BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

O.A. NO. 199 of 2021 (SZ)

IN THE MATTER OF:

Sri. Shankar Narayanan Bala Krishnan,
Telangana and Ors ...Applicant(s)

Versus

State of Telangana and Ors ...Respondents(s)

INDEX

Place: Hyderabad

Date: 18.04.2024

V. Sahasrabudhe
COUNSEL FOR THE 6th RESPONDENT

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

O.A. NO. 199 of 2021 (SZ)

IN THE MATTER OF:

Sri. Shankar Narayanan Bala Krishnan,
Telangana and Ors ...Applicant(s)

Versus

State of Telangana
And Ors ...Respondents(s)

REPORT FILED ON BEHALF OF RESPONDENT NO.6

I, D.Ronald Rose, IAS S/o. Dinakaran Bose, aged about 43 years, Occ: Commissioner, Greater Hyderabad Municipal Corporation, R/o. Hyderabad, do hereby solemnly swear and state on oath as follows:

1. It is respectfully submitted that, I am working as Commissioner of Greater Hyderabad Municipal Corporation, Hyderabad. As such, I am well acquainted with the facts of the case. Further, I am deposing this report in view of the orders dated 01.02.2024 of the Hon'ble National Green Tribunal, South Zone in OA No. 199 of 2021 based on the records available with the Respondent Corporation.

2. Placing on record the details of all the earlier status reports filed by the 6th Respondent before the Hon'ble National Green Tribunal, Southern Zone, Chennai.

i. Report filed by the 6th Respondent, dated 07.10.2021
ii. Report filed by the 6th Respondent, dated 07.12.2021
iii. Report filed by the 6th Respondent, dated 05.03.2022
iv. Report filed by the 6th Respondent, dated 29.03.2022

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v. Additional Report filed by the 6th Respondent, dated 25.08.2022
vi. Reply memo filed by the 6th Respondent, dated 25.08.2022
vii. Status report filed by the 6th Respondent, dated 23.11.2022
viii. Report filed by the 6th Respondent, dated 17.12.2022
ix. Report filed by the 6th Respondent, dated 08.03.2023
x. Report filed by the 6th Respondent, dated 04.08.2023
xi. Report filed by the 6th Respondent, dated 21.11.2023

3. In response to the observation of the Hon'ble NGT at para no 3 of the order dated 01.02.2024 regarding adequacy of the legacy leachate collection wells, it is respectfully submitted that, Environment Protection Training & Research Institute (EPTRI), a quasi government institution acting as Independent Engineer for the project since Aug'2010, is monitoring the Integrated Municipal Solid Waste Management Project of Greater Hyderabad Municipal Corporation. The leachate collection system of the capped legacy dump has been developed as per the designs approved by the Environment Protection Training & Research Institute as an independent body with technical expertise in the field of environmental monitoring and hence it is adequate. **The detailed drawing of leachate collection system for capped dump is attached as -Annexure I.**

4. In response to the observation of the Hon'ble NGT at para no 4 regarding observation of the expert team that generation of leachate from the capped dumpsite is flowing into garland drain for collection of storm water and the leachate collection system does not appear to be adequate, it is respectfully submitted:

i. The observed black colour liquid in the garland drain was the contaminated rain water which flushed the roads but not the

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leachate from capped dump. This first flush road water is collected into flush pond and further treated with the help of waste water treatment plant.

ii. This first cut runoff rain water collection system was arranged after the recommendation of the Joint Committee constituted by the Hon'ble NGT vide orders dated 24.05.2023 in OA no 167/2023 during its site visit which suggested to provide first cut runoff rain water collection tanks to all storm water drains to collect the contaminated rain water and treat the same in leachate treatment plant.

iii. (02) such collection tanks of 800 kL & 300 kL capacity and (01) liner pond of 10 kL capacity is established for collection of contaminated storm water from garland drains. (01) other collection tank of 400 kL capacity is under construction. **(Photographs enclosed as Annexure II).**

5. In response to the observation of the Hon'ble NGT at para no 7 it is respectfully submitted that what the Executive Engineer has tried to state that "fresh waste management is also taking place in the same site adjacent to the capped legacy dump" but the same appears to have been understood differently. The facts related to how the then existing dump spread all over 339 acres and how 214 acres of land was reclaimed by limiting the legacy waste to a smaller footprint of 125 acres and established treatment and disposal facility along with scientific landfill for processing the fresh waste collected from the City every day was already submitted to the Hon'ble NGT (SZ) in Report dated 17.12.2022 **(copy attached as Annexure III)** of the Respondent 6. As such, dumping is not happening in the balance of the reclaimed land ever since the Treatment and Disposal facility was established in February 2012 duly sending the process rejects, which constitutes about 15-17% of total

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waste, to the properly constructed scientific landfill as per Solid Waste Management Rules, 2016.

6. The following point wise remarks are respectfully submitted on the observations of the Hon'ble NGT at para no 8 of the said order:

i. Detailed report on: "how much daily waste is dumped in the reclaimed area and how are they treated"- Ever since 18.02.2012, the date on which the Commercial Operations have started in the Municipal Solid Waste processing facility established in the then existing open dumpsite, by relocating the legacy waste spread all over the site of 339 acres to a minimum footprint of 125 acres, the daily generated Municipal Solid Waste is being treated and disposed off strictly as per Solid Waste Management Rules. In the Financial Year 2023-24, an average of about 7,507 Tons per Day of MSW received from Greater Hyderabad Municipal Corporation limits is treated and disposed scientifically. Statement containing the details of quantity of waste (pertaining to Greater Hyderabad Municipal Corporation) for (03) consecutive years is enclosed herewith at **Annexure IV**. With respect to the treatment and disposal of fresh waste, the detailed treatment process note of the fresh waste along with photographs is attached as **Annexure V.** Thus, the collected fresh waste is properly processed viz., biodegradable waste is converted into city compost, non-biodegradable waste is converted into Refuse Derived Fuel (RDF) for co-processing in cement plants and/ or Waste to Energy project and inert materials (15-17% of total waste) is disposed in the scientific landfill constructed as per SWM Rules 2016.

ii. "Whether the leachate generated from the fresh waste is allowed to be collected in same leachate collection wells" - No, there is a separate collection network for the leachate generated from fresh

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waste. The leachate generated during the waste treatment process i.e., from Compost pad, RDF storage, Sanitary landfill, Capped area, MSW pit of WTE is collected through a network of drains and sent to intermediate leachate collection sumps and then into a common leachate collection pond. The leachate thus collected is pre treated at 1000 kLD capacity plant established in the site and then at 600 kLD Stage-I Reverse Osmosis (RO) System. The rejects from Stage I RO is treated in 500 kLD Stage II RO. The rejects from Stage II RO process are treated at the 150 kLD Multi Effect Evaporator- 45 kLD Agitated Thin Film Drier system and thus all the leachate generated from fresh waste is collected separately and treated as per norms. The permeate from RO is used to maintain greenery at the site and the condensate from Multi Effect Evaporator - Agitated Thin Film Drier is used for bottom ash quenching. The reject which is in the form of solid is mixed with RDF and utilized as fuel in the Waste to Energy Plant (**Photographs enclosed as Annexure VI)**.

7. The following point wise remarks are respectfully submitted on the observations of the Hon'ble Tribunal at para no 9 of the said order:

i. "Whether the leakage of gas is generated from the capped area is tapped" –

- Yes, the gas generated from the capped area is tapped through vertically drilled bore-well collection system consisting of perforated HDPE pipes and manifolds.
- 152 no's of gas extraction bore holes spread across the capped area were drilled using a piling rig with auger bucket attachment **(Map is enclosed as Annexure VII).**
- The gas generated from the capped site is extracted through a common header line to Compress Bio Gas (CBG) plant and

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after processing, it is bottled and sold to Bhagyanagar Gas Ltd under SATAT scheme or utilized as fuel in biomedical waste incineration plant located at Isnapur. The excess quantity of gas extracted is flared through the flaring systems.

- All the 152 bore wells are active and about 10,000 cum/day of gas is extracted for further purification/flaring. The below table has details of the gas extraction and purification done by capping site from the start to end of FY 23-24 (values in cum):

FY	Extracted	Flared	CBG Plant
20-21	2,16,110	2,16,110	0
21-22	3,26,478	1,88,837	1,37,641
22-23	5,48,679	4,45,813	1,02,866
23-24	16,92,790	15,82,924	1,09,866

ii. "Let the report also state about the depth from which the gas is being tapped and if it is only for a certain distance, let the GHMC also explore the possibility of going deeper for collecting the gas, as had been recommended by the IIT Bombay"-

- Greater Hyderabad Municipal Corporation has dug gas extraction bore holes ranging from a depth of 36m to 12m based on the height of the capped dump as approved by Environment Protection Training & Research Institute, the Independent Engieer to the project.
- The bore wells were drilled into dump based on grid and surface area availability, the base terrain of capped dumpsite is uneven because of the old rock profile, the depth of bore wells is varying from 12m to 36m depending on available height of dump from bottom rock profile.
- Gas being lighter in nature shall move in the upward directions in the capped dump and shall get collected into the

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bore wells located all over the surface area. Hence, the need for drilling deeper till bottom of dump is not required.

