Revised Form-1

APPENDIX I
(See Paragraph – 6)
FORM - 1

S. No.	Basic Information		
	Item	:	**Details**
1.	Name of the Project	:	Proposed Common Effluent Treatment Plant of 10 MLD capacity at MIE area based on extended aeration technology Promoted by: Haryana State Industrial and Infrastructure Development Corporation Limited, Industrial Estate, Bahadurgarh.
2.	S. No. in the schedule	:	7(h)
3.	Proposed capacity/area/ length/tonnage to be handled /command area/lease area /number of wells to be drilled	:	The proposed capacity of CETP will be 10 MLD. Total plant area is 3.5 Acres is designated for CETP project.
4.	New/ Expansion / Modernization	:	New
5.	Existing capacity/Area etc.	:	Not applicable
6.	Category of project i.e. 'A' or 'B'	:	As per the EIA Notification, 2006 [as amended], the proponent needs to obtain the Environmental Clearance for the proposed project for establishing CETP. The proposed project falls under "item 7(h) of Schedule of Environment Clearance Notification dated 14th September, 2006, i.e. Common Effluent Treatment Plant, under Category – "B". However, due to presence of Haryana-Delhi interstate boundary at a distance of 0.8 Km in E direction the proposed project will be treated as Category "A" project
7.	Does it attract the general condition? If yes, please specify.	:	Yes, presence of Haryana-Delhi interstate boundary at a distance of 0.8 Km in E direction the proposed project.
8.	Does it attract the specific condition? If yes, please specify.	:	No

9.	Location		
	Plot / Survey / Khasra no.		MIE area Opposite Plot No. 2065, MIE, Sec-21 & 22
	Village / Town	:	Bahadurgarh
	Tehsil	:	Bahadurgarh
	District	:	Jhajjar
	State	:	Haryana
10.	Nearest Railway station/Airport along with distance in km.	:	**Nearest Railway Station**: Bahadurgarh Railway Station: 2.8 Km, NNW direction **Nearest Airport**: Indira Ghandhi International Airport: 22.5 Km, SE
11.	Nearest Town, City, District Headquarters along with distance in kms.	:	Nearest Town- Bahadurgarh District – Jhajjar
12.	Village Panchayat, Zilla Parishad, Municipal Corporation, Local body (Complete postal address with telephone no. to be given)	:	Municipal Council, Bahadurgarh, City Police Station, N-10, Bahadurgarh, Dist. – Jhajjar. Ph. No.- 01276-230544, 230204 E-mail- mcbgarh2016@gmail.com
13.	Name of the applicant	:	Sh. Rajiv Kumar
14.	Registered address	:	C 13-14, Sec-06, Panchkula Pin code: 134109
15.	Name	:	Sh. Rajiv Kumar
	Designation (Owner/ Partner /CEO)	:	Senior Manager (IA)
	Correspondence Address	:	**Correspondence Address:** HSIIDC Industrial Estate, Sector 17, P.O Jakhoda, Bahadurgarh, District Jhajjar, Haryana, India
	Pin Code	:	124505
	E-mail	:	rajivk6519@gmail.com
	Telephone no.	:	01276-297030
	Fax No.	:	-

16.	Details of alternative sites examined, if any. Location of these sites should be shown on a Toposheet.	:	N.A.
17.	Interlinked projects	:	No
18.	Whether separate application of interlinked project has been submitted?	:	No
19.	If yes, date of submission	:	Not Applicable
20.	If no, reason	:	--
21.	Whether the proposal involves approval/Clearance under: if yes, details of the same and their status to be given. (a) The Forest (Conservation) Act, (1980)? (b) The Wildlife (Protection) Act, 1972? (c) The C.R.Z. Notification, 1991?	:	N.A.
22.	Whether there is any Government Order/Policy relevant/relating to the site	:	No.
23.	Forest land involved (hectares)	:	No.
24.	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up?	:	No.
	(a) Name of the Court	:	--

	(b) Case No.	:	--
	(c) Orders/directions of the court, if any and its relevance with the proposed project.	:	--
	Activity		
1.	**Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)**		
S. No.	**Information/Checklist confirmation**	**Yes/ No**	**Details thereof (with approximate quantities /rates, wherever possible) with source of information data**
1.1	Permanent or temporary change on land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)	Yes	The proposed project shall be executed on non agricultural land it is within industrial estate. Leveling of the site for construction work shall be done. However, top soil shall be stored at separate place and reused for gardening purposes.
1.2	Clearance of existing land, vegetation and buildings?	No	**Vegetation** The site is devoid of any significant vegetation. However, there will be some clearing of site during the construction phase. **Building** There are some existing structure at the site. The proposed project shall be executed after dismantling the structure on non agricultural land.
1.3	Creation of new land uses?	No	The entire MIE area along with proposed CETP site is already ear marked as Industrial Zone.
1.4	Pre-construction investigations e.g. bore houses, soil testing?	No	There will be no impacts which will cause changes physical changes in the locality due to the soil testing or other pre-construction investigations.
1.5	Construction works?	Yes	The construction activities will have insignificant impact on environment confined to site only. During construction work for foundations and any other structures for proposed CETP

			units will be done.
1.6	Demolition works?	Yes	There is an existing pump house, which shall be demolished for the construction of proposed 10 MLD CETP unit.
1.7	Temporary sites used for construction works or housing of construction workers?	No	Workers will be hired from nearby villages so no housing facility is required. However, temporary rest shelters will be provided at the site.
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations	Yes	During construction work for foundations and any other structures for proposed CETP units will be done.
1.9	Underground works including mining or tunneling?	No	N.A.
1.10	Reclamation works?	No	N.A.
1.11	Dredging?	No	N.A.
1.12	Offshore structures?	No	N.A.
1.13	Production and manufacturing processes?	Yes	Detailed process description for proposed facility of CETP is given in the pre feasibility report.
1.14	Facilities for storage of goods or materials?	Yes	Temporary store rooms for the storage of construction materials will be built at the site, which will be removed later. Thus the impact on physical environment will be temporary. During the operation; phase, There will be well-designated confined storage areas within the project premises, which will not have an impact on the physical environment.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	The CETP itself is a treatment facility for effluent generated from the member industries of MIE area. It is proposed to provide Disposal works Common Effluent Treat Plant & Disposal of Treated Effluent. The CETP is to be provided for treating the sewage of Industrial Estate to desired level of treatment as required by Haryana Pollution Control Board. The treated effluent after tertiary treatment shall be recycled

			for industrial use.
1.16	Facilities for long term housing of operational workers?	No	Workers will be hired from nearby villages so no housing facility is required. However, temporary rest shelters will be provided at the site.
1.17	New road, rail or sea traffic during construction or operation?	Yes	There will be increase in road traffic for transportation of construction material during construction phase. There will be no increase in rail and sea traffic.
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc.?	No	There is no new rail, air borne transport infrastructure required for the project.
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	Due to upcoming CETP project, there will be no closure or diversion of existing transport routes or infrastructures leading to changes in traffic movements.
1.20	New or diverted transmission lines or pipelines?	No	--
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No	--
1.22	Stream crossings?	No	There is no stream existing within the site.
1.23	Abstraction or transfers of water from ground or surface waters?	Yes	The proposed unit required 5KLD water. Water supply for drinking, for chemical solution in solution tanks, office, toilet and Laboratory shall be made available from the source of HUDA.
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	No	--
1.25	Transport of personnel or	Yes	Labor and raw material for construction will be transported

	materials for construction, operation or decommissioning?		via the existing infrastructure.
1.26	Long-term dismantling or decommissioning or restoration works?	No	Restoration works for the project on long-term will be an ongoing activity which will not have any impact on physical environment.
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	No	--
1.28	Influx of people to an area in either temporarily or permanently?	No	Priority will be given to local area people for preconstruction and post construction of the plant.
1.29	Introduction of alien species?	No	Only local plant species will be planted for the green belt/ landscaping.
1.30	Loss of native species or genetic diversity?	No	--
1.31	Any other actions?	No	--
2.	**Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):**		
S.No.	**Information/checklist confirmation**	**Yes / No**	**Details thereof (with approximate quantities /rates, wherever possible) with source of information data**
2.1	Land especially undeveloped or agricultural land (ha)	Yes	Total plot area of 3.5 acres has been earmarked for the project.
2.2	Water (expected source & competing users) unit: KLD	Yes	Total water demand 5 KLD Source: HUDA
2.3	Minerals (MT)	No	--
2.4	Construction material – stone, aggregates, sand / soil (expected source – MT)	Yes	Construction material like steel, cement, crushed stones, sand, rubble etc required for the project shall be procured from the local market of the region.
2.5	Forests and timber (source –	No	--

	MT)		
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)	Yes	Power Requirement for the project will be 12 MW. Source: UHBVN D.G sets in no. 1 and capacity 1000 KVA will be installed for power backup. Fuel used: HSD; Quantity used : 140L/hr
2.7	Any other natural resources (use appropriate standard units)	No	No other natural resource will be involved in the proposed project.
3.	**Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.**		
S. No.	**Information/Checklist confirmation**	**Yes / No**	**Details thereof (with approximate quantities/rates, wherever possible) with source of information data**
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, andwater supplies)	Yes	Various chemicals (lime, FeSO4, HCL, Chlorine etc) will be used in CETP processing which are toxic in nature. There will be storage of HSD which will be used for the DG sets. The chemical sludge generated from pre-settling tanks, primary and secondary clarifiers would be collected into Wet sludge tank of Pump House. The wet sludge shall be pumped for dewatering through filter press. The dewatered sludge cake from the filter press would drop (under gravity) into the trolley and shall be stored into dry sludge store for a period of maximum one month. Later, the dry sludge shall be transported to final sludge disposal site as earmarked by State Pollution Control Board (HSPCB). Hazardous waste will be disposed off as HWMR 2016. Necessary precautions will be under taken to ensure safety of human health and environment (flora, fauna, and Water supplies)
3.2	Changes in occurrence of disease or affect disease	No	--

	vectors (e.g. insect or water borne diseases)		
3.3	Affect the welfare of people e.g. by changing living conditions?	Yes	Local people will be employed during construction and operational work, which will lead to change in their life style.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,	No	The proposed project shall not affect any vulnerable groups of people in the near vicinity
3.5	Any other causes	No	Nothing significant
4.	**Production of solid wastes during construction or operation or decommissioning (MT/month)**		
S.No.	**Information/Checklist confirmation**	**Yes / No**	**Details thereof (with approximate quantities/rates, wherever possible) with source of information data**
4.1	Spoil, overburden or mine wastes	No	***Not applicable***
4.2	Municipal waste (domestic and or commercial wastes)	Yes	During construction & operational phase domestic waste will be generated which will be handled by the local body.
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	Yes	Spent oil from DG Set, Sludge from CETP will be generated during the operation phase and same will be disposed off properly as Hazardous and Other Waste Management Rules 2016.
4.4	Other industrial process wastes.	No	Other than ETP sludge, there is no other industrial process waste.
4.5	Surplus product.	No	--
4.6	Sewage sludge or other sludge from effluent treatment.	Yes	The dry sludge generated shall be transported to final sludge disposal site as earmarked by The State Pollution Control Board (HSPCB).
4.7	Construction or demolition wastes.	Yes	Construction waste will consist of excavated earth and construction debris along with cement bags, scraps, insulating and packing Materials etc. Recyclable waste will be sold to authorized recycler.
4.8	Redundant machinery or	No	--

