Executive Summary

For

Modification in existing 2.0 MTPA Deshaled Coal Crushing Unit to 2.0 MTPA Wet Coal Washery

At

Survey No. 131/2, 131/3, 131/4 Village: Muthara, Tehsil: Rajura, District: Chandrapur (MS)

Project Proponent

N .N. GLOBAL MERCANTILE PRIVATE LIMITED

Prepared By:

Pollution and Ecology Control Services

Accreditation no: NABET/EIA/2023/SA 0165 valid upto 16th October 2022

pecs_nagpur@rediffmail.com,

0712-2293223, 2293225

Executive Summary

N .N. GLOBAL MERCANTILE PRIVATE LIMITED is engaged mainly is beneficiation and sizing of raw coal for different end users of coal. The company is now wish to modify the project of existing 2.0 MTPA Deshaled Coal crushing plant to 2.0MTPA wet coal washery. The project site is located at survey no.131/2, 131/2, &131/4 village: Muthara, Tehsil: Rajura, District: Chandrapur (MS). The land earmarked for the project is 7.55 ha.

SITE SELECTION CRITERIA

The proposed plant site is identified considering following,

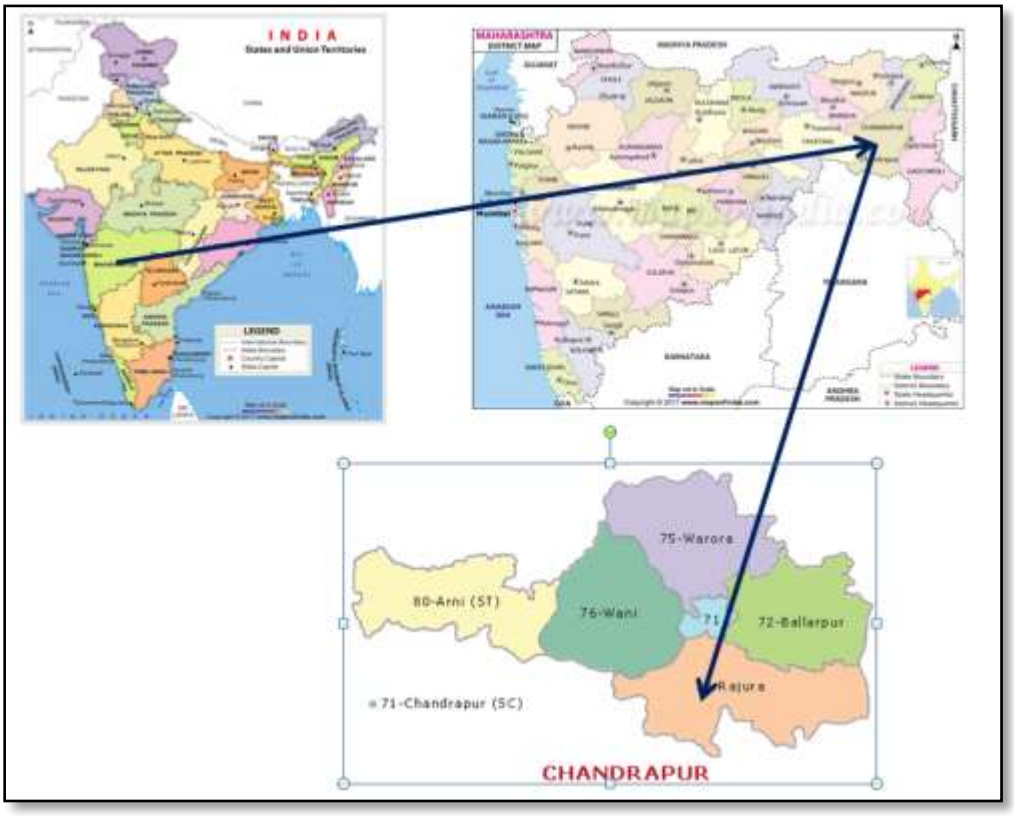
- There are no National Park/Sanctuaries within 10Km radius
- No forest land is involved in the site
- No R & R is involved.
- Raw Material Source
- Availability of water, Industrial Infrastructure.
- Near to Railway siding

DETAILS OF THE PROJECT SITE

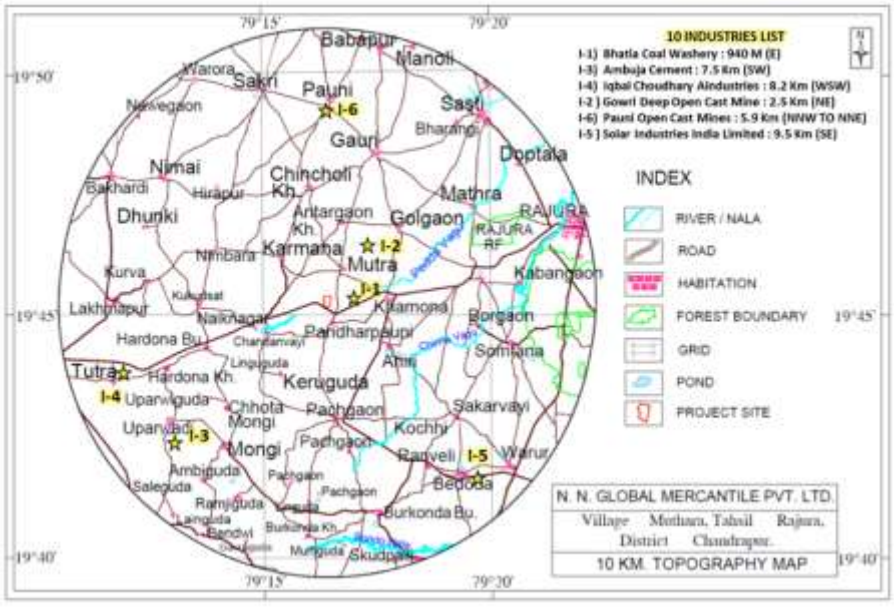
This is a modification project of existing 2.0MTPA Deshaled Coal crushing plant to 2.0MTPA wet coal washery at survey no.131/2, 131/2, &131/4 village: Muthara, Tehsil: Rajura, District: Chandrapur(MS). In existing project coal is crushed sized as per requirement of end user. Now it is proposed to modify the process by up gradation to wet coal washery