- In this regard, it is respectfully submitted that, the IIT, Bombay has not given any recommendation in its report for digging deeper bore-wells

8. It is respectfully submitted that the reclaimed land is being used to process the Municipal Solid Waste and scientifically dispose the rejects strictly in compliance to the Solid Waste Management Rules, 2016.

9. It is respectfully submitted that, apart from the 24 MW capacity Waste to Energy plant which is under operation at Jawaharnagar since Aug'2020, another decentralized 14.5 MW capacity Waste to Energy Plant at Dundigal is operational since 03.03.2024. The Dundigal Waste to Energy plant has generated 8.78 Million units of electricity by consuming 4.02 lakh tons of Refuse Derived Fuel till the end of Mar'2024 **(Photographs enclosed as Annexure VIII).**

Submission:

For the aforementioned facts and circumstances, it is therefore prayed that this Hon'ble Tribunal may be pleased to close the OA No. 199 of 2021 and pass such other order or orders as this Hon'ble Tribunal deems fit and proper in the circumstances of the case and thereby render Justice.

Sworn and signed on this the
18th day of April, 2024 at Hyderabad

RESPONDENT 6

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VERIFICATION

I, D. Ronald Rose, IAS S/o. Dinakaran Bose, aged about 43 years, Occ: Commissioner, Greater Hyderabad Municipal Corporation, R/o Hyderabad, do hereby declare that the contents made in the above paragraphs are true and correct to the best of my knowledge and based on records available with Respondent Corporation and I believe the same to be true and correct. Hence verified on this the 18th day of April, 2024.

Respondent-6

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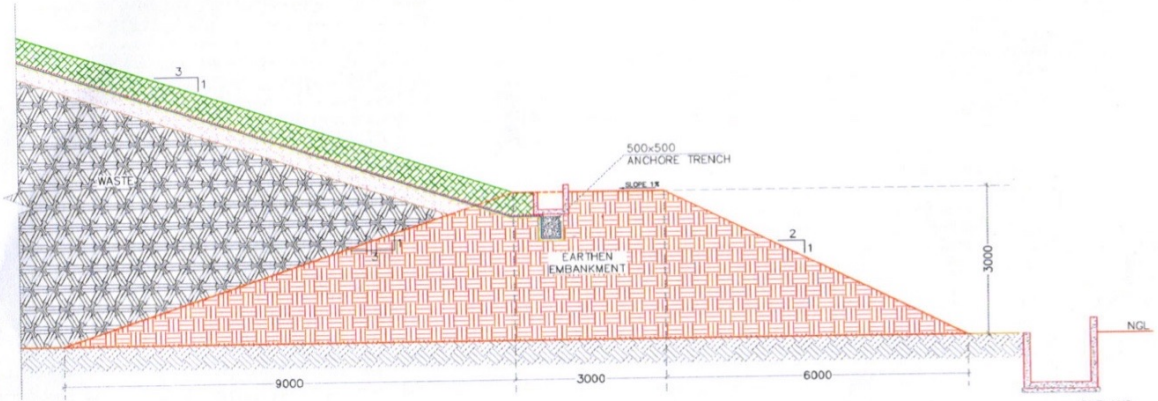
Greater Hyderabad Municipal Corporation



TYPICAL C/S DETAIL OF BUND (TYPE-01)
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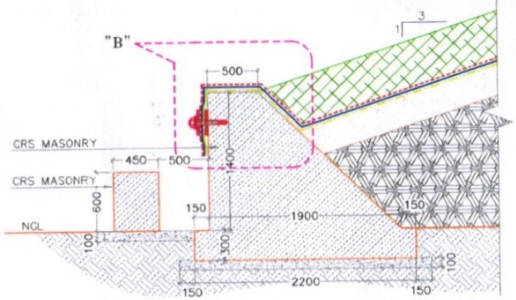

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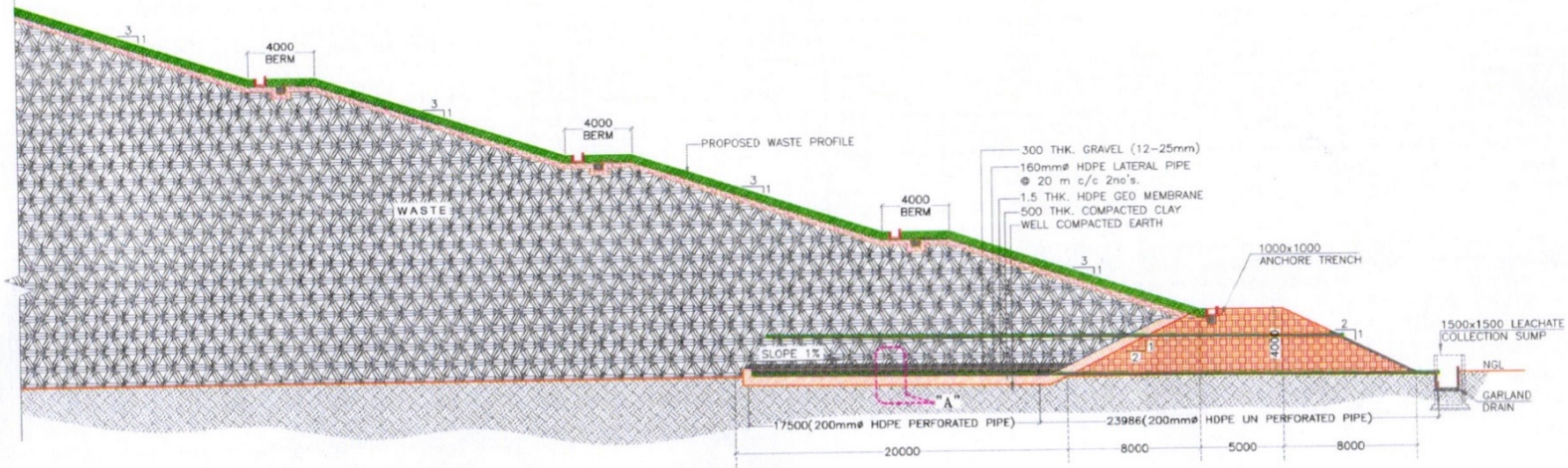

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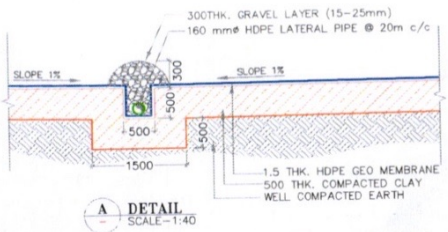

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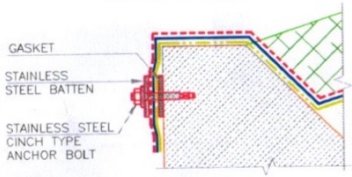

B DETAIL
SCALE-1:15

GENERAL NOTES:

1. ALL DIMENSIONS IN MILLIMETERS, LEVELS & COORDINATES IN METERS UNLESS OTHERWISE STATED.
2. THE COORDINATES INDICATED IN THE DRAWING IS TO BE VERIFIED PROPERLY BEFORE EXECUTION.
3. DO NOT SCALE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
4. ANY DISCREPANCIES NOTED SHALL BE BROUGHT TO THE NOTICE OF THE ARCHITECT PRIOR TO EXECUTION.
5. ROAD WIDTH SHOWN ARE INCLUSIVE OF BERMS & STORM WATER DRAINS SHALL BE EXECUTED AS PER SITE GRADING.
6. THESE DRAWINGS ARE ONLY FOR APPROVAL, DEVELOPED FOR PRELIMINARY STAGE DESIGN.

REV:	DESCRIPTION	BY:	DATE

CLIENT:
GREATER HYDERABAD MUNICIPAL CORPORATION (GHMC), HYDERABAD, TELANGANA

INDEPENDENT ENGINEER (IE):
ENVIRONMENT PROTECTION TRAINING AND RESEARCH INSTITUTE (EPTRI), HYDERABAD, TELANGANA.

CONCESSIONAIRE:
RAMKY ENVIRO ENGINEERS LIMITED

Floor 13, Ramky Grandiose,
Ramky Towers Complex, GACHIBOWLI,
HYDERABAD- 500032. TELANGANA.
Tel : +91 040 2301 5000.

