PROJECT DESCRIPTION

Introduction: Please add other information

The United Far East (UFE) Rolling Steel Mill Corporation is a SEC registered company engaged in the manufacture and distribution of steel bars.

Attached is the SEC Registration.

1.1. Project Location and Area

The proposed Project shall be located within **44,560 sq. m. (4.456 hectares)** land of UFE Rolling Steel Mill Corp. located at Km 49 Indang Road, Brgy. Aguado, Trece Martires City, Cavite.

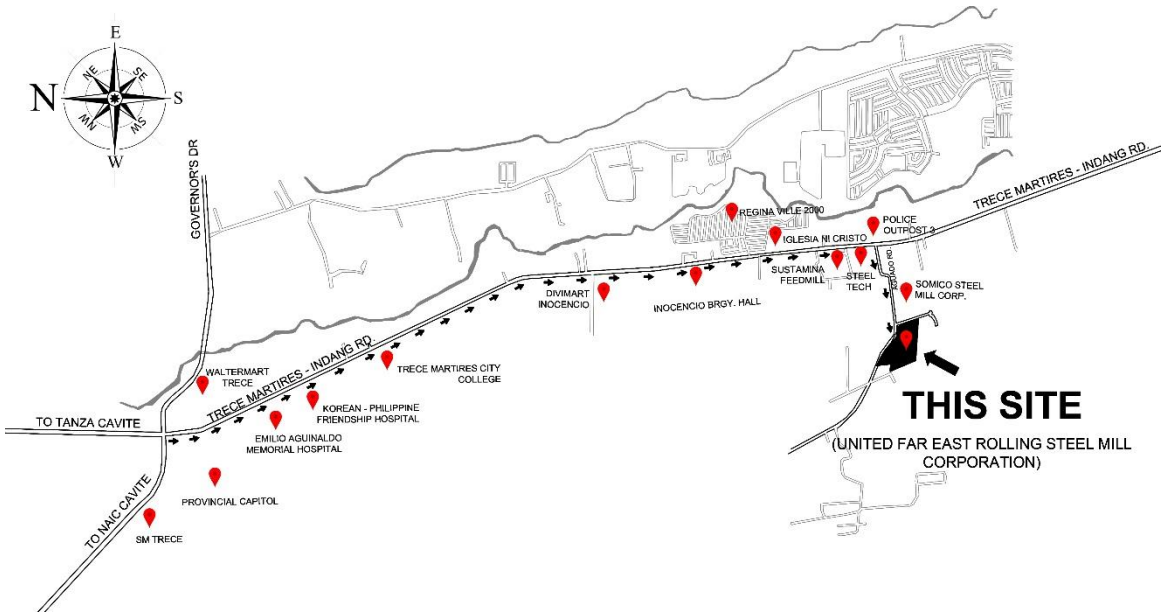


Figure 1-1 Project Location and Site

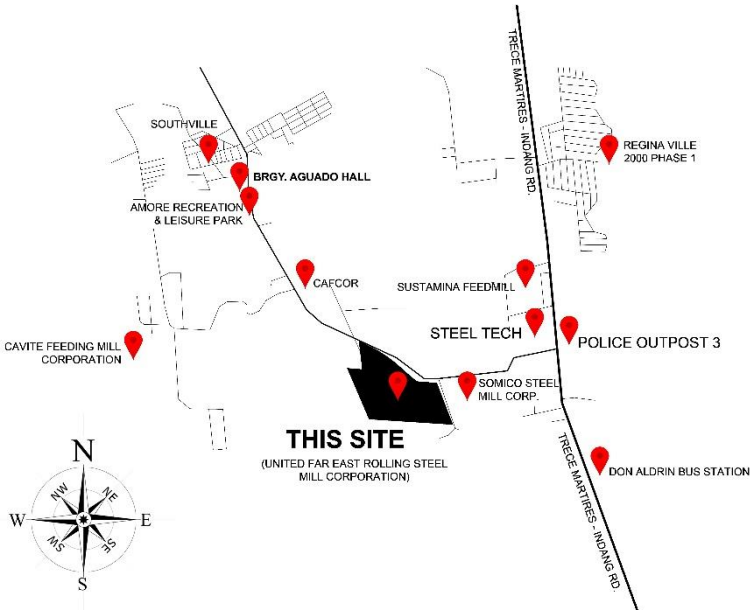


Figure 1-2 Vicinity of the Project Area (Project Site/lot Plan)

CORNER	EASTING			NORTHING		
	DEGREE	MINUTES	SECONDS	DEGREE	MINUTES	SECONDS
1	14	14	40.3476	120	52	27.2748
2	14	14	36.1824	120	52	28.8264
3	14	14	36.6576	120	52	20.388
4	14	14	41.5536	120	52	18.0552
5	14	14	41.5068	120	52	19.65
6	14	14	44.5452	120	52	19.218
7	14	14	44.03328	120	52	20.15868
8	14	14	43.278	120	52	21.7596
9	14	14	42.4572	120	52	23.016
10	14	14	40.7688	120	52	24.78
11	14	14	40.4448	120	52	25.338
12	14	14	40.3368	120	52	26.1336
13	14	14	40.3296	120	52	26.958

Figure 1-3 Geographic Coordinate

1.2. Project Rationale

With the growing Philippine infrastructure and revitalized construction industry, UFE can produce a different sized of steel bars to cater the different market both on private and public construction sectors. Also, a market potential in a government infrastructure projects, under “Build Build Build programs”.

Specifically, the goal of the Project is to address requirements of the construction industry nationwide. It is set to answer the significant amount of unanswered demand for steel bars in the various rural areas of the country with relatively smaller developments including local government infrastructure projects.

1.3. Project Alternatives

No other alternative sites and/or areas were considered as the company strongly considers the project location as a strategic product production and distribution area, also with the area already classified as Industrial Zones.

1.3.1 Criteria Used in Determining Preliminary Options for Facility Siting, Development Design, Process/Technology Selection, Resource Utilization

Siting: UFE considered the following criteria in its site selection: climatic conditions - not flood prone, labor can be procured easily and economically; area should be accessible to its market to minimize cost, there is available and reliable power supply; raw materials are available near and can be transported to site easily; transport facilities are available for raw materials and finished product.