DETAILS OF THE PROJECT SITE

Sr. No.	Particulars	Details
1	Project Name and site	Modification in existing 2.0MTPA Deshaled crushing unit to 2.0MTPA Wet coal washery. Survey no. 131/2, 131/3,131/4, Village: Muthara, Tehsil:Rajura, District: Chandrapur (MS)
2	Latitude	19°45'10.83"N
3	Longitude	79°16'15.24"E
4	Elevation above MSL	198 m
5	Toposheet	56M/1 56M/2 56 M/5, 56M/6
6	Present landuse	Industrial
7	Nearest National Highway/State Highway	Gadchandur Road 0.1Km (South Direction) (SH 264) Chandrapur Nagpur Road 9.0Km SE direction
8	Nearest Airport/ Air Strip	Chandrapur
9	Nearest Village	Wangi (0.5 km SE)
10	Forest	Patches of Rajura (R.F) at 6.0Km NE to 7.0Km East direction
11	Ecologically Sensitive Zones like wild life sanctuaries, national parks and biospheres	No National Park is situated within the 10 Km radial distance
12	Water Bodies	Nallah adjacent to boundary wall at West direction Chinna Vagur river 7.0km at North direction Wardha River 11Km NE direction



Location Map of the Proposed Project Site

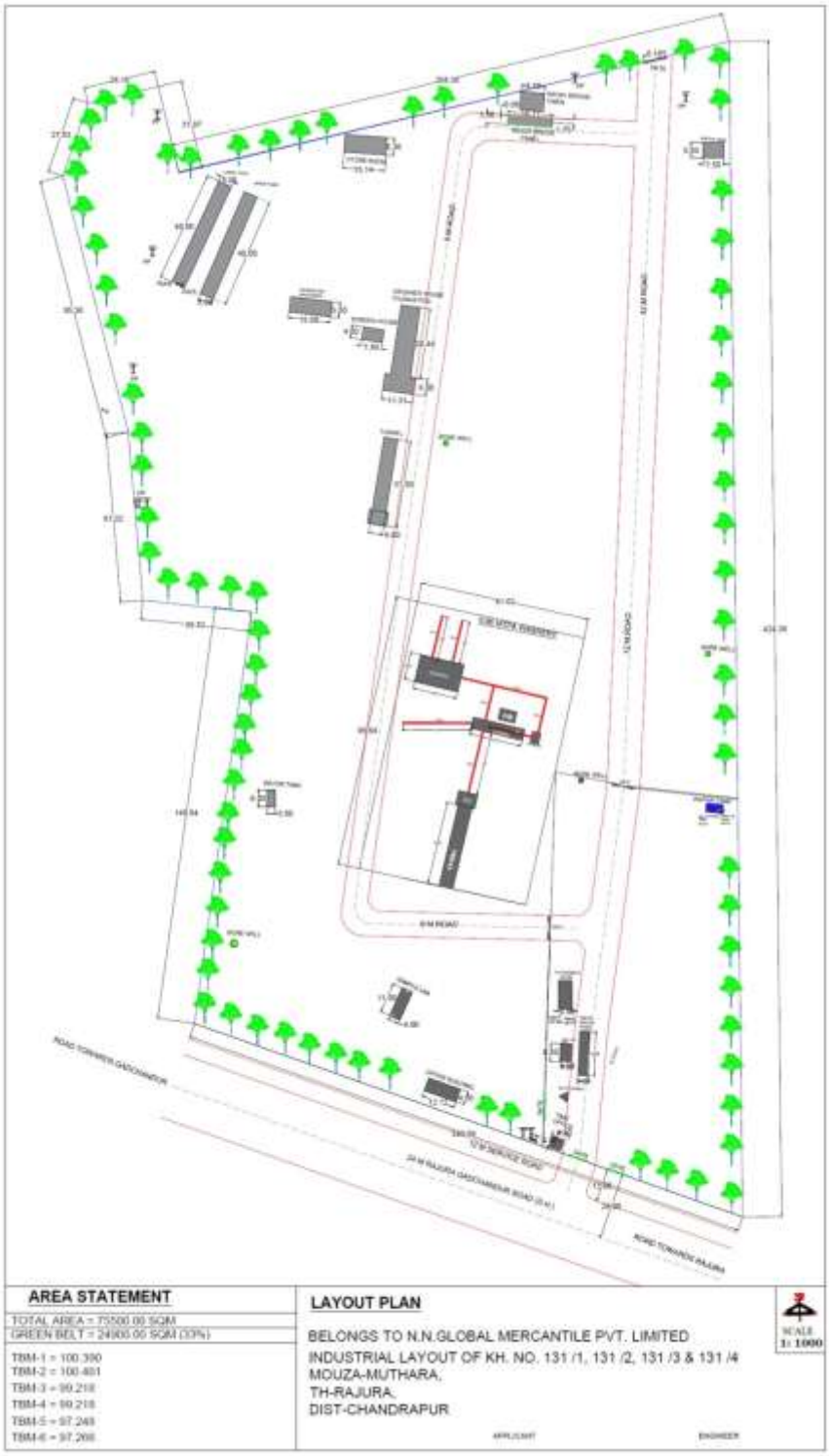


Source: SOI Toposheet

Topographical Map (10 KM)

Source: Google earth

Google Image



Plant Layout

PURPOSE OF EIA

This is project of modification of the project of existing 2.0MTPA Deshaled Coal crushing plant to 2.0MTPA wet coal washery.

