

## EXECUTIVE SUMMARY

### I. PROJECT FACT SHEET

<b>Project Name</b>	Proposed Candelaria Rolling Mill Project
<b>Project Location</b>	Barangay Malabanban Sur, Candelaria, Quezon
<b>Project Area</b>	326,687 sq.m.
<b>Project Type</b>	Iron and steel mill; Steel Manufacturing
<b>Project Capacity</b>	600,000 MTPY
<b>Project Description</b>	The proposed project is a rebar and wire-rod mill. This will produce rebars and wire rods which are inputs to countless uses, such as building and construction of houses, infrastructure and different concreted works. CSI will use "state of the art" technologies for this project because in the long run it will provide the lowest operating cost.
<b>Rationale</b>	<p>The steel industry in the Philippines is one of the most significant growth industries. Steel constitutes a basic industry prerequisite in a country's pursuit of development and industrialization. The central role of the industry stems from its linkages with numerous sectors, where its products serve as an essential input to countless uses, such as building and construction, automotive, shipbuilding and repair, electronics, packaging, etc. and it is equally important contributions to employment generation, growth, and promotion of industrial activity, etc. Therefore, ensuring a strong domestic steel and steel-based industry is vital in developing the competitive edge of a country in meeting the challenges of globalization.</p> <p>With the boost in infrastructure industry in the country together with the rehabilitation activities in some parts of the country, there will be a bigger demand for reinforcing steel bars. The following are the major rationale for the project:</p> <ul style="list-style-type: none"> <li>• Supply the increasing demand of rebars, particularly the upcoming infrastructure growth in South Luzon region.</li> <li>• Support housing construction in the region.</li> <li>• Support construction of power plants, BPO, office spaces and tourism projects.</li> <li>• Support the Visayas reconstruction projects</li> </ul> <p>The proposed project will also provide support to the following infrastructure projects:</p> <ul style="list-style-type: none"> <li>• SLEX Toll Road 4 Expressway</li> <li>• Laguna Lake Highway</li> <li>• PNR South Commuter and South Long-Haul Project</li> <li>• Quezon-Bicol Expressway (QuBex)</li> <li>• Cavite-Laguna Expressway (CALAX)</li> <li>• Cavite Industrial Area Flood Risk Management Project (CIA-FRMP)</li> <li>• Camarines Sur Expressway</li> </ul>
<b>Project Components</b>	<p>Following are the components of the project:</p> <p>A. Main equipment:</p> <ol style="list-style-type: none"> <li>1. Reheating furnace</li> <li>2. Rolling train</li> <li>3. Cooling bed</li> </ol>

	<p>4. Bundling</p> <p>B. Ancillary facilities:</p> <ol style="list-style-type: none"> <li>1. Water treatment plant</li> <li>2. Pumping Station and water pipes</li> <li>3. Rainwater collection reservoir</li> <li>4. Rainwater collection reservoir</li> <li>5. Power substation</li> <li>6. QA laboratory</li> <li>7. Machine shop</li> </ol>
<b>Manpower</b>	<p>During Construction, an estimated manpower of 500 workers for the project will be required where three (3) will be directly hired by Candelaria Steel, Inc. while 497 will be employed by the Contractor.</p> <p>During Rolling Mill operations, 500 workers will be required which will be directly hired by Candelaria Steel in coordination with the Public Employment Service Office (PESO) of Candelaria.</p>
<b>Duration of Project</b>	The project is expected to operate for a period of at least 40 years.
<b>Project Schedule</b>	Project operation will commence 19 months after securing all necessary permits, licenses and approvals.
<b>Project Cost</b>	Approximately PhP 5,000,000,000.00.
<b>Proponent Profile</b>	
<b>Name of Proponent</b>	<b>Candelaria Steel, Inc. – a subsidiary of SteelAsia Manufacturing Corporation.</b>
<b>Address</b>	B2 Bldg., Bonifacio High Street, BGC, Taguig, Metro Manila
<b>Authorized Signatory/ Representative</b>	<b>Mr. Roberto Cola</b> Vice President
<b>Contact Details</b>	Landline number: (632) 856-6888 Mobile No.: +639178675921 Email address: <a href="mailto:RMCola@steelasia.com">RMCola@steelasia.com</a>
<b>Profile of the Preparer</b>	
<b>EIA Preparer</b>	Mediatrix Business Consultancy
<b>Consultant's Address</b>	L29 Joy-Nostalg Center, 17 ADB Ave., Ortigas Center, Pasig City
<b>Contact Person</b>	Matilde R. Jimenez-Fernando General Manager
<b>Contact Details</b>	Telephone No.: (02) 689 7114 Email Address: <a href="mailto:mediatrixbusinessconsultancy@gmail.com">mediatrixbusinessconsultancy@gmail.com</a>