Development Design:

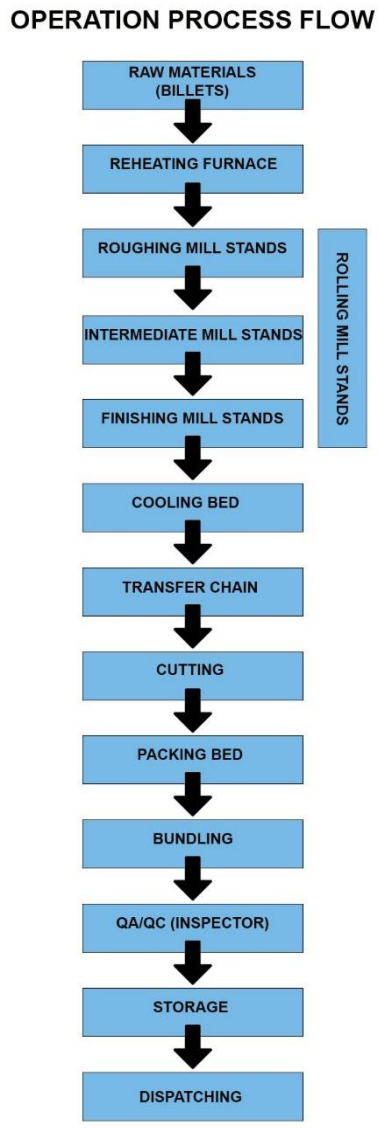
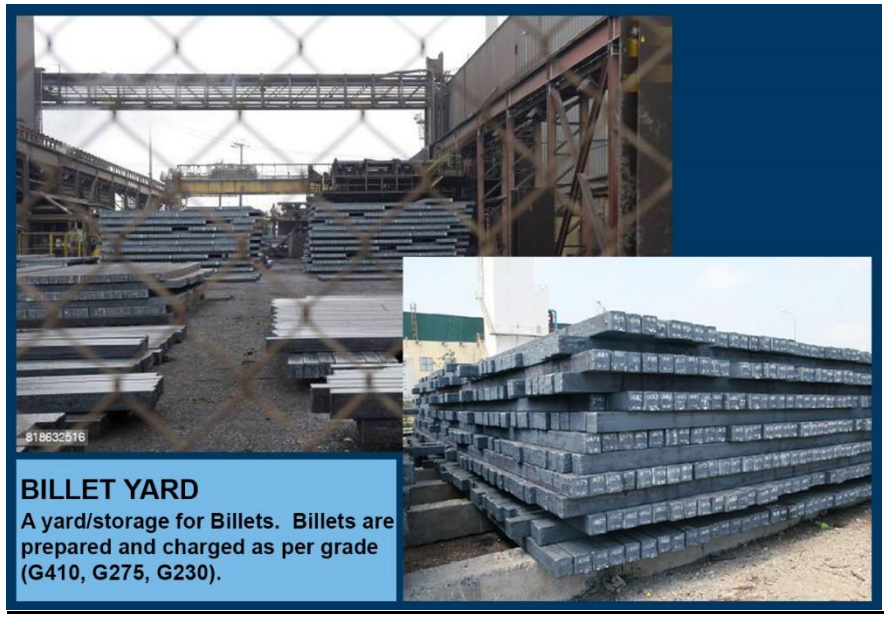
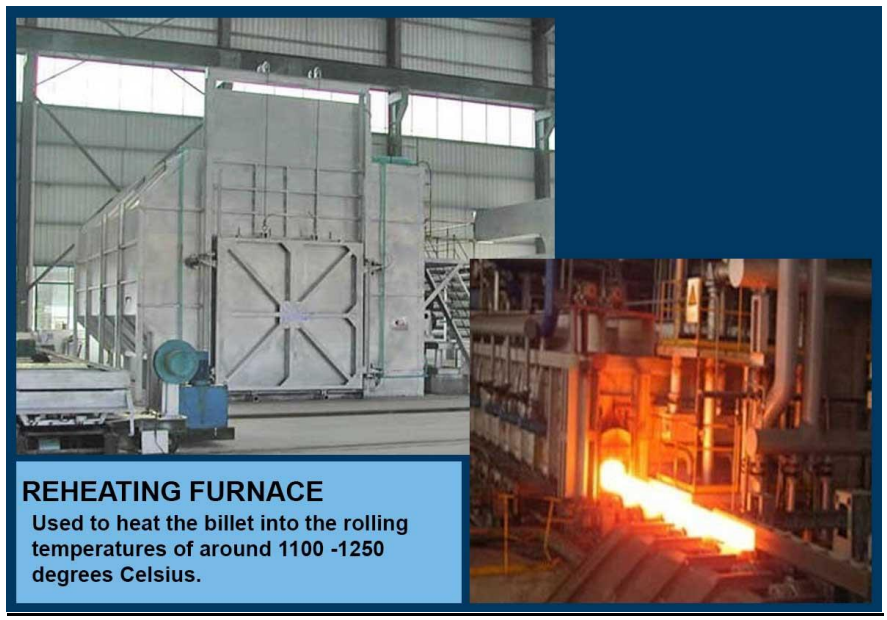


Figure 1.4 – Operation Process Flow

Process/Technology Selection:

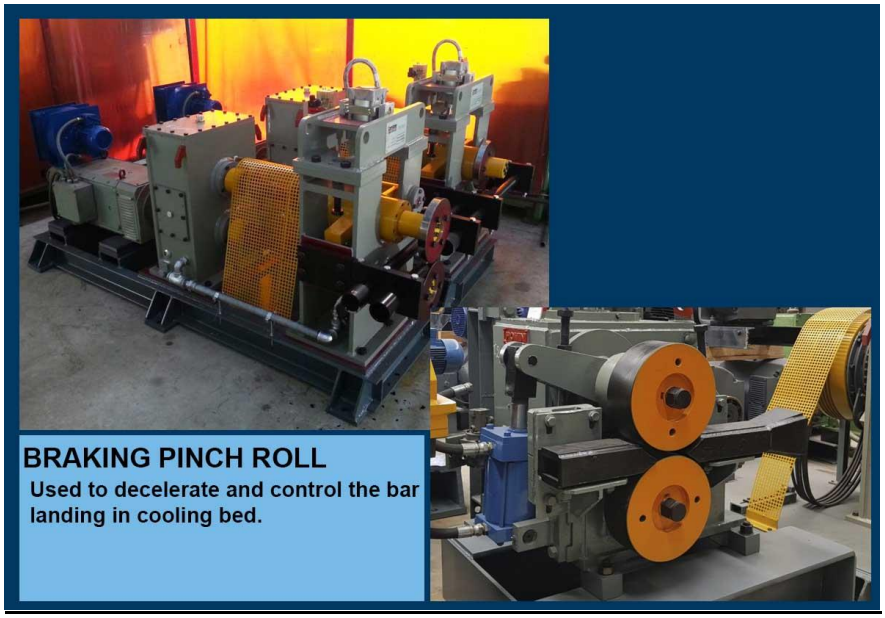
Below are the illustrations of the process/technology selection involved in a Rolling Mill Plant.