The project falls under Sector 2 (a) in Category 'A' as per the EIA Notification 2006, based on the capacity of the project. Application for prior environmental clearance was submitted to MoEF&CC on 17th January 2018. MoEF&CC issued Standard Terms of Reference (TOR) for proposed coal washery vide letter no J-11015/9/2018-IA-II(M) dated 13.11.2019.

At the time of application, the project falls under Sector 2 (a) in Category 'A' as per the EIA Notification 2006, based on the capacity of the project. Now as per the latest notification dated 12th April 2022, the projects having capacity less than 2.5 MTPA (coal washery) fall under B-category. Accordingly, application for grant of EC is being submitted to State SEIAA/SEAC.

In order to assist the M/s. N.N. Global for getting the Environmental Clearance, M/s Pollution and Ecology Control Services (PECS) Nagpur is entrusted the task of undertaking (EIA) study and prepare Environmental Impact Assessment report and Environmental Management Plan. Accordingly, M/s. Pollution and Ecology Control Services, Nagpur has conducted the baseline environmental monitoring studies as per the TOR issued by MoEF, New Delhi and the draft EIA report is prepared for conducting the public hearing for the project.

The Draft EIA report was prepared using the baseline data generated undertaken by PECS during October, November and December (2020)

PRCOESS DETAILS

SIZE OR MAGNITUDE OF OPERATION

The production scenario of proposed plant is given in following Table.

Production Scenario

Sr. No.	Features	Details
1	Present Plant	Existing 2.0MTPA Deshaled Coal crushing plant
2	Proposed modernization	2.0MTPA wet coal washery
3	Area	7.55 ha
4	Air Pollution Control System	Water Sprinklers, Bag filters, Green belt, transportation by tarpaulin covered trucks only.
5	Source of Raw Coal	The raw coal will be sourced from Sasti, Gouri & Dhoptala Open cast Mines of Ballarpur Area of WCL

Land Details

Sr. No.	Particulars	Description
1.	Land allocated	7.55 ha
2.	Ownership	Existing land owned by N.N. Global Pvt Ltd.
3.	Type of landuse	Industrial use i.e. Existing 2.0MTPA Deshaled Coal crushing plant
4.	Proposed Landuse	Industrial use i.e. coal washery
5.	Green belt Area	2.49 ha

Raw Coal receipt and arrangement

The raw coal will be sourced from Sasti, Gouri & Dhoptala opn cast Mines of Ballarpur Area of WCL. The beneficiated and sized coal will be dispatched from prepared coal stocks in the premises to the cement industries/ other consumers by Road or Rail.

Water Requirement

The total raw water requirement will be 200 cum/day for the entire unit during operation phase its details are given in following Table. The near about 40 cum/day quantity of

water will be drawn from the three bore well existing in the premises which supplies and rest of water will be brought through water tanker from sasti colliery.

Water Requirements during Operation Phase (m^3/day)

Sr. No.	Unit	Total Water Requirement m3/day	Wastewater Generation m3/day	Mode of disposal of wastewater
1	Industrial	192	-	The wastewater generated from the washing process will be reused and recycle
2	Domestic	3.0	0.6	Packaged Type STP will be provided and treated water will be reused for plantation
4	Plantation	5.0	-	-
	Total	200	0.6	-

Power Requirement

The total power requirement after modification will be 11KV. 400KVA transformer will be installed to be connected by isolating switch after getting approval from MSEDCL. 125KVA DG set will be provided for emergency power failure

Employment potential

The project creates employment to about 51 person ones the plan comes to the operational stage and for 50 people during construction stage. Top priority will be given to local for semi-skilled and unskilled jobs. With development of this plant there will be lot of scope for more ancillary development, which in turns will benefit the nation

TECHNOLOGY AND PROCESS DESCRIPTION

BC10 belt of 150 TPH would draw 12-50mm size prepared coal from H3 steel hopper of 400 Ton capacity and feed to Desliming screen of 200 Ton capacity & the coal would be sprayed by circulating water to segregate fines from prepared coal. The deslimed coal will be fed along with heavy media pulp to 150 TPH Dense Media Wemco Drum Separator. The float along with media will be discharged on 2/3rd length of 200 TPH Depulping & Ringing screen & the sink of Wemco Drum Separator would be collected

through lifter plates fitted on inner periphery of wemco drum and will be discharged along with media on 1/3 rd length of Pertitioned D/R screen. The media of float& sink will be depulped on 1/3rd length of D/R screen to be diverted to correct media sump. The depulped float & sink will be sprayed with fresh water on 2/3rd length of D/R screen to recover the media sticked on the surface of depulped float & sink and finally will be diverted to Dliute Media Sump and would be pumped to 900mm dia x1300 long Magnetic Separator. The media recovered from magnetic separator will be diverted to correct media sump and its tailing containing water & fine coal along with the underflow of desliming screen will be diverted to 23 meter dia coal thickener.

The overflow D/R screen containing clean coal and reject will be stacked on the ground through BC11& BC12 conveyor respectively of 100 TPH capacity each.

The underflow of coal thickener would be pumped to belt filter press of 30 TPH to recover fines as dry cake to be discharged on either to BC11 or to BC12 clean or reject conveyor depending upon the ash percentage of dry cake.

There will be two emergency concrete slurry pond of 40mx5mx2.5m for recovery of fines in emergency case when the thickener or the belt press will be under heavy breakdown stage. When the pond will be filed up with fine coal it would be excavated mechanically through JCB Excavator and stacked on the hard stand built along three sides of slurry ponds. The clarified water of slurry pond will be pumped to plant for reuse thus making the wet washery as zero discharge plant.

