all septic tanks through 3rd party service providers.
		Disposal of Hazardous wastes	• Maintain existing hazardous waste storage areas and the general storage area/Materials Recovery Facility (MRF) at Location 20 Area. • Dispose hazardous waste thru 3rd party EMB-accredited Transport, Storage and Disposal service provider.
		Socio-Economics	• Local residents employed/working in the Carcon facility and other works/departments in the company • Residual livelihood for the community • Benefits from Corporate Social Responsibility, such as educational and scholarship grants, community water supply projects, others • Taxes and revenues for the Barangay and the City government

ANNEX

ANNEX 1 – DRAFT INVITATION LETTER FOR PUBLIC SCOPING

Subject: Public Scoping for the TOLEDO COPPER MINE AND PORT FACILTIY
{"Mine to Port" Environmental Compliance Certificate Application (ECC)}

Dear___NAME____:

Relative to the ENVIRONMENTAL IMPACT ASSESSMENT for the proposed Toledo Copper Mine and Port Facility Project of Carmen Copper Corporation located at Barangay Don Andres Soriano, Barangay Biga, Barangay Loay, Barangay Media Once, Barangay Bagacay, Barangay Cantabaco, Barangay Poog and Barangay Daanlungsod, City of Toledo, Province of Cebu:

> Notice is hereby given regarding the proposed project and request your participation in the Public Scoping on ___DATE____ at ____LOCATION/ON-LINE MEETING LINK.

The Public Scoping will be conducted in line with the Environmental Compliance Certificate (ECC) application of the aforementioned project with the Environmental Management Bureau Central Office, Department of Environment and Natural Resources (DENR).

Copy of the Project Description can be accessed at the EMB CO website **http://www.emb.gov.ph**

In this regard we would like to solicit your participation together with the barangay council and key sectoral representatives from the barangay (Youth, Women, Senior Citizens, Farmer's group representatives, People's Organization, and Non-Government Organizations) in this endeavor. This activity will be performed as part of the on-going Environmental Impact Assessment conducted by **Carmen Copper Corporation** as proponent of this project relative to its ECC application.

For more details, please contact the Environmental Impact Assessment and Management Division (EIAMD) of EMB CO at telephone number (632)927-15-17 or 928-37-25 through the following EIAMD staff:

1.
2.

We look forward to your support and valuable participation.

Thank you and God bless.

Very truly yours,

ENGR. WILLIAM P. CUÑADO

List of Recommended Invitees to Public Scoping

Barangay Officials				Senior Citizen				Peoples Organizations/Associations				Schools		
Barangay	**Names**	**Position**		**Chapter**	**Names**	**Position**		**Name of PO/Assn.**	**Names**	**Position**		**Name of School**	**Names**	**Position**
Bagakay	Ragodos, Ramon B.	Brgy, Chairman		Bagakay Chapter	Lucia Nacor	President		Bagakay Farmers Assn.	Lucia C. Racoma	President		Bagakay Elementary School	Sonia L. Peral	School Principal
Media Once	Alferez, Hilario L.	Brgy, Chairman		Media Once Chapter	Feliciano Pando Jr.	President		Pandongbato Farmers Assn.	Annabel T. Pañares	President		Media Once Elementary School	Fe Esperanza M. Yap	School Principal
												Pandong Bato Elementary |School	Eleazar C. Librea	School Principal
												Media Once National High School	Sofronio D. Paragoso	School Principal
Poog	Alferez, Clariza Z.	Brgy, Chairman		Poog Chapter	Mariano Monsales	President		Namumuong Mag-uuma sa Brgy. Poog	Fernando Zabate	President		Poog Elementary School	Paterna S. Lazaga	School Principal
Cantabaco	Bernardo B. Villarin	Brgy, Chairman		Cantabaco Chapter	Andrez Juarez	President		Ilag Cantabaco Home-Based Womens Assn.	Teresita Teriote	President		Apid Elementary School	Ma. Rowena P. Paran	School Principal
												Cantabaco Elementary School	Donabel L. lariosa	School Principal
												Cantabaco National High School	Apple Grace A. Altomia	School Principal
DAS	Cabrera, Jose Jeffrey R.	Brgy, Chairman		DAS Chapter	Francisco Prahinog	President		Absa Christian Farmers Livelihood Association (ACFALA)	Pastor Rolando Salas	President		DAS Elementary School	Melchor B. Samper	School Principal

											P.del Rosario Elementary School	Daisydelia B. Yagonia	School Principal
											De La Salle Andres Soriano Memorial College	Evelyn A. Cimafranca	School Principal
											DAS National High School	Yolanda T. Dela Cerna	School Principal
Biga	Sepada, Pedro Jr. H.	Brgy, Chairman		Biga Chapter	Rene Sepada	President		Brgy. Biga Bagong Buhay MPC	Lilith Marabellas	President	Biga Elementary School	Emmanuel P. Bahena	School Principal
											Makatol Elementary School	Renester P. Suralta	School Principal
Loay	Junalyn Alicaba	Brgy, Chairman		Loay Chapter	Felipe Parba	President		Sta. Cruz Farmers Association	Melecio Bonghanoy	President	Loay Elementary School	Perdix Villarin	School Principal
Daanlungsod	Rogelio J. Maybuena	Brgy, Chairman		Daanlungsod Chapter	Lita Cañete	President							