PROJECT PRE-FEASIBILITY REPORT

for

Proposed Project for Setting up of New Industrial Estate - GIDC Bulk Drug Park

near

Village: Kansagar, Tankaribandar, Madafar, Bakarpor timbi, Thakor Talavadi and Asanvad of Taluka: Jambusar, District Bharuch, Gujarat

[Schedule 7 (c) Category "A" as per EIA Notification 2006 and its amendment thereof and CRZ-IB, CRZ-III and CRZ-IV as per CRZ Notification 2011 & 2019]

Land Area: 742.36 Hectares

APPLICANT

GUJARAT INDUSTRIAL DEVELOPMENT CORPORATION

Block No. 3,4,5, Udhyog Bhavan,
Sector 11, Gandhinagar, Gujarat
382011
E-mail: drg-dahej@gidcgujarat.org
Mo No. +919879110041

CONSULTANT

ECO CHEM SALES & SERVICES

Office Floor, Ashoka Pavilion – A,
Opposite Kapadia Health Club,
New Civil Road, Surat, 395001
NABET/EIA/2023/SA 0156
E-Mail: eco@ecoshripad.com
Tel. No. +91 8460545050

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Abbreviations

ACF	Activated Carbon Filter
AFBC	Atmospheric Fluidized Bed Combustion
API	Active Pharmaceutical Ingredient
ASP	Activated Sludge Process
ATFD	Agitated Thin Film Dryer
ATM	Automated Teller Machine
BOD	Biochemical Oxygen Demand
CC&A	Consolidated Consent And Authorization
CETP	Common Effluent Treatment Plant
CHC	Community Health Centres
cm	Centimeter
COD	Chemical Oxygen Demand
CRZ	Coastal Regulation Zone
DFC	Dedicated Freight Corridor
DG	Diesel Generator
Dia	Diameter
DMIC	Delhi Mumbai Industrial Corridor
DMP	Disaster Management Plant
DO	Dissolve Oxygen
DPIIT	Department For Promotion of Industry and Internal Trade
DSS	Decision Support System
DU	Discharge Unit
E	East
EC	Environment Clearance
EPZs	Export Processing Zones
ESR	Elevated Storage Reservoir
ETP	Effluent Treatment Plant
FDI	Foreign Direct Investment
FSI	Floor Space Index
GCZMA	Gujarat Coastal Zone Management Authority
GETCO	Gujarat Energy Transmission Corporation Limited
GIDC	Gujarat Industrial Development Corporation
Ha	Hectare
HP	Horse Power
HR	Hour
HSD	High Speed Diesel
HTL	High Tide Line
HW	Hazardous Waste
IBR	Indian Boiler Regulations
ISGEC	Indian Sugar & General Engineering Corporation
KG	Kilogram
KM	Kilometre
KSM	Key Starting Material
kVA	Kilovolt-Ampere

KWH	Kilowatt Hours
LPCD	Litres Per Capita Per Day
LSHS	Low Sulphur Heavy Stock
M	Meter
MDR	Major District Roads
MEE	Multiple-Effect Evaporator
MGD	Millions Gallons Per Day
MGVCL	Madhya Gujarat Vij Company Limited
ML	Milliliter
MLD	Million Liters Per Day
MM	Millimetre
MMTPA	Million Metric Tons Per Annum
MoEFCC	Ministry Of Environment, Forest And Climate Change
MPN	Most Probable Number
MS	Motor Spirit
MT	Meter
MW	Megawatt
NE	North-East
NH	National Highway
NH3-N	Ammonical Nitrogen
NMC	Narmada Main Canal
NOx	Nitrogen Dioxide
PCPIR	Petroleum, Chemicals and Petrochemical Investment Regions
pH	Potential of Hydrogen
PHC	Primary Health Centre
PPM	Parts Per Million
PSF	Pressure Sand Filter
RAS	Return Activated Sludge
R-DNA	Recombinant Deoxyribonucleic Acid
SEZ	Special Economic Zone
SH	State Highways
SOx	Sulphur Dioxide
STP	Sewage Treatment Plant
T	Ton
TOC	Total Organic Carbon
TSDF	Treatment, Storage, And Disposal Facility
TSS	Total Suspended Solids
UK	United Kingdom
US	United States
USD	United States Dollar
UV	Ultraviolet
WAS	Waste Activated Sludge
WTP	Water Treatment Plant

1.0 Introduction about the Project/Background Information

1.1 Project Background and Objective

India is the largest provider of generic drugs globally and is currently ranked as the 3rd largest pharmaceuticals industry in the world by volume. Indian pharmaceutical sector supplies over 50% of global demand for various vaccines and is expected to grow to USD 100 billion by 2025. The drugs and pharmaceuticals sector attracted cumulative FDI inflows worth USD 16.25 billion between June 2019 and April 2000, according to data released by the Department for Promotion of Industry and Internal Trade (DPIIT). The country is home to more than 3,000 pharma companies with a strong network of over 10,500 manufacturing facilities. India is the source of over 60,000 generic brands across 60 therapeutic categories and manufactures more than 500 different Active Pharmaceutical Ingredients (APIs).

Despite numerous achievements, the Indian pharmaceutical industry is significantly dependent on import of basic raw materials and key starting materials that are used to produce bulk drugs and final formulations. In some bulk drug categories, the import dependence is 80 to 100%. Therefore, the Union Ministry of Chemicals and Fertilizers in line with the vision and clarion call for making India ***Atma Nirbhar*** in the pharma sector, launched the **'Scheme for promotion of Bulk Drug Parks'**. The scheme is expected to reduce manufacturing cost of bulk drugs in the country and dependency on other countries for bulk drugs and will also help in providing continuous supply of drugs and ensure delivery of affordable healthcare to the citizens.

In order to promote the development of pharmaceutical sector in the state of Gujarat, and to strengthen the position of Gujarat in Pharma Sector, GIDC intends to promote a Bulk Drug Park in Jambusar. This project is proposed to be developed over 740 Ha of land with world class infrastructure. The proposed Project site is in the influence zone of DFC corridor, close to PCPIR and surrounded by established industries which includes chemical, pharma, plastics and metallurgical industries.

The project focuses development in Pharmaceutical Sector and will also strengthen position of Gujarat in Pharma Sector. This Bulk Drug Park shall provide plug n play land with necessary infrastructure to the potential investors willing to set up units in the Drug Park.

1.2 Details of Project Proponent

Gujarat Industrial Development Corporation (GIDC), Government of Gujarat undertaking is the promoter and developer of the proposed Bulk Drug Park at Jambusar, Bharuch District. GIDC is a public sector undertaking, it has been established with an objective of development of basic industrial infrastructure on land acquired and is a non-profit organization. GIDC has been created for securing the orderly establishment and organization of industries in industrial areas and industrial estates in the State; and thus, serve as the 'backbone' for industrial development in the state.

GIDC has established 225 industrial estates till date. GIDC has also been involved in establishing Special Investment Regions, PCPIR, industrial areas and large/sector-specific estates in tune with the changing economic and industrial scenario. More than 63,000 units are located within GIDC estates, employing more than 17.5 lakh people directly.

GIDC has acquired a total of approximately 42,000 ha of land for the development of industrial estates in the State and out of total land acquired; GIDC has so far developed approximately 30,810 ha of land as on March 2020. In case of infrastructure development, GIDC has constructed approximately 1,740 km of roads across the State. GIDC has developed a total of 1,143.96 MLD water capacity for the industries across the State under water supply scheme for the industries. In case of drainage system GIDC has developed a total drainage system capacity of approximately 412.01 MLD in various GIDC Estate. GIDC had developed so far 05 (Five) Common Effluent Treatment Plant (CETP) for chemical and petrochemical industries. GIDC has developed facility for Treatment, Storage, and Disposal Facilities (TSDF) at Vapi estate and more 02 (Two) are proposed at Vapi and Saykha locations

GIDC has developed Gujarat Petroleum, Chemical and Petrochemical Investment Region (PCPIR) which is the only operational PCPIR in the country. Within PCPIR area GIDC has developed 5 industrial estates along with SEZ. GIDC has allotted land to more than 1200 large and medium scale industries with focus on chemical, petrochemical, pharmaceuticals sector in PCPIR area. A large number of API formulation, chemical and bulk drug industries have their manufacturing units in and around the Gujarat PCPIR. Supply Chain of the Pharma units in the proposed park may integrate with existing industries in the PCPIR resulting in sustainable development and decreased cost of production.

No.	Particulars	Details
1	Name of the Company	Gujarat Industrial Development Corporation
2	Registered Address	Block No. 3,4,5, Udhyog Bhavan, Sector 11, Gandhinagar, Gujarat 382011
3	Contact person and email	Mr. Arunkumar C. Patel Email: drg-dahej@gidcgujarat.org Email: xen-brc@gidcgujarat.org
4	Details of Proposed Project	Infrastructure Development – Bulk Drug Park
	Location	Near village: Kansagar, Tankaribandar, Madafar, Bakarpor timbi, Thakor Talavadi and Asanvad of Taluka: Jambusar, District Bharuch, Gujarat
5	Details of Category of Industries to be housed	API, KSM (Key Starting Material), intermediates and other auxiliary/ancillary units of chemicals used in pharmaceutical sector

1.3 Project Brief

Gujarat Industrial Development Corporation (GIDC) has proposed for Setting up of GIDC Bulk Drug Park in total area of 742.36 Hectares near Villages: Kansagar, Tankaribandar, Madafar, Bakarpor timbi,

Thakor Talavadi and Asanvad of Taluka: Jambusar, District Bharuch, Gujarat. Village wise bifurcation of the same is given in below table.

Table 1: Village wise bifurcation of area

Sr.	Village	Total Survey Nos.	Area (in Ha.)
1.	Kansagar	44	84.71
2.	Tankaribandar	25	102.75
3.	Madafar	67	78.66
4.	Bakarpor timbi	30	209.98
5.	Thakor Talavadi	55	186.88
6.	Asanvad	2	79.38
Total		**223**	**742.36**

1.4 Applicability of Environment & CRZ Clearance

The proposed project will accommodate industries that fall under the purview of Environmental Clearance, per EIA Notification, 2006 (amended) with area more than 500 Ha (742.36 Hectares) and having atleast one Category B industry, hence proposed project falls under Schedule 7(c) – *"Industrial estates/parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes"* Category-A. Hence, Environment Clearance needs to be obtained from MoEFCC, New Delhi.

Part of land and disposal line of treated effluent of the proposed project also falls in the CRZ-IB, CRZ-III and CRZ-IV areas as per CRZ Notification, 2011 & 2019. Hence, CRZ Clearance will also needs be obtained from MoEFCC.

2.0 Project Details

2.1 Need for the Project

Indian pharmaceutical industry is the 3rd largest in the world by volume and 14th largest in terms of value. India contributes 3.5% of total drugs and medicines exported globally. Indian pharmaceutical industry is significantly dependent on import of basic raw materials and key starting materials that are used to produce bulk drugs and final formulations. India imports bulk drugs largely for economic considerations. Bulk drugs accounted for 63% of the total pharmaceutical imports in the country during 2018-19.

Future growth of pharmaceutical sector is contingent upon our ability to ensure un-interrupted supply of quality bulk drugs and our capacity to upscale their manufacturing during emergency situations. Self-reliance in manufacturing of bulk drugs is, therefore, highly desirable. Also, due to the novel coronavirus pandemic and subsequent lockdowns, Indian pharmaceutical industries faced challenges as the imports of APIs were impacted.

Therefore, with a view to significantly bring down the manufacturing cost of bulk drugs and thereby increase the competitiveness of the domestic bulk drug industry by providing easy access to standard

testing & infrastructure facilities, Bulk Drug Parks are really important and in view of the same a Scheme called "**Promotion of Bulk Drug Parks**" has been approved by the Government of India on 20th March 2020.

2.2 Demand-Supply

Govt. of Gujarat has setup SEZs dedicated to the pharmaceutical sector to boost investments and has established National Institute for Pharmaceutical Education and Research for human resource development. Further, in line with the mission of **Atmanirbhar Bharat**, the state has identified 'Pharmaceuticals & Medical devices sector' as one of the thrust sectors for industrial promotion in the new Gujarat Industrial Policy 2020 released in August 2020.

There is an opportunity for the Indian pharmaceutical industry to play a larger role in global drug supply-security and Gujarat can be the trusted partner in this journey with its proven track record and continuous progress in the pharmaceutical sector.

With a view to significantly bring down the manufacturing cost of bulk drugs and thereby increase the competitiveness of the domestic bulk drug industry by providing easy access to standard testing & infrastructure facilities, Department of Pharmaceuticals Government of India has notified a guidelines of the scheme for "Promotion of Bulk Drug Parks" on 27th July 2020.

2.3 Project Size and Type

The Proposed Project for Setting up of GIDC Bulk Drug Park in total area of 742.36 Hectares near Villages: Kansagar, Tankaribandar, Madafar, Bakarpor timbi, Thakor Talavadi and Asanvad of Taluka: Jambusar, District Bharuch, Gujarat.

The Bulk Drug Park will accommodate industries that are classified for Environment clearance and are categorized as Category A and B as per EIA Notification 2006. Also, out of total area of 742.36 Ha., around 13.32 Ha. (1.8 %) area falls under CRZ Area. Disposal line of treated effluent going to deep sea and some of the area of proposed bulk Drug Park also fall under CRZ-IB, CRZ- III and CRZ-IV as per CRZ Notification 2011 & 2019. Hence, CRZ recommendation needs to be obtained from GCZMA and CRZ Clearance needs to be obtained from MoEFCC.

The project envisages development of the following broad components:

Industrial plots, Industrial sheds for Pharmaceutical units with separate zones for bulk drug units etc.

- Exterior linkages and connectivity
- Internal roads
- Solid waste and liquid effluent management facilities (CETP/MEE/Spray Dryer facilities)
- Raw Water distribution facilities
- Drainage and sewerage facilities
- Power substation and distribution, street light
- Data and telecom facilities
- Support facilities for manufacturing under the Centre for Excellence comprising *inter alia* Material Testing Lab, Skill Development Centers, Quality Certification Lab /R&D Centre, Emergency response center, Safety Hazardous operations center, Regulatory awareness facilitation center, Technology business incubator and Intellectual property rights management

services, Process/Technology development laboratory/Research laboratory, Industry Academia linkage center, Training center, *etc*.

- Specialized utility facilities such as common steam generator(s) and steam lines, Solvent recycling facility, *etc*.
- Housing-Residential facilities and dormitory for industrial workers
- Common logistics including ware house, cold storage and parking
- Common business center like Bank, ATM, Restaurant, hotel, commercial hub, *etc*.

2.4 Location of Proposed Project

GIDC has proposed to set up a Bulk Drug Park at Taluka: Jambusar, District: Bharuch. Bharuch is located in the central-southern part of Gujarat, near the Gulf of Khambhat in Arabian Sea. Leveraging the existing industrial base, Bharuch attracts a large number of business conglomerates. Jambusar Taluka offers strategic geographical location for the proposed Bulk Drug Park along with the availability of required manpower, road and utility infrastructure. Location map of project site is given as **Figure-1.** Toposheet of the study area is enclosed as **Annexure-I.**

Table 2: Boundary Co-ordinates of the Project

Corners	Longitude	Longitude
A	22° 2'34.63"N	72°39'4.33"E
B	22° 2'34.02"N	72°38'55.29"E
C	22° 2'26.95"N	72°38'47.57"E
D	22° 2'22.95"N	72°38'47.36"E
E	22° 2'11.16"N	72°38'4.39"E
F	22° 1'54.92"N	72°38'9.13"E
G	22° 1'56.30"N	72°37'25.13"E
H	22° 1'21.48"N	72°37'23.77"E
I	22° 0'15.93"N	72°37'37.65"E
J	22° 0'1.06"N	72°38'4.86"E
K	21°59'26.18"N	72°38'37.57"E
L	21°59'16.07"N	72°39'3.97"E
M	21°59'43.95"N	72°39'10.03"E
N	22° 0'9.03"N	72°39'5.56"E
O	22° 0'39.36"N	72°38'25.29"E
P	22° 0'58.08"N	72°38'45.57"E
Q	22° 1'17.68"N	72°39'29.04"E
R	22° 1'23.55"N	72°39'28.69"E
S	22° 1'31.41"N	72°38'48.75"E
T	22° 1'50.45"N	72°38'32.30"E
U	22° 1'52.59"N	72°39'6.69"E
V	22° 1'44.93"N	72°39'51.88"E
W	22° 1'54.56"N	72°40'0.40"E
X	22° 1'58.31"N	72°39'34.77"E
Y	22° 1'59.51"N	72°38'57.35"E
Z	22° 2'24.22"N	72°39'0.92"E