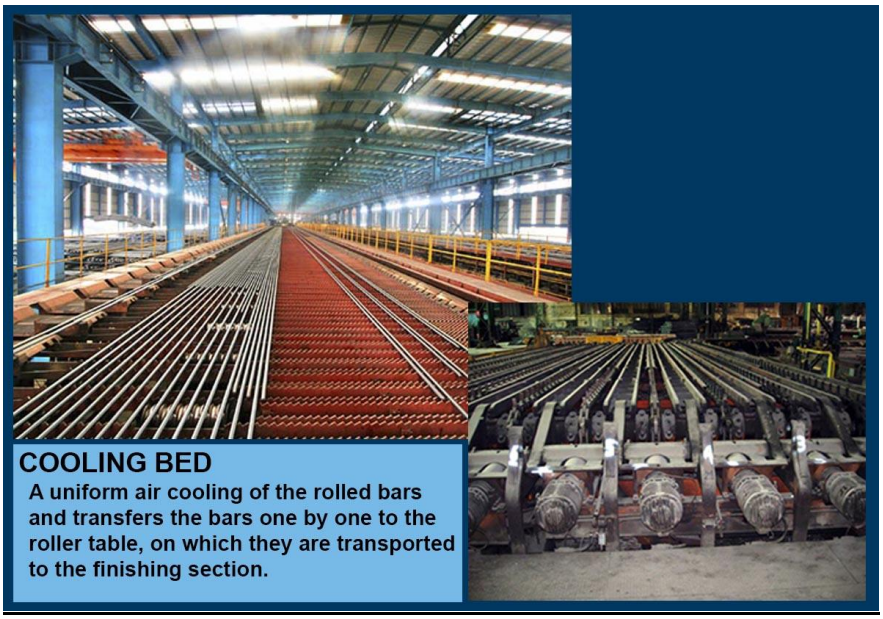
DIVIDING SHEAR

The rolled billet is pre-cut in dividing shear due to cooling bed limited length capacity.



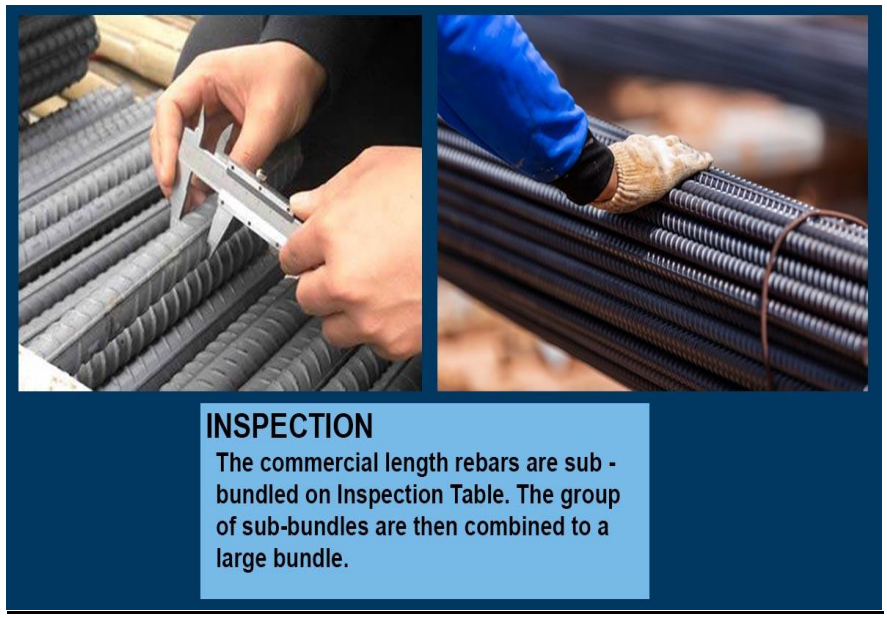
BRAKING PINCH ROLL

Used to decelerate and control the bar landing in cooling bed.



COOLING BED

A uniform air cooling of the rolled bars and transfers the bars one by one to the roller table, on which they are transported to the finishing section.



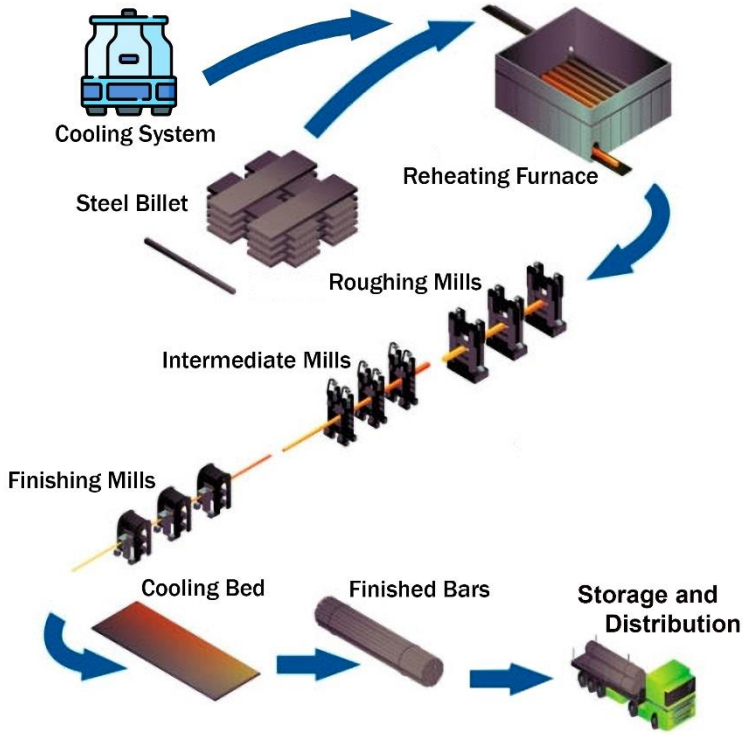


Figure 1.5 – Reinforcement Bars Production Process

Resource Utilization:

The following are the techniques adopted to efficiently use the resources of the steel bars operation:

Raw materials (Billets) – the main billet supplier are local and international suppliers.

Energy – the main electricity provider for United Far East is the Manila Electric Railroad and Light Company (MERALCO) and didn't need an alternative source of power due to its availability on site. The electrical system will adapt and abide by the provisions of the National Electrical Code of the Philippines (NECP) to secure the safety of the users and the facilities with the application of energy conservation and proper power distribution.

