PRE-FEASIBILITY REPORT

for

Proposed 1.5 MTPA Coal Washery

(Wet Process)

Village: Tadali, Tehsil & District: Chandrapur, Maharashtra

Project Proponent:

M/s Vimla Infrastructure (India) Pvt. Ltd.

Regd. Office:
F-4, 1st Floor, Shradha House, Kings Way,
Near SBI Headquater, Nagpur,
Maharashtra 440001

Environmental Consultant:
Pollution & Ecology Control Services, Nagpur
NABET Accredited
October 2018

PRE-FEASIBILITY REPORT

1.0 Summary of the Project

S. No.	Particulars	Description
1.	Name of the Company	M/s Vimla Infrastructure (India) Pvt. Ltd.
2.	Address	F-4, 1st Floor, Shradha House, Kings Way, Near SBI Headquater, Nagpur, Maharashtra 440001
3.	Name of the Project	Proposed 1.5 MTPA Coal Washery (Wet process)
4.	Location of the Plant	Village - Tadali, Tehsil - Chandrapur, District - Chandrapur, State - Maharashtra
5.	Coal Washery Capacity	1.5 MTPA throughput
6.	Washed/ Beneficiated Coal	1.059 MTPA
7.	Solid Waste Generation	Washery reject coal: 0.441 MTPA
8.	Total land requirement for the project	7.50 Ha Private land owned by company
9.	Washing Technology	Wet coal washing Process (Heavy media separation process)
10.	Raw material Sources	E-auction from Coal Mines of WCL in Chandrapur & Wani area, job work for other user industries
11.	Total Water requirement & Source	Daily water requirement: 386 KLD Source: Bore wells
12.	Total Power requirement & Source	2.5 MW **Source:** Maharashtra State Electricity Board
13.	Working hours	3 shifts daily of 8 hr each [Effective 18 hours a day] 335 days a year
14.	Total Manpower	45 persons
15	Estimated Cost of the Project	Rs. **22.0 Crore**
16	Project Schedule	Six Months after getting all the statutory clearances

2. INTRODUCTION OF THE PROJECT/BACKGROUND INFORMATION

(i) Identification of Project Proponent & the Project

M/s. Vimla Infrastructure (India) Private Limited is the incorporated organisation under Companies Act, 1956, established in the year 2006 and at the stage of infancy it has undertaken a challenge to construct a Private Commercial Railway Siding and it has achieved and succeeded in operating the same in the month of January 2007.

M/s. Vimla Infrastructure (India) Pvt. Ltd.has Railway sidings which cater to the needs of the clients with its handling and logistics services currently in the field of coal, cement, iron ore, manganese, gypsum and bauxite inexpensively and quickly. The

company has its first private Railway siding near Siliyari Railway Station, having a distance of around 19 K.M.s from Siltara Industrial Growth Centre, 30 K.M.s from Mandir Hasoud, 60-70 K.M.s from Borai Industrial Area and 70 K.M.s from Silpahari Industrial Area, Bilaspur. Thus catering to the need of Raipur and Bilaspur industrial cluster. And as a Second private siding is located near Bhupdeopur Railway Station having a distance of around 25 KMs from Taraimal Industrial Growth Centre, thus catering to the need of Raigarh industrial cluster. Railway sidings of these locations are governed under South East Central Railway. As a third step the private siding is constructed at Tadali, near the industrial cluster of MIDC, Dist. Chandrapur, Maharashtra under Central Railway.

Now, looking at the prospective of demand for washed coal, availability of raw coal in the vicinity and availability of own railway siding, M/s Vimla Infrastructure (India) Pvt. Ltd, has decided to venture into Coal Washery business. For this, the company proposed to establish a 1.5 MTPA coal washery adjacent to their existing railway siding at Tadali village, Tehsil & District – Chandrapur, Maharashtra state.

Project Proponent:
M/s Vimla Infrastructure (India) Pvt. Ltd.

F-4, 1st Floor,
Shradha House, Kings Way,
Near SBI Headquarter, Nagpur,
Maharashtra 440001

Authorised Signatory:

Shri. Ajit Singh
Designation: Director
Email ID: ajitsingh@vimlalogistics.com
Phone No: 8975755775

Proposed Project:
Looking to the demand of washed coal, company decided to set up a 1.5 MTPA coal washery.

For establishing the coal washery, company has selected own land adjacent to the existing railway siding of the company at Village- Tadali, Tehsil & District - Chandrapur, Maharashtra. An area of 7.50 Ha has been earmarked for the coal washery project.

Cost of the proposed 1.5 MTPA Coal Washery is estimated as approx. **Rs. 22.0 Crore.**

(ii) Brief description of nature of the project

1.5 Million tonnes per annum raw coal with ash content of approx. 40% or more will be sourced from WCL mines located in Chandrapur & Wani area. (on DO basis/through E-auction). Raw coal will be washed to reduce the ash content to less than 34% or as per the customer demand and the washed coal will be supplied to the user industries.

Coal Washery rejects will be given to CFBC based Power plants located in the vicinity of the project. Thus, there will not be any storage of solid waste.

(iii) Need for the project and its importance to the country and or region

In order to meet the demand of energy requirements of all sectors (industrial, commercial, house hold) in the country reliable and quality energy is required. About 70% of country's energy/ power requirement is generated by coal based thermal power plants. Sponge iron plants, steel plants, cement industry etc. also consume coal. Thermal power plants are designed for using certain quality of coal and any deviation in quality of coal will severely affects the performance and efficiency of the plant. Key areas of concern in coal are ash content and inconsistency in quality of coal. The performance and environmental aspects of thermal power plants largely depend on quality of coal used. Due to the above reasons emphasis has been made by Govt. of India to improve quality of coal by beneficiation and use coal with ash content of ≤ 34% in thermal power plants located beyond 500km from coal producing points and also in those power houses situated in environmentally sensitive areas. Due to the above facts there will be good market for washed coal.

Following factors need to be evaluated for need of washing of coal

- Economy in long distance transportation of raw coal
- Poor performance and efficiency of plant using unwashed coal
- Ash management
- Multiplicity of supply sources in many cases add to inconsistency in quality coal

Due to the above facts there will be good market for washed coal.

Benefits of using Washed Coal: Benefits of using washed coal are given below:

- Increased generation efficiency, mainly due to the reduction in energy loss as inert material passes through the combustion process
- Improvement in plant utilization factor resulting in increased plant availability
- Reduced investment costs
- Reduced operation and maintenance (O&M) costs due to less wear and reduced costs for fuel and ash handling
- Energy conservation in the transportation sector and lower transportation costs
- Less impurities and improved coal quality thus reduction in fuel consumption
- Reduced smoke and dust emission thus reduction in load on the air pollution control system
- Reduction in the amount of solid waste that has to be disposed off due to low ash. Due to this there will be reduction in ash disposal area
- Reduction in auxiliary power consumption
- Reduction /elimination in fuel oil support
- Reduction in furnace wall slagging, boiler tube leakage, clinker formation, abnormal erosion etc.

- Improvement in boiler efficiency and reduction in running maintenance of boiler and its auxiliaries
- Reduction in outage/down time in coal mills due to absence of foreign material.

From the above it can be seen that washing of coal will help us in achieving operational efficiency and better performance of thermal plants thus plays a vital role in national as well as regional interest.