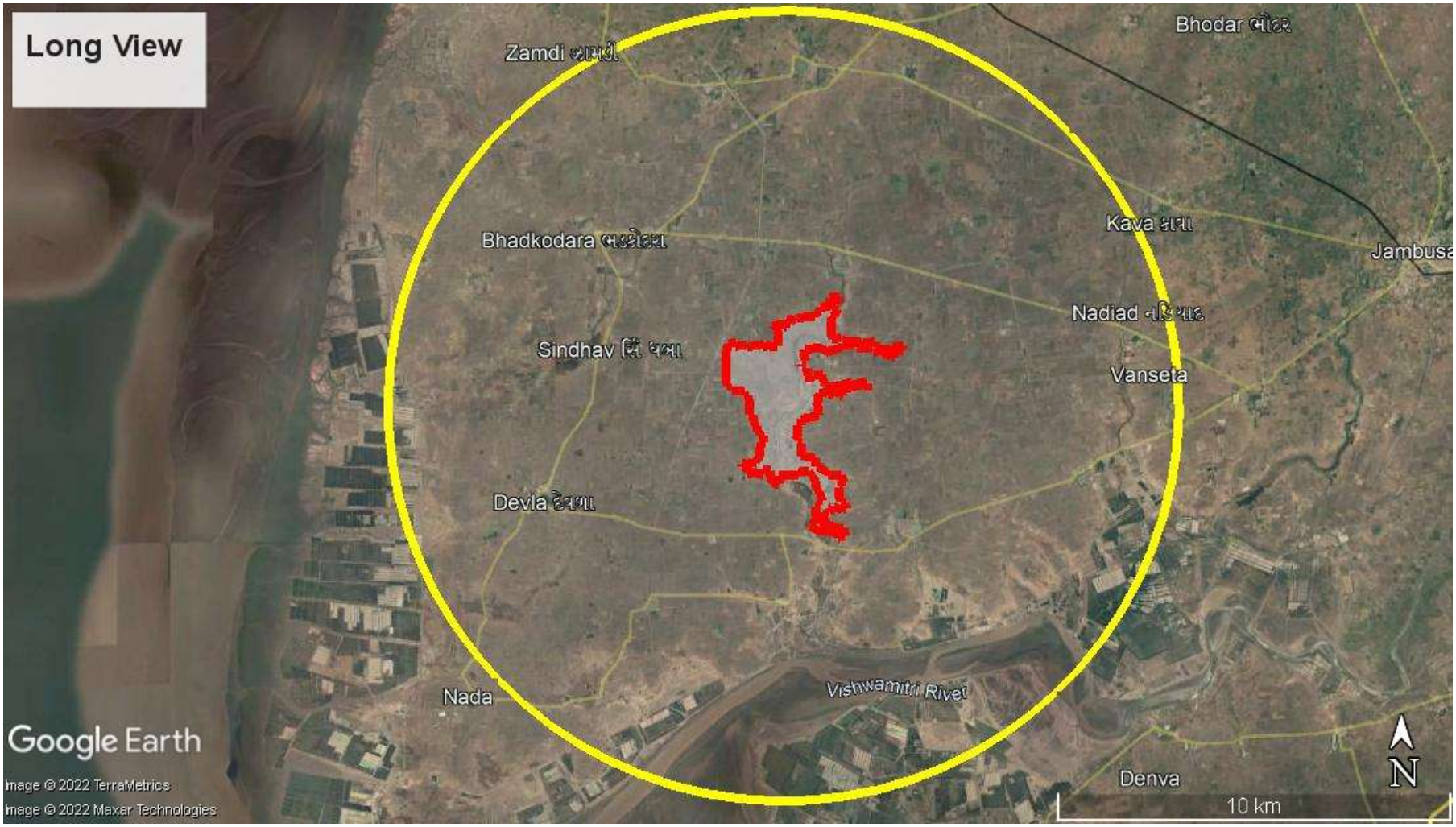


Figure 1: Satellite Image of the Proposed Site- Long View

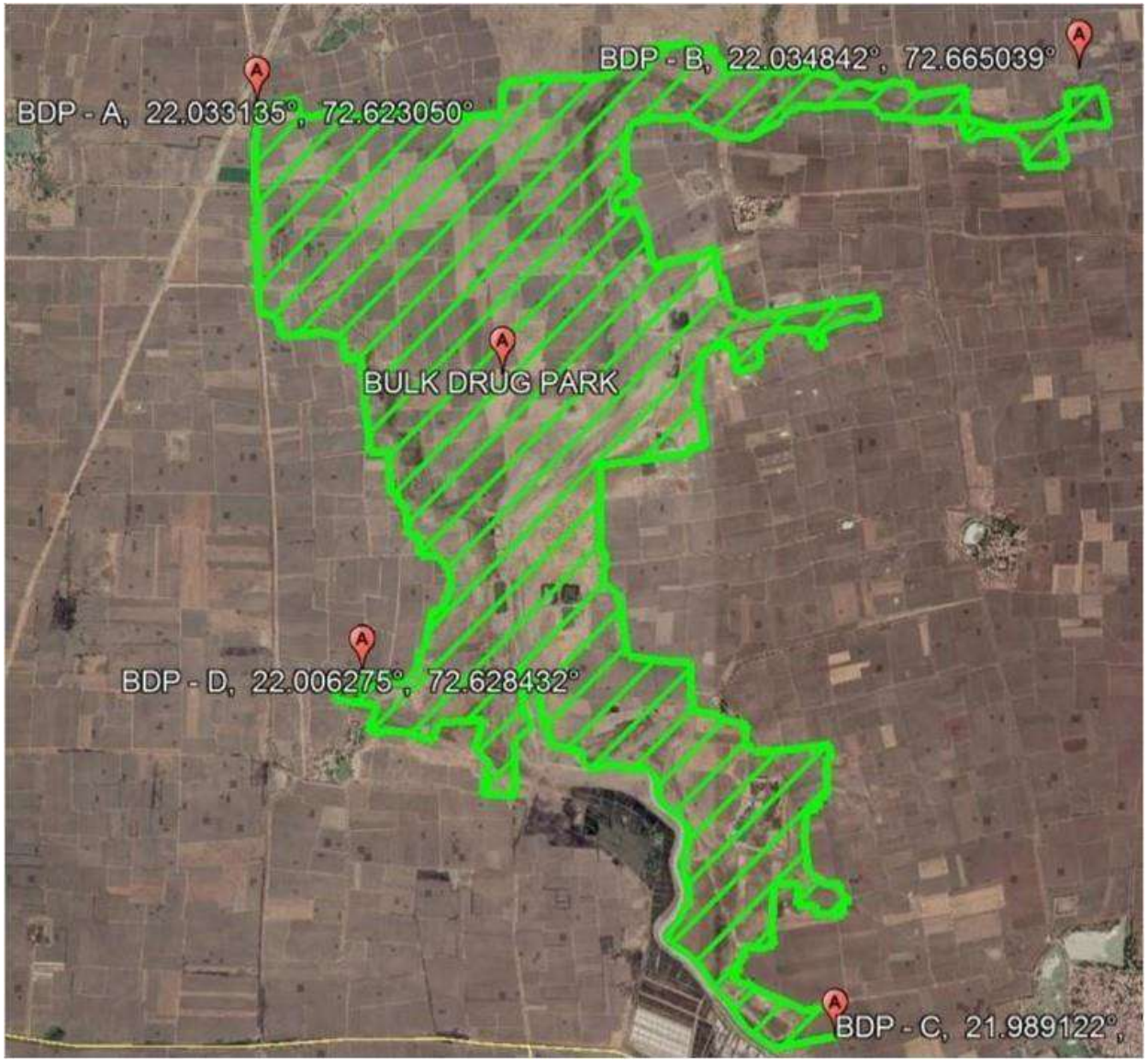


Figure 2: Satellite Image of the Proposed Site- Short View

2.5 Project Area and Cost

The Proposed Bulk Drug Park will be developed over 742.36 Hectares of land, which covers 6 villages i.e. Kansagar, Tankaribandar, Madafar, Bakarpor timbi, Thakor Talavadi and Asanvad of Taluka: Jambusar, District Bharuch, Gujarat. Total cost of the proposed project will be about Rs. 3500 crores.

Table 3: Project Components

No.	Particulars	Details
a	**Total Land Area**	**742.36 Ha**
b	Proposed Infrastructure	**Roads area** is 8% of total plot area i.e. 57.71 Ha. **Total Water requirement:** 64 MLD **Water Source:** Raw water will be tapped from 60 MGD water supply pipeline from Narmada Main Canal to Dahej PCPIR **Water reservoir** with 15 MLD capacity considering 10 hr. storage **Effluent Disposal Network:** CETP of 54 MLD has been proposed in the Bulk Drug Park and treated water will be disposed to deep sea. **Power requirement:** 350 MW **Power source**: GETCO/MGVCL **Common Infrastructure Facilities:** Boundary fencing, Security infrastructure, Gate complex, Auto-utility Area, Centre of excellence complex including Fire Station and Disaster Management Centre, Central Control Room, Occupational Health Clinic, Training Infrastructure, Advance Testing Laboratory, Central Cafeteria, Lawn and Amphitheatre, Horticulture Station, Bank branches, ATMs, Police Station House other essential utilities and amenities. **Common Utilities:** Common Steam Supply Facility, Common Effluent Treatment Plant, Sewage Treatment Plant(s), TSDF (Secured landfill, Incineration, MEE/SD facility), Municipal waste management facility, Common solvent recycling facility, etc.
c	**Project Cost**	Rs. 3500 crores

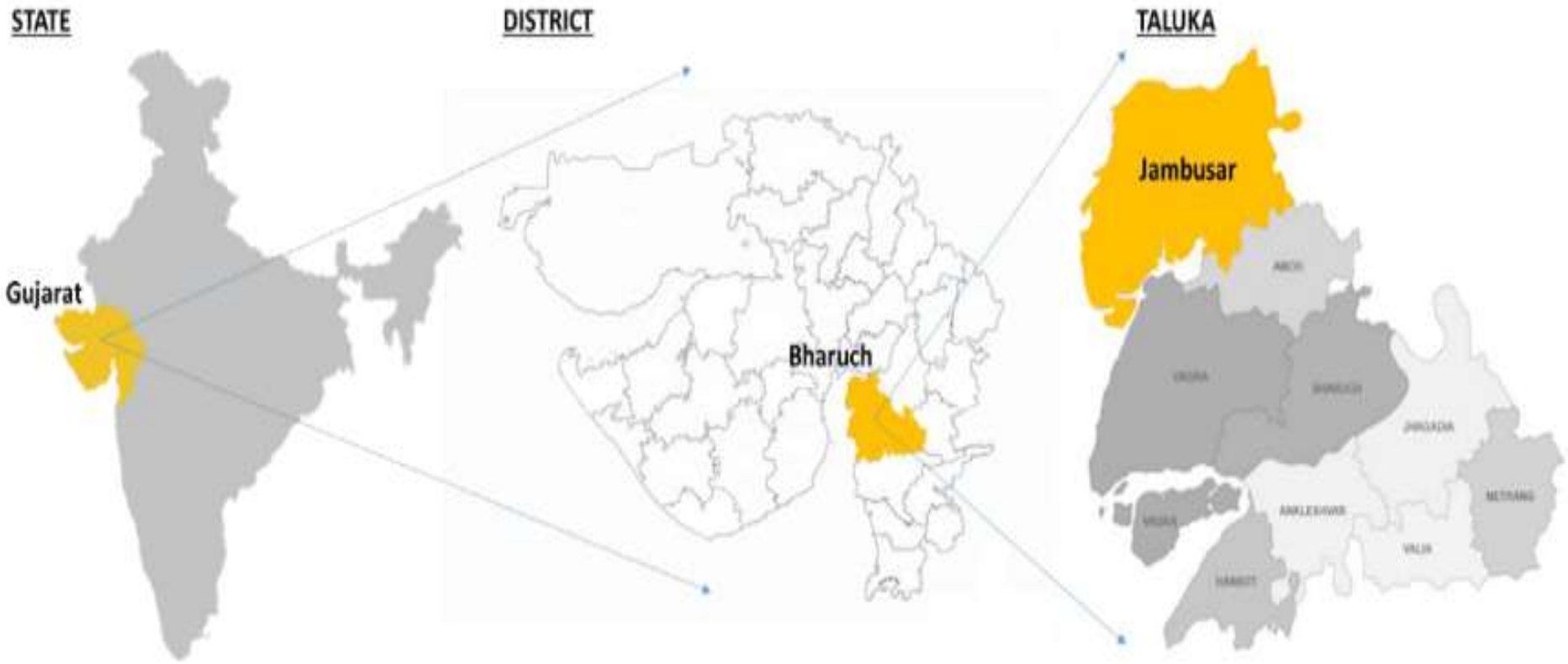


Figure 3: Key plan of Project location

2.6 Consideration of Alternate Sites

Three alternative sites were considered for location of the bulk drug park. Comprehensive analysis was carried out based on ease in approach, connectivity, availability of sufficient land, environment and social aspects, distance from deep-sea marine outfall and other environmental conditions. Sites alternative are briefly described as follows:

Site alternative 01:

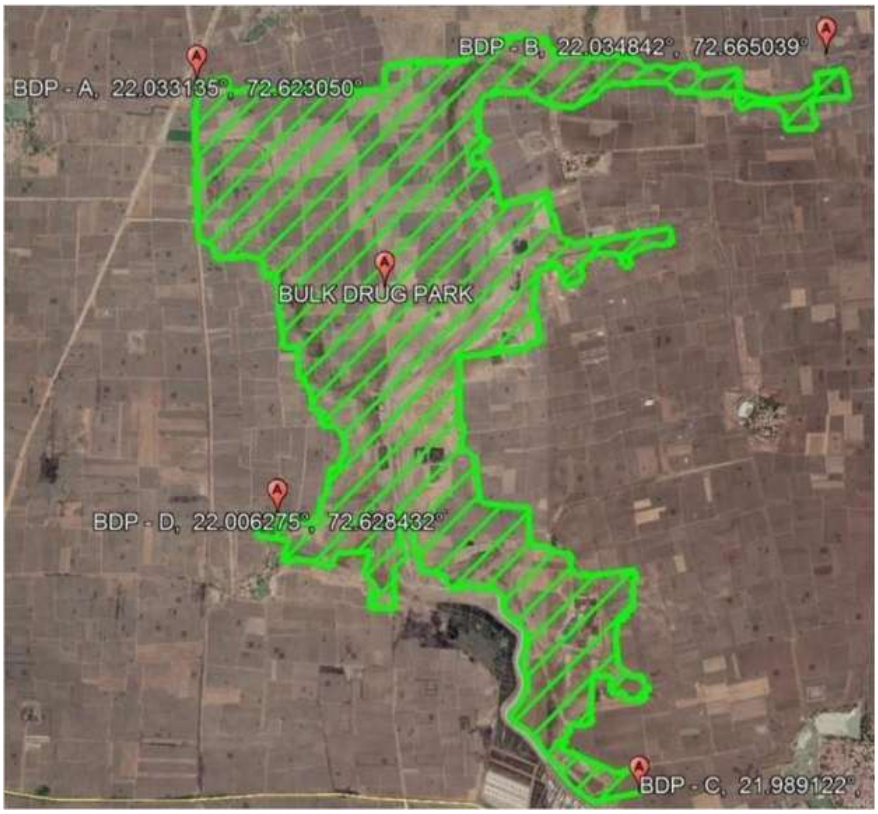


Figure 4: Boundary of Site alternative 01

Total area of the polygon: 742.36 ha
Central point coordinate of the site
Latitude- 22° 1'12.79"N
Longitude- 72°38'10.98"E

Names of surrounding villages
The site is surrounded by Six villages

- Kansagar Kosva
- Tankaribandar
- Madafar
- Bakarpor timbi
- Thakor Talavadi
- Asanvad

Site alternative 02: (vicinity of Narmada River)

This site is located in vicinity to the proposed Bhadbut-Aladar Narmada distribution canal.

Figure 5: Boundary of Site alternative 02 located near Bhadbhut village and Narmada River

Total area of the polygon: 881 ha
Central point coordinate of the site
Latitude- 21°42'3.60"N
Longitude- 72°48'58.41"E

Names of surrounding villages
The site is surrounded by five villages

- Navetha
- Kosva
- Bhadbhut
- Bhuva
- Ambdada

Site alternative 03: (vicinity of Vishwamitri River)

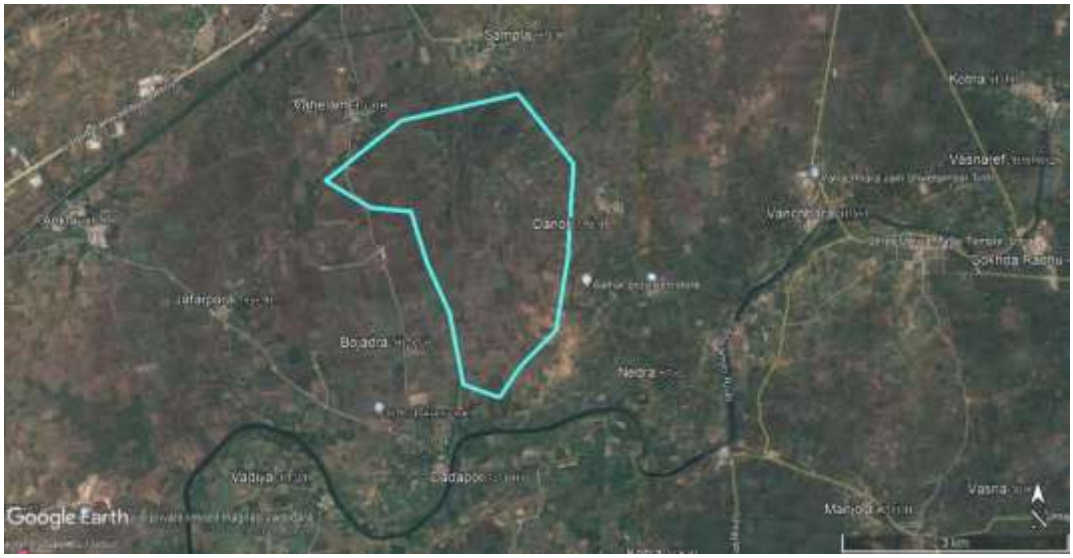


Figure 6: Boundary of Site alternative 03 located near Vishwamitri River

Total area of the polygon: 708 ha
Central point coordinate of the site
Latitude- 22° 4'19.93"N
Longitude- 72°54'37.06"E

Names of surrounding villages
The site is surrounded by five villages

- Vahelam
- Sampla
- Dhanoli
- Bhojadra
- Nedra

No.	Parameters	Option 1	Option 2	Option 3
1.	No. of Villages involved	6 Nos.- Kansagar, Tankaribandar, Madafar, Bakarpor timbi, Thakor Talavadi and Asanvad	5 Nos.-Navetha, Kosva, Bhadbhut, Bhuva, Ambdada	5 Nos.- Vahelam, Sampla, Dhanoli, Bhojadra, Nedra
2.	Availability of water supply	Tap off point of 60 MGD Narmada canal is nearest from Project site	Tap off point of 60 MGD Narmada canal is far from Project site	Tap off point of 60 MGD Narmada canal is far from Project site
3.	Land to be acquired in ha	Easy as more government land is available	Difficult as more private land	Difficult as more private land
4.	Land Type	More Barren area	More Agriculture area	More Agriculture area
5.	Distance from Deep-sea marine outfall	20 km	40 km	45 km
6.	National Highway	NH-228 @ 15.4 km	NH-228 @ 12.3 km	NH-228 @ 8.5 km
7.	State Highway	SH-6@ 18 km	Project Boundary passes through SH-6	SH-161@ 6.7 km
8.	No of Road/Highway Crossing	None	SH-6	None
9.	Connectivity with Port	35 km	27 km	56 km
10.	CRZ Area	15.20 ha	NIL	NIL
11.	Environmental Sensitivity	None	Narmada River _ adjacent to the site	Vishwamitri River _ adjacent to the site
		Selected	Not selected	Not selected

Based on comprehensive study, Option -1 has been selected for the development of the proposed Bulk Drug Park due to suitability of water supply, more Government land is availability, ease for marine disposal line and better connectivity with air, railway, & port. Apart from this, no National Park, Wild life Sanctuary, Biosphere Reserves are present within the study area.