<table>
<tr><td></td><td>equipment.</td><td></td><td></td></tr>
<tr><td>4.9</td><td>Contaminated soils or other materials.</td><td>No</td><td>Proper care will be taken to avoid contaminating soil and if oil spilled soil will be found, the same will be scrapped off and stored at earmarked places and sent to disposal sites.</td></tr>
<tr><td>4.10</td><td>Agricultural wastes.</td><td>No</td><td>There will be no agricultural waste.</td></tr>
<tr><td>4.11</td><td>Other solid wastes.</td><td>No</td><td>There will not be other solid waste.</td></tr>
<tr><td>5.</td><td colspan="3">Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/hr)</td></tr>
<tr><td>S. No.</td><td>Information/Checklist confirmation</td><td>Yes / No</td><td>Details thereof (with approximate quantities/rates, wherever possible) with source of information data</td></tr>
<tr><td>5.1</td><td>Emissions from combustion of fossil fuels from stationary or mobile sources.</td><td>Yes</td><td>There will be emission from D.G. set, transportation, etc.<table><tr><th>Source</th><th>Management</th></tr><tr><td>DG Sets</td><td>• Stack of suitable height will be provided.</td></tr><tr><td>Transportation</td><td>• PUC certified vehicles will be used;
• Plantation will be done at the periphery of the proposed project and local species will be planted.
• 33% area will be under green cover.</td></tr></table></td></tr>
<tr><td>5.2</td><td>Emissions from production processes.</td><td>No</td><td>The unit is Common effluent treatment plant. Thus, there is no emission from process except from running of D.G. set</td></tr>
<tr><td>5.3</td><td>Emissions from materials handling including storage or transport</td><td>Yes</td><td>The emission expected from construction phase will be dust arising from material handling and vehicular emission from transport vehicles. These include the emissions due to idling of the vehicles during loading and unloading activities.
Management:
Construction waste will reutilizes within the site itself to the extent possible to reduce the emissions during transportation. Further, idling of vehicle will be reduced to the extent possible.</td></tr>
<tr><td>5.4</td><td>Emissions from construction activities including plant and equipment</td><td>Yes</td><td>During construction activities, emissions will be in the form of dust. Suitable dust suppression techniques such as waster sprinkling will be taken at these times as relevant. These</td></tr>
</table>

			emissions will be temporary and will be controlled.
5.5	Dust or odors from handling of materials including construction materials, sewage and waste.	Yes	• The important dust suppression measures proposed will be regular water sprinkling on main haul roads in the project area, this activity will be carried out at least twice a day. • Latest technologies will be utilized to control odours from CETP.
5.6	Emissions from incineration of waste	No	There will be no incineration of waste.
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	The construction waste generated will be reused back for construction of road and paved areas within the project area.
5.8	Emissions from any other sources	No	No common burning will be allowed at site.
6.	**Generation of Noise and Vibration, and Emissions of Light and Heat:**		
S. No.	**Information/Checklist confirmation**	**Yes / No**	**Details thereof (with approximate quantities/rates, wherever possible) with source of information data with source of information data**

6.1	From operation of equipment e.g. engines, ventilation plant, crushers	Yes	Noise will be generated during operation of various equipments/machineries of CETP units as well as DG Sets etc. Necessary PPEs (ear muffs, closed chamber) will be provided for the personnel's Working in this area. Most of the equipment structures are static, vibration effect of these will be only local, design of support and foundation will nullify the intensity of vibrations. Proper mitigation Measures will be adopted. The following measured will be taken: • EPA/CPCB certified DG sets conforming to the standards for noise will be used. • Temporary noise barriers will be provided all around the project site. • All construction equipment and machineries will be maintained in good conditions. • The adverse impact on workers will be reduced by rotating the job between workers working at a particular noise source. • Personal protective equipment like ear muffs, ear plugs will be provided to the workers.
6.2	From industrial or similar processes	No	During post construction phase noise may be generated due to various CETP processes. Following measures will be adopted to control the noise and vibration: • Optimum selection of machinery tools or equipment reduces excess noise levels. • Vibrations will be monitored and will be controlled appropriately. • Foundations and structures will be designed to minimize vibrations and noise. • Installation of barriers between noise source and receiver will attenuate the noise levels.

			• Necessary safety and personal protective equipment such as ear plugs, ear muffs, helmet etc. will be provided to the workers. • Noise levels generated will be maintained to comply with the Factories Act & Rules and will not exceed 75dB (A) at 1 m distance. • Proper lubrication and housekeeping will be usually done to avoid excessive noise generation. • Regular equipment maintenance and better work habits will be adopted.
6.3	From construction and demolition	Yes	**During construction:** During construction work D.G. sets, pumps, trucks, vibrators, drilling machine, etc will be the tentative sources of noise.
6.4	From blasting or piling	No	Blasting/piling operations are not envisaged in the proposed project.
6.5	From construction or operational traffic	Yes	There may be increase in the noise levels due to constructional/ operational traffic arising due to the project, which will be minimized by: • Effective traffic management including sufficient width of driveways to avoid traffic congestions especially during the peak hours. • Use of mass transportation facilities. • Effective green will help in reducing the noise propagation.
6.6	From lighting or cooling systems	No	--
6.7	From any other sources	No	--
7.	**Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:**		
S. No.	**Information/Checklist confirmation**	**Yes / **	**Details thereof (with approximate quantities/rates, wherever possible) with source of information data**

		No	
7.1	From handling, storage, use or spillage of hazardous materials	Yes	Used oil, Sludge generated from CETP and discarded containers are the only hazardous materials that will be generated on site and Handling and storage of hazardous materials will be strictly followed as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and amended thereafter. Impermeable surface will be made in areas that will be used to store hazardous material along with controlled access in the area
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place ofdischarge)	No	The CETP itself is a treatment facility for effluent generated from the member industries. It is proposed to provide Disposal works Common Effluent Treatment Plant & Disposal of Treated Effluent. The CETP is to be provided for treating the sewage of Industrial Estate to desired level of treatment as required by Haryana Pollution Control Board. The treated effluent after tertiary treatment shall be re-circulated to industrial use.
7.3	By deposition of pollutants emitted to air into the land or into water	No	**Construction Phase:-** During construction phase, fugitive emissions will be generated from material transfer, construction operations, finishing operations, road construction, exhaust from vehicles, stationary sources etc. It is a short term source and impact will be temporary. However, proper management will be adopted to avoid any kind of emission into air.
7.4	From any other sources	No	There will not be any other sources, which will contaminate land & water resources.
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	--
8.	**Risk of accidents during construction or operation of the Project, which could affect human health or the environment**		

S. No.	Information/Checklist confirmation	Yes / No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances	No	Handling and storage of hazardous materials will be strictly followed as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016
8.2	From any other causes	No	The major risks involved in the project would be mishaps due to human errors, bad construction practices and associated electric hazards. All safety measures will be in place prior to commencement of operations so as to avoid any risk of human life and as per the prevailing local by laws.
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?	No	No such event reported so far. The area falls under Seismic Zone IV.
9.	**Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality**		
S. No.	**Information/Checklist confirmation**	**Yes / No**	**Details thereof (with approximate quantities/rates, wherever possible) with source of information data**
9.1	Lead to development of supporting cities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: • Supporting infrastructure (roads, power supply, waste or waste water	Yes	Proposed project will result in considerable growth of the surrounding areas by increased direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure. The CETP unit will help in managing the industrial effluent of the area.

	treatment, etc.) • housing development • extractive industries • supply industries • other		
9.2	Lead to after use of the site, which could have an impact on environment	No	--
9.3	Set a precedent for later developments	No	--
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	No	--

Environmental Sensitivity (within 15 km radius) –

S. No.	**Areas**	**Name/ Identity**	**Aerial distance (within 15km.) Proposed project location boundary**
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value.	None	--
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests.	• Mungashpur Drain • Mangolpur drain • Kultana Chhudani Bupani Drain • Madanpur Drain • West Juan Drain, • Kasar Drain, • Bazidpur Drain,	just adjacent to project site. 1.9 Km, NNW 2.5 Km, S 3.7 Km, SE 5.5 Km, NW 6.5 Km, W

		8.2 Km, NE • Najaggarh Drain, 8.6 Km, SE • Drain 11.9 Km S • Gurgaon Water supply Channel, 12.0 Km, NW Ganda Nala, 13.5 KM, SE	
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration.	None	--
4	Inland, coastal, marine or underground waters	None	--
5	State, National boundaries	Interstate boundary of Haryana-Delhi	0.8 Km, E
6	Routes or facilities used by the public for accessto recreation or other tourist, pilgrim areas	NH-10	1 Km, W
7	Defense installations	None	
8	Densely populated or built-up area	Bahadurgarh	2 km
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	**Hospitals**: Available in Bahadurgarh & Najafggarh **Educational Institutions:** Government College: Vaish Mahila	1.8 Km, W

		Mahavidhlaya: Sunshine Public School: Delhi Technical Campus: DM College of Pharmacy **Worship Places:** St. Gregorius Church New Vision Colony Church	2.8 Km, NNW 5.0 Km, NW 5.5 Km, SW 5.8 Km, W 9.45 Km, ESE 6.6 Km, SSE
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	None	
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	None	
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	The area is susceptible to earthquakes as in falls under Zone IV which is The area falls under Seismic Zone IV.	The area falls under Seismic Zone IV.

"I hereby given undertaking that the data and information given in the application and enclosure are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance give, if any to the project will be revoked at our risk and cost.

Date: **Sh. Rajiv Kumar**

Place:

Senior Manager (IA)

Revised PFR

SECTION – I
EXECUTIVE SUMMARY
INDEX

EXECUTIVE SUMMARY

1.1 IDENTIFICATION OF PROJECT

Pollution from small and medium size industries is a major problem in India. Nearly half of wastewater generated by the most polluting industries in India comes from the small and medium size industries.

Modern Industrial Estate comprising of about 500 acres was set up at Bahadurgarh by the Haryana govt. In two parts i.e. MIE Part A & MIE Part B on either side of NH-10 road at Haryana-Delhi border to give relief to Delhi from its increasing industrial pressure. Total 2318 plots of various categories ranging from 10 Marla plots to two acres have been carved out. In this area most of the plots have been sold out and development works have already been completed by HUDA in the year 1982. The industries relate to footwear, iron & fabrication, plastic goods, pharmaceuticals, chemicals, confectionary / food processing, auto mobiles ancillaries and electronic & electrical good etc. Have been established in the MIE area but till date no CETP has been constructed to treat the effluent of this area. The untreated effluent is being disposed off directly in the Mungeshpur Drain for the last many years. Under the water (Prevention and Control of Pollution) Act 1974, it is mandatory to treat the sewage effluent to the prescribed standards before its disposal in to the drain / river. Hence the CETP is immediately required to treat the effluent of the MIE area. Therefore the project proposal for the construction of CETP of capacity of 10 MLD has been framed.

HSIIDC has been entrusted the task to upgrade Bahadurgarh Industrial area and provide necessary treatment plant for abatement of pollution under ASIDE scheme as per the decision taken in the 19th meeting of state level export promotion committee (SLEPC) held on 16.02.2017 under the chairmanship of Chief Secretary Govt. of Haryana.

Presently the existing effluent from industries is pumped in to nearby drains without any treatment. It is proposed to construct common effluent treatment plant in MIE Area Sector – 21 & 22 Bahadurgarh

The land available for proposed unit is 3.5 Acres. The expected capital investment for the proposed CETP plant is 45.15 crores.