(iv) Demand - Supply Gap

The production of coal in India is continuously growing. Year-wise domestic production of coal & import of coal in recent years is summarized in table 1 below:

Table 1. Coal Production and Import (In Million Tonnes)

	2013-14	**2014-15**	**2015-17**	**2016-17**
Production	565.8	608.9(+7.6%)	639.9(+5%)	661.3(+3.4%)
Import	170.2	215.6(+27%)	207.1(-4%)	195.4(-5.8%)
SCCL Production	50.47	52.54(+4%)	60.38(+15%)	61.3(+1%)
CIL production	462.4	494.2(+7%)	538.8(+9%)	554.1(+2.8%)

Source: CMIE and Annual Production report of CIL and SCCL. Figures in brackets are growth rates

In May 2017, the Union Government approved a coal linkage policy known as "SHAKTI" (Scheme for Harnessing and Allocating Koyla (Coal) Transparently in India). The scheme aimed at providing fuel linkage to stressed power producers who had signed power purchase agreements. The scheme also aimed at reducing coal imports up to 50% in FY18 by state-owned power producers.

(v) Imports vs Indigenous production

The government has been pushing domestic thermal power plants to use domestic coal over imported coal. The decreased import of coal is due to higher prices in the global markets. Global coal prices as per World Bank data are at a 5 year high in the range of USD 86-90 (Rs.5,600-5,900 @ current dollar rate) for Australian thermal coal for the month of September. CIL and SCCL sell coal at much lower cost since it is regulated. The lowest grade coal is priced at roughly Rs.2,200 and the highest grade is priced at Rs. 5,300 including transportation and GST. With easy availability of domestic coal at lower prices, the import of coal is reduced as seen in **Table 1.**

(vi) Export Possibility

Not envisaged. Entire washed coal will be used in nearby industries.

(vii) Domestic / Export Markets

There is a huge requirement in both domestic and export for high grade washed coal. The coal will be supplied to nearby steel plants and thermal power plants as per the demand.

(viii) Employment Generation (Direct and Indirect) due to the project

Industrialization uplifts the socio-economic standard of local people surrounding the plant site. Due to installation and operation of proposed coal washery of 1.5 MTPA capacity, considerable employment will be generated. During the construction phase work will be generated for skilled, semiskilled and unskilled construction labors. Technical persons will be recruited during the operation phase. It is estimated to employ 45 persons of various skills during operation phase of the project..

3. PROJECT DESCRIPTION

(i) Type of project including interlinked and interdependent projects, if any.

This is a Standalone project, proposed to be set up to meet the demand of washed coal. The capacity of this Coal Washery is 1.5 MTPA.

(ii) General Location (map showing general location, specific location, and project boundary & project site layout) with coordinates

The proposed project will be located in Village: Tadali, Tehsil & District: Chandrapur, Maharashtra state. The project area falls in Survey of India Toposheet No. 55 P/4. The Geographical coordinates of the project boundary are given in **Table 2**: The map showing location of the proposed project site is given in **Figure 1.** A topographical map showing 10 km radius area surrounding the proposed project site is given in **Figure 2.** A Google map showing the 10 km radius area around the project site is given in **Figure 3.**

Table 2: Corner Coordinates of the Proposed Project Site

S.No.	Latitude	Longitude
1.	20° 0'44.54"N	79°10'25.82"E
2.	20° 0'43.30"N	79°10'27.03"E
3.	20° 0'35.68"N	79°10'24.21"E
4.	20° 0'36.25"N	79°10'20.83"E
5.	20° 0'29.64"N	79°10'18.88"E
6.	20° 0'35.38"N	79°10'12.08"E