3.0 Locational Analysis and Justification of Site

3.1 Bharuch District

(a) Bharuch District is located in Central-South Gujarat region along the West coast of India. Bharuch district is bounded by Gulf of Khambhat in west direction, Narmada district in east direction, Surat district in south direction and Anand and Vadodara district on north direction.

(b) Total geographical area of Bharuch district is 6,509 sq. km which is approximately 3.32% of total geographical area of Gujarat State. Out of the total area 170 sq. km (2.62%) is urban area whereas 6,339 sq. km (97.4%) is rural area.

The brief outline of Bharuch district is presented in the following table:

Table 4: Brief Outline of Bharuch District

Geographical Location	72.45° to 73.15° East (Longitude) 21.30° to 22.00° North (Latitude)
Area	6,509 Sq. Km 3.32% of total area of Gujarat State
District Headquarter	Bharuch
Talukas	08
No. of Panchayat/Villages	543/653
Demographic	
Population	**Total:** 15.51 lakhs **Male:** 8.05 lakhs, Female: 7.45 lakhs
Population density per Sq. km	238
Sex Ratio (Per 1000)	925
Total Average Literacy rate	81.51%
Average Rainfall	800 mm
Seismic Zone	Zone III
Major River	Narmada
Social Infrastructure	• 850 primary, 118 secondary and 55 higher secondary schools • 1,408 seats in total 17 ITIs offer several industrial training • 32 primary health centres (PHC), • 8 community health centres • (CHC) and 1 civil hospital

3.2 Regional Connectivity of Bharuch:

3.2.1 Road Connectivity:

NH-48 passes through the district which connects Bharuch with Ahmedabad at a distance of 182 km, Mumbai – 362 km and other major cities of Gujarat like Vadodara, Surat and Valsad.

3.2.2 Rail Connectivity:

Broad gauge railway line of 50 km is operational and well connected to all talukas of district. Bharuch station is an important railway junction connecting Delhi and Mumbai in north south direction. It is also an important part for Delhi-Mumbai Industrial Corridor.

Figure 7: Road and Railway Connectivity Map of Bharuch

3.2.3 Port Connectivity:

Spread over 5,000 Ha. of land and with excellent access to entire north-west Indian hinterland, Dahej is strategically located at a distance of around 400 km north of Mumbai. The presence of existing industrial estates such as Bharuch, Ankleshwar, Panoli and Jhagadia has enhanced the locational attractiveness of the region. Various port terminals are established in Dahej.

The existing terminals operational at Dahej are mentioned below:
(i) Dahej Port operated by Gujarat Maritime Board
(ii) Adani Petronet– a cargo terminal with capacity of 11.7 MMTPA
(iii) Gujarat Chemical Port Terminal Company Limited – 1.8 MMTPA
(iv) Petronet LNG Limited (Gas Terminal) – 12.5 MMTPA

(v) Reliance Liquid fuel jetty – 2.12 MMTPA
(vi) Ro-Ro Terminal facility from Dahej (Bharuch) to Ghogha (Bhavnagar)
(vii) Two Jetty in port area of Dahej SEZ developed by M/s. ISGEC and M/s. Godrej.

Other common-user ports which are operational in Gujarat are Pipavav, Kandla, Mundra & Hazira.

3.2.4 Air Connectivity:

Nearest domestic airports located at Vadodara and Surat are at a distance of about 90 km and 85 km respectively. Ahmedabad International Airport is located at a distance of about 250 km from Bharuch.

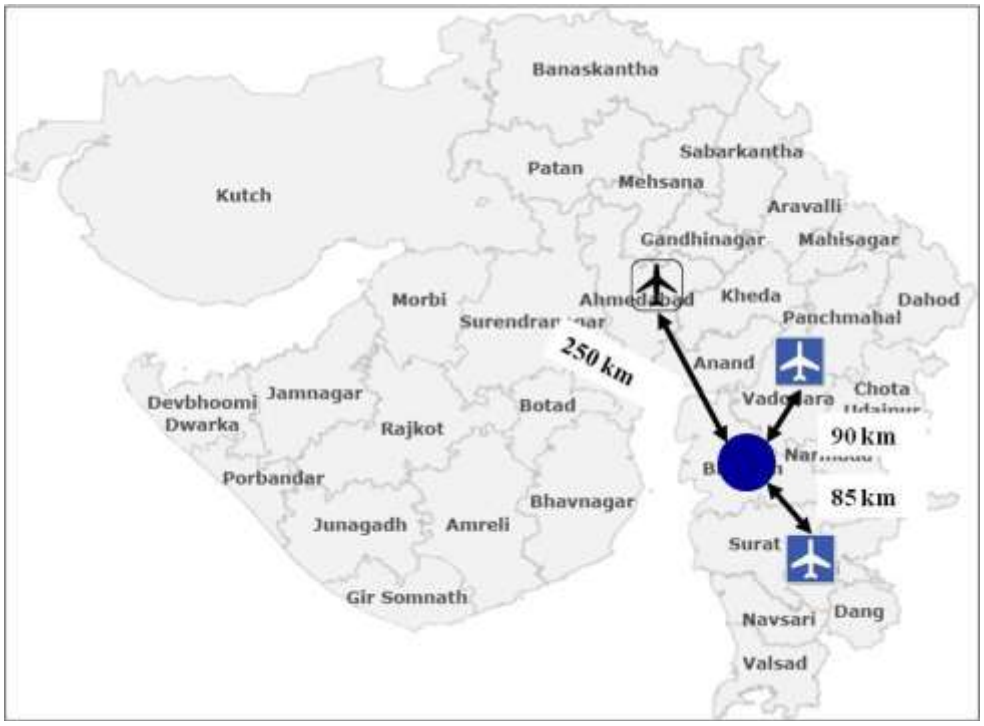


Figure 8: Air Connectivity from Bharuch

Source: Maps of India

4.0 Industrial Base in Bharuch:

The district has witnessed development of a large number of industrial estates and Special Economic Zones (SEZ) in the last decade. Leveraging the existing industrial base, Bharuch attracts a large number of business conglomerates

4.1 Industrial Estates

At present there are 16 industrial estates in Bharuch district. The approximate area allotted by GIDC is 11,374 hectares as on January 2021. Over 11,500 units of small and medium enterprises, involved in different sectors, such as chemicals and petrochemicals, pesticide, pharma, textiles, etc. are operational in the district.

5.0 Pharma Clusters in Gujarat:

The state has four clusters dedicated to the pharmaceutical industry – one in Ahmedabad, dedicated to formulations, APIs, biologicals and contract manufacturing; Vadodara cluster, which is dedicated to manufacturing formulations and biogenerics; Bharuch and Ankleshwar cluster, dedicated for APIs, formulations and vaccines, and Valsad cluster, for formulations, APIs, device and diagnostics.

Table 5: Location & Characteristics of Pharma Clusters in Gujarat

Sr. No.	City	Produce
1	Ahmedabad	API, Finished Dosages, Contract Manufacturing Biological Manufacturing
2	Vadodara	Finished Dosages, Biogenerics & Formulations
3	Rajkot	Medical Devices
4	Ankleshwar	APIs, Formulations, Vaccines
5	Vapi/ Valsad	APIs, Formulations, Finished Dosages, Device & Diagnostics
6	Bharuch	APIs, Formulations and Vaccines

Source: https://www.vibrantgujarat.com/PharmaceuticalsandMedicalDevices_June2021.pdf

The Ahmedabad, Ankleshwar, Bharuch, Vapi and Valsad clusters are into manufacturing of APIs. Gujarat's pharmaceutical sector has become innovation-driven, providing employment to around 85,000 people in 2017.

Apart from these, the state also houses various well-known medical companies like Sun Pharma, Zydus Cadila, Torrent Pharma, Intas, Dishman, Cadila Pharmaceuticals Ltd, Claris and Glenmark, among many others.

Gujarat is also an established manufacturing base for bulk drugs and formulations. As a leader in pharmaceuticals manufacturing in India, the state manufactures and exports different dosage forms including generic drugs, intricate vaccines, r-DNA products, cytotoxic drugs, external preparations, sex hormone drugs, small and large volume parenteral, APIs, hi-tech cardiac stents and bio-pharma products, including lifesaving drugs with major export destinations being the US, the European Union, the UK, Russia, Australia, African countries and the Far East.

This makes Gujarat a suitable location for the development of Bulk Drug Park.

6.0 Justification of Site

The Proposed Bulk Drug Park is located at a site with an area of approx. 742.36 hectares. The proposed land falls under villages viz. Kansagar, Tankaribandar, Madafar, Bakarpor timbi, Thakor Talavadi and Asanvad of Taluka: Jambusar, District Bharuch, Gujarat.

- The proposed park site is strategically located between Vadodara and Vapi to facilitate development of the Bulk Drug Park.

- The site is in the influence zone of the Delhi Mumbai Industrial Corridor (DMIC) which would further support industrial development in the region.
- The proposed site is located at just 25 km from the Gujarat Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR), the only operational PCPIR in the country.
- Project site is well connected with Road, Rail and Port for Raw material and product transportation.
- There is no National Park or Wild Life Sanctuary or metropolitan cities within 10 km radius of the proposed project.
- The human resource required for the proposed project shall be easily available.
- The site is situated in generally barren area with minimum cultivation and with minimum patches of lean forests.
- Adequate land is available for proposed facility.
- The proposed project area has no permanent habitation. Therefore, rehabilitation and resettlement (R&R) issue are not involved.
- Proposed site is best available site with minimum environmental issues.

6.1 Siting Guideline

The site has been selected for proposed Bulk Drug Park considering the following sitting criteria:

- Ecologically and/or otherwise sensitive areas at a distance of 5 km; depending on the geo climatic conditions the requisite distance may be decided appropriately by the agency.
- Flood plain of the riverine system: Preferably ½ km away from flood plain or modified flood plain affected by dam in the upstream or flood control systems.
- Transport/Communication System: Preferably ½ km away from highway and railway line.
- Major settlements (3,00,000 population): Distance from major settlements is difficult to maintain because of urban sprawl. At the time of siting of the industry, if the notified limit of any major settlement is found to be within 50 km from the project boundary, the spatial direction of growth of the settlement for at least a decade must be assessed. Subsequently, the industry may be sited at least 15-20 km from the projected growth boundary of the settlement.
- Critically polluted areas are identified by MoEFCC from time-to-time.

(Reference: Technical EIA Guidance Manual for Industrial Estates)

The Distances of Key landmarks from the proposed site location are as tabulated below:

Table 6: Locational Connectivity

Key Location	Distance from Proposed Bulk Drug Park
Bharuch Town	47 Kms
Dahej Port	35 Kms
Saykha GIDC	30 Kms
SH-6	18 Kms
NH -228 (Ahmedabad and Dandi)	15 Kms
Nearest Domestic Airport	Vadodara - 65 Kms Surat – 140 Kms
Nearest Railway Station	Bharuch – 48 Kms

7.0 Site Analysis

7.1 Introduction

The park is to be developed in the Jambusar Taluka, located on the south western side of Bharuch district in Gujarat at latitude of 22°00'54.56" N and longitude of 72°37'31.12" E. The site area comprises lands of 6 villages, which include Asanvad, Bakorpor Timbi, Kansagar, Madafar, Tankari and Thakor Talavdi.

7.2 Road Connectivity

The proposed Bulk Drug Park site is well connected with the Roads. The proposed site for Bulk Drug Park is well connected by State Highway, SH-6 from Jambusar & Amod town to the other important linkages of Gujarat & India. National Highway, NH-228 is at a distance of approx. 18 km from the proposed site as shown in the figure 6 connecting the site to Bharuch via Sayakha and Vilayat GIDC. The site is around 65 km from The Ahmedabad Vadodara Expressway. The site is in the influence zone of the Delhi Mumbai Industrial Corridor (DMIC) which would further support industrial development in the region which is at a distance of 47 km from the proposed site. The nearest major town (Jambusar) is located around 14 Km from the proposed site. The two nearest cities, Vadodara and Bharuch are at a distance of 58 km and 41 km respectively.

7.3 Rail Connectivity

The proposed Bulk Drug Park site is well connected with railways network as well. Bharuch Railway station is at around 48 km in NE direction. Proposed Project site is influence zone of DFC corridor, close to PCPIR and surrounded by established industries which includes chemical, pharma, plastics and metallurgical industries.

7.4 Air

The nearest airport from the proposed site is at 65 km, namely the Vadodara International Airport which provides connectivity to major Indian cities including Mumbai, New Delhi, Bengaluru, Chennai, Kolkata and Hyderabad.

Additionally, Surat International Airport located at a distance of approximately 140 km and Ahmedabad International Airport located at a distance of approximately 157 km provide connectivity to other parts of the country and countries across globe. Jambusar is well connected to Vadodara, Surat and Ahmedabad through NH- 228, 48 and 64; and National Expressway – 1.

7.5 Port Connectivity

The proposed site located about 65, 166 Km and 511 km from the Dahej, Hazira & Mundra Port.

7.6 Neighbourhood Analysis

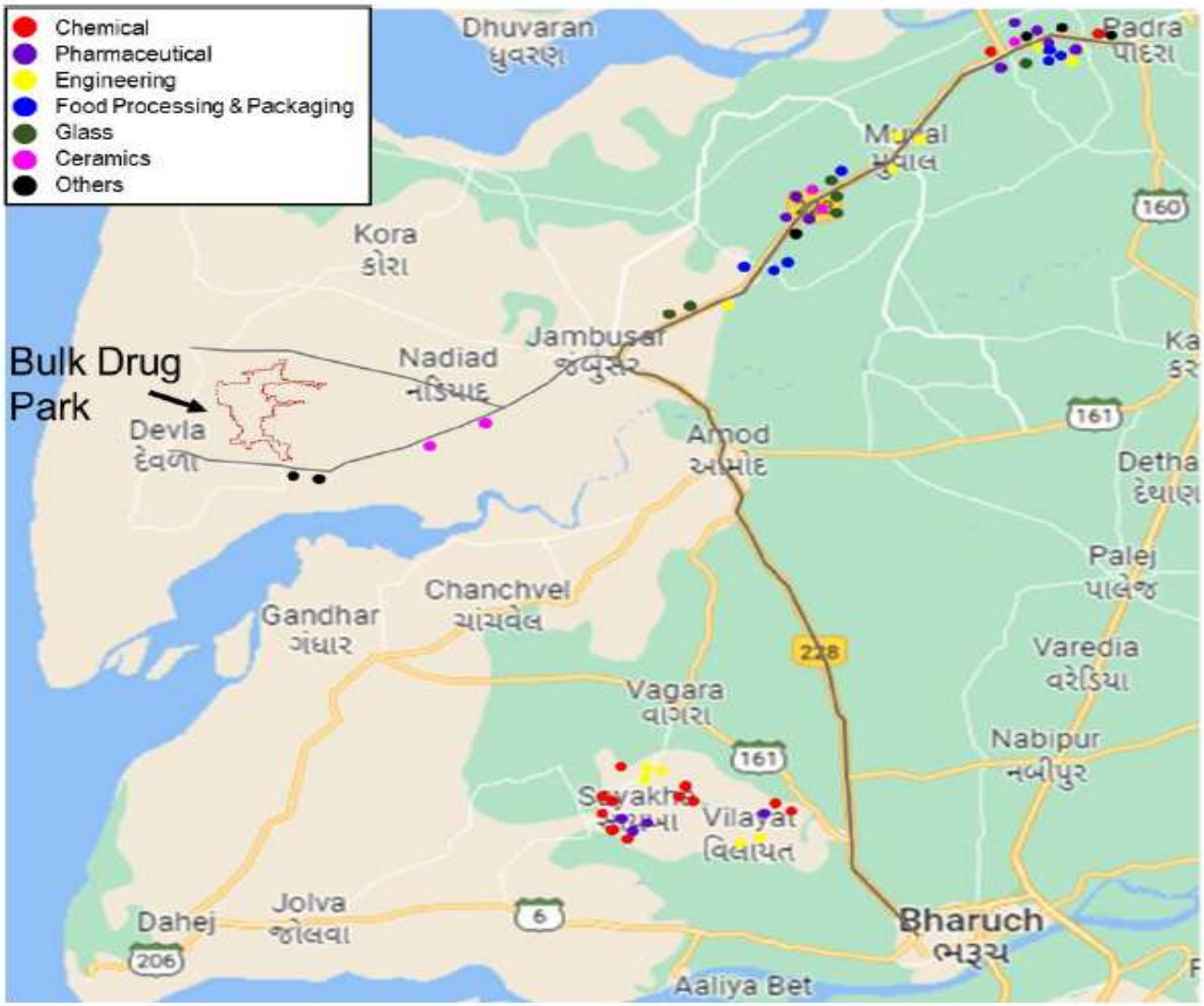
The neighbourhood analysis is conducted for the surrounding area of the site along the major roads: SH-6 and NH-228. The industrial profile of the neighbourhood is captured. Chemical, pharmaceutical (including Bulk Drug), engineering, food processing & packaging, glass, ceramics, etc.

The industries on the Padra Jambusar road are built on private land and hence are scattered. Organic industrial clusters were found along the road during the analysis. The first organic cluster is just after Padra town and the second organic cluster is after Muval. In both these clusters, there is a mix of industries. In the Padra cluster, pharmaceutical industries are dominant and in the Muval cluster, glass and food processing and packing industries are dominant.

There are 3 significant bulk drug manufacturing industries in the neighbourhood; namely, Apicore Pharmaceuticals Pvt. Ltd., Apnar Pharma Pvt. Ltd. and Dinesh Remedies Ltd.

