EXECUTIVE SUMMARY

FOR

"Capacity Enhancement of existing steel manufacturing plant"

Project Area: 0.862 Ha.

Capacity: 1,25,000 MTPA of Billets/Ingots

AT LOCATION:

Village Bated, Barotiwala, Teh. Baddi, Dist. Solan, State-Himachal Pradesh

by

M/s Friends Alloys

Project Schedule: 3(a); Metallurgical industries (ferrous & non-ferrous)

Category- 'A'

PREPARED BY



SHIVALIK SOLID WASTE MANAGEMENT LIMITED
(QCI/ NABET Certificate No: NABET/EIA/2023/SA 169 dated
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EXECUTIVE SUMMARY

M/s Friends Alloys is an existing secondary steel based industrial unit located at Village Bated Barotiwala, Teh. Baddi, Dist. Solan, State-Himachal Pradesh. The existing industrial unit has production capacity of **29,625 MT/Annum** of Steel Billets/Angle using MS scrap/Sponge Iron as basic raw material with induction furnace of capacity **12 MT/heat,** CCM and rolling mill.

Now, **M/s Friends Alloys** is planning for capacity enhancement. In the process, the industrial unit will increase its molten metal generation capacity and final rolled product. After proposed enhancement, production capacity of the industrial unit will increase to **~1,25,000 MT/Annum** of Steel Billets/Angles by adding induction furnaces having capacity **18 MT/heat** and installation of one new Rolling mill. The proposed expansion will be done in the existing plant premises only. There shall not be any change in the land area in the proposed expansion planning.

The proposed project planning needs "Environmental Clearance" from the MoEF as per the EIA Notification, 2006. The project is classified under Category A due to "General Conditions" (interstate boundary). This is a Metallurgical Industries (secondary ferrous metallurgical processing), listed as Item 3(a)(c) of the schedule of the EIA Notification.

Water for construction and domestic purpose will be drawn from bore well. Approximately **25 KLD** water will be used for industrial and domestic purposes. Total Power loads will be around **15 MW** to run the entire plant & machinery during Construction and Operational Phase. Expected source is Himachal Pradesh State Electricity Board. Total Plot Area is around **0.862 Hectares**. The expansion of the plant will take place within the existing plant boundary.

Domestic wastewater will be generated as liquid effluent which will be further sent to the septic tank followed by Soak Pit. About 10-15 % of the total raw material used will get converted into slag which is a hazardous waste. Dust from cyclones and Bag filters are

hazardous materials generated on site, which will be managed as per Hazardous Waste Management Handling and Trans Boundary Movement Rules, 2008 & amended thereof. The generated slag & APCD dust will be disposed off in the authorized TSDF site. Total Project Cost will be **Rs. 3255.54 Lacs** (existing & proposed).

SALIENT FEATURE OF THE PROJECT

S. No	Parameters	Description				
1	Identification of project	Project falls under Metallurgical Industries (secondary ferrous metallurgical processing) Item 3(a)(c) of the schedule of EIA notification of Sept 14, 2006, issued by MOEF & CC.				
2	Project Proponent	M/s Friends Alloys				
3	Brief description of nature of the project	The project is for the expansion of the production capacity from ~29,625 MT/Annum to ~1,25,000 MT/Annum (rolled sections) by increased quantity of raw material from 32,000 MT/Annum to 1,36,000 MT/Annum with existing induction furnace of capacity 12 TPH, continuous casting machine and rolling mill and by adding one induction furnaces capacity of 18 TPH and installing new rolling mill within already established premises only.				
4	Salient Features of the Project					
4.1	Proposed plant capacity	~1,25,000 MT/Annum (rolled sections) by using two induction furnaces of capacity 12 MT/heat ad 18 MT/heat, CCM and two rolling				

		mills.			
4.2	Total Plot Area	0.862 Ha.			
4.3	Location	Village Bated Barotiwala, Teh. Baddi, Distt Solan, State-Himachal Pradesh			
4.4	Water requirement	Approximately 25 KLD water will be required during operational phase.			
4.5	Source of water	Groundwater (Existing Borewell)			
4.6	Wastewater	8.7 KLD domestic wastewater will be generated which will be treated in proposed STP of capacity 10KLD. Treated domestic water will be re-used in the green area.			
4.7	Manpower	Around 242 persons.			
4.8	Electricity/Power requirement	Total Power load around 15 MW to run the plant & machinery during Operational Phase. Source: Himachal Pradesh State Electricity Board (HPSEB) In case of Power failure, one existing DG set of 250 KVA Capacity has been provided.			
4.9	Alternative site	The proposed expansion will be done in the existing plant premises only.			
4.10	Landform, Land use and land ownership	Private land, owned by M/s Friends Alloys and Leased land.			
5	Project cost	The estimated cost of the Project is			

	approximately	Rs.	3255.54	Lacs	(existing	&
	proposed expan	ısioı	1).			