Figure 1: Location Map

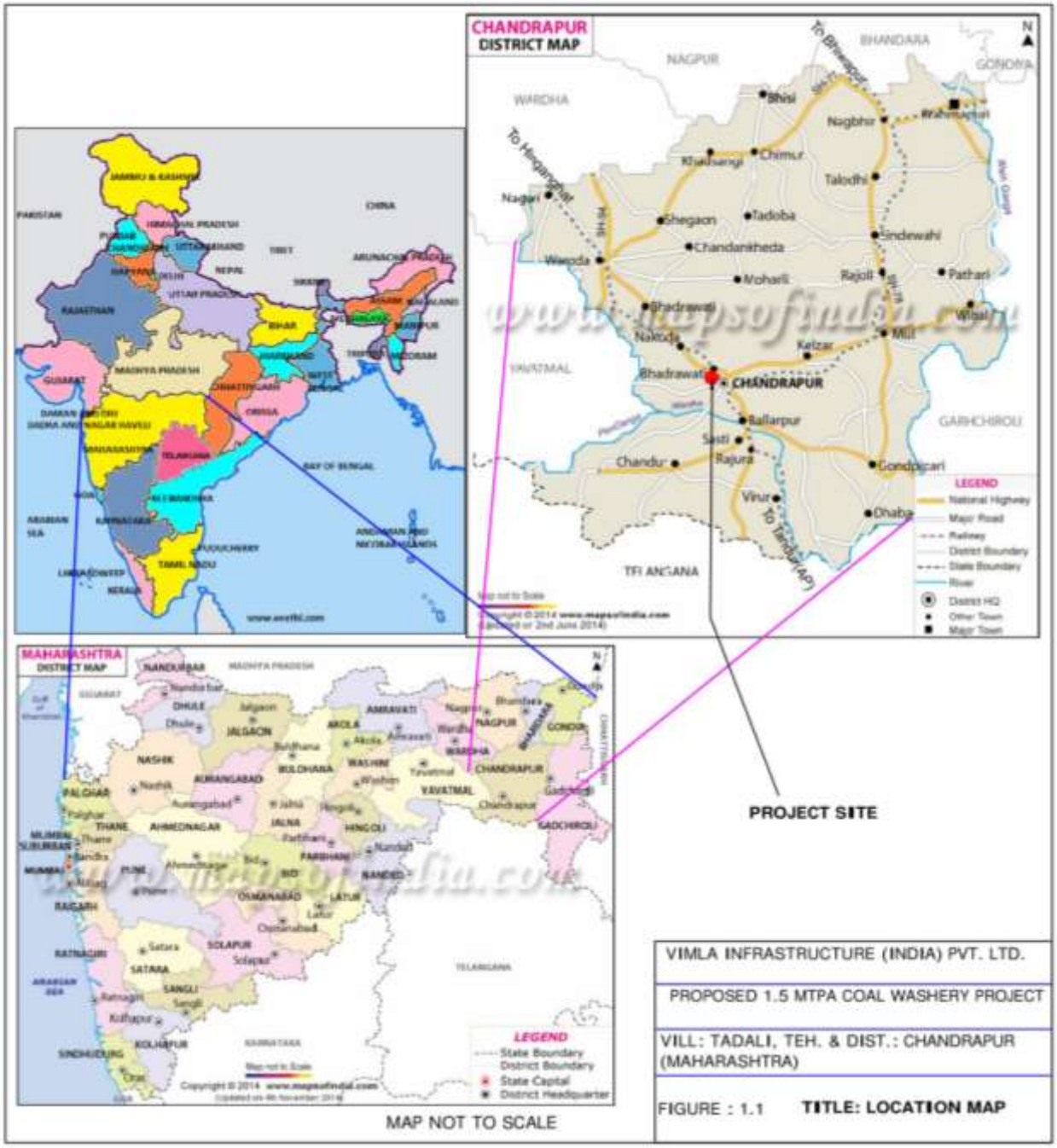


Figure 2: Topo Map

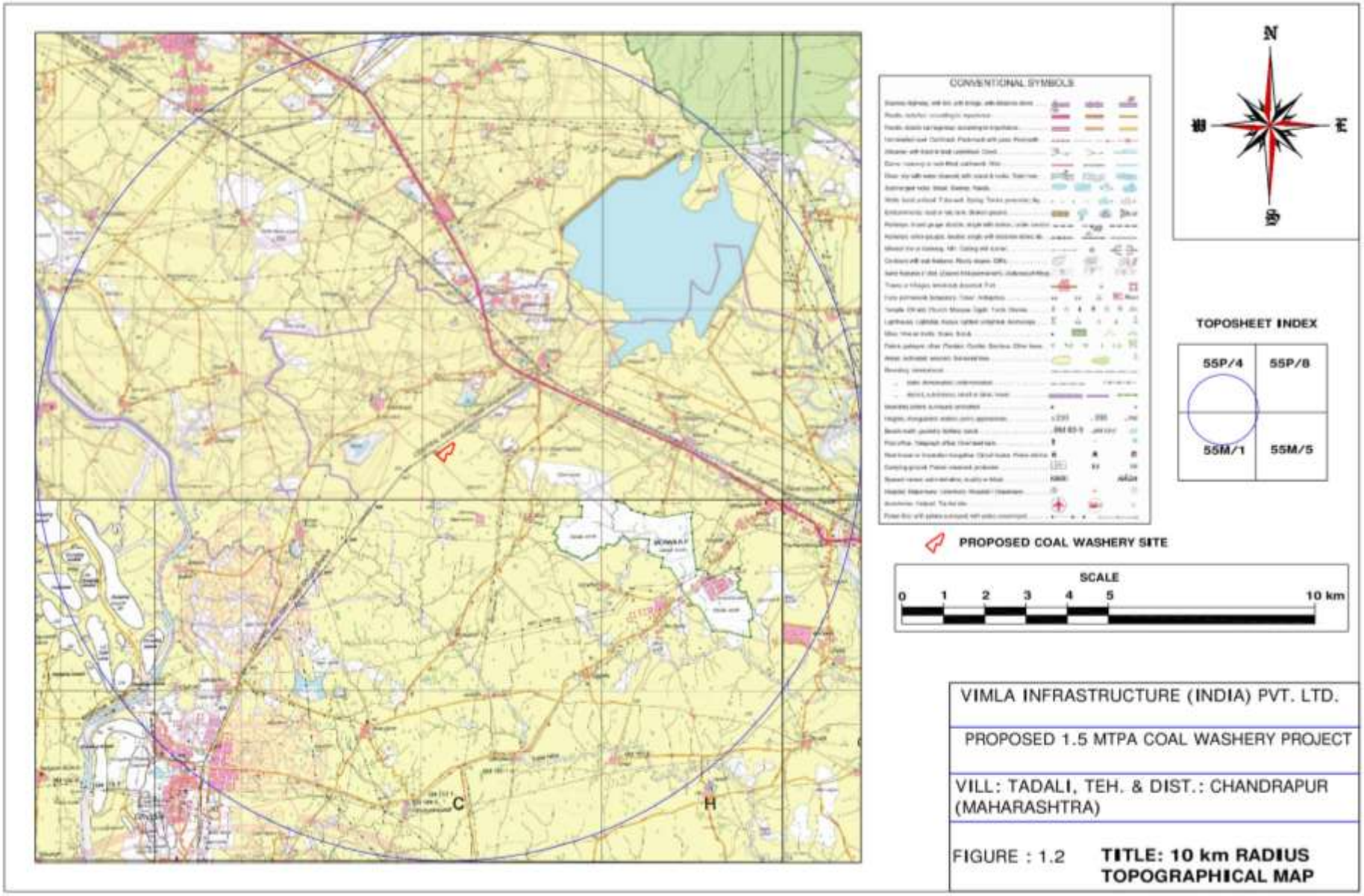
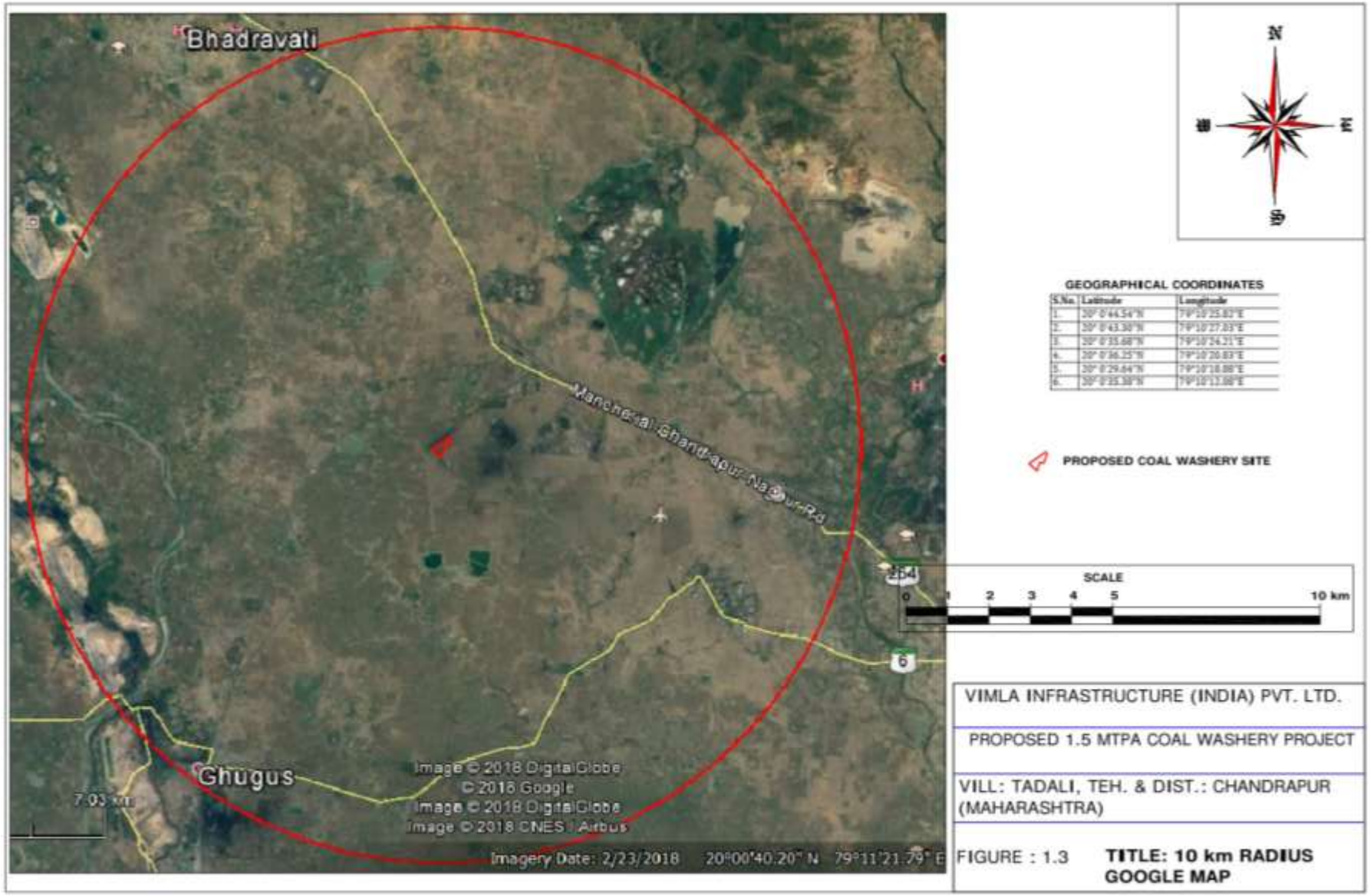