The NH-64 has two GIDCs- Sayakha and Vilayat. All the industries along the stretch are falling under either of the GIDCs. The dominant industries in both Sayakha and Vilayat are Chemical industries followed by pharmaceutical and medical device manufacturing industries. The market rate in these 2 GIDC industrial estates was found to be 6k-12k/ sq. yard.

The Gas line of GSPL and power substations of GETCO are available along the highway.



Source: Site visit & Google Maps, Analysed by WAPCOS, Q1 2022

Figure 9: Neighbourhood Profile

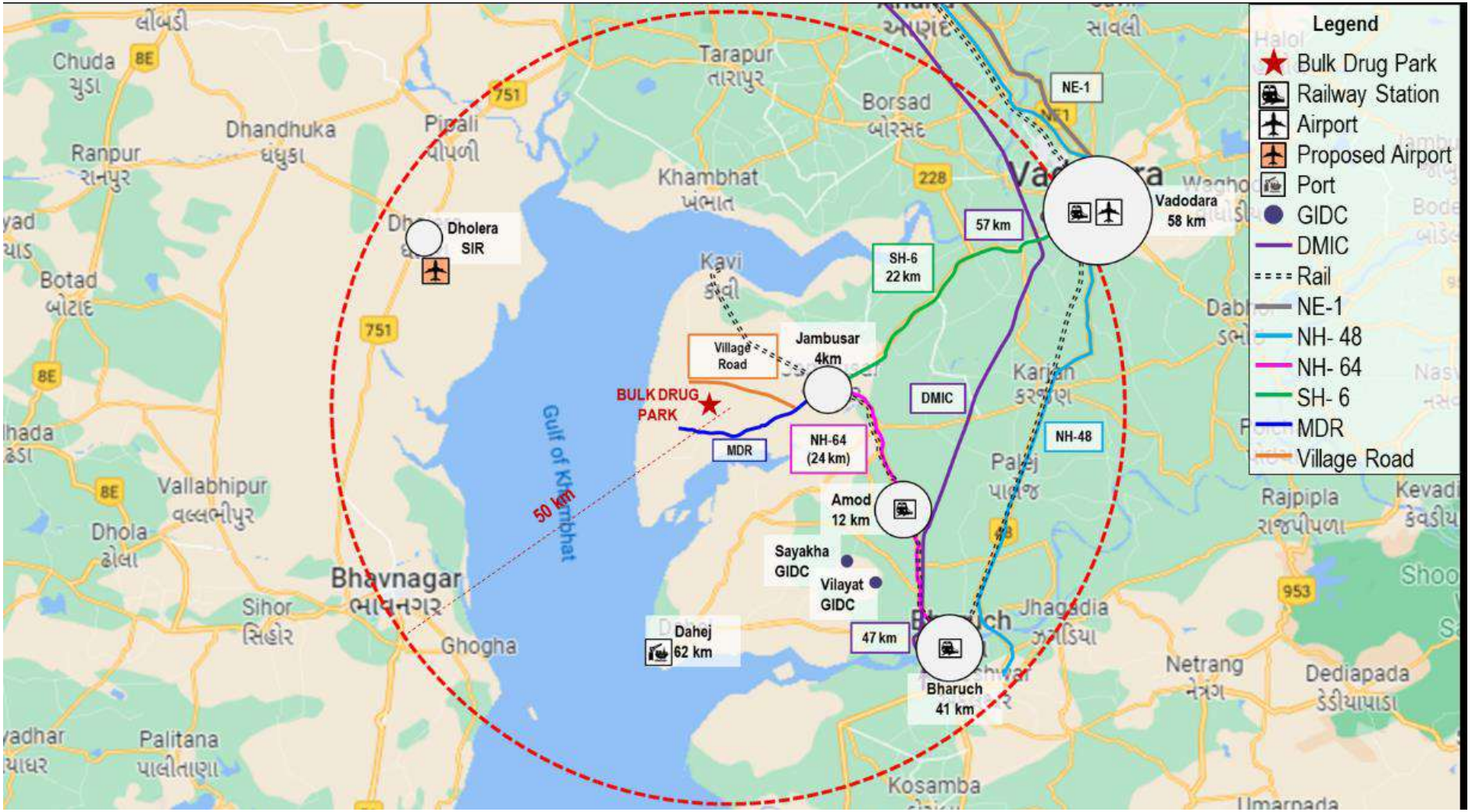


Figure 10: Plan Layout based on Plot area

8.0 Land Area Distribution

Gujarat Industrial Development Corporation (GIDC) has proposed to develop Bulk Drug Park over total area of 742.36 Hectares at Villages: Kansagar, Tankaribandar, Madafar, Bakarpor timbi, Thakor Talavadi and Asanvad of Taluka: Jambusar, District Bharuch, Gujarat.

The project is a proposal for fully integrated park planned specifically for the bulk drug sector. Apart from industrial plots, the plan offers 13.60 Ha. of housing zone, commercial plots of total 16.87 Ha. and 13.37 Ha. of common parking and 28.78 Ha. of warehousing zone.

Table 7: Area Distribution Table

Sr. No.	Particulates	Area (ha)	Percentage (%)
1.	Industrial Plot Area	332.01	44.73
2.	Road area	57.71	7.77
3.	CETP complex	41.79	5.63
4.	Canal	30.94	4.17
5.	Warehousing Zone	27.78	3.74
6.	Commercial area	16.87	2.27
7.	Area under CRZ	13.32	1.79
8.	Greenbelt Area	165.72	22.32
9.	TSDF complex	15.13	2.04
10.	Housing area	13.60	1.83
11.	Parking area	13.37	1.80
12.	Utility area	12.59	1.70
13.	Common facility center	1.53	0.21
	Total Area	**742.36**	**100.00**

Note:

- Individual Industry will develop 33% greenbelt within their premises as per CPCB norms. Hence, total plot area allotted for industrial units will be 495.54 ha.
- 2.2 ha of Greenbelt will be developed alongside the road, canal and periphery of the park.

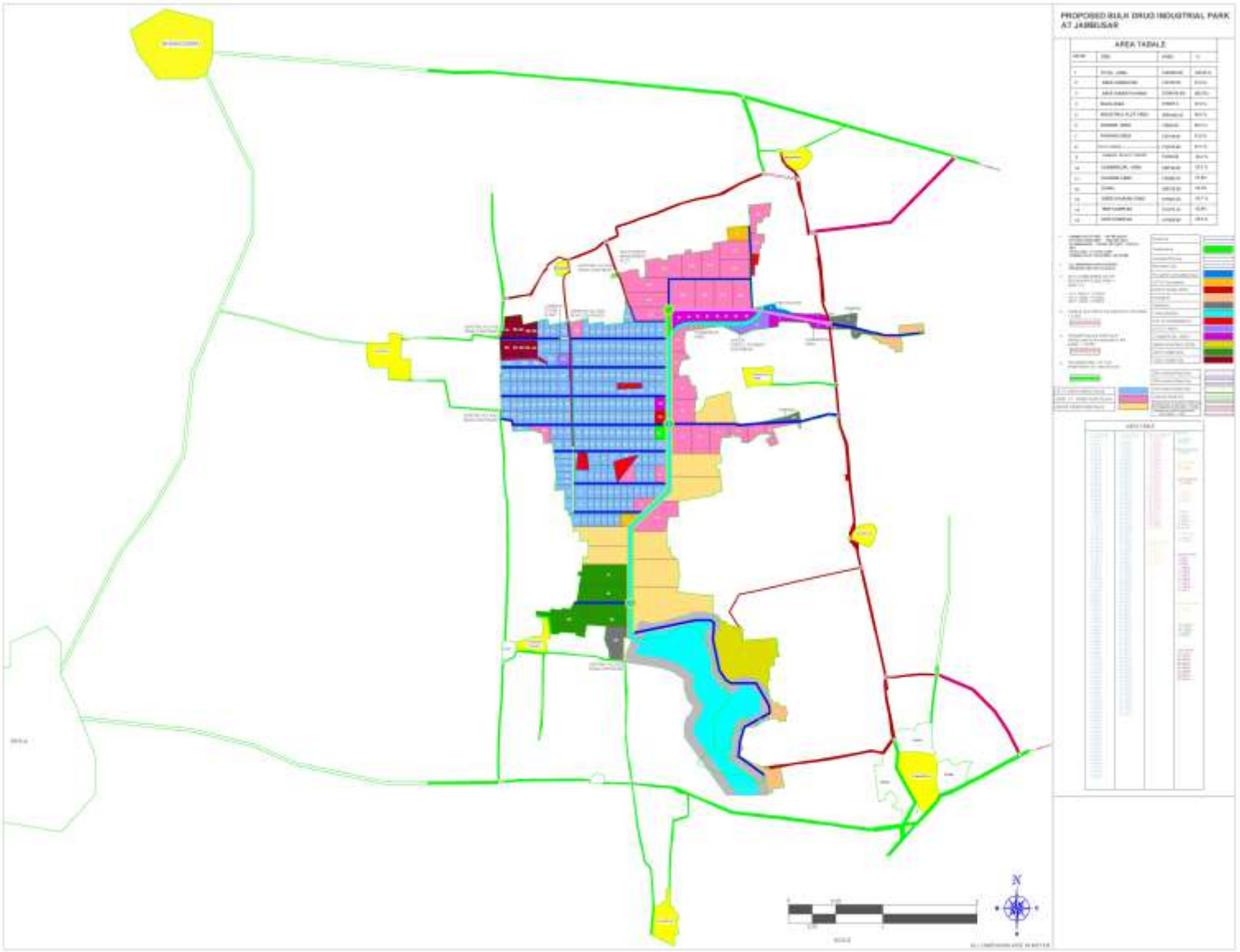


Figure 11: Plot Layout of Bulk Drug Park

8.1 Plot Distribution-Based on Number of Plots

Plot Areas	Number of Plots	Percentage
0-2 Ha.	218	85%
2.1-10 Ha.	32	13%
10.1-18 Ha.	5	2%
18 Ha. & Above	1	0.4%
Total Industrial Plots	**256**	

8.2 Land Acquisition details

Land Acquisition details are given in below table.

Table 8: Land Acquisition details

Sr. No.	Name of Villages	Total Area of Private Land	Total Area of government Land	Total area
1.	Kansagar	84-71-09	00-00-00	84-71-09
2.	Tankaribandar	46-94-37	55-80-24	102-74-61
3.	Madafar	78-65-64	00-00-00	81-06-43
4.	Bakarpor timbi	54-78-62	155-19-79	207-61-05
5.	Thakor Talavadi	71-73-61	115-14-13	189-71-02
6.	Asabvad	00-00-00	79-38-56	79-38-56
	Total in Hect.	**336-83-33**	**405-52-72**	**745-22-76**

Land document is enclosed as **Annexure-II.**

8.3 Canal protection measures

The proposed Bulk Drug Park area falls under Dhadhar basin which originates from Pavagadh and emerges in Gulf of Cambay. The total length of the Dhadhar River is 142 km and the catchment area of the basin is 4201 Sq. km. The project area is situated at the tail end of the Dhadhar River. The drainage system is NE-SW. The upper surface of the area is very fine grained.

One local drain originating in nearby area of the Kavali village crosses the Jambusar Kavi, railway line along with existing roads and enters into the proposed Bulk Drug Park, Jambusar, GIDC area, the drain caters the local area runoff. Second drain origin at nearby area of Runad village enters into the proposed Bulk Drug Park and merge with the first drain near the Thakore Talavdi village and finally dispose of into Gulf of Khambhat via Vishwamitri River (Dhadar Basin).

The Catchment area of the two drains at the entering point of the Bulk Drug Park is about 87.00 & 26.33 Sq.km. and length of the drain is 13.20 & 15.0 kilometer respectively up to proposed Bulk Drug Park, GIDC, Jambusar.

In this study, marking of the catchment area of the identified drains at the entering point of proposed Bulk Drug Park, GIDC is done and then the discharge at this point is computed by Sub Zone Method.

Propose Bulk Drug Park area is coming under Sub Zone -3a (Flood Estimation Report for Mahi - Sabarmati), below table shows the discharge passing from the drain for the duration of 1 in 50 & 100 Years.

Sr. No.	River	Catchment area (Sq.Km.)	Unit Hydrograph by Sub Zone 3a method	
			1 in 50 Year	1 in 100 Year
1	First Drain Origin from Kavali Village	87.0	554.00	649.00
2	Second drain Origin from Runad Village	26.33	159.00	186.00

Looking to the hydrology & hydraulic design of drain, importance of the area, topography condition and drainage pattern, the flood arrives into drain only in monsoon season. So, Flood for 1 in 50 Year return period for passing from the proposed Bulk Drug Park will be considered.

The storm water is coming from the upstream side of the proposed bulk drug park and passes through plant area, hence re-sectioning of the drain is necessary to avoid a further flood inundation in proposed area. Based on hydraulic calculation for the 1 in 50 year return period, cross section details of the drain are as under.

Sr. No.	Particular	Hydraulic parameter
1	Bottom width of drain	40.00 m
2	Top width of drain	40.00 m
3	Depth of Drain	4.22 m
4	Free Board	0.60 m
6	Total drain depth with Free Board	4.82 m wide

As per the topography condition, importance of area (industrial area) and for full proof protection to the banks, etc., rectangular section of drain with base of diaphragm wall with Retaining wall throughout the length of the proposed 40 m drain (figure as above) has been proposed for bank protection.

8.4 Storm Water Channel Bank Protection

Storm Water Drainage System

Storm water drainage system shall be designed to collect and convey run-off generated within the catchment of the Bulk Drug Park during and after rainfall events, for safe discharge of the collected storm water into the natural storm drain passing through the Bulk Drug Park area, finally draining in to the river Vishwamitri. Sections of the drains have been considered based on the magnitude of peak flows of the micro-catchment of the Park.

Collection and conveyance of storm water from the industrial unit up to the plot boundary shall be the responsibility of the industrial unit. Storm water shall be collected in short, PCC lined trapezoidal profile drains and shall be conveyed to the larger natural drain. The natural drain depth and width has been designed to maintain self-cleansing velocity. The natural drain shall be embankment-protected by stone pitching / PCC retained wall margins to ensure that no erosion on the margins is affected. The drain shall be desilted and soil obstructions/silt/bog shall be removed by backhoe before each monsoon.

9.0 Resource Requirement

9.1 Electricity/Power Requirement

- The source of power supply to the Proposed Bulk Drug Park will be through public sector generation and transmission companies i.e. GETCO/MGVCL.
- 350 MW Power supply is likely to be required for the Proposed Park.

Power Distribution Break-up

Sr. No.	Particulates	Power Requirement (MW)
1.	Industrial Units (including common utility and common yard illumination)	266
2.	Residential Units	26
3.	Commercial Units	48
4.	Warehousing Use	10
	Total	**350**

9.2 Cost of Proposed Project

GIDC has proposed to develop a Bulk Drug Park in an area of 742.36 Hectares near Villages: Kansagar, Tankaribandar, Madafar, Bakarpor timbi, Thakor Talavadi and Asanvad of Taluka: Jambusar, District Bharuch, Gujarat. The total estimated cost of project works out to be about Rs. 3500 crores, which includes cost of Land Acquisition Cost, CETP Complex, Essential Common Amenities, STPs, TSDF Complex, Road Network, Marine Outfall System, Power Distribution, Utility Conveyance, etc.

9.3 Manpower Requirement

Around 3500 nos. of workers will be employed during construction phase. The proposed employment is projected for the industries, with a worker density of 113 employees/Ha. Around 496 ha area is allotted for industrial Plots. Thus, approx. 56048 no. of workers will be employed.

10.0 Water Requirement and Wastewater Generation

10.1 Water Consumption

Total water consumption for manufacturing and non-manufacturing area, services, and greenbelt area will 64 MLD (Fresh: 57.8 + Recycled: 6.2).