Capacity of Main Equipment

1.	Steel Hopper	:	60 MT
2.	Belt Conveyor BC -1	:	335 TPH
3.	Vibrating Screen	:	350 TPH
4.	Picking belt BC- 1 A	:	150 TPH
5.	Crusher	:	150 TPH
6.	Belt Conveyor BC -2	:	200 THP
7.	Belt Conveyor BC -3	:	150 TPH
8.	Belt Conveyor BC -4	:	150 TPH
9.	Coal Dust Collector	:	28000 m^3 / hr.(28000 M3/ Hr)
10.	Blet Conveyor BC- 5	:	150 THP
11.	Blet Conveyor BC -6	:	100 THP
12.	Belt Conveyor BC -7	:	100 THP
13.	Blet Conveyor BC- 8	:	100 THP

14.	Steel Hopper H-1	:	50 Tone
15.	Steel Hopper H2	:	50 Tone
16.	Steel Hopper H3	:	50 Tone
17.	Proposed 2 steel Hopper	:	H4 & H5 (50 Torne each)
18.	Dense media Wemco Drum Separator	:	150 TPH
19.	Desliming screen	:	150 TPH
20.	Depulping& Ringing screen	:	150 TPH
21.	Magnetic separator	:	900 dia x 1300 mm long
22.	Correct media sump	:	2 cum capacity
23.	Dilute media sump	:	1.5 cum capacity
24.	Heavy media pump	:	340 cum / hr capacity
25.	Dilute media pump	:	150 cum/ hr capacity
26.	Coal thickener	:	23 media
27.	Belt filter press	:	30 TPH
28.	Emergency concrete slurry ponds	:	2 nos of 40mx5mx2.5m each
29.	High pressure Pump	:	15 HP
30.	D G Set, 3 ph	:	125 KVA
31.	Vibro feeder	:	350 TPH

Weigh Bridge

An electronic road weighbridge of 100 MT Capacity shall be installed near the Muthara entry gate for weighing the Tipper / Truck.

All the vehicle carrying ROM coal from collieries will be weighed on the weighbridge. The sized coal dispatched to consumers will also be weighed on this weighbridge. Another electronic weighbridge of 100 TPH shall be installed on back side to dispatch clean coal to railway siding.

Receiving Pit Hopper

Receiving pit Shall have a Steel hopper of size 5mx 5m x 5m having Capacity 60 MT fabricated from steel plates to be installed underground. The receiving hopper will have three sides opening.

(As top level of Hopper is only 500 mm above ground level) for unlonding of ROM Coal transported from the mines. Electrical Vibrator shall be fitted at the bottom of steel hopper to feed the ROM Coal to belt conveyor BC-1.

Screening and Crushing Building

A 25mx6mx9m size Screening building shall be Constructed for suitably accommodating drive arrangement of BC-1, primary vibrating Screen, tail pulley of picking belt BC-2. The Vibrating Screen will be installed at 6.5 meter level.

The picking belt of 12 meter long and 1400 mm wide shall be installed at 4.8 meter level. The picking belt discharges the picked coal to crusher installed at 2.0 meter level. The crushed coal is conveyed through belt BC-3 to be discharged on Secondary Screen.

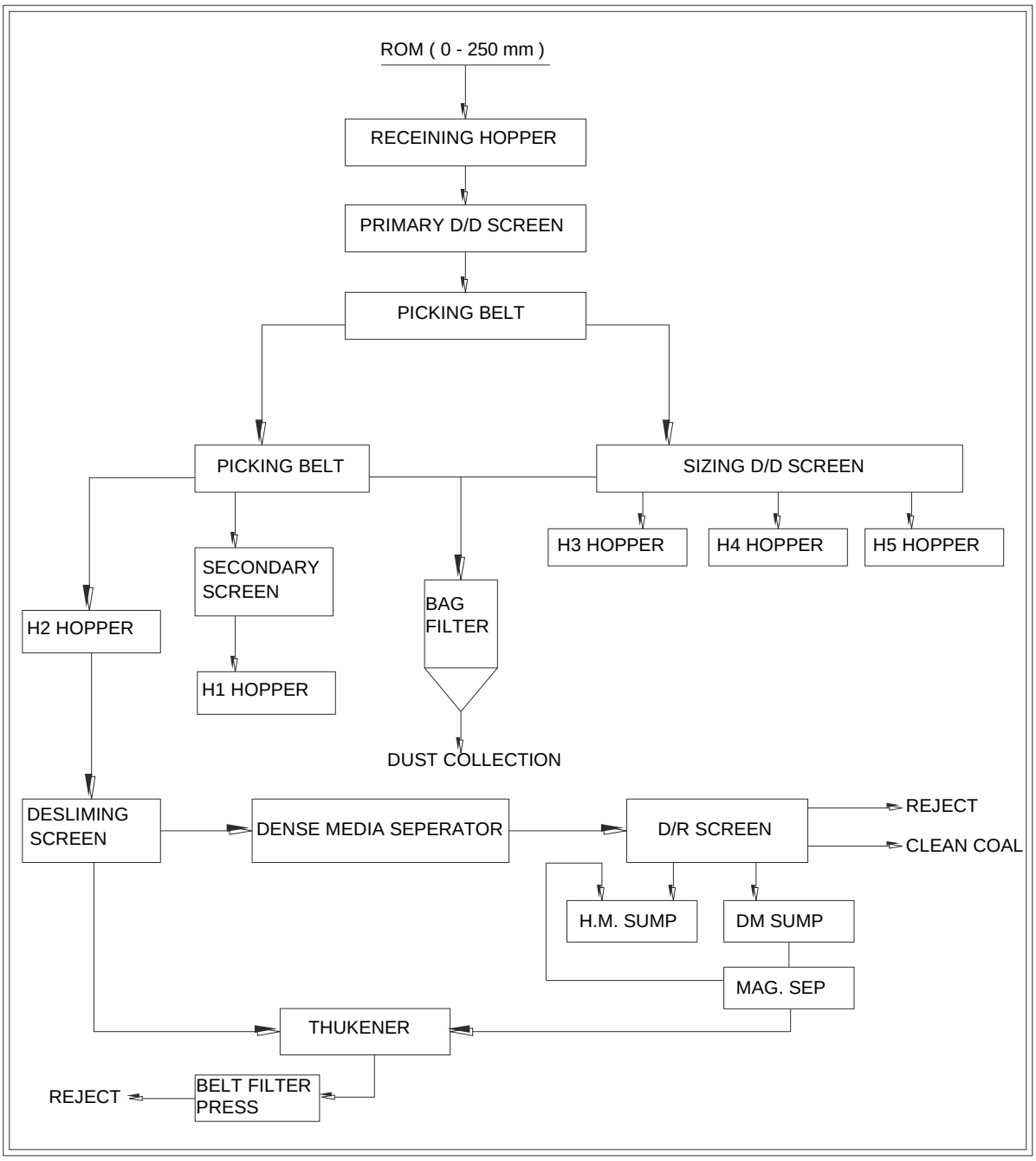
The underflow of Screen(0 to 13 mm) natural coal is conveyed by belt Conveyor BC -4 to Steel hopper(H1) The picked stone & shale shall be stacked on the ground through suitable chute.