## II. EIA PROCESS DOCUMENTATION

### EIA Team

The EIA Study was conducted by a multidisciplinary team of professional experts of Mediatrix Business Consultancy (Mediatrix), who have strong background in environmental assessments, in close coordination with the Candelaria Steel, Inc. (CSI). The composition of the EIA Team is presented in **Table ES-1**.

**Table ES-1: EIA Team Composition**

EIA Team	Areas of Expertise	EIA Registration No.
<b>Mediatrix Business Consultancy</b>		
Matilde J. Fernando	Team Leader, Socio-Economics and Legal Framework	IPCO-035
Reynaldo S. Tejada	Air Module	IPCO-036
Hernani Bayani	Geology Module	IPCO-058
Benjamin Francisco	Freshwater Ecology	IPCO-038
Alexis Fernando	Research and Field Assignments	IPCO-034
Ria Caramoan	Water Module	IPCO-106
Juvinal Esteban	IEC and Community relations	IPCO-091

### EIA Schedule

Mediatrix, together with the CSI, commenced the EIA Study by EIA planning, and project and stakeholder profiling for the preparation of Information, Education, and Communication (IEC) and Scoping activities. The Public Scoping was conducted on August 11, 2016 while the Technical Scoping was conducted on June 14, 2017. EIA baseline studies and impact assessment were conducted in May 2018 and the Environmental Impact Statement (EIS) Report was completed in June 2018. The major activities undertaken to complete the EIA were listed in **Table ES-2**.

**Table ES-2: EIA Study Schedule**

EIA Activity/Stage	Date
EIA Planning, Project and Stakeholder Profiling	April 2016
Preliminary IEC and consultation with the officials of Candelaria	May 2016
Public Scoping	August 11, 2016
Technical Scoping	June 14, 2017
EIS Report Preparation	
• Air	August 13, 2016
• Water	August 13, 2016
• Terrestrial	July 1 to 3, 2017
• People	August 26, 2016
• Soil	Sept. 7, 2018
Official acceptance of EIS by EMB	January 17, 2019
1 <sup>st</sup> Review	January 25, 2019
Public Hearing	
Final Review	

### EIA Methodology

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

The EIA for the proposed project conforms to the Revised Procedural Manual for DENR Administrative Order (DAO) 2003-30 and DAO 2017-15 in the conduct of the following activities, to wit: (i) IEC and Scoping, (ii) collection of primary and secondary data, (iii) identification/prediction/ assessment of environmental impacts, (iv) formulation of EMP, and (v) development of EMoP. The baseline information are mainly primary and secondary data which were obtained from the Local Government Units (LGUs) and other government agencies. The data collected were based from the EIA Scoping and Screening Form presented in **Annex ES-2**, which was finalized during the Technical Scoping on June 14, 2017.