PROJECT TITLE:
HYDERABAD INTEGRATED MUNICIPAL SOLID WASTE PROJECT, JAWAHAR NAGAR, HYDERABAD

DRAWING TITLE:
TYPICAL C/S OF EARTHEN BUND, CRS RETAINING WALL, ETC. (TYPE - 01, 02 & 03)

DRAWING NO	REEL/HIMSW/GHMC/JWR/033A	REV	00
SHEET	A1;1 OF 1	APPROVED BY	SRINIVAS G.
SCALE	AS SHOWN	CHECKED BY	SARADHI S.
DATE	24.11.2017	DRAWN BY	MADHAV P.

ANNEXURE - 1

Annexure II

Run-off rain water collection tanks

ANNEXURE - III

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
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O.A. NO. 199 of 2021 (SZ)

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Sri. Shankar Narayanan Bala Krishnan,
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INDEX

Place: Hyderabad

Date: 17 .12.2022

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
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O.A. NO. 199 of 2021 (SZ)

IN THE MATTER OF:

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Versus

State of Telangana
And Ors ...Respondents(s)

REPORT FILED ON BEHALF OF RESPONDENT NO.6

I, D.S. Lokesh Kumar S/o. Sri. Somaraju, aged about 44 years, Occ: Commissioner, Greater Hyderabad Municipal Corporation, Greater Hyderabad Municipal Corporation, R/o. Hyderabad, do hereby solemnly swear and state on oath as follows:

1. It is respectfully submitted that, I am working as Commissioner of Greater Hyderabad Municipal Corporation (GHMC), Hyderabad. As such, I am well acquainted with the facts of the case. Further, I am deposing this report in view of the order dated:24.11.2022 of the Hon'ble National Green Tribunal, South Zone in OA No. 199 of 2021 based on the records available with the Respondent Corporation.

2. Placing on record the details of all the earlier status reports filed by the 6th Respondent before the Hon'ble National Green Tribunal, Southern Zone, Chennai.

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- Additional Report filed by the 6th Respondent, dated 25.08.2022
- Reply memo filed by the 6th Respondent, dated 25.08.2022
- Status report filed by the 6th Respondent, dated 23.11.2022

3. **Brief details of Jawahar Nagar Site:**

Total extent of Land: 339 acres

Usage before 2012: Entire 339 acres was used for open dumping

Usage after 2012: 214 acres reclaimed & MSW Processing Facility set up
125 acres used for old dump capping

% of Land reclamation: 214 out of 339 acres (63.13%)

4. It is respectfully submitted that, a total of 3,700 - 4,000 metric tons of waste (MSW) coming to the Jawahar Nagar is planned for diversion to 3 alternate sites in two phases - **Phase-I:** 1,000 metric tons will commence immediately after the commissioning of 14.50 MW WTE plant at Dundigal which is planned to commence from 15.03.2022. **Phase-II:** 2,700 metric tons of waste will be diverted in about one year time by completing the other two projects which are ready for grounding. As such, about 2/3rd of the total MSW presently coming to the Jawahar Nagar will be diverted within one year. GHMC is committed to explore the possibilities of identifying another alternate site suitable for establishing MSW facilities so as to reduce further inflow of MSW to Jawahar Nagar facility.

5. **Malkaram Cheruvu:** Located adjacent to the capped legacy dump and Jawahar Nagar MSW facility.

- In respect of leachate in the Malkaram Cheruvu, it is respectfully submitted that, GHMC has already ensured to arrest flow of any leachate into Malkaram cheruvu as leachate generated from daily waste processed in the facility goes only to the Waste Water

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Treatment Plant in MSW facility operated by HIMSW **(Photographs enclosed as Annexure I)**. Further, the storm water from the processing facility as well as the capped legacy dumpsite is also not allowed to enter into Malkaram cheruvu as construction of diversion channels (garland drain) and other storm water network are 100% completed **(Photographs enclosed as Annexure II)**.

- It is respectfully submitted that, in addition to the treatment and disposal of leachate generated from daily waste in the MSW facility within the MSW facility using 2 stage Reverse Osmosis (R.O) system, followed by Multiple Effect Evaporator (MEE) and Agitated Thin Film Dryer (ATFD) systems, GHMC has taken up first of it's kind project in India for Comprehensive Treatment of Legacy Leachate to clear entire legacy leachate impounded in the Malkaram tank and other artificial ponds adjacent to the legacy dumpsite. This project is exclusively taken up to clean up Malkaram Cheruvu and thereby reduce the problem of ground water pollution. Agreement for the project of "Treatment & Disposal of legacy leachate until Restoration & Stabilization of ponds adjacent to IMSWM plant at Jawaharnagar" was concluded with the L1 bidder M/s. Ramky Infrastructure Ltd on 02.09.2021 with approved project cost of Rs.251.016 Cr. The scope of this project includes - complete treatment and disposal of legacy leachate from Malkaram tank and other artificial ponds in (02) years, restoration and stabilization of Malkaram tank in the subsequent (03) years. Further, in case the stabilization (rejuvenation) of Malkaram Cheruvu is not achieved within (03) years, the obligation of restoration of the lake to it's natural status rests with the Concessionaire under Extended Operations period which shall extend upto 10 years. The Concessionaire has started the trial testing of the MVRE technology

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treatment plant on 10.07.2022 and has commissioned the plant with 2000 kLD capacity from 21.10.2022. It is envisaged to complete the treatment of the Malkaram tank before onset of monsoon 2023. Further, to prevent the incident rainfall from mixing with the leachate in Malkaram tank HDPE floats were placed and rain water collected in the floats is pumped out at regular intervals **(Photographs enclosed as Annexure III)**.

6. **Action taken Report:**

In respect of the show-cause notice issued by the TSPCB on 23.05.2020 on non-compliance of some of the directions issued by the Board, it is respectfully submitted that, the GHMC and the facility management have complied all the directions issued by the TSPCB from time to time. The summary of the Action Taken is as submitted below:

S.No	Directions	Compliance
1	The facility shall comply with all the CFO conditions issued by the Board.	The facility is complying with the CFO conditions.
	The facility shall ensure that the waste shall not be stored openly. All the waste shall be covered with tarpaulin sheet	The facility is covering the MSW stored in the premises with soil / tarpaulin sheets. Only active area has been left open for receipt of waste. The facility has provided closed shed for windrow composting yard and provided bio enzymes & odor neutralizing spray misting lines at the tipping floor and Windrow composting yard. as per directions of the Board.

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2	The facility shall continuously spray the smell absorbent chemicals like Bio enzymes & odor neutralizing solutions in the dump yard area frequently as a measure to arrest smell nuisance.	The facility provided bio enzymes & odor neutralizing spray misting lines at the tipping floor and Windrow composting yard. The facility is also using drones for spraying the odour neutralizing liquids on the composting yards and on the leachate storage ponds.
3	The facility shall provide shed to the additional bio-composting plant which is being used for windrow composting within one month.	The facility has provided additional closed shed for windrow composting yard.
4	The facility shall ensure that the vehicles carrying waste does not ply from the colony/ gated community roads.	Being Complied and vehicles are diverted from colony/ gated community roads
5	Pre-process and post-process rejects shall be removed from the processing facility on regular basis and shall not be allowed to pile at the site. Recyclables shall be routed through appropriate vendors. The non-recyclables shall be sent for well designed landfill site(s).	The facility is carrying out pre-processing of the MSW into bio-composting, RDF and rejects. The wet waste is bio-composed through windrow composting, the RDF generated is used as fuel in the waste to energy plant (24 MW) and the non-recyclables are sent to sanitary landfill site located within the premises.
6	The facility shall divert storm water drains to minimize leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions.	The facility has provided separate system for collection of storm water and leachate water in the processing facility. Process leachate drains are connected to the LTP for treatment. For the landfill the facility has taken measures to divert the surface

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		water run-off away from the leachate network.
7	The facility shall pass the gas through gas scrubbers to eliminate the H2S gas and shall operate flaring system to flare the gas generated.	Flaring system has been provided to flare all the gases generated from the Landfill. For better utilisation of of landfill Gas the facility has established a Compressed Bio Gas (CBG) plant of 750 cubic meter per hour input capacity for producing CBG by cleaning, enrichment and bottling the landfill gas as alternative to CNG fuel.
8	The facility shall continuously operate MEE & ATFD to treat the RO rejects from the leachate treatment plant.	The facility has provided Leachate Treatment Plant of capacity 600 KLD followed by double stage Reverse Osmosis system of capacity 300 KLD and 150 KLD. The facility has provided MEE of capacity 150 KLD and ATFD of capacity 45 KLD to treat the RO rejects from the LTP. The facility is continuously operating the MEE and ATFD.
9	The facility shall not accept the waste generated from the slaughter houses.	No waste from slaughter houses is being accepted
10	The facility shall regularly operate gas collection and flaring/utilization system so as to avoid spreading of gases in the surrounding areas	The gases generated from the landfill are collected and passed through CBG facility for collection and purification.
11	The industry shall provide water flow meters for recording	The facility has provided water flow meters at composting plant, RDF