Water - the water supply of the United Far East is through deep wells with permits from the National Water Resources Board (NWRB) alternative sources, such as:

- Rainwater harvesting, and
- Prime Water Infrastructure Corp. as a local utility provider

1.3.2. Comparison of Environmental Impacts

Compared to the “No-project scenario”, the proposed project will have environmental impacts such as possible pollution of air, water, land and probably effect on the people. However, as proposed, there will be corresponding mitigation measures that will be employed to avoid the possible aspects and impacts and protect the environment.

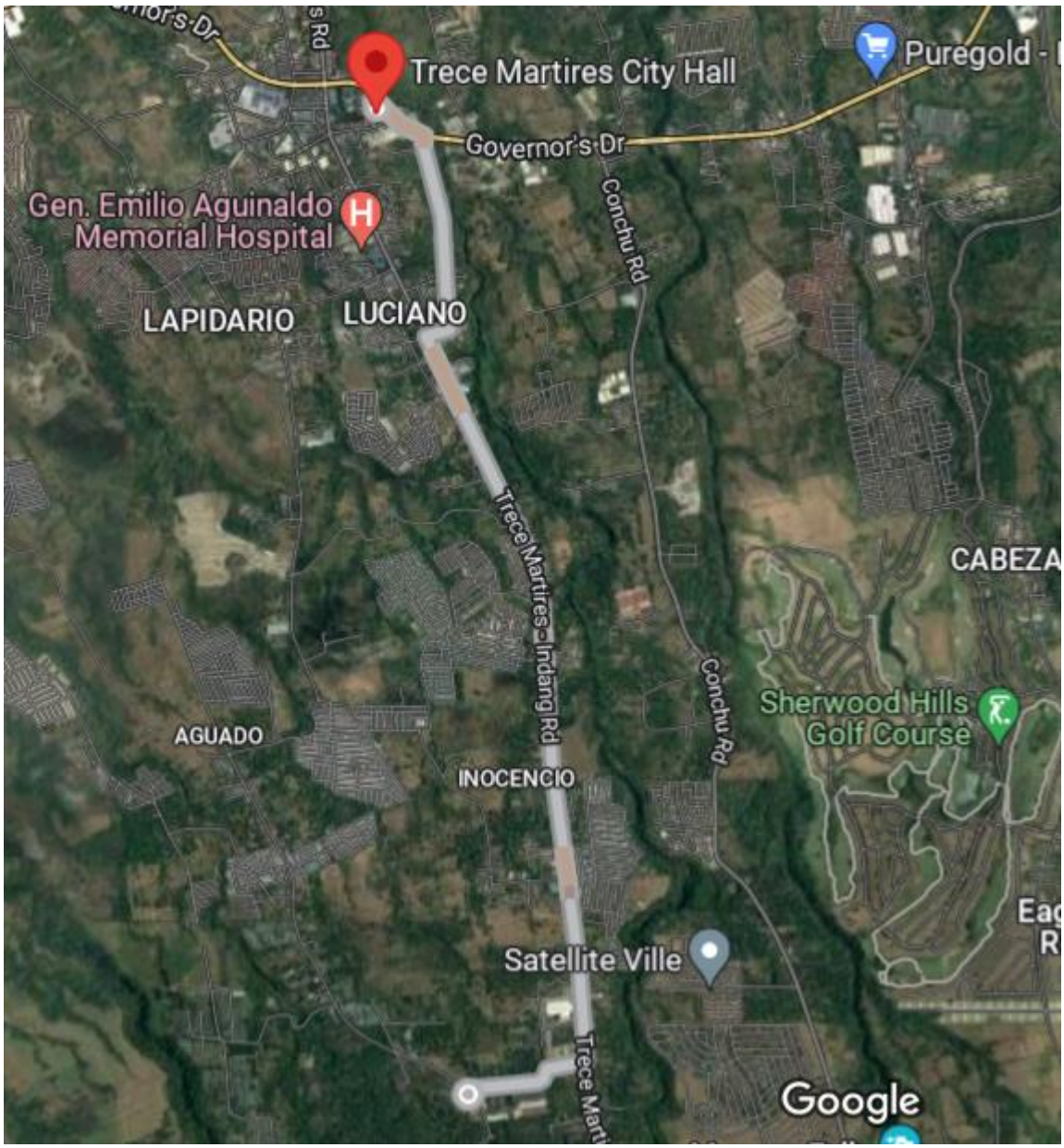


FIGURE 1-4 is the Coordinate Map of Site and Municipality of Trece Martires

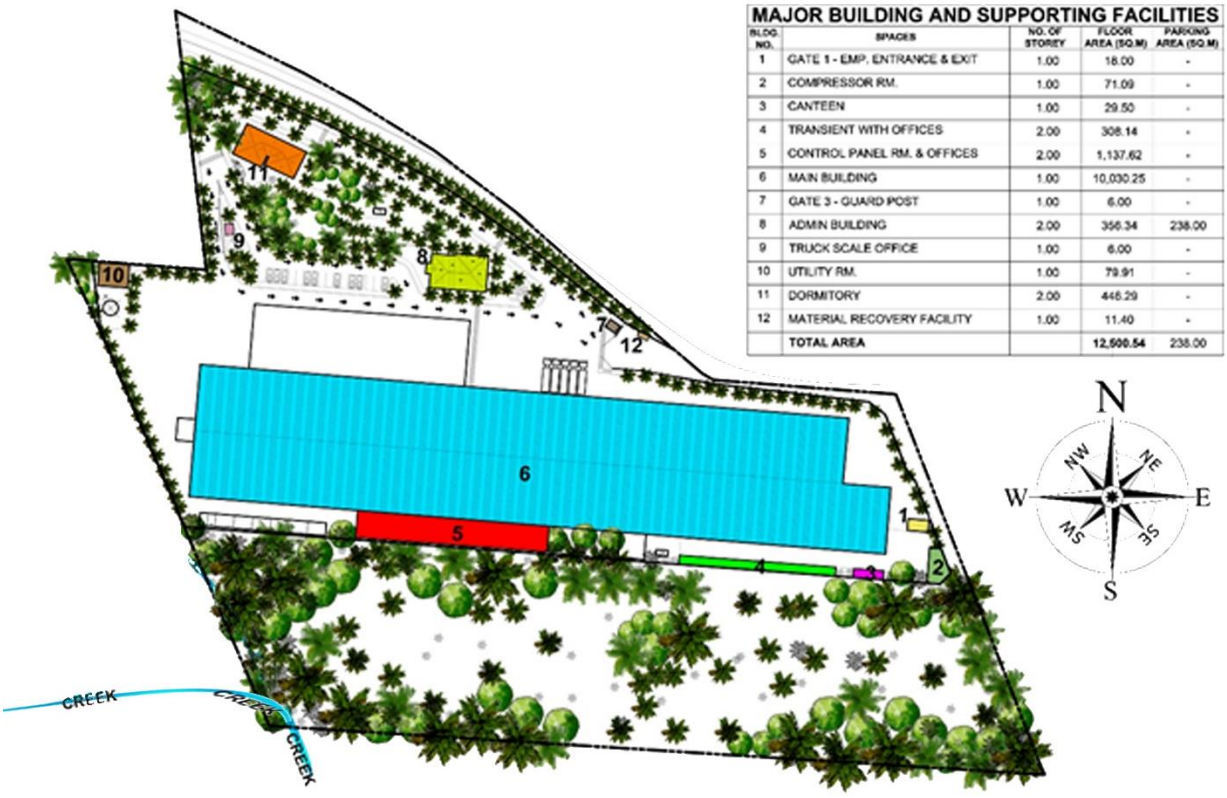


FIGURE 1-5 is the Facility Plant Layout

1.4. Project Components

1.4.1 General Layout of Facilities

The Project will be developed to be efficient and environment friendly. It will use an advance processing technology.

The energy requirements of the plant management and operation will be source from a local utility provider. While the water supply requirement will be coming from the deep-well water source within the project site.

TABLE 1-1 PROJECT COMPONENTS/FACILITIES DESCRIPTION

Facilities	*No. of Units*	*Area (sq.m.) & capacity (tons /hour)*	*Specification / Description*
1. Major Component			
Material storage facilities for:			
a. Raw Material: Billet yard	1	1,591.20 m^2	A yard/storage for billets.
b. Fuel, lubricants and similar materials: Fuel farm	1	11.40 m^2	An area designed for the installation of bulk fuel storage tank and its related equipment.
c. Finished product: Storage area	1	1,5900 m^2	This area is for the storage of finished products.

Processing facilities:			
a. Processing: rolling mill line);	1	1,313.74 m^2	Rolling mill line is a metal forming process which composed of roughing mill, intermediate mill and finishing mill, in which the billet passed through to reduce the thickness and to achieve the desired diameter.
b. Finishing (e.g. sorting, filling, packaging, assembly etc.) -packing house /loading area	1	280 m^2	This finished product has different sizes ranging from 20 mm Ø to 40 mm Ø.
2. Support Facilities / Infrastructures:			
a. Administrative office/ canteen / staff & quest quarters/ clinic	12	922.80 m^2	1 – admin building with a clinic 2 – canteens 4 – dormitories 5 – locker & shower room
b. Truck scale room / truck-scale	2	69 m^2	This area is provided to have a min. of 6 m^2 scale house and a truck scale.
c. Switch yard/substation	1	288 m^2	The distribution utility is under MERALCO
d. Power room: Generator Room	1	77.65 m^2	A generator set or Genset is a combination of a prime mover and an alternator. This engine converts the chemical energy of a fuel to mechanical energy, then mechanical energy is used to spin the alternator motor; converting mechanical energy to electrical energy
e. Rooms: -water pump -air compressor	2	165.74 m^2	
f. Machine shop	1	65.98 m^2	
g. Payloader Parking/Motor pool		100 m^2	
h. Parking	2	400 m^2	1 – Admin parking area 1 – Truck parking area
i. Guard house	2	57 m^2	Two guard houses are provided for: 1 – employee's entrance & exit 1 – vehicles entrance & exit