**Table ES-3** presents the detailed EIA methodology per environment sector/component.

**Table ES-3: EIA Methodology**

<b>EIA Study Module</b>	<b>Parameters/Scope</b>	<b>Baseline Sampling and Methodology</b>
<b>Land</b>		
Geology/Geomorphology, Pedology, Land Use and Classification	Reconnaissance, land use, land classification assessment, slope, soil types and classification, erosion	Review of 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 endemicity and conservation status, species abundance, frequency and distribution	Use of secondary data and inventory
<b>Water</b>		
Hydrology/Hydrogeology	Regional hydrogeology, catchment and drainage system	Spring and 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 river water	Water sampling and laboratory analysis
Freshwater Ecology	Full accounting of all existing benthic habitats, species, composition, density, and diversity of 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
<b>Air</b>		
Meteorology/Climatology	Monthly average rainfall, climatological normal and extremes, wind rose diagrams, and frequency of tropical cyclones	Use and review of secondary data
Air Quality and Noise Level	Ambient air quality and noise levels	Ambient air quality and noise sampling and laboratory analysis
Air Dispersion Modeling	Worst case scenario identification, use of meteorological data	Use of Screen 3 and AERMOD Models
Temperature and Rainfall Change	Seasonal Temperature (in °C) and Rainfall (in %) Change in 2020 and 2050 under medium range emission scenario in Quezon  Monthly Average Temperature and Rainfall without Climate Change  Monthly Average Temperature and Rainfall with Climate Change (2006-2035)  Monthly Average Temperature and Rainfall with Climate Change (2006-2065)	Assessment of effects of Temperature and Rainfall Change

EIA Study Module	Parameters/Scope	Baseline Sampling and Methodology
Greenhouse as Assessment	GHG Emissions based on IPCC 2006 Guidelines and USEPA Procedure	Assessment of Bunker oil consumption vs GHG emissions
<b>People</b>		
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 PSA; Interviews with the locals; household-level survey
Socio-economics	Socioeconomic data: Main sources of Income, Employment rate/ profile, sources of livelihood, Poverty incidence, commercial establishments and activities, banking and financial institutions	Perception surveys, Interviews with municipal and barangay officials; analysis of secondary data; analysis of survey results, Traffic assessment
<b>Environmental Risk Assessment</b>		
Risk Assessment	Safety risks and physical risks	Consequence and Frequency analyses to be undertaken using the methodology described in the Revised Procedural Manual (RPM) for DAO 2003-30

### Public Participation Activities

Pursuant to DAO 2003-30, MC 2010-14, and DAO 2017-15, CSI has conducted a series of public participation activities through pre-scoping Information, Education and Communication (IEC) via FGD/KII, perception survey, public public scoping and informal discussions with the Municipal and Barangay Officials of Candelaria and Malabanban Sur from March 2016 regarding the proposed project.

### Focus Group Discussion/Key Informant Interviews

FGD/KII are frequently used as a qualitative approach to gain an in-depth understanding of social issues. The method aims to obtain data from a purposely selected group of individuals rather than from a statistically representative sample of a broader population.

FGDs/KIIs were conducted on Oct. 14, 2015 and Dec. 16, 2015 in Candelaria and Malabanban Sur. These LGUs will host the proposed project. The participants of the FGDs were the municipal and barangay LGU officials. The number of participants was 10 for Candelaria and 12 for Malabanban Sur, totaling to 25 overall. The EIA Preparer conducted the FGD together with 5 representatives from the Proponent.

On the questions posted to the participants, the EIA Preparer gathered the following results:

- Both barangays have known the project through their municipal LGU, through their co-barangay officials and through Steelasia
- Most of them believed that the project will provide them a big chunk of revenue that will help them provide the basis services and infrastructure to their constituents
- Some fear pollution to the environment that may be brought about by the project such as air and water pollution
- Some officials suggested that they be given ambulance and livelihood projects especially for women
- Barangay Chairmen requested for prioritization of employment and hiring of their barangay residents once Candelaria Steel starts the process of recruitment
- Generally, most of them will feel happy if the project will proceed its implementation.

### **Perception Survey**

The perception survey was conducted on August 28 to 30, 2016. A total of 383 households were randomly interviewed and surveyed. The Malabanban Sur population of 9,123 as of 2015 was used.

#### **Sample Size Breakdown**

Sample size calculator Raosoft in <http://www.raosoft.com/samplesize.html> was used in determining sample size. With a population of 9123, the sample size calculator came up with 369 as sample size with a 5% margin of error and 95% confidence level.

