EXECUTIVE SUMMARY

For Expansion of Existing Steel Plant for Integrated Steel Plant with Iron Ore Beneficiation (3.36 MTPA), Pellets (3.205 MTPA), Sponge Iron (1.848 MTPA), Billets / MS Slab /MS Bloom (2.881 MTPA), TMT bars/Angles/Sheets/Pipes (2.8298 MTPA), Ferro Alloys (0.216 MTPA), Pig Iron (0.28875 MTPA) and Captive Power Generation (348 MW) along with a private siding At Plot Nos. A-24, A-25, A-30, A-31, D-14 and private land over an area of 123.077 Ha At MIDC Chandrapur Tadali Growth Center, Maharashtr

By M/S GRACE INDUSTRIES LIMITED Tadali Growth center, chandrapur- 442406



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EXECUTIVE SUMMARY

INTRODUCTION

M/s Grace Industries Ltd. has obtained Environmental Clearance from SEIAA, Maharashtra for setting of secondary steel plant for production of billets (18000 Tonnes/Month), Rolled Products (18000 Tonnes/Month) and Ferro-alloys (6000 Tonnes/Month) at plot nos- A24 and A30, over an area of 25.04 ha. The Consent to Establish was also obtained from the Maharashtra Pollution Control Board (MPCB) on 24.07.2019 and construction of the plant is in progress.

Subsequently, the proposed project of M/s Grace Industries Ltd has been taken over by new management which is headed by Shri Rajendra S. Bharuka, an industrialist from Jalna, Maharashtra.

Now, the new management further acquired an additional MIDC area, i.e., plot nos. A25, A31 and D14 along with Private Land, totaling 123.077 ha and proposed to set up an integrated steel plant in the area, within the MIDC Tadali Industrial Growth Centre, Chadrapur, Maharashtra. The proposal involves installation of 3.36 MTPA iron ore crushing and beneficiation plant, 3.205 MTPA pellet plant (with 78400 Nm3/Hr Coal Gasifier Plant), 8X700 TPD DRI plant (1.848 MTPA sponge iron production) along with 348 MW Captive power (120 MW [4 X 42 MW from DRI and 1 x 20 MW from MBF] WHRB along with 160 MW AFBC, 16x 40 T Induction Furnace for production of 2.881 MTPA Ingots/Billets with matching CCM for production of 2.8298 TPA MT Bars / Angles / Sheets/Pipes, 4 x 16.5 MVA SAF to produce 21600 TPA Ferro Alloys (24000 TPA HC FeCr; 36000 TPA FeMn; 12000 TPA SiMn) and 2,88,750 TPA Pig Iron from 1 x 350 M³ MBF with matching BOF by M/s Grace Industries Ltd at MIDC Plot Nos. A-24, A-30, A-31, D-14 & adjacent Private land with Overall area of 123.077 Ha at MIDC, Chandrapur Tadali Growth Center, Chandrapur, Maharashtra along with a private Railway siding on the private land acquired adjacent to the north boundary connecting

the existing siding. Therefore, feasibility of the project has been revised with the salient features of the proposed facilities as given below. However, construction of the Ferro Alloys' plant will be continued for which EC and CTE have been accorded in plot no 24. Along with it adjacent to the proposed SAFs, another two similar capacity SAFs shall be installed to optimize the space and maximize the production capacity.

IDENTIFICATION OF THE PROJECT

The Project exist over an area of 25.04 Ha on Plot No A-24 & A-30 in MIDC Tadali Industrial growth Centre, Chandrapur. The proposed expansion is addition of plot no A-25, A-31, D-14 along with private land with an area of 123.077 ha. at the same industrial complex. The project intends to have a backward and forward integration for an integrated steel plant with beneficiation/palletization up to hot metal and finished products of bars, angles, sheets and pipes of 2.8298 MT capacity. This has peripheral addition of ferro alloys production capacity of 216000 TPA for economic viability along with a private siding extended from the extended siding of the plot no -31. This area is directly accessible to industrial road connecting SH – 264. The nearest village is Yerur at a distance of 1.0 Km and nearest business hub as well as council at Chandrapur at a distance of 11.5 km via SH-264. All amenities and facilities are available at Chandrapur such as Hospitals and Dispensaries, District Headquarters, Police Station, Schools, Colleges and Technical Institutes.