Figure 3: Google Map



(iii) Details of alternate sites considered and the basis of selecting the proposed site, particularly the environmental considerations gone into should be highlighted

Since the project is proposed in own private land adjacent to railway siding of the company, alternative sites are not considered. The salient features of proposed project site are given in **Table 3.**

Table 3: Salient features of project site

Parameters	**Description**
Whether project site fall under CEPI	No
National Parks / Wild life Sanctuaries / Bird Sanctuaries / Tiger reserve / Elephant corridors / Migratory routes for Birds	Tadoba-Andhari Tiger reserve Ecosensitive zone : approx. 15 km NE
Reserve Forest / Protected Forest	Bhandak Reserved Forest: 9.1 km NE Morwa Reserved Forest: 1.4 km E
Land use/Type of Land	Private uncultivated land owned by the company
River/ Water Body	Wardha River: 6.0 km W Irai River: 9.3 km SE Sarai Nala : 3.5 Km, SW Village pond: 0.5 km N village pond: 1.4 km W Tadali Lake: 4.0 km NE
Nearest Habitation (Distance & Direction)	Sakharwai, 1.5 Km NNW Tadali: 2.8 km NE
Nearest Highway (National) /(State)	Chandrapur – Nagpur State Highway (SH 264) : 1.7 KM NE
Nearest railway station	Tadali Railway Station: 2.2 Km, NE Bhadrawati Railway station: 10 km NNW Chandrapur Railway Station: 17 Km SE
Nearest Railway Siding	Own Railway siding: Adjacent
Status of land Owned/To be owned	Private Owned land by the company
Source of Raw material	Different Opencast & Underground mines of WCL
End User	
Name	Nearby Power Plants.

Photographs of the Proposed Project site








The proposed project site has been selected because of the following advantages:

- Availability of non-agriculture private land owned by the company.
- Availability of Railway siding adjacent to the project site.
- At very short distance from source of raw material i.e. WCL coal mines
- No habitation in the vicinity of the proposed project site.
- Remoteness from sensitive area like forest, water body and habitation.
- Nearby roadway facility for transportation of raw material and finished product.
- Very less road /rail transport is required for transportation of raw material from nearby coal mines.

(iv) Size or magnitude of operation

The total throughput capacity of this proposed Coal Washery is 1.5 MTPA.

(v) Project description with process details (a schematic diagram/ flow chart showing the project layout, components of the project etc. should be given)

The proposed washery will process about 1.50 MTPA raw coal and produce about 1.059 MTPA clean Coal at an average yield of 70.6%. The washery will operate for effective 6000 hours annually. The hourly average capacity of the plant will be approximately 250 TPH (average). The proposed washery will consist of the following sections:

1. Raw coal section
2. Washing Section (HM cyclone house)
3. Fine coal treatment section
4. Clean coal section.
5. Rejects section
6. Dust suppression/Dust extraction system
7. Auxiliary buildings

1 Raw Coal Section:

A 250 TPH capacity unit will be constructed and 20% extra over the average capacity will be provided to meet seasonal variations in the production of open cast coal mines.

One ground hopper will be provided to receive raw coal from tipping trucks. Vibratory feeder (300tph capacity) will be provided below each hopper to reclaim coal from the hopper and load on to the associated belt conveyor (RC-1) (300tph capacity). Rod gate will be provided between hopper opening and vibratory feeder to arrest flow of coal at the time of maintenance of vibratory feeder. The conveyor will elevate coal and discharge the same on the associated double deck primary screen (300 tph capacity). At the discharge end of the conveyor, an electromagnetic separator will be provided for removal of ferrous material. The primary screen separates coal into fines (0-10mm), sized coal (-60 + 10 mm) and oversize coal (+60-250 mm) fractions. The sized coal i.e. -60 + 10 mm fraction will be collected on a belt conveyor (RC-2) from below the primary

screen and oversize coal i.e. +60-250 mm fraction from the primary screens will be discharged on a belt conveyor (OSC-1). The +60 -250 mm coal will then be fed to a 1200 mm wide picking conveyer for picking/removing the shales/ stones which will be disposed off for land filling. The +60 -250 mm oversize coal from the picking conveyor, after removal of stones, will then be fed to a double roll crusher to reduce the size down to (-)50mm. The crusher will be of 250TPH capacity and suitable to crush (-) 250mm lumps to (-) 50mm size with small % of over size. The crushed coal from the crusher and the (-60 + 10 mm) sized coal from primary screen will be collected on a 1200 mm wide belt conveyor which will elevate and discharge in an overhead surge bunker. Coal from the surge bunker will be reclaimed with the help of vibratory feeder and discharged on a 1200 mm belt conveyor for elevating and discharging in the wet box provided in HM cyclone house.

2 Washing section:

HM Section: In this circuit (+) 10 mm to (-) 50 mm fraction will be treated to improve the quality. The circuit consists of the following:

De- Sliming section:

The raw coal conveyor from the surge bunker will discharge coal in a wet box. From the wet box the pulp will flow down on to a de-sliming screen of 250tph capacity. Water is sprayed over the de-sliming screen with the help of spray nozzles to remove slimes of 0.5 mm size. The over flow from de-sliming screen will be carried to correct media tank and under flow of de-sliming screen will be carried to fine coal tank/ classifying cyclone sump.

Correct Media tank & HM Cyclones:

One number HM cyclone sump of suitable capacity with center tube lined with suitable liners will be provided to receive over flow from the de-sliming screen. The pulp consisting of coal, water and magnetite of required density will be pumped to two numbers of HM cyclones each of 1000mm dia. through independent pumps at required pressure to separate the pulp into two fractions namely clean coal and rejects. The density of the slurry will be changed as per requirement to achieve optimum yield as per the quality parameters of raw coal.

The over flow i.e. clean coal will be discharged on D&R screen (single deck screen). The purpose of the D&R screen will be to drain the media and rinse off any adhered media by spraying clarified water. For this purpose the initial portion of the screen will be used for draining heavy media and on the second portion water will be sprayed to rinse the magnetic particles. The over flow from D&R screen will be fed to a belt press to remove excess water. Coal from belt press will be discharged on clean coal conveyor and the slurry/ pulp will be taken to fine coal tank. Two catch pans will be provided below the D&R screen for collecting dense media in the first one and rinsed media/ dilute media in second pan. The heavy media will be taken a splitter box from where it will normally be taken to correct media tank with an option for transferring to dilute media tank. The rinsed media / dilute media will be taken to dilute media tank.