LOCATION

The proposed project site is located at **Village Bated, Barotiwala, Teh. Baddi, Dist. Solan, State-Himachal Pradesh.** The coordinate is given in Table below-

Latitude 30°54'46.72"N

Longitude 76°49'38.35"E

The nearest railway station is Kalka Railway station is about 12.90 km. Chandigarh Airport is around 28 km from the project site.

Climate, Rainfall and Temperature

The climate of the district is sub-tropical in the valley and tends to be temperate on the hilltops. There are four major seasons. The winter season commences from November to February and ends in March; summer season extends from March to June, followed by the monsoon period extending from July to September. Maximum precipitation occurs during July to September. Average annual rainfall in the district is about 1140.86 mm, out of which 85% rainfall occurs during June to September. In the winter season, precipitation as snowfall also occurs in the higher reaches up to 1000 m elevation and as rainfall in low hills and valleys of the district. Mean maximum and minimum temperature ranges between 32.2°C (May) and 0.6°C (January).

1.0 AIR QUALITY MONITORING

The main sources of air pollution in the study area are Industrial furnaces, emissions from surrounding industrial units, fugitive emissions from DG Sets, fuel burning for domestic requirements and windblown dust from the open land.

The following parameters were taken into consideration for assessing the air quality-

- Particulate Matter (PM10)
- Particulate Matter (PM2.5)

- Sulphur Dioxide (SO2)
- ➤ Nitrogen dioxide (NO2)
- > Carbon Monoxide (CO)

The following results has been obtained from the baseline study done for ambient air quality.

- Particulate Matter (PM10) Ranges from 62.09-93.06 (μg/m3).
- Particulate Matter (PM2.5) Ranges from 30.81-58.6 (μg/m3).
- Sulphur Dioxide (SO2) Ranges from 4.64-21.5 (μg/m3).
- Nitrogen dioxide (NO2) Ranges from 9.28-42 (μg/m3).
- Carbon Monoxide (CO) Ranges from 0.8-1.10 (μg/m3).

From the summarized monitoring results, it is clear that, in all cases, the 24-hourly average levels of SO2 and NO2 were observed to be within the limit of 80 μ g/m3 for residential, rural & other areas as stipulated in the National Ambient Air Quality Standards. Also, in all cases, the PM10 & PM2.5 levels were within the corresponding permissible limit of 100 μ g/m3 & 60 μ g/m3 respectively.

2.0 NOISE QUALITY

Ambient noise monitoring was conducted to assess the background noise levels in the study area. A total of eight locations within the study area were selected for the measurement of ambient noise levels. Noise monitoring was carried out on a 24-hour basis to assess the baseline noise-levels and to evaluate the impact, if any.

Assessment of noise level was carried out at various places to evaluate the ambient noise level in the industrial, residential, and sensitive areas as well as possible impact due to project activities. The values of noise level, which are recorded lies between **45.8 to 60.5 dB (A)** at **daytime** and **32.5 to 54.2 dB (A)** at **nighttime**. Of these the value of noise was higher at the project site. This is attributed to the presence of machineries and vehicular movement nearby the project site.

3.0 WATER QUALITY

Water samples were collected from ground and surface waters within the study area. The samples were analyzed for physiochemical parameters. The sampling and analysis of water were carried out as per standard methods of water and wastewater analysis (APHA).

- The pH of all the samples lies within the desirable limit and ranges between 7.18 to 7.80 and 7.25 at the project site Hardness of the samples is found in the range of 154 to 186 mg/L and 154 mg/L. Chloride content of the samples range from 14.5 to 19mg/L and 17.2 mg/L at the project site, which are under the desirable limit. Calcium and magnesium content of the water samples varied in the range of 56.2 to 62.1 mg/L and 58.8 mg/L at the project site respectively. Total Dissolved Solids in the samples vary from 295 to 390 mg/L and 360 mg/L at the project site, which is under the desirable limit. Fluoride content of all samples lies in the range of 0.27 to 0.34 mg/L and 0.3 mg/L at the project site. Nitrate content of all samples varied in the range of 2.86 to 3.1 mg/L and 2.80 mg/L at the project site. Sulphate in the water samples lies within the limit and ranges between 23.5 to 28.1 mg/L and 26.5 mg/L at the project site.
- pH of all samples for Surface water is alkaline and range between 7.18 to 7.89. The
 pH of the samples lies within the desirable limit.
- ➤ Chemical Oxygen Demand of the samples ranges from **10.2 to 48 mg/L**: BOD ranges from **3.8 to 7.1 mg/L**.
- ➤ TDS in the water samples ranges from **205 to 370 mg/l**.
- ➤ Chloride content of all samples lies in the range **16.8 to 36.27 of mg/l.**
- Calcium ranges between 35.8 to 65.4 mg/l and Magnesium ranges from 8.8 mg/l to 22.14 mg/l.