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	daily water consumption for composting plant, RDF plant, recycling complex, floor wash and vehicle wash etc.,	plant, Re-cycling complex, floor wash etc., and furnishing the records.
12	The facility shall ensure that no leachate from the processing area of fresh waste joins legacy leachate.	The facility has connected all process areas with leachate collection system to collect the leachate from the fresh waste. Landfill & RDF storage are connected with the sumps to collect the leachate from the respective areas. Leachate from all these areas were pumped to the storage ponds located east side of the CBG plant, from where the leachate is then pumped to the waste water complex for further treatment.
13	The facility shall explore the possibility of providing conveyor belts to transport RDF to Waste to Energy Plant from the processing area to avoid vehicular movement.	The facility has informed that they are exploring the possibility of RDF conveyor system along with the Phase - II works.
14	The landfill sites shall have waste inspection facility to monitor wastes brought in for landfill, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipments.	The facility has waste inspection facility at the 4 weigh bridges at entrance gate for the incoming waste and at 5th weighbridge for process rejects reaching the SLF. The inspection is done with the help of CC cameras at the weigh bridges. The operational records are maintained at the operations building and keeping in safe

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		possession of EPTRI who is the Independent Engineer for the project. The facility has full pledged laboratory with adequate air monitoring and waste characterisation facilities. Waste characterisation is done on monthly basis and reports are shared with the Independent engineer and GHMC

It is further submitted that, ever since 18.02.2012, the date on which the Commercial Operations have started in the MSW processing facility established in the then existing open dumpsite, by relocating the entire unprocessed waste spread all over the site of 339 acres to a minimum footprint of 125 acres till date, the daily generated MSW is being treated and disposed off strictly as per Solid Waste Management Rules. Despite Jawahar Nagar being the only facility handling entire city waste properly and in scientific manner, daily waste is properly processed by recovering biodegradable waste for conversion into city compost, non-biodegradable into Refuse Derived Fuel (RDF) for co-processing in cement plants and/ or Waste to Energy projects. In any case, not more than 15% to 18% of inert materials are being diverted to scientific landfill constructed as per SWM Rules. As such, there is no open dumping happening in Jawahar Nagar since February 2012. Following are the key activities carried out at the integrated MSW facility:

i. Pre-sorting: The MSW from Tipping Floor is transported to the Pre-sorting area for processing at shaft less rotary screens called as trommels in order to mechanically segregate the waste into organic & inorganic fractions. The undersized materials i.e. less

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than 70 mm in size which will predominantly be compostable material are transported to composting pad. Oversized material will pass through a sorting belt where recyclables like plastics, glass bottles, etc and big sized inerts like stones will be handpicked manually. Rest of the material will pass through a magnetic separator where ferrous material will be separated and the balance material which is predominantly inorganic fraction is considered as Refuse Derived Fuel (RDF).

ii. Composting Section: The composting section comprises of (02) processes:

a) Biological Process: The segregated organic fraction of the MSW is moved to windrow area where the waste is rearranged into trapezoidal heaps, is sprayed with EM culture (aerobic microbes) and undergoes turning operations (for the purpose of aeration) to help decomposition and formation of compost. The process of aerobic decomposition is adopted here in view of it having less cycle time, no generation of odorous methane and hydrogen sulphide, eradication of harmful pathogens and weeds in view of exothermic nature of the process.

b) Mechanical Process: Subsequently, the material from composting pad is screened through 20 mm and 4 mm diameter holed trommels. The undersized material is compost which is enriched using biological media if needed. Sand is separated using a specific gravity separator. The compost so obtained is packed and marketed. The oversized material goes to RDF section for screening.

iii. RDF Section: The RDF obtained from presorting is sent to the Waste to Energy Plant operational at the site. Based on requirement from other consumers of RDF such as cement

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industries, the RDF from pre segregation/ pre-sorting section is passed through magnetic separator and thereafter through a shredder for size reduction up to 15 mm in size. Further, it is passed through a screen of 15mm size to remove fine sand and silt which are not combustible. The end product is made into Briquettes which can be used as alternate fuel. The Excess quantity of RDF generated is stored for future use.

iv. Waste to Energy: The segregated inorganic fraction (Refuse Derived Fuel- RDF) of about 1350 tons per day is used as fuel in the 24 MW Waste to Energy Plant established at the site. The plant operates with reciprocating grate technology. It started operation in August 2020 and has generated 363.06 MU of electricity by consuming 10.64 lakh tons of RDF till November 2022.

v. Scientific/ Sanitary Landfill: The rejects/ inerts of the treatment process are disposed in scientific landfill. This landfill is constructed as per SWM Rules 2016 and CPHEEO manual wherein the bottom liner consists of 90cm thick compacted clay, 1.5mm thick HDPE geo-membrane & a drainage layer of 300 mm thick granular material and the final cover consists of vegetative layer of 450 mm thick clay, barrier layer of 600 mm thick clay & gas venting layer of 450 mm thick granular material. Further, leachate collection & landfill gas collection network is also provided in this landfill.

vi. 1 MW Roof Top Solar Energy Plant: 1 MW Solar Energy Plant is established by placing the solar panels on the presorting sheds. The electricity generated is for captive usage.

vii. Vehicle Maintenance Area: The vehicles being operated by the Concessionaire for transportation of MSW from source to the MSW treatment facility and vehicles operated for T&D facility are

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regularly maintained and cleaned at the Vehicle Maintenance Area established at the facility. Since 2021, the open tippers which were used to transport MSW are being replaced by hook mounted vehicles coupled with hermetically sealed containers for transportation of MSW in closed manner and in phases manner.

viii. Plastic Waste Recycling Facility: 20 TPD Plastic Waste recycling facility established in 2013 is operational at this integrated facility. The recyclable plastics are segregated, washed and processed into bags for usage as disposal bags for biomedical waste.

ix. Compressed Biogas plant: To utilize the landfill gas generated from the capped legacy waste dump, a 750 cum per hour input capacity CBG plant is operational since October 2021. The gas generated from the capped site is transported to the CBG plant using a common header line and after processing it is bottled and sold to Bhagyanagar Gas Ltd under SATAT scheme.

x. Waste Water Complex: The leachate generated during the waste treatment process i.e., from Compost pad, RDF storage, Sanitary landfill, Capped area, MSW pit of WTE is collected at a common leachate collection sump. The leachate thus collected is pre treated at a 1000 kLD capacity plant established in the site and subsequently treated in the 600 kLD- Reverse Osmosis System. The rejects from the RO process are treated at the 150 kLD MEE-45 kLD ATFD system. The permeate is used for maintaining the greenery in the site and the reject which is in the form of solid (only about 10% moisture) is disposed in the scientific landfill.

xi. Laboratory: An in-house laboratory is established inside the facility for preparation of em-cultures, collecting-storing & analyzing

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leachate samples, air quality analysis, performing waste characterization studies etc.

7. **Alternative Solid Waste Management facilities:** It is respectfully submitted that, GHMC has made all efforts for diverting about 3,700 - 4,000 metric tons of waste (MSW) coming to the Jawahar Nagar Facility by establishing MSW facilities in 3 alternative sites, the details of which are as submitted below:

i. Dundigal (V), Medchal Malkajgiri (D): Construction of 14.50 MW capacity Waste to Energy plant is taking place at this site which is at 95% completed stage. Diversion of 1000 tons of MSW/ RDF per day from Jawahar Nagar site is planned to commence from March 2023 **(photographs enclosed as Annexure IV)**.

ii. Pyaranagar (V), Sangareddy (D): After the Ministry of Environment Forest & Climate Change has accorded Stage-I approval on 05.05.2022 for diversion of 0.6228 ha of forest land in the Nallavelly Reserve Forest for formation of approach road to this site, GHMC has completed all compliance criteria and submitted compliance report to the District Forest Officer on 29.11.2022. Application for Consent for Establishment (CFE) with MSW handling capacity of 4,000 TPD was submitted to TSPCB on 13.12.2022. **(CFE Application enclosed as Annexure V)**.