j. Motorcycle parking	1	150 m^2	1 – Employees' parking area
k. Water closet / CR			Every facility has provided water closets.
3. Pollution Control Facility / Waste Management Facility:			

a. Domestic wastewater treatment facility -Cistern tank; -WTF	2		Septic tank Water Recycling System must be schematically illustrated
b. Solid waste management facility for:			
i. Domestic solid waste -MRF	1	11.40 m^2	Materials Recovery Facility
ii. Process solid waste: a. toxic and hazardous; b. non-toxic and non-hazardous			Disposal thru 3rd party DENR-accredited Treaters
c. Air Pollution Control Facility: Chimney	1	19.64	
4. Drainage System:			Drainage for rainwater outflow from UFE will be through the Barangay drainage system
Total Area of all facilities ***Open Spaces*** ***Total Area of Project Lot***		**44,560**	

UTILITIES/REQUIREMENTS (Operation Phase):

Utilities	**Estimated Demand / Consumption (Total)**	**Source Breakdown**	**Projected Amount from Source specified**
Power/Electricity	5 MW	MERALCO	P8,000,000.00
Water	312 m^3	DEEP WELL	P5,200.00

a. Process /Technology

- Reheating Furnace – are used to the billet into the rolling temperatures of around 1100 - 1250 degrees Celsius. Reheating furnace is a continuous process where the billet is heated in the furnace, and the heat will be transferred to the billet during its traverse through the furnace mainly by means of convection and radiation from the burner gases and the furnace walls. The target exit temperature of the billet is governed by the requirement of the process of rolling which is dependent on the rolling speed, billet dimension, and steel composition.

- Roughing Mill - Usually consists of one or two roughing stands in which the billet is hot rolled back and forth 5 or 7 times repeatedly to reach the minimum diameter requirement.

- Intermediate Mill - It consists of two stands, which are horizontally arranged.

- Finishing Mill - The final shaping stage of a hot rolling steel bar is composed of six stands. Where at the entry, the temperature of the steel bar is measured and at the exit, both temperature and thickness are measured.

- Cooling Bed - A uniform air cooling of the rolled bars and transfers the bars one by one to the roller table, on which they are transported to the finishing section. A cooling bed carefully moves and cools the hot steel rolled bars after the hot rolling process.

- Finished Bars/Finished products have different sizes ranging from 20 mm Ø to 40 mm Ø.

- Storage and Distribution

1.5.2 Description of the Pollution Control Devices and Waste Management System

Waste Management System

The proposed project adopts a waste management system in which the waste produced is efficiently recycled so that amount of material resources to be use is reduced. This will result to a sustainable and environment friendly usage of natural resources and will also reduce the burden of waste disposal considerably.

Waste management is the actions required to manage waste from its inception to its final disposal. This includes collection, transport, treatment and disposal of waste together with monitoring and regulation. Waste management methods such as reduction and reuse, recycling and composting are implemented.