4.0 SOIL QUALITY

Soil is our prime natural and economic resource because we derive everything, we need in our life from it. The soil is a natural body of mineral and organic materials differentiated into horizons which differ among themselves as well as from the underlying material in morphology, physical make-up, chemical composition, and biological characteristics.

Soil Monitoring has been conducted during the period October to December 2022. Most of the lesser Himalayan zone is covered by brown hill and sub-mountainous soils. They are productive for agrarian use having combination of sufficient minerals for producing cereal crops, mangoes, and citrus fruits etc. These soils are namely shallow black, brown, and alluvial soils. The bearing capacity of soil is 15 Tonne/sq.m that is suitable for urban development and construction of super structures. Incentives, unscientific soil cutting is a big concern in BBN Special area as shown. This kind of soil-cutting is being/has been undertaken at various prime locations that causing degradation to ecology and surrounding environment. As per Development Plan regulations only 3.50 meter Soil/slop cutting is allowable.

5.0 BIOLOGICAL ENVIRONMENT

Ecological impact assessment (EIA) is used to predict and evaluate the impacts of development activities on ecosystems and their components, thereby providing the information needed to ensure that ecological issues are given full and proper consideration in development planning. Environmental impact assessment (EIA) has emerged as a key to sustainable development by integrating social, economic, and environmental issues in many countries. EIA has a major part to play as a component of EIA but also has other potential applications in environmental planning and management. Ecological Impact Assessment provides a comprehensive review of the EIA process and summarizes the ecological theories and tools that can be used to understand, explain, and evaluate the ecological consequences of development proposals.

6.0 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

6.1 Air Quality

During the construction phase, dust (particulate matter) is expected to be the main pollutant to be emitted from the haul roads, stockpiles, and material handling. In this case, pollution emission sources shall be distributed throughout the project site and will fall

under the category of area source. The land is already developed for industrial work so extensive site formation work is not required. Vehicular emission of SO2, NO2, CO will add onto the air pollution. Movement of vehicles on unpaved roads will also add onto the dust emission. Operation of DG sets will also generate air pollutants like SO2, NO2, CO. Fugitive emissions are envisaged such as dust in construction phase only.

Raw material will be transported in lump form by trucks with covered tarpaulin and finished product will be transported. Hence, no emission is envisaged. Particulate and fugitive emissions might arise from activities like grinding and screening of scrap, DG set activity and by the movement of vehicle.

During the operation phase, there are four major categories of sources of air pollutants, they are:

- Emissions from manufacturing processes i.e., from induction furnaces.
- Fugitive emissions from material handling i.e., from slag metal extraction unit.
- Emissions (NOx, CO, and PM) from vehicular movement.
- Emissions (NOx, CO & PM) from Diesel Generator Set.

Treatment Process

The unit is designed keeping in view of the worst operating conditions. Following equipment are provided with their different functions.

Spark Arrestor

- ➤ Primary Spark Arrestor: Its purpose is to remove large size dust particles and removal of live red hot particles/sparks.
- Secondary spark arrestor: Involute Cyclone is used to remove medium size particles from flue gases stream. This also removes live red hot particles/sparks from the flue gases which are not trapped by primary spark arrestor. The treated flue gases are cleaned in APCD system and discharged to atmosphere through a chimney 30 m in height. The collected dust in APCD will be given for recovery valuable metal.

Ducting

Ducting has been provided in the system not only for conveyance of gases at appropriate velocities but also to reduce the temperature by natural convection.

ID Fan

They have been provided for creating an adequate negative pressure in the system for efficient suction of gases.

Air Stack

It is provided to release the treated gases into the atmosphere through an adequate height of the chimney.