Table 9: Water Consumption Details

Sr. No.	Category	Water Consumption (MLD)	Remarks
1.	**Industrial**		
	Industrial Units	50.6	4.4 MLD condensate industrial boiler will be recycled
	Common Steam Facility	6.6	-
2.	**Domestic**		
	Warehousing	0.4	-
	Commercial	1	-
	Residential	5.1	1.5 MLD treated water from STP will be reused
5.	**Greenbelt Development**	0.2	0.2 MLD treated water from STP will be reused
6.	**Misc.**	0.1	0.1 MLD treated water from STP will be reused
	Total	**64**	**-**
	Recycled	**6.2**	**-**
	Net Fresh	**57.8**	**-**

Table 10: Wastewater Generation Details

Sr. No.	Category	Water Consumption (MLD)	
		Normal Stream	**Concentrated Stream**
1.	**Industrial**		
	Industrial Units	54	8.1
	Common Steam Facility	0	2.2
2.	**Domestic**		
	Warehousing	0.27	0
	Commercial	0.07	0
	Residential	4.86	0

Total	**59.2**	**10.3**
Recycled	**1.8**	**0**
Net discharge	**57.4**	**10.3**

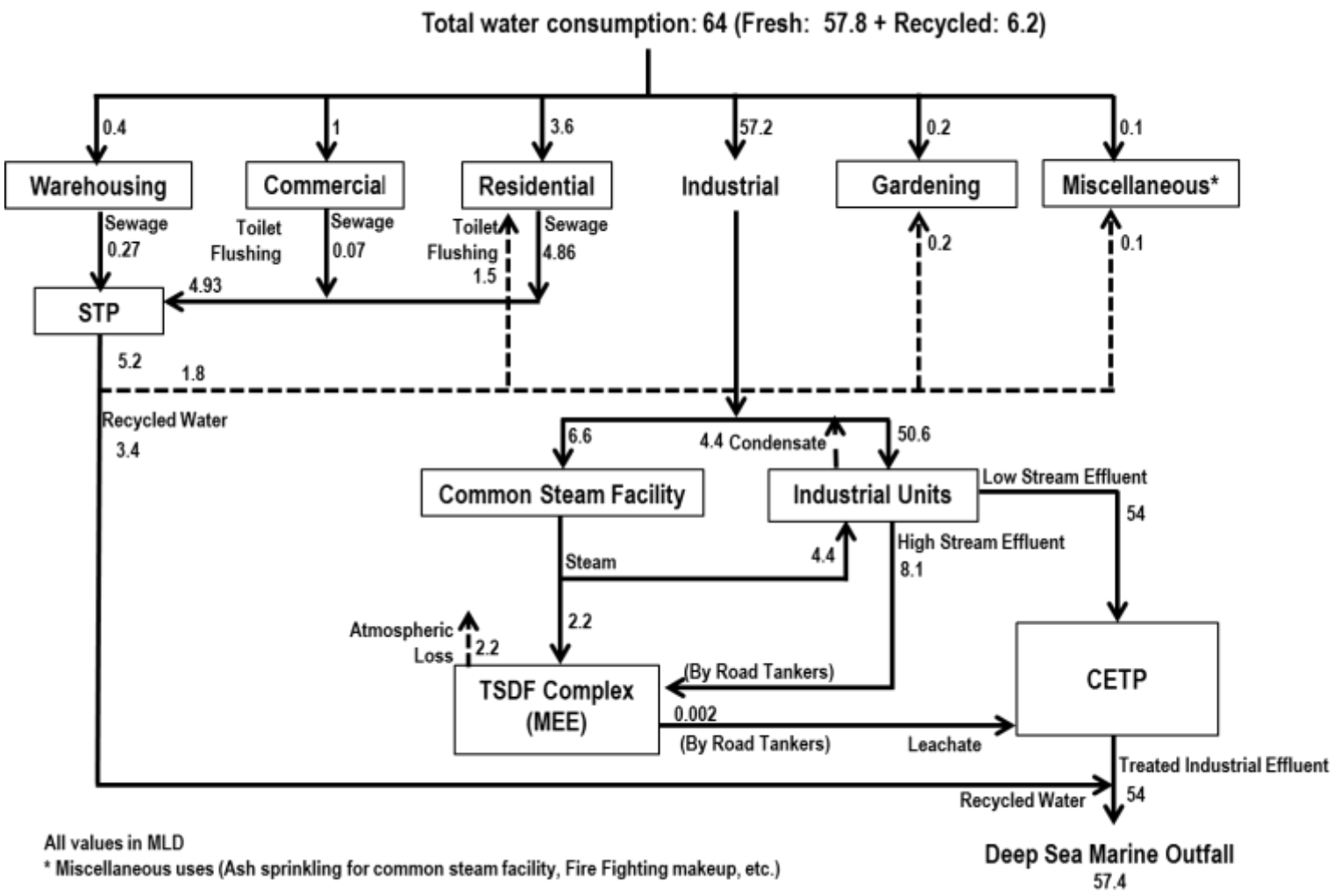


Figure 12: Water Balance Diagram

10.1.1 Water Source

The main source of Water for the entire Bulk Drug Park area will be from existing 133.3 km, 60 MGD water supply pipeline from NMC to Dahej PCPIR. Raw water shall be tapped from existing 60 MGD water supply pipeline from 1st pool of Miyagham Branch Canal (Narmada Main Canal) to Dahej PCPIR NMC via a M.S pipeline of length 42.00 km, 1200 mm dia., 10 mm thickness near Tanchha village. There is sufficient amount of water available at the taping point to fulfil the design demand of the proposed bulk drug park.

Raw water shall be stored in the tank (Raw Water Reservoir (10 ML storage)). Water from the Raw Water Sump shall be supplied (pumped) to the proposed ESR(s).

The total water demand will be catered via this pipeline and the water shall be transmitted via gravity and will be distributed by pumping to the industrial units. The raw water will not require any centralised water treatment. Essential/suitable suspended solids/turbidity removal will be carried out by the industrial units in their own premises.

10.2 Effluent Generation

10.2.1 Industrial Effluent

API manufacturing involves extensive usage of water in process and in utilities. After optimization of use and possible recycling, about 54 MLD of the raw water used in the API manufacturing will be realised as low concentration industrial effluent, amenable to conventional treatment (comprising primary-secondary (biological)-tertiary treatment train in the proposed common ETP.

Based on the effluent generation estimations and to accommodate any changes in water usage in the industry in a 15-20 years timeframe, a CETP of 54 MLD has been proposed in the Bulk Drug Park.

10.2.2 Domestic Sewage

The proposed Bulk Drug Park has two main sources of sewage:

1. Employees working in the API manufacturing Units (from the W/c, showering units and canteens/kitchens)
2. Employees and dependents in the proposed In-park Housing – about 20,000 persons shall be dwelling inside the social infrastructures proposed in the Bulk Drug Park.

Water demand has been calculated at 55 lpcd from the Industrial zone. For the dependents of the workers who would live in the residential area, the water demand has been taken to be 135 lpcd. Based on the total water demand calculated, a factor of 0.85 has been taken to calculate an estimated total sewage.

Summary of Treatment Technology for CETP and STPs are given in **Annexure-III.**

10.3 Effluent Disposal

10.3.1 Industrial Effluent

Industrial units shall discharge pre-treated/primary treated effluent into the effluent drainage system conforming to the inlet criteria of the CETP. The member units will install online TOC meters. Administrative control on inlet criteria will be carried out by instrumentation mediated control. CETP shall carry out treatability study of the effluent before accepting any industrial unit as its member.

Treated CETP effluent conforming to surface water disposal norms of GPCB (summarily, COD: 250 ppm, BOD, 100 ppm) will be sent to the proposed deep-sea marine outfall in the Gulf of Khambhat.

10.3.2 Domestic Sewage

About 20,000 persons shall be dwelling inside the social infrastructure facility proposed in the Bulk Drug Park and Sewage of 5.2 MLD will be generated. Population has been estimated based on levels of functional hierarchy and tends in personnel accommodation followed in industrial parks of similar sizes. Accordingly two STPs based on conventional technology (derivative of Activated Sludge Process comprising secondary and tertiary treatment) shall be implemented.

Cluster 01 – 03 MLD
Cluster 02 – 2.2 MLD

The STP will be implemented in modules of 01 and 1.2 MLDs to cater to gradual population and corresponding sewage volume build up in the Bulk Drug Park. An overall 06 MLD STP design capacity shall be considered to cater to future demands from expansion of the Bulk Drug Park and neighbourhood development.

11.0 SOLID/HAZARDOUS WASTE GENERATION

The proposed Bulk Drug Park will house API manufacturing industry. API manufacturing involves both chemical synthesis and fermentation. Considerable quantity of hazardous waste is likely to be generated from the manufacturing operations.

An integrated TSDF (comprising a secured landfill, a solid-liquid feed incinerator (with option for co-generation to generate steam for operation of a common MEE and/or a Concentrated-effluent Spray Drying unit) is proposed inside a TSDF complex inside the Bulk Drug Park to cater to the industrial units inside the park, and will also accept wastes from the nearby area.

Hazardous waste generation from the proposed Bulk Drug Park has been estimated as follows:

- Landfill-able waste : 15,000 T/month
- Inciner-able waste : 7500 T/month

The scope of the Integrated TSDF will be receipt, short-term storage of hazardous waste, pre-landfill processing (waste stabilization) of hazardous waste, landfilling of assorted wastes, and incineration of hazardous waste, production of steam by waste heat recovery and evaporation of effluent streams. Summary of technical specification of the TSDF is given in **Annexure- IV.**

Biomedical waste Management

Biomedical waste in the proposed Bulk Drug Park is likely to be generated from two sources:

(a) From minor first aid or medical use of disposable dressing material from the individual industrial units – this stream is infrequent and very minor (2-3 kgs in a month/Unit). This stream will be disposed through authorised Common Bio-medical Waste Collection and Disposal Agency by the individual industrial units within 72 hours of generation, under obligations of the Bio-medical Waste Management Rules, 2016.

(b) From the 20 bedded Occupational Health Centre as part of the Common Amenities – this stream may comprise of all four categories (Schedule I, Yellow, Red, White and Blue), to the tune of 4-5 kg/day (maximum). This waste stream(s) will be disposed on a daily basis through authorised Common Bio-medical Waste Collection and Disposal Agency under obligations of the Bio-medical Waste Management Rules, 2016.

(c) Treatment of liquid chemical waste generated at the Common OHC will be carried out at source and the stream shall be disposed with sewage after neutralization as prescribed in the Bio-medical Waste Management Rules, 2016.

Municipal Solid Waste Management

Based on population calculation, the waste generation rate of 0.4 kg/capita/day has been considered. There is no Phase-wise development considered since it is estimated to have most of its plots sold once it is announced. Therefore, no incremental rise in the population is considered. Instead, the total estimated population is taken to calculate the total waste generated.

Table 11: Waste generation from various zones of the Park

Sr. No.	Zone	Waste generation rate (kg/cap/day)	Total persons	Waste generated (Kg/day)	Waste generated (Tonne/day)
1.	Commercial, institutional etc.	0.05	750	38	0.038
2.	Residential	0.4	17641	7056	7
3.	Industrial	0.1	67215	6721	6.7
		Total	**85606**	**13815**	**13.8**

Half of the above municipal waste, 7 T/day will be wet waste, suitable for composting and reuse.

Municipal solid waste shall be collected in pre-segregation state. Staggered and day to day collection of dry and wet waste shall be followed for the residential source. Nominal sorting required shall be carried out at the collection vehicle stage.

Proposed location for the Municipal Solid Waste storage, segregation (minimal and as necessary) and tipping (truck loading for MSW landfill) shall be carried out in an area designated in the TSDF complex. Non-bio-degradable and inert waste shall be disposed in the MSW site (sanitary landfill) of nearby towns (Jambusar and Vadodara).

Wet municipal waste shall be co-composted along with the secondary sludge of STP and ETP in a composting facility located within is TSDF complex by employing aerated windrows method. Out of the total area allotted to the TSDF, an area of 1.2 ha would be required for the MSW handling facility.

A Vermi-compost station comprising 50-60 beds shall be created to promote vermi-composting in the industrial units and supply of live earthworms. Thermos-mechanical composting may also be considered based on technical feasibility and may be adopted if found suitable at detailed design/detailed engineering stage.

The North-west of the proposed Bulk Drug Park has been considered as a suitable location of the TSDF. Within this the Municipal Solid Waste Management Facility will be located.

12.0 HOUSING DEMAND

For the proposed project, 1.83% of the total site area is allotted for housing. Approximately 3500 houses with an average area of 700 sqmt. will be given for the industrial employees.

Total 27% of employees will be houses in the housing area provided in the plan.

Table 12: Details of Housing Demand

Site Area	745.2276	Ha.
Housing	1.83%	
Area Under Housing	13.60	Ha.
	1,35,990.32	Sqmt.
	14,63,787.62	Sqft.
FSI	1.6	
Built Up	23,42,060.19	Sqft.
Avg. size of 1 House	700	Sqft.
Total Apartments	**3345 (~3,500)**	

Housing Area 1
Plot Number- 1,2 (As per master plan)
Total Houses: 1,935

Figure 13: Master Plan for Housing Area 1

Bifurcation on basis of organogram	No. of Workers in 1 house	% of total houses allocated to them	No. of Houses	Working Population Accommodated	Total Population
Top Management	-	-	-	-	-
Senior Management	-	-	-	-	-
Middle Management	1	10%	203	203	1,015*
Junior	4	20%	406	1,624	1,624
Skilled / semiskilled	6	70%	1,421	8,526	8,526
TOTAL				**10,353**	**11,165**

Housing Area 2
Plot Number- 38, 39 (As per master plan)
Total Houses: 1,402

Figure 14: Master Plan for Housing Area 2

Bifurcation on basis of organogram	No. of Workers in 1 house	% of total houses allocated to them	No. of Houses	Working Population Accommodated	Total Population
Top Management	-	-	-	-	-
Senior Management	-	-	-	-	-
Middle Management	1	10%	118	118	188*5= 590*
Junior	4	20%	235	942	942
Skilled / semiskilled	6	70%	824	4,945	4,945
TOTAL				**6,005**	**6,477**

Note*: Only the middle management is considered with family. The household size considered is 5.

Building Height

BUILDING TYPE	Typology	MINIMUM PLOT SIZE	FSI	HEIGHT	Ground Coverage	Extra FSI
Low Rise Building	Residential	1,000 sq.m.	1.6	13 m	50%	Nil
High-Rise Building	Residential	2,000 sq.m.	1.6	18 m	40%	Nil
Semi-detached Building	Residential	150 sq.m.	1.6	9 m	50%	Nil
Detached Building	Residential	300 sq.m	1.6	9 m	50%	Nil

13.0 COMMON SOLVENT RECYCLING FACILITY

API manufacturing generates several kilolitres of mixed solvents, both polar and non-polar types from their manufacturing processes. Mixed solvent disposal requirement to the tune of 350-500 kl of a pharma API over 2 ha land is desirable.

API industries carry out in-house distillation of solvents to a large extent. However, their solvent recovery distillation is contained by availability of only atmospheric pressure operation having 3 m tall distillation columns. Solvents often make constant boiling mixtures (azeotropes) with the other co-distilled constituents and cannot be generally further recovered in – house.

There is a large market for recovered solvents in industries, of extractive or tertiary solvent using types. A solvent recycling unit inside the proposed Bulk Drug Park may cater to outside demand as well, as transportation economics is a small component in the overall economy of solvent fractionating and recycling business.

Common solvent types generally distilled for recovery are as follows:

- Aliphatic
  - Mineral Spirits
  - Naphthas
- Aromatics
  - Toluene
  - Xylene
- Halogenated Hydrocarbons
  - Fluorocarbons
  - Methylene Chloride
  - Perchloroethylene
  - Trichloroethylene
  - 1,1,1 Trichloroethane
- Alcohols
  - Isobutyl Alcohol
  - Isopropyl Alcohol
  - N-Butyl Alcohol
  - Methanol
- Ketones
  - Acetone
  - Methyl Isobutyl Ketone
  - Methyl Ethyl Ketone
- Esters
  - Ethyl Acetate

Common Solvent Recycling Facility

Since API industries are one of major utilisers of recovered/purified solvents; it makes logistics and economic sense to provide a solvent recovery/purification system inside the Bulk Drug Park. Industries can track availability of several grades of recovered solvents and can get the solvents with very short lead-time.

Typical Solvent Distillation Still Setup:

Two trains of high column (up to 12-15 m tall fractionation columns of bubble tower/equivalent design) shall be provided in the Bulk Drug Park.. An area of about 3.5 ha has been earmarked for this activity. The facility will either involve its own, dedicated IBR smoke-tube steam boiler of commensurate size operating on LSHS/NG as fuel. Alternatively, steam may be supplied from the 3000 MT/hr common steam generation and supply system proposed as an integral part of the Bulk Drug Park..

Capacity of each train will be 0.15 MMT/month. A mix of above and underground storages of pure and mixed solvents (all Class A tanks) will also be created in the facility. Eight nos. of Fixed Roof Tanks/ underground tanks of 3500 kl are proposed in the facility.

Air Pollution Control

The solvent distillation setup will have a Air Pollution Control System comprising cold and chilled water condensation to ensure that the system conforms to the statutory norms for VOC and other non-condensable criteria emissions. Emission stacks of the system shall be provided with on-line sensors for solvents to monitor the performance of the recovery and APC system. Necessary safety systems will be implemented to ensure safe operation.

Hazardous Waste Management

Distillation residues and condensed non-boilers from the columns shall be disposed in the TSDF (HW incineration). A dedicated HW shed shall be created at the facility. Transportation of the waste shall be carried out in dedicated 12 T road trucks. Storage duration of the waste at the facility end shall not be more than 90 days.

CPCB guideline for recovery of spent solvent, 2011 shall be followed by the Common Facility.

14.0 COMMON STEAM SUPPLY

There is requirement of abundant amount of steam in chemical reactions involved in the API manufacturing for various purpose, such as for heating of the reaction mass, solvent distillation and heating of the fermenters, etc. In addition, vacuum requirements of the reactors, crystallizers, etc. are met by ejectors that operate on steam. Steam is also required for direct purging into certain material and in the operation of Multiple Effect Evaporates running on effluent/reject streams evaporation/concentration duty.

Steam Boiler

To cater the steam requirement of the industrial park, a total of 3000 T/hr. (1800 T/hr. +1200 T/hr.) steam supply system has been envisaged in the Bulk Drug Park. The boiler will be based on AFBC technology and will operate on crushed coal.

Crushed limestone in stoichiometric quantity will be added to the fluidizing media for in-situ control of SOx gas. Particulate control in the boiler flue shall be carried out with ESP pre-stack.

The system shall have comprehensive balance-of-Plant utilities including dust suppression systems for handling of coal. The APC for steam boilers shall comprise of ESPs coupled with bag house. A total area of 4.2 ha and 2.5 ha has been earmarked for the Steam Boiler Complex.

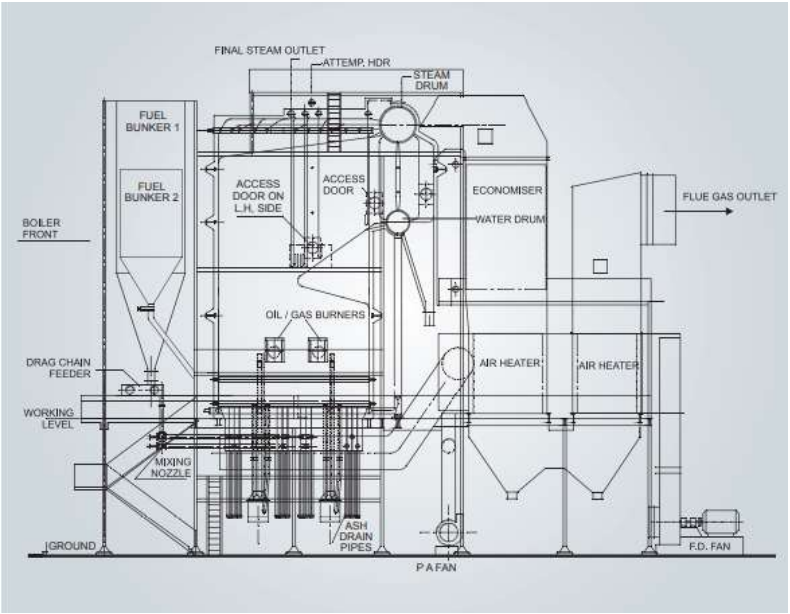


Figure 15: Atmospheric Fluidised Bed Combustion setup

Courtesy: Thermax, 2021

Steam Distribution System

Dry steam at 8.5 – 10 kg/cm^2 shall be taken to the individual industry through IBR compliant insulated steam pipelines. The pipelines (steam headers and supply pipelines) will be provided with steam traps at regular intervals. Steam condensate will be collected and reused by individual industrial units within their premises. A comprehensive digital and telemetry equipped steam measurement system shall be implemented to account for the quantity of steam supplied to the Industry for billing purpose.