Even if the sample size calculator provided the smaller sample size, we presented the actual surveyed population which is 383 representing an additional 18% to the sample size.

### **Summary of Perception Survey/Results**

#### **Demographic Characteristics:**

Among the respondents 155 (40%) are males and the majority (60%) is females. Most (33%) are unemployed, 18% of the respondents are self-employed, 13% are laborers/skilled, 11% are drivers, 5% are Barangay officials, 4% are Government/Private employees and another 4% of the respondents are farmers/farm workers while the remaining 11% have profession not mentioned in the survey.

85 (22.19%) respondents are between ages 41 to 50 years old, 82 (21.41%) respondents are 31 to 40 years old, 75 (19.58%) respondents fall into 21 to 30 age range, 71 (18.54%) are 51 to 60 years old, 44 (11.49%) respondents are between ages 61 to 70 years old, 9 respondents (2.35%) are 15 to 20 years old while the remaining 17 (4.44%) respondents are 71 years old and above.

Most (32%) of the respondents earn between Php1,000-5,000 monthly, 25% of the respondents' monthly salary range between Php 5,000-10,000, 10% of the respondents earn Php 10,000 and above while the remaining 33% have no monthly income.

Majority (90.86%) of the respondents are Catholic while 7.05% are Iglesia ni Cristo. 177 respondents reached high school level, 94 respondents finished elementary, 38 respondents attained a vocational education, 60 respondents accomplished college level while 14 respondents have no educational background.

194 respondents are married, 76 are single, 44 respondents are widowed, 51 are living together (live-in) while 18 are separated. 65.27% of the respondents have 2 to 5 family members, 31.07% have 6 to 10 family members in their household while 3.55% of the respondents have 11 to 15 family members. 286 (74.67%) of the respondents are from Candelaria while 97 (25.33%) are from other places.

248 respondents get water from wells while the remaining 135 respondents acquire water from Manila Water/Nawasa. 45.69% of the respondents' own motorcycle and 1 respondent own a bicycle while the majority (54.05%) do not own any means of transportation. All the respondents' households are equipped with water closet (with or without flush).

289 of the respondents said that calamities occurred within the past ten years while 94 respondents stated that there are no calamities within the past ten years.

#### **PERCEPTION ABOUT THE PROJECT**

265 respondents are aware about the proposed rolling mill project of SteelAsia Manufacturing Corporation while 118 respondents are not aware. 149 respondents were informed through surveys while 234 respondents were notified through seminars. 210 respondents agreed that the proposed project can help their community and barangay while 22 respondents believe that the proposed project will not bring any aid or benefits to their barangay, 151 respondents are not sure if the proposed project will bring help to their community.

215 respondents believe that the proposed project will give job opportunities to the people in their community while 168 respondents mentioned other possible good effects from the proposed project. In terms of negative effects, 36 respondents stated that there is a possibility of air and water pollution, 132

respondents said other possible negative effects while 215 respondents stated that they are uncertain to the possible negative effects of the proposed project.

259 respondents agreed to the proposed project, 24 respondents disagreed while the remaining 100 respondents are still uncertain.

### Public Scoping

The Public Scoping was conducted on August 11, 2016, 10:00 a.m. in Brgy. Malabanban Sur Candelaria, Quezon. Registration started as early as 9:30 am while the Program started at 10:00 am. A total of 225 attendees joined the Scoping activity.

Issues and concerns raised during the Public Scoping is provided in the table below.