It is proposed to start the MSW processing facility of 2,000 TPD in first phase with following facilities:-

(i) Raw Biogas of 130 tons per day capacity
(ii) Plastic Recycling facility of 45 tons per day capacity.
(iii) Compost facility of 100 tons per day and
(iv) RDF facility of 1000 tons per day capacity with a target date to commence from June 2023.

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It is planned to double the above capacities along with 15 MW Waste to Energy project in second phase by June 2024.

iii. Yacharam: 700 tons of MSW per day will be diverted here from Jawahar Nagar after the construction of proposed 12 MW capacity Waste to Energy project through M/s Sri Venkateshwara Green Power Projects Ltd which is expected to be completed by February 2024. Although CFE was granted by TSPCB on 11.03.2020 the project got delayed due to the issues faced by the agency in financial closure and their request for granting permission for enhancement of the project capacity from 12 MW to 14 MW for the reason of financial viability. At present, the request is under the consideration of the Government of Telangana.

As such, a detailed report on the action taken and action to be taken along with timelines on each of the alternative sites is submitted as below:

A. Action taken and action to be taken on the alternative sites for Treatment and Disposal of Municipal Solid Waste in GHMC:

i. **Dundigal:**

Action taken so far:

- Consent for Establishment (CFE) was obtained from TSPCB on 01.07.2020.
- Construction of civil works started on 24.01.2021. Major civil works such as RDF pit, TG Building, Ash Pit, ACC Building, Chimney, Boiler & FGCS are completed.
- Erection of electro mechanical works such as Boiler grate, boiler drum, FGCS structure, Reactor tower & Bag filter, ACC, DM Water Tank, ACT, TG Building, EOT Crane are completed.
- Grid Connectivity Approval was obtained on 30.04.2022
- Boiler Hydro Test completed on 29.08.2022
- Electrical Switchyard, TG Erection are at the completion stage.

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Action to be taken:

Sl. No	Item/ Activity	Time line
1	Refractory Dry Out	27.12.2022
2	Alkali Boil Out	31.01.2023
3	Back Charging	07.03.2023
4	Steam Blowing	10.03.2023
5	Synchronisation & Commissioning of plant	15.03.2023

ii. Pyaranagar:

Action taken so far:

- Request for diversion of 0.6228 ha of forest land from MoEF&CC, GoI was made on 17.06.2020
- Stage-I approval for diversion of forest land was granted on 05.05.2022
- Land License agreement entered with Concessionaire on 17.11.2022
- Compliance submitted to Stage I approval on 29.11.2022
- Application for CFE submitted to TSPCB on 13.12.2022

Action to be taken:

Sl No	Item/ Activity	Time line
1	Granting of CFE by TSPCB	05.01.2023
2	Approach road works	05.02.2023
4	Phase-I Construction works	15.02.2023
5	Commercial Operations (Phase-I)	30.06.2023
6	Commercial Operations (Phase-II)	15.03.2024

iii. Yacharam

Action taken so far:

- Draft PPA obtained from TSSPDCL on 19.08.2017
- Consent for Establishment (CFE) was obtained on 11.03.2020

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Action to be taken:

Sl No	Item/ Activity	Time line
1	Decision on Extension of capacity from 12 -14 MW	31.12.2022
2	Revised PPA	15.01.2023
3	Construction works	15.04.2023
4	Commercial Operations	15.02.2024

8. It is respectfully submitted that, GHMC has taken all necessary precautions for closed operations of MSW processing right from Door to Door collection, secondary and tertiary transportation in hermetically sealed containers to avoid the problems of spill over of waste as well as to avoid smell issues **(Photographs of collection & transportation system enclosed as Annexure VI).** Further, in compliance to the directions of the TSPCB, directions are issued from time to time for ensuring that the MSW transporting vehicles are not travelling through residential areas.

9. In respect of the complaints on the smell from MSW facility, it is respectfully submitted that the public around the Jawahar Nagar dumpsite have responded positively in the Public Hearing in 2012 on establishment of IMSWM Project as they believed that the then prevailing conditions with frequent fires and smoke due to burning of open dumpsite and leachate flowing from the dumpsite are going to be arrested with proposed remediation as part of the project. As such, the conditions have improved much after the MSW facility was established by reclaiming 214 acres of land from the old dumpsite extended over 339 acres with mixed waste strewn all over. However, as the habitations which were far away from Jawahar Nagar dumpsite have started developing closer to the dumpsite due to rapid growth of urbanization in the surrounding villages of Jawahar

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Nagar, Dammaiguda, Shantinagar, Malkaram, Bandlaguda, Balajinagar, Hardaspally etc after substantial improvement in the dumping yard after 2012 and thereby started complaining about the smell. It is also a fact that, during monsoon season the smell will be predominant due to high moisture content in the waste, thereby reducing the processing efficiency of the mechanical screens leading to accumulation of unprocessed waste on the tipping floor. However, this problem is attended by covering the unprocessed waste with tarpaulin covers.

10. It is respectfully submitted that, the following additional measures are being taken on continuous basis for controlling the smell issues:

Application of Bio-enzyme on the incoming waste to replace the microorganisms in the Municipal Solid Waste responsible for generation of odour causing by-products through -

i. Drones, Tractor mounted spraying machines, Truck mounted Fog cannons are deployed to spray odour neutralizers.

ii. Fixed Misting system is erected around the entire periphery of working areas such as presorting area, composting section, tipping floor and active landfill for spraying of order neutralizers. **(Photographs enclosed as Annexure VII)**

Submission & Prayer

11. It is respectfully submitted that, GHMC is deeply committed to collection, handling, transportation, treatment and subsequent disposal of Municipal Solid Waste strictly in compliance to the Rules and it is humbly submitted that this Hon'ble Tribunal may be pleased to appreciate the strict measures taken by the GHMC duly complying the orders and directions issued to it from time to time

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by various Government Authorities. It is further submitted that, with the proposed diversion of about 2/3rd of MSW from Jawahar Nagar MSW facility to the other sites as per the timelines committed, the GHMC will be able to more effectively control the smell issues etc., and will improve the situation around the MSW facility at Jawahar Nagar.

For the aforementioned facts and circumstances, it is therefore prayed that this Hon'ble Tribunal may be pleased to Close the OA No. 199 of 2021 and pass such other order or orders as this Hon'ble Tribunal deems fit and proper in the circumstances of the case and thereby render Justice.

Sworn and signed on this the
17th day of December, 2022 at Hyderabad

Commissioner,
Greater Hyderabad Municipal Corporation

Before me
Commissioner,
Greater Hydrabad Municipal Corporation
Advocate

NOTARIAL

ADVOCATE & NOTARY
Regd. No: 2760
Appointed by Govt. of India
8-2-181, ERABAD,
HYDERABAD, TELANGANA.

Entered in Notarial Register on
Page No. 60 Serial No. 1057

17 DEC 2022

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VERIFICATION

I, D.S. Lokesh Kumar, S/o. Sri. Soma Raju, aged about 44 years, Occ: Commissioner, Greater Hyderabad Municipal Corporation, R/o Hyderabad, do hereby declare that the contents made in the above paragraphs are true and correct to the best of my knowledge and based on records available with Respondent Corporation and I believe the same to be true and correct. Hence verified on this the 17th day of December, 2022

Respondent-6
Commissioner,
Greater Hyderabad Municipal Corporation

Annexure IV

The average quantity of MSW (Tons per Day) received at the Jawahar Nagar Treatment & Disposal facility in the last (03) financial years.

Month	Financial year		
	21-22	22-23	23-24
April	6407	6493	7707
May	5897	6445	7533
Jun	6018	6732	7436
July	6578	7310	7623
Aug	6040	7032	7397
Sep	6746	7430	7942
Oct	6666	7382	7513
Nov	6557	6586	7290
DEC	6288	7255	7148
JAN	6144	6908	7035
FEB	5824	7370	7497
MAR	6038	7513	7960
Avg	**6267**	**7038**	**7507**

Annexure V

1. Processing of Fresh MSW:

Composting is a Mechanical Biological Treatment (MBT) process that's commonly used to comply with the SWM Rules 2016, of diverting biodegradable municipal solid waste and recyclables from landfill to help protect the environment and reduce the amount of greenhouse gas emitted from dumpsites sites.

The mechanical part which is the physical stage of an MBT process is normally at the front end of the process although it can also play a key role at the back end of the process. The MBT plant can be designed to have further mechanical screening at the end of the process to take out further contaminants and or reduce particle size, especially if the residues are going to be used for a purpose other than landfill. Mechanical separation process include size reduction/shredding of the waste, separation of ferrous and non-ferrous metals, heat/steam treatment and screening and/or size reduction of outputs.