The under flow (rejects) of heavy media cyclone will be taken to a horizontal refuse screen through a fixed sieve bend. The purpose of the sieve bend and screen will be to drain the media and rinse off any adhered media by spraying clarified water. For this purpose the initial portion of the screen will be used for draining heavy media and on the second portion water will be sprayed to rinse the magnetic particles. After draining and rinsing the fraction retained over the screen will be discharged on rejects conveyor. Two catch pans will be provided below the D&R screen for collecting dense media in the first one and rinsed media/ dilute media in second pan. The dense media from below the sieve bend and first catch pan of D&R screen will be taken to splitter box. The heavy media will be taken a splitter box from where it will normally be taken to correct media tank with an option for transferring to dilute media tank. The overflow from the D&R screen will be transported to overhead hopper for storage and then loading into trucks for further transportation.

Magnetite will be charged into the dilute media tank with the help of magnetite charging pump to improve the pulp density. From the dilute media tank, the rinsed media will be pumped to a feed box for distributing to wet drum magnetic separator (LIMS). Magnetic separator will recover the magnetite and transfer it to over dense media tank. Over dense media tank pumps (one working and other stand by) will transfer to a splitter box provided over correct media tank. From the splitter box, media will be transferred to correct media tank through density adjustment tank with a provision to transfer the over flow back to over dense media tank. The over flow from the wet drum magnetic separator will be carried to wet box for spraying.

Density gauge will be fitted before the density adjustment tank for controlling the addition of media in dilute media tank. Level monitoring and transmitting units will be provided to control the level in the heavy media sump. Pressure gauges and pressure transmitting units will be provided in the HM circuit to maintain the correct discharge pressure to the HM cyclones.

Fine coal circuit:

In this section 0.5 mm fraction will treated and recovered from the pulp. Slurry/pulp from the fine coal tank will be pumped to a set of raw coal classifying cyclones. The over flow from the classifying cyclones will be carried to a high rate thickener (25 m dia.). The under flow from the classifying cyclones will be carried to a high frequency screen. The particles retained over the high frequency screen will be discharged on clean coal conveyor or reject conveyor as per quality parameters and the under flow from the high frequency screen will be taken to a high rate thickener.

Slurry/ pulp from below the high rate thickener will be pumped to a mixing tank where flocculent will be added to agglomerate the fine particles for efficient liquid and solid separation on the belt press. The mixture will then be fed to a parallel drum belt press.

In the belt press the material will be pressed to squeeze the water. After wards the cake will be taken to clean coal belt conveyor and the slurry will be taken back to thickener.
The thickener will receive coal slurry from belt press, classifying cyclone over flow, under flow of high frequency screen through pipes. Flocculent will be added to the slurry in the thickener for fast settlement of the solid particles. Launder will be provided along the internal periphery of the thickener for collection of clarified water and then sending to clarified water tank. Provision will also be made for draining the slurry from the thickener to slime pond in case emergency.

Clean coal section:
Coal from belt press of HM circuit, over flow from the high frequency screen and cake from belt press of fine coal circuit will be stored in overhead hoppers. Trucks will be loaded below these hoppers for transporting to the siding to dispatch by rail wagons to distant consumers.

Reject section:
Over flow from the rejects D&R screen of HM section will be stored in overhead hoppers. Trucks will be loaded below the hoppers for transporting the same to user industries located in the vicinity or to the railway siding for transportation by rail.

Fine coal (<10 mm size):
Fine coal without beneficiating will be stored in the overhead hoppers. Trucks will be loaded below the hoppers for transporting to railway siding for loading along with the washed coal fractions as per requirement.

Wagon Loading section:
Private railway siding of M/s Vimla Infrastructure (India) Pvt. Ltd. is located adjacent to the proposed coal washery site. Existing in motion type electronic weigh bridge at the railway siding will be used to weigh loaded wagons for preparing RRs.

Auxiliary Services:
The following auxiliary services will be provided in the washery:

a) Dust suppression system with spray nozzles etc. at truck receiving station, Discharge end of raw coal conveyors
b) Dust extraction system will be provided at double roll crusher. The system will consist of hoods, ducts, blower, stack etc.
c) Compressed air system for purging, valve operation, cleaning
d) Firefighting system consisting of fire hydrants, Fire extinguishers, fire pumps, water tank, Fire alarm system etc.
e) Slime pond equipped with over flow pump
f) Fresh water, drinking water supply system, high pressure purging system, floor cleaning
g) Rest shelters, toilets, urinals, truck parking, two wheelar parking, etc.

Dust control arrangements:

Water spraying arrangement with the help of fog spray nozzles will be provided near the truck receiving arrangement, near discharge pulley of washery feeding conveyors and other transfer points to suppress the dust. Dust extraction system will be provided at the crusher house for control of dust generated at this place. No arrangement will be provided in washing section as there will not be any production of dust due to wet coal. Rain guns will be provided near coal stock yard. Enclosures will be provided to all the conveyor belts and hoppers. Periodic water sprinkling by tanker will be carried out on internal roads. Thick green belt plantation will be carried out along the boundary of coal washery to arrest dust.

Utilities: The following utilities will be provided

i. Coal sampling preparation room
ii. Charge Stores
iii. Rest shelter
iv. Car and cycle shed
v. MCC cum control room for washery
vi. Generator room
vii. Fresh water reservoir with pumps
viii. Reservoir for firefighting along with pump house.
ix. Road weigh bridges along with control room.
x. Security and time office

The Process flow sheet for the proposed coal washery project is given in **Figure 4.**