Wet washery building will be built to accommodate 150 TPH Dense Media Wemco Drum Separator, Desliming screen, D/R Screen, Magnetic Separator, Heavy media & Dilate media sumps & pumps, 23m dia coal thickener, Filter belt press of 30 TPH capacity , two nos of concrete emergency slurry ponds of 40m x 5m x 2.5m each.

BC10 belt conveyor will feed prepared coal (13-50 mm) to wet washery. BC11 belt conveyor of 100 TPH capacity will be stacking wet clean coal on ground as well as BC12 belt conveyor of 100 TPH will be stacking wet reject on ground.

Sizing Double Deck Screen

6mX 4mX 4m steel structure will be installed for accommodating D/D Sizing Screen, tail pulleys of BC 6, BC 7,& BC 8, Belt Conveyor and the drives of BC 6, BC 7,& BC 8, will be installed at 10 meter height respectively just to accommodate. Proposed steel hopper H3, H 4, & H5, for dispatching coal by trucks to prospective buyer through Rake & Pinion arrangement fitted below all three Steel Hoppers.



Flow Chart for Coal Beneficiation of a Coal Washery

Description of the Environment (Baseline Data)

Air Environment

Baseline Environmental status in and around the proposed activities indicates the existing quality of Air, Noise, Water, Soil and Socio-economic environment. The baseline environmental quality for the study period of October, November and December 2020 was assessed within 10 km radial distance from the project site.

The predominant wind directions were from E, SE & SSE. Average wind speed was 1.46 m/s during monitoring period.

The ambient air quality monitored at 8 locations selected based on predominant wind direction, indicated the following ranges;

PM_{10}	-	30.0 to 57.2 µg/m^3
$PM_{2.5}$	-	14.8 to 39.6 µg/m^3
SO_2	-	7.5 to 29.3 µg/m^3
NO_x	-	9.7 to 31.0 µg/m^3

The concentrations of PM_{10}, $PM_{2.5}$, SO_2 and NO_x were found within the National Ambient Air Quality Standards (NAAQ).

Water Environment

The water quality data was generated for October-2020. The water quality monitoring stations were selected with a view to represent the surface and ground water sources in and around 10 kilometer radius of the study area of proposed Project site. Sampling stations for water samples were selected taking all water sources into account, as per MOEF norms. A total number of 13, including 5 surface water &8 ground water samples were collected and analyzed. These tables have desirable as well as permissible limits of Indian Standard for each parameter. It was observed that the characteristics of the surface and ground water samples were found to be within the permissible limits of Indian Standards except the total coliforms in surface water samples which may be due to the human activities observed during sampling and requires disinfection before use for drinking purpose.

Noise Environment

It has found that in the proposed plant buffer zone, noise levels are in the **range of 35.4 – 51.5 dB (A)** at all eight stations. Maximum levels of noise have recorded in day hours which are natural as our most of activities have done in day hours.

Noise levels measured at all seven stations (N-1, N-2, N-3, N-4, N-5, N-6, N-7 and N-8) are low and well within limit of either 65.0 dB(A) for Residential Area or 75.0 dB(A) for Industrial Area as given in MoEF Gazette notification for National Ambient Noise Level Standard.

LAND ENVIRONMENT

Three Soil samples were collected at selected locations in the study area to assess the existing soil conditions around the proposed project site

The observations of soil characteristics are discussed parameter wise below;

a) Texture of soil samples from agriculture land and waste land and Barren land are loamy in Texture Classification.

b) Colour of soil samples from agriculture, waste land and Barren lands are black in colour.

c) The bulk density of soil samples from barren land are in the range of 1.69 to 1.97g/cc and sample from agriculture land are in the range of 1.80 to 1.98 g/cc and sample from waste land are in the range of 1.48 to 1.65 g/cc.

d) Soil samples from barren land have pH values between 8.01 to 8.2 and sample from agriculture land have 8.10 to 8.11 and sample from waste land have 7.80 to 7.91 ranges of pH values. The pH values are indicating nature of soil samples is neutral to alkaline.

e) Soil samples from barren land have conductivities between 0.146 to 0.187 mmhos/cm and conductivities of soil sample from agriculture land ranges between 0.240 to 0.262 mmhos/cm and conductivities of soil sample from waste land ranges between 0.117 to 0.172 mmhos/cm.

f) Soil samples from barren land have Organic Matter between 0.23 to 0.59 % and sample from agriculture land have between 1.94 to 2.17 % Organic Matter and sample from waste land have between 1.19 to 1.55. These values represent good fertility of soils.