Domestic waste management that are being generated by the different support facility shall be manage by providing the following:

Domestic Waste Water	Provision of Three (3) chamber septic vault with close bottom form the collection of waste water being generated by the employee's occupying the dormitories, offices and other facility
Solid Waste Management	Solid waste collected that are being produced and generated by the different facility shall be stored in the Materials Recovery Facility (MRF), disposal shall be with accredited hauling and waste disposal companies.
Hazard Waste Management	Hazard waste being produced and/or generated shall be stored in a close facility and storage units shall be clearly labelled, disposal shall be with accredited Hazardous Waste hauling and disposal facility.

Industrial Process Water

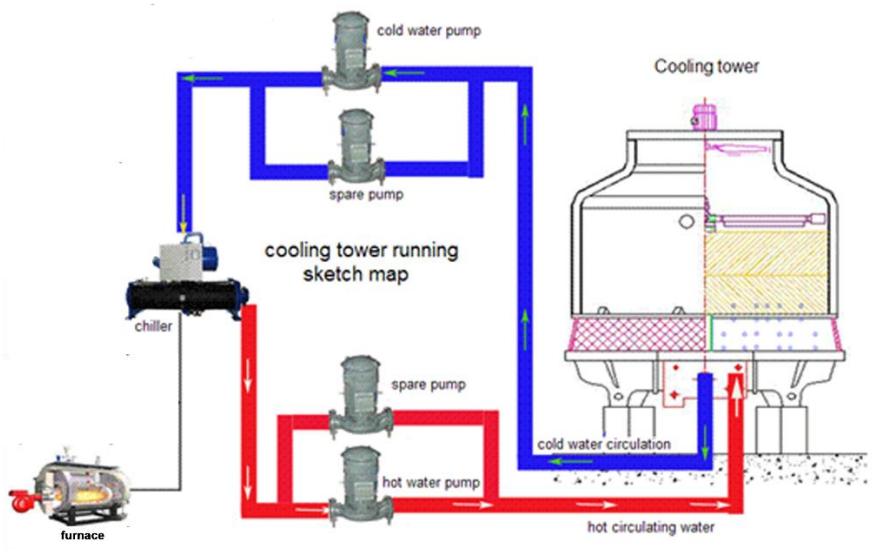


Figure 1.6. Cooling System Cycle

Cooling System

A cooling system is a mixture of coolant and water flows constantly to reduce the heat temperature inside the motor.

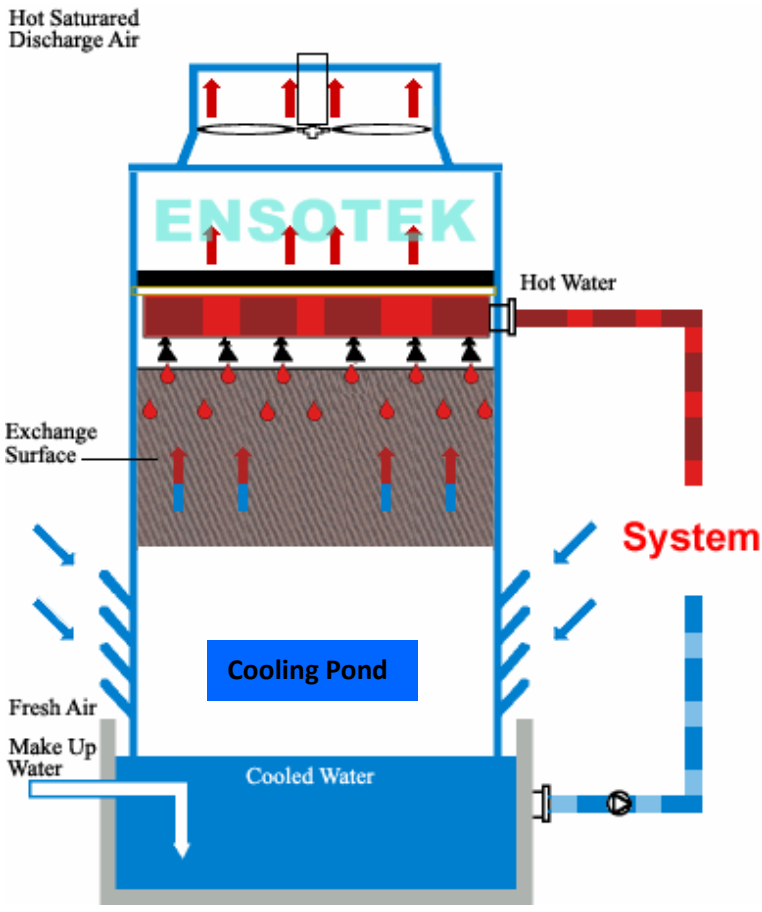


Figure 1.7. Cooling Tower Process

Cooling Tower

A specialized heat exchanger in which air and water are brought into direct contact with each other in order to reduce the water's temperature. A small volume of water is evaporated and reducing the temperature of the water being circulated through the tower.

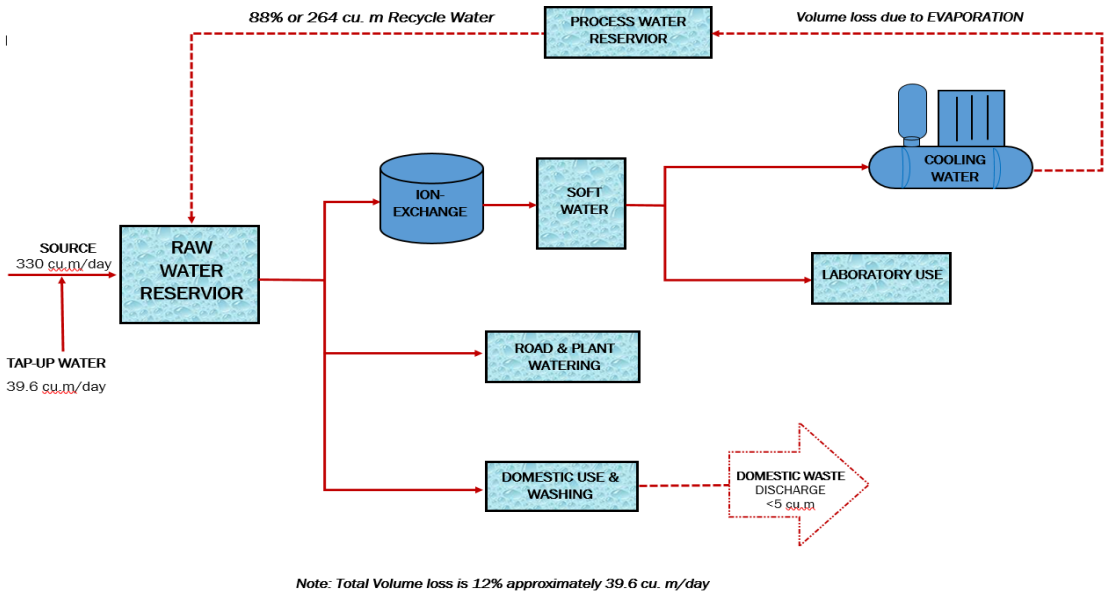


Fig. 1.8. Water Balance showing recycling stream

1.5.3 Description of the Operation and Maintenance Facility

The proposed manufacturing of steel bars will operate at a demand and supply basis. With the increasing competition in steel bars industry nowadays, lowering the product cost has become the main goal of every producer. An effective measure to reduce the production cost is by optimization of steel bars mill operations; Such that steel mill system efficient operations will be done through running the system on its optimum capacity. Since optimization implies high energy saving potentials.