The proposed common effluent treatment plant will be based on Extended Aeration Process including Tertiary Treatment on turnkey basis.

The treatment system involves Raw effluent Collection followed by Primary Treatment (Fine Screening, Grit removal, Oil Removal, and Equalisation) followed by Physico Chemical Treatment & Secondary biological Treatment (Activated Sludge Process -Extended aeration), and finally tertiary treatment.

The project is for common effluent treatment plant to treat the effluent being generated from the industries located in the MIE area of Bahadurgarh. Waste water thus generated by the associated industries will be collected through existing pipeline network for treatment. The waste water after treatment shall meet the discharge standards laid down by MoEF & CC & HSPCB. The treated effluent is proposed to be used mainly for irrigation, watering of parks green belts etc. or proposed to be disposed of into Mungeshpur Drain by gravity/pumping.

Accordingly it has been decided that Disposal works Common Effluent Treat Plant & Disposal of Treated Effluent (Including Rising Main) as per CPHEEO Norms be designed and got executed at site.

The proposed project falls under "item 7(h) of Schedule of Environment Clearance Notification dated 14 th September, 2006, i.e. Common Effluent Treatment Plant, under Category – "B". However, due to presence of Haryana-Delhi interstate boundary at a distance of 0.8 Km in E direction the proposed project will be treated as Category "A" project

1.2 SALIENT FEATURES OF THE PROJECT

S.No	Parameter	Description
1.	Plant Capacity	The Proposed Project is setting up of common effluent treatment plant of 10 MLD capacity.
2.	Total area of the Plant	Total area under CETP: 3.5 Acres.
3.	Capital Cost	The expected capital investment for the proposed project will be 45.15 crores
4	Location	Latitude: 28°40'49.81"N to 28°40'55.32" N Longitude: 76°56'51.43"E to 76°56'55.83"E
5	Total Water Requirement/Source	5 KLD including domestic requirement. The source of water supply will be HUDA.
6	Total waste water Generation and Management	The effluent generated from member units will reach the CETP. Mechanical Coarse and fine screen chamber with oil & grease trap shall be constructed for 10 MLD with 3.0 Peak factor. .
7.	Employment Generation	Manpower Required during construction will be 60 Manpower required during operation and maintenance will be 30
8.	Power Supply	Total power requirement will be 12 MW, which will be supplied by UHBVNL
9	Power backup	D.G sets 1 in no. and capacity 1000 KVA will be installed for power backup. Fuel used: HSD Fuel Consumption: 140 litres/hr

1.3 RAW MATERIAL

Raw material required for construction and setting up of Common Effluent Treatment Plant are cement, steel, aggregates & sand for civil works. Waste water will be collected through dedicated pipeline system from associated industries. Sludge generated from CETP will be disposed off to the TSDF site.

In addition, raw materials required for the proposed project will be chemicals namely lime, FeSO4, Polymer, HCl, Urea, DAP, Chlorine etc for treatment purpose. Which are easily available and does not have any significant hazardous effect.

1.4 PRODUCT

The treated effluent is proposed to be used mainly for irrigation, watering of parks green belts etc. or proposed to be disposed of into Mungeshpur Drain by gravity.

The effluent generated from member units will reach the CETP. The approximate quantity of such effluent will be 10 MLD.

1.5 CONCLUSION

Water is our most important resource. The available supply of fresh water is an absolute deadline beyond which no community, state or nation can ever go. When humanity runs out of clean water, everything stops. That is the end of road for a man and his activities. Saving our clean water is thus a must.

This project is for establishment of common environmental infrastructure i.e. CETP for treatment of effluent being generated by its member industries. The imposition of new scale of, statutory standards on effluent treatment with water reclamation potential may require, in addition, a new infrastructural investment on the existing pollution control system of the individual units. This may be the driving point for the overall participation in the proposed CETP from industries to bring down drastically the pollution level. The charges to be levied on new scale on the basis of pollution load, breaking the orthodox style, would equally keep operational their own equipment. An attempt on water recovery for its recycling in the proposed CETP design may be an exemplary in the country with a start up in this Zone.

The unit will adopt all measures like; pollution control equipments, effective EMP & DMP to prevent harm / damage to the environment.

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SECTION II

PROJECT BRIEF AND BACKGROUND INFORMATION

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SECTION II
PROJECT BRIEF AND BACKGROUND INFORMATION

2.1 PROJECT BRIEF

Pollution from small and medium size industries is a major problem in India. Nearly half of wastewater generated by the most polluting industries in India comes from the small and medium size industries.

Modern Industrial Estate comprising of about 500 acres was set up at Bahadurgarh by the Haryana govt. In two parts i.e. MIE Part A & MIE Part B on either side of NH-10 road at Haryana-Delhi border to give relief to Delhi from its increasing industrial pressure. Total 2318 plots of various categories ranging from 10 Marla plots to two acres have been carved out. In this area most of the plots have been sold out and development works have already been completed by HUDA in the year 1982. The industries relate to footwear, iron & fabrication, plastic goods, pharmaceuticals, chemicals, confectionary / food processing, auto mobiles ancillaries and electronic & electrical good etc. Have been established in the MIE area but till date no CETP has been constructed to treat the effluent of this area. The untreated effluent is being disposed off directly in the Mungeshpur Drain for the last many years. Under the water (Prevention and Control of Pollution) Act 1974, it is mandatory to treat the sewage effluent to the prescribed standards before its disposal in to the drain / river. Hence the CETP is immediately required to treat the effluent of the MIE area. Therefore the project proposal for the construction of CETP of capacity of 10 MLD has been framed.

HSIIDC has been entrusted the task to upgrade Bahadurgarh Industrial area and provide necessary treatment plant for abatement of pollution under ASIDE scheme as per the decision taken in the 19th meeting of state level export promotion committee (SLEPC) held on 16.02.2017 under the chairmanship of Chief Secretary Govt. of Haryana.

Presently the existing effluent from industries is pumped in to nearby drains without any treatment. It is proposed to construct common effluent treatment plant in MIE Area Sector – 21 & 22 Bahadurgarh

The land required for proposed unit will be 3.5 Acres. The expected capital investment for the proposed CETP plant is 45.15 crores.

The proposed common effluent treatment plant will be based on Extended Aeration Process including Tertiary Treatment on turnkey basis.

The treatment system involves Raw effluent Collection followed by Primary Treatment (Fine Screening, Grit removal, Oil Removal, and Equalisation) followed by Physico Chemical Treatment & Secondary biological Treatment (Activated Sludge Process -Extended aeration), and finally tertiary.

The project is for common effluent treatment plant to treat the effluent being generated from the industries located in the MIE area of Bahadurgarh. Waste water thus generated by the associated industries will be collected through pipeline network for treatment. The waste water after treatment shall meet the discharge standards laid down by MoEF & CC & HSPCB. The treated effluent is proposed to be used mainly for irrigation, watering of parks green belts etc. or proposed to be disposed of into Mungeshpur Drain by gravity.

The HSIIDC has always taken lead in providing best possible infrastructure facilities in all the Industrial Estates. Accordingly it has been decided that Disposal works Common Effluent Treat Plant & Disposal of Treated Effluent (Including Rising Main) as per CPHEEO Norms be designed and got executed at site.

The proposed project falls under "item 7(h) of Schedule of Environment Clearance Notification dated 14 th September, 2006, i.e. Common Effluent Treatment Plant, under Category – "B". However, due to presence of Haryana-Delhi interstate boundary at a distance of 0.8 Km in E direction the proposed project will be treated as Category "A" project

2.1.1 BACKGROUND OF THE PROJECT PROPONENT

The details of the project proponent are given below:

Name of the applicant	HSIIDC, Bahadurgarh
Name and address	Sh. Rajiv Kumar Senior Manager (IA) HSIIDC Industrial Estate, Sector 17, P.O Jakhoda, Bahadurgarh, District Jhajjar, Haryana, India
Status of Project	New project (Freshly applied for Environmental Clearance)

2.2 NEED FOR THE PROJECT AND ITS IMPORTANCE

Establishment of effluent treatment plants for individual industries especially in the small scale sector in the various industrial estates in India, to produce the effluent of desired quality before discharge is not feasible in the Indian context. Firstly, because it is expensive on both

the capital and operating cost front and secondly, there is no guarantee of performance by the individual industries. Further, the disposal of treated effluents is also problematic as every individual industry cannot reach the water body through its own pipeline nor can it purchase land for inland irrigation. Thus, Government of India floated the idea of Common effluent treatment plant to overcome these problems. Accordingly Ministry of Environment, Forest & Climate Change, Government of India instructed the various State Pollution Control Boards to examine the possibilities of establishing CETP's in various industrial estates. In response to the directive issued by the Central Governments, the State
Governments started identifying the various locations for CETP's.

Establishment of CETP has following advantages:

- Saving in Capital and Operating cost of treatment plant. The Common treatment is always cheaper than small scattered treatment units.
- Contribution of nutrient and diluting potential make the complex industrial waste more amenable to degradation.
- The neutralization and equalization of heterogeneous waste makes its treatment techno-economically viable.
- Professional and trained staff can be made available for operation of CETP which is not possible in case of individual plants.
- Disposal of treated wastewater & sludge becomes more organized.
- Reduced burden of various regulatory authorities in ensuring pollution control requirement.

Water is our most important resource. The available supply of fresh water is an absolute deadline beyond which no community, state or nation can ever go. When humanity runs out of clean water, everything stops. That is the end of road for a man and his activities. Saving our clean water is thus a must. When untreated or inadequately treated waste waters are discharged, these have adverse affect on the body of water into which these wastes are disposed. The type of treatment of waste water would depend upon the use of effluent itself or of receiving body of water into which effluent is discharged. The degree of treatment of waste water would further depend upon the discharge of receiving body of water. If small quantity of waste water is discharged in a river or into the sea, the degree of treatment would be much less than if the same quantity of waste water is discharged into a small stream. When receiving body of water is already polluted because of discharge of waste into it, the extent of new discharge of waste into it would be limited.

HSIIDC has been entrusted the task to upgrade Bahadurgarh Industrial area and provide necessary treatment plant for abatement of pollution under ASIDE scheme as per the decision taken in the 19th meeting of state level export promotion committee (SLEPC) held on 16.02.2017 under the chairmanship of Chief Secretary Govt. of Haryana.

Presently the existing effluent from industries is pumped in to nearby drains without any treatment. It is proposed to construct common effluent treatment plant in MIE Area Sector – 21 & 22 Bahadurgarh at the proposed CETP site under ASIDE Scheme.

2.3 DEMAND-SUPPLY GAP

Govt. of India had sanctioned many Growth Centers in different parts of the country to provide Industrial Infrastructure for industrialization and creating employments in backward regions.

Keeping in view the fast Industrial Development in the area and to meet the growing demand, it is proposed set up of Common Effluent Treatment Plant (CETPs) where the effluents, generated from a number of small to medium enterprises in industrial areas Bahadurgarh is suitably treated as per the prescribed procedure & norms laid down in the regulation.

2.4 IMPORTS VS INDIGENOUS PRODUCTION.

Raw material available from local sources/surrounding area or industries.

2.5 EXPORT POSSIBILITY

Not applicable as company will provide service of effluent treatment comes from its member industries and final disposal of treated effluent.

2.6 DOMESTIC / EXPORT MARKETS

Not applicable as company will provide service of effluent treatment comes from its member industries and final disposal of treated effluent.