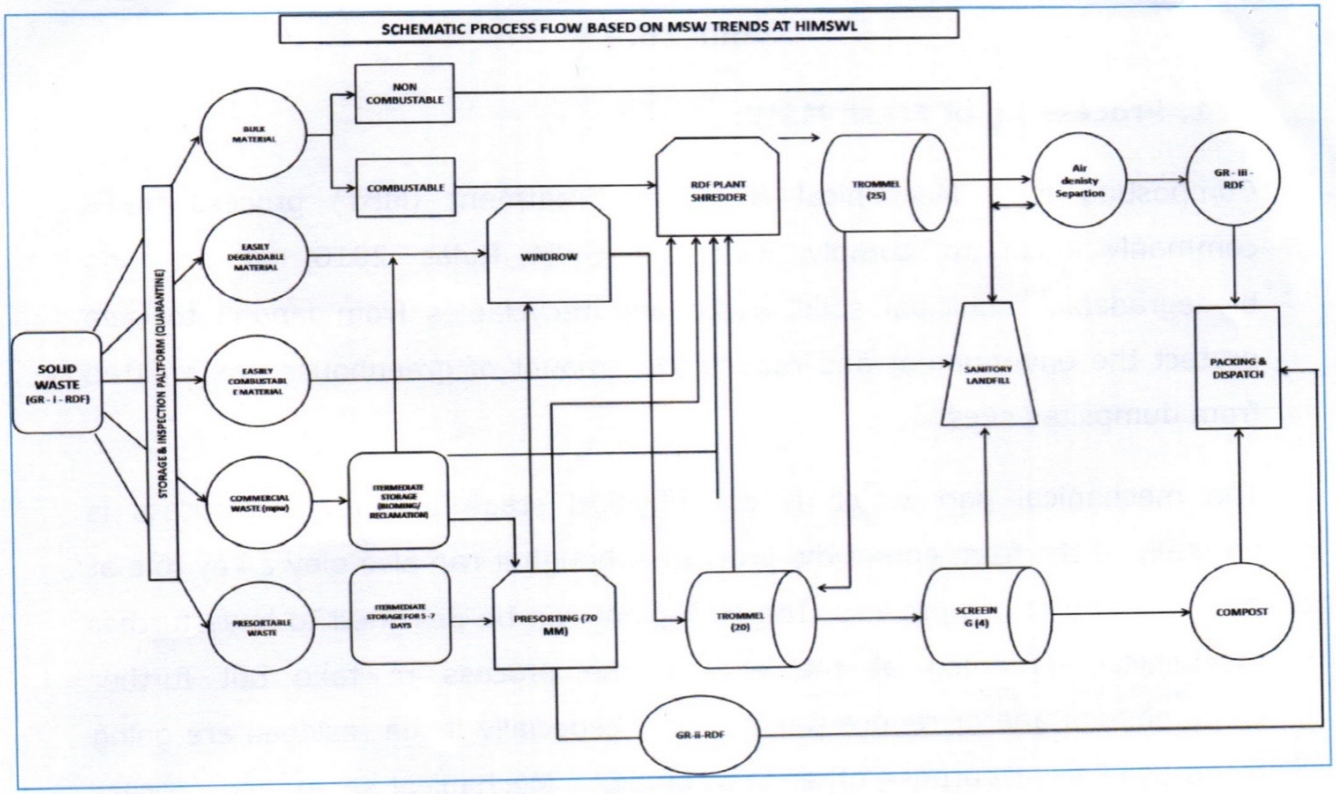
The aim of the mechanical process is that the remaining waste, after the mechanical separation, is the organic-rich fraction or biodegradable fraction which will be ideal for biological treatment.

2. DESIGN OF PROCESSING PLANT

Processing plant includes

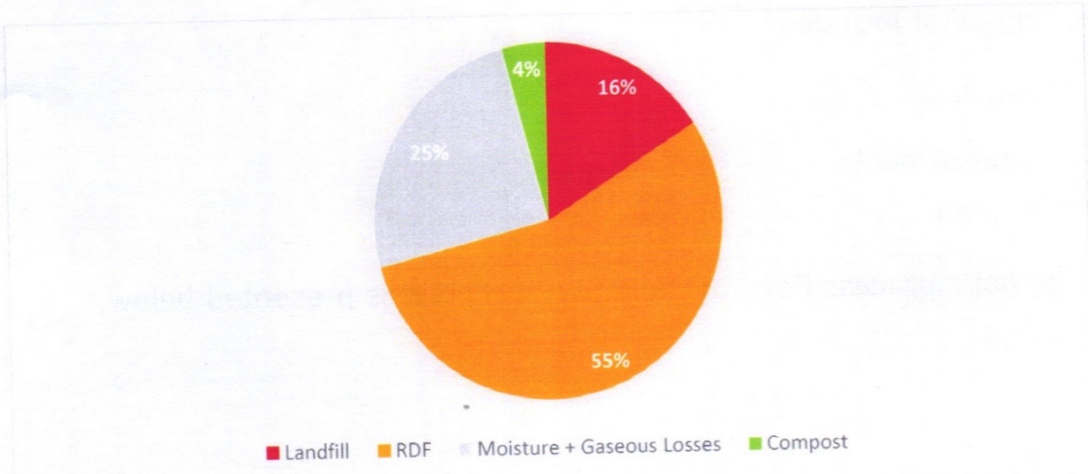
1. Presorting
2. Compost Plant
3. RDF plant

The schematic process flow for the MSW at HiMSW is presented below,



The material balance for the process flow chart is as follows

Components	Qty in Tons	Percentage
Landfill	1280.00	16%
RDF	4400.00	55%
Moisture + Gaseous Losses	2000.00	25%
Compost	320.00	4.0%
	8000.00	100%



3. OPERATIONS:

Presorting: This section is having mechanical screens with 70mm sorting screen which will segregate the material based on size, the oversized material is called as RDF and it will be used in Waste to Energy plants and Cement industry for co-processing purpose.

RDF Sent to WTE for FY 22-23- 5,38,700 MT and about 43,500 MT of RDF is sent to cement industry for co-processing.

There are (04) Pre-sorting Units established at the site:

1. Presorting Unit –I – 4 Trommels (2000 TPD)
2. Presorting Unit – II – 5 Trommels (2000 TPD)
3. Presorting Unit – III – 8 Trommels (4000 TPD)
4. Presorting Unit –IV – 2 Trommels (1000 TPD)

Presorting

Another presorting unit with better screens called Disc screen (2 no's) for better efficiency will be deployed soon.

Compost operations: The under sized (<70mm) material from presorting section will be sent to windrow aerobic composting for degradation purpose, during this time the EM culture will be applied on windrows for rapid

composting and it will take 25 days for complete composting. This compost operation consists of below units

The Composting Plant consisting of the following:

1. Windrow Composting (Aerobic composting)
2. Pre-Composting
3. Curing /Finishing
4. Blending and Packing Section

Windrows

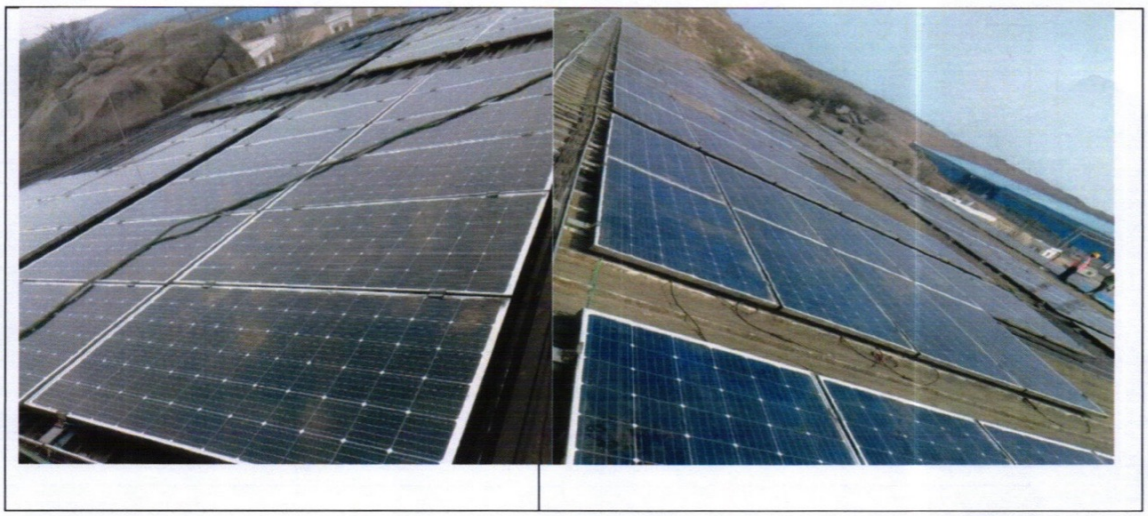
Finishing- compost packing

Leachate Treatment:

A network of drain along the compost plant is connected to leachate collection system. Apart from that, all other sources form landfill and RDF storage units is connected to leachate collection tanks, from the sources all piping network is connected to the leachate treatment plant of 750 KLD where it is treated using Pre-treatment Reverse Osmosis followed by MEE&ATFD

Renewable Energy:

We have commissioned 1st Phase of Solar roof top plant with capacity of 1000 KW in the month of November 2021 and we are using this for captive consumption the FY 22-23 we are replacing almost 24% of our overall power consumption with RE.