The site is located within MIDC Growth Centre at Tadali, Chandrapur, Maharashtra and spread over an area of 123.077 ha. The project area is bounded by Coordinates of Latitude & Longitude 20°51'1.85" N & 79°10'45.82" E and 19°59'56.74"N & 79°10'40.43"E, respectively and is part of SOI Toposheet No. E44T4. Project site is located at 2.0 km from SH 264. Nearest Railway Station is at Tadali 2.4 km in North direction.

The proposed integrated unit consists of Crossing, Grizzly feeders, Screening, Iron Ore beneficiation and Palletisation unit, filter fresh thickener, DRI, Induction Furnace, Blast furnace, Submerged Arch Furnace, Hot rolling mill units whose raw materials and finished products are to be transported through its own railway siding avoiding transport related pollution as well as traffic issues to a greater extent.

The major raw materials are Iron ore fines, Indian coal, Iron Scrap, dolomite, Quartzite, Lime stone, Bentonite, Chromite, Magnetite, Coke, Carbon electrode and Iron ore lumps etc. in a total tune of 9.70 MTPA to manufacture 2.665 MTPA Hot metal. All the materials are sourced from Bellary, Bhilwada, Nagpur and Bhandara, Yevatamara, Sukinda, Chandrapur, Nagpur located in Maharashtra, Andrapradesh, Odisha and Karnatak states. The Locational advantage for the industries is availability of coal, coke, carbon electrode, Quartzite, Iron scrap from the Chandrapur business hub, which reduces not only the transportation cost but also environmental pollution due to transportation and handling.

The total Power requirement is 320 MW, which will be completely met from the Captive power generation of 340 MW. The water requirement of this project is 5973 KLD with a circulation of 6403 KLD from the waste water generated. The water shall be sourced from MIDC industrial supply. The total man power requirement is 1000-1200 including construction phase from which 65% of the resources will be local from nearby villages within 5 km radius. The estimated Capital Cost of the project is Rs. 5003 Crores with an EMP cost of Rs. 44.63 Crores towards implementation of pollution control measures with monitoring.

The Project is scheduled to be completed within 2 years of all statutory permissions obtained.

PROJECT DESCRIPTION

It is important to note that the SEIAA gave the authorized EC, which was issued on Plot Nos. A-24 & A-30 for a total area of 25.0424 Ha. This firm has been awarded EC on Plot Nos. A-24 & A-30, and they have successfully received CTE for this grant. In lieu of the additional land that was purchased at Plot Nos. A-31 and D-14 within the MIDC, as well as the private land that was purchased adjacent to the MIDC, the total land area has increased to 123.077 hectares, and the new proposition calls for an increased capacity to produce 2.881 metric tonnes per annum (MTPA) of liquid steel from the entire land area by integrating the steel-making process in both directions. In addition to this, it is planned to construct a private siding on the newly acquired private property, which would link to the siding that is already in place in the north. Therefore, this is a Category A project under 3 (a); a) Primary Metallurgical Industry as per the schedule under EIA notification 2006 and thereafter.

Out of 123.077 ha., 25.29 ha. is total built-up area and 49.867 ha. will be developed as a green belt covering more than 40% green belt area, as this area earlier came under CPA as per CPCB guidelines.

The production from unit configuration along with a comparison with earlier proposition & justification is illustrated in Table 1.1 below.