g) Soil samples from barren land have concentration of Available Nitrogen values ranged between 90.5 to 239.1 kg/ha and samples from agriculture land range between 801.1 to 878.2 kg/ha and samples from waste land range between 402.2 to 658.2 kg/ha Available Nitrogen value.

h) Soil sample from barren land have concentration of Available Phosphorous values ranged between to 9.2 to 16.6 kg/ha and soil samples from agriculture land have concentration values ranges from 30.5 to 40.1 kg/ha and samples from waste land have concentration values ranges from 8.2 to 10.5 kg/ha.

i) Soil sample from barren land have concentration of Available Potassium values range between 204.3 to 269.6 kg/ha and sample from agriculture land concentration of Available Potassium as its values range between 982.4 to 1089.7 kg/ha and sample from waste land have values range between 255.4 to 298.0 kg/ha.

j) Characteristic of Barren and Waste land soil is a little deficient in nutrients concentration. Whereas, agricultural land soils are moderately suitable for cultivation of climatic crops and have good fertility.

Anticipated Environmental Impacts & Mitigation Measures

Environmental Component	Project Activities	Impacts	Action Plan Proposed
Ambient Air Quality	Storage of raw coal, washed coal & rejects	Dust (SPM/RPM) emissions, spontaneous ignition	• Provision of wind barriers • Fixed water sprinklers • Provision of silos for storage of washed coal and rejects • Reducing stacking time & quantity • Development of greenbelt around stockyard
	Emissions from unloading to coal bunker & from coal conveyors	Dust emissions	• Provision of enclosure to coal unloading point at coal hopper • Provision of dry fog system / water sprinklers at unloading point • Provision of enclosures to coal conveyors • Provision of water sprinklers at transfer points along belt conveyors
	Coal Crushing & Screening	Dust emissions	• Provision of enclosures to crushers and screens • Provision of Bag house to arrest dust from crushing activities
	Coal transportation	Dust emissions	• Use of dedicated coal transport road from coal washery. • Transport of coal through covered trucks • Washed coal will be transported by rail only • Periodic water sprinkling on coal transport road
	Unloading and loading activities at railway siding	Dust emissions	• Provision of fixed water sprinklers • Thick plantation around railway siding
	All activities	Excessive occupational exposures of workers to	• Provision of dust masks to all workers exposed to dust generating areas • Pre-employment and periodic medical examination of all employees for

Environmental Component	Project Activities	Impacts	Action Plan Proposed
		airborne particulate matter.	respiratory diseases • Periodic monitoring of ambient air quality at 4 locations within the plant area and in 4 nearby villages.
Ambient noise levels	Crushing & screening, DG sets, conveyor belts, coal transport, etc.	High noise levels and noise related community annoyance	• Design and layout of building to minimize transmission of noise • Use of inbuilt noise control system with plant equipment and machinery; • Periodic maintenance of equipment and machinery; • Provision of acoustic enclosures to stationary equipment; • Provision of sound proof cabins to wheel loaders & other HEMMs; • Provision of ear muffs/ear plugs to workers exposed to high noise areas; • Job rotation for workers working in high noise generating areas; • Development of thick green belt around plant boundary and plantation within plant premises; • Provision of noise barriers along plant boundary • Periodic monitoring of noise levels in the plant premises and in nearby villages;
Water Environment	Use of water for coal washing process	Depletion of water resources	• Maximize recovery of water from process and recycle and reuse of process effluent to minimize fresh water requirement in the plant. • Adoption of rainwater harvesting system in plant premises and in nearby villages to improve ground water recharge.
	Storm Water run-off	Silt & coal particles wash off from plant area &	• Provision of storm water drainage network within plant premises and collection of surface run-off in a series

Environmental Component	Project Activities	Impacts	Action Plan Proposed
		pollution of surface water bodies outside plant premises.	of settling tank. • Use of the storm water for coal washing process after proper settling and filtration.
	Waste water generated from washery, domestic effluent, etc.	Pollution of receiving water bodies or land surfaces if discharged untreated	• Process effluent will be re-circulated in process after proper treatment. • Domestic effluent will be treated in package type STP and the treated effluent will be used for dust suppression and plantation. • Surface run-off will be passed through settling tanks followed by oil & grease trap and will be used in the process. • Zero Effluent Discharge will be maintained.
Solid Waste	From coal washery	Impact on soil quality in surrounding areas due to deposition of coal.	About 20% of raw coal i.e.0.4 MTPA washery reject coal will be generated from the proposed coal washery. Most of the rejects produced in this plant will be consumed in the nearby power plants and other units. The reject coal will be transported by covered trucks. Spent oil & grease, damaged parts of machinery and equipment, empty drums of lubricant and oils, etc. will be generated during the washery operation. These waste material will be separately stored in a separate shed allocated for this purpose. The shed will have concrete floor to avoid spillage seeping to ground. These materials will be sold to authorised recycling vendors

Environmental Component	**Project Activities**	**Impacts**	**Action Plan Proposed**
Hydrogeology and Drainage pattern	Plant construction	Impact on drainage pattern	• No natural drains in the existing and proposed plant area. • Storm water will be collected in settling tanks through network of drains and will be used in coal washing process. • No impact on drainage pattern outside plant premises.
Land Environment	Plant construction, Dust due to coal handling and transport	Change in landuse of core zone Impact on soil quality in surrounding areas due to deposition of coal dust.	• Thick plantation around plant premises to improve aesthetic view of the area. • Adopting adequate air pollution control measures to control dust emissions during coal handling and coal transportation • Periodic maintenance of transport roads • Covered transport of coal. • Periodic monitoring of soil quality in surrounding areas.
Biological Environment (Flora and Fauna)	Plant construction, Dust due to coal handling and transport in operation phase	Displacement of existing fauna. Loss of existing vegetation	• Dense plantation will be developed in and around the project site. • Plantation of thick green belt using local plant species • Adoption of suitable dust control measures to avoid impact on vegetation • Plantation along transport road to arrest dust.
Occupational Health & Safety	Overall Coal washery operation and coal transportation	Respiratory diseases, Annoyance, sleep disturbance, and NIHL due to exposure to high noise levels, HAVS, VWF due	• Implementation of noise and fugitive dust emission controls and management measures. • Implementation of water quality management, conservation and control measures. • Adoption of Zero Effluent Discharge Practice