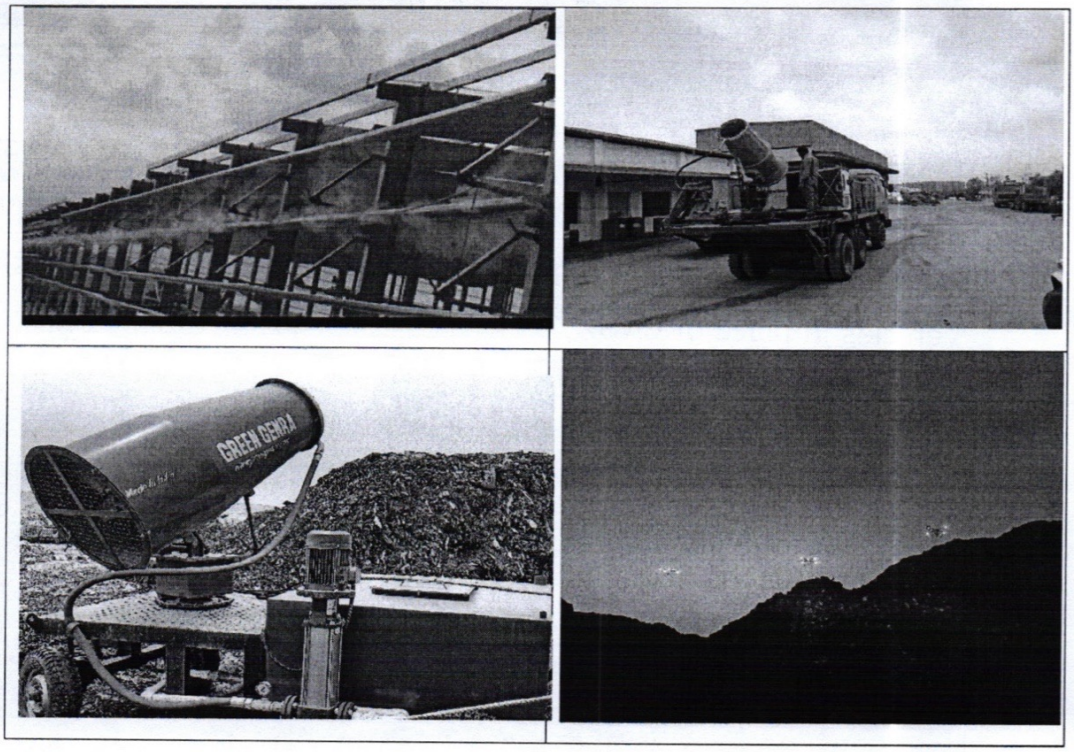
Pollution control measures:

- **Dust suppression** – The internal vehicle movement during waste transportation and process there is high chances of dust generation on roads and process area. For this we are using fine misting system to suppress the dust by using with tractor mounted misting system. We are using recycled water for this dust suppression process.

Quantity of sprinkled water (kl/day)	No. of trips per day	Source of water
50	10 trips	Treated waste water

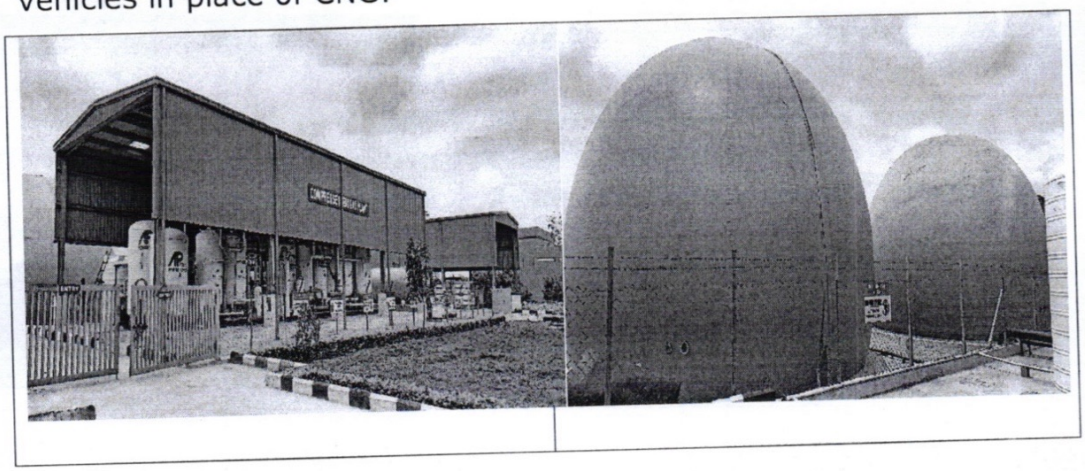
- **Green Belt** – The facility is covered with thick green belt all along the boundary of the facility.

- **Odour control system –** During MSW processing, as per procedure we have to turn the material for composting purpose during which odor emanates for which a suppression system and using odour control Bio-enzymes on waste surface to replace the bad odor causing bacteria is being used. Infrastructure to control the odor is created along the processing facility as a fixed misting system of about 2300 running meter, which will atomize the odor neutralizer in atmosphere. Apart from this Fog Cannons and Drones are also being used for application of odor control Bio-enzyme in active waste handling process area.



- **Flaring system for LFG** – The facility installed 4 flares for this activity, (03) for capped dump with the capacity of 600 Nm3/hr and another one for scientific landfill with 10Nm3/hr capacity. These flares can capture the gas from the gas vents with the help of blower and flare the gas before to prevent methane gas (greenhouse gas) from escaping to atmosphere.

- **Landfill Gas Purification:** In Continuation to flaring, MPSA system is adopted for purification of landfill gas and is converted to Bio-CNG or alternatively called as compressed biogas. It can be utilized as fuel for vehicles in place of CNG.



- **Vehicle up-gradation** – We have introduced the new fleet in MSW collection system with closed compactors to transport the waste from collection points to the processing facility, with this we are ensuring zero spillage of waste and odor nuisance during our transportation and the waste carrying capacity of each vehicle is almost doubled when compared with Open trucks.

- **Minimization of working Area** – The facility is following the SWM rules and controlling the MSW process open areas and maintains temporary covers to minimize the dust generation.

- **Water pollution control measures**: We are ensuring rain water and process generated leachate do not mix together. We have separate drain network for both and the leachate is treated at the zero liquid discharge leachate treatment plant.

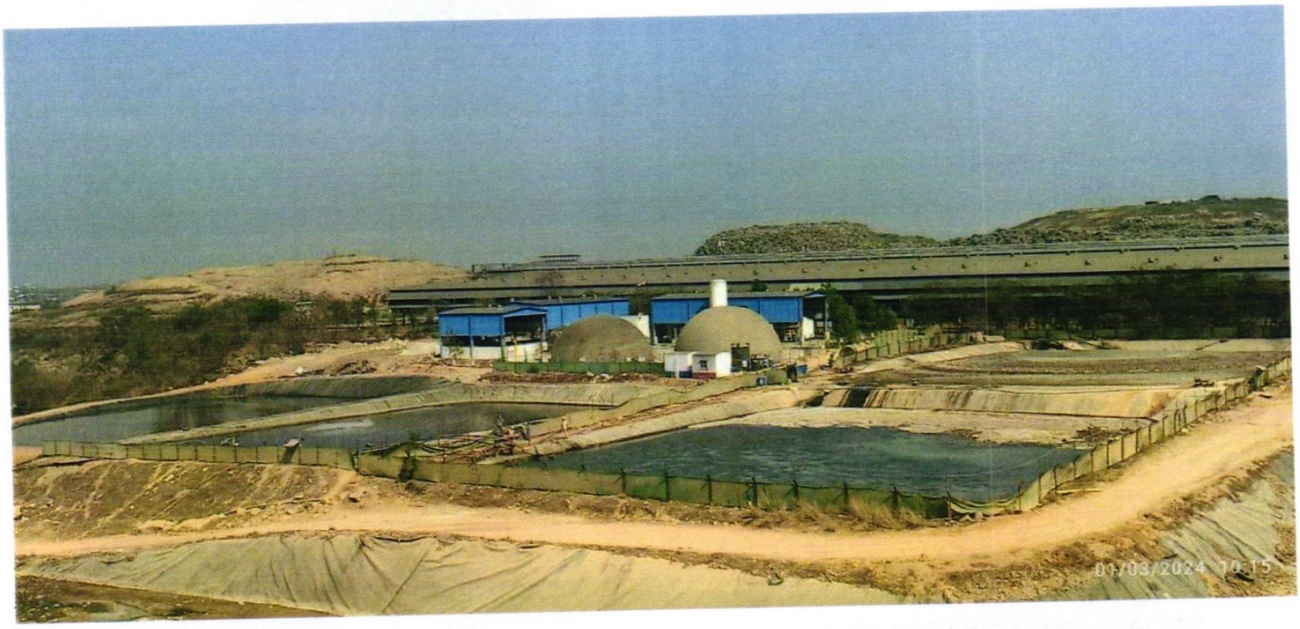
- **Noise pollution control measures**: We are doing regular maintenance of machines, vehicles and other equipment at the facility. Green belt is provided around core activity area, along the roadside and in the facility.