Table ES-4: Summary of Results of Public Scoping

Issues/Concerns	Nagbigay ng Tanong	Proponent's Response
Gaano kaligtas ang mga lupang sakahan sa paligid ng planta	Ariel Geronimo	Tugon ng Candelaria Steel, Inc: Ligtas ang mga lupang sakahan sa paligid ng planta dahil s mga sumusunod na dahilan: <ol style="list-style-type: none"> <li>1. Hindi gagamit ng tubig na ginagamit ng mga magsasaka ang planta</li> <li>2. Tutulong ang kumpanya sa problema ng mga magsasaka sa tubig</li> <li>3. Walang kemikal na ginagamit ang planta na maaring tumapon or maka-pekto sa mga sakahan</li> <li>4. Nirerecycle ng planta ang lahat ng tubig na gagamitin at ginagamit nito</li> </ol>
Petisyon sa Plaridel ng 7,000 mamamayan		Tugon ng Candelaria Steel, Inc.: ang mga isyu na ibinabato ng mga tumututol sa proyekto sa Plaridel ay nasagot ng lahat sa mga ginawang public consultations at mga meetings sa EIA Review Committee ng EMB-DENR.
Bakit ang bayan ng Candelaria at Brgy. Malabanban Sur ang napili ng Project?	Written questions	The project was chosen because of the following reasons: <ul style="list-style-type: none"> <li>• Infrastructure growth in Southern Luzon seen in the coming years</li> <li>• New infrastructure will spur additional growth in housing, retail, tourism and industrial construction</li> <li>• New construction will require more steel products, best supplied by a local/community steel mill.</li> <li>• Supply of products for industrial use.</li> <li>• NEDA Report on Region 4A                             <ul style="list-style-type: none"> <li>○ The region is the 2ndhighest in population with over 13 million.</li> <li>○ The region is the 2ndhighest contributor to the GDP at 17.4% compared to NCR at 36.3%.</li> <li>○ The region has the highest OFW workforce and accounts for 15% of total OFWs.</li> </ul> </li> <li>• Industry (including manufacturing) accounts for 61% of the region's GDP.</li> <li>• Manufacturing</li> <li>• Electricity, Gas and Water</li> <li>• Construction</li> </ul>

		<ul style="list-style-type: none"> <li>• More than 50% of the country's PEZA revenue is from Region 4A</li> <li>• Calabarzon is No. 1 in value output among regions and 2nd in number of firms and Employment.</li> <li>• Calabarzon has a comprehensive development plan.</li> <li>• Calabarzon Development Agenda 2010 to 2020</li> <li>• Harmonization of regional development objectives and environmental protection</li> <li>• Enhancing Calabarzon's competitiveness as a global business hub</li> <li>• Adoption of knowledge-based industries and information exchange</li> <li>• Reduction of socio-economic disparity</li> <li>• Tying up human resource development, industry, research and development priorities &amp; concerns</li> <li>• Sustaining capacities in local governance</li> <li>• Infrastructure Projects –Completed</li> <li>• Daang Hari–SLEX Link or Muntinlupa-Cavite Expressway to San Juan Port</li> <li>• Infrastructure Projects –Ongoing</li> <li>• LRT Line 2 East Extension Project</li> <li>• LRT Line 1 Cavite Extension Project</li> <li>• Southern Luzon Expressway Toll Road 4</li> <li>• STAR Tollway Stage II</li> <li>• Quezon Eco-Tourism Road Phase 3</li> <li>• Calatagan Port</li> <li>• Infrastructure Projects –Pipeline             <ul style="list-style-type: none"> <li>○ Laguna Lake Expressway Dike Project</li> <li>○ Cavite-Laguna Expressway Project</li> <li>○ North-South Rail Project (South Line)</li> <li>○ Batangas flyover from Batangas Port to Star Toll</li> <li>○ Rizal Expressway Dike</li> <li>○ Pililla (Rizal) Wind Farm Power Project -67.5 MW</li> <li>○ Pagbilao Energy Corp. 420-MW Pagbilao3 coal-fired power project in Quezon province</li> <li>○ South Luzon Thermal Energy Corp., 135-MW coal-fired unit Calaca, Batangas</li> </ul> </li> </ul>
<p>Ano ang magiging epekto nito sa kalusugan ng bawat mamamayan na nakapaligid dito</p>		<p>Possible air pollution due to dust is the primary potential impact that may be generated by the project during construction. Proper dust management system and installation of air pollution control devices will be implemented. During operation, no significant impact is projected because the project is steel</p>