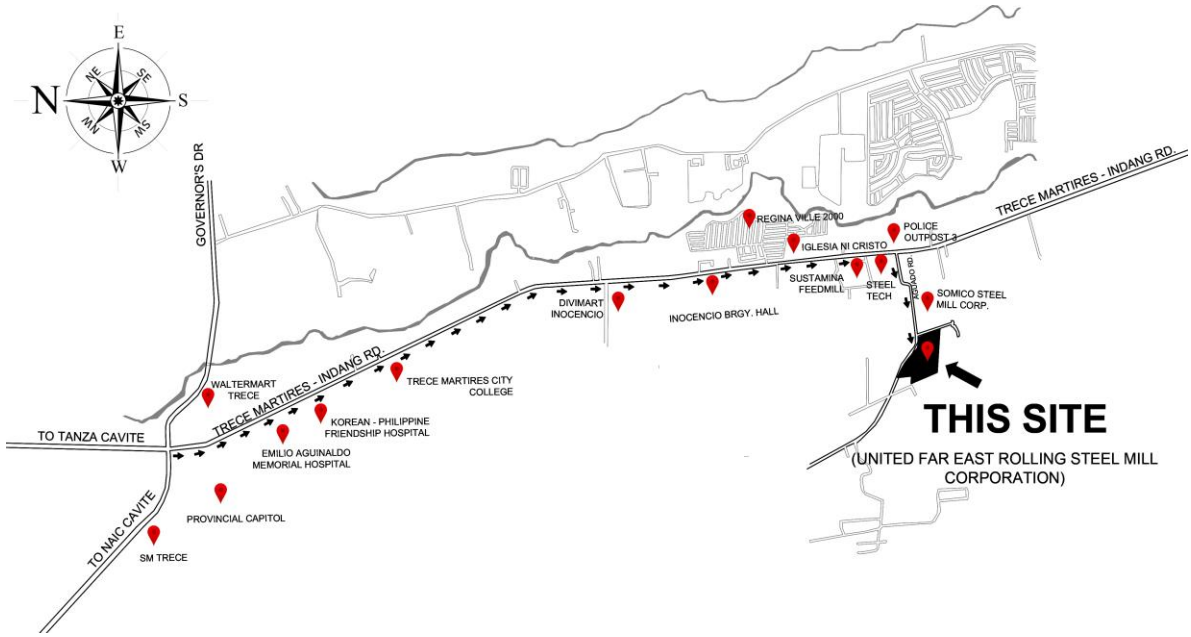
Thus, Maintenance Program is adopted in order to increase profitability by improving reliability and achieving high productivity and availability of equipment. It is the actions necessary for retaining or restoring a piece of equipment, machinery or system to the specified operable condition to achieve its maximum useful life. The objective is to maximize the performance of equipment by ensuring that the equipment function regularly and efficiently. Also, to increase profitability by minimizing the losses incurred by breakdowns or failures.

Preventive Maintenance will be done to manage the equipment or machinery maintenance needs, to define the type and frequency of each maintenance task. It is performed at schedule intervals such that each cycle repeat based on its intervals. Consequently, this maintenance approach requires planning, to ensure that company staff always have the knowledge, manpower and parts on hand to give equipment the attention it needs. Thus, maintenance must be controlled in a way that the equipment is stopped for maintenance in a planned stoppage schedule in order to achieve the high level of productivity and quality of product.

b. Project Size

The project will be located in a total lot area of 44,560 square meters in Brgy. Aguado, Trece Martires, Cavite with a zoning classification as Industrial Zone.

700,000.00 MTPY Production of variable sizes of steel bars, ranging from 10mm to 40mm.



Development Plan, Description of Project Phases and Corresponding Timeframe

The following is the proposed schedule of activities of this Project from pre-construction to operation:

Project Phase	Proposed Schedule	Duration
Pre-construction	May 2020 – December 2022	8 months
Construction	January 2023 – June 2023	6 months
Commissioning	June 2023 - onwards	-
Commercial Operation	September 2023 - onwards	-

c. Development Plan, Description of Project Phases and Corresponding Timeframe

The following is the proposed schedule of activities of this Project from pre-construction to operation stage:

Project Phases, Key Environmental Aspects, Wastes, Issues, Built-in-Measures		
Major Activities **Description / Details Key Environmental Aspects or Activities**	**Potential Impact, Nature, and Estimates of Major Emissions**	**Impact Mitigation, Built-in Management Measures, and Facilities Planned**
Preconstruction Phase		
Land	Land use compatibility	Secure reclassification of land use and zoning to industrial use from Municipal/City Zoning unit
Construction Phase		
Generation of domestic solid waste and waste-water and hazardous wastes	• Contamination of soil and water quality • Accumulation of solid wastes	• Proper disposal and regular hauling of garbage • Provision of Materials Recovery Facility (MRF) • Proper segregation and disposal of hazardous materials • Provision of hazardous waste storage area • Provision of 3-chambers septic tanks and implementation of septage management
Construction of Main Production Building	Air emissions (TSP, PM10, PM2.5, SOX, NOX) and noise pollution from equipment and vehicles	• Regular water spraying and sprinkling on earth and gravel roads • Training on proper equipment and vehicle use • Regular and proper equipment and vehicle maintenance • Implementation of Reforestation, Carbon-sink, and Noise Reduction Program through tree planting within the perimeter and to open spaces
Construction of Support Facilities; Cooling Pond, Fuel Farm, and Wastewater Treatment Facility	Air emissions (TSP, PM10, PM2.5, SOX, NOX) and noise pollution from equipment and vehicles	• Regular water spraying and sprinkling on earth and gravel roads • Training on proper equipment and vehicle use • Regular and proper equipment and vehicle maintenance • Implementation of Reforestation, Carbon-sink, and Noise Reduction