Annexure VI

Separate drains (above photos) for collection of leachate generated from fresh waste processing areas such as Pre-sorting, compost plant, RDF storage etc

Leachate drains are connected to pumping ponds (above photograph) for pumping into larger capacity ponds before treatment

Above are separate sumps for collection of legacy leachate generated from capped dump. The leachate collected in these sumps is either pumped or transported through tanker to the below integrated collection sump for storage before treatment.



Integrated leachate storage ponds for collection of total quantity of legacy and fresh leachate

Waste Water Complex- Leachate treatment

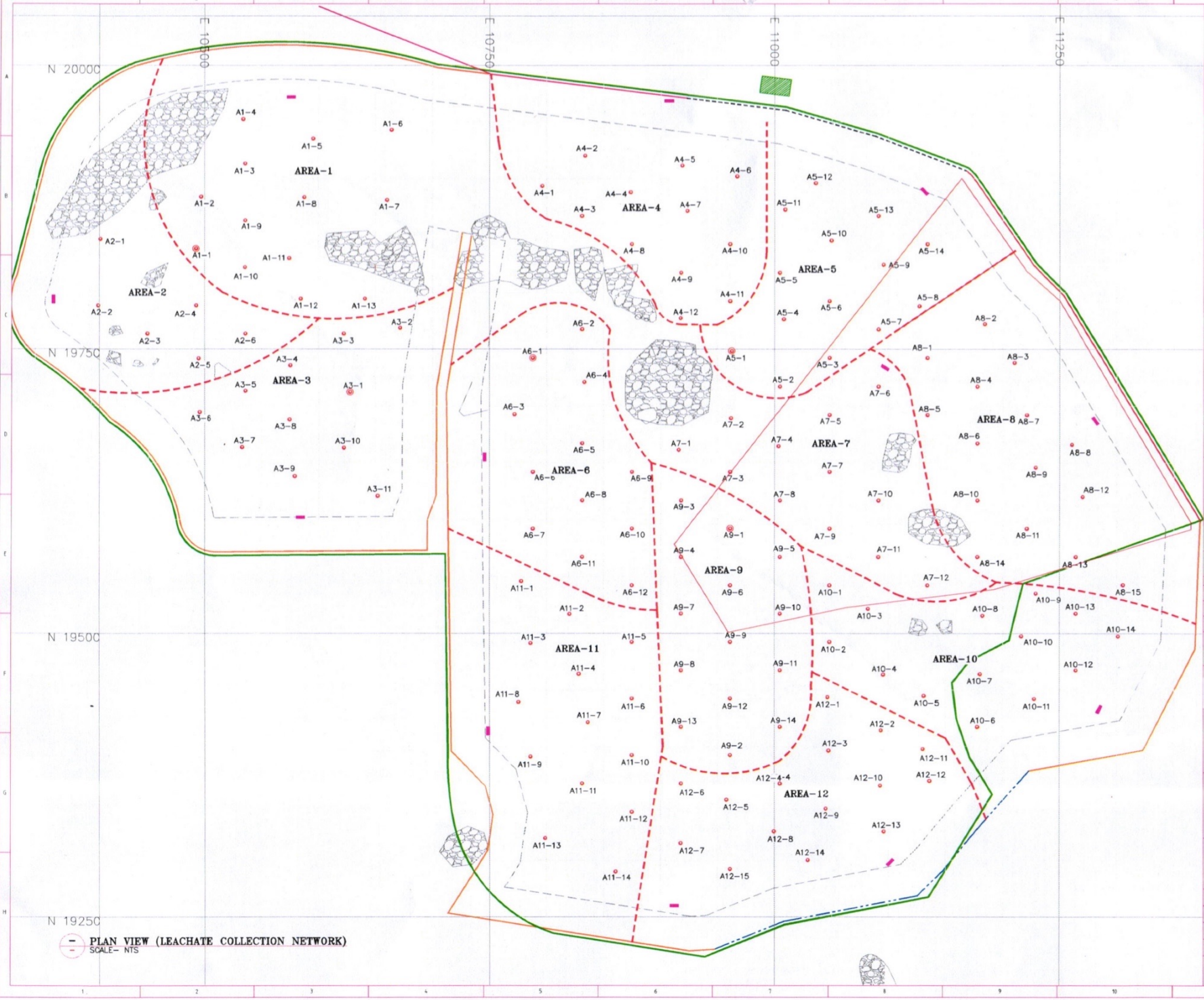
Pretreatment of Leachate (above)

RO Stage (above)

MEE – ATFD & Salts collection (above)

Permeate used for maintaining greenery

Mixing of MEE – ATFD salts (reject) with RDF for disposal in WTE instead of landfill



PLAN VIEW (LEACHATE COLLECTION NETWORK)
SCALE– NTS

LEGEND :

- MANIFOLD
- ø500 mm GAS WELL
- LEACHATE LINE

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1. ALL DIMENSIONS IN MILLIMETERS, LEVELS & COORDINATES IN METERS UNLESS OTHERWISE STATED.
2. THE COORDINATES INDICATED IN THE DRAWING IS TO BE VERIFIED PROPERLY BEFORE EXECUTION.
3. DO NOT SCALE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
4. ANY DISCREPANCIES NOTED SHALL BE BROUGHT TO THE NOTICE OF THE ARCHITECT PRIOR TO EXECUTION.
5. ROAD WIDTH SHOWN ARE INCLUSIVE OF BERMS & STORM WATER DRAINS SHALL BE EXECUTED AS PER SITE GRADING.
6. THESE DRAWINGS ARE ONLY FOR APPROVAL, DEVELOPED FOR PRELIMINARY STAGE DESIGN.

The responsibility of control, check and verification of accuracy, correctness, completeness, integration and full compliance of contract provisions in respect of design analysis and drawings rests with the design consultants and the contractor.

REV:	DESCRIPTION	BY:	DATE

CLIENT:
GREATER HYDERABAD MUNICIPAL CORPORATION (GHMC), HYDERABAD, TELANGANA

INDEPENDENT ENGINEER (IE):
ENVIRONMENT PROTECTION TRAINING AND RESEARCH INSTITUTE (EPTRI), HYDERABAD, TELANGANA.

CONCESSIONAIRE:
RAMKY ENVIRO ENGINEERS LIMITED
Floor 13, Ramky Grandiose,
Ramky Towers Complex, GACHIBOWLI,
HYDERABAD– 500032. TELANGANA.
Tel : +91 040 2301 5000.

PROJECT TITLE:
HYDERABAD INTEGRATED MUNICIPAL SOLID WASTE PROJECT, JAWAHAR NAGAR, HYDERABAD

DRAWING TITLE:
LEACHATE COLLECTION NETWORK

DRAWING NO.	REEL/HIMSW/GHMC/JWR/GA/033 J	REV:	00
SHEET	A1;1 OF 1	APPROVED BY	SRINIVAS G.
SCALE	AS SHOWN	CHECKED BY	SARADHI S.
DATE	15.09.2018	DRAWN BY	MADHAV R.

ANNEXURE - VII

Annexure VIII
Photographs of the 14.5 MW capacity Waste to Energy Plant at Dundigal

WTE plant

Turbine- Generator

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL SOUTHERN ZONE, CHENNAI

O.A. NO. 199 of 2021 (SZ)

Between:
Sri. Shankar Narayanan Bala Krishnan,
Telangana and Ors .

..Applicants

Versus

State of Telangana and Ors

...Respondents

Report filed by the 6th Respondent

M/s. D.Sreenivasan E.No. 158/1994
V.Jaiharisudhan, E. No. 3245/2016

Counsel for 6th Respondent

Ph - 9841099880