Source of Coal and Coal Handling

About 0.54 MMT/month coal will be required for operation of the common steam generation system. Coal shall be sourced from Indian/international suppliers under long-term coal sourcing agreement. Coal shall be transported in 22 and 35 T covered cargo hold tipper trucks, and shall be unloaded by mechanical means.

All the coal handling shall be carried out under care. Coal shall be stored in longitudinal covered sheds and shall be fed to the steam generators through closed conveyers. Water sprinklers /mist system will be installed for dust suppression. NAAQS, 2009 standards shall be met inside the Bulk Drug Park.

Fly Ash Management

Fly ash captured in the ESP shall be stored in silos and shall be sold to Cement Plants for manufacturing of PP Cement. Transportation of fly ash shall be carried in Cement/Fly Ash Bulkers.

15.0 COST OF PROJECT AND FINANCIAL VIABILITY

15.1 Overall Project Cost

GIDC has proposed to develop a Bulk Drug Park in an area of 742.36 Hectares at Villages: Kansagar, Tankaribandar, Madafar, Bakarpor timbi, Thakor Talavadi and Asanvad of Taluka: Jambusar, District Bharuch, Gujarat. Cost of project based on preliminary estimates works out to be about Rs. 3500 crores. The detail is given in the following table:

Table 13: Estimated Cost of Project

Sr. No.	Component	Cost (in INR Crores.)
A.	Land Acquisition Cost	370.40
B.	CETP Complex	377.85
C.	Essential Common Amenities	156.75
D.	STPs	52.77
E.	Storm Water Management Drains	281.24
F.	Gate Complex and Security	2.56
G.	Road and Yard Illumination	10.31
H.	Marine Outfall System	294.11
I.	Parking	24.07
J.	Power Distribution	367.13
K.	Raw Water Abstraction, Conveyance and Distribution	284.11
L.	Raw Water Supply-Internal Distribution	81.68
M.	Road Network	240.19
N.	Area Grading	8.13
O.	Utility Conveyance	58.41
P.	TSDF Complex	431.48
TOTAL (A+B+C+D+E+F+G+H+I+J+K+L+M+N+O+P)		3041.12
Contingency Charges (5%)		148.01
Escalation (10%)		296.03
GRAND TOTAL IN Rs. CRORES		**3485.16~ 3500**

16.0 Summary Liability of Bulk Drug Park and Industries within

16.1 Summary Liability of Bulk Drug Park

- GIDC will develop industrial plots of the required size to suit the industrial activities and will provide power, through its centrally organized power supply grid.
- GIDC will provide main roads of adequate width
- GIDC will provide water storage and supply network, Common effluent collection sump and effluent disposal pipeline connected to CETP.
- GIDC will provide Integrated TSDF (Secured landfill, Incinerator, MEE/SD facility and organic municipal waste treatment facility) for handling, treatment and disposal of Hazardous and Municipal waste.
- GIDC will provide essential common utilities such as storm water network

- GIDC will provide security gate and essential security arrangement in/around the Bulk Drug Park.
- GIDC will also provide canteen area, Admin building and customs house, Commercial complex like Shops, Bank, and Offices, etc.
- GIDC will also provide Fire-station and Occupational health centre for emergency situation.
- GIDC will develop laboratory facility for monitoring of environmental parameter from member industries.
- GIDC will develop Environmental Cell, Emergency Management Cell and Common Health Surveillance System.
- The proposed Bulk Drug Park will provide Housing-Residential facilities and dormitory for industrial workers.
- Compliances to environmental clearance and CCA conditions.

16.2 Summary Liability of Individual Industries

- Industry shall provide the Project Report related documents delineating the raw materials, manufacturing/production process, utilities and other infrastructures before starting the production.
- Industry shall commit for pollution control measures in respect of water/wastewater, air/emission, solid/Hazardous waste and noise in line with respective Standards and Guidelines.
- GIDC will mandate all member industries to pre-treat their wastewater in own ETP and after confirming to the CETP inlet it will go to CETP for further treatment and ultimate disposal.
- The industries shall provide Risk Analysis and DMP.
- The industries shall develop green belt for atleast 33% of the acquired plot area.
- The industries shall provide measures for rain water harvesting structures.
- The industry shall project its independent organizational settings for Environmental Up gradation and monitoring with exclusive annual budgetary allocation.
- Industries will be mandated to commission their activities only after obtaining necessary clearance & permits as per the applicability of legal requirement.
- Industries will Co-ordination with the GIDC authority for effective environmental management

17.0 Project Implementation Schedule

It is estimated that Implementation of project will be completed within 12-15 months, considering EC & CRZ obtained day as a 1st day of implementation.

Project Implementation schedule describing various activities is given in below **figure 14.**

Infrastructure Head	Infrastructure/ Amenities/ Building	Year 01												Year 02		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Common infrastructure	Boundary wall															
	Security infra															
	Gate complex															
	Auto-utility area															
Administrative building	Fire Station and DM Centre															
	Central Control Room															
	Occupational Health Clinic															
	Training Infrastructure															
	Central cafeteria															
	Lawn and Display centre															
	Horticulture station															
	Bank															
	ATM															
	Police station															
Centre for Excellence	Advance Testing Laboratory															
	Advanced R&D Lab															
	Kilo Lab															
Commercial Infra	Kerbside Fuel Dispensing station															
	Common Driver Amenities															
	Public Urinals															
Raw Water	Raw water storage															
	Raw water supply from source															
	Raw water supply for internal distribution															
CETP	CETP															
	Effluent lines															
	Marine disposal															
	Marine pumping station															
STP	STP															
	Sewage collection lines from the housing complex															
Storm water	Storm water drains															
TSDF	Secure landfill															
	incinerator (with heat recovery)															
	MEE/SD															
	Thermo-mechanical composting															
MSW	Required infrastructure within the TSDF complex															
	Collection and segregation space															
	Collection vehicle parking															
Power infra	Power evacuation															
	sub-stations and power lines for distribution within the Park															
Road	Road as such with the utility lines															
	Illumination work															
Warehouse																
Residential Complexes																

Figure 16: Project Implementation Schedule

18.0 Financial and Social Benefit

Every industrial project has the potential to result in benefits to the community in which it is established. These benefits are primarily economic and include employment, economic activity, government revenues and workforce training. This section summarizes the benefits of the Bulk Drug Park Project at Jambusar.

18.1 Financial Benefit

With a view to significantly bring down the manufacturing cost of bulk drugs and thereby increase the competitiveness of the domestic bulk drug industry by providing easy access to standard testing and infrastructure facilities, Department of Pharmaceuticals Government of India has notified a guidelines of the scheme for "Promotion of Bulk Drug Parks" on 27th July 2020.

The current interventions shall address the need that arises in a situation of pandemic, which the world has been facing since last two years. Such a project envisages to provide supply of medicines to the market addressing the demand of the critical times.

The proposed Bulk Drug Park would strengthen the position of the pharma industry within the state, which will further improve the position of the state, both in terms of business and the industry.

There is an opportunity for the Indian pharmaceutical industry to play a larger role in global drug supply-security and Gujarat can be the trusted partner in this journey with its proven track record and continuous progress in the pharmaceutical sector. This project will generate tax revenues for the government and will improve the GDP of the district.

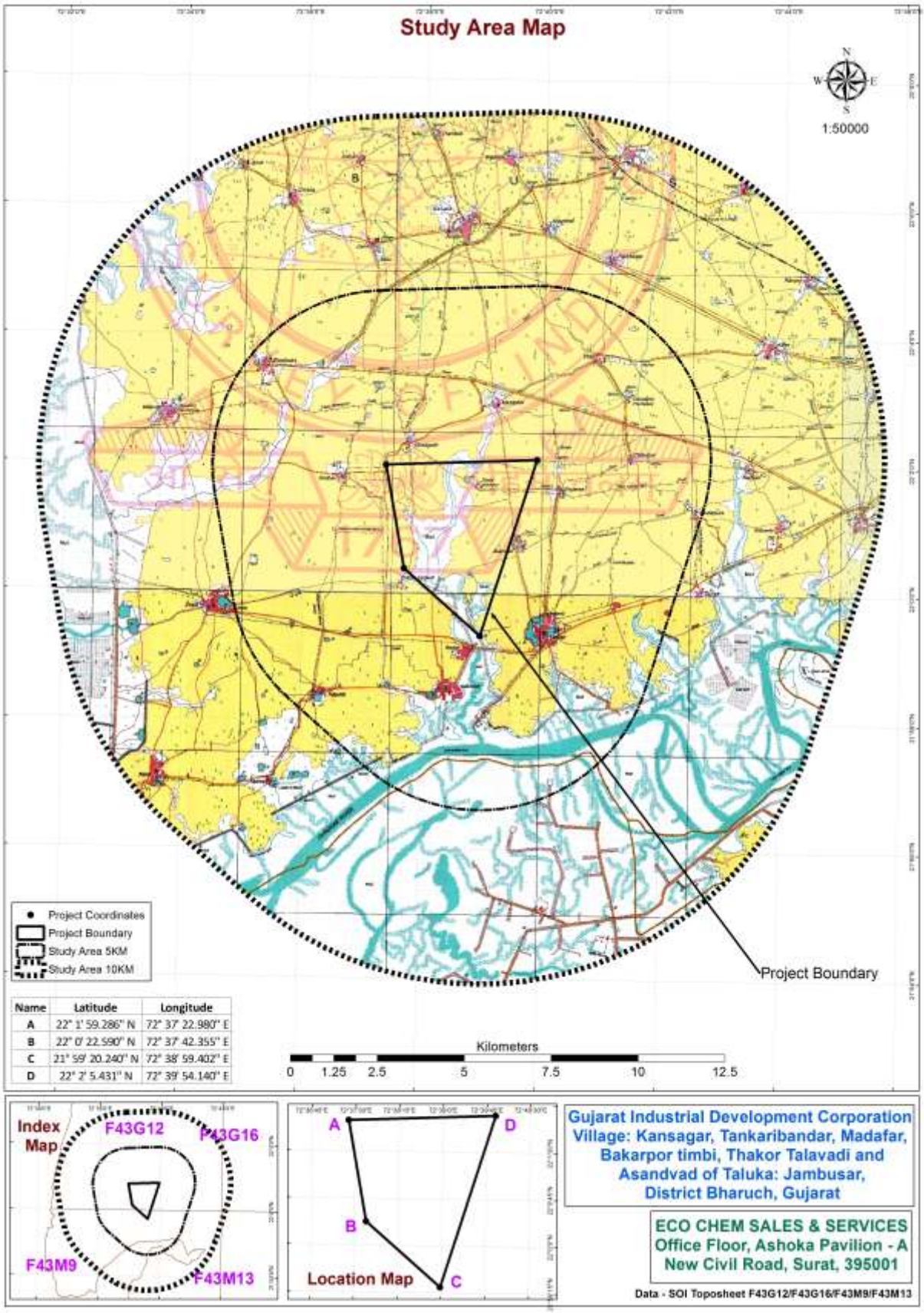
18.1 Social Benefit

The employment of local people in primary and secondary sectors of project shall upgrade the prosperity of the region. This in-turn will improve the socio-economic conditions of the area.

The proposed Project has potential to provide employment to 11000 nos. of workers during construction phase; thus, this project will provide temporary employment to many unskilled and semi-skilled laborers in nearby villages. This project will also help in generation of indirect employment to those people who render their services for the personnel directly working in the project and during operational phase, considerable number of people will be benefited by provision of various services, such as transportation, technical services, skilled and semi-skilled services and indirectly it will flourish various business activities. Around 56048 no. of workers will be employed during operation phase.

The project will enhance quality of life for the residents of the abutting 6 villages, will improve quality of education, infrastructure facilities etc.

Annexure-I Toposheet of Study Area



Annexure-II Land Document

Jambusar Bulk Drug Park Village wise Govt. Pvt Land Details					
Sr.No	Village	AREA		TOTAL	Remarks
		Gov.	Pvt (As per OSD Certificate of posseession of Consolidated land)		
1	Thakor Talavdi	115-14-13	71-73-61	186-87-74	સરકારી સર્વે નં.૬૧ અને ૬૨ કુલ વિ.૦૧-૯૩-૨૪ ચોમી કબજો મળેલ નથી.
2	Asabvad	79-38-56	-	79-38-56	
3	Bakarpor Timbi	155-19-79	54-78-62	209-98-41	સર્વે નં.૧૬૬ પૈ ગૌચર જમીન વિ.હે.૦૩-૦૧-૪૯ ચોમી સરકારી જમીનનો કબજો મળેલ નથી.
4	Tankari Bandar	55-80-24	46-94-37	102-74-61	સરકારી જમીનના સર્વે નં.૧૨૬૮/૧ કુલ વિ.૫૫-૯૧-૫૩ માંથી હે.૨૩-૫૦-૯૪ ચોમીનો કબજો મળેલ છે. જ્યારે વિ.૩૧-૬૮-૫૯ ચોમીનો કબજો મળેલ નથી.
5	Madafar	-	78-65-64	78-65-64	
6	Kansagar	-	84-71-09	84-71-09	
TOTAL		**405-52-72**	**336-83-33**	**742-36-05**	

કલેકટર કચેરી, ચીટનીશ શાખા

કણબીવગા, ગુજરાત હાઉસીગ બોર્ડની સામે, કોર્ટ રોડ, ભરૂચ૩૯૨૦૦૧

E-mail :- collector-bha@gujarat.in

ટેલીફોન નંબર : ૦૨૬૪૨ –૨૪૩૫૧૪ ફેકસ નંબર : ૦૨૬૪૨–૨૪૦૬૦૨

ક્રમાંક :ભુમી/ વશી / 4952 તારીખ : ૨૬/૯/૨૦૨૦

પ્રતિ,

માનનીય ઉપાધ્યક્ષશ્રી અને

વહીવટી સંચાલકશ્રી,

જી.આઈ.ડી.સી., ગાંધીનગર

વિષય :- ભરૂચ જિલ્લાના જંબુસર તાલુકામાં બલ્ક ડ્રગ પાર્કની સ્થાપના કરવા માટે જી.આઈ.ડી.સીને આગોતરો કબ્જો સોંપી પ્રમાણપત્ર આપવા બાબત

સવિનય સહ ઉપરોકત બાબતે જણાવાનુ કે અત્રેના જીલ્લામાં જંબુસર તાલુકામાં બલ્ક ડ્રગ પાર્કની સ્થાપના કરવા માટે જી.આઈ.ડી.સીને આગોતરો કબ્જો સોંપી આ સાથે નિયત નમુનામાં ગામવાર જમીનની ક્ષેત્રફળ સહિતની વિગતનુ પ્રમાણપત્ર સાદર કરેલ છે. જે વિદિત થવા વિનંતી છે.

(ડૉ. એમ. ડી. મોડીયા)

કલેકટર ભરૂચ

Certificate of Possession of Consolidated Land

Gujarat Industrial Development Corporation (GIDC) being the State Implement Agency (SIA) for the development of Bulk Drug Park at Jambusar Taluka Bharuch, has requested for Government land admeasuring **1007.71 Acre** comprising of 4 villages. The area details of the villages are mentioned below:

Name of the village	Survey No	Area (in Acre)
Thakor Talavadi	56 paikee, 57,59, 92,93,94,95,96,97	290.20
Asanvad	86	156.16
	87	39.99
Bakarpor Timbi	166a	383.48
Tankari Bandar	1031	73.91
	1268/1	63.97
Total area		**1007.71**

The said land has been allotted to GIDC, being the SIA for the implementation of proposed Bulk Drug Park at Jambusar Taluka, Bharuch District vide govt. order Bhumi/Agotro Kabjo/Vashi/4717 to 4719 Dt :- 23-9-2020

Kuccha mutation entry of the said order has been made in revenue record vide entry in Form-6 entry no. 1126 (Thakor Talavdi),1383 (Asanvad), 1349 (Bakarpor Timbi), 15939 (Tankari Bandar) date 23-9-2020. The mutation will take its formal effect soon after 30 days as per permanent change in record but based on the notification. GIDC has been given possession of said land after paying due amount to the landowners of respective revenue numbers so, I hereby confirm that the above land is in possession of GIDC (SIA) since the Kuccha entry is made in the revenue record. I also hereby certify the details as per attached Annexure-I along with this undertaking for the aforementioned land details.

(Dr M D Modiya)
District Collector Bharuch

નાયબ કલેક્ટર અને ખાસ જમીન સંપાદન અધિકારી,
જી.આઈ.ડી.સી. કચેરી, નર્મદા કોમર્શિયલ કોમ્પ્લેક્ષ,
સેન્ટ્રલ બેંકની ઉપર, બીજોમાળ, પાંચબત્તી, ભરૂચ.

ક્રમાંક:ખજઅ/જમન/ ૧૩૮૬ /૨૦૨૦ તા.30 /૦૯/૨૦૨૦

પ્રતિ,
મે.કલેકટર સાહેબશ્રી,
ભરૂચ,

વિષય:- બલ્ક ડ્રક પાર્ક જંબુસર માટે જી.આઈ.ડી.સી ગાંધીનગરને પ્રમાણપત્ર આપવા બાબત.

સવિનયસહ ઉપરોક્ત વિષય અન્વયે જણાવવાનું કે, મોજે. કનસાગર, બાકરપોર ટીંબી, ઠાકોર તલાવડી, ટંકારીબંદર, મદાફર તા. જંબુસર જી. ભરૂચ ગામની ખાનગી જમીનો બલ્ક ડ્રક પાર્ક માટે સંપાદન કરવામાં આવેલ છે. જે અંગેનું સર્ટીફીકેટ એઝ્યુકેટીવ ડાઇરેકટરશ્રી જી.આઈ.ડી.સી ગાંધીનગર દ્વારા માંગવામાં આવેલ છે. જે અત્રેથી ચકાસણી કરી પ્રતિ હસ્તાક્ષર માટે આ સાથે સામેલ કરી સાદર કરેલ છે. જેમાં પ્રતિ હસ્તાક્ષર થવા વિનંતી છે.