2.7 EMPLOYMENT GENERATION (DIRECT AND INDIRECT) DUE TO THE PROJECT

The Proposed project will provide direct employment during construction & operational phase. Local workers will be hired from the nearby villages. The total manpower required will be as follows:

1. Manpower required during construction phase: 60
2. Manpower required during operation and maintenance phase: 30

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SECTION – III

PROJECT DESCRIPTION

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SECTION III
PROJECT DESCRIPTION

3.1 TYPE OF PROJECT

The proposed project falls under "item 7(h) of Schedule of Environment Clearance Notification dated 14 th September, 2006, i.e. Common Effluent Treatment Plant, under Category – "B". However, due to presence of Haryana-Delhi interstate boundary at a distance of 0.8 Km in E direction the proposed project will be treated as Category "A" project

The project is for common effluent treatment plant to treat the effluent being generated from the industries located in the MIE area of Bahadurgarh. Waste water thus generated by the associated industries will be collected through pipeline network for treatment. The waste water after treatment shall meet the discharge standards laid down by MoEF & CC & HSPCB. The treated effluent is proposed to be used mainly for irrigation, watering of parks green belts etc. or proposed to be disposed of into Mungeshpur Drain by gravity.

The HSIIDC has always taken lead in providing best possible infrastructure facilities in all the Industrial Estates. Accordingly it has been decided that Disposal works Common Effluent Treat Plant & Disposal of Treated Effluent (Including Rising Main) as per CPHEEO Norms be designed and got executed at site.

HSIIDC proposed common effluent treatment plant of capacity 10 MLD at opposite plot no. 2065, MIE, Sector 21&22 village Bahadurgarh, Tehsil Bahadurgarh, District Jhajjar, Haryana. The land required for proposed CETP unit will be 3.5 Acres. The expected capital investment for the proposed CETP plant is 45.15 crores.

3.2 LOCATION

The proposed project is coming up at opposite plot no. 2065, MIE, Sector 21&22 village Bahadurgarh, Tehsil Bahadurgarh, District Jhajjar, Haryana. The plan clearly showing the project site and study area of 10 km radius is shown in Figure 3.1.