Figure 4: Process Flow Sheet for proposed 1.5 MTPA Coal washery

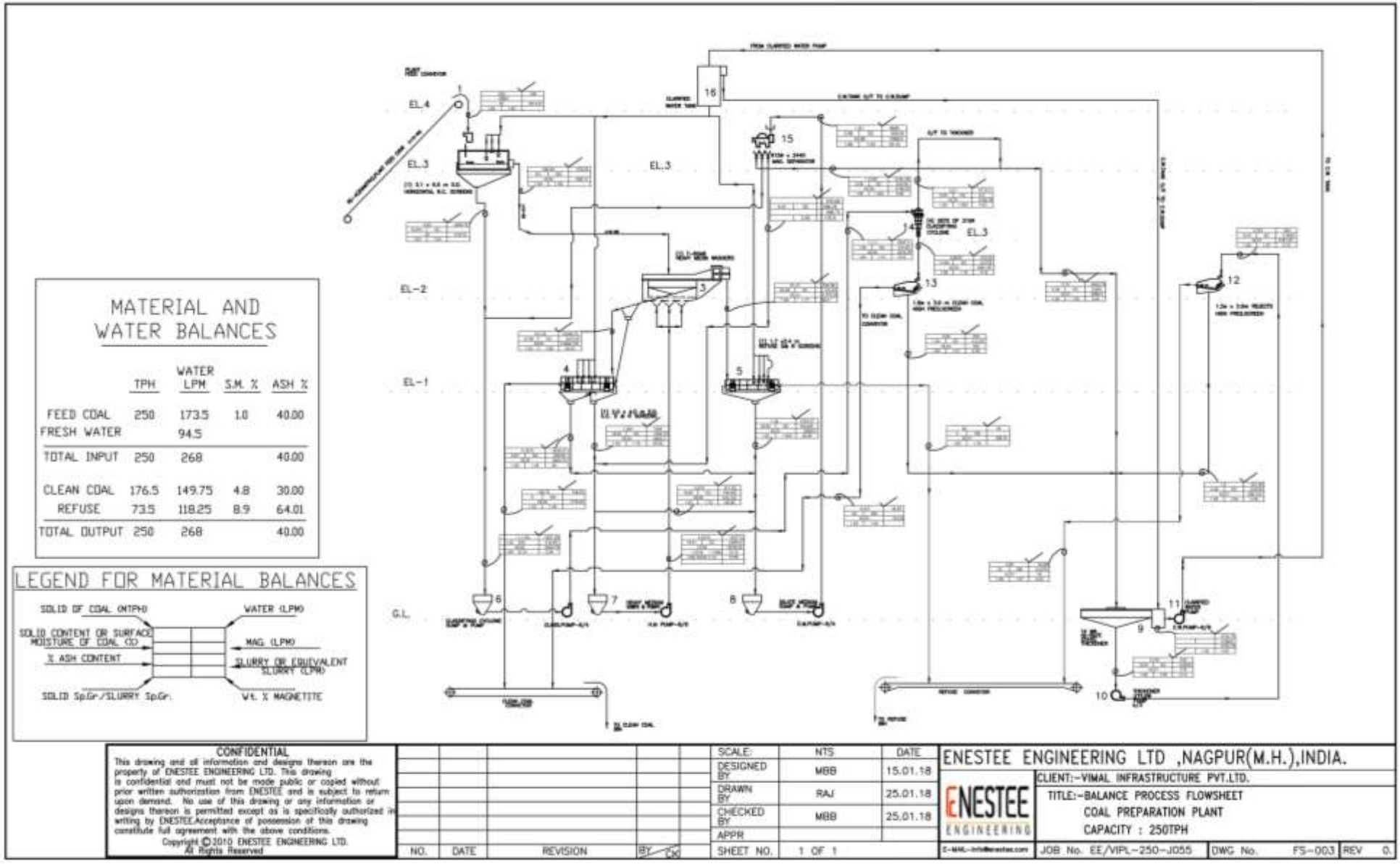


Table 4: Coal Analysis and Material Balance

Sr. No.	Properties	Raw Coal	Washed Coal	Rejects
1	Ash %	40	30	64.01
2	Moisture %	1	4.8	8.9
3	Sulphur %	0.4-0.5	0.3-0.4	0.4-0.6
4	GCV (Kcal/Kg)	3800 - 4300	5089-5600	2200-2800
5	Yield %	100	70.6	29.4
6	Quantity (TPA)	1,500,000	1,059,000	441,000

(vi) Raw material required along with estimated quantity, likely source, marketing area of final product/s, Mode of transport of raw Material and Finished Product

Raw Material Requirement and its sources:
Run of mines [ROM] coal will be the only raw material requirement for proposed washery. Annual requirement of proposed washery is envisages to the tune of 1,500,000 TPA.

Mode of Transport for Raw materials and finished products:
The coal will be sourced from nearby coal mines of Western Coalfield Limited (WCL), located in Chandrapur & Wani area.

Since the washery site is located close to the WCL mines in Chandrapur and there is existing railway siding adjacent to the proposed plant site, raw coal will be transported to the plant mostly by rail. In case of non-availability of rail facility at the mine site, coal will be transported by road in covered trucks.

Washed Coal and rejects will be supplied to nearby Power plants. The mode of transport of washed coal will be by rail. Only in case of absence of railway facility at user industry, road transport will be used. Adjacent railway siding of the company will be used for coal transport.

(vii) Resource optimization/ recycling and reuse envisaged in the project, if any, should be briefly outlined
Rejects generated during coal washing process can be used for power generation in CFBC technology based power plants. Coal Washery rejects will be given to Power plants operating on CFBC technology in the vicinity of the proposed washery. Hence there will not be any storage requirement for the solid waste generation. This will help in resource optimization and minimization of waste.

(viii) Availability of water its source, Energy/ power requirement and source should be given

The total daily make-up water required for the proposed plant will be 386 KLD which will be met from ground water. Necessary permission for drawl of ground water will be obtained from CGWB. The water balance for proposed 1.5 MTPA coal washery is given in **Table5.**

Table 5: Water Balance for proposed 1.5 MTPA coal washery (Unit: KLD)

Purpose	Daily water requirement	Effluent Generation	Losses	Make up water requirement	Remarks
Coal washing	6750	6412.5	338	338	Recycled in process
Dust suppression	30	0	30	30	
Plantation	15	0	15	15	
Domestic use	3	2.50	3	3	Treated in package type STP & treated effluent reused for dust suppression.
Total	**6798**	**6415.0**	**386**	**386**	

(ix) Quantity of wastes to be generated (liquid and solid) and scheme for their Management/disposal

Solid Waste Generation:

About 0.441 MTPA washery rejects will be generated during the coal washing process. The rejects can be used in CFBC power plants and hence, will be sold to the nearby CFBC power plants for power generation. There will not be any storage required for the coal rejects. No other solid waste is envisaged in the coal washing process.

Wastewater generation:

Total daily water requirement in the proposed coal washery is about 6798 KLD. Out of this, about 6412.5 KLD water will be collected as process effluent and will be treated in thickeners. The treated effluent will be reused in the coal washing process. Remaining 386 KLD water will be lost as coal moisture, evaporation losses and process losses.

The plant will operate on 'Zero Discharge Principle'. There will not be any effluent discharge from the coal washery plant. All the process effluent generated in the plant will be treated in thickeners and will be reused in the coal washing process. Domestic effluent from plant premises will be treated in package type STP & treated effluent will be reused for dust suppression.

In view of conservation of water, rainwater harvesting will be carried out in the plant. Surface run-off from the plant area will be collected in a settling tank through a network of drains and the water will be used in the process, thereby reducing the drawal of ground water. Rainwater from roof tops will be collected in a rainwater harvesting tank

and will be allowed to percolate to ground through a scientifically designed rainwater harvesting system.

4. SITE ANALYSIS

(i) Connectivity

Nearest Railway Station	:	Tadali Railway Station: 2.2 Km, NE Bhadrawati Railway station: 10 km NNW Chandrapur Railway Station: 17 Km SE
Nearest Airport	:	Chandrapur Airport, 4.9 km SE Nagpur Airport, 150 km N
Nearest Highway	:	Chandrapur – Nagpur State Highway: 1.7 KM NE

(ii) Land Form, Land use and Land ownership

M/s Vimla Infrastructure (India) Pvt. Ltd. has owned **27 Ha** of private land for construction and operation of private railway siding in Tadali village, Tehsil & District Chandrapur, Maharashtra. The coal washery project is proposed adjacent to the existing railway siding of the company in the own private land. 7.5 Ha area is demarcated for establishment of coal washery.

(iii) Topography (along with map)

The area is almost a flat terrain

(iv) Existing land use pattern (agriculture, non-agriculture, forest, water bodies (including area under CRZ)), shortest distances from the periphery of the project to periphery of the forests, national park, wild life sanctuary, eco sensitive areas, water bodies (distance from the HFL of the river), CRZ. In case of notified industrial area, a copy of the Gazette notification should be given

The proposed project area is private non-agriculture land owned by the company.. There are no national parks, wild life sanctuaries, eco sensitive areas within 10 km of the study area. It is not covered under any forest zone. The study area is not covered under any CRZ.