		Program through tree planting within the perimeter and to open spaces
Handling, Storage, and Transportation of Construction Materials	Health and safety hazards	• Proper use of PPEs • Health and safety policies • Regular safety inspections and meetings • First aid training
Operation Phase		
MMT Formation, SDP, and IEC	Regular monitoring	Creation and regular meetings
Rolling Mill Operation	Water pollution	• Provision of Rainwater Harvesting • Provision of Water Treatment Facility • Zero discharge of water used in the production process
	Employment generation	Prioritization of qualified residents of Brgy. Aguado and City of Trece Martires for employment and hiring
	Generation of hazardous wastes such as used oil, busted bulbs, and contaminated rags and gloves	Strict implementation of proper collection, storage, transportation, and disposal shall only be through an accredited TSD facility
	Air emissions and noise pollution	• Training on proper equipment use • Regular water spraying and misting, use of enclosures, barriers, and buffer zones • Regular ambient air and noise monitoring • Implementation of Reforestation, Carbon-sink, and Noise Reduction Program through tree planting within the perimeter and to open spaces
	Generation of rolling steel mill scales	For collection and storage and to be recycled and sold to a steel smelting facility
	Increase in Economic Opportunities	• Proper payment of taxes • Provision of social development programs
Abandonment Phase		
Removal of Wastes	Change in land use	• Grading and stabilization works • Planting of bearing fruit trees

d. **Manpower Requirements**:

Project/Development Phase	Skilled		Unskilled		TOTAL		OVER ALL
	M	F	M	F	M	F	
Pre-construction/Pre-operational	1	2	2	2	3	4	7
Construction/Development	20	15	40	22	60	37	97
Operational	50	11	95	17	145	28	173
Abandonment Phase	10	5	30	25	40	30	70
Grand Total							**347**

Skilled Workers for Construction:

- Welders
- Scaffolders
- Insulation Installers
- Fitters
- Carpenters
- Painters
- Erectors
- Electrical Technicians
- Fabricators
- Plumbers
- Electrical Installers
- Machinist
- Crane Operator
- Mechanical Installers
- Mason
- Rigger
- Heavy Equipment Operator
- Foreman

Skilled Workers for Operation:

MANPOWER REQUIREMENTS FOR ROLLING MILL				
ITEM NO.	**NAME**	**MANPOWER PER SHIFT**	**NO. OF SHIFTS**	**TOTAL MANPOWER**
A.	**MATERIAL DEPARTMENT**			
	MATERIAL MANAGER	1	1	1
	SUPERVISOR	1	2	2
	WEIGHER/RECEIVER	1	2	2
	INSPECTOR	1	2	2
	CRANE OPERATOR	1	2	2
	ISSUING CLERK	1	2	2
	RECEIVING CLERK	1	2	2
	ENCODER	1	2	2
	SUB-TOTAL	**8**		**15**
B.	**PRODUCTION DEPARTMENT**			
	PRODUCTION MANAGER	1	1	1
B. 1.	**PRODUCTION SECTION**			
	SUPERVISOR	1	2	2
	OVERHEAD CRANE OPERATORS	3	2	6
	REHEATING FURNACE OPERATORS	2	2	4
	ROLLING MILL OPERATORS	5	2	10

	PULPIT OPERATORS	2	2	4
	COOLING BED CREW	4	2	8
	BUNDLERS	4	2	8
	SUB-TOTAL	**22**		**43**
B. 2.	**QUALITY CONTROL SECTION**			
	SUPERVISOR	1	2	2
	LABORATORY OPERATOR	1	2	2
	LINE QUALITY OPERATOR	2	2	4
	SUB-TOTAL	**4**		**8**
C.	**ENGINEERING DEPARTMENT**			
	MAINTENANCE MANAGER	1	1	1
C. 1.	**MECHANICAL SECTION**			
	SUPERVISOR	2	2	4
	CAD OPERATOR	1	2	2
	MAINTENANCE TECHNICIAN	4	2	8
	CRANE MAINTENANCE CREW	2	2	4
	MOTORPOOL			
	WASTEWATER PLANT MAINTENANCE CREW	1	2	2
	WASTEWATER OPERATOR	1	2	2
	SUB-TOTAL	**12**		**23**
C. 2.	**ELECTRICAL SECTION**			
	SUPERVISOR	1	2	2
	MOTORS MAINTENANCE TECHNICIAN	1	2	2
	ELECTRICAL TECHNICIAN	4	2	8
	SUB-TOTAL	**6**		**12**
C. 3.	**CIVIL SECTION**			
	SUPERVISOR	1	2	2
	CAD OPERATOR	1	2	2
	FOREMAN	1	1	1
	CARPENTER/MASON	1	1	1
	LABORER	2	1	2
	SUB-TOTAL	**6**		**8**
C. 4.	**WORK-SHOP SECTION**			
	SUPERVISOR	1	2	3
	MACHINIST	2	2	4
	PIPEFITTER	2	2	4
	FABRICATOR	2	2	4
	WELDER	2	2	4
	HELPER	2	2	4
	SUB-TOTAL	**11**		**23**

D.	**ADMINISTRATION DEPARTMENT**			
	ADMINISTRATION MANAGER	1	1	1
D. 1.	**PERSONNEL & RECRUITMENT SECTION**			
	PERSONNEL CLERK	1	1	1
	EMPLOYEE BENEFITS CLERK	1	1	1
	SUB-TOTAL	**3**		**3**
D. 2.	**GENERAL SERVICE DEPARTMENT**			
	UTILITY PERSONNEL	2	2	4
	DRIVER/AUTO MECHANIC	1	1	1
	SECURITY	6	2	12
	SUB-TOTAL	**9**		**17**
E.	**ENVIRONMENT, HEALTH & SAFETY**			
	POLLUTION CONTROL SAFETY OFFICER	1	1	1
	SAFETY OFFICER / COMPANY NURSE	1	2	2
	STAFF	2	2	4
	SUB-TOTAL	**4**		**7**
F.	**WAREHOUSE & DISPATCHING DEPARTMENT**			
	WAREHOUSE MANAGER	1	1	1
	OVERHEAD CRANE OPERATOR	2	2	4
	RIGGER/DRIVER	2	2	4
	INVENTORY CONTROL CLERK	1	2	2
	SUB-TOTAL	**6**		**11**
G.	**ACCOUNTING DEPARTMENT**			
	ACCOUNTING MANAGER	1	1	1
	ACCOUNTING CLERK	1	1	1
	AUDIT STAFF	1	1	1
		3		**3**
	GRAND TOTAL	**94**		**173**

e. **Project Cost**:

The capital investment to establish and operate the rolling steel mill facility to be determined.