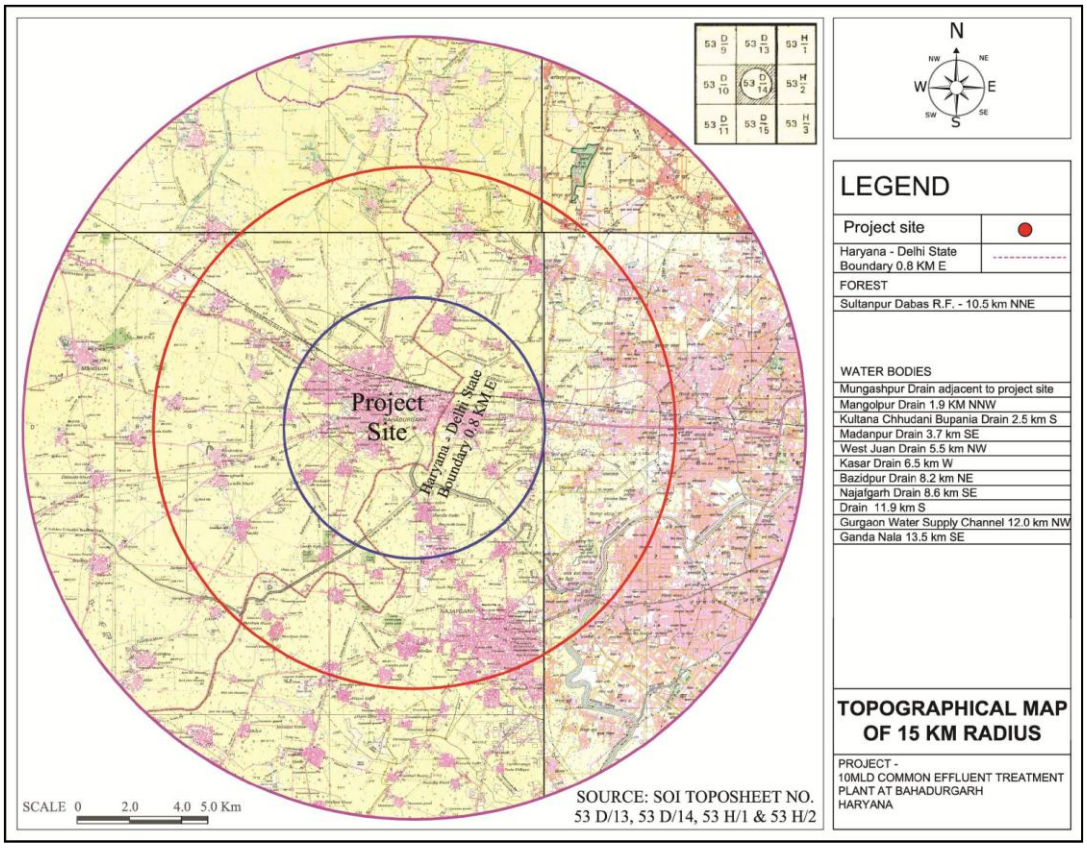

Figure 3.1 (i) Topographical Map showing the project site and 15 km buffer area

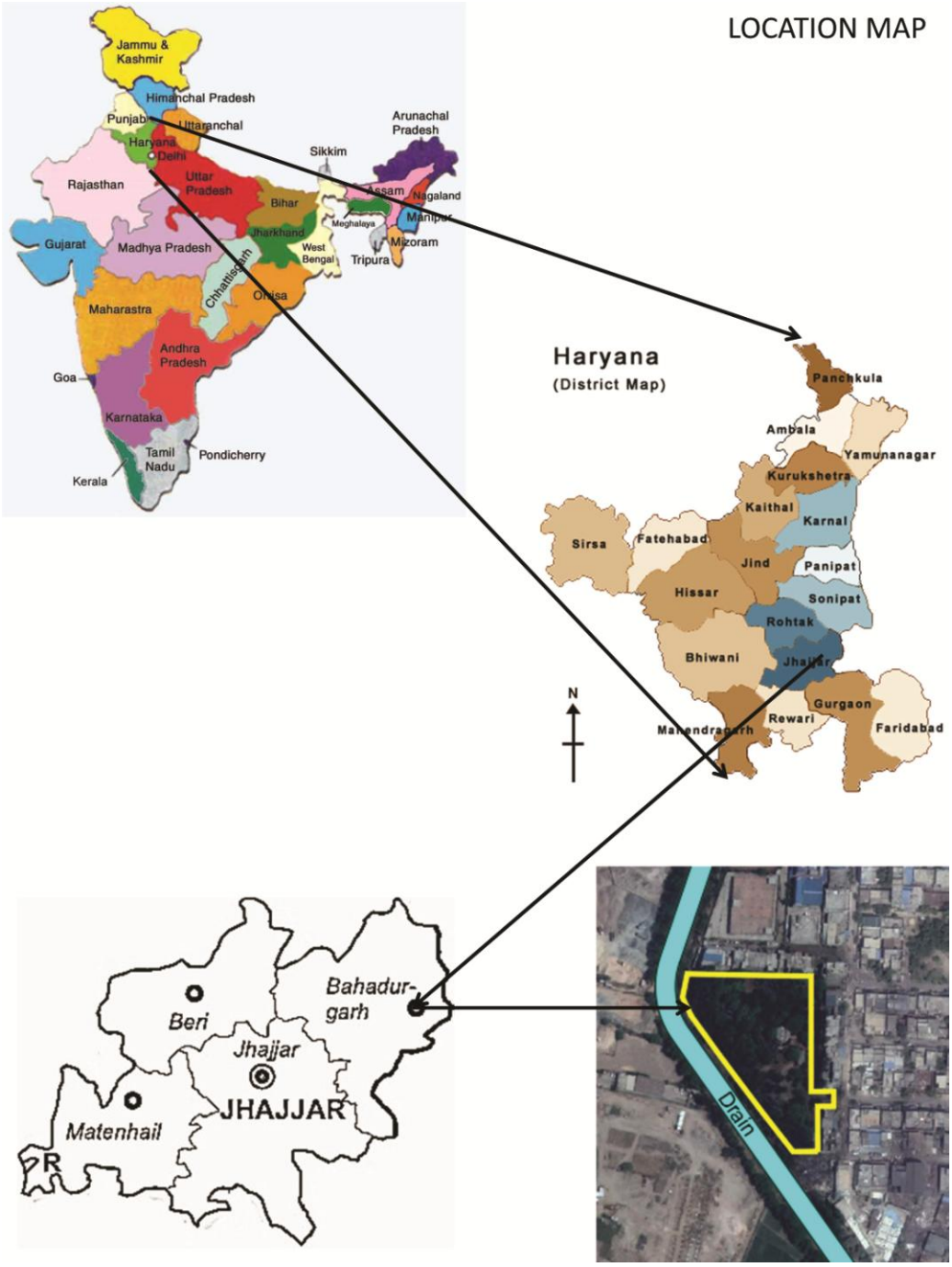

Figure 3.2: Location Map Showing the Project Site

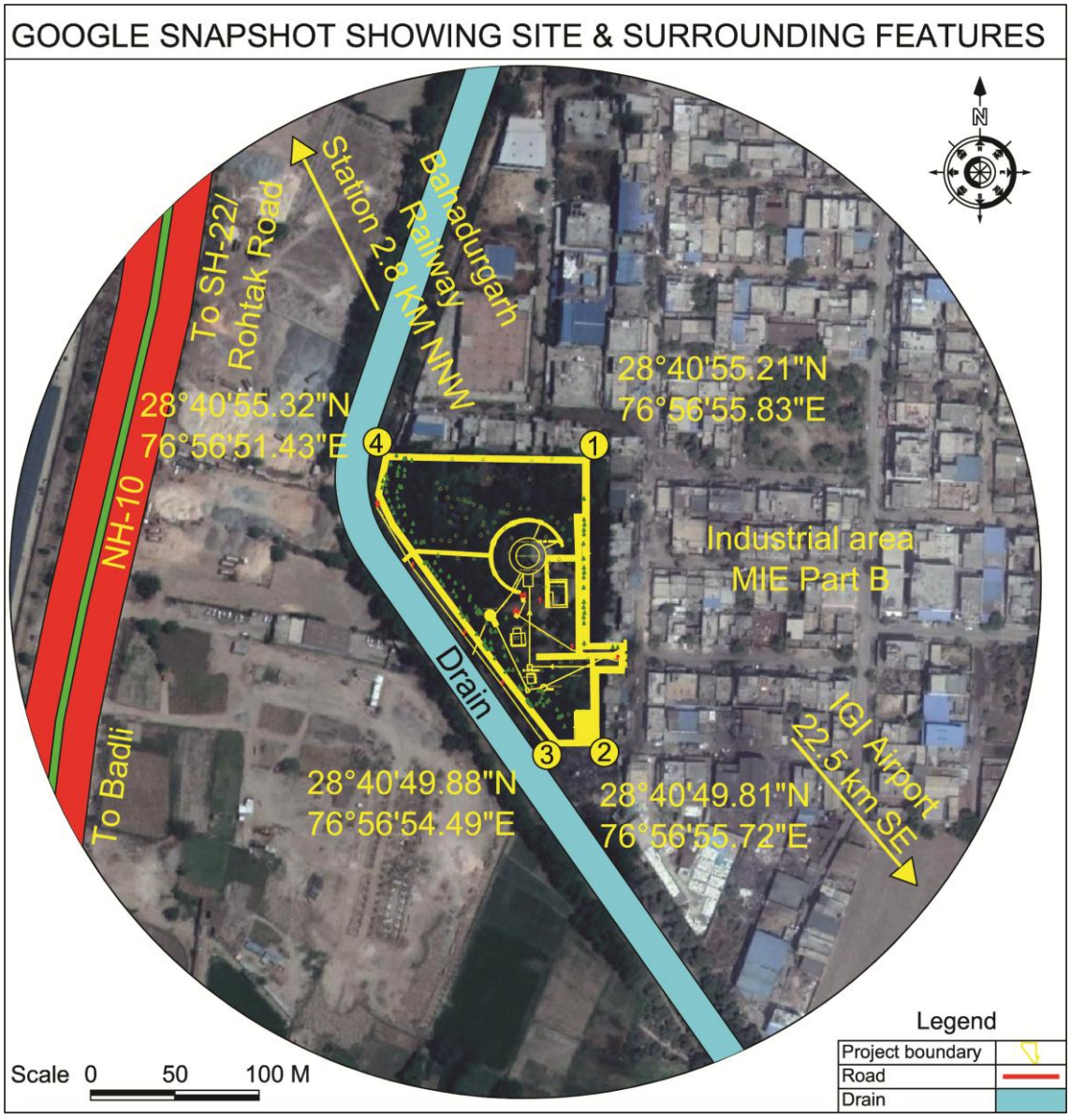

Figure 3.3: Google Image showing the Project site

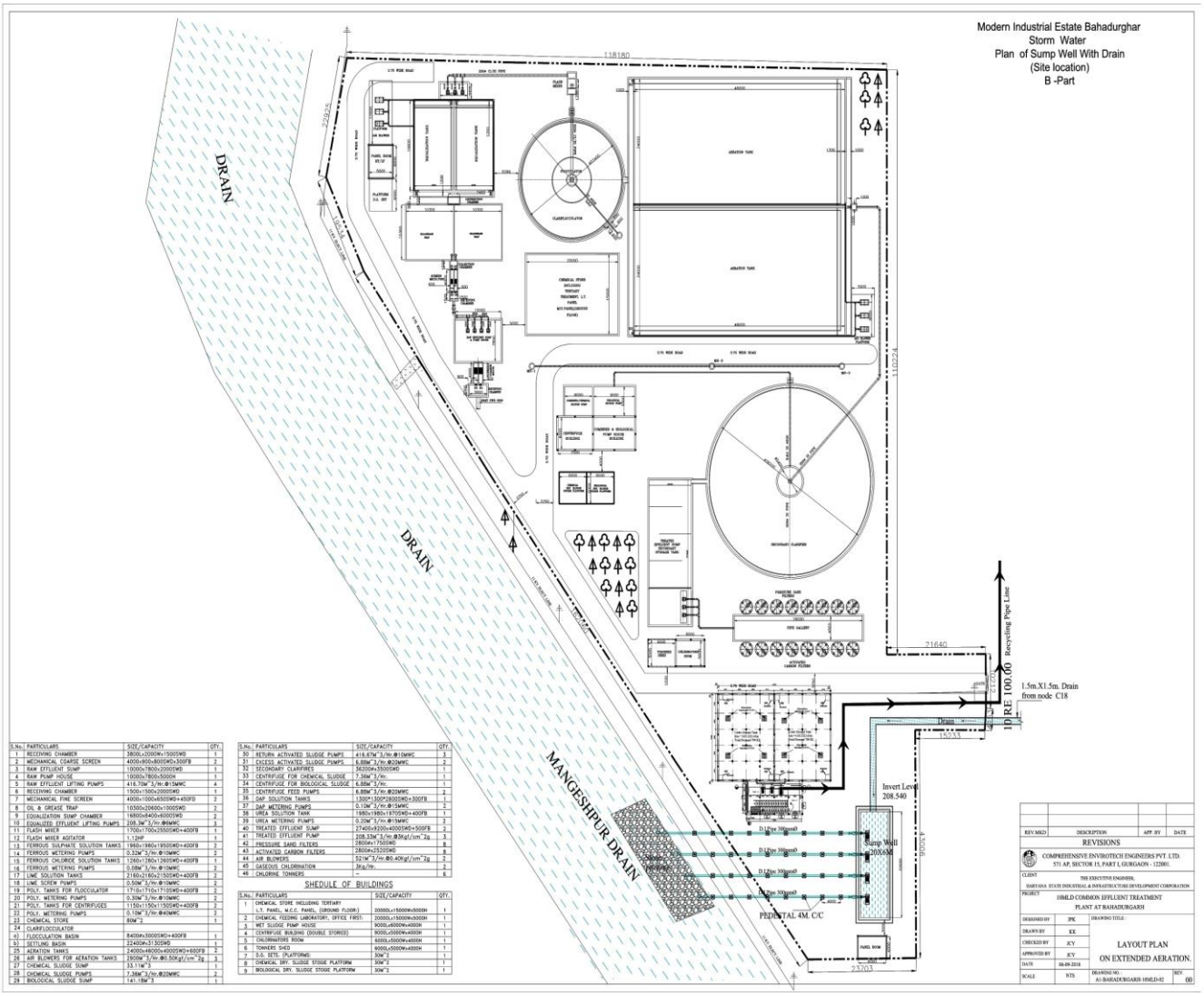

Figure 3.4: Plant Layout

3.3 DETAILS OF ALTERNATIVE SITES CONSIDERED

HSIIDC proposed common effluent treatment plant of capacity 10 MLD at opposite plot no. 2065, MIE, Sector 21&22 village Bahadurgarh, Tehsil Bahadurgarh, District Jhajjar, Haryana. Major factors involved in the selection of site are listed below:

- Site is very well connected by road
- Proximity to effluent generating industries

• Availability of sufficient land free from cultivation

• Availability of power evacuation facilities

• Availability of water for industrial use

• Efficient transport facilities within the industrial estate and to & fro the city area.

• Environment-friendly zone.

• Uninterrupted power supply.

The site of proposed MPS & CETP is located at MIE Area Sector – 21 & 22 Bahadurgarh. The treated effluent is proposed to be used mainly for irrigation, watering of parks green belts etc. or proposed to be disposed of into Mungeshpur Drain by gravity.

3.4 SIZE OR MAGNITUDE OF OPERATION

S. No	Treatment facility	Capacity
1	Common Effluent Treatment plant	10 MLD

3.5 MANUFACTURING PROCESS

The proposed common effluent treatment plant is based on extend aeration system. This is a Common Effluent Treatment Plant facility that will be treating the waste water from the member industries within the area. Member industries of CETP will be required to monitor specified quality parameters and flow rate of the effluent on daily basis and to submit the monitoring data to the CETP operator on regular basis. Continuous flow meters will also be installed at the outlet of the CETP to monitor the outlet effluent quantity. The effluents from its member industries will be lifted through dedicated pipeline system. The design basis of Proposed CETP is as follows:

Plant capacity: 10 MLD

RAW EFFLUENT CHARACTERISTICS

The Raw effluent parameter adopted for design of 10 MLD CETP are as under:

1.0.	**Influent Sewage Characteristics**	
a)	pH	6-8.5
b)	BOD5, mg/ L	450

c)	COD, mg/ L	900
d)	TSS, mg/ L	1200
f)	Coliform, MPN/100ml	$1x10^7$
g)	Oil & Grease mg/L	100
h)	Temperature, ^{c}o.	18-22
i)	NH_4- Nitrogen, mg/ L	45
j)	TKN, mg/ L	40
k)	TP as PO4, mg/ L	10
L)	Chromium mg/L	5
M)	COD/ BOD ratio	2
2.0	**Treated effluent Characteristics after secondary treatment**	
a)	pH	7-7.5
b)	BOD5, mg/ L	≤10
c)	COD, mg/ L	≤20
d)	TSS, mg/ L	≤20
e)	Coliform , MPN/100ml	≤10000
f)	TKN, mg/ L	≤5
g)	NH_4- Nitrogen, mg/ L	≤1
h)	TP as PO4, mg/ L	≤2
i)	Chromium mg/L	≤0.1
j)	Residual chlorine, mg/ L	0.2>
3.0	**Treated effluent Characteristics after tertiary treatment**	
a)	pH	7-8.5
b)	BOD5, mg/ L	<1
c)	COD, mg/ L	<10
d)	TSS, mg/ L	<2
e)	Coliform , MPN/100ml	<100
f)	TKN mg/ L	<5
g)	NOx Nitrogen, mg/ L	<1
h)	TP as PO4, mg/ L	<1
i)	Turbidity, mg/ L	<2
j)	Residual chlorine, mg/ L	>0.5

Note: - The industrial effluent having different type of industries not been specified may have colour due to dying process, hence special care has to be taken for the same in CETP by using $FeSO_4$ in place of Aluminum Alum .

It has been proposed by HSIIDC to reuse treated effluent for irrigation, watering of parks & greens, flushing air conditioning which will require multimedia filtration with Pressure Filter, Activated Carbon Filter followed by disinfection for removal of coliforms and helminthes.

Selection of Treatment Process:

For selection of most technically and financially viable biological treatment process suitable for primary treated effluent in Clariflocculator Extended Aeration process which is most technically and financially viable treatment process will be adopted and has been recommended for adoption as the treated effluent parameters even after secondary treatments meets the Pollution Control Board norms at the lowest power consumption.

Some Waste Water Treatment Methods & their Characteristics: -

The methods range from physico- chemical to biological & in the latter group from aerobic to anaerobic. The quick overview for the same is given as hereunder: -

Treatment Methods				
Biological				Physical Chemical
Aerobic		Anaerobic		
Suspended Growth	Attached Growth	Suspended Growth	Attached Growth	
Activated Sludge	Trickling Filters	UASB	Moving Bed Bio Reactors	Screening & Grit Removal
Extended Aeration	Rotating Bio Reactors	Anaerobic ponds.	Submerged Bio Reactors.	Coagulation
Aerated Lagoons	Land treatment.			Flocculation
Waste Stabilization ponds.	Roof Zone Reed Beds			Settling
Sequential Batch Reactor.	Vermistabilization			Sludge Thickening.
Membrane Bio Reactor.	Moving Bed Bio Reactors			Sludge dewatering
	Submerged Bio Reactors.			Filtration.
				Colour Removal
				Chlorination
				De chlorination
				Ion Exchange softening or Demineralization.
				Ultra Filtration
				Reverse Osmosis

Sewage Treatment Processes may be generally classified as Primary, Secondary & Tertiary. The general yard stick of evaluating a performance of sewage treatment plants is the degree of reduction of BOD as such & total coliforms.

The selection of process will depend upon whether primary, secondary or tertiary treatment is required to meet with the parameters prescribed by the respective pollution control boards or

local bodies whichever is stricter. In addition environment impact & other consideration in planning treatment facilities are required to be considered for selection of processes are illustrated as here under: -

a) Environment Impact Considerations: -

- Downstream hydrology & aquatic ecosystem.

- Ground water pollution potential.

- Odour, aerosol spray, mosquito nuisance.

- Effect on near by land use & land values.

- Rehabilitation of effected people.

- Discharge Standards.

- Toxic in food chain.

- Nitrates & Chemical pollution of water resources.

- Bathing water quality.

- Health of plant operators/ farm workers.

- Plant operation & maintenance aspects.

- Green belt & land escaping.

b) Engineering & Site considerations: -

- Selection of design period.

- Sufficiency of site area available.

- Topography of the general area to be served, location of pumping station & contours at the available site.