Water bodies present within 10 km are:

- Wardha River: 6.0 km W
- Irai River: 9.3 km SE
- Sarai Nala : 3.5 Km, SW
- Village pond: 0.5 km N
- village pond: 1.4 km W
- Tadali Lake: 4.0 km NE

Forest present within 10 km radius are:

- Bhandak Reserved Forest: 9.1 km NE
- Morwa Reserved Forest: 1.4 km E

(v) Existing Infrastructure

Key infrastructures are available nearby the proposed unit are described below.

Sr. No.	Particulars	Description
1	River / stream	• Wardha River: 6.0 km W • Irai River: 9.3 km SE • Sarai Nala : 3.5 Km, SW • Village pond: 0.5 km N • village pond: 1.4 km W • Tadali Lake: 4.0 km NE
2.	National / State Highway	Chandrapur – Nagpur State Highway: 1.7 KM NE
3.	Railway station	Tadali Railway Station: 2.2 Km, NE Bhadrawati Railway station: 10 km NNW Chandrapur Railway Station: 17 Km SE
4.	Airport	Chandrapur Airport, 4.9 km SE Nagpur Airport, 150 km N
5.	Bus facility	Yes
6.	Social Infrastructure	
	a. School	Yes
	b. PHC/Hospital	Yes
	c. Religious places	Yes

(vi) Soil Classification

Chandrapur district can be divided into two physiographic regions i.e., plane region in valleys of Wardha, Penganga and Wainganga Rivers and Upland Hilly Region. The plane region is made up of widely spread and flat terrain occurring mostly along Wardha River. The soils of Wardha and Wainganga valleys are most fertile. The different types of soils occurring in the district are locally called as Kali, Kamhar, Morand, Khardi, Wardhi, Retari, Bardi and Pandhari. Out of above Morand is the most common soil occuirng in the district and is suitable for irrigation due to its loamy texture. Proposed project site falls in the plane region of Wardha river.

(vii) Climate

The Climate of the district is characterised by a hot summer and general dryness throughout the year except during the south-west monsoon season, i.e., June to September. The temperature rises rapidly after February till May, which is the hottest month of the year. The mean daily maximum temperature during May is 43.0°C and the mean daily minimum temperature during December is 13.2°C. The monsoon season starts from the middle of June and last till the end of September. The average annual rainfall (1971-2000) was observed to 1249.4 mm. It is minimum in the western part around Warora and gradually increases towards east and reaches maximum around Brahmapuri. The study also reveals that large areas in central part of the district comprising parts of Chimur, Bhadravati, Chandrapur, Mul and Sindewahi experienced droughts for more than 20% of the years and can be categorized as “drought area”.

Avg. Minimum Temperature – 13.2°C
Relative Humidity – Max 84%
Average Rainfall – 1249.4 mm

Maximum Temperature = 43.0°C
Relative Humidity Min – 20%

Source: IMD data, Chandrapur District

Annual rainfall data for the past 5 years for Chandrapur district is given in Table below:

Table 6: Rainfall data for past 5 years for Chandrapur District

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
2012	7.8	0	0	2.3	0	102.8	444.3	455.2	253.2	54.3	18.4	0	**1338.3**
2013	4	25.7	1.1	4.6	1.9	425.4	785.7	344.4	113.8	197.7	0	0	**1904.3**
2014	0	5.7	61.3	1.1	9.7	69.4	309	178.3	277	12	1	0	**924.5**
2015	35.5	2.2	59.8	26.8	34.2	331.6	154.7	294	246.1	6.8	0	0	**1191.7**
2016	0.3	1.7	41.3	17.6	24.5	229.2	624.9	145.7	375.5	96.7	0	0	**1557.4**

Source: CRIS, Hydromet Division, IMD

(viii) Social Infrastructure available

Basic facilities like bus and road facilities are available in the nearby villages. Train facilities are available at Tadali. Primary Health Centres are available in nearby villages and hospitals are available at Tadali, Bhadrawati & Chandrapur.

5 PLANNING BRIEF

(i) Planning Concept (type of industries, facilities. transportation etc) Town and Country Planning/ Development authority Classification

Proposed project activities will be started after getting statutory clearance form related authorities. The project will be completed in 2019. Further proposed project activities will be carried out in compliance with all the rules and regulation of statutory authority and provide the control measure and devices to achieve the standard norms.

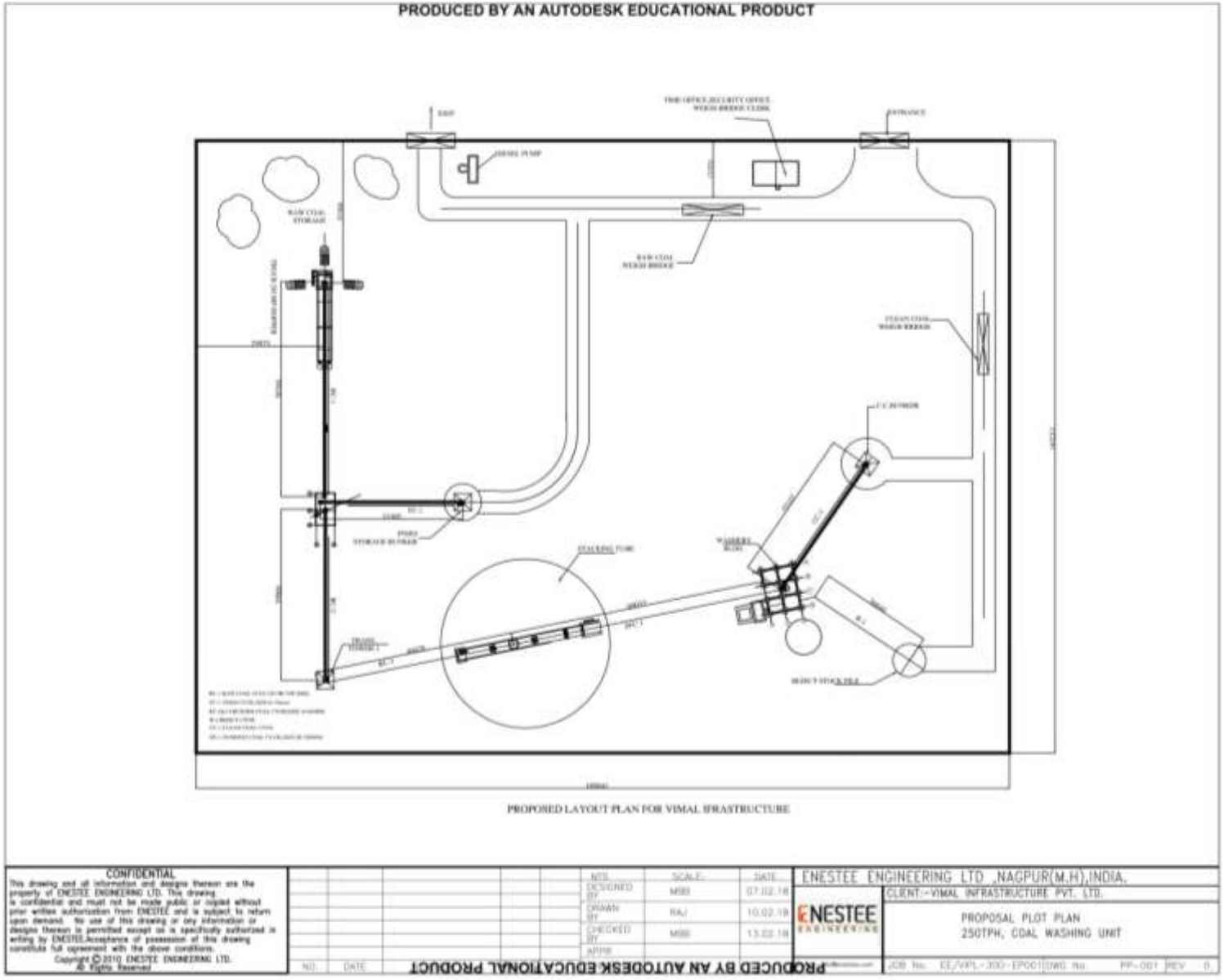
Land use planning (breakup along with green belt etc)