		rolling mill only. Insignificant impact on noise may be experienced which will also be properly mitigated.
Can the skills requirements: welding, machining and training by Candelaria Steel, Inc. be conducted before construction?	Ma. Luningning Predilla	The Proponent responded that these skills training will be conducted before construction so as to equip and/or enhance skills of possible workers on site.
Working age limit sa planta		No age limit but employment will depend on capacity to work
Air emission	Aris Baon	The air emission of the plant is expected to be well within the standards mandated by law as experienced in other Plants of SAMC
Wala sanang epekto sa ilog		The nearest river is about 2 km away and the Plant will not discharge water because of recycling and zero effluent system. A water reservoir will also be constructed and rainfall pattern will be studied to forecast and ascertain the requirement for make-up water.
Gaano kahanda sa sunog	Sta. Catalina National High School	The proponent responded that the least problem or risks in steel mills like Candelaria Steel is fire because the commodity is steel which is not fire hazard.
Kailan mag uumpisa at saan at kailan pwede mag apply	Carlos Andal	The target schedule is after 1 year in undergoing the permitting process; then construction for 22 months; hiring commences during construction
Avoidance of further contamination of Candelaria River - Wastewater treatment = what will be the management plan of the solid (scales and grease)	Ryan De Luna, MENRO of Candelaria	This concern was duly noted. The scales are sold to 3 <sup>rd</sup> party because scales are still raw materials for other industries.
EMB-PENRO to suggest/endorse similar technology of SteelAsia if proven to be effective and efficient	MENRO	This was noted.
Did the Plant experienced shortage of water		Yes but on other projects and not under SAMC group. If this will be experienced at the worst case scenario, then the Plant will shut down.
Community just beside the Plant site's concern is where will the water go if the Plant will fence the project area.	Kagawad Dinglasan	A canal / drainage will be constructed; adopt a river program to clean the present contaminated river will also be conducted.
Submersible pump during dry season		This was duly noted for consideration under the CSR of the company.

### **Review of Secondary Data**

Socio-demographic and economic data were procured from pertinent documents from respective government institutions such as Municipal and Provincial LGUs, as well as online sources for background information. All sources were exhausted in the study.

## **III. EIA SUMMARY**

### **Summary of Alternatives**

#### **Siting**

The following site locations were considered for the proposed project:

- Barangay Salong, Calaca, Quezon
- Barangay Camastilisan, Calaca, Quezon
- Barangays Malabanban Sur, Quezon

However, based on the following criteria, the project site in Barangay Malabanban Sur, Candelaria, Quezon was selected as the best option for the proposed project.

- **Logistics.** Steel manufacturing is essentially a transportation business as it requires a lot of moving and handling for its raw materials and finished goods. The plant shall be sited near the port, major highways and customers to optimize the logistics cost.
- **Land.** The land area must accommodate all the facilities needed in a contiguous manner. In addition, it should not require a long time for land conversion and expensive site development. It should have sufficient elevation for flooding.
- **Carbon Footprint.** CSI’s policy is to adopt practices to minimize fuel use. These include optimized trip planning/routing to increase fuel efficiency, reducing the number of kilometers each truck travels daily and minimizing travel time.
- **Social.** Social environment was also considered in the project alternatives. The project area was considered compatible with land use because the LGU is in the process of converting the area to an industrial area.
- **Environment.** The proposed location is considerably clear and flat area. Being in a topographically flat area, hazards associated with slope instability, erosion and mass wasting are expected to be nil. The proposed location of the project facilities was also evaluated in terms of geohazard susceptibility based on information from government agencies such as the Mines and Geosciences Bureau (MGB) and the Philippine Institute of Volcanology and Seismology (PHIVOLCS). Generally, the project area’s susceptibility to earthquake-triggered slope failure, rainfall-triggered slope failure, and flooding are low. About seismic vulnerability and liquefaction potential, the potential ground-shaking and liquefaction susceptibility of the project site is also low.
- **Environmental Impacts of Each Alternative.** The potential impacts in all locations are the same. However, other areas were not considered because of existing mangrove plantation, lack of sustainable water and power sources and the land classification is not yet industrial. The impacts are discussed and summarized in detail in the next two chapters.