- Available hydraulic head, high flood level, level of the irrigation land or HFL of the available drain/ water body receiving the treated effluent.

- Ground water depth & land disposal facility of treated effluent.

- Soil Bearing Capacity & type of strata at the proposed site.

c) Process performance, energy, operation & maintenance: -

Process considerations involve below mentioned factors which affect the choice of treatment methods & design criteria: -

- Waste water flow & characteristics.
- Degree of treatment required.
- Performance fluctuations, sustainability & reliability.
- Land availability.
- Power availability.
- Operating equipments requirements & its indigenous availability.
- Skilled staff availability.
- Extent of sludge production & disposal requirements.
- Loss of head through plant & available head.
- Ease of stage wise extension of plant with time.
- Energy conservations.
- Energy/ power generations.
- Carbon Credit as per KYOTO Protocol.

Cost considerations: -

Finally the selected process, overall cost that is capital & operating has to be determined in order to arrive at the optimum solution.

- Land purchase cost.

-Engineering, design & supervision charges.

-Civil constructions, equipments supply & erection cost.

-Interest charges on loan.

-Amortization & interest charges on capital borrowings.

-Direct operation & maintenance cost of staff, chemicals, fuel & electricity, transport, maintenance & repair, insurance & over heads.

It is stipulated that the proposed CETP shall be based on physical & chemical treatment for removal of excessive inorganic COD, TSS & BOD_5 beside removal of color & maintenance of equalized & constant PH & Flow rate prior to biological process i.e. Activated Sludge process based on extended aeration principal. That after biological Treatment process Treated effluent shall be further treated in pressure Filter, Carbon filter and shall be disinfected with chlorine before final disposal in drain.

A. Physical Treatment

It shall comprise of following units.

Main Pumping Station, Mechanical coarse and fine screen, coil and grease trap, Equalization sump.

The main pumping station has been designed for discharge of 10MLD with peak factor of 3 i.e. 30 MLD. It will consist of 2 (1W mechanical + 1SB mechanical) coarse screens followed by raw effluent storage sump of 10 Minutes HRT at peak flow of 30 MLD. In this sump non-clog submersible sewage pumps as here under have been proposed: - 417 M^3/ Hr. @ 15MWC, 4Nos. (3W+1SB)

Non clog submersible sewage pumps have been proposed keeping in view the depth of the incoming sewer and high water table.

Mechanical Coarse and fine screen chamber with oil & grease trap shall be constructed for 10 MLD with 3.0 Peak factor.

<u>Equalization Tank</u>

Since there will be intermittent discharge of different characteristics from mix of industries it is proposed to construct equalization of 8 hour capacity to equalize the flow and the effluent characteristics. The two nos. equalization tank of size 16800x8400x6000 SWD NOs shall be provided with mixers to keep the effluent in suspension. Thereafter the equalized effluent shall be pumped in to Clariflocculator for further treatment.

B. Chemical Treatment

After equalization of flow the effluent shall flow by gravity into flash mixer for mixing of ferrous alum & lime. This coagulated effluent shall flow into primary Clariflocculator with concentric flocculation unit after addition of fast settling chemical viz. Polyelectrolyte.

Clariflocculator

For clarification and settlement of suspended solids the effluent shall be mixed ferrous sulphate, ferrous chloride and Lime solution for formation of flocks to thicken the flocks it is proposed to add polyelectrolyte. The Clariflocculator has been designed for HRT 30 minutes and the sizes are flocculation basin 8400mmø X 3000mm SWD and settling basin of 22400mmø X 3130mm SWD one No. each.

C. Biological Treatment

This physically & Chemically treatment shall remove colour, oil & Grease, correct PH, remove TSS at least by 70% & COD/ BOD_5 by 50/ 30% respectively.

This physically & Chemically treated effluent shall flow by gravity in to aeration tank to be designed on extended aeration process for biological treatment using fine bubble air diffusion, biological sludge recycling for maintaining MLSS & addition of Urea& DAP for N: P ratio maintenance. This biologically treated effluent treated effluent shall flow by gravity into secondary clarifier for removal of excess MLSS.

D. Tertiary Treatment with , Filtration, Color removal and Disinfection

Since it is proposed to use treated effluent for reuse it is mandatory to provide tertiary treatment consisting of the following units to achieve desired treated effluent parameters as prescribed by **Central Pollution Control Board** and National **Green Tribunal**

I. Secondary Treated effluent sump with treated effluent pumps for storage of secondary treated effluent and pumping the same to pressure filters.
II. Pressure sand filters for reduction in BOD, COD & TSS
III. Activated carbon filter for removal of color and smell.
IV. Gaseous Chlorination for disinfection of treated water.

The Secondary Treated effluent shall flow in to deep bed Dual media Pressure filters to be followed by Activated Carbon Filter and chlorination before final discharge for reuse.

E. DISPOSAL OF SLUDGE

For proper disposal of sludge generated in the whole process it is proposed to install centrifuge for dewatering and disposal of the same in hazardous sludge disposal sites earmarked.

The biological sludge shall be collected in a separate sump with Horizontal/ vertical (Non-Clog) pumps for lifting biological sludge for recycling to aeration tank & to combine cum primary sludge sump for excessive sludge. The super tenant from thickener shall flow back in to existing MPS by gravity & thickened sludge shall be collected into another thickened sludge sump from where it shall be pumped on centrifuge & ultimate disposal as dry sludge for land filling or as per norm of the Pollution control Board at the site proposed for the same. The filtrate from sludge drying beds shall flow back by gravity in to existing MPS. The tentative Process flow & instrumentation is attached along with this for reference purpose only.

8.0. Treatment Objective: -

Considering the raw Effluent quality and the required treated effluent quality, it is proposed install chain of process treatment to achieve the following objectives: -

1. To achieve guaranteed treated effluent quality or even better.
2. To ensure that the offered treatment process is the most appropriate and state of the art in terms of both efficiency of treatment, performance and operating cost.
3. To ensure that the process is cost effective from both capital and running costs consideration.
4. To ensure that the sludge produced is dewatered to a “spade able” by open body truck able consistency so that it can be easily disposed off.
5. The process toxicity test report for sludge from any government recognized laboratory shall be obtained before disposal.

9.0 DETAILS OF PROPOSED UNITS:-

The capacity of major components of CETP have been designed for following capacities:-

Sl. No.	Particulars	: Capacity

1	Coarse Screen	: 30 MLD
2	Raw effluent Sump.	: 10 Minute for 30 MLD
3	Pump House for raw effluent lifting.	
	a) Pumps for raw effluent lifting pumps.	: 417 M^3/ Hr. 4(3 W+1 SB) with 15 MWC head.
4	Grit chamber.	: 30 MLD
5	Receiving chamber.	: 30 MLD
6	Mechanical Screen	: 30 MLD
7	Collection cum Distribution Box.	: 30 MLD
8	Extended Aeration Reactor	: 10 MLD
9	Collection cum Distribution channel/ Box.	: 10 MLD
10	Secondary Treated Effluent Collection Sump.	: 60 Minute
13	Centrifuge	: 10 MLD
14	Pressure Filtration	: 10 MLD
15	Activated Carbon Filter	: 10 MLD
16	Disinfection.	: 10 MLD

The sizes of major treatments units and other contingent works shall be as under:-

S. No.	**PARTICULARS**	**SIZE/CAPACITY**	**QTY.**
1	Receiving chamber	3800x2000x1500SWD	1
2	Mechanical coarse screen	4000x900x800SWDx300FB	2
3	Raw effluent sump	20500øx6900x1500SWD	1
4	Raw Pump House	25500x7500x5000H	1
5	Raw effluent lifting pumps	417m^3/Hr.@15MWC	4
6	Receiving Chamber	1500x1500x2000SWD	1
7	Mechanical fine screen	4000x1000x650SWD+450FB	2
8	Oil & grease trap	10300x20600x1000SWD	2
9	Equalization sump chamber	16800x8400x6000SWD	2
10	Equalized effluent lifting pumps	208.3m^3/Hr.@6MWC	3
11	Flash mixer	1700x1700x2550SWD+400FB	1
12	Flash mixer agitator	1.12HP	1
13	Ferrous sulphate solution tanks	1960x1960x1950SWD+400FB	2
14	Ferrous metering pumps	0.32M^3/Hr.@10MWC	2
15	Ferrous chloride solution tanks	1260x1260x1260SWD+400FB	1
16	Ferrous metering pumps	0.08M^3/Hr.@10MWC	2
17	Lime solution tanks	2160x2160x2150SWD+400FB	2
18	Lime screw pumps	0.50m^3/Hr.@10MWC	2

19	Poly. Tanks for Flocculators	1710x1710x1710SWD+400FB	2
20	Poly. Metering pumps	0.30m^3/Hr.@10MWC	2
21	Poly. Tanks for centrifuges	1150x1150x1150SWD+400FB	2
22	Poly. Metering pumps	0.10m^3/Hr.@40MWC	2
23	Chemical store	80M^2	1
24	Clariflocculator		
a)	Flocculation basin	8400øx3000SWD+400FB	1
b)	Settling basin	22400øx3130SWD	1
25	Aeration Tanks	24000x46000x4000SWD+600FB	2
26	Air blowers for Aeration Tanks	2900m^3/Hr.@0.50Kgf/cm^2g	3
27	Chemical Sludge Sump	33.11M^3	1
28	Chemical Sludge Pump	7.36 m^3/Hr.@20 MWC	2
29	Biological Sludge Sump	141.18M^3	1
30	Return activated sludge pumps	416.67 m^3/Hr.@10 MWC	3
31	Excess Activated Sludge Pumps	6.88 m^3/Hr.@ 20 MWC	2
32	Secondary Clarifiers	36200øx3500SWD	1
33	Centrifuge for Chemical Sludge	7.36M^3/Hr.	1
34	Centrifuge for Biological Sludge	6.88M^3/Hr.	1
35	Centrifuge for Feed Pumps	6.88M^3/Hr.@20MWC	2
36	Dap solution tanks	1300x1300x2600SWD+300FB	1
37	Dap metering pumps	0.10m^3/Hr.@15MWC	2
38	Urea solution tanks	1980x1980x1970SWD+400FB	1
39	Urea metering pumps	0.20m^3/Hr.@15MWC	2
40	Treated effluent sump	27400x9200x4000SWD+500FB	2
41	Treated effluent pumps	203.33m^3/Hr.@3Kgf/cm^2g	3
42	Pressure sand filters	2800øx1750SWD+500FB	8
43	Activated carbon filters	2800øx2520SWD+500FB	8
44	Air Blowers	521m^3/Hr.@40Kgf/cm^2g	2
45	Gaseous Chlorination	3 Kg / Hr.	2
46	Chlorine Tonners	-	6
	Building sizes		
1	Chemical store including tertiary L.T Panel, M.C.C Panel, (Ground Floor :)	20000x15000x5000HT	1

2	Chemical feeding, office & lab First :	20000x15000x5000HT	1
3	Wet sludge pump house	9000x6000x4000HT	1
4	Centrifuge building (Double Storied)	9000x5000x4000HT	
5	D.G set platform	30M^2	1