Table 1: Production Details

F	Existing EC with	Proposed Configuration	Proposed Final	Reasons for Proposition
(CTE on Plot No. A-	in	Production Qty	
	4 & A-30 in	A-24, A-30, A-31 & D-	in MTPA	
2	25.0402 Ha	14,with private land in		
		123.077 Ha		

6000 MT per month, Ferro Alloys	3.36 MTPA Iron Ore Crushing & Beneficiation Plant	3.36	This is a proportionate increase in beneficiation based on 3.205 MTPA Pellet requirement for 1.848 MTPA Sponge Iron
18000 MT per Month Billets	3.205 MTPA Palletization (Green Pellets) with 78400 Nm ³ /hr Coal Gasifier	3.205	For 1.848 MTPA Sponge Iron @ 1,4 times the Capacity Pellet is required
18000 MT per Month Hot Rolling Mill for TMT Bars	8 x 700 TPD DRI Kiln	1.848	Addition of 8 x700 TPD new DRI kilns
	188 MW WHRB 160 MW AFBC	348 MW	Existing 2 x 8 MW is to be changed to 4 x42 MW WHRB Power Plant from DRI units and 20 MW from BF Gas. From total consumption of DRI Char and additional.
	16 x 40 T IF	2.665	with 12 Heat, it will give 26,65,200 TPA Hot Metal
	CCM 4 strands each with capacity 2000 TPD Hot Rolling Mill to produce 26,13,800 TPA TMT Bars	2.6138	Replaced with 4 Strands with enhanced capacity from the proposed 2 strands of Rolling Mills.
	4x16.5 MVA SAF to give 24000 TPA HC FeCr; 36000 TPA FeMn, 12000 TPA SiMn (1 No. 10Mt capacity Convertor to convert 36000 TPA HC Ferro Manganese to LC FeMn)	48000 TPA HC FeCr 72000 TPA FeMn 24000 TPA SiMn ————————————————————————————————————	
	1 x 350 M ³ MBF with BOF	2,88,750 TPA	New Configuration added for Pig Iron Production for feeding into Induction Furnace

DESCRIPTION OF THE ENVIRONMENT

The environmental study majorly constitutes air (both meteorological study and air quality assessment), water, noise, soil quality assessment, land use, description of ecology, socio-economic studies, hydro-geological studies and traffic study. The climate of the district can be classified as tropical hot climate with high range of temperature through out of year. Primarily there are two prominent seasons in the district the very hot summer and moderate winter. The summer months are very hot and prolonged while winter is short and mild. The monsoon season starts immediately after summer till late September. The southwest monsoon brings lot of rainfall during rainy season. The precipitation varies 373 mm | 15 inch between the driest month and the wettest month. The average temperatures vary during the year by 13.5 °C | 24.3 °F. The month with the highest relative humidity is August (81.25 %). The month with the lowest relative humidity is May (27.93 %). The month with the highest number of rainy days is July (22.33 days). The month with the lowest number of rainy days is December (0.87 days). Baseline air quality is assessed by taking 9 different locations in the buffer area and recording various data like PM₁₀, PM_{2.5}, SO₂ and NO_X level, periodically. The PM₁₀ were found between 46.5 to 68.4 $\mu g/m^3$ and $PM_{2.5}$ ranges between 17.6 to 31.8 $\mu g/m^3$ respectively. The high value of Particulate pollutant was observed at plant site which can be attributed to industrial activities and vehicular movement. The concentrations of SO₂ and NO_X were found to be in range of 8.6 to 16.3 µg/m³ and 11.5 to 22.5 µg/m³ respectively.

Out of all 6 locations measured for noise levels, the sample collected near to the plant site (N3) was found to be on slightly higher side. The Leq values at this location for day and night time was observed to be varied between 61.8-63.9 and 51.3-56.7 dB(A) respectively, which comes under Core area at Dhariwal Infrastructure backside. The result indicates incidental spike due to project site (construction area) on the day of monitoring. As a mitigation measure, a 10 m width tall plantation on this side of the boundary as well

as in front of the colony area is undertaken from this year onwards, which is anticipated to attenuate the noise levels in this zone.

In study area, water quality has been observed to vary considerably between the sampling locations. Mostly the parameters fall within the permissible limits of drinking water standards. Rain Water Harvesting Scheme shall be adopted to supplement the ground water recharge.