નાયબ કલેકટર અને
ખાસ જમીન સંપાદન અધિકારી
જી.આઇ.ડી.સી.ભરૂચ.,

d/sonal/leter/8-20/18-08

Certificate of Possession of Consolidated Land

Gujarat Industrial Development Corporation (GIDC) being the State Implement Agency (SIA) for the development of Bulk Drug Park at Jambusar Taluka Bharuch, has been authorised to acquire private land vide. **AM-2020-567-M-LBR-1320-1517-GH** Dated : **19/09/2020** & **AM-2020-581-M-LBR-1320-1711-GH** Dated : **21/09/2020** admeasuring **84-71-09** sqm, comprising of **KANSAGAR** villages. The area details of the villages are mentioned below:

Name Of the Village	Survey No.	Area H.R.Sq.	Acer A.G.	Survey No.	Area H.R.Sq.	Acer A.G.
KANSAGAR	167	0-41-63	1.03	190	0-86-99	2.15
	168	0-16-51	0.41	191	2-85-46	7.05
	169	0-37-58	0.93	192/P	1-40-00	3.46
	170	0-78-14	1.93	194/P	3-20-00	7.91
	171	4-57-68	11.31	195	0-63-77	1.58
	172	2-13-08	5.27	196	1-32-75	3.28
	173	0-96-22	2.38	197	1-45-73	3.60
	174	2-78-54	6.88	198	3-28-61	8.12
	175	0-87-67	2.17	199 Kh.	1-03-25 0-03-04	2.63
	176	0-88-70	2.19	200 Kh.	1-03-38 0-00-04	2.56
	177	1-58-09	3.91	201 Kh.	1-02-86 0-04-05	2.64
	178	1-29-53	3.20	202	4-44-37	10.98
	179	1-36-59	3.38	203	3-00-50	7.43
	180	0-38-51	0.95	204	1-62-04	4.00
	181	2-01-75	4.99	206	1-54-14	3.81
	182	1-05-35	2.60	207	1-93-74	4.79
	183	1-84-71	4.56	208 Kh.	4-70-02 0-15-18	11.99
	184	2-04-61	5.06	209 Kh.	6-26-78 0-04-05	15.59
	185	0-72-73	1.80	210	3-11-83	7.71
	186	1-41-19	3.49	211	2-64-54	6.54
	187	1-54-74	3.82	215	1-47-49	3.64
	188	1-84-21	4.55	396	0-02-80	0.07
	189	4-45-92	11.02			
				TOTAL -	**84-71-09**	**209.32**

The said land has been allotted to GIDC, being the SIA for the implementation of proposed Bulk Drug Park at Jambusar Taluka, Bharuch District vide govt. order **AM-2020-567-M-LBR-1320-1517-GH** Dated : **19/09/2020** & **AM-2020-581-M-LBR-1320-1711-GH** Dated : **21/09/2020** Kuccha mutation entry of the said notification **894** Dated : **21/09/2020** has

been made in revenue record vide entry in Form-6 (entry no. **2450 Dated : 19/09/2020** & entry no. **2452 Dated : 21/09/2020**). The mutation will take its formal effect soon after 30 days as per permanent change in record but based on the notification. GIDC has been given possession of said land after paying due amount to the landowners of respective revenue numbers so, I hereby confirm that the above land is in possession of GIDC (SIA) since the Kuccha entry is made in the revenue record. I also hereby certify the details as per attached Annexure-I along with this undertaking for the aforementioned land details.

DEPUTY COLLECTOR AND
SPECIAL LAND ACQUISITION OFFICER
GIDC, BHARUCH, DIST.BHARUCH.

Office on Special Duty (OSD), Bharuch

(Name & Designation of Signatory)

Office Seal

CS:

District Collector Bharuch

(Name & Designation of Signatory)

Certificate of Possession of Consolidated Land

Gujarat Industrial Development Corporation (GIDC) being the State Implement Agency (SIA) for the development of Bulk Drug Park at Jambusar Taluka Bharuch, has been authorised to acquire private land vide. **AM-2020-566-M-LBR-1320-1514-GH** Dated : **19/09/2020** & **AM-2020-582-M-LBR-1320-1715-GH** Dated : **21/09/2020** admeasuring **74-56-89** sqm, comprising of **THAKOR TALAVDI** villages. The area details of the villages are mentioned below:

Name of the Village	Survey No.	Area H.R.Sq.	Acer A.G.	Survey No..	Area H.R.Sq.	Acer A.G.
THAKOR TALAVDI	58	0-49-57	1.22	80/a	0-50-59	1.25
	60	1-63-90	4.05	80/b	3-44-52	8.51
	63/a	3-36-90	8.32	81	0-94-09	2.32
	63/b	0-14-16	0.35	82	1-03-19	2.55
	64	2-83-28	7.00	83	1-13-31	2.80
	65	5-84-77	14.45	84	1-55-81	3.85
	66	4-79-56	11.85	85	1-62-89	4.02
	67	3-53-09	8.72	86	5-77-69	14.27
	68	0-93-08	2.30	87	1-31-52	3.25
	69	1-08-25	2.67	88	1-20-39	2.97
	70	0-82-96	2.05	89	1-28-49	3.17
	71	0-39-46	0.98	90	1-27-48	3.15
	72/a	0-76-89	1.90	91	2-67-09	6.60
	72/b	0-65-76	1.62	98/a	0-53-62	1.32
	73	0-37-43	0.92	98/b	0-67-79	1.68
	74	0-89-03	2.20	99	0-89-03	2.20
	75	2-65-07	6.55	100	0-74-87	1.85
	76	0-18-21	0.45	101	0-41-48	1.02
	77	0-54-63	1.35	102	2-32-70	5.75
	78	4-21-89	10.42	103	0-37-43	0.92
	79/a	1-68-96	4.17	104	0-81-95	2.02
	79/b	3-30-83	8.17			
				TOTAL	**74-56-89**	**184.25**

The said land has been allotted to GIDC, being the SIA for the implementation of proposed Bulk Drug Park at Jambusar Taluka, Bharuch District vide govt. order **AM-2020-566-M-LBR-1320-1514-GH** Dated : **19/09/2020** & **AM-2020-582-M-LBR-1320-1715-GH** Dated : **21/09/2020** Kuccha mutation entry of the said notification **891** Dated **21/09/2020** has been made in revenue record vide entry in Form-6 (entry no. **1119** Dated : **19/09/2020** & entry no. **1124** Dated : **21/09/2020**). The mutation will take its formal effect soon after 30 days as per permanent change in record but based on the notification. GIDC has been given possession of said land after paying due amount to the landowners of respective revenue

numbers so, I hereby confirm that the above land is in possession of GIDC (SIA) since the Kuccha entry is made in the revenue record. I also hereby certify the details as per attached Annexure-I along with this undertaking for the aforementioned land details.

DEPUTY COLLECTOR AND SPECIAL LAND ACQUISITION OFFICER GIDC, BHARUCH, DIST.BHARUCH.

Office on Special Duty (OSD), Bharuch

(Name & Designation of Signatory)

DY. COLLECTOR & SP. LAND ACQ. OFFICER GIDC, BHARUCH

Office Seal

CS:

Collector Bharuch

District Collector Bharuch

(Name & Designation of Signatory)

Certificate of Possession of Consolidated Land

Gujarat Industrial Development Corporation (GIDC) being the State Implement Agency (SIA) for the development of Bulk Drug Park at Jambusar Taluka Bharuch, has been authorised to acquire private land vide. **AM-2020-579-M-LBR-1320-1713-GH** Dated : 21/09/20200 admeasuring **46-94-37** sqm, comprising of **Tankari Bandar** villages. The area details of the villages are mentioned below:

Name Of Village	Survey No.	Area H.R.Sq.	Acer A.G.	Survey No.	Area H.R.Sq.	Acer A.G.
Tankari Bandar	891	1-61-88	4.00	1042	4-56-26	11.27
	1032	0-84-98	2.10	1044	1-03-20	2.55
	1033	2-45-85	6.07	1043/a	0-81-95	2.02
	1035	3-70-29	9.15	1043/b	0-14-16	0.35
	1036	0-99-14	2.45	1045	1-01-17	2.50
	1037	0-86-00	2.13	1047	3-94-57	9.75
	1038	0-50-59	1.25	1046	0-99-15	2.45
	1039	1-37-59	3.40	1041	1-57-83	3.90
	1040	3-82-43	9.45	1048	2-09-43	5.17
	1049	1-98-30	4.90	1034	4-14-81	10.25
	1050	1-95-26	4.82	592	4-40-10	10.87
	1051	2-09-43	5.17			
				TOTAL -	46-94-37	116

The said land has been allotted to GIDC, being the SIA for the implementation of proposed Bulk Drug Park at Jambusar Taluka, Bharuch District vide govt. order **AM-2020-579-M-LBR-1320-1713-GH** Kuccha mutation entry of the said notification **893** Dated **21/09/2020** has been made in revenue record vide entry in Form-6 (entry no. **15938** Dated : **21/09/2020**). The mutation will take its formal effect soon after 30 days as per permanent change in record but based on the notification. GIDC has been given possession of said land after paying due amount to the landowners of respective revenue numbers so, I hereby confirm that the above land is in possession of GIDC (SIA) since the Kuccha entry is made in the revenue record. I also hereby certify the details as per attached Annexure-I along with this undertaking for the aforementioned land details.

DY. COLLECTOR & SP. LAND ACQ. OFFICER GIDC, BHARUCH

DEPUTY COLLECTOR AND SPECIAL LAND ACQUISITION OFFICER GIDC, BHARUCH, DIST.BHARUCH.

Office on Special Duty (OSD), Bharuch

(Name & Designation of Signatory)

Office Seal

CS:

District Collector Bharuch

(Name & Designation of Signatory)

Certificate of Possession of Consolidated Land

Gujarat Industrial Development Corporation (GIDC) being the State Implement Agency (SIA) for the development of Bulk Drug Park at Jambusar Taluka Bharuch, has been authorised to acquire private land vide. **AM-2020-565-M-LRB-1320-1515-GH** Dated : **19/09/2020** & **AM-2020-580-M-LRB-1320-1714-GH** Dated : **21/09/2020** admeasuring **54-78-82** sqm, comprising of **Bakarpor Timbi** villages. The area details of the villages are mentioned below:

Name Of Village	Survey No.	Area H.R.Sq.	Acer A.G.	Survey No.	Area H.R.Sq.	Acer A.G.
Bakarpor Timbi	140	2-29-66	5.67	152 Kh.	5-15-98 0-11-13	13.02
	141	1-62-89	4.02	154	2-12-46	5.25
	142	1-61-88	4.00	155 Kh.	1-29-50 0-06-07	3.35
	143	0-60-70	1.50	156 Kh.	0-76-89 0-04-05	2.00
	144	0-40-47	1.00	157	0-46-66	1.15
	145/1	2-10-21	5.19	158 Kh.	0-65-77 0-02-02	1.68
	145/2	1-70-20	4.21	160	0-51-60	1.28
	146/A	1-46-70	3.62	161	0-58-68	1.45
	146/B	1-75-03	4.32	162	0-79-93	1.98
	147	1-93-24	4.77	163	0-99-15	2.45
	148 Kh.	9-06-50 0-35-41	23.27	164 Kh.	2-84-30 0-07-08	7.20
	149	1-26-47	3.13	165 Kh.	1-92-22 0-10-12	5.00
	150	3-91-54	9.67	153	1-48-72	3.67
	151 Kh.	3-62-19 0-05-06	9.07	159	0-98-14	2.43
				Total Area	**54-78-82**	**135.37**

The said land has been allotted to GIDC, being the SIA for the implementation of proposed Bulk Drug Park at Jambusar Taluka, Bharuch District vide govt. order **AM-2020-565-M-LRB-1320-1515-GH** Dated : **19/09/2020** & **AM-2020-580-M-LRB-1320-1714-GH** Dated : **21/09/2020** Kuccha mutation entry of the said notification **895** Dated : **21/09/2020** has been made in revenue record vide entry in Form-6 (entry no. **1343** Dated **19/09/2020** entry no. **1348** Dated **21/09/2020**). The mutation will take its formal effect soon after 30

days as per permanent change in record but based on the notification. GIDC has been given possession of said land after paying due amount to the landowners of respective revenue numbers so, I hereby confirm that the above land is in possession of GIDC (SIA) since the Kuccha entry is made in the revenue record. I also hereby certify the details as per attached Annexure-I along with this undertaking for the aforementioned land details.

DEPUTY COLLECTOR AND
SPECIAL LAND ACQUISITION OFFICER
GIDC, BHARUCH, DIST.BHARUCH.

Office on Special Duty (OSD), Bharuch

(Name & Designation of Signatory)

Office Seal

DY. COLLECTOR & SP. LAND ACQ. OFFICER
GIDC, BHARUCH
सत्यमेव जयते

CS:

3.12.

District Collector Bharuch

(Name & Designation of Signatory)

Certificate of Possession of Consolidated Land

Gujarat Industrial Development Corporation (GIDC) being the State Implement Agency (SIA) for the development of Bulk Drug Park at Jambusar Taluka Bharuch, has been authorised to acquire private land vide. **AM-2020-564-M-LBR-1320-1516-GH** Dated : **19/09/2020** & **AM-2020-583-M-LBR-1320-1712-GH** Dated : **21/09/2020** admeasuring **80-73-06** sqm, comprising of **Madafar** villages. The area details of the villages are mentioned below:

Name of the Village	Survey No. / Block No.	Area H.A.Sq.mt.	Acer A.G.	Survey No. / Block No.	Area H.A.Sq.mt.	Acer A.G.
Madafar	114	1-39-63	3.45	163/b	0-15-18	0.38
	129/1	0-23-56	0.58	164/a K.	1-64-91 0-02-02	4.12
	129/2	1-02-90	2.54	164/b Kh.	6-36-37 0-13-15	16.05
	130/a/1	0-00-94	0.02	166	1-20-39	2.97
	130/a/3	1-34-35	3.32	167	1-50-74	3.72
	130/b/1	0-17-82	0.44	168 Kh.	1-98-30 0-04-05	5.00
	130/b/2	1-07-56	2.66	169	0-54-63	1.35
	131	1-15-34	2.85	185 Kh.	2-72-15 0-03-03	6.80
	132	1-14-32	2.82	186	1-74-02	4.30
	133 Kh.	3-93-56 0-63-74	11.30	187 Kh.	2-05-37 0-10-12	5.32
	134/a	0-45-53	1.13	188	0-63-74	1.57
	134/b	0-60-70	1.50	189	0-66-77	1.65
	135	0-76-89	1.90	190	1-37-60	3.40
	136	1-55-81	3.85	191	0-53-62	1.32
	137	0-67-79	1.68	192	1-21-40	3.00
	138	0-68-79	1.70	193	1-00-16	2.47
	139	0-89-03	2.20	194	0-56-66	1.40
	140	0-52-61	1.30	195	1-27-48	3.15
	141	2-27-63	5.62	196	1-34-56	3.32
	142	1-33-55	3.30	197	0-75-88	1.87
	143	3-28-81	8.12	198	0-71-83	1.77
	144	0-56-66	1.40	202	0-69-81	1.72
	145	1-29-50	3.20	203	1-31-52	3.25
	151	0-38-45	0.95	204	0-26-30	0.65
	152	0-58-61	1.45	205	0-84-98	2.10
	153	1-28-48	3.17	206	0-38-45	0.95
	154	0-69-81	1.72	207	1-04-21	2.57
	155	1-45-68	3.60	208	0-72-84	1.80

	156	1-47-72	3.65	209	1-06-23	2.62
	160	0-57-67	1.43	210/a	4-13-79	10.22
	161	0-26-30	0.65	210/b	2-60-01	6.42
	162/a	0-21-25	0.53	211 Kh.	1-45-68 0-03-03	3.67
	162/b	0-25-29	0.62	212 Kh.	1-05-22 0-02-02	2.65
	163/a Kh.	0-47-55 0-01-01	1.20			
				TOTAL -	80-73-06	199.48

The said land has been allotted to GIDC, being the SIA for the implementation of proposed Bulk Drug Park at Jambusar Taluka, Bharuch District vide govt. order **AM-2020-564-M-LBR-1320-1516-GH** Dated : **19/09/2020** & **AM-2020-583-M-LBR-1320-1712-GH** Dated : **21/09/2020** Kuccha mutation entry of the said notification **892** Dated : **21/09/2020** has been made in revenue record vide entry in Form-6 (entry no.**4488** Dated : **21/09/2020** & entry no.**4489** Dated : **21/09/2020**). The mutation will take its formal effect soon after 30 days as per permanent change in record but based on the notification. GIDC has been given possession of said land after paying due amount to the landowners of respective revenue numbers so, I hereby confirm that the above land is in possession of GIDC (SIA) since the Kuccha entry is made in the revenue record. I also hereby certify the details as per attached Annexure-I along with this undertaking for the aforementioned land details.

DEPUTY COLLECTOR AND
OFFICER ON SPECIAL DUTY
GIDC, BHARUCH, DIST.BHARUCH.