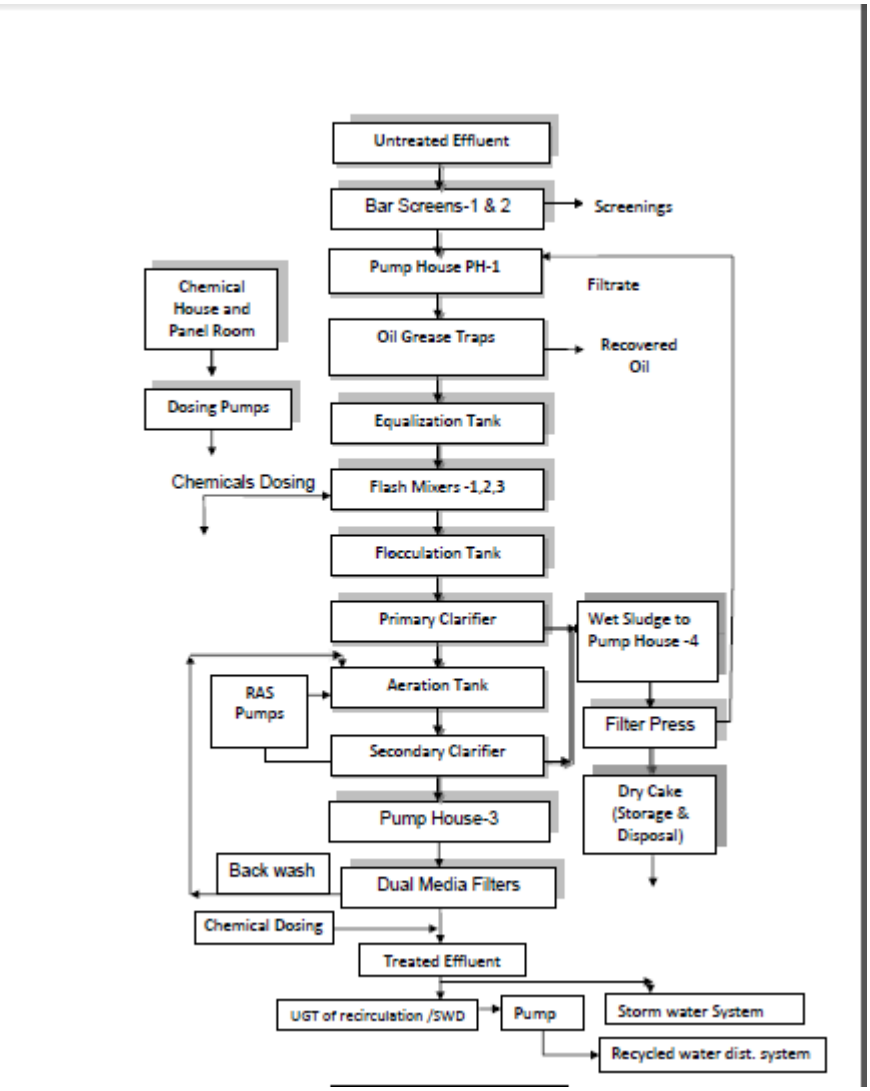

Figure 3.5 : Process Flow Sheet

3.6 RAW MATERIAL (Quantity and Source), PRODUCT AND MODE OF TRANSPORT

3.6.1 Raw Material

Raw material required for construction and setting up of Common Effluent Treatment Plant are cement, steel, aggregates & sand for civil works. Waste water will be collected through

dedicated pipeline system from associated industries. Sludge generated from CETP will be 250 Kg/day.

In addition, raw materials required for the proposed project will be chemicals namely lime, FeSO4, Polymer, HCl, Urea, DAP, Chlorine etc for treatment purpose.

3.6.2 Product

The effluent generated from member units will reach the CETP via pipelines. The treated water will be further used for horticulture, cooling towers, washing, flashing etc, and surplus into the existing effluent channel adjacent to existing CETP site and connected with Shahabad River.

3.7 SOURCE OPTIMIZATION/RECYCLING AND REUSE ENVISAGED IN THE PROJECT

This is a common effluent treatment plant. Thus, recycle and reuse is not envisaged in the proposed project.

3.8 AVAILABILITY OF WATER, ENERGY / POWER REQUIREMENT AND SOURCE

3.8.1 Water Demand

The total water requirement will be 5 KLD. The source of water will be HUDA.

3.8.2 Power Demand

The total power required for proposed unit will be 12 MW.

One D.G. set of capacity 1000 KVA will be installed for power back up. The fuel used for DG set will be Diesel. Quantity required will be 197 Lites/Hr.

3.9 WASTE GENERATION AND MANAGEMENT

3.9.1 Solid

Spent oil from DG Set and sludge from CETP will be generated during the operation phase.

S. No.	**Particulars Category**	**Category**	**Quantity**	**Mode of Disposal**
1.	ETP Sludge	34.3	250 Kg/day	TSDF site
2.	Used oil	5.1		Collection, Storage, Transportation & disposal.

3.9.2 Waste water

The effluent generated from member units will reach the CETP via pipelines. The approximate quantity of such effluent will be 10 MLD.

3.10 SCHEMATIC REPRESENTATIONS OF THE FEASIBILITY DRAWING WHICH GIVE INFORMATION OF EIA PURPOSE

As per the EIA notification dated 14th September, 2006, it is mandatory for the proposed activity to get Environmental Clearance (EC) before setting up any project or expansion/modernization of any project. The detailed chart delineating the process is given below:

Environmental Impact Assessment (EIA) is a well planned process to predict the environmental consequences of any kind of development, which is a result of human activities and to suggest appropriate measures in order to reduce adverse effects and also to augment positive effects. The EIA procures a rational and ethical approach for sustainable development. However, it is more scientific process because it not only tells the past, present and the future consequences of on-going developments, but also predicts the future events which are likely to change due to various reasons.

In terms of the EIA notification of the MoE&F dated 14th September 2006, the generic structure of EIA documents shall be as under:-

- Introduction
- Project Description
- Analysis of Alternatives (Technology & Site)
- Description of the Environment
- Anticipated Environmental Impact & mitigation Measures
- Environmental Monitoring Program
- Additional studies
- Project benefits
- Environmental Cost benefits Analysis
- EMP
- Summary & Conclusion
- Disclosure of Consultant Engaged

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SECTION – IV
SITE ANALYSIS
INDEX

SECTION – IV
SITE ANALYSIS

4.1 CONNECTIVITY

Proposed Common Effluent Treatment Plant of capacity 10 MLD coming up at opposite Plot No.2056, MIE, Sector 21&22, Bahadurgarh, District Jhajjar, Haryana, which has all possible amenities that are feasible for industrial projects viability.

Particular	Details
Airport	• Indira Ghandhi International Airport: 22.5 Km, SE
Nearest National Highway, State Highway, Major District road	• NH-10, 1 Km, W
Railway Station	• Bahadurgarh Railway Station: 2.8 Km, NNW direction
Water Bodies	• Mungashpur Drain just adjacent to project site • Mangolpur drain 1.9 Km, NNW • Kultana Chhudani Bupani Drain 2.5 Km, S • Madanpur Drain 3.7 Km, SE • West Juan Drain, 5.5 Km, NW • Kasar Drain, 6.5 Km, W • Bazidpur Drain, 8.2 Km, NE • Najaggarh Drain, 8.6 Km, SE • Drain 11.9 Km S • Gurgaon Water supply Channel, 12.0 Km, NW • Ganda Nala, 13.5 KM, SE

4.2 LAND FORM, LAND USE AND LAND OWNERSHIP

Land Form: The proposed CETP plant is coming up in 3.5 acre area. The proposed land is a vacant land and will be converted to industrial use.

4.3 TOPOGHRAPHY

Haryana is essentially a plain area: 94 percent below 300 meters. The plain spreads between the hilly tract in the northeast and the sand dune sprinkled desert topography in the south and southwest. The outliers of the Aravallis make their appearance in the southern part of the

state. The Haryana Plain is a vast surface of flat to rolling terrain and extends southward to the northern boundary of the alluvial bed of the Ghaggar. It covers over 65 percent of the area of the District. The elevation of the surface from east to west varies from 190 to 210 meters above the mean sea level. The most diagnostic feature of the Haryana Plain is the presence of palaeo channels which set the occurrence of sand dunes in this terrain unit apart from those in the dune tract. The plain is traversed by numerous dune complexes and shifting sands.

Undulating dunes at some places and alluvial plain on others represent the topography of Jhajjar district. Plain elevation on an average is about 222 meters above the sea level. A gentle slope from North to South is there. The movement of ground water in the south western part and North western part is S.W. to N.E. and S.E. to N.W respectively. As per survey conducted in the year 2012, fresh quality ground water form 36%, Marginal to marginal saline comprise 50% and 34.5% represent saliva zone. The minimum depth of water table is 1.37 whereas the maximum depth is 30 meters below the ground level.

4.4 EXISTING LAND USE PATTERN

Not Applicable

4.5 EXISTING INFRASTRUCTURE OF SITE

Physical infrastructure

Physical infrastructure is an important aspect of a city. It determines the quality of life to a large extent. Physical infrastructure deals with

- Water supply
- Electricity
- Solid waste

Water supply

The total water requirement will be 5 KLD. The Source of water supply will be HUDA.

Electricity

The proposed power demand of the unit will be 12 MW,

One D.G. sets of capacity 1000 KVA will be installed for power backup. 140 litres/hr HSD will be used.

Solid waste

Spent oil from DG Set and sludge from CETP will be generated during the operation phase.

4.6 SOIL CLASSIFICATION

The soil texture in Jhajjar differs from clay to sandy. The composition is heterogeneous and calcium carbonate layers can be found frequently. The textures in Sahibi river basin which can be seen in different parts of Jhajjar are sandy loam and mostly brown and yellowish in color. Organic carbon, Phosphorous and Nitrogen are low whereas Potash can be found in medium to high quantity. The district is said to be part of digenetic alluvial plain. The sediment here consist sand, silt, kankar, gravel and much more.

4.7 CLIMATE FROM SECONDARY SOURCES

Jhajjar experiences semiarid, continental, sub tropical and monsoon type climate. During summer months of April, May and June temperature can rise to as high as 44°C. The climate is usually very hot and dry during this time. During the summer months very often sandy dust cyclone can be seen occurring. People are advised to stay indoors as it might affect the skin of the body and get also get into eyes too.Rainy season is from the month of July to September brings some relief to the people residing there from the extreme hot climate of the summer months . The region experiences heavy rain during this time. The region is under the grip of chilling cold between the months of October till March. The coldest months however are December and January when the temperature can dip to as low as 2°C. Heavy woolen cloths are needed to keep oneself warm from the chilling cold waves.

4.7 SOCIAL INFRASTRUCTURE AVAILABLE

Habitation of Bahadurgarh is densely populated with available social infrastructure viz: Primary, secondary schools, dispensary, hospitals, *Mandir, Masjid*, Church etc.

- **Medical Facilities:**

  Available in Bahadurgarh and Najafgarh

- **Post & Telegraph Offices:** Available in Dayanand Nagar and Bahadurgarh

- **Educational Institutions:**

  Government College: 1.8 Km, W

  Vaish Mahila Mahavidhlaya: 2.8 Km, NNW

  Sunshine Public School: 5.0 Km, NW

  Delhi Technical Campus: 5.5 Km, SW

  DM College of Pharmacy: 5.8 Km, W

  Chhotu Ram Rural Institute of Technology: 5.6 Km, NE

- **Worship Places:**

  St. Gregorius Church: 9.45 Km, ESE

New Vision Colony Church: 6.6 Km, SSE

On the basis of the preliminary site visit, the infrastructure available was identified. Further after the grant of TOR, available infrastructure (baseline data) will be encompassed, along with socio economic observations and submitted at the time of final presentation regarding EIA/EMP.