By observing the Soil, it can be found that the pH of the soil is slightly alkaline, which is bit prominent for the location 2 (Near Tadali Village). Moisture content of the soil is varied between 4.9 to 6.3 %, where the highest moisture content was observed for the location 2. The inorganic elements like nitrogen, potassium, phosphorous, calcium, magnesium and chloride content are found to be varied between 140-420 kg/ha, 92-188 kg/ha, 2.5- 3.4 kg/ha, 6.9-9.8 mg/kg, 1.0-6.0 mg/kg and 26.5-53 mg/kg respectively. These values lay between the permissible values and the texture of the soil at all the locations is found to be Black loam, which is a soil mixture that constitutes more clay than other types of rock or minerals.

ANTICIPATED ENVIRONMENT IMPACTS AND MITIGATION MEASURES

Environmental impacts have been anticipated using three steps of impact assessment such as (1) Identification of interactions between activities and environmental receptors, (2) Identification of potentially significant environmental impacts, and (3) Evaluation of all significant environmental impacts. After apprehending the impacts on the environment, various mitigation measures are also been presented under this study.

Under the impact assessment on the land use, it can be anticipated that there will be no significant change in the land use pattern as the whole land of 123.077 ha. comes under the possession of M/s Grace Industries Pvt. Ltd However, heavy machineries will be working on the site for the land development and erection of the plant.

There will be some mitigation factors such as placing of dust bins, filling of excavated soil, collection of waste oil, restoring of top soil through plantation etc. will be followed. After the expansion of the plant various air pollution parameters will be likely to be increased, which can be mitigated through greenbelt development, regular checking of the vehicular emissions and protection of the workers using appropriate PPE equipments like masks, goggles, gloves and shoes as specified for their working areas. Similarly, the anticipated noise problems will be mitigated by lubricating or maintain the vehicles and machineries; and restricting the plant activities (majorly vehicular activities). Moreover, water conservation will be followed strictly to mitigate the anticipated effect on the water table. The anticipated ecological disorders can be rectified by greenbelt development by planting 7000 saplings each year as per the CPCB Greenbelt norms. Apart from the technical studies, impact on the socio-economic practices has also been anticipated and various mitigating factors will be followed to elevate the economic condition of the localities. Additionally, various air management models are generated and various stack emission, fugitive emission and thermal emissions are anticipated; and their management studies are also been presented in this report.

Under the environmental management plan, anticipated solid wastes will be IF slag (266100 TPA): Slag-Crushering unit will be installed. After Crushing slag will be used for Internal Road Construction as well as Village roads' development and rest will be sold to brick manufacturing units as they use it after grinding as replacement of sand., Ferro alloys Slag (95100 TPA): after TCLP test shall be used as alternate construction materials, MBF Slag (91625 TPA): after granulation shall be sent to cement plant, flue dust(201600 TPA): reused in briquette plant, DRI Dust (92400 TPA): shall be used in brick manufacturing unit, WTP Sludge (195 TPA): shall be used in brick manufacturing unit, and STP Sludge (2.54 TPA): shall be Bio composted and used in Green belt development. The hazardous waste shall be collected and stored in separate container in an isolated shed and shall be disposed off through authorized recycles.

Under the health and safety aspects, adequate arrangements are made for preventing the generation of dust, and subsequent diseases or health problem due to the dust will be immediately attended by giving various health services. Besides providing health services, various safety measures will be taken as the prevention act.

ENVIRONMENTAL MONITORING PROGRAM

Environmental monitoring program is a vital process of any management plan. This helps in providing an early warning of any undesirable changes or trends in the natural environment that could be associated with industrial and allied activities and will allow for early implementation of effective corrective measures. In order to monitor the environmental managements an exclusive environmental cell will be actively operated.

- As per the NAAQs Standard and CPCB guidelines monitoring Air, Water, Noise, Soil environmental parameter a plan is being defined in tabular form below and the locations of monitoring stations shall be decided based on local PCB officials and shall be intimated to all respective Statutory authorities.
- Periodic maintenances of pollution equipment's and WTP/ETP/STP shall be carried out with maintenance of monitoring logbook by EHS Department.
- On a yearly basis water and energy audit shall be carried out to understand the usage and justified optimization as a conservative measure.
- Annual environmental audit and hazardous audit before the end of the financial year & shall be reported along with the annual environment status report.
- Proper Coordination between Operation, maintenance and EHS Department shall be done and overseen by the management in order to identify in errors, errors or any statutory violations to be reported for immediate action.
- All departmental heads shall be responsible for Housekeeping of their respective area of operations and report to the higher hierarchy for any fallouts or deviations.