Office on Special Duty (OSD), Bharuch

(Name & Designation of Signatory)

Office Seal

CS:

District Collector Bharuch

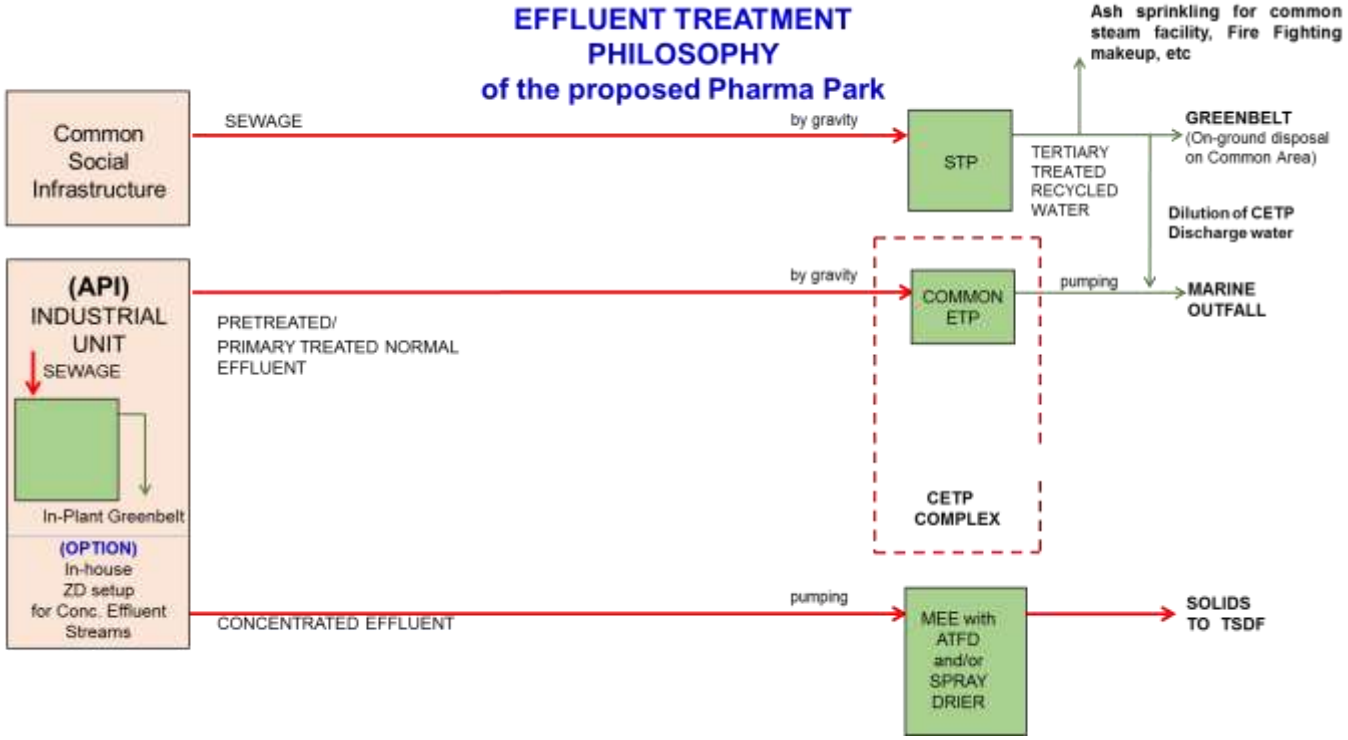
(Name & Designation of Signatory)

Annexure-III CETP & STP (distributed) - Technical Specifications

The effluent treatment scheme proposed in the Bulk Drug Park is as follows:

The proposed CETP Complex will comprise

- 54 MLD CETP
- 3 MLD & 2.2 MLD STPs
- Deep-sea marine discharge pumping station
- Provision for expansion in future



CETP Treatment Process

- Through the closed, common, above-grade gravity under drain system, the pre-treated effluent from the member Units will be collected in the inlet chamber of the CETP. Inlet parameters will be monitored for the inlet mix.
- The effluent will then be taken to the mechanical screen chamber to remove floating solids.
- Grit will be is removed by on-line mechanical de-gritters.
- The effluent will then be taken to the equalization tank, operated in continuous mode. Fixed Surface Aeration system or air-grid (depending on technical suitability) will be is provided for mixing and preliminary aeration.
- The equalized effluent will be subjected to further treatment through flash mixers and flocculators followed by clarifiers.
- Suitable coagulants and flocculant such as Poly Aluminium Chloride and/or Polyelectrolyte shall be used.

- The clarified effluent will then be let into batteries of aeration tanks operating in parallel. Retention time of 24-30 hrs or more depending on treatability characteristics of the effluent shall be provided in aeration system.
- Poly Aluminium Chloride solution will be added at the outlet of aeration to check the fine colloidal particles being carried to the secondary clarifier.
- Biological sludge will be collected by the sludge pump and portion of collected sludge will be pumped back to retain the MLSS concentration in the aeration tank.
- The plant will run on continuous mode with continuous feedback controls provided with the aid of online measuring instrument.
- Online flow meter and pH probes will be installed at inlet; online flow meter, pH, DO and TOC probes will be installed at final outlet.

Typical units function proposed in the CETP at present are as follows.

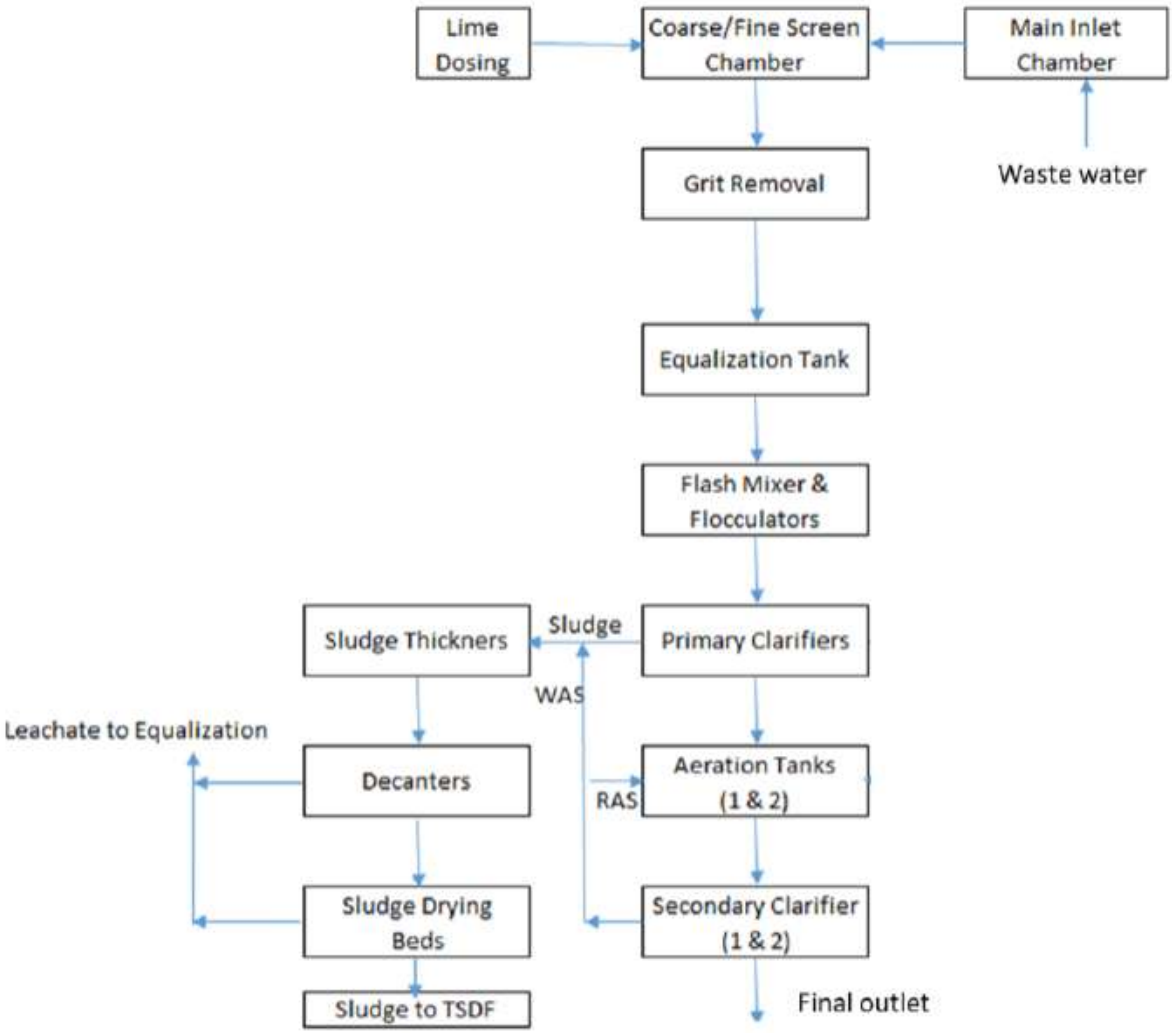
a. Screen Chamber
b. Grit Chamber
c. Equalization basin
d. Flash mixers and flocculators
e. Primary clarifiers
f. Aeration tanks
g. Secondary clarifiers
h. Centrifuge Decanters
i. Sludge drying beds

CETP Acceptance Criteria

Summary of Effluent Acceptance Criteria/Inlet Norms of the CETP – Design Criteria

- pH- 6.5-8.5
- Suspended solids - 300 mg/l
- BOD – 2000 mg/l
- COD – 4000 mg/l
- TSS - < 150 mg/l
- pH - 6.5-8.5
- Oil & Grease - < 10 mg/l
- NH3-N - < 200 mg/l
- Hardness - < 200 mg/l

Industrial units shall discharge pre-treated/primary treated effluent into the effluent pipeline conforming to the inlet criteria. The member Units will *inter alia* install online TOC meters. Administrative control on inlet criteria will be carried out by instrumentation mediated control. CETP shall carry out treatability study of industrial units before accepting any industry as its member.



Typical Schematic Process Flow of the proposed CETP

Multiple Effect Evaporator and/or Spray Drier Facility for High concentration liquid effluent

About 8.1 MLD of the effluent from the API manufacturing industry shall be realised as high COD (over 4000 mg/l) and high TDS (over 8000 mg/l) effluent. Such effluent streams will be put through chemical or thermal pre-treatment by the individual industries before sending them to a common Multiple Effect Evaporation facility through road transport.

A four effect MEE (75 kL/hr. x 4 trains) is being proposed inside the TSDF complex to cater the high concentrated effluent disposal demand. The facility will have first one or two effects as natural circulation, followed by forced circulation calendria set-up with Cupro-Nickle or Stainless Steel 316Ti grade heat transfer tubes. Vapour recompression shall be adopted in the first one or two stages for achieving better steam economy. Steam shall be sourced from the 1800 T/hr. common steam generation unit proposed to be installed near to the TSDF complex.

Solids from the MEE shall be realised in the last stage ATFD setup, and shall be disposed in the secured landfill in the TSDF complex.

Natural gas fed, direct-flue Spray Drying units (75 kL/hr. x 2 trains) shall also be employed in addition to the MEEs.

STP - Treatment Technology

An aerobic process based 2 STPs of 3 MLD & 2.2 MLD are proposed for treatment of sewage from residential units.

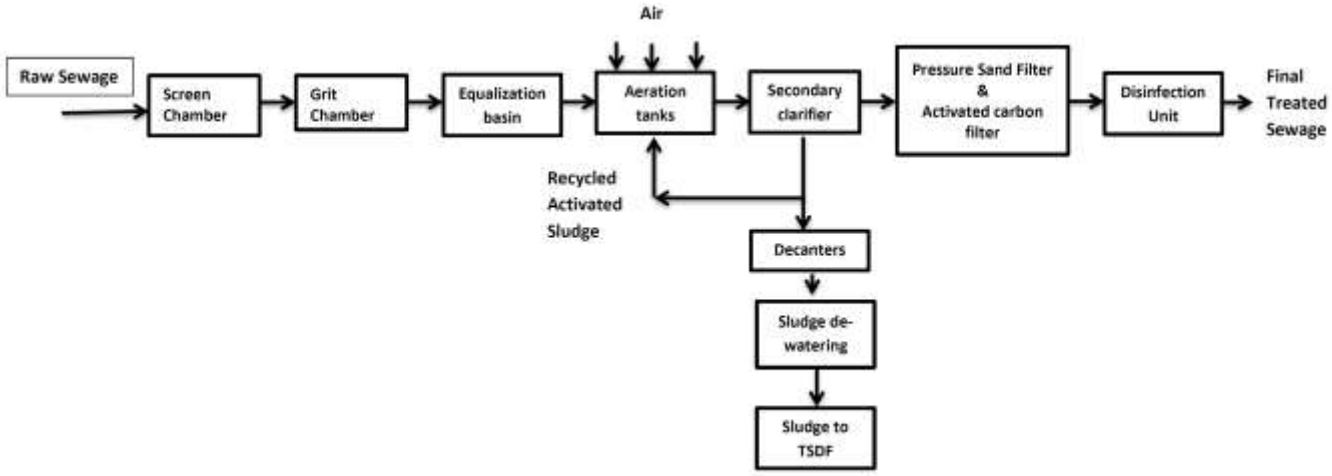
Typical units function proposed in the STP are as follows:

- Screen Chamber
- Grit Chamber
- Equalization basin
- Secondary treatment (Aeration tanks), including anoxic tank for RAS
- Secondary clarifier
- PSF and ACF
- Disinfection unit for aseptic treatment
- Centrifuge Decanters/ equivalent sludge de-watering mechanism

The Treated water will conform to following summary outlet criteria:

a) BOD < 10 mg/l
b) COD < 50 mg/l
c) Suspended solids < 20 mg/l
d) Ammonical nitrogen < 5 mg/l
e) Total nitrogen < 10
f) Fecal coliform <100 MPN/100 ml

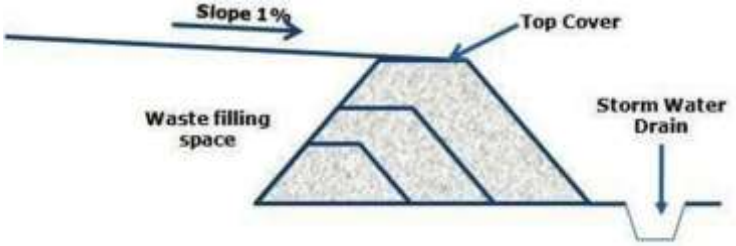
The treated water quality as above is suitable for irrigation/plantation, and will also be used for toilet flushing through dual plumbing system. Additional/unutilized sewage will be disposed off along with the treated industrial wastewater from the CETP for dilution before marine disposal. Provision shall be made for supply of treated sewage to industry when demand for the same through laying of treated water lines from the STPs to the industrial units. Treated water will be disinfected to ensure that microbiological impurities get removed under durations of pumping/line holdups.



Typical Schematic Treatment System of STP

Dried sludge from the STP will be used as manure for greenbelt development in the Bulk Drug Park. and in the industrial units.

Annexure-IV TSDF- Technical Specifications

Sr. No.	Parameter	Details
1.	Plot area	15.13 ha
2.	Components	• Secured landfill – 20,10,000 MT • Solid-Liquid Incinerator – 15 T/hr. • Waste Heat Recovery Boiler – 17 T/hr (optional, depending on technology of incineration chosen) • MEE – 75 kl/hour x 4 trains.
3.	Landfill	• 20,10,000 MT capacity • 14.85 ha or the Secured landfill components • To be developed in phases, in cellular fashion, grad-upward design, going up to 9 m above FL • Above grade design (ground water level 2-m BGL at the proposed location) • 6 m wide peripheral road around the landfill base for circulation Activities envisaged in the operation of the proposed landfill. • Pre-treatment of the waste prior to disposal to degrade or to fix contaminants • Encapsulation of a waste body by a suitable liner system consisting of bottom liner and cover liner. • Leachate collection and drainage system • Proper operation of the landfill and placement of waste • Suitable post closure measures to avoid long term contaminant release  Other landfill components • Roads, storm water drainage, a hazardous waste-shed and waste stabilization area, leachate collection system and treatment, gas management system, top cover
4.	Incinerator	• Capacity – 15 t/hr (thermal capacity 25,500 kWh/hr)

		• Aux. fuel - NG 1800 kg/hr • 17 T/hr. steam output from the WHR Boiler (optional, depending on technology of incineration chosen) • Flue gas treatment system, auto feeding and ash removal system • Temperature in the combustion chamber will be maintained at approx. 850 °C. The temperature will be controlled by burner operation. Flue gases from the combustion chamber contain partially oxidized material will be conveyed to the post combustion chamber designed for a flue gas temperature of about 1100 °C and 2 second residence time.
5.	MEE/Spray drier	• 75 kl/hour x 4 trains effluent evaporation capacity • Spray Drying units (75 kl/hr x 2 trains) • Quadruple effect evaporator with feeding capacity of 150 kL/day (7500 Litre/hr.) integrated with stripper and Agitated Thin Film Dryer (ATFD)
6.	Auxiliary utilities	• A high-head storage shed of 8000 sq.m. with impervious flooring, leachate collection drains, suitable soft partition, circulation area, loading/unloading bays, etc. The shed will be naturally aspirated and will be provided with flameproof electrical fittings.
7.	Fuel	• About 400-600 litres of HSD fuel might be require by the equipment in the landfill operation. Fuel will be procured in 200 l MS drums on a daily and transferred to the equipment using hand operated gear pumps.
8.	Machinery	• The integrated TSDF will tentatively require following machinery: • 125 HP track mounted hydraulic backhoe excavators • 75 HP tractor mounted backhow loader • 100 HP vibro compactor with sheepfoot roller attachment • 10 ton roller compactor weight roller • Water bouser/tanker mounted on 8 ton truck chassis • 60 HP tractor with hydraulic tipper trolley • 3. 2 ton Battery operated forklift • Utility vehicles
9.	Water required	• 850 KLD • Raw water will be supplied by GIDC
10.	Leachate treatment	• Leachate will be collected in a sump and will be taken to the CETP in tankers for co-treatment with industrial wastewater.
11.	Power	• The project will require about 1.5-1.8 MW of electrical power. • Landfill component will not be power intensive; electrical power of about 110 kW will be required for operation of Weigh Bridge, leachate pumps and area illumination. • Although there are no services in the proposed TSDF which would be hampered due to temporary cut off of power.

		However, a 110 kVA DG has been provisioned for back-up power.
12.	Manpower	• 55 skilled manpower • 200 semi-skilled personnel on contract

Annexure-V Water Permission Letter

GUJARAT INDUSTRIAL
DEVELOPMENT CORPORATION
(A Govt.of Gujarat Undertaking)
Udhyog Bhavan, Block No. 3, 4 & 5, Sector-11,
Gandhinagar-382 011. Tele: 079-23250571
ce@gidcgujarat.org

NO/GIDC/ENG/PH/609 Date: 08/07/2022

TO WHOMSOEVER IT MAY CONCERN

For the proposed Bulk Drug Park at Jambusar, Bharuch, GIDC has received the approval for water supply scheme of 45 MLD in 2015.02 Acre area from Narmada, water resource, water supply & Kalpasar Board. It is assured to provide 24*7 water supply facility and also as a special project instead of the 10% increase in the water rate every year (as per the policy), only 5% increase in the water rate is approved by the SSNNL.

Shri B.C. Warli

Chief Engineer,
GIDC Gandhinagar.