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SECTION – V

PLANNING BRIEF

INDEX

SECTION V

PLANNING BRIEF

5.1 PLANNING CONCEPT (type of Industries, facilities transportation etc.) TOWN AND COUNTRY PLANNING/ DEVELOPMENT AUTHORITY CLASSIFICATION

The CETP unit is proposed for the treatment of Waste water of various industries ranging from different sectors located in the MIE area of Bahadurgarh. Waste water will be transported to CETP through dedicated pipeline network. The expected capital investment for the proposed CETP plant is 45.15/- crores.

5.2 POPULATION PROJECTION

The project will employ mostly workers from nearby villages. There will not be any increase in population due to the project.

5.3 LAND USE PLANNING (Break up along with green Belt, etc.)

Land Use: The open space inside the CETP area will suitably landscape and covered with the vegetation of indigenous variety. Green Belt area will be developed as per the CPCB guidelines. The total land required for proposed CETP will be 3.5 Acres.

5.4 ASSESSMENT OF INFRASTRUCTURE DEMAND (Physical & Social)

Social Demand

The proposed CETP falls in Free Enterprising Zone therefore all facilities / amenities like medical, educational, housing, transportation, communication, shopping etc are available nearby places. Since, local workers will be employed for this purpose therefore; no long term infrastructure will be required.

Physical Demand

Water:

The total water requirement will be 5 KLD. The source of water supply will be HUDA.

Electricity:

The total power required for proposed unit will be 12 MW.

One D.G. set of capacity 1000 KVA will be installed for power back up.

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SECTION – VI

PROPOSED INFRASTRUCTURE

INDEX

SECTION VI
PROPOSED INFRASTRUCTURE

6.1 INDUSTRIAL AREA (processing area)

Proposed CETP will be established in an area of 3.5 acres. Being a CETP, adequate infrastructural facilities such as office space, laboratory, storage area as well as treatment units comprising Preliminary, primary, secondry, tertiary treatment based on extend aeration system. New unit will make use of the facilities for land, storage of raw material and handling, additional water & power demand, and use of road and rail network for transportation.

6.2 RESIDENTIAL AREA (non processing area)

The plant does not have any residential facility for the workers and employee.

6.3 GREEN BELT

Green belt will be developed according to CPCB guidelines. Plants of the various species will be developed in the plant area. Approximately 33% of total land area is planned to be developed as green belt.

6.4 SOCIAL INFRASTRUCTURE

Proposed social infrastructure shall involve construction and facilities installation for the Community Kitchen. Training to invest and manage funds for self sustainable employment will be imparted.

6.5 CONNECTIVITY

Proposed Common Effluent Treatment Plant of capacity 10 MLD coming up at Plot No.2056, MIE, Sector 21&22, Bahadurgarh, District Jhajjar, Haryana which has all possible amenities that are feasible for industrial projects viability.

Particular	Details
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6.6 WATER MANAGEMENT (source & supply of water)

Water Requirement:

The total water requirement will be 5 KLD. The Source of water supply will be from the system provided by HUDA (now HSVP).

6.7 SEWERAGE SYSTEM

The domestic waste water will be routed to septic tank followed by soak pit.

6.8 INDUSTRIAL WASTE MANAGEMENT

The effluent generated from member units will reach the CETP via pipelines. The approximate quantity of such effluent is 10 MLD.

Different types of treatment provide different percentage removal of BOD and suspended solids. In general, the treatment plants are classified as preliminary, primary, intermediate, secondary and tertiary. The general yard stick for evaluating the performance of sewage treatment plants is the degree of reduction in BOD, suspended solids and total coliforms. The treated water will be further used for horticulture, cooling towers, washing, flushing etc, and surplus into the existing effluent channel adjacent to existing CETP site and connected with Shahabad River.

The detail of treatment of waste water is as under:

(a) Preliminary Treatment:

This treatment removes coarser solids. Where dilution is adequate preliminary treatment consisting of screening of waste water protects the appearance of receiving body of water and preliminary treatment is considered sufficient when effluent is disposed of into an open sea. The provision of grit removal arrangement is also important for the proper functioning and protection of subsequent treatment units.

(b) Primary Treatment:

Primary treatment consists of sedimentation only. This treatment removes 45 to 60% of suspended solids, 30 to 45% of BOD and 40 to 60% of total coliforms. In case treatment of lesser degree can satisfy the requirement, the size of treatment plant can be smaller.

(c) Intermediate Treatment (Chemical Treatment) :

The treatment removes 60 to 80% of suspended solids, 45% to 65% of BOD ad 60 to 90% of total coliforms. This treatment is accomplished by the addition of chemicals prior to sedimentation. This treatment is quite expensive and is thus rarely adopted where the need of such a high degree treatment is only seasonal or for a short period.

(d) Secondary Treatment:

It is a biological treatment which may consist of standard trickling filters, high rate trickling filters, single or double stage, activated sludge plants, stabilization ponds, single

cell or two cells. These treatments are expected to remove 75 to 95% of suspended solids, 70 to 97% BOD and 80 to 98% of total coliform depending upon the type and capacity of the treatment.

(e) Tertiary Treatment:

This treatment is done to polish the effluent received from secondary treatment units to improve the quality of effluent further for reuse. Tertiary treatment is needed only when such greater reuse of waste is contemplated or where the situation dictates the higher quality of effluent. Tertiary treatment may include processes like rapid sand filtration, carbon absorption, ammonia stripping, coagulation and flocculation and ion exchange etc. Evidently the cost of such a treatment is prohibitive and may hardly prove economically viable particularly in developing countries except in certain extremely critical situations.

In order to select the treatment method, cost factor is the prime consideration. The cost of the treatment plant would include the cost of installation, cost of maintenance and operation. The other factors which deserve consideration are cost of construction and maintenance, location, land availability and topographical conditions.

TREATMENT OPTIONS

Extended Aeration

The conventional system represents early development of activated sludge process. Over the years, several modifications to this system have been developed to meet specific treatment objectives by modifying, the process variables like loading rates, the mixing regime and flow scheme. A better alternative is the modified version of this process in shape of extended aeration process detailed below.

Advantage
High degree of treatment – Efficiency 95 to 98% BOD removal
Excess sludge does not require separate digestion and can be directly dried on beds.
Sludge production is minimum
Disadvantage
Long aeration time
Higher power consumption
Less F/M ratio

Extended aeration process is advantageous over other sewage treatment methods as its results give very high efficiency, to the extent of 98% , cost effective with clear, sparkling and odourless effluent and low pump head requirement, its operation is simple and requires no skilled manpower. Hence, is recommended for adopting in this project.

6.9 SOLID WASTE MANAGEMENT

Used oil from DG Set and sludge for CETP will be generated during the operation phase.

S. No.	**Particulars Category**	**Category**	**Quantity**	**Mode of Disposal**
1.	ETP Sludge	34.3	250 Kg/day	TSDF Site
2.	Used oil	5.1		As per the norms.

6.10 POWER REQUIREMENT & SUPPLY/ SOURCE

The total power required for proposed unit will be 12 MW,

One D.G. set of 1000 kVA will be installed for power back up. 140 Litres/hour HSD will be used.

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SECTION – VII

REHABILITATION & RESETTLEMENT (R&R) PLAN

SECTION VII

REHABILITATION & RESETTLEMENT (R&R) PLAN

7.1. REHABILITATION & RESETTLEMENT (R&R) PLAN

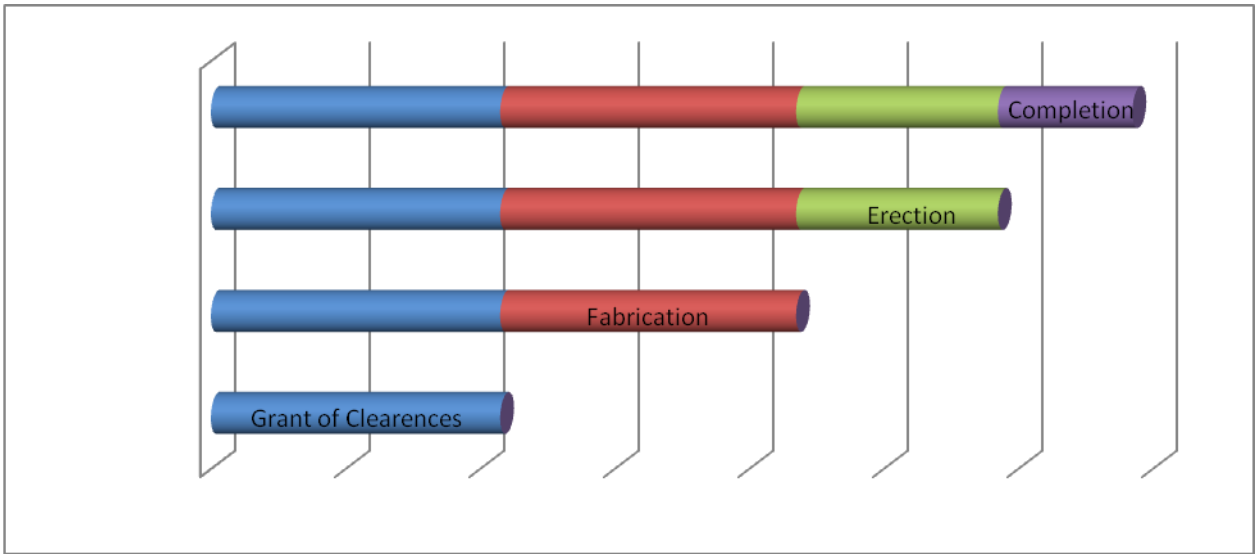
There is no habitation on the proposed project land. It is an industrial land. Thus, R & R policy is not applicable to this project. There shall not be displacement of any population in proposed project land. The execution of CETP will boost the commercial and economical status of the locality up to some extent.

SECTION – VIII
PROJECT SCHEDULE & COST ESTIMATES
INDEX

SECTION – VIII
PROJECT SCHEDULE & COST ESTIMATES

8.1. PROJECT SCHEDULE & COST ESTIMATES

Likely date of start of construction and likely date of completion (time schedule for the project to be given) Estimated project cost along with analysis in terms of economic viability of the project. Common effluent treatment plant is normally designed to meet the requirement of 30 years period after completion. Time lag between design and completion should not exceed 2 to 3 years and 5 years in exceptional cases.



The likely date of the start of erection or fabrication will be after the grant of all required clearances and will take 18 months after all clearances

The likely date of completion / time required for the fabrication and erection of the one storage vessel would take one and a half year, from the grant of clearances. The proposed vessel will be operationalised after successful erection.

The project cost is Rs. 45.15 Crores for the proposed CETP Plant.

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SECTION – IX

ANALYSIS OF PROPOSAL

INDEX

SECTION – IX
ANALYSIS OF PROPOSAL

This project is for establishment of common environmental infrastructure i.e. CETP for treatment of effluent being generated by its member industries. The imposition of new scale of, statutory standards on effluent treatment with water reclamation potential may require, in addition, a new infrastructural

investment on the existing pollution control system of the individual units.

This may be the driving point for the overall participation in the proposed CETP from industries to bring down drastically the pollution level. The charges to be levied on new scale on the basis of pollution load, breaking the orthodox style, would equally keep operational their own equipment. An attempt on water recovery for its recycling in the proposed CETP design may be an exemplary in the country with a start up in this Zone.

There will be social benefits from the proposed unit; the underlying benefit through the proposed project aims to:

The appropriate amount will be allocated towards the company's CSR activities.

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