**Technology and Design**

The Technology that will be used for the proposed project is the most modern rolling mill equipment. The basis for technology selection is the efficiency of the technology to produce the target production rate at the equipment’s rated capacity.

**Summary of Key Environmental Impacts and Management Plan**

The major impact of the proposed project given in a worst-case scenario of drought is water resource use competition. However, when that time comes, the project will be forced to stop its operation because it will not be feasible to operate in such worst case scenario. **Table ES-5** presents the summary of key environmental impacts of the proposed project and the corresponding management plan and mitigating measures.

**Table ES-5: Summary of Key Environmental Impacts and Management Plan**

Major Activities Description/ Key Environmental Aspects	Potential Impact	Impact Mitigation, Built-In Management Measures and Facilities Planned	Residual Effect
<b>Preconstruction Phase</b>			

Major Activities Description/ Key Environmental Aspects	Potential Impact	Impact Mitigation, Built-In Management Measures and Facilities Planned	Residual Effect
Land	Restriction on the land use classification of Project site	The land use is classified as industrial. Provided in <b>Annex 2-1</b> is the Zoning Certification of Candelaria.	NA
<b>Construction Phase</b>			
Demolition of existing concrete structures	Generation of dust and demolition debris	Good housekeeping and proper construction management; dust management through water sprinkling of dusty areas	None.
Generation of domestic wastewater	Contamination of water quality	Provision of septic tanks and implementation of septage management; implementation of zero effluent	None.
Solid waste generation	Accumulation of solid wastes	Provision of Material Recovery Facility (MRF) and regular hauling of garbage	None.
Chemicals and hazardous wastes generation	Contamination of land and water	<ul style="list-style-type: none"> <li>• Securing of Hazardous Waste Generation ID</li> <li>• Provision of hazardous waste storage area</li> <li>• Treatment and disposal with Certificate of Treatment by DENR-accredited third party treaters</li> </ul>	None.
Use of domestic water	Water resource use of competition	<ul style="list-style-type: none"> <li>• Provision of water from water utility</li> <li>• No extraction of groundwater</li> </ul>	None.
Construction of the steel mill complex	Air emission (TSP, PM10, PM2.5, SO <sub>x</sub> , NO <sub>x</sub> ) and noise pollution from equipment and vehicles.	<ul style="list-style-type: none"> <li>• Training on power equipment and vehicle use and speed</li> <li>• Proper maintenance, designation of no idling zone</li> <li>• Good house keeping</li> <li>• Water sprays, use of enclosures, barriers and buffer zones</li> <li>• Implementation of Reforestation and Carbon-Sink Program: tree planting within the perimeter</li> </ul>	None. Maximum ground level concentration still within the limits of the Clean Air Act.
	Potential health and safety hazards for construction workers	<ul style="list-style-type: none"> <li>• Health and safety policies</li> <li>• Employee safety inspections and toolbox meetings</li> <li>• Regular APE and use of PPEs</li> <li>• First aid training</li> </ul>	None.
<b>Operations Phase</b>			
Rebar operation	Effect on public health due to dust and emissions brought about by the project	<ul style="list-style-type: none"> <li>• Dust management through regular water sprinkling to dusty areas</li> <li>• Coordinate with Rural Health Office for the implementation of programs related to community health.</li> </ul>	None.
	Water pollution	<ul style="list-style-type: none"> <li>• Zero effluent</li> <li>• Provision of Rain catchment reservoir</li> <li>• Provision of Water Treatment Facility for process water</li> </ul>	None.
	Air emission and noise pollution	<ul style="list-style-type: none"> <li>• Training on power equipment and vehicle use and speed</li> <li>• Water sprays, use of enclosures, barriers, and buffer zones.</li> </ul>	None.