7.0 NOISE QUALITY

Operation of machineries like conveyor, rotating machines during operation and DG sets will result in generation of noise and vibration. The vibration arising out of generator will not have significant impact though it is proposed to shield the generator with an acoustic chamber. Movement of vehicles will also contribute to noise though the generated noise will be insignificant. Heavy machineries and DG sets will be operated during daytime only. The machineries to be used will be serviced and maintained to control generation of noise and vibration. Vehicles used for transportation will be serviced regularly and maintained properly to avoid any generation of unwanted noise. Only PUC certified vehicles will be deployed.

Employees working in noisy environment will be made mandatory to wear earmuffs/ear plugs to avoid any adverse impact of noise on them. Employees exposed to hand vibration while handling/operating heavy machineries will compulsorily wear anti vibration gloves made up of visco-elastic material.

8.0 WATER QUALITY

The sewage generated during the construction and operation phases will not be drained outside the premises but to be collected in a septic tank followed by soak pits. Industrial water will be collected and passed through cooling tower and recirculated.

9.0 SOLID WASTES

Generation of solid waste will be minimum. Generated waste will be sold to recycler. Solid waste management will be done as per MSW 2000 rule & amended thereof.

10.0 LANDFORM QUALITY

Land is already available in plant premises at Village Bated Barotiwala, Teh. Baddi, Distt. - Solan, State-Himachal Pradesh.

11.0 GREENBELT DEVELOPMENT

Development of a greenbelt around the proposed facility mitigates to a certain extent the potential negative impact on the environment due to dust, air emissions, fugitive emission, and noise. A green cover itself acts as containment for dust. Presence of a green belt will lead to micro-climate and soil quality balancing, by retaining soil moisture, recharge of ground water as well as self-control of micro-climate of that area. It also improves the aesthetic value of the area, later on it becomes the natural habitat of various bird species. Development of a green belt around the proposed project site will also help to contain noise generated during construction and operational phases.

- The general considerations involved while developing the green belt are:
- ➤ Generally local/native fast growing trees should be planted.
- ➤ Planting of trees should be undertaken in appropriate encircling rows around the project site.

The trees should be protected by plantation of non-palatable shrub species to avoid browsing by animals.

12.0 ENVIRONMENTAL MONITORING PLAN

During the ambient air quality monitoring, it is observed that the baseline concentration of air pollutants, namely PM10, PM2.5, NO2, SO2, CO and HC are well below the National Ambient Air Quality Standards (NAAQS), it is anticipated that the plant activity will not cause any adverse effect on the existing baseline status with the use of APCD system. Fugitive emissions will be controlled with the following recommended measures:

- > Development of green belt in the plant area.
- ➤ Use of water sprinkling system in haulage roads for dust suppression.
- > Over loading shall be avoided during crushing and grinding of Scrap.
- Proper maintenance of haulage roads, which are being used for transportation of material.

Noise exposure level will be maintained within plant, not more than **85 dB (A)** in the work zone (for 8 hours exposure). The noise level is expected to increase at work zone with commencement of project and other allied activities. The following precautionary measures will be taken to control noise pollution:

- Earmuffs, ear plugs, etc. will be provided to workers when the noise levels exceed **85 dB (A).**
- > The Acoustic enclosures are incorporated for equipment and machineries, which emit high noise levels.
- ➤ Regular maintenance will be carried out for equipment and various machines.
- Plantation will be carried out.
- Sufficient green belt is proposed to control noise level.

Water holding facility will be provided to reuse the water in the process of gravity and settling, whereby all the spent water from washing of scrap will be collected in settling tank and recycled and the wastewater from quenching will also be collected in tanks and passed through cooling towers and thus reused.

13.0 RISK MITIGATION MEASURE

The safety and protection of people, equipment and the environment are a serious concern in the manufacturing industries. Steel Plants have also recognized the significance of safe working environment and are progressively trying to prevent hazardous events, avoid production & manpower losses and other fallouts associated with industrial accidents by conducting risk assessment, onsite & off site management plan and adopting the safety measures as proposed. This also assists industries to enhance employee knowledge of operations, improve technical procedures, maintain accurate process safety information,

and increase overall facility productivity. In metallurgy plant gives an outline of the associated environmental and other risk prone hazards, their assessment, and remedial measures. It also describes an approach to emergency planning to be adopted by the Plant management.

The objectives of environmental risk assessment are governed by the following which includes for measure.

- ➤ Identifying the potentially hazardous areas so that adequate design safety measures can be adopted to reduce the likelihood of accidental events.
- ➤ Identifying the stakeholders and evaluating their risk along with proposing adequate control techniques.
- ➤ Identifying the probable areas of environmental disaster which can be prevented by appropriate design of the installation and its controlled operation.
- Managing the emergency situation or a disastrous event if any, during the plant operation.