Environmental Component	Project Activities	Impacts	Action Plan Proposed
		to excessive exposure to vibrations, accident, electrocution, fall from height, etc. • Community annoyance from dust deposition. Potential for risk of harm to personnel and the local community. • Contamination of land and water through inappropriate disposal of waste products, including sewage and hazardous wastes.	• Provision of Personal Protective Equipment to all the workers employed in washery • Conducting pre-employment and periodic health check-up • Conducting pre-employment and refresher safety training programs to all employs of the washery • Maintaining proper house-keeping. • Adopting job rotation to avoid excessive exposure to high dust concentrations and high noise levels. • On-site first aid facilities along with ambulance facilities will be provided • Development of an emergency response plan that includes installation of emergency response equipment to combat events such as fire. All personnel required to handle hazardous materials will be provided with personal protective equipment suitable for the hazardous material being handled.
Socio-economic Aspects	Coal washery and coal transportation	Increase in employment opportunities both direct and indirect thereby increasing economic status of people of the region.	• Direct employment to about 51 local persons and many more persons will be benefited from indirect employment opportunities. • Improvement in the socio-economic status of the nearby villages. • The company will conduct various socio-economic welfare activities and infrastructure improvement measures in the nearby villages.

ENVIRONMENTAL MANAGEMENT PLAN

DURING CONSTRUCTION PHASE

This includes impacts due to the activities related to leveling of site, construction of structures for proposed project and installation of equipments.

Air Environment

During construction phase, dust will be the main pollutant, which will be generated from the site development activities and vehicular movement on the road. The impacts will be localized in nature and the areas outside the project boundary are not likely to have any significant adverse impact.

Air Pollution Control Measures

During dry weather conditions, it is necessary to control the dust generated by excavation and transportation activities. This will be achieved by regular water sprinkling. It will be ensured that vehicles and machineries are properly maintained to minimize smoke in the exhaust emissions. Sprinkling of water at regular intervals along the roads and work zone areas.

Noise Environment

Impact on Noise Levels

The major sources of noise during the construction phase are vehicular traffic, construction equipment like dozers, scrapers, concrete mixers, cranes, pumps, compressors, pneumatic tools, saws, vibrators etc. The operation of these equipment will generate noise ranging between 85-90 dB (A) near the source. These noise levels will be generated within the plant boundary and will be temporary in nature.

Noise Control Measures

Equipment will be maintained appropriately to keep the noise level within 85 dB(A). Wherever possible, equipment will be provided with silencers and mufflers. Acoustic enclosures will be provided to stationary equipments like DG sets, wherever possible. Construction activities will be restricted to day time only. Greenbelt will be developed

from construction stage. Further, workers working in high noise areas will be provided with necessary protective devices e.g. ear plug, ear-muffs etc.

Water Environment

Impact on Water Resources and Quality

There is no surface water stream within the proposed project site. There will not be any process wastewater generation during the construction phase. Wastewater generation during the construction period will be from domestic effluent from the sanitation facilities provided for the workers.

Water Pollution Control Measures

Stone pitching on the slopes and construction of concrete drains for storm water to minimize soil erosion in the area will be undertaken. Settling pond is planned for storage and recycling of surface water for use in the plant area. Also development of green belt in and around plant will be taken up during the monsoon season. In-plant roads will be concreted/blacktopped. Soil binding and fast growing vegetation will be grown within the plant premises to arrest the soil erosion. Mobile toilets will be provided during construction stage for construction workers.

Storage of Hazardous Material: Impact & Control Measures

The hazardous materials used during construction may include petrol, diesel, welding gas and paints, which are potentially hazardous. Hazardous materials will be stored and handled carefully under applicable safety guidelines.

Biological Environment

Impact on Ecology

Proposed site of the 2.0 MTPA coal washery is located at uncultivated land surrounded by some agriculture fields and road. The majority of local vegetation in project site is of seasonal shrubs, herbs and grasses and naturally grown local tree species. No tree cutting is planned. Plant design is made such that the existing trees will be protected as it is. Development of green belt around the periphery of the project site and along the approach road will be taken up during construction phase.

ENVIRONMENT MANAGEMENT PLAN DURING OPERATION PHASE

For the purpose of impact assessment during the operational phase the following environmental components have been considered:

- Climate & Meteorology;
- Ambient Air quality;
- Ambient Noise levels;
- Water resources and quality;
- Land use & Topography;
- Traffic load;
- Demography and socio-economics;

Air Environment

Impacts on Climate & Meteorology

The proposed coal washery project involves only transportation of raw coal from mines to washery site, physical washing of coal using water and transportation of washed coal and reject coal to the user industries through rail. There is no combustion process involved in the project. There will not be any major construction activities involved in the project that can change the wind pattern. Thus, the proposed project will not cause any changes in the climate and meteorological aspects of the area.

Impacts on Ambient Air Quality & Proposed Control Measures

The impacts on ambient air quality due to coal washery depend on various factors involved like transportation of coal from mines, coal handling equipment and processing of the coal in washery, storage of raw coal, washed coal and rejects, etc. The severity of impacts on air environment from coal washery projects are governed by terrain conditions around the project site and the prevailing micro-meteorological conditions in the project region. Coal washery projects are associated with several onsite facilities such as, raw coal handling system (unloading), washed coal handling system (loading) and reject handling system, are the major sources of air pollution.