Major Activities Description/ Key Environmental Aspects	Potential Impact	Impact Mitigation, Built-In Management Measures and Facilities Planned	Residual Effect
		<ul style="list-style-type: none"> <li>• Proper maintenance, designation of no idling zone</li> <li>• 65 meters stack height</li> <li>• Routine plant maintenance and good house keeping</li> <li>• Use of low sulfur fuel (LSFO or mixing with Diesel)</li> <li>• Training on proper equipment use and speed</li> </ul>	
	Employment generation	Preference will be given to qualified residents of Barangays Malabanban Sur and in the municipality of Candelaria as a whole.	None.
	Increase in economic opportunities through associated incomes and taxes	These are predominantly positive effects, no mitigation measures necessary.	None.
Solid waste generation	Accumulation of solid wastes	Provision of Material Recovery Facility (MRF)	None.
Chemicals and hazardous wastes generation	Contamination of land and water	<ul style="list-style-type: none"> <li>• Securing of Hazardous Waste Generation ID</li> <li>• Provision of Hazmat Storage Facility</li> <li>• Treatment and disposal with Certificate of Treatment by DENR-accredited third party treaters</li> </ul>	None.
Storage, handling and transport of rebars	Health and safety hazards (e.g. heat and hot liquids)	<ul style="list-style-type: none"> <li>• Health and safety policies</li> <li>• Installation of proper ventilation</li> <li>• Implementation of safety buffer zones to separate areas where hot materials are handles and stored.</li> <li>• Employee safety inspections and toolbox meetings.</li> <li>• Regular APE for employees</li> <li>• Use of PPEs</li> <li>• First aid training</li> <li>• Provision of 24-Hour Clinic</li> <li>• Provision of Ambulance</li> <li>• Spills containment of fuel</li> </ul>	None.
	Traffic and road accidents	<ul style="list-style-type: none"> <li>• Implementation of Traffic Management Plan</li> <li>• Provision of proper road signages.</li> <li>• Designation of marshalling/holding area offsite</li> <li>• Observe traffic rules and load limit requirement</li> </ul>	None.
	CO <sub>2</sub> emissions	<ul style="list-style-type: none"> <li>• Utilize thermally-efficient heating process equipment</li> <li>• Explore the viability of using inline Electric Induction heating process after the reheating furnace</li> <li>• Engage in carbon sequestration projects such as tree planting and use of electricity from renewable</li> </ul>	None.

Major Activities Description/ Key Environmental Aspects	Potential Impact	Impact Mitigation, Built-In Management Measures and Facilities Planned	Residual Effect
		energy sources such as geothermal, etc.	
	Noise	<ul style="list-style-type: none"> <li>• AC motors</li> <li>• Enclosed facility</li> <li>• Tree buffer zone</li> <li>• Insulate structures</li> </ul>	None.
	Water collection and operational treatment	<ul style="list-style-type: none"> <li>• Zero water discharge</li> <li>• Water is recycled and re-circulated within the Water Treatment Facility, which consists of grease/oil skimming, scale inhibitors plus filtering and bio/algaecide</li> </ul>	None.
<b>Abandonment Phase</b>			
<ul style="list-style-type: none"> <li>• Removal of wastes and oil spills if any</li> <li>• Removal of all equipment,</li> <li>• Actual Rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>• Change in land use</li> <li>• Loss of jobs and community programs</li> </ul>	<ul style="list-style-type: none"> <li>• Turnover of the facilities which can still be used by the new project especially drainage system and rain collection</li> <li>• Adaptation to the industrial land use of the new project</li> <li>• Grading and drainage stabilization work including leveling of sediment trap and settling ponds</li> <li>• Soil conditioning</li> <li>• Planting or reforestation of endemic species</li> <li>• Retrenchment package</li> <li>• Labor support programs</li> </ul>	None.

Based on the EIA conducted, there are insignificant risks and uncertainties for the Project because mitigation and management plans have been laid down and the CSI's mother company, the Candelaria SteelAsia Group of Companies has been in the business for more than 50 years now.