14.0 ACTIVITIES OF EMP

EMP performs the following activities:

- ➤ Regular monitoring of stack emissions, fugitive emissions work environment and report any abnormalities for immediate corrective measures.
- > Regular monitoring of ambient air quality at plant boundary and outside the plant in upwind and downwind direction.
- > Regular monitoring of re-circulating water quality, ground water quality and surface water quality.
- Regular noise monitoring of the work zone, equipment and outside the plant.
- > Green belt plantation, maintenance, development of other forms of greenery like lawns, nursery, gardens, etc. in the plant premises.
- Regular monitoring of quantity and quality of solid waste and their reuse options.
- > Development of schemes for water conservation, rainwater harvesting.

15 PROJECT BENEFITS

15.1 Physical Infrastructure

The beneficial impact of the proposed project on the civic amenities will be substantial after the commencement of the project activities. The basic requirement of the community needs will be strengthened by extending healthcare facilities to the community, building/strengthening of existing roads and drinking water facility in the area which will help in uplifting the living standards of local communities.

15.2 Employment Opportunities

The project will create extra opportunities of direct and indirect employment for which skilled and unskilled manpower will be needed. Secondary jobs are day-to-day needs and services to the work force. This will also increase the demand for essential daily utilities in the local market.

15.3 Social Infrastructure

With the implementation of the proposed expansion plant, the increasing industrial activity will boost up the commercial and economic status of the locality, to some extent the socio economic status of the local people will improve substantially.

The required skilled and unskilled laborers will be utilized maximum from the local area. In brief it can be concluded that the proposed activities will not produce adverse impact on sanitation, communication and community health, as sufficient measures have been proposed to be taken under the Environmental Management Plan.

Due to proposed project, the surrounding environment will not face any problems related to the pollution because all kind of wastes will be handled properly and no alteration in transport routes will be required.

The land rates in the area will improve in the nearby areas due to the proposed activity. This will help in upliftment of the social status of the people in the area.

15.4 Corporate Social Responsibility (CSR)

Corporate Social Responsibility (CSR) has been in practice by the big Indian corporations for a considerable period. The goal of CSR is to be responsible for social activities and encourage a positive impact through these activities on the environment, consumers, employees, communities, stakeholders, and all other related spheres. **M/s. Friends Alloys** is committed towards its Social Responsibilities, and it's a pleasure to involve itself in such efforts. There is also a provision for budget of 1 % of total profit to be spent each year for a period of 5 years.

Programmes:

- > Organize Health camps at the regular intervals where the free medical checkups would be done.
- > Education for the children of Labors.
- Providing Insurance for labors.
- > Community toilets will be constructed in nearby areas.
- Professional/trade training will be imparted to educated youth.
- ➤ Availability of ambulance
- Making available good quality books in school libraries.

16 ENVIRONMENTAL MANAGEMENT PLAN

Environmental Management Plan (EMP) is the key to ensure a safe and clean environment. The desired results from the environmental mitigation measures proposed in the project may not be obtained without a management plan to assure its proper implementation & function. Rs. 59 Lacs has been reserved as capital cost and Rs. 6.5 Lacs has been reserved as recurring cost for the implementation of EMP. The EMP envisages the plans for the proper implementation of mitigation measures to reduce the adverse impacts arising out of the project activities. This includes following aspects:

- ➤ Pollution control/mitigation measures for abatement of the undesirable impacts caused during the construction and operation phase.
- ➤ Details of management plans (Greenbelt development plan, Waste management plan etc.)

- Institutional set up identified/recommended for implementation of the EMP.
- ➤ Post project environmental monitoring programme to be undertaken.
- Expenditures for EMP.

17 OCCUPATIONAL HEALTH MEASURES

The health risks are not limited to the external space but are also present in the internal environment, often known as occupational health hazards. Worker exposure to health hazards can be biological, chemical, physical, biochemical or psychosocial in nature. They say that the growth of a company mainly relies on the efficiency of the workforce. Hence, nothing is more important than creating a safe and healthy work environment for the workers. As proper health checkups of all the employees are to be done in every 6 months. Insurance of each and every employee is to be done on proper time intervals.

18 POST PROJECT MONITORING PLAN

As per MOEF&CC and State Pollution Board Guidelines, the post project monitoring plan for measurement and compliance has been prepared for monitoring the air quality, water quality, noise level, soil quality will be adhered to and complied with.