The land use breakup of plant area is given below. Proposed Plant Lay Out is given in **Figure 7**.

Table 7: Proposed Land Use Plan

Sr. No.	Particulars	Area (Ha)	%
1	Washery plant	2.25	30.00
2	Coal Storage yard	0.7	9.33
3	Reject storage yard	0.35	4.67
4	Greenbelt & Plantation area	2.6	34.67
5	Water reservoir & Rainwater harvesting area	1.2	16.00
6	Office building and rest shelters	0.4	5.33
	Total	**7.50**	**100.0**

Figure 5: Plant Lay Out



(iv) Assessment of Infrastructure Demand (Physical & Social)

The road facility already available will be used. The transportation of coal will be mostly through rail mode. Power requirement will be 2.5 MW will be met by Maharashtra State Electricity Distribution Company Limited (MAHADISCOM) and Water requirement of 386 m^3/day will be met from ground water.

The labor requirement is 45 will be hired from the nearby villages and they will be trained for the requirement. Only technical & supervisory qualified staff, which may not be available in nearby villages, will be recruited from outside.

(v) Amenities/Facilities

Communication facility like Mobile Phone connectivity and landline services are available at site.

6. PROPOSED INFRASTRUCTURE

(i) Industrial Area (Processing Area)

Proposed Plant will be coming up in an area of 7.5 Ha.

(ii) Residential Area (Non Processing Area)

Only office buildings, store and rest shelters etc will be provided. No residential facilities will be provided within the plant premises.

(iii) Green Belt

It is proposed to develop green belts all along the boundary for a width of 5 m. In this green belt local tree species with thick foliage cover will be planted. In between the tree species, bush and shrub varieties will be planted. Also, plantation will be taken up around site office, open spaces etc. 2.6 Ha area is earmarked for green belt & plantation.

(iv) Social Infrastructure

The management is committed to uplift the standards of living of the villagers by undertaking following activities / responsibilities as the part of Corporate Social Responsibility.

- Awareness on Health & hygiene
- Supply of Drinking water in dry period
- Help in Education for poor
- Maintenance of Village roads
- Provision of solar Street Lights

(v) Connectivity (Traffic and Transportation Road/ Rail/Metro/Water ways etc)

Nearest Railway Station	:	Tadali Railway Station: 2.2 Km, NE Bhadrawati Railway station: 10 km NNW Chandrapur Railway Station: 17 Km SE

Nearest Airport	:	Chandrapur Airport, 4.9 km SE Nagpur Airport, 150 km N
Nearest Highway	:	Chandrapur – Nagpur State Highway: 1.7 KM NE

(vi) Drinking Water Management (Source & Supply of water)

Drinking water requirement will be met from the borewell. Necessary permission for drawl of water will be obtained from CGWB.

(vii) Sewerage System

Domestic effluent from plant premises will be treated in package type STP & treated effluent will be reused for plantation.

Industrial Waste water Management

Total daily water requirement in the proposed coal washery is about 6798 KLD. Out of this, about 6412.5 KLD water will be collected as process effluent and will be treated in thickeners. The treated effluent will be reused in the coal washing process. Remaining 386 KLD water will be lost as coal moisture, evaporation losses and process losses.

The plant will operate on 'Zero Discharge Principle'. There will not be any effluent discharge from the coal washery plant. All the process effluent generated in the plant will be treated in thickeners and will be reused in the coal washing process. Domestic effluent from plant premises will be treated in package type STP & treated effluent will be reused for plantation.

(ix) Solid Waste Management

Coal Washery rejects will be sold to the nearby power plants operating on CFBC technology. Hence there will not be any storage and disposal required for coal rejects generated from the coal washing process.

(x) Power Requirement & Supply / source

Power requirement will be 2.5 MW will be met by Maharashtra State Electricity Distribution Company Limited (MAHADISCOM).

7. REHABILITATION AND RESETTLEMENT (R & R PLAN)

(i) Policy to be adopted (Central/State) in respect of the project affected persons including home oustees, land oustees and landless labour (A brief outline to be given)

No Rehabilitation & Resettlement is involved. The proposed coal washery will be established in private non-agriculture land owned by the company.

8. PROJECT SCHEDULE AND COST ESTIMATES

(i) Likely date of start of construction and likely date of completion (Time schedule for the project to be given)

The construction is planned to commence from June 2019 after obtaining Consent for Establishment and the total time required for the completion of construction is 12 months. The commissioning of the plant is expected by end of May 2020.

(ii) Estimated project cost and along with analysis in terms of economic viability of the project

a. Project cost

The total cost of proposed 1.5 MTPA Coal Washery is estimated as approx. Rs. 22.0 Crores.

b. Environmental Cost

Budgetary provision of Rs. 1.78 Crores has been made for implementation of Environmental Management Plan.

Table 8: Budget for Environmental Management Plan

Sr. No.	Pollution Control System	Capital Cost (Rs. in Lakh)	Recurring Expenses (Rs. in Lakh)
1	Air pollution control equipments	100.0	12.0
2	Dust suppression system	25.0	5.0
3	Wastewater treatment system	30.0	4.0
4	Green belt & Plantation	2.5	1.0
5	Environmental Monitoring	1.0	2.0
6	Rainwater Harvesting System	2.0	0.5
7	Occupational Health & Safety	2.5	0.5
8	Socio-economic Welfare Measures	10.0	5.0
9	Miscellaneous expenses	5.0	2.0
	Total	**178.0**	**32.0**

The project is economically viable considering the project cost, and environmental cost, and the various community improvement activities planned.

9. ANALYSIS OF PROPOSALS (FINAL RECOMMENDATIONS)

The proposed 1.5 MTPA coal Washery will be beneficial financially and socially considering the project cost, environmental cost, cost on health & safety and the various community improvement activities planned.

This Coal Washery will provide employment for around 45 people by direct employment which will include Engineers, Executives, Skilled, Semi- skilled and Unskilledlabour and indirect employment to more than 80 persons, in contractual works & transport. The project proponent will extend social welfare activities like health, education, infrastructure development and environment conservation. Hence, the proposed Coal Washery will have positive impact, improved socio-economic status in the region and improved economics for the State & Nation at large.

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