- Online Monitoring Systems shall be implemented of all stacks and two permanent ambient air, quality stations shall be fixed within premises. One is inward & other is windward direction based on annual wind rose diagrams.
- EHS Department will initiate, guide, implement and monitor the green belt development program on a monthly basis.
- Production department shall keep daily record of waste generation along with product and the waste shall be dealt as per the proposed environment management plan.
- EHS Department shall be responsible for timely compliances all statutory for timely compliances all statutory conditions and report the status on a quarterly basis to the management along with PCB/MOEFCC RO/dept. of Environmental & Forest govt. of Maharastra/Regional Officers PCB/Local Industry Development.
- Flow meter shall be installed at all usage points or nodes for measuring the water usage, effluent generation, treatment and optimization water usage.
- There will be at least two monitoring wells for Ground water monitoring within 1 k.m. radius along the ground water flow directions to capture any contamination what so ever from the operations.
- Regular Safety training and evolving guidelines shall be carries out in monthly basis for all workers including contractual labours as well as Departmental Heads.
- All internal roads will either be concretized/ tar folded with shrub planted on either side followed by 2 layers of tall trees all along the plant area.
- Any complete or Grievances from any layers of hierarchy shall be held by its sphere and subsequently in upper hierarchy until the resolution is implemented.
 Based on such compliance it necessary respective SOP and all corporate polices may be revised as a when required.
- Last but not the list the Public Hearing commitments and commitments through corporate environmental responsibilities shall be implemented in consumption

with the management, HR Dept., Environment EHS Department, Local Administration along with people's representatives from the nearby areas.

ENVIRONMENT MANAGEMENT PLAN

Environment Management Plan describes the processes that an organization will follow to maximize its compliance and minimize harm to the Environment. A full-fledged environmental monitoring programme and Environmental Management Cell will be formed at GRACE for efficient execution of environmental protection measures. It is unlikely that the entire monitoring programme is/shall be carried out effectively through a contract with an external agency on a part time basis. However, casual labourers etc. shall be employed for plantation, drain cleaning etc. as and when required.

EMC shall be headed by a senior officer, designated as Manager, Pollution Control. In his day-to-day work he is/shall be assisted by Operational supervisors and assistants. He shall be directly Reporting to the Operation Director and the Management in the cases of Emergency or in any Statutory NCs.

Table 2: Cost of Environment Management Plan

Sl. No.	Description	Estimated Capital Cost, Rs Lakhs	Estimated Recurring cost as per annum, Rs. Lakhs
1	Emission Control	29560	1500
	Engineering		
2	Water & waste water management	550	220
3	Solid Waste	4520	1350
4	Fugitive Dust Control Measures	1650	540
4	Greenbelt Development	2650	85
5	Monitoring	2400	24

8	Contingency Total	500 44630	80 4144
	Others (Rain water harvesting, safety, security, etc.)	300	45
6	Environmental Cell & PR	2500	300

PROJECT BENEFITS

Different benefits like physical infrastructure, social infrastructure, employment generation, and livelihood generation have been discussed in the report. Under the Corporate Social Responsibilities, **M/s Grace Industries Pvt ltd.** shall be devoted to social commitments and will continue to do the same as per the needs of nearby village people. For Corporate Social Responsibility, Various Programs/ Projects related to social & economic development of surrounded area has been planned, which are as follows, Planned for providing Water purifier for Village people, conducting medical camps for Cataract operation, senior citizen check-up, deputing teacher for literacy development to Senior Citizens. Moreover, education, development of technologies, improvement of health care and improvement of quality of living will also be taken care of.

Along with the environmental protection measures through direct and indirect employment around 1500 families shall be benefited from the projects, which not only catter to the employability of the area but also add revenue to the exchequer towards National GDP. The production of steel shall marginally catter to the gap in existing internal steel demand of India. A balance between environment and productivity shall bring sustainable development of the area.