Fugitive Emissions

The impact on air quality from coal washery depends on coal washery technology, its operation & maintenance as well as transportation of coal. The fugitive emissions of coal dust would be due to coal handling activities at storage yard, wind erosion, coal breakers, screens, spillages from conveyor system, loading operation etc. The fugitive emissions (mainly coal dust) would generally be less in quantity and it would be released relatively closer to ground level which would cause impacts in the immediate vicinity to very limited distances (about 1-2 km).

The impacts from various operations involved in the coal washery and proposed control/mitigation measures are given in following flow sheet.

FLOWSHEET SHOWING IMPACTS OF VARIOUS PLANT OPERATIONS ON AIR QUALITY AND PROPOSED CONTROL/MITIGATION MEASURES

Air Modelling Results

The AERMOD model was used to predict the maximum ground level concentration of PM_{10} generated due to operations at coal washeries. Point and area sources resembling the actual sources were fixed. Receptors were fixed at specific intervals.

The predicted maximum incremental GLC (24-hour average) of PM_{10} due to operations at proposed coal washery, as predicted by Air modelling, was observed as **1.47 µg/m³** at 500 m NW of the coal washery area. The predicted 24-hourly GLC were added with baseline air quality monitoring results to predict the post project scenario. The Predicted ambient air quality values are presented in following Table.

PREDICTED GLC OF PM_{10} AT AAQ MONITORING STATIONS

Location Code	Location	Max. Baseline conc. µg/m³	Predicted incremental conc. µg/m³	Total conc. µg/m³	NAAQ Standard (µg/m³)
A1	Project Site	**56.2**	1.47	57.67	100
A2	Hirapur Village	**49.7**	0.5	50.2	100
A3	Kukadsath Village	**57.2**	0.2	57.4	100
A4	Dhunki Village	**48.6**	0.2	48.8	100
A5	Sasti Village	**56.2**	0.09	56.29	100
A6	Mongi Village	**56.5**	0.5	57.0	100
A7	Sakri Village	**49.2**	0.2	49.4	100
A8	Borgao Village	**50.1**	0.2	50.3	100

ENVIRONMENTAL MONITORING PROGRAM

The environmental monitoring is important to assess performance of pollution control equipment installed in the proposed project of M/s. N.N Global Pvt Ltd. is propose to modify the project of existing 2.0MTPA Deshaled Coal crushing plant to 2.0MTPA wet coal washery at survey no.131/2, 131/2, &131/4 village:Muthara, Tehsil:Rajura, District: Chandrapur(MS).

The sampling and analysis of environmental attributes including monitoring locations will be as per the guidelines of the Central Pollution Control Board / State Pollution Control Board.

Environmental monitoring will be conducted on regular basis by M/s. N.N Global Pvt Ltd. to assess the pollution level in the proposed plant as well in the surrounding area. Therefore, regular monitoring program of the environmental parameters is essential to take into account the environmental pollutant of the study area.

Environmental Budget

Total cost of the project will be Rs. 9.50 Crore. The budgetary provision for EMP will be as Rs 280 Lakhs.

Rain Water Harvesting System (RWH)

RWH structures will be provided to harvest the rain water around the plant area and roof top. Rainwater harvesting is a mechanism involved in collecting, storing and putting rainwater to use when it is most needed. A rainwater harvesting system comprises of various stages of transporting rainwater through pipes or drains, filtration, and storage in tanks for reuse or recharge.

Rain water harvesting can be done by three ways;

- Recharge through Roof Top
- Rain water storage Tank
- Recharge through surface run-off

There are five components in a rainwater harvesting system namely catchment, conveyance, filtration, storage and recharge.

Rainfall Intensity for the region:

Average Rainfall per year is 1110 mm. No historical rainfall available at site.

Co-efficient and Factor Adopted:

Runoff Co-efficient

Surface Type	Run off Co efficient
Roof top area of building/sheds	0.85
Road and Paved area	0.65
Green belt area	0.15
Open land	0.2

(Source: Concepts & Practices for Rain Water Harvesting CPCB)

Retention Time in Recharge Well

(10 - 15) min per hour

Volume of Harvesting Pit

Q * Retention Time

Where,

Q = Catchment Area x Harvesting Factor x Rainfall intensity (mm/ hour)

The proposed design for the recharge pit is shown in below figure.

Rainwater harvesting Quantity

Rainwater Harvesting at Site

Description	Area	Rain fall in Meter	Run off Co efficient	Total in M3
Roof top area of building/sheds	410	1.1	0.85	3833.5
Road area	5532	1.1	0.65	3955.38
Green belt area	18381	1.1	0.15	3032.86
Open land	31377	1.1	0.2	6902.94
Total		-	-	17724.68

The RWH have potential of water storage of capacity 17724.68m^3 of water

10.3.5 Green belt

The plantation will helps to capture the fugitive emissions and attenuate the noise apart from improving the aesthetics quality of the region.

Adequate green belt will be provided all around the plant and inside the plant premises. Locally available types of trees which are resistant to pollutants are planted.

The plant species recommended for strengthening the existing plantation are presented in following **Table.** However the selection of the species will be finalized in consultation with the local Forest Department.

The species identified will be planted using pitting technique. The pit size will be either 45 cm X 45 cm X 45 cm or 60 cm X 60 cm X 60 cm .Bigger pit size will be preferred. Soil used for filling the pit will be mixed well with decomposed farm yard manure or sewage sludge at the rate of 2.5 kg (on dry weight basis) and 3.6 kg (on dry weight basis) for 45 cm X 45 cm X 45 cm and 60 cm X 60 cm X 60 cm pit respectively. The filling of soil will be completed at least 5-10 days before actual plantation.

Conclusion

The potential environmental, social and economic impacts have been assessed. The proposed activities will have the marginal impacts on the local environment. With effective implementation of proposed environment management plan and mitigation measures, these impacts will be insignificant. Implementation of the project has beneficial impact in terms of providing direct and indirect employment opportunities. This will be a positive socio